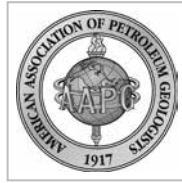


# Associated Societies

GSA has a long tradition of collaborating with a wide range of partners in pursuit of our mutual goals to advance the geosciences, enhance the professional growth of society members, and promote the geosciences in the service of humanity. GSA works with other organizations on many programs and services. As the Society looks to



AASP - The Palynological Society



American Association of Petroleum Geologists (AAPG)



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American Quaternary Association (AMQUA)



American Rock Mechanics Association (ARMA)



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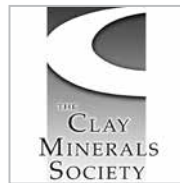
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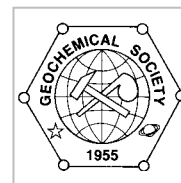
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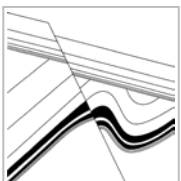
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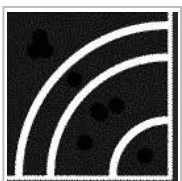
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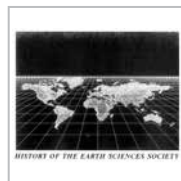
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International Association for Geoscience Diversity (IAGD)

the future, it aims to build strong, meaningful partnerships with societies and organizations across the country and around the world in service to members and the larger geoscience community. National and international societies with consistent aims and missions of advancing the geosciences and/or science in general are invited to affiliate with GSA as Associated Societies. For further information, or if your organization's contact person has changed, please contact GSA's Executive Director, [vmcconnell@geosociety.org](mailto:vmcconnell@geosociety.org).



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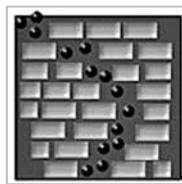
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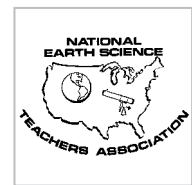
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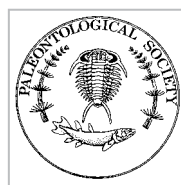
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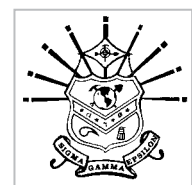
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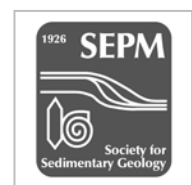
Society for American Archaeology (SAA)



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SEPM (Society for Sedimentary Geology)



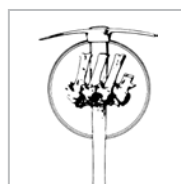
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# Sessions by Category

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NO.	SESSION TITLE	DAY	TIME	ROOM
<b>Archaeological Geology</b>				
82	T9. Developing Proxies for Human Impact on Soil and Sediment Mass Transfer throughout the Holocene	Monday	8 a.m.–noon	Room 318
150	T10. Frontiers in Geoarchaeology	Monday	1:30–5:30 p.m.	Room 318
204	T9. Developing Proxies for Human Impact on Soil and Sediment Mass Transfer throughout the Holocene (Posters)	Tuesday	9 a.m.–6:30 p.m.	Exhibit Hall
205	T10. Frontiers in Geoarchaeology (Posters)	Tuesday	9 a.m.–6:30 p.m.	Exhibit Hall
233	Archaeological Geology	Tuesday	1:30–5:15 p.m.	Room 318
<b>Economic Geology</b>				
83	T18. Metals in Ore Fluids: Sources, Concentrations, Modes of Transport, and Precipitation	Monday	8–11:40 a.m.	Room 322/323
152	T15. Dimension Stone and Heritage Stone: Quarries, Building Stones, Monuments, Sculpture, Utilitarian Stones, and More	Monday	1:30–5:30 p.m.	Room 339
206	Economic Geology (Posters)	Tuesday	9 a.m.–6:30 p.m.	Exhibit Hall
269	T17. Metallic Mineral Deposits in the Midcontinent Region of North America: Origin and Exploration	Wednesday	8 a.m.–noon	Room 343
322	Economic Geology	Wednesday	1:30–5:30 p.m.	Room 331/332
<b>Energy Geology</b>				
25	T13. Geologic Energy Research (Posters)	Sunday	9 a.m.–5:30 p.m.	Exhibit Hall
151	T13. Geologic Energy Research I	Monday	1:30–5:25 p.m.	Room 321
178	T13. Geologic Energy Research II	Tuesday	8 a.m.–noon	Room 321
236	T12. From Peat to Coke: Honoring the Legacy of William Spackman	Tuesday	1:30–5:30 p.m.	Room 321
<b>Engineering Geology</b>				
26	Engineering Geology (Posters)	Sunday	9 a.m.–5:30 p.m.	Exhibit Hall
27	T20. Embedded Research Projects in Upper Level Undergraduate Courses: A Plausible Panacea for the Dwindling Science and Engineering (S&E) Researchers Community (Posters)	Sunday	9 a.m.–5:30 p.m.	Exhibit Hall
207	T21. Environmental and Engineering Geology Student Research Competition (Posters)	Tuesday	9 a.m.–6:30 p.m.	Exhibit Hall
237	T23. Landslide, Subsidence, and Debris Flow-Hazards: Integrating Engineering Geology Research and Communication Solutions	Tuesday	1:30–5:25 p.m.	Room 339
<b>Environmental Geoscience</b>				
8	T32. Urban Geochemistry	Sunday	8 a.m.–noon	Room 308
54	T29. Restoring the Nation's Largest Estuary: Lessons Learned from Efforts to Address Changes in Water Quality and Ecosystem Structure and Function within the Context of Landscape Change and Climate Variability in the Chesapeake Bay and Its Watershed	Sunday	1:30–5:25 p.m.	Room 308

NO.	SESSION TITLE	DAY	TIME	ROOM
106	T32. Urban Geochemistry (Posters)	Monday	9 a.m.–6:30 p.m.	Exhibit Hall
208	T25. An Early Involvement of Undergraduates and K–12 Students in Geological Research Brings a Strong Sense of Ownership and Achievement for Young Researchers (Posters)	Tuesday	9 a.m.–6:30 p.m.	Exhibit Hall
209	T27. Intersections of Sustainability and Geosciences (Posters)	Tuesday	9 a.m.–6:30 p.m.	Exhibit Hall
261	Environmental Geoscience	Wednesday	8–11:45 a.m.	Room 339
288	Environmental Geoscience (Posters)	Wednesday	9 a.m.–6:30 p.m.	Exhibit Hall
289	T31. Unmanned Aerial Vehicles and Their Use in Geologic Reconnaissance (Posters)	Wednesday	9 a.m.–6:30 p.m.	Exhibit Hall
330	T27. Intersections of Sustainability and Geosciences	Wednesday	1:30–5:25 p.m.	Room 339
<b>Geochemistry</b>				
28	Geochemistry (Posters)	Sunday	9 a.m.–5:30 p.m.	Exhibit Hall
107	T39. Sources, Transport, Fate, and Toxicology of Trace Elements and Organics in the Environment (Posters)	Monday	9 a.m.–6:30 p.m.	Exhibit Hall
153	T39. Sources, Transport, Fate, and Toxicology of Trace Elements and Organics in the Environment	Monday	1:30–5:30 p.m.	Room 322/323
179	T35. Honoring the Diverse Career of Dr. W. Berry Lyons: Geochemistry from Polar Deserts to Tropical Watersheds	Tuesday	8 a.m.–noon	Room 342
210	T38. Sigma Gamma Epsilon—Undergraduate Research (Posters)	Tuesday	9 a.m.–6:30 p.m.	Exhibit Hall
238	T36. Mercury Biogeochemistry: Sizing up Element 80 in the Earth System	Tuesday	1:30–5:30 p.m.	Room 322/323
323	Geochemistry: Frontiers in Geochemistry	Wednesday	1:30–5:20 p.m.	Room 317
<b>Geoinformatics</b>				
29	Geoinformatics (Posters)	Sunday	9 a.m.–5:30 p.m.	Exhibit Hall
30	T44. Our Data Belong in Our Hands: 3-D Printing—The Future of Geoscience Research and Education (Posters)	Sunday	9 a.m.–5:30 p.m.	Exhibit Hall
239	T46. Using Digitized Data in Geological and Paleontological Research I	Tuesday	1:30–5:15 p.m.	Room 314
270	T46. Using Digitized Data in Geological and Paleontological Research II	Wednesday	8–11:45 a.m.	Room 314
290	T46. Using Digitized Data in Geological and Paleontological Research (Posters)	Wednesday	9 a.m.–6:30 p.m.	Exhibit Hall
324	Geoinformatics	Wednesday	1:30–4:45 p.m.	Room 349/350
<b>Geology and Health</b>				
31	Geology and Health (Posters)	Sunday	9 a.m.–5:30 p.m.	Exhibit Hall
84	T47. Geology and Health: A Decade of Progress	Monday	8–11:20 a.m.	Room 325/326
<b>Geomicrobiology</b>				
55	T48. Geomicrobiology: Microbes as a Geologic Force on Modern and Ancient Earth	Sunday	1:30–5:30 p.m.	Room 338
108	T48. Geomicrobiology: Microbes as a Geologic Force on Modern and Ancient Earth (Posters)	Monday	9 a.m.–6:30 p.m.	Exhibit Hall
109	T51. Molecular Methodology and the Heart of Geobiology (Posters)	Monday	9 a.m.–6:30 p.m.	Exhibit Hall
180	T49. Mechanistic Insights into the Biogeochemical Processes Controlling Phosphorus Transport and Cycling	Tuesday	8 a.m.–noon	Room 343

# Sessions by Category

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NO.	SESSION TITLE	DAY	TIME	ROOM
271	T50. Microbial Hydrocarbon Formation and Biodegradation: Organisms, Pathways, Environmental Limitations, and Isotope Signatures	Wednesday	8–11:40 a.m.	Room 349/350
<b>Geomorphology</b>				
9	T52. From the River Channel to the Drainage Divide: Processes, Driving Mechanisms, and the Direction of Topographic Change in the Appalachians	Sunday	8–11:20 a.m.	Room 307
56	T58. Undergraduate Research Talks: The Next Step in Student Research Projects	Sunday	1:30–5:30 p.m.	Room 318
85	T55. Investigating Coastal Environments: A Tribute to Derald G. Smith	Monday	8–11:45 a.m.	Room 336
86	T56. Landslide Inventories and Time Series: Data Collection, Statistics, Geospatial Analysis, and Relationships to Other Geohazards	Monday	8 a.m.–noon	Room 307
110	T53. Geoheritage Matters (Posters)	Monday	9 a.m.–6:30 p.m.	Exhibit Hall
211	T54. Geomorphology and Hydrology of Wildland Fires (Posters)	Tuesday	9 a.m.–6:30 p.m.	Exhibit Hall
212	T55. Investigating Coastal Environments: A Tribute to Derald G. Smith (Posters)	Tuesday	9 a.m.–6:30 p.m.	Exhibit Hall
213	T56. Landslide Inventories and Time Series: Data Collection, Statistics, Geospatial Analysis, and Relationships to Other Geohazards (Posters)	Tuesday	9 a.m.–6:30 p.m.	Exhibit Hall
214	T57. Soil to Sediment and channels—From Geologic to Modern Time Scales: A Session to Honor the Work of Milan Pavich (Posters)	Tuesday	9 a.m.–6:30 p.m.	Exhibit Hall
240	T57. Soil to Sediment—From Geologic to Modern Time Scales: A Session to Honor the Work of Milan Pavich	Tuesday	1:30–5:30 p.m.	Room 331/332
268	P5. Appalachian Geomorphology I	Wednesday	8 a.m.–noon	Room 327/328/329
291	Geomorphology and Quaternary Geology (Posters)	Wednesday	9 a.m.–6:30 p.m.	Exhibit Hall
325	Geomorphology: Channels and Channel Change at Short to Long Time Scales	Wednesday	1:30–5:20 p.m.	Room 342
329	P5. Appalachian Geomorphology II	Wednesday	1:30–5:15 p.m.	Room 327/328/329
331	T54. Geomorphology and Hydrology of Wildland Fires	Wednesday	1:30–4:50 p.m.	Room 307
<b>Geophysics/Geodynamics</b>				
10	T60. An Updated View on Caribbean Tectonics	Sunday	8 a.m.–noon	Room 319/320
57	T65. Utilizing 2-D and 3-D Near-Surface Geophysics to Generate Improved Surface and Subsurface Geologic Maps	Sunday	1:30–5 p.m.	Room 322/323
154	T61. Geophysical Solutions to Geological Problems: Current Research Results and the Annual George P. Woollard Award Presentation	Monday	1:30–5:30 p.m.	Room 340
155	T64. Rotations, Oroclinal Bending; Variscan-Alleghenian Nondipoles; Diagenetic Enigmatic Remagnetizations; Vignettes of Orogenies and Oceans: A Celebration of Rob Van der Voo's Career	Monday	1:30–5 p.m.	Room 338

NO.	SESSION TITLE	DAY	TIME	ROOM
181	T59. Advances in Crustal Geophysics and Tectonics I: In Honor of G.R. Keller	Tuesday	8–11:35 a.m.	Room 347/348
182	T63. Intraplate Earthquakes, Seismotectonics, and Geodynamics in Eastern and Central North America	Tuesday	8 a.m.–noon	Room 322/323
241	T59. Advances in Crustal Geophysics and Tectonics II: In Honor of G.R. Keller	Tuesday	1:30–5:10 p.m.	Room 347/348
292	T61. Geophysical Solutions to Geological Problems: Current Research Results and the Annual George P. Woollard Award Presentation (Posters)	Wednesday	9 a.m.–6:30 p.m.	Exhibit Hall
293	T63. Intraplate Earthquakes, Seismotectonics, and Geodynamics in Eastern and Central North America (Posters)	Wednesday	9 a.m.–6:30 p.m.	Exhibit Hall
326	Geophysics/Geodynamics	Wednesday	1:30–4:45 p.m.	Room 322/323
<b>Geoscience Education</b>				
11	T69. Closing the Diversity Gap in Geoscience: Successful Models, Best Practices, Benefits, Outcomes, and Next Steps	Sunday	8 a.m.–noon	Room 337
12	T70. Digital Technology in Real and Virtual Geoscience Experiences I	Sunday	8–11:20 a.m.	Room 339
13	T85. Preparing Pathways in K–12 Classrooms for Tomorrow’s Diverse Geoscience Workforce: Teachers, Students, and Communities	Sunday	8 a.m.–noon	Room 322/323
32	Geoscience Education (Posters)	Sunday	9 a.m.–5:30 p.m.	Exhibit Hall
33	T66. Beginning a New Era in Earth-Science Education: The Role of Geoscience in Implementing the Next Generation Science Standards (Posters)	Sunday	9 a.m.–5:30 p.m.	Exhibit Hall
34	T69. Closing the Diversity Gap in Geoscience: Successful Models, Best Practices, Benefits, Outcomes, and Next Steps (Posters)	Sunday	9 a.m.–5:30 p.m.	Exhibit Hall
35	T70. Digital Technology in Real and Virtual Geoscience Experiences (Posters)	Sunday	9 a.m.–5:30 p.m.	Exhibit Hall
36	T75. Field-Based Educational Research: Insights from Field Camps, Field Trips, and Field-Based Courses (Posters)	Sunday	9 a.m.–5:30 p.m.	Exhibit Hall
37	T77. Geology and Hydrology in the National Parks: Research, Mapping, and Resource Management (Posters)	Sunday	9 a.m.–5:30 p.m.	Exhibit Hall
58	T66. Beginning a New Era in Earth Science Education: The Role of Geoscience in Implementing the Next Generation Science Standards	Sunday	1:30–5:30 p.m.	Room 321
59	T70. Digital Technology in Real and Virtual Geoscience Experiences II	Sunday	1:30–4:50 p.m.	Room 339
60	T71. Enticing Urban Youth to the Geosciences	Sunday	1:30–4:50 p.m.	Room 324
61	T72. Ethics of Geoscience in Practice and Application	Sunday	1:30–5:30 p.m.	Room 337
87	T74. Extended Geology Trips with Special Emphasis on Study Abroad	Monday	8 a.m.–noon	Room 337
88	T83. Methods for Conducting Research about Teaching and Learning in the Geosciences	Monday	8 a.m.–noon	Room 339
89	T84. Practical Faculty-Related Issues & Trans-Disciplinary Pedagogical Strategies Associated with Classroom Transformation	Monday	8–11:45 a.m.	Room 321
90	T91. Using Place-Based and/or Data Driven Approaches in Geoscience Undergraduate Teaching and Research	Monday	8–11:45 a.m.	Room 338
111	T76. GeoCorps™ America and Mosaics in Science Programs: Successful Partnerships Promoting Individual Professional Development and Application of Geoscience and Related Fields to Management of America’s Public Lands (Posters)	Monday	9 a.m.–6:30 p.m.	Exhibit Hall



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NO.	SESSION TITLE	DAY	TIME	ROOM
156	T75. Field-Based Educational Research: Insights from Field Camps, Field Trips, and Field-Based Courses	Monday	1:30–5:30 p.m.	Room 337
183	T68. Climate Literacy: Formal and Informal Education and Outreach Activities and Research and Evaluation Measures of Success	Tuesday	8–11:45 a.m.	Room 324
184	T76. GeoCorps™ America and Mosaics in Science Programs: Successful Partnerships Promoting Individual Professional Development and Application of Geoscience and Related Fields to Management of America's Public Lands	Tuesday	8–11:35 a.m.	Room 338
185	T77. Geology and Hydrology in the National Parks: Research, Mapping, and Resource Management I	Tuesday	8–11:50 a.m.	Room 309
186	T81. Intentional Integration of Research into the Curriculum: Undergraduate Research as a Teaching Practice	Tuesday	8–11:40 a.m.	Room 339
187	T87. Supporting Geoscience Student Transfer: Collaborations, Partnerships, and Practices for Success	Tuesday	8 a.m.–noon	Room 337
215	T81. Intentional Integration of Research into the Curriculum: Undergraduate Research as a Teaching Practice (Posters)	Tuesday	9 a.m.–6:30 p.m.	Exhibit Hall
216	T86. Research on Teaching and Student Learning in the K–12 Earth Science Classroom (Posters)	Tuesday	9 a.m.–6:30 p.m.	Exhibit Hall
242	T86. Research on Teaching and Student Learning in the K–12 Earth Science Classroom	Tuesday	1:30–5:30 p.m.	Room 324
243	T90. Undergraduate Geoscience Education and Research Opportunities Supported by NSF Funding Programs	Tuesday	1:30–5:10 p.m.	Room 336
259	T77. Geology and Hydrology in the National Parks: Research, Mapping, and Resource Management II	Tuesday	3:30–5:20 p.m.	Room 309
262	Geoscience Education	Wednesday	8–11:30 a.m.	Room 338
272	T79. Geoscience Career Planning in the Classroom and Beyond	Wednesday	8 a.m.–noon	Room 324
273	T89. Trans-Disciplinary Pedagogical Strategies—Enhancing STEM Instruction through Real-Time Problem Solving Facilitated by Interdisciplinary, Project-Based Learning	Wednesday	8–11:15 a.m.	Room 321
294	T91. Using Place-Based and/or Data Driven Approaches in Geoscience Undergraduate Teaching and Research (Posters)	Wednesday	9 a.m.–6:30 p.m.	Exhibit Hall
<b>Geoscience Information/Communication</b>				
38	T96. Geologic Maps and Their Derivatives (Posters)	Sunday	9 a.m.–5:30 p.m.	Exhibit Hall
157	T94. Entering Our Third Century in the Footsteps of William Smith: Status and Future of Geological Mapping	Monday	1:30–5:30 p.m.	Room 336
188	T97. Specimen-Based Research and the Reality of Paleontological Resource, Specimen, and Data Management: Strengthening Partnerships among Federal Land Managers, Repositories, and Researchers	Tuesday	8 a.m.–noon	Room 318
244	T95. Evolution of the Data Life Cycle	Tuesday	1:30–4:45 p.m.	Room 338

NO.	SESSION TITLE	DAY	TIME	ROOM
295	Geoscience Information/Communication: Past Events Can Guide Communication and Public Policy (Posters)	Wednesday	9 a.m.–6:30 p.m.	Exhibit Hall
332	T92. Clear As Mud? Advancing Communication in the Geosciences	Wednesday	1:30–4:50 p.m.	Room 343
<b>History and Philosophy of Geology</b>				
1	P1. Celebrating the Genius of William “Strata” Smith: Bicentennial Anniversary of Smith’s Revolutionary Map I	Sunday	8–11 a.m.	Room 327/328/329
77	P1. Celebrating the Genius of William “Strata” Smith: Bicentennial Anniversary of Smith’s Revolutionary Map II	Sunday	2–3:35 p.m.	Room 327/328/329
79	P1. Celebrating the Genius of William “Strata” Smith: Bicentennial Anniversary of Smith’s Revolutionary Map III	Monday	8–11:55 a.m.	Room 327/328/329
158	T98. The Great Images in Geology I	Monday	1:30–4:45 p.m.	Room 325/326
189	T98. The Great Images in Geology II	Tuesday	8–11:45 a.m.	Room 325/326
<b>Hydrogeology</b>				
4	Recent Advances in Hydrogeology I	Sunday	8 a.m.–noon	Room 331/332
14	T108. Nanomaterials and Contaminants in Hydrogeology	Sunday	8–11:25 a.m.	Room 345/346
51	Recent Advances in Hydrogeology II	Sunday	1:30–5 p.m.	Room 331/332
62	T103. Contaminant Transport, Fate, and Remediation in Fractured Rocks	Sunday	1:30–5:30 p.m.	Room 345/346
63	T113. Effects of Urbanization on Hydrological and Geochemical Cycling in Surface and Ground Waters	Sunday	1:30–5:30 p.m.	Room 336
91	T105. Fate and Remediation of Organic and Metal Contaminants in Wetlands and Sediments	Monday	8 a.m.–noon	Room 343
112	T99. A Showcase of Undergraduate Research in Hydrogeology (Posters)	Monday	9 a.m.–6:30 p.m.	Exhibit Hall
113	T100. Advances in Groundwater Modeling (Posters)	Monday	9 a.m.–6:30 p.m.	Exhibit Hall
114	T103. Contaminant Transport, Fate, and Remediation in Fractured Rocks (Posters)	Monday	9 a.m.–6:30 p.m.	Exhibit Hall
115	T104. Delivery of Nutrients and Contaminants by Groundwater to Estuaries and Their Watersheds (Posters)	Monday	9 a.m.–6:30 p.m.	Exhibit Hall
116	T105. Fate and Remediation of Organic and Metal Contaminants in Wetlands and Sediments (Posters)	Monday	9 a.m.–6:30 p.m.	Exhibit Hall
117	T109. Reservoir Connectivity and Fluid Migration during Unconventional Oil and Gas Development: Implications for Hydraulic Fracturing, CO <sub>2</sub> Storage, Enhanced Oil Recovery, and Waste Water Injection (Posters)	Monday	9 a.m.–6:30 p.m.	Exhibit Hall
118	T112. Understanding Saline Fluid Flow Systems: From Saltwater Intrusion to Geologic-Scale Brine Migration (Posters)	Monday	9 a.m.–6:30 p.m.	Exhibit Hall
119	T113. Effects of Urbanization on Hydrological and Geochemical Cycling in Surface and Ground Waters (Posters)	Monday	9 a.m.–6:30 p.m.	Exhibit Hall
159	T104. Delivery of Nutrients and Contaminants by Groundwater to Estuaries and Their Watersheds	Monday	1:30–5:30 p.m.	Room 307
160	T106. From Green Roofs and Gutters to Urban Streams: Advancing Urban Watershed Hydrology through Innovative Field and Modeling Approaches	Monday	1:30–5:30 p.m.	Room 342
175	GSA Hydrogeology Division: Henry Darcy Distinguished Lecture	Monday	5–6 p.m.	Ballroom IV
190	T110. Satellite Remote Sensing Applications in Hydrology and Geology	Tuesday	8–11:35 a.m.	Room 341

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191	T112. Understanding Saline Fluid Flow Systems: From Saltwater Intrusion to Geologic-Scale Brine Migration	Tuesday	8–11:45 a.m.	Room 345/346
260	GSA Hydrogeology Division: Birdsall-Dreiss Distinguished Lecture	Tuesday	4:30–5:30 p.m.	Ballroom IV
274	T101. Arsenic: Source to Sustainability I	Wednesday	8–11:55 a.m.	Room 337
275	T109. Water and Fluid Migration during Energy Development: Implications for Hydraulic Fracturing, CO <sub>2</sub> Storage, Enhanced Oil Recovery, In Situ Uranium Recovery, and Waste Water Injection	Wednesday	8–11:50 a.m.	Room 309
276	T111. Sustainability and Resilience in Major Urban Areas: The Need for Earth and Environmental Science Information in Formulating Plans, Policies, and Programs	Wednesday	8 a.m.–noon	Room 342
296	Recent Advances in Hydrogeology (Posters)	Wednesday	9 a.m.–6:30 p.m.	Exhibit Hall
333	T100. Advances in Groundwater Modeling	Wednesday	1:30–5:10 p.m.	Room 341
334	T101. Arsenic: Source to Sustainability II	Wednesday	1:30–5:30 p.m.	Room 337
<b>Karst</b>				
15	T121. New Perspectives in Karst Geomicrobiology and Redox Geochemistry: Advances from 20 Years of Interdisciplinary Research and Exploring Our Future Frontiers	Sunday	8 a.m.–noon	Room 340
92	T120. Karst Processes and Speleogenesis: Advances in Monitoring, Modeling, and Measurements	Monday	8 a.m.–noon	Room 340
161	T115. Cave Exploration, Survey, and Science: Historical to Modern Perspectives, Methods, and Techniques	Monday	1:30–5:15 p.m.	Room 345/346
217	T114. Advances in Island and Coastal Karst Investigations (Posters)	Tuesday	9 a.m.–6:30 p.m.	Exhibit Hall
218	T120. Karst Processes and Speleogenesis: Advances in Monitoring, Modeling, and Measurements (Posters)	Tuesday	9 a.m.–6:30 p.m.	Exhibit Hall
245	T117. Enhancing the Toolkit for Karst Investigations	Tuesday	1:30–5 p.m.	Room 340
263	Karst: Visualizing Karst through Multiple Disciplines: Geochemistry, Geophysics, Remote Sensing, and More	Wednesday	8 a.m.–noon	Room 341
335	T119. Geological Interactions within the Global Carbon Cycle	Wednesday	1:30–5:30 p.m.	Room 345/346
<b>Limnogeology</b>				
297	Limnogeology (Posters)	Wednesday	9 a.m.–6:30 p.m.	Exhibit Hall
298	T125. Lakes of the World (Posters)	Wednesday	9 a.m.–6:30 p.m.	Exhibit Hall
336	T125. Lakes of the World	Wednesday	1:30–5:30 p.m.	Room 347/348
<b>Marine/Coastal Science</b>				
2	Marine/Coastal Science	Sunday	8 a.m.–noon	Room 342
39	T127. Continental Shelf and Estuarine Seafloor Mapping and Shallow Stratigraphy on the North American East Coast (Posters)	Sunday	9 a.m.–5:30 p.m.	Exhibit Hall

NO.	SESSION TITLE	DAY	TIME	ROOM
93	T127. Continental Shelf and Estuarine Seafloor Mapping and Shallow Stratigraphy on the North American East Coast	Monday	8–11:50 a.m.	Room 309
120	Marine/Coastal Science (Posters)	Monday	9 a.m.–6:30 p.m.	Exhibit Hall
121	T128. Field and Modeling Approaches to Understanding the Response of Coupled Barrier-Backbarrier Systems to Coastal Change (Posters)	Monday	9 a.m.–6:30 p.m.	Exhibit Hall
162	T128. Field and Modeling Approaches to Understanding the Response of Coupled Barrier-Backbarrier Systems to Coastal Change	Monday	1:30–5:25 p.m.	Room 309
246	T129. Forecasting the Coastal Response to Sea-Level Rise: Integrating the Past and Present to Inform the Future	Tuesday	1:30–5:30 p.m.	Room 345/346
<b>Mineralogy/Crystallography</b>				
16	T134. Radiation Effects, Mineralogy, and Materials Science of Actinides I: In Honor of Rodney C. Ewing, 2015 Roebling Medalist	Sunday	8–11:55 a.m.	Room 317
64	T131. Gemological Research in the 21st Century: Exploration, Geology, and Characterization of Diamonds and other Gem Minerals	Sunday	1:30–5:30 p.m.	Room 342
65	T134. Radiation Effects, Mineralogy, and Materials Science of Actinides II: In Honor of Rodney C. Ewing, 2015 Roebling Medalist	Sunday	1:30–5:05 p.m.	Room 317
94	T132. Mineralogy of Diagenesis on Earth and Mars: In Honor of Nicholas J. Tosca, 2015 MSA Awardee	Monday	8 a.m.–noon	Room 342
95	T133. Mineralogy Writ Small: A Tribute to the Distinguished Career of David R. Veblen	Monday	8 a.m.–noon	Room 317
122	T134. Radiation Effects, Mineralogy, and Materials Science of Actinides: In Honor of Rodney C. Ewing, 2015 Roebling Medalist (Posters)	Monday	9 a.m.–6:30 p.m.	Exhibit Hall
258	Mineralogical Society of America (MSA) Awards Lectures, Presidential Address, and Annual Business Meeting	Tuesday	3–5 p.m.	Room 317
299	Mineralogy/Crystallography (Posters)	Wednesday	9 a.m.–6:30 p.m.	Exhibit Hall
300	T131. Gemological Research in the 21st Century: Exploration, Geology, and Characterization of Diamonds and other Gem Minerals (Posters)	Wednesday	9 a.m.–6:30 p.m.	Exhibit Hall
<b>Paleoclimatology/Paleoceanography</b>				
40	Paleoclimatology/Paleoceanography (Posters)	Sunday	9 a.m.–5:30 p.m.	Exhibit Hall
41	T139. Insights from Microfossils, from Traditional to Novel Approaches (Posters)	Sunday	9 a.m.–5:30 p.m.	Exhibit Hall
66	T138. From the Caspian to Mediterranean: Environmental Change and Human Response during the Quaternary (IGCP 610)	Sunday	1:30–5:15 p.m.	Room 325/326
192	T136. Decadal to Century-Scale Proxy Climate Records in High-Altitude and High-Latitude Landscapes	Tuesday	8–11 a.m.	Room 340
219	T138. From the Caspian to Mediterranean: Environmental Change and Human Response during the Quaternary (IGCP 610) (Posters)	Tuesday	9 a.m.–6:30 p.m.	Exhibit Hall
220	T140. Late Paleocene and Early Eocene Hyperthermal Events in Terrestrial and Marine Systems (Posters)	Tuesday	9 a.m.–6:30 p.m.	Exhibit Hall
247	T140. Late Paleocene and Early Eocene Hyperthermal Events in Terrestrial and Marine Systems	Tuesday	1:30–5:30 p.m.	Room 342
248	T142. The Middle Paleozoic World	Tuesday	1:30–5:30 p.m.	Room 337
264	Paleoclimatology/Paleoceanography	Wednesday	8–11:15 a.m.	Room 331/332

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NO.	SESSION TITLE	DAY	TIME	ROOM
277	T137. Fresh Perspectives on Critical Transitions in Earth History: Insights from Novel Tools or New Successions	Wednesday	8–11:35 a.m.	Room 319/320
337	T143. What Makes a Juicy Rock? Global Climate Events and Deposition of Organic Rich Shales through Time	Wednesday	1:30–4:30 p.m.	Room 309
<b>Paleontology</b>				
3	Paleontology: Ancient Life in Deep Time: Temporal and Geographic Trends in Fossil Distributions	Sunday	8–11:45 a.m.	Room 316
17	T146. Palynology	Sunday	8 a.m.–noon	Room 309
18	T149. Co-Evolution of Life and Planet: Broad-Scale Controls on Biodiversity I	Sunday	8 a.m.–noon	Room 314
19	T153. Mass Extinction Causality: Records of Anoxia, Acidification, and Global Warming during Earth's Greatest Crises I	Sunday	8 a.m.–noon	Room 310
20	T157. Eat, Prey, Love, and Burrow: Tracing Animal Behavior through Time	Sunday	8 a.m.–noon	Room 315
42	Paleontology: The Analytical Toolkit: Evaluating Bias, Specimens, and Relationships (Posters)	Sunday	9 a.m.–5:30 p.m.	Exhibit Hall
43	Paleontology: Trends in Morphology and Size (Posters)	Sunday	9 a.m.–5:30 p.m.	Exhibit Hall
44	T146. Palynology (Posters)	Sunday	9 a.m.–5:30 p.m.	Exhibit Hall
67	T149. Co-Evolution of Life and Planet: Broad-Scale Controls on Biodiversity II	Sunday	1:30–4:35 p.m.	Room 314
68	T153. Mass Extinction Causality: Records of Anoxia, Acidification, and Global Warming during Earth's Greatest Crises II	Sunday	1:30–5:30 p.m.	Room 310
69	T155. Timing of the Origins and Evolution of Unicellular Eukaryotes	Sunday	1:30–5:10 p.m.	Room 316
70	T159. The Fossil Record of Parasite-Host Interactions: New Perspectives and Approaches	Sunday	1:30–5:30 p.m.	Room 315
78	Paleontology: Limits to Life: Trends in Origination and Extinction	Monday	8 a.m.–10:30 a.m.	Room 315
96	T145. Conodonts from Black Shales and Other Rocks: In Honor of Anita G. Harris	Monday	8–11:35 a.m.	Room 316
97	T147. Biotic Interactions and Their Influence on Long-Term Evolution I	Monday	8 a.m.–11:15 a.m.	Room 314
98	T158. Perspectives on Multi-Element Skeleton Taphonomy: Case Studies, Approaches, and Advances	Monday	8 a.m.–11:20 a.m.	Room 319/320
123	Paleontology: Fossils of the Neoproterozoic (Posters)	Monday	9 a.m.–6:30 p.m.	Exhibit Hall
124	Paleontology: Life on Land and in the Oceans: Paleoclimate and Paleoenvironmental Reconstructions (Posters)	Monday	9 a.m.–6:30 p.m.	Exhibit Hall
125	Paleontology: The Role of Collections in Diversity, Databases, and Museums (Posters)	Monday	9 a.m.–6:30 p.m.	Exhibit Hall
126	Paleontology: Under the Lens: New Insight from Microfossils (Posters)	Monday	9 a.m.–6:30 p.m.	Exhibit Hall
127	T153. Mass Extinction Causality: Records of Anoxia, Acidification, and Global Warming during Earth's Greatest Crises (Posters)	Monday	9 a.m.–6:30 p.m.	Exhibit Hall



NO.	SESSION TITLE	DAY	TIME	ROOM
128	T156. Earth Underfoot: New Frontiers in Ichnology and Zoogeomorphology (Posters)	Monday	9 a.m.–6:30 p.m.	Exhibit Hall
129	T157. Eat, Prey, Love, and Burrow: Tracing Animal Behavior through Time (Posters)	Monday	9 a.m.–6:30 p.m.	Exhibit Hall
130	T160. Topics in Paleocology: Modern Analogues and Ancient Systems (Posters)	Monday	9 a.m.–6:30 p.m.	Exhibit Hall
163	T147. Biotic Interactions and Their Influence on Long-Term Evolution II	Monday	1:30–5:05 p.m.	Room 314
164	T148. Cenozoic Evolution of Tropical Biota and Environments I: A Session Honoring the Contributions of Ann F. Budd	Monday	1:30–5:15 p.m.	Room 310
165	T156. Earth Underfoot: New Frontiers in Ichnology and Zoogeomorphology	Monday	1:30–5:30 p.m.	Room 316
166	T160. Topics in Paleocology: Modern Analogues and Ancient Systems I	Monday	1:30–5:30 p.m.	Room 315
176	Paleontology: Evolutionary Patterns in the Fossil Record	Tuesday	8 a.m.–noon	Room 316
177	P3. Earth-Life Systems at the Dawn of Animals	Tuesday	8 a.m.–noon	Room 327/328/329
193	T148. Cenozoic Evolution of Tropical Biota and Environments II: A Session Honoring the Contributions of Ann F. Budd	Tuesday	8–11:15 a.m.	Room 310
194	T160. Topics in Paleocology: Modern Analogues and Ancient Systems II	Tuesday	8–11:35 a.m.	Room 315
221	Paleontology: The Early and Middle Paleozoic: Biodiversity, Biogeography, and Biostratigraphy (Posters)	Tuesday	9 a.m.–6:30 p.m.	Exhibit Hall
222	Paleontology: The Mesozoic World (Posters)	Tuesday	9 a.m.–6:30 p.m.	Exhibit Hall
223	T144. 200 Years and Going Strong: The Role of Paleontology in Geologic Mapping (Posters)	Tuesday	9 a.m.–6:30 p.m.	Exhibit Hall
224	T150. Early and Middle Triassic Restructuring Following the End-Permian Mass Extinction (Posters)	Tuesday	9 a.m.–6:30 p.m.	Exhibit Hall
225	T152. Geobiology of Critical Transitions: Integrating Fossils, Proxies, and Models (Posters)	Tuesday	9 a.m.–6:30 p.m.	Exhibit Hall
226	T158. Perspectives on Multi-Element Skeleton Taphonomy: Case Studies, Approaches, and Advances (Posters)	Tuesday	9 a.m.–6:30 p.m.	Exhibit Hall
249	T148. Cenozoic Evolution of Tropical Biota and Environments III: A Session Honoring the Contributions of Ann F. Budd	Tuesday	1:30–5:15 p.m.	Room 310
250	T152. Geobiology of Critical Transitions: Integrating Fossils, Proxies, and Models I	Tuesday	1:30–5:25 p.m.	Room 325/326
251	T154. Phanerozoic Evolution in the Oceans: Effects of Warming and Chemical Changes	Tuesday	1:30–5:20 p.m.	Room 316
252	T160. Topics in Paleocology: Modern Analogues and Ancient Systems III	Tuesday	1:30–5:20 p.m.	Room 315
265	Paleontology: Go Big or Go Home: Fossil Range Sizes and Body Sizes	Wednesday	8 a.m.–noon	Room 310
278	T150. Early and Middle Triassic Restructuring Following the End-Permian Mass Extinction	Wednesday	8–11:40 a.m.	Room 316
279	T151. Foraminiferal Responses and Recovery from Environmental Stressors	Wednesday	8–11:45 a.m.	Room 315
280	T152. Geobiology of Critical Transitions: Integrating Fossils, Proxies, and Models II	Wednesday	8–11:55 a.m.	Room 325/326
301	T161. Echinoderm Paleobiology: Diversity, Form, and Phylogeny (Posters)	Wednesday	9 a.m.–6:30 p.m.	Exhibit Hall
327	Paleontology: Building the Fossil Record: Taphonomic and Paleocological Controls on Fossilization	Wednesday	1:30–5:30 p.m.	Room 315

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338	T152. Geobiology of Critical Transitions: Integrating Fossils, Proxies, and Models III	Wednesday	1:30–5:25 p.m.	Room 325/326
339	T161. Echinoderm Paleobiology: Diversity, Form, and Phylogeny	Wednesday	1:30–5:30 p.m.	Room 316
<b>Petrology, Igneous</b>				
99	T163. A Matter of Perspective: Integrating Macro- and Micro-Scale Evidence in Investigations of Magmatic Origins and Histories	Monday	8 a.m.–noon	Room 341
131	Petrology, Igneous (Posters)	Monday	9 a.m.–6:30 p.m.	Exhibit Hall
195	T162. A Lower Crustal Perspective on Magmatic Arc Processes	Tuesday	8 a.m.–noon	Room 331/332
196	T165. Zen and Now: Honoring the Legacy of E-an Zen's Contributions to Geology	Tuesday	8–11:35 a.m.	Room 317
227	T163. A Matter of Perspective: Integrating Macro- and Micro-Scale Evidence in Investigations of Magmatic Origins and Histories (Posters)	Tuesday	9 a.m.–6:30 p.m.	Exhibit Hall
302	T162. A Lower Crustal Perspective on Magmatic Arc Processes (Posters)	Wednesday	9 a.m.–6:30 p.m.	Exhibit Hall
<b>Petrology, Metamorphic</b>				
167	T166. Metamorphic Petrology: New Approaches and Outcomes	Monday	1:30–5:30 p.m.	Room 317
168	T168. Subduction, Fluids, Accessory Minerals, and Trace Elements: A Celebration of Sorena Sorensen's Career	Monday	1:30–5:30 p.m.	Room 341
281	T167. Metamorphic, Metasomatic, and Igneous Processes in the Mid- and Deep Continental Crust: Mechanisms and Processes That Impact Mass Transport and Rheology	Wednesday	8 a.m.–noon	Room 317
303	Petrology, Metamorphic (Posters)	Wednesday	9 a.m.–6:30 p.m.	Exhibit Hall
304	T166. Metamorphic Petrology: New Approaches and Outcomes (Posters)	Wednesday	9 a.m.–6:30 p.m.	Exhibit Hall
305	T167. Metamorphic, Metasomatic, and Igneous Processes in the Mid- and Deep Continental Crust: Mechanisms and Processes that Impact Mass Transport and Rheology (Posters)	Wednesday	9 a.m.–6:30 p.m.	Exhibit Hall
306	T168. Subduction, Fluids, Accessory Minerals, and Trace Elements: A Celebration of Sorena Sorensen's Career (Posters)	Wednesday	9 a.m.–6:30 p.m.	Exhibit Hall
<b>Planetary Geology</b>				
21	T177. When Water Meets Rock: Aqueous Alteration in the Solar System	Sunday	8 a.m.–noon	Room 344
45	T173. Impact Cratering on Earth and in the Solar System (Posters)	Sunday	9 a.m.–5:30 p.m.	Exhibit Hall
71	T171. Exploring the Sedimentary Rock Record of Mars	Sunday	1:30–5:30 p.m.	Room 344
100	T173. Impact Cratering on Earth and in the Solar System	Monday	8 a.m.–noon	Room 344
132	T170. Experimental Investigations of Planetary Geologic Processes (Posters)	Monday	9 a.m.–6:30 p.m.	Exhibit Hall
133	T171. Exploring the Sedimentary Rock Record of Mars (Posters)	Monday	9 a.m.–6:30 p.m.	Exhibit Hall

NO.	SESSION TITLE	DAY	TIME	ROOM
169	T174. Microscopic Impact Records	Monday	1:30–5:30 p.m.	Room 344
234	Planetary Geology: Understanding Mars Geology from Orbiter to Rover-Based Exploration: The G.K. Gilbert Award Session	Tuesday	1:30–5:05 p.m.	Room 344
282	T172. Geology of Dwarf Planets: First Results from NASA's <i>Dawn</i> Mission to Ceres	Wednesday	8–11:35 a.m.	Room 344
307	Planetary Geology (Posters)	Wednesday	9 a.m.–6:30 p.m.	Exhibit Hall
308	T172. Geology of Dwarf Planets: First Results from NASA's <i>Dawn</i> Mission to Ceres (Posters)	Wednesday	9 a.m.–6:30 p.m.	Exhibit Hall
340	T175. Oceans, Fire, and Ice of the Outer Solar System	Wednesday	1:30–5:30 p.m.	Room 344
<b>Precambrian Geology</b>				
309	Precambrian Geology (Posters)	Wednesday	9 a.m.–6:30 p.m.	Exhibit Hall
<b>Public Policy</b>				
22	T179. Coordination of Civil Earth Observations: Review, Status, and Applications of Earth Observation Systems	Sunday	8–11:35 a.m.	Room 325/326
170	T178. 70 Years of Geoscience at UNESCO: Past, Present, and Future	Monday	1:30–4:50 p.m.	Room 331/332
235	P4. Similar Information, Different Results: Fracking from State to State	Tuesday	1:30–5 p.m.	Room 327/328/329
253	T180. Geoscience in the Public Square: Meeting the Challenges and Seizing the Opportunities	Tuesday	1:30–5:30 p.m.	Room 307
<b>Quaternary Geology</b>				
23	T189. New Applications of Geochronologic Techniques to Quaternary and Archaeological Settings	Sunday	8 a.m.–noon	Room 341
72	T188. Inside or Out? Investigations into Driving Forces in Fluvial Systems	Sunday	1:30–5:30 p.m.	Room 340
101	T184. African Environments across Space and through Time: Integrating Modern and Ancient Climate Data for Insights into Terrestrial Ecosystem Dynamics	Monday	8 a.m.–noon	Room 331/332
134	T185. Coastal Hazards from Minutes to Millennia (Posters)	Monday	9 a.m.–6:30 p.m.	Exhibit Hall
147	Quaternary Geology: Melting Ice, Sea-Level Change, and New Insights into Old Geomorphic Paradigms	Monday	1:30–5:30 p.m.	Room 319/320
148	P2. Savor the Cryosphere	Monday	1:30–5:10 p.m.	Room 327/328/329
197	T185. Coastal Hazards from Minutes to Millennia	Tuesday	8 a.m.–noon	Room 307
198	T190. Paleocological Patterns, Ecological Processes, Modeled Scenarios: Crossing Temporal Scales to Understand an Uncertain Future	Tuesday	8–11:35 a.m.	Room 314
254	T187. Geology, Geomorphology, and Biogeography of the Amazon: Integrating Approaches and Disciplines to Understand the Evolution of a Unique Ecosystem	Tuesday	1:30–5:30 p.m.	Room 341
283	T191. Reconstructing Arctic Glaciers and Ice Sheets: Chronology, Geomorphology, and Climate Records	Wednesday	8–11:35 a.m.	Room 307
310	Quaternary Geology: Pleistocene to Holocene Deposits, Landforms and Processes (Posters)	Wednesday	9 a.m.–6:30 p.m.	Exhibit Hall

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NO.	SESSION TITLE	DAY	TIME	ROOM
311	T188. Inside or Out? Investigations into Driving Forces in Fluvial Systems (Posters)	Wednesday	9 a.m.–6:30 p.m.	Exhibit Hall
312	T189. New Applications of Geochronologic Techniques to Quaternary and Archaeological Settings (Posters)	Wednesday	9 a.m.–6:30 p.m.	Exhibit Hall
313	T190. Paleocological Patterns, Ecological Processes, Modeled Scenarios: Crossing Temporal Scales to Understand an Uncertain Future (Posters)	Wednesday	9 a.m.–6:30 p.m.	Exhibit Hall
321	T186. Estimating the Timing and Characteristics of Continental Earthquakes from Geologic Data	Wednesday	1:30–3:30 p.m.	Room 336
<b>Sediments, Carbonates</b>				
135	T193. Sedimentary Environment and Process Studies: The Emerging Generation of Scientists (Posters)	Monday	9 a.m.–6:30 p.m.	Exhibit Hall
199	T192. Lawrence A. Hardie Commemorative Session I	Tuesday	8–11:30 a.m.	Room 319/320
228	Sediments, Carbonates (Posters)	Tuesday	9 a.m.–6:30 p.m.	Exhibit Hall
255	T192. Lawrence A. Hardie Commemorative Session II	Tuesday	1:30–5:05 p.m.	Room 319/320
<b>Sediments, Clastic</b>				
73	T198. Shale Gas Basins: Their Stratigraphy, Sedimentary Environments, Tectonics, and Structural Evolution	Sunday	1:30–5:10 p.m.	Room 307
102	T195. Paleoenvironmental Reconstruction of Hominin Sites: New Methods, New Data, and New Insights I	Monday	8 a.m.–noon	Room 324
136	T195. Paleoenvironmental Reconstruction of Hominin Sites: New Methods, New Data, and New Insights (Posters)	Monday	9 a.m.–6:30 p.m.	Exhibit Hall
171	T195. Paleoenvironmental Reconstruction of Hominin Sites: New Methods, New Data, and New Insights II	Monday	1:30–5 p.m.	Room 324
200	T197. Sedimentary Basins I	Tuesday	8–11:20 a.m.	Room 349/350
229	Sediments, Clastic (Posters)	Tuesday	9 a.m.–6:30 p.m.	Exhibit Hall
230	T194. New Horizons in Paleogeography: Principles, Innovative Methods, and Application to Resource Exploration (Posters)	Tuesday	9 a.m.–6:30 p.m.	Exhibit Hall
256	T197. Sedimentary Basins II	Tuesday	1:30–5:10 p.m.	Room 343
266	Sediments, Clastic	Wednesday	8 a.m.–noon	Room 340
284	T194. New Horizons in Paleogeography: Principles, Innovative Methods, and Application to Resource Exploration	Wednesday	8–11:45 a.m.	Room 336
314	T196. Revisiting the Atlantic Continental Margin: New Insights on the Geologic Evolution of North American Passive Margin Basins (Posters)	Wednesday	9 a.m.–6:30 p.m.	Exhibit Hall
315	T197. Sedimentary Basins (Posters)	Wednesday	9 a.m.–6:30 p.m.	Exhibit Hall
316	T198. Shale Gas Basins: Their Stratigraphy, Sedimentary Environments, Tectonics, and Structural Evolution (Posters)	Wednesday	9 a.m.–6:30 p.m.	Exhibit Hall

NO.	SESSION TITLE	DAY	TIME	ROOM
<b>Soils</b>				
172	T204. The Reactive Soil: Processes at the Bio-Geo Interface in the Rhizosphere	Monday	1:30–5:30 p.m.	Room 343
201	T200. Landscape Dynamics: Integrating Soils, Hydrology, and Climatic Processes to Understand Weathering, Sediment Transport and Biospheric Processes	Tuesday	8–11:45 a.m.	Room 336
231	Soils (Posters)	Tuesday	9 a.m.–6:30 p.m.	Exhibit Hall
232	T202. Paleosol Case Studies: Resurrecting Ancient Critical Zones through Space and Time (Posters)	Tuesday	9 a.m.–6:30 p.m.	Exhibit Hall
285	T202. Paleosol Case Studies: Resurrecting Ancient Critical Zones through Space and Time	Wednesday	8–11:55 a.m.	Room 345/346
<b>Stratigraphy</b>				
257	T205. Integration of Microfossils and Sedimentology in Stratigraphic Analysis	Tuesday	1:30–5:30 p.m.	Room 349/350
317	Stratigraphy (Posters)	Wednesday	9 a.m.–6:30 p.m.	Exhibit Hall
328	Stratigraphy and Sediments, Carbonates	Wednesday	1:30–5:30 p.m.	Room 340
<b>Structural Geology</b>				
5	Structural Geology: Geometry and Kinematics from Mapping and Modeling	Sunday	8–11:30 a.m.	Room 336
24	T208. Perspectives on Orogenic Evolution, Dating Brittle Faults and Mylonitic Shear Zones, Bending Mountains, and Assembling Supercontinents I: A Session to Honor the Career of Ben Van Der Pluijm	Sunday	8–11:40 a.m.	Room 343
46	Structural Geology (Posters)	Sunday	9 a.m.–5:30 p.m.	Exhibit Hall
74	T208. Perspectives on Orogenic Evolution, Dating Brittle Faults and Mylonitic Shear Zones, Bending Mountains, and Assembling Supercontinents II: A Session to Honor the Career of Ben Van Der Pluijm	Sunday	1:30–4:50 p.m.	Room 343
103	T209. Rheological Behavior of Ductile Lithosphere during Strain Localization	Monday	8 a.m.–noon	Room 308
137	T207. Folds and Folding: Earth's Surface to Depth (Posters)	Monday	9 a.m.–6:30 p.m.	Exhibit Hall
138	T208. Perspectives on Orogenic Evolution, Dating Brittle Faults and Mylonitic Shear Zones, Bending Mountains, and Assembling Supercontinents: A Session to Honor the Career of Ben Van Der Pluijm (Posters)	Monday	9 a.m.–6:30 p.m.	Exhibit Hall
139	T209. Rheological Behavior of Ductile Lithosphere during Strain Localization (Posters)	Monday	9 a.m.–6:30 p.m.	Exhibit Hall
173	T210. Strike Slip Fault Systems Transfer Stress Inboard from the Subduction Zone Margin Leading to Basin Subsidence and Orogenesis, Are Conduits for Magmatism, and Are Responsible for Far-Traveled Terrane Translation	Monday	1:30–5:30 p.m.	Room 308
202	T211. Structural Geology and Geomechanics in the Petroleum Industry	Tuesday	8–11 a.m.	Room 308
286	T207. Folds and Folding: Earth's Surface to Depth	Wednesday	8 a.m.–noon	Room 322/323
318	T210. Strike Slip Fault Systems Transfer Stress Inboard from the Subduction Zone Margin Leading to Basin Subsidence and Orogenesis, Are Conduits for Magmatism, and Are Responsible for Far-Traveled Terrane Translation (Posters)	Wednesday	9 a.m.–6:30 p.m.	Exhibit Hall



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NO.	SESSION TITLE	DAY	TIME	ROOM
<b>Tectonics/Tectonophysics</b>				
6	T1. Bridging Two Continents: Active Intracontinental Tectonics in Asia and North America and the Associated Geohazards	Sunday	8–11:55 a.m.	Room 349/350
7	T5. Bridging Two Continents: Geologic Configuration of the Tibetan Plateau Region Prior to the Indo-Asian Collision: Setting the Stage for Development of a High Elevation Plateau	Sunday	8 a.m.–noon	Room 347/348
47	Tectonics/Tectonophysics (Posters)	Sunday	9 a.m.–5:30 p.m.	Exhibit Hall
48	T3. Bridging Two Continents (Posters): Comparative Studies of Accretionary Orogenesis in the Central Asian Orogenic Belt, North American Cordillera, and Other Orogenic Belts	Sunday	9 a.m.–5:30 p.m.	Exhibit Hall
49	T4. Bridging Two Continents (Posters): Diamonds, Zircons, and Native Elements in the Mantle: New Discoveries and Models on the Properties and Petrogenesis of Oceanic Mantle Lithosphere	Sunday	9 a.m.–5:30 p.m.	Exhibit Hall
50	T8. Bridging Two Continents (Posters): Supercontinents in Earth's History: New Perspectives from Precambrian Geology of Asia and North America	Sunday	9 a.m.–6:30 p.m.	Exhibit Hall
52	T2. Bridging Two Continents: Advances in Crustal Subduction and Ultrahigh-Pressure Metamorphism	Sunday	1:30–5:30 p.m.	Room 349/350
53	T6. Bridging Two Continents: Mid-Latitude Climate during Cretaceous Greenhouse States: Comparison between East Asia and North America	Sunday	1:30–5:30 p.m.	Room 347/348
75	T217. Rift-Drift, Seafloor Spreading, and Subduction Zone Tectonics of Collisional Orogens: Comparative Analysis of the Circum-Mediterranean and Appalachian-Caledonian Orogenic Belts	Sunday	1:30–5:30 p.m.	Room 341
105	GSA Special Nepal (Gorkha) Earthquake Session	Monday	8 a.m.–noon	Room 345/346
80	T3. Bridging Two Continents: Comparative Studies of Accretionary Orogenesis in the Central Asian Orogenic Belt, North American Cordillera, and Other Orogenic Belts I	Monday	8–11:10 a.m.	Room 349/350
81	T4. Bridging Two Continents: Diamonds, Zircons and Native Elements in the Mantle: New Discoveries and Models on the Properties and Petrogenesis of Oceanic Mantle Lithosphere	Monday	8 a.m.–noon	Room 347/348
104	T215. Novel Methods, Applications, and Data Interpretations in Thermochemistry	Monday	8–11:30 a.m.	Room 310
140	GSA Special Nepal (Gorkha) Earthquake Session (Posters)	Monday	9 a.m.–6:30 p.m.	Exhibit Hall
141	T1. Bridging Two Continents (Posters): Active Intracontinental Tectonics in Asia and North America and the Associated Geohazards	Monday	9 a.m.–6:30 p.m.	Exhibit Hall
142	T2. Bridging Two Continents (Posters): Advances in Crustal Subduction and Ultrahigh-Pressure Metamorphism	Monday	9 a.m.–6:30 p.m.	Exhibit Hall
143	T6. Bridging Two Continents: Mid-Latitude Climate during Cretaceous Greenhouse States: Comparison between East Asia and North America (Posters)	Monday	9 a.m.–6:30 p.m.	Exhibit Hall
144	T215. Novel Methods, Applications, and Data Interpretations in Thermochemistry (Posters)	Monday	9 a.m.–6:30 p.m.	Exhibit Hall

NO.	SESSION TITLE	DAY	TIME	ROOM
149	T3. Bridging Two Continents: Comparative Studies of Accretionary Orogenesis in the Central Asian Orogenic Belt, North American Cordillera, and Other Orogenic Belts II	Monday	1:30–4:25 p.m.	Room 349/350
146	T7. Bridging Two Continents: New Insights into the Mechanisms of Continental Deformation from Sinoprobe Deep Seismic Reflection Profiling and Receiver-Function Studies of the Lithosphere	Monday	1:30–2:30 p.m.	Room 347/348
174	T8. Bridging Two Continents: Supercontinents in Earth's History: New Perspectives from Precambrian Geology of Asia and North America	Monday	3–5:30 p.m.	Room 347/348
267	Tectonics: Exhumation, Erosion, Subsidence, and Rotation	Wednesday	8–11:15 a.m.	Room 347/348
287	T213. Integrating Perspectives on the Formation, Evolution, and Destruction of Continental Crust: From 0 to 4600 Ma	Wednesday	8–11:40 a.m.	Room 308
319	T214. Mountains across the Oceans: Caledonian, Variscan, and Appalachian Orogenies through Time (Posters)	Wednesday	9 a.m.–6:30 p.m.	Exhibit Hall
341	T212. Deconstructing Rodinia: Neoproterozoic-Cambrian Geologic Evolution of Laurentia's Margins	Wednesday	1:30–5:25 p.m.	Room 314
342	T214. Mountains across the Oceans: Caledonian, Variscan, and Appalachian Orogenies through Time	Wednesday	1:30–5:15 p.m.	Room 308
<b>Volcanology</b>				
76	T219. Intraplate and Divergent Boundary Volcanism: A Tribute to the Distinguished Career of David Clague	Sunday	1:30–5:30 p.m.	Room 319/320
145	T219. Intraplate and Divergent Boundary Volcanism: A Tribute to the Distinguished Career of David Clague (Posters)	Monday	9 a.m.–6:30 p.m.	Exhibit Hall
203	T218. Comparative Approaches to Studying Impact Ejecta Deposits and Volcanic Flows	Tuesday	8–11:30 a.m.	Room 344
320	Volcanology (Posters)	Wednesday	9 a.m.–6:30 p.m.	Exhibit Hall

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NO.	TIME	DESCRIPTION (COSPONSORS)	LOCATION
Sunday, 1 November			
1	8 a.m.	P1. Celebrating the Genius of William "Strata" Smith: Bicentennial Anniversary of Smith's Revolutionary Map I ( <i>GSA History and Philosophy of Geology Division; GSA Sedimentary Geology Division; GSA Geology and Society Division; Association of American State Geologists; Geological Society of London; History of Earth Sciences Society; Paleontology Society; GSA Karst Division</i> )	Room 327/328/329
2	8 a.m.	Marine/Coastal Science	Room 342
3	8 a.m.	Paleontology: Ancient Life in Deep Time: Temporal and Geographic Trends in Fossil Distributions	Room 316
4	8 a.m.	Recent Advances in Hydrogeology I	Room 331/332
5	8 a.m.	Structural Geology: Geometry and Kinematics from Mapping and Modeling	Room 336
6	8 a.m.	T1. Bridging Two Continents: Active Intracontinental Tectonics in Asia and North America and the Associated Geohazards	Room 349/350
7	8 a.m.	T5. Bridging Two Continents: Geologic Configuration of the Tibetan Plateau Region Prior to the Indo-Asian Collision: Setting the Stage for Development of a High-Elevation Plateau ( <i>GSA Structural Geology and Tectonics Division</i> )	Room 347/348
8	8 a.m.	T32. Urban Geochemistry ( <i>International Association of GeoChemistry; Geochemical Society; GSA Environmental and Engineering Geology Division; GSA Geology and Society Division</i> )	Room 308
9	8 a.m.	T52. From the River Channel to the Drainage Divide: Processes, Driving Mechanisms and the Direction of Topographic Change in the Appalachians ( <i>GSA Quaternary Geology and Geomorphology Division</i> )	Room 307
10	8 a.m.	T60. An Updated View on Caribbean Tectonics ( <i>GSA Geophysics Division; GSA Mineralogy, Geochemistry, Petrology, and Volcanology Division</i> )	Room 319/320
11	8 a.m.	T69. Closing the Diversity Gap in Geoscience: Successful Models, Best Practices, Benefits, Outcomes, and Next Steps ( <i>GSA Geology and Society Division; American Geophysical Union</i> )	Room 337
12	8 a.m.	T70. Digital Technology in Real and Virtual Geoscience Experiences I ( <i>GSA Geoinformatics Division; GSA Environmental and Engineering Geology Division; GSA Geology and Health Division; GSA Geology and Society Division; GSA Geophysics Division; GSA Geoscience Education Division; GSA History and Philosophy of Geology Division; GSA Hydrogeology Division; GSA Karst Division; GSA Limnogeology Division; GSA Mineralogy, Geochemistry, Petrology, and Volcanology Division; GSA Planetary Geology Division; GSA Quaternary Geology and Geomorphology Division; GSA Sedimentary Geology Division; GSA Archaeological Geology Division; GSA Structural Geology and Tectonics Division; National Association of Geoscience Teachers; Geo2YC Division of the National Association of Geoscience Teachers; International Association for Geoscience Diversity</i> )	Room 339
13	8 a.m.	T85. Preparing Pathways in K-12 Classrooms for Tomorrow's Diverse Geoscience Workforce: Teachers, Students, and Communities ( <i>GSA Geoscience Education Division; GSA Diversity in the Geosciences Committee; National Earth Science Teachers Association; GSA Geology and Society Division; National Association of Geoscience Teachers</i> )	Room 322/323
14	8 a.m.	T108. Nanomaterials and Contaminants in Hydrogeology ( <i>GSA Hydrogeology Division; Geochemical Society</i> )	Room 345/346

NO.	TIME	DESCRIPTION (COSPONSORS)	LOCATION
15	8 a.m.	T121. New Perspectives in Karst Geomicrobiology and Redox Geochemistry: Advances from 20 Years of Interdisciplinary Research and Exploring Our Future Frontiers ( <i>GSA Karst Division; GSA Geobiology &amp; Geomicrobiology Division; Karst Waters Institute; National Cave and Karst Research Institute; Geochemical Society</i> )	Room 340
16	8 a.m.	T134. Radiation Effects, Mineralogy, and Materials Science of Actinides I: In Honor of Rodney C. Ewing, 2015 Roebling Medalist ( <i>Mineralogical Society of America; GSA Mineralogy, Geochemistry, Petrology, and Volcanology Division; Geochemical Society</i> )	Room 317
17	8 a.m.	T146. Palynology ( <i>AASP - The Palynological Society; GSA Quaternary Geology and Geomorphology Division; Paleontological Society</i> )	Room 309
18	8 a.m.	T149. Co-Evolution of Life and Planet: Broad-Scale Controls on Biodiversity I ( <i>Paleontological Society; Paleontological Association</i> )	Room 314
19	8 a.m.	T153. Mass Extinction Causality: Records of Anoxia, Acidification, and Global Warming during Earth's Greatest Crises I ( <i>GSA Mineralogy, Geochemistry, Petrology, and Volcanology Division; Paleontological Society; Volcanic and Magmatic Studies Group; Mineralogical Society of America; Geological Society of London</i> )	Room 310
20	8 a.m.	T157. Eat, Prey, Love, and Burrow: Tracing Animal Behavior through Time ( <i>Paleontological Society; SEPM [Society for Sedimentary Geology]</i> )	Room 315
21	8 a.m.	T177. When Water Meets Rock: Aqueous Alteration in the Solar System ( <i>GSA Planetary Geology Division; Geochemical Society; GSA Mineralogy, Geochemistry, Petrology, and Volcanology Division</i> )	Room 344
22	8 a.m.	T179. Coordination of Civil Earth Observations: Review, Status, and Applications of Earth Observation Systems ( <i>GSA Geology and Society Division</i> )	Room 325/326
23	8 a.m.	T189. New Applications of Geochronologic Techniques to Quaternary and Archaeological Settings ( <i>GSA Quaternary Geology and Geomorphology Division; GSA Archaeological Geology Division; GSA Karst Division</i> )	Room 341
24	8 a.m.	T208. Perspectives on Orogenic Evolution, Dating Brittle Faults and Mylonitic Shear Zones, Bending Mountains, and Assembling Supercontinents I: A Session to Honor the Career of Ben Van Der Pluijm ( <i>GSA Structural Geology and Tectonics Division</i> )	Room 343
25	9 a.m.	T13. Geologic Energy Research (Posters) ( <i>GSA Energy Geology Division; GSA Environmental and Engineering Geology Division</i> )	Exhibit Hall
26	9 a.m.	Engineering Geology (Posters)	Exhibit Hall
27	9 a.m.	T20. Embedded Research Projects in Upper Level Undergraduate Courses: A Plausible Panacea for the Dwindling Science and Engineering (S&E) Researchers Community (Posters) ( <i>Council on Undergraduate Research Geosciences Division; GSA Environmental and Engineering Geology Division</i> )	Exhibit Hall
28	9 a.m.	Geochemistry (Posters)	Exhibit Hall
29	9 a.m.	Geoinformatics (Posters)	Exhibit Hall
30	9 a.m.	T44. Our Data Belong in Our Hands: 3-D Printing—The Future of Geoscience Research and Education (Posters) ( <i>GSA Geoinformatics Division; GSA Quaternary Geology and Geomorphology Division</i> )	Exhibit Hall
31	9 a.m.	Geology and Health (Posters)	Exhibit Hall
32	9 a.m.	Geoscience Education (Posters)	Exhibit Hall
33	9 a.m.	T66. Beginning a New Era in Earth Science Education: The Role of Geoscience in Implementing the Next Generation Science Standards (Posters) ( <i>National Earth Science Teachers Association; GSA Geoscience Education Division; National Association of Geoscience Teachers; GSA Geology and Society Division</i> )	Exhibit Hall
34	9 a.m.	T69. Closing the Diversity Gap in Geoscience: Successful Models, Best Practices, Benefits, Outcomes, and Next Steps (Posters) ( <i>GSA Geology and Society Division; American Geophysical Union</i> )	Exhibit Hall

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35	9 a.m.	T70. Digital Technology in Real and Virtual Geoscience Experiences (Posters) (GSA Geoinformatics Division; GSA Environmental and Engineering Geology Division; GSA Geology and Health Division; GSA Geology and Society Division; GSA Geophysics Division; GSA Geoscience Education Division; GSA History and Philosophy of Geology Division; GSA Hydrogeology Division; GSA Karst Division; GSA Limnogeology Division; GSA Mineralogy, Geochemistry, Petrology, and Volcanology Division; GSA Planetary Geology Division; GSA Quaternary Geology and Geomorphology Division; GSA Sedimentary Geology Division; GSA Archaeological Geology Division; GSA Structural Geology and Tectonics Division; National Association of Geoscience Teachers; Geo2YC Division of the National Association of Geoscience Teachers; International Association for Geoscience Diversity)	Exhibit Hall
36	9 a.m.	T75. Field-Based Educational Research: Insights from Field Camps, Field Trips, and Field-Based Courses (Posters) (GSA Geoscience Education Division; National Association of Geoscience Teachers)	Exhibit Hall
37	9 a.m.	T77. Geology and Hydrology in the National Parks: Research, Mapping, and Resource Management (Posters) (GSA Hydrogeology Division; GSA Geology and Society Division)	Exhibit Hall
38	9 a.m.	T96. Geologic Maps and Their Derivatives (Posters) (Association of American State Geologists; GSA Quaternary Geology and Geomorphology Division)	Exhibit Hall
39	9 a.m.	T127. Continental Shelf and Estuarine Seafloor Mapping and Shallow Stratigraphy on the North American East Coast (Posters) (GSA Quaternary Geology and Geomorphology Division; Marine/Coastal Science Discipline)	Exhibit Hall
40	9 a.m.	Paleoclimatology/Paleoceanography (Posters)	Exhibit Hall
41	9 a.m.	T139. Insights from Microfossils, from Traditional to Novel Approaches (Posters) (Cushman Foundation; Paleontological Society; Geochemical Society; Paleontological Research Institute; GSA Quaternary Geology and Geomorphology Division)	Exhibit Hall
42	9 a.m.	Paleontology: The Analytical Toolkit: Evaluating Bias, Specimens, and Relationships (Posters)	Exhibit Hall
43	9 a.m.	Paleontology: Trends in Morphology and Size (Posters)	Exhibit Hall
44	9 a.m.	T146. Palynology (Posters) (AASP - The Palynological Society; GSA Quaternary Geology and Geomorphology Division; Paleontological Society)	Exhibit Hall
45	9 a.m.	T173. Impact Cratering on Earth and in the Solar System (Posters) (GSA Planetary Geology Division; GSA Geophysics Division)	Exhibit Hall
46	9 a.m.	Structural Geology (Posters)	Exhibit Hall
47	9 a.m.	Tectonics/Tectonophysics (Posters)	Exhibit Hall
48	9 a.m.	T3. Bridging Two Continents (Posters): Comparative Studies of Accretionary Orogenesis in the Central Asian Orogenic Belt, North American Cordillera, and Other Orogenic Belts (GSA Structural Geology and Tectonics Division; GSA Mineralogy, Geochemistry, Petrology, and Volcanology Division)	Exhibit Hall
49	9 a.m.	T4. Bridging Two Continents (Posters): Diamonds, Zircons, and Native Elements in the Mantle: New Discoveries and Models on the Properties and Petrogenesis of Oceanic Mantle Lithosphere (GSA Mineralogy, Geochemistry, Petrology, and Volcanology Division; GSA Structural Geology and Tectonics Division; MSA Mineral Physics; GSA Geophysics Division; Mineralogical Society of America; Geochemical Society)	Exhibit Hall
50	9 a.m.	T8. Bridging Two Continents (Posters): Supercontinents in Earth's History: New Perspectives from Precambrian Geology of Asia and North America	Exhibit Hall



NO.	TIME	DESCRIPTION (COSPONSORS)	LOCATION
51	1:30 p.m.	Recent Advances in Hydrogeology II	Room 331/332
52	1:30 p.m.	T2. Bridging Two Continents: Advances in Crustal Subduction and Ultrahigh-Pressure Metamorphism ( <i>GSA Structural Geology and Tectonics Division; Mineralogical Society of America; GSA Mineralogy, Geochemistry, Petrology, and Volcanology Division; Geochemical Society</i> )	Room 349/350
53	1:30 p.m.	T6. Bridging Two Continents: Mid-Latitude Climate during Cretaceous Greenhouse States: Comparison between East Asia and North America	Room 347/348
54	1:30 p.m.	T29. Restoring the Nation's Largest Estuary: Lessons Learned from Efforts to Address Changes in Water Quality and Ecosystem Structure and Function within the Context of Landscape Change and Climate Variability in the Chesapeake Bay and Its Watershed ( <i>GSA Geology and Society Division; GSA Hydrogeology Division; GSA Environmental and Engineering Geology Division; GSA Quaternary Geology and Geomorphology Division</i> )	Room 308
55	1:30 p.m.	T48. Geomicrobiology: Microbes as a Geologic Force on Modern and Ancient Earth ( <i>GSA Geobiology &amp; Geomicrobiology Division; Geochemical Society</i> )	Room 338
56	1:30 p.m.	T58. Undergraduate Research Talks: The Next Step in Student Research Projects ( <i>GSA Geoscience Education Division; GSA Quaternary Geology and Geomorphology Division; GSA Geoinformatics Division; Council on Undergraduate Research Geosciences Division</i> )	Room 318
57	1:30 p.m.	T65. Utilizing 2-D and 3-D Near-Surface Geophysics to Generate Improved Surface and Subsurface Geologic Maps	Room 322/323
58	1:30 p.m.	T66. Beginning a New Era in Earth Science Education: The Role of Geoscience in Implementing the Next Generation Science Standards ( <i>National Earth Science Teachers Association; GSA Geoscience Education Division; National Association of Geoscience Teachers; GSA Geology and Society Division</i> )	Room 321
59	1:30 p.m.	T70. Digital Technology in Real and Virtual Geoscience Experiences II ( <i>GSA Geoinformatics Division; GSA Environmental and Engineering Geology Division; GSA Geology and Health Division; GSA Geology and Society Division; GSA Geophysics Division; GSA Geoscience Education Division; GSA History and Philosophy of Geology Division; GSA Hydrogeology Division; GSA Karst Division; GSA Limnogeology Division; GSA Mineralogy, Geochemistry, Petrology, and Volcanology Division; GSA Planetary Geology Division; GSA Quaternary Geology and Geomorphology Division; GSA Sedimentary Geology Division; GSA Archaeological Geology Division; GSA Structural Geology and Tectonics Division; National Association of Geoscience Teachers; Geo2YC Division of the National Association of Geoscience Teachers; International Association for Geoscience Diversity</i> )	Room 339
60	1:30 p.m.	T71. Enticing Urban Youth to the Geosciences ( <i>GSA Geology and Society Division</i> )	Room 324
61	1:30 p.m.	T72. Ethics of Geoscience in Practice and Application ( <i>GSA Geology and Society Division; GSA Geoscience Education Division; SEPM [Society for Sedimentary Geology]; GSA Quaternary Geology and Geomorphology Division; GSA Environmental and Engineering Geology Division; International Association for the Promotion of Geoethics [IAPG]; National Association of Geoscience Teachers; GSA Structural Geology and Tectonics Division; Society of Economic Geologists</i> )	Room 337
62	1:30 p.m.	T103. Contaminant Transport, Fate, and Remediation in Fractured Rocks ( <i>GSA Hydrogeology Division; GSA Environmental and Engineering Geology Division; Geochemical Society</i> )	Room 345/346
63	1:30 p.m.	T113. Effects of Urbanization on Hydrological and Geochemical Cycling in Surface and Ground Waters ( <i>GSA Hydrogeology Division; GSA Environmental and Engineering Geology Division; GSA Geology and Society Division</i> )	Room 336
64	1:30 p.m.	T131. Gemological Research in the 21st Century: Exploration, Geology, and Characterization of Diamonds and Other Gem Minerals	Room 342
65	1:30 p.m.	T134. Radiation Effects, Mineralogy, and Materials Science of Actinides II: In Honor of Rodney C. Ewing, 2015 Roebling Medalist ( <i>Mineralogical Society of America; GSA Mineralogy, Geochemistry, Petrology, and Volcanology Division; Geochemical Society</i> )	Room 317

# Sessions Calendar

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NO.	TIME	DESCRIPTION (COSPONSORS)	LOCATION
66	1:30 p.m.	T138. From the Caspian to Mediterranean: Environmental Change and Human Response during the Quaternary (IGCP 610) ( <i>Paleontological Society; Paleoceanography/Paleoclimatology Discipline; Avalon Institute of Applied Sciences, Canada; GSA Archaeological Geology Division</i> )	Room 325/326
67	1:30 p.m.	T149. Co-Evolution of Life and Planet: Broad-Scale Controls on Biodiversity II ( <i>Paleontological Society; Paleontological Association</i> )	Room 314
68	1:30 p.m.	T153. Mass Extinction Causality: Records of Anoxia, Acidification, and Global Warming during Earth's Greatest Crises II ( <i>GSA Mineralogy, Geochemistry, Petrology, and Volcanology Division; Paleontological Society; Volcanic and Magmatic Studies Group; Mineralogical Society of America; Geological Society of London</i> )	Room 310
69	1:30 p.m.	T155. Timing of the Origins and Evolution of Unicellular Eukaryotes (AASP - <i>The Palynological Society; Commission Internationale de la Microflore du Paleozoique CIMP [International Commission of the Palaeozoic Microflora]; Paleontological Society</i> )	Room 316
70	1:30 p.m.	T159. The Fossil Record of Parasite-Host Interactions: New Perspectives and Approaches ( <i>Paleontological Society; Advances in Parasitology Special Volume Fund</i> )	Room 315
71	1:30 p.m.	T171. Exploring the Sedimentary Rock Record of Mars ( <i>GSA Planetary Geology Division; GSA Sedimentary Geology Division; GSA Quaternary Geology and Geomorphology Division</i> )	Room 344
72	1:30 p.m.	T188. Inside or Out? Investigations into Driving Forces in Fluvial Systems ( <i>GSA Quaternary Geology and Geomorphology Division</i> )	Room 340
73	1:30 p.m.	T198. Shale Gas Basins: Their Stratigraphy, Sedimentary Environments, Tectonics, and Structural Evolution ( <i>GSA Sedimentary Geology Division; GSA Structural Geology and Tectonics Division; GSA Energy Geology Division</i> )	Room 307
74	1:30 p.m.	T208. Perspectives on Orogenic Evolution, Dating Brittle Faults and Mylonitic Shear Zones, Bending Mountains, and Assembling Supercontinents II: A Session to Honor the Career of Ben Van Der Pluijm ( <i>GSA Structural Geology and Tectonics Division</i> )	Room 343
75	1:30 p.m.	T217. Rift-Drift, Seafloor Spreading, and Subduction Zone Tectonics of Collisional Orogens: Comparative Analysis of the Circum-Mediterranean and Appalachian-Caledonian Orogenic Belts ( <i>GSA Structural Geology and Tectonics Division; GSA Geophysics Division; GSA Mineralogy, Geochemistry, Petrology, and Volcanology Division; GSA Sedimentary Geology Division; GSA Quaternary Geology and Geomorphology Division; Marine/Coastal Science Discipline</i> )	Room 341
76	1:30 p.m.	T219. Intraplate and Divergent Boundary Volcanism: A Tribute to the Distinguished Career of David Clague ( <i>GSA Mineralogy, Geochemistry, Petrology, and Volcanology Division; Geochemical Society; Mineralogical Society of America; Marine/Coastal Science Discipline</i> )	Room 319/320
77	2 p.m.	P1. Celebrating the Genius of William "Strata" Smith: Bicentennial Anniversary of Smith's Revolutionary Map II ( <i>GSA History and Philosophy of Geology Division; GSA Sedimentary Geology Division; GSA Geology and Society Division; Association of American State Geologists; Geological Society of London; History of Earth Sciences Society; Paleontology Society; GSA Karst Division</i> )	Room 327/328/329

NO.	TIME	DESCRIPTION (COSPONSORS)	LOCATION
<b>Monday, 2 November</b>			
78	8 a.m.	Paleontology: Limits to Life: Trends in Origination and Extinction	Room 315
79	8 a.m.	P1. Celebrating the Genius of William “Strata” Smith: Bicentennial Anniversary of Smith’s Revolutionary Map III ( <i>GSA History and Philosophy of Geology Division; GSA Sedimentary Geology Division; GSA Geology and Society Division; Association of American State Geologists; Geological Society of London; History of Earth Sciences Society; Paleontology Society; GSA Karst Division</i> )	Room 327/328/329
80	8 a.m.	T3. Bridging Two Continents: Comparative Studies of Accretionary Orogenesis in the Central Asian Orogenic Belt, North American Cordillera, and Other Orogenic Belts I ( <i>GSA Structural Geology and Tectonics Division; GSA Mineralogy, Geochemistry, Petrology, and Volcanology Division</i> )	Room 349/350
81	8 a.m.	T4. Bridging Two Continents: Diamonds, Zircons and Native Elements in the Mantle: New Discoveries and Models on the Properties and Petrogenesis of Oceanic Mantle Lithosphere ( <i>GSA Mineralogy, Geochemistry, Petrology, and Volcanology Division; GSA Structural Geology and Tectonics Division; MSA Mineral Physics; GSA Geophysics Division; Mineralogical Society of America; Geochemical Society</i> )	Room 347/348
82	8 a.m.	T9. Developing Proxies for Human Impact on Soil and Sediment Mass Transfer throughout the Holocene ( <i>GSA Quaternary Geology and Geomorphology Division; Past Global Changes [PAGES]—GLoSS Working Group; GSA Geology and Society Division; GSA Soils and Soil Processes Interdisciplinary Interest Group; GSA Archaeological Geology Division</i> )	Room 318
83	8 a.m.	T18. Metals in Ore Fluids: Sources, Concentrations, Modes of Transport, and Precipitation ( <i>Society of Economic Geologists; Geochemical Society; GSA Mineralogy, Geochemistry, Petrology, and Volcanology Division</i> )	Room 322/323
84	8 a.m.	T47. Geology and Health: A Decade of Progress ( <i>GSA Geology and Health Division; GSA Geology and Society Division</i> )	Room 325/326
85	8 a.m.	T55. Investigating Coastal Environments: A Tribute to Derald G. Smith ( <i>GSA Quaternary Geology and Geomorphology Division; GSA Limnogeology Division; Marine/Coastal Science Discipline</i> )	Room 336
86	8 a.m.	T56. Landslide Inventories and Time Series: Data Collection, Statistics, Geospatial Analysis, and Relationships to Other Geohazards ( <i>GSA Environmental and Engineering Geology Division; GSA Quaternary Geology and Geomorphology Division; GSA Geoinformatics Division</i> )	Room 307
87	8 a.m.	T74. Extended Geology Trips with Special Emphasis on Study Abroad	Room 337
88	8 a.m.	T83. Methods for Conducting Research about Teaching and Learning in the Geosciences ( <i>GSA Geoscience Education Division; National Association of Geoscience Teachers</i> )	Room 339
89	8 a.m.	T84. Practical Faculty-Related Issues & Trans-Disciplinary Pedagogical Strategies Associated with Classroom Transformation	Room 321
90	8 a.m.	T91. Using Place-Based and/or Data Driven Approaches in Geoscience Undergraduate Teaching and Research ( <i>Council on Undergraduate Research Geosciences Division</i> )	Room 338
91	8 a.m.	T105. Fate and Remediation of Organic and Metal Contaminants in Wetlands and Sediments ( <i>GSA Hydrogeology Division; GSA Environmental Engineering and Geology Division; Geochemical Society</i> )	Room 343
92	8 a.m.	T120. Karst Processes and Speleogenesis: Advances in Monitoring, Modeling, and Measurements ( <i>GSA Hydrogeology Division; GSA Karst Division; Karst Waters Institute; National Cave and Karst Research Institute; GSA Quaternary Geology and Geomorphology Division</i> )	Room 340
93	8 a.m.	T127. Continental Shelf and Estuarine Seafloor Mapping and Shallow Stratigraphy on the North American East Coast ( <i>GSA Quaternary Geology and Geomorphology Division; Marine/Coastal Science Discipline</i> )	Room 309
94	8 a.m.	T132. Mineralogy of Diagenesis on Earth and Mars: In Honor of Nicholas J. Tosca, 2015 MSA Awardee ( <i>Mineralogical Society of America; GSA Mineralogy, Geochemistry, Petrology, and Volcanology Division; GSA Planetary Geology Division; Geochemical Society</i> )	Room 342

# Sessions Calendar

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NO.	TIME	DESCRIPTION (COSPONSORS)	LOCATION
95	8 a.m.	T133. Mineralogy Writ Small: A Tribute to the Distinguished Career of David R. Veblen ( <i>Mineralogical Society of America; GSA Mineralogy, Geochemistry, Petrology, and Volcanology Division; Geochemical Society</i> )	Room 317
96	8 a.m.	T145. Conodonts from Black Shales and Other Rocks: In Honor of Anita G. Harris	Room 316
97	8 a.m.	T147. Biotic Interactions and Their Influence on Long-Term Evolution I ( <i>Paleontological Society</i> )	Room 314
98	8 a.m.	T158. Perspectives on Multi-Element Skeleton Taphonomy: Case Studies, Approaches, and Advances ( <i>Paleontological Society</i> )	Room 319/320
99	8 a.m.	T163. A Matter of Perspective: Integrating Macro- and Micro-Scale Evidence in Investigations of Magmatic Origins and Histories ( <i>GSA Mineralogy, Geochemistry, Petrology, and Volcanology Division; Mineralogical Society of America; Geochemical Society; GSA Planetary Geology Division</i> )	Room 341
100	8 a.m.	T173. Impact Cratering on Earth and in the Solar System ( <i>GSA Planetary Geology Division; GSA Geophysics Division</i> )	Room 344
101	8 a.m.	T184. African Environments across Space and through Time: Integrating Modern and Ancient Climate Data for Insights into Terrestrial Ecosystem Dynamics ( <i>GSA Quaternary Geology and Geomorphology Division; GSA Archaeological Geology Division; Paleontological Society; GSA Sedimentary Geology Division; Geochemical Society; Paleoceanography/Paleoclimatology Discipline</i> )	Room 331/332
102	8 a.m.	T195. Paleoenvironmental Reconstruction of Hominin Sites: New Methods, New Data, and New Insights I ( <i>SEPM [Society for Sedimentary Geology]; GSA Limnogeology Division; GSA Sedimentary Geology Division; GSA Quaternary Geology and Geomorphology Division; GSA Archaeological Geology Division</i> )	Room 324
103	8 a.m.	T209. Rheological Behavior of Ductile Lithosphere during Strain Localization ( <i>GSA Structural Geology and Tectonics Division</i> )	Room 308
104	8 a.m.	T215. Novel Methods, Applications, and Data Interpretations in Thermochronology ( <i>Geochemical Society; GSA Structural Geology and Tectonics Division; GSA Geoinformatics Division; GSA Mineralogy, Geochemistry, Petrology, and Volcanology Division</i> )	Room 310
105	8 a.m.	GSA Special Nepal (Gorkha) Earthquake Session ( <i>GSA; GSA Quaternary Geology and Geomorphology Division; GSA International; GSA Geology and Society Division; GSA Structural Geology and Tectonics Division</i> )	Room 345/346
106	9 a.m.	T32. Urban Geochemistry (Posters) ( <i>International Association of GeoChemistry; Geochemical Society; GSA Environmental and Engineering Geology Division; GSA Geology and Society Division</i> )	Exhibit Hall
107	9 a.m.	T39. Sources, Transport, Fate, and Toxicology of Trace Elements and Organics in the Environment (Posters) ( <i>International Association of GeoChemistry; Geochemical Society; GSA Mineralogy, Geochemistry, Petrology, and Volcanology Division</i> )	Exhibit Hall
108	9 a.m.	T48. Geomicrobiology: Microbes as a Geologic Force on Modern and Ancient Earth (Posters) ( <i>GSA Geobiology &amp; Geomicrobiology Division; Geochemical Society</i> )	Exhibit Hall
109	9 a.m.	T51. Molecular Methodology and the Heart of Geobiology (Posters) ( <i>GSA Geobiology &amp; Geomicrobiology Division; Geochemical Society</i> )	Exhibit Hall
110	9 a.m.	T53. Geoheritage Matters (Posters) ( <i>GSA Geology and Society Division; GSA Geoscience Education Division; GSA Quaternary Geology and Geomorphology Division</i> )	Exhibit Hall
111	9 a.m.	T76. GeoCorps™ America and Mosaics in Science Programs: Successful Partnerships Promoting Individual Professional Development and Application of Geoscience and Related Fields to Management of America's Public Lands (Posters) ( <i>GSA Geology and Society Division</i> )	Exhibit Hall

NO.	TIME	DESCRIPTION (COSPONSORS)	LOCATION
112	9 a.m.	T99. A Showcase of Undergraduate Research in Hydrogeology (Posters) ( <i>GSA Hydrogeology Division; GSA Geoscience Education Division; Council on Undergraduate Research Geosciences Division</i> )	Exhibit Hall
113	9 a.m.	T100. Advances in Groundwater Modeling (Posters) ( <i>GSA Hydrogeology Division; GSA Karst Division</i> )	Exhibit Hall
114	9 a.m.	T103. Contaminant Transport, Fate, and Remediation in Fractured Rocks (Posters) ( <i>GSA Hydrogeology Division; GSA Environmental and Engineering Geology Division; Geochemical Society</i> )	Exhibit Hall
115	9 a.m.	T104. Delivery of Nutrients and Contaminants by Groundwater to Estuaries and Their Watersheds (Posters) ( <i>GSA Hydrogeology Division</i> )	Exhibit Hall
116	9 a.m.	T105. Fate and Remediation of Organic and Metal Contaminants in Wetlands and Sediments (Posters) ( <i>GSA Hydrogeology Division; GSA Environmental Engineering and Geology Division; Geochemical Society</i> )	Exhibit Hall
117	9 a.m.	T109. Reservoir Connectivity and Fluid Migration during Unconventional Oil and Gas Development: Implications for Hydraulic Fracturing, CO <sub>2</sub> Storage, Enhanced Oil Recovery, and Waste Water Injection (Posters) ( <i>GSA Hydrogeology Division; GSA Energy Geology Division</i> )	Exhibit Hall
118	9 a.m.	T112. Understanding Saline Fluid Flow Systems: From Saltwater Intrusion to Geologic-Scale Brine Migration (Posters) ( <i>GSA Hydrogeology Division; International Association of Hydrogeologists; Society of Economic Geologists</i> )	Exhibit Hall
119	9 a.m.	T113. Effects of Urbanization on Hydrological and Geochemical Cycling in Surface and Ground Waters (Posters) ( <i>GSA Hydrogeology Division; GSA Environmental and Engineering Geology Division; GSA Geology and Society Division</i> )	Exhibit Hall
120	9 a.m.	Marine/Coastal Science (Posters)	Exhibit Hall
121	9 a.m.	T128. Field and Modeling Approaches to Understanding the Response of Coupled Barrier-Backbarrier Systems to Coastal Change (Posters) ( <i>SEPM [Society for Sedimentary Geology]; Coastal Education &amp; Research Foundation; GSA Quaternary Geology and Geomorphology Division</i> )	Exhibit Hall
122	9 a.m.	T134. Radiation Effects, Mineralogy, and Materials Science of Actinides: In Honor of Rodney C. Ewing, 2015 Roebling Medalist (Posters) ( <i>Mineralogical Society of America; GSA Mineralogy, Geochemistry, Petrology, and Volcanology Division; Geochemical Society</i> )	Exhibit Hall
123	9 a.m.	Paleontology: Fossils of the Neoproterozoic (Posters)	Exhibit Hall
124	9 a.m.	Paleontology: Life on Land and in the Oceans: Paleoclimate and Paleoenvironmental Reconstructions (Posters)	Exhibit Hall
125	9 a.m.	Paleontology: The Role of Collections in Diversity, Databases, and Museums (Posters)	Exhibit Hall
126	9 a.m.	Paleontology: Under the Lens: New Insight from Microfossils (Posters)	Exhibit Hall
127	9 a.m.	T153. Mass Extinction Causality: Records of Anoxia, Acidification, and Global Warming during Earth's Greatest Crises (Posters) ( <i>GSA Mineralogy, Geochemistry, Petrology, and Volcanology Division; Paleontological Society; Volcanic and Magmatic Studies Group; Mineralogical Society of America; Geological Society of London</i> )	Exhibit Hall
128	9 a.m.	T156. Earth Underfoot: New Frontiers in Ichnology and Zoogeomorphology (Posters) ( <i>SEPM [Society for Sedimentary Geology]; Paleontological Society</i> )	Exhibit Hall
129	9 a.m.	T157. Eat, Prey, Love, and Burrow: Tracing Animal Behavior through Time (Posters) ( <i>Paleontological Society; SEPM [Society for Sedimentary Geology]</i> )	Exhibit Hall
130	9 a.m.	T160. Topics in Paleoecology: Modern Analogues and Ancient Systems (Posters) ( <i>Paleontological Society</i> )	Exhibit Hall
131	9 a.m.	Petrology, Igneous (Posters)	Exhibit Hall
132	9 a.m.	T170. Experimental Investigations of Planetary Geologic Processes (Posters) ( <i>GSA Planetary Geology Division; Geochemical Society; GSA Mineralogy, Geochemistry, Petrology, and Volcanology Division</i> )	Exhibit Hall
133	9 a.m.	T171. Exploring the Sedimentary Rock Record of Mars (Posters) ( <i>GSA Planetary Geology Division; GSA Sedimentary Geology Division; GSA Quaternary Geology and Geomorphology Division</i> )	Exhibit Hall



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NO.	TIME	DESCRIPTION (COSPONSORS)	LOCATION
134	9 a.m.	T185. Coastal Hazards from Minutes to Millennia (Posters) ( <i>GSA Quaternary Geology and Geomorphology Division; GSA Geology and Society Division</i> )	Exhibit Hall
135	9 a.m.	T193. Sedimentary Environment and Process Studies: The Emerging Generation of Scientists (Posters) ( <i>GSA Sedimentary Geology Division; SEPM [Society for Sedimentary Geology]</i> )	Exhibit Hall
136	9 a.m.	T195. Paleoenvironmental Reconstruction of Hominin Sites: New Methods, New Data, and New Insights (Posters) ( <i>SEPM [Society for Sedimentary Geology]; GSA Limnogeology Division; GSA Sedimentary Geology Division; GSA Quaternary Geology and Geomorphology Division; GSA Archaeological Geology Division</i> )	Exhibit Hall
137	9 a.m.	T207. Folds and Folding: Earth's Surface to Depth (Posters) ( <i>GSA Structural Geology and Tectonics Division</i> )	Exhibit Hall
138	9 a.m.	T208. Perspectives on Orogenic Evolution, Dating Brittle Faults and Mylonitic Shear Zones, Bending Mountains, and Assembling Supercontinents: A Session to Honor the Career of Ben Van Der Pluijm (Posters) ( <i>GSA Structural Geology and Tectonics Division</i> )	Exhibit Hall
139	9 a.m.	T209. Rheological Behavior of Ductile Lithosphere during Strain Localization (Posters) ( <i>GSA Structural Geology and Tectonics Division</i> )	Exhibit Hall
140	9 a.m.	GSA Special Nepal (Gorkha) Earthquake Session (Posters) ( <i>GSA; GSA Quaternary Geology and Geomorphology Division; GSA International; GSA Geology and Society Division; GSA Structural Geology and Tectonics Division</i> )	Exhibit Hall
141	9 a.m.	T1. Bridging Two Continents (Posters): Active Intracontinental Tectonics in Asia and North America and the Associated Geohazards	Exhibit Hall
142	9 a.m.	T2. Bridging Two Continents (Posters): Advances in Crustal Subduction and Ultrahigh-Pressure Metamorphism ( <i>GSA Structural Geology and Tectonics Division; Mineralogical Society of America; GSA Mineralogy, Geochemistry, Petrology, and Volcanology Division; Geochemical Society</i> )	Exhibit Hall
143	9 a.m.	T6. Bridging Two Continents: Mid-Latitude Climate during Cretaceous Greenhouse States: Comparison between East Asia and North America (Posters)	Exhibit Hall
144	9 a.m.	T215. Novel Methods, Applications, and Data Interpretations in Thermochronology (Posters) ( <i>Geochemical Society; GSA Structural Geology and Tectonics Division; GSA Geoinformatics Division; GSA Mineralogy, Geochemistry, Petrology, and Volcanology Division</i> )	Exhibit Hall
145	9 a.m.	T219. Intraplate and Divergent Boundary Volcanism: A Tribute to the Distinguished Career of David Clague (Posters) ( <i>GSA Mineralogy, Geochemistry, Petrology, and Volcanology Division; Geochemical Society; Mineralogical Society of America; Marine/Coastal Science Discipline</i> )	Exhibit Hall
146	1:30 p.m.	T7. Bridging Two Continents: New Insights into the Mechanisms of Continental Deformation from Sinoprobe Deep Seismic Reflection Profiling and Receiver-Function Studies of the Lithosphere	Room 347/348
147	1:30 p.m.	Quaternary Geology: Melting Ice, Sea-Level Change, and New Insights into Old Geomorphic Paradigms	Room 319/320
148	1:30 p.m.	P2. Savor the Cryosphere ( <i>GSA Quaternary Geology and Geomorphology Division; GSA Environmental and Engineering Geology Division; Extreme Ice Survey; Earth Vision Institute</i> )	Room 327/328/329
149	1:30 p.m.	T3. Bridging Two Continents: Comparative Studies of Accretionary Orogenesis in the Central Asian Orogenic Belt, North American Cordillera, and Other Orogenic Belts II ( <i>GSA Structural Geology and Tectonics Division; GSA Mineralogy, Geochemistry, Petrology, and Volcanology Division</i> )	Room 349/350



NO.	TIME	DESCRIPTION (COSPONSORS)	LOCATION
150	1:30 p.m.	T10. Frontiers in Geoarchaeology ( <i>GSA Archaeological Geology Division; GSA Quaternary Geology and Geomorphology Division</i> )	Room 318
151	1:30 p.m.	T13. Geologic Energy Research I ( <i>GSA Energy Geology Division; GSA Environmental and Engineering Geology Division</i> )	Room 321
152	1:30 p.m.	T15. Dimension Stone and Heritage Stone: Quarries, Building Stones, Monuments, Sculpture, Utilitarian Stones, and More	Room 339
153	1:30 p.m.	T39. Sources, Transport, Fate, and Toxicology of Trace Elements and Organics in the Environment ( <i>International Association of GeoChemistry; Geochemical Society; GSA Mineralogy, Geochemistry, Petrology, and Volcanology Division</i> )	Room 322/323
154	1:30 p.m.	T61. Geophysical Solutions to Geological Problems: Current Research Results and the Annual George P. Woollard Award Presentation ( <i>GSA Geophysics Division</i> )	Room 340
155	1:30 p.m.	T64. Rotations, Oroclinal Bending; Variscan-Alleghenian Nondipoles; Diagenetic Enigmatic Remagnetizations; Vignettes of Orogenies and Oceans: A Celebration of Rob Van der Voo's Career ( <i>GSA Geophysics Division; GSA Structural Geology and Tectonics Division; GSA Sedimentary Geology Division</i> )	Room 338
156	1:30 p.m.	T75. Field-Based Educational Research: Insights from Field Camps, Field Trips, and Field-Based Courses ( <i>GSA Geoscience Education Division; National Association of Geoscience Teachers</i> )	Room 337
157	1:30 p.m.	T94. Entering Our Third Century in the Footsteps of William Smith: Status and Future of Geological Mapping ( <i>Association of American State Geologists; GSA Quaternary Geology and Geomorphology Division</i> )	Room 336
158	1:30 p.m.	T98. The Great Images in Geology I ( <i>GSA History and Philosophy of Geology Division; History of Earth Sciences Society</i> )	Room 325/326
159	1:30 p.m.	T104. Delivery of Nutrients and Contaminants by Groundwater to Estuaries and Their Watersheds ( <i>GSA Hydrogeology Division</i> )	Room 307
160	1:30 p.m.	T106. From Green Roofs and Gutters to Urban Streams: Advancing Urban Watershed Hydrology through Innovative Field and Modeling Approaches ( <i>GSA Hydrogeology Division; GSA Environmental and Engineering Geology Division</i> )	Room 342
161	1:30 p.m.	T115. Cave Exploration, Survey, and Science: Historical to Modern Perspectives, Methods, and Techniques ( <i>GSA Karst Division; Cave Research Foundation; National Speleological Society; GSA Quaternary Geology and Geomorphology Division</i> )	Room 345/346
162	1:30 p.m.	T128. Field and Modeling Approaches to Understanding the Response of Coupled Barrier-Backbarrier Systems to Coastal Change ( <i>SEPM [Society for Sedimentary Geology]; Coastal Education &amp; Research Foundation; GSA Quaternary Geology and Geomorphology Division</i> )	Room 309
163	1:30 p.m.	T147. Biotic Interactions and Their Influence on Long-Term Evolution II ( <i>Paleontological Society</i> )	Room 314
164	1:30 p.m.	T148. Cenozoic Evolution of Tropical Biota and Environments I: A Session Honoring the Contributions of Ann F. Budd ( <i>SEPM [Society for Sedimentary Geology]; Paleontological Society</i> )	Room 310
165	1:30 p.m.	T156. Earth Underfoot: New Frontiers in Ichnology and Zoogeomorphology ( <i>SEPM [Society for Sedimentary Geology]; Paleontological Society</i> )	Room 316
166	1:30 p.m.	T160. Topics in Paleocology: Modern Analogues and Ancient Systems I ( <i>Paleontological Society</i> )	Room 315
167	1:30 p.m.	T166. Metamorphic Petrology: New Approaches and Outcomes ( <i>GSA Mineralogy, Geochemistry, Petrology, and Volcanology Division; Mineralogical Society of America; Mineralogical Association of Canada</i> )	Room 317
168	1:30 p.m.	T168. Subduction, Fluids, Accessory Minerals, and Trace Elements: A Celebration of Sorena Sorensen's Career ( <i>Mineralogical Society of America; GSA Mineralogy, Geochemistry, Petrology, and Volcanology Division; Geochemical Society</i> )	Room 341
169	1:30 p.m.	T174. Microscopic Impact Records ( <i>GSA Mineralogy, Geochemistry, Petrology, and Volcanology Division; Geochemical Society</i> )	Room 344

# Sessions Calendar

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NO.	TIME	DESCRIPTION (COSPONSORS)	LOCATION
170	1:30 p.m.	T178. 70 Years of Geoscience at UNESCO: Past, Present, and Future	Room 331/332
171	1:30 p.m.	T195. Paleoenvironmental Reconstruction of Hominin Sites: New Methods, New Data, and New Insights II ( <i>SEPM [Society for Sedimentary Geology]; GSA Limnogeology Division; GSA Sedimentary Geology Division; GSA Quaternary Geology and Geomorphology Division; GSA Archaeological Geology Division</i> )	Room 324
172	1:30 p.m.	T204. The Reactive Soil: Processes at the Bio-Geo Interface in the Rhizosphere	Room 343
173	1:30 p.m.	T210. Strike Slip Fault Systems Transfer Stress Inboard from the Subduction Zone Margin Leading to Basin Subsidence and Orogenesis, Are Conduits for Magmatism, and Are Responsible for Far-Traveled Terrane Translation ( <i>GSA Structural Geology and Tectonics Division; GSA Mineralogy, Geochemistry, Petrology, and Volcanology Division</i> )	Room 308
174	3 p.m.	T8. Bridging Two Continents: Supercontinents in Earth's History: New Perspectives from Precambrian Geology of Asia and North America	Room 347/348
175	5 p.m.	GSA Hydrogeology Division: Henry Darcy Distinguished Lecture	Ballroom IV
<b>Tuesday, 3 November</b>			
176	8 a.m.	Paleontology: Evolutionary Patterns in the Fossil Record	Room 316
177	8 a.m.	P3. Earth-Life Systems at the Dawn of Animals ( <i>Paleontological Society; GSA Geobiology &amp; Geomicrobiology Division</i> )	Room 327/328/329
178	8 a.m.	T13. Geologic Energy Research II ( <i>GSA Energy Geology Division; GSA Environmental and Engineering Geology Division</i> )	Room 321
179	8 a.m.	T35. Honoring the Diverse Career of Dr. W. Berry Lyons: Geochemistry from Polar Deserts to Tropical Watersheds ( <i>GSA Mineralogy, Geochemistry, Petrology, and Volcanology Division; GSA Hydrogeology Division; GSA Limnogeology Division; International Association of GeoChemistry; Geochemical Society</i> )	Room 342
180	8 a.m.	T49. Mechanistic Insights into the Biogeochemical Processes Controlling Phosphorus Transport and Cycling ( <i>GSA Geobiology &amp; Geomicrobiology Division; GSA Mineralogy, Geochemistry, Petrology, and Volcanology Division; Geochemical Society</i> )	Room 343
181	8 a.m.	T59. Advances in Crustal Geophysics and Tectonics I: In Honor of G.R. Keller ( <i>GSA Geophysics Division; GSA Structural Geology and Tectonics Division; GSA Mineralogy, Geochemistry, Petrology, and Volcanology Division; GSA Geoinformatics Division</i> )	Room 347/348
182	8 a.m.	T63. Intraplate Earthquakes, Seismotectonics, and Geodynamics in Eastern and Central North America ( <i>GSA Structural Geology and Tectonics Division; GSA Geophysics Division; GSA Environmental and Engineering Geology Division; GSA Quaternary Geology and Geomorphology Division; EarthScope; U.S. Geological Survey</i> )	Room 322/323
183	8 a.m.	T68. Climate Literacy: Formal and Informal Education and Outreach Activities and Research and Evaluation Measures of Success ( <i>GSA Geoscience Education Division; CLEAN Network; GSA Geology and Society Division; National Association of Geoscience Teachers; GSA Quaternary Geology and Geomorphology Division</i> )	Room 324

NO.	TIME	DESCRIPTION (COSPONSORS)	LOCATION
184	8 a.m.	T76. GeoCorps™ America and Mosaics in Science Programs: Successful Partnerships Promoting Individual Professional Development and Application of Geoscience and Related Fields to Management of America's Public Lands ( <i>GSA Geology and Society Division</i> )	Room 338
185	8 a.m.	T77. Geology and Hydrology in the National Parks: Research, Mapping, and Resource Management I ( <i>GSA Hydrogeology Division; GSA Geology and Society Division</i> )	Room 309
186	8 a.m.	T81. Intentional Integration of Research into the Curriculum: Undergraduate Research as a Teaching Practice ( <i>Council on Undergraduate Research Geosciences Division</i> )	Room 339
187	8 a.m.	T87. Supporting Geoscience Student Transfer: Collaborations, Partnerships, and Practices for Success ( <i>GSA Geoscience Education Division; National Association of Geoscience Teachers; Geo2YC Division of the National Association of Geoscience Teachers</i> )	Room 337
188	8 a.m.	T97. Specimen-Based Research and the Reality of Paleontological Resource, Specimen and Data Management: Strengthening Partnerships among Federal Land Managers, Repositories, and Researchers ( <i>Society for the Preservation of Natural History Collections; Paleontological Society; STEPPE; Society of Vertebrate Paleontology</i> )	Room 318
189	8 a.m.	T98. The Great Images in Geology II ( <i>GSA History and Philosophy of Geology Division; History of Earth Sciences Society</i> )	Room 325/326
190	8 a.m.	T110. Satellite Remote Sensing Applications in Hydrology and Geology ( <i>GSA Hydrogeology Division; GSA Geoinformatics Division; GSA Geology and Society Division</i> )	Room 341
191	8 a.m.	T112. Understanding Saline Fluid Flow Systems: From Saltwater Intrusion to Geologic-Scale Brine Migration ( <i>GSA Hydrogeology Division; International Association of Hydrogeologists; Society of Economic Geologists</i> )	Room 345/346
192	8 a.m.	T136. Decadal to Century-Scale Proxy Climate Records in High-Altitude and High-Latitude Landscapes ( <i>GSA Quaternary Geology and Geomorphology Division</i> )	Room 340
193	8 a.m.	T148. Cenozoic Evolution of Tropical Biota and Environments II: A Session Honoring the Contributions of Ann F. Budd ( <i>SEPM [Society for Sedimentary Geology]; Paleontological Society</i> )	Room 310
194	8 a.m.	T160. Topics in Paleoecology: Modern Analogues and Ancient Systems II ( <i>Paleontological Society</i> )	Room 315
195	8 a.m.	T162. A Lower Crustal Perspective on Magmatic Arc Processes ( <i>GSA Mineralogy, Geochemistry, Petrology, and Volcanology Division</i> )	Room 331/332
196	8 a.m.	T165. Zen and Now: Honoring the Legacy of E-an Zen's Contributions to Geology ( <i>GSA Mineralogy, Geochemistry, Petrology, and Volcanology Division; Mineralogical Society of America; Geochemical Society</i> )	Room 317
197	8 a.m.	T185. Coastal Hazards from Minutes to Millennia ( <i>GSA Quaternary Geology and Geomorphology Division; GSA Geology and Society Division</i> )	Room 307
198	8 a.m.	T190. Paleocological Patterns, Ecological Processes, Modeled Scenarios: Crossing Temporal Scales to Understand an Uncertain Future ( <i>GSA Quaternary Geology and Geomorphology Division; AASP - The Palynological Society; Canadian Association of Palynology; GSA Limnogeology Division; Paleoceanography/Paleoclimatology Discipline; SEPM [Society for Sedimentary Geology]; Paleontological Society</i> )	Room 314
199	8 a.m.	T192. Lawrence A. Hardie Commemorative Session I ( <i>GSA Mineralogy, Geochemistry, Petrology, and Volcanology Division</i> )	Room 319/320
200	8 a.m.	T197. Sedimentary Basins I	Room 349/350
201	8 a.m.	T200. Landscape Dynamics: Integrating Soils, Hydrology, and Climatic Processes to Understand Weathering, Sediment Transport, and Biospheric Processes	Room 336
202	8 a.m.	T211. Structural Geology and Geomechanics in the Petroleum Industry ( <i>GSA Structural Geology and Tectonics Division; American Association of Petroleum Geologists Petroleum Structure and Geomechanics Division; GSA Energy Geology Division</i> )	Room 308
203	8 a.m.	T218. Comparative Approaches to Studying Impact Ejecta Deposits and Volcanic Flows ( <i>GSA Planetary Geology Division; NASA Solar System Exploration Research Virtual Institute; GSA Mineralogy, Geochemistry, Petrology, and Volcanology Division</i> )	Room 344

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NO.	TIME	DESCRIPTION (COSPONSORS)	LOCATION
204	9 a.m.	T9. Developing Proxies for Human Impact on Soil and Sediment Mass Transfer throughout the Holocene (Posters) ( <i>GSA Quaternary Geology and Geomorphology Division; Past Global Changes [PAGES] GLoSS Working Group; GSA Geology and Society Division; GSA Soils and Soil Processes Interdisciplinary Interest Group; GSA Archaeological Geology Division</i> )	Exhibit Hall
205	9 a.m.	T10. Frontiers in Geoarchaeology (Posters) ( <i>GSA Archaeological Geology Division; GSA Quaternary Geology and Geomorphology Division</i> )	Exhibit Hall
206	9 a.m.	Economic Geology (Posters)	Exhibit Hall
207	9 a.m.	T21. Environmental and Engineering Geology Student Research Competition (Posters) ( <i>GSA Environmental and Engineering Geology Division</i> )	Exhibit Hall
208	9 a.m.	T25. An Early Involvement of Undergraduates and K–12 Students in Geological Research Brings a Strong Sense of Ownership and Achievement for Young Researchers (Posters) ( <i>GSA Geoscience Education Division; GSA Environmental and Engineering Geology Division; GSA Geology and Society Division; GSA Sedimentary Geology Division; Council on Undergraduate Research Geosciences Division; National Earth Science Teachers Association; GSA Quaternary Geology and Geomorphology Division</i> )	Exhibit Hall
209	9 a.m.	T27. Intersections of Sustainability and Geosciences (Posters) ( <i>GSA Environmental and Engineering Geology Division; GSA Geology and Society Division</i> )	Exhibit Hall
210	9 a.m.	T38. Sigma Gamma Epsilon—Undergraduate Research (Posters) ( <i>Sigma Gamma Epsilon</i> )	Exhibit Hall
211	9 a.m.	T54. Geomorphology and Hydrology of Wildland Fires (Posters) ( <i>GSA Quaternary Geology and Geomorphology Division; GSA Environmental and Engineering Geology Division</i> )	Exhibit Hall
212	9 a.m.	T55. Investigating Coastal Environments: A Tribute to Derald G. Smith (Posters) ( <i>GSA Quaternary Geology and Geomorphology Division; GSA Limnogeology Division; Marine/Coastal Science Discipline</i> )	Exhibit Hall
213	9 a.m.	T56. Landslide Inventories and Time Series: Data Collection, Statistics, Geospatial Analysis, and Relationships to Other Geohazards (Posters) ( <i>GSA Environmental and Engineering Geology Division; GSA Quaternary Geology and Geomorphology Division; GSA Geoinformatics Division</i> )	Exhibit Hall
214	9 a.m.	T57. Soil to Sediment and Channels—From Geologic to Modern Time Scales: A Session to Honor the Work of Milan Pavich (Posters) ( <i>GSA Quaternary Geology and Geomorphology Division; GSA Soils and Soil Processes Interdisciplinary Interest Group</i> )	Exhibit Hall
215	9 a.m.	T81. Intentional Integration of Research into the Curriculum: Undergraduate Research as a Teaching Practice (Posters) ( <i>Council on Undergraduate Research Geosciences Division</i> )	Exhibit Hall
216	9 a.m.	T86. Research on Teaching and Student Learning in the K–12 Earth Science Classroom (Posters) ( <i>GSA Geoscience Education Division; National Earth Science Teachers Association; National Association of Geoscience Teachers</i> )	Exhibit Hall
217	9 a.m.	T114. Advances in Island and Coastal Karst Investigations (Posters) ( <i>GSA Karst Division; GSA Quaternary Geology and Geomorphology Division</i> )	Exhibit Hall
218	9 a.m.	T120. Karst Processes and Speleogenesis: Advances in Monitoring, Modeling, and Measurements (Posters) ( <i>GSA Hydrogeology Division; GSA Karst Division; Karst Waters Institute; National Cave and Karst Research Institute; GSA Quaternary Geology and Geomorphology Division</i> )	Exhibit Hall

NO.	TIME	DESCRIPTION (COSPONSORS)	LOCATION
219	9 a.m.	T138. From the Caspian to Mediterranean: Environmental Change and Human Response during the Quaternary (IGCP 610) (Posters) ( <i>Paleontological Society; Paleoceanography/ Paleoclimatology Discipline; Avalon Institute of Applied Sciences, Canada; GSA Archaeological Geology Division</i> )	Exhibit Hall
220	9 a.m.	T140. Late Paleocene and Early Eocene Hyperthermal Events in Terrestrial and Marine Systems (Posters)	Exhibit Hall
221	9 a.m.	Paleontology: The Early and Middle Paleozoic: Biodiversity, Biogeography, and Biostratigraphy (Posters)	Exhibit Hall
222	9 a.m.	Paleontology: The Mesozoic World (Posters)	Exhibit Hall
223	9 a.m.	T144. 200 Years and Going Strong: The Role of Paleontology in Geologic Mapping (Posters) ( <i>AASP - The Palynological Society; Paleontological Society; SEPM [Society for Sedimentary Geology]</i> )	Exhibit Hall
224	9 a.m.	T150. Early and Middle Triassic Restructuring Following the End-Permian Mass Extinction (Posters) ( <i>Paleontological Society</i> )	Exhibit Hall
225	9 a.m.	T152. Geobiology of Critical Transitions: Integrating Fossils, Proxies, and Models (Posters) ( <i>GSA Geobiology &amp; Geomicrobiology Division; The Paleontological Society; Geochemical Society</i> )	Exhibit Hall
226	9 a.m.	T158. Perspectives on Multi-Element Skeleton Taphonomy: Case Studies, Approaches, and Advances (Posters) ( <i>Paleontological Society</i> )	Exhibit Hall
227	9 a.m.	T163. A Matter of Perspective: Integrating Macro- and Micro-Scale Evidence in Investigations of Magmatic Origins and Histories (Posters) ( <i>GSA Mineralogy, Geochemistry, Petrology, and Volcanology Division; Mineralogical Society of America; Geochemical Society; GSA Planetary Geology Division</i> )	Exhibit Hall
228	9 a.m.	Sediments, Carbonates (Posters)	Exhibit Hall
229	9 a.m.	Sediments, Clastic (Posters)	Exhibit Hall
230	9 a.m.	T194. New Horizons in Paleogeography: Principles, Innovative Methods, and Application to Resource Exploration (Posters) ( <i>Paleontological Society; Journal of Palaeogeography</i> )	Exhibit Hall
231	9 a.m.	Soils (Posters)	Exhibit Hall
232	9 a.m.	T202. Paleosol Case Studies: Resurrecting Ancient Critical Zones through Space and Time (Posters)	Exhibit Hall
233	1:30 p.m.	Archaeological Geology	Room 318
234	1:30 p.m.	Planetary Geology: Understanding Mars Geology from Orbiter to Rover-Based Exploration: The G.K. Gilbert Award Session	Room 344
235	1:30 p.m.	P4. Similar Information, Different Results: Fracking from State to State ( <i>GSA Geology and Society Division; GSA Energy Geology Division; GSA Geoinformatics Division</i> )	Room 327/328/329
236	1:30 p.m.	T12. From Peat to Coke: Honoring the Legacy of William Spackman ( <i>GSA Energy Geology Division; AASP - The Palynological Society; Paleontological Society</i> )	Room 321
237	1:30 p.m.	T23. Landslide, Subsidence, and Debris Flow-Hazards: Integrating Engineering Geology Research and Communication Solutions ( <i>GSA Environmental and Engineering Geology Division; GSA Geology and Society Division; GSA Quaternary Geology and Geomorphology Division; Association of Environmental and Engineering Geologists; U.S. Geological Survey, Landslide Hazards Program; GSA Karst Division</i> )	Room 339
238	1:30 p.m.	T36. Mercury Biogeochemistry: Sizing up Element 80 in the Earth System ( <i>Geochemical Society</i> )	Room 322/323
239	1:30 p.m.	T46. Using Digitized Data in Geological and Paleontological Research I ( <i>Paleontological Society; Society for the Preservation of Natural History Collections; GSA Geoinformatics Division; EarthCube C4P; iSamples</i> )	Room 314
240	1:30 p.m.	T57. Soil to Sediment—From Geologic to Modern Time Scales: A Session to Honor the Work of Milan Pavich ( <i>GSA Quaternary Geology and Geomorphology Division; GSA Soils and Soil Processes Interdisciplinary Interest Group</i> )	Room 331/332



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NO.	TIME	DESCRIPTION (COSPONSORS)	LOCATION
241	1:30 p.m.	T59. Advances in Crustal Geophysics and Tectonics II: In Honor of G.R. Keller ( <i>GSA Geophysics Division; GSA Structural Geology and Tectonics Division; GSA Mineralogy, Geochemistry, Petrology, and Volcanology Division; GSA Geoinformatics Division</i> )	Room 347/348
242	1:30 p.m.	T86. Research on Teaching and Student Learning in the K–12 Earth Science Classroom ( <i>GSA Geoscience Education Division; National Earth Science Teachers Association; National Association of Geoscience Teachers</i> )	Room 324
243	1:30 p.m.	T90. Undergraduate Geoscience Education and Research Opportunities Supported by NSF Funding Programs	Room 336
244	1:30 p.m.	T95. Evolution of the Data Life Cycle ( <i>Geoscience Information Society</i> )	Room 338
245	1:30 p.m.	T117. Enhancing the Toolkit for Karst Investigations ( <i>GSA Karst Division; GSA Hydrogeology Division</i> )	Room 340
246	1:30 p.m.	T129. Forecasting the Coastal Response to Sea-Level Rise: Integrating the Past and Present to Inform the Future ( <i>GSA Quaternary Geology and Geomorphology Division; Marine/Coastal Science Discipline</i> )	Room 345/346
247	1:30 p.m.	T140. Late Paleocene and Early Eocene Hyperthermal Events in Terrestrial and Marine Systems	Room 342
248	1:30 p.m.	T142. The Middle Paleozoic World ( <i>SEPM [Society for Sedimentary Geology]; GSA Sedimentary Geology Division; Paleontological Society</i> )	Room 337
249	1:30 p.m.	T148. Cenozoic Evolution of Tropical Biota and Environments III: A Session Honoring the Contributions of Ann F. Budd ( <i>SEPM [Society for Sedimentary Geology]; Paleontological Society</i> )	Room 310
250	1:30 p.m.	T152. Geobiology of Critical Transitions: Integrating Fossils, Proxies, and Models I ( <i>GSA Geobiology &amp; Geomicrobiology Division; Paleontological Society; Geochemical Society</i> )	Room 325/326
251	1:30 p.m.	T154. Phanerozoic Evolution in the Oceans: Effects of Warming and Chemical Changes ( <i>Cushman Foundation; Paleontological Society; Paleontological Research Institute</i> )	Room 316
252	1:30 p.m.	T160. Topics in Paleocology: Modern Analogues and Ancient Systems III ( <i>Paleontological Society</i> )	Room 315
253	1:30 p.m.	T180. Geoscience in the Public Square: Meeting the Challenges and Seizing the Opportunities ( <i>GSA Geology and Society Division</i> )	Room 307
254	1:30 p.m.	T187. Geology, Geomorphology, and Biogeography of the Amazon: Integrating Approaches and Disciplines to Understand the Evolution of a Unique Ecosystem ( <i>GSA Quaternary Geology and Geomorphology Division</i> )	Room 341
255	1:30 p.m.	T192. Lawrence A. Hardie Commemorative Session II ( <i>GSA Mineralogy, Geochemistry, Petrology, and Volcanology Division</i> )	Room 319/320
256	1:30 p.m.	T197. Sedimentary Basins II	Room 343
257	1:30 p.m.	T205. Integration of Microfossils and Sedimentology in Stratigraphic Analysis ( <i>AASP - The Palynological Society; SEPM [Society for Sedimentary Geology]; Cushman Foundation for Foraminiferal Research; GSA Quaternary Geology and Geomorphology Division</i> )	Room 349/350
258	3 p.m.	Mineralogical Society of America (MSA) Awards Lectures, Presidential Address, and Annual Business Meeting	Room 317



NO.	TIME	DESCRIPTION (COSPONSORS)	LOCATION
259	3:30 p.m.	T77. Geology and Hydrology in the National Parks: Research, Mapping, and Resource Management II ( <i>GSA Hydrogeology Division; GSA Geology and Society Division</i> )	Room 309
260	4:30 p.m.	GSA Hydrogeology Division: Birdsall-Dreiss Distinguished Lecture	Ballroom IV
<b>Wednesday, 4 November</b>			
261	8 a.m.	Environmental Geoscience	Room 339
262	8 a.m.	Geoscience Education	Room 338
263	8 a.m.	Karst: Visualizing Karst through Multiple Disciplines: Geochemistry, Geophysics, Remote Sensing, and More	Room 341
264	8 a.m.	Paleoclimatology/Paleoceanography	Room 331/332
265	8 a.m.	Paleontology: Go Big or Go Home: Fossil Range Sizes and Body Sizes	Room 310
266	8 a.m.	Sediments, Clastic	Room 340
267	8 a.m.	Tectonics: Exhumation, Erosion, Subsidence, and Rotation	Room 347/348
268	8 a.m.	P5. Appalachian Geomorphology I ( <i>GSA Quaternary Geology and Geomorphology Division</i> )	Room 327/328/329
269	8 a.m.	T17. Metallic Mineral Deposits in the Midcontinent Region of North America: Origin and Exploration ( <i>Society of Economic Geologists; GSA Mineralogy, Geochemistry, Petrology, and Volcanology Division; Geochemical Society</i> )	Room 343
270	8 a.m.	T46. Using Digitized Data in Geological and Paleontological Research II ( <i>Paleontological Society; Society for the Preservation of Natural History Collections; GSA Geoinformatics Division; EarthCube C4P; iSamples</i> )	Room 314
271	8 a.m.	T50. Microbial Hydrocarbon Formation and Biodegradation: Organisms, Pathways, Environmental Limitations, and Isotope Signatures ( <i>GSA Energy Geology Division; GSA Hydrogeology Division; Geochemical Society</i> )	Room 349/350
272	8 a.m.	T79. Geoscience Career Planning in the Classroom and Beyond	Room 324
273	8 a.m.	T89. Trans-Disciplinary Pedagogical Strategies—Enhancing STEM Instruction through Real-Time Problem Solving Facilitated by Interdisciplinary, Project-Based Learning ( <i>GSA Geoscience Education Division</i> )	Room 321
274	8 a.m.	T101. Arsenic: Source to Sustainability I ( <i>GSA Hydrogeology Division; GSA Geobiology &amp; Geomicrobiology Division; GSA Geology and Society Division; GSA Environmental and Engineering Geology Division; International Society of Groundwater for Sustainable Development</i> )	Room 337
275	8 a.m.	T109. Water and Fluid Migration during Energy Development: Implications for Hydraulic Fracturing, CO <sub>2</sub> Storage, Enhanced Oil Recovery, In Situ Uranium Recovery, and Waste Water Injection ( <i>GSA Hydrogeology Division; GSA Energy Geology Division</i> )	Room 309
276	8 a.m.	T111. Sustainability and Resilience in Major Urban Areas: The Need for Earth and Environmental Science Information in Formulating Plans, Policies, and Programs ( <i>GSA Hydrogeology Division; GSA Geology and Society Division; GSA Environmental and Engineering Geology Division</i> )	Room 342
277	8 a.m.	T137. Fresh Perspectives on Critical Transitions in Earth History: Insights from Novel Tools or New Successions ( <i>GSA Geobiology &amp; Geomicrobiology Division; GSA Sedimentary Geology Division; GSA Mineralogy, Geochemistry, Petrology, and Volcanology Division; Geochemical Society</i> )	Room 319/320
278	8 a.m.	T150. Early and Middle Triassic Restructuring Following the End-Permian Mass Extinction ( <i>Paleontological Society</i> )	Room 316
279	8 a.m.	T151. Foraminiferal Responses and Recovery from Environmental Stressors ( <i>Paleontological Society; SEPM [Society for Sedimentary Geology]; GSA Quaternary Geology and Geomorphology Division</i> )	Room 315
280	8 a.m.	T152. Geobiology of Critical Transitions: Integrating Fossils, Proxies, and Models II ( <i>GSA Geobiology &amp; Geomicrobiology Division; Paleontological Society; Geochemical Society</i> )	Room 325/326

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NO.	TIME	DESCRIPTION (COSPONSORS)	LOCATION
281	8 a.m.	T167. Metamorphic, Metasomatic, and Igneous Processes in the Mid- and Deep Continental Crust: Mechanisms and Processes That Impact Mass Transport and Rheology (GSA <i>Mineralogy, Geochemistry, Petrology, and Volcanology Division</i> ; GSA <i>Structural Geology and Tectonics Division</i> ; <i>Mineralogical Society of America</i> )	Room 317
282	8 a.m.	T172. Geology of Dwarf Planets: First Results from NASA's Dawn Mission to Ceres (GSA <i>Planetary Geology Division</i> )	Room 344
283	8 a.m.	T191. Reconstructing Arctic Glaciers and Ice Sheets: Chronology, Geomorphology, and Climate Records (GSA <i>Quaternary Geology and Geomorphology Division</i> )	Room 307
284	8 a.m.	T194. New Horizons in Paleogeography: Principles, Innovative Methods, and Application to Resource Exploration ( <i>Paleontological Society</i> ; <i>Journal of Palaeogeography</i> )	Room 336
285	8 a.m.	T202. Paleosol Case Studies: Resurrecting Ancient Critical Zones through Space and Time	Room 345/346
286	8 a.m.	T207. Folds and Folding: Earth's Surface to Depth (GSA <i>Structural Geology and Tectonics Division</i> )	Room 322/323
287	8 a.m.	T213. Integrating Perspectives on the Formation, Evolution, and Destruction of Continental Crust: From 0 to 4600 Ma ( <i>Geochemical Society</i> ; GSA <i>Geophysics Division</i> ; GSA <i>Mineralogy, Geochemistry, Petrology, and Volcanology Division</i> ; <i>Mineralogical Society of America</i> ; <i>Geological Association of Canada</i> ; <i>Mineralogical Association of Canada</i> ; GSA <i>Planetary Geology Division</i> )	Room 308
288	9 a.m.	Environmental Geoscience (Posters)	Exhibit Hall
289	9 a.m.	T31. Unmanned Aerial Vehicles and Their Use in Geologic Reconnaissance (Posters) (GSA <i>Environmental and Engineering Geology Division</i> ; GSA <i>Geology and Society Division</i> ; GSA <i>Quaternary Geology and Geomorphology Division</i> )	Exhibit Hall
290	9 a.m.	T46. Using Digitized Data in Geological and Paleontological Research (Posters) ( <i>Paleontological Society</i> ; <i>Society for the Preservation of Natural History Collections</i> ; GSA <i>Geoinformatics Division</i> ; <i>EarthCube C4P</i> ; <i>iSamples</i> )	Exhibit Hall
291	9 a.m.	Geomorphology and Quaternary Geology (Posters)	Exhibit Hall
292	9 a.m.	T61. Geophysical Solutions to Geological Problems: Current Research Results and the Annual George P. Woollard Award Presentation (Posters) (GSA <i>Geophysics Division</i> )	Exhibit Hall
293	9 a.m.	T63. Intraplate Earthquakes, Seismotectonics, and Geodynamics in Eastern and Central North America (Posters) (GSA <i>Structural Geology and Tectonics Division</i> ; GSA <i>Geophysics Division</i> ; GSA <i>Environmental and Engineering Geology Division</i> ; GSA <i>Quaternary Geology and Geomorphology Division</i> ; <i>EarthScope</i> ; <i>U.S. Geological Survey</i> )	Exhibit Hall
294	9 a.m.	T91. Using Place-Based and/or Data Driven Approaches in Geoscience Undergraduate Teaching and Research (Posters) ( <i>Council on Undergraduate Research Geosciences Division</i> )	Exhibit Hall
295	9 a.m.	Geoscience Information/Communication: Past Events Can Guide Communication and Public Policy (Posters)	Exhibit Hall
296	9 a.m.	Recent Advances in Hydrogeology (Posters)	Exhibit Hall
297	9 a.m.	Limnogeology (Posters)	Exhibit Hall
298	9 a.m.	T125. Lakes of the World (Posters) (GSA <i>Limnogeology Division</i> ; GSA <i>Quaternary Geology and Geomorphology Division</i> )	Exhibit Hall
299	9 a.m.	Mineralogy/Crystallography (Posters)	Exhibit Hall
300	9 a.m.	T131. Gemological Research in the 21st Century: Exploration, Geology, and Characterization of Diamonds and other Gem Minerals (Posters)	Exhibit Hall

NO.	TIME	DESCRIPTION (COSPONSORS)	LOCATION
301	9 a.m.	T161. Echinoderm Paleobiology: Diversity, Form, and Phylogeny (Posters) ( <i>Paleontological Society</i> )	Exhibit Hall
302	9 a.m.	T162. A Lower Crustal Perspective on Magmatic Arc Processes (Posters) ( <i>GSA Mineralogy, Geochemistry, Petrology, and Volcanology Division</i> )	Exhibit Hall
303	9 a.m.	Petrology, Metamorphic (Posters)	Exhibit Hall
304	9 a.m.	T166. Metamorphic Petrology: New Approaches and Outcomes (Posters) ( <i>GSA Mineralogy, Geochemistry, Petrology, and Volcanology Division; Mineralogical Society of America; Mineralogical Association of Canada</i> )	Exhibit Hall
305	9 a.m.	T167. Metamorphic, Metasomatic, and Igneous Processes in the Mid- and Deep Continental Crust: Mechanisms and Processes That Impact Mass Transport and Rheology (Posters) ( <i>GSA Mineralogy, Geochemistry, Petrology, and Volcanology Division; GSA Structural Geology and Tectonics Division; Mineralogical Society of America</i> )	Exhibit Hall
306	9 a.m.	T168. Subduction, Fluids, Accessory Minerals, and Trace Elements: A Celebration of Sorena Sorensen's Career (Posters) ( <i>Mineralogical Society of America; GSA Mineralogy, Geochemistry, Petrology, and Volcanology Division; Geochemical Society</i> )	Exhibit Hall
307	9 a.m.	Planetary Geology (Posters)	Exhibit Hall
308	9 a.m.	T172. Geology of Dwarf Planets: First Results from NASA's <i>Dawn</i> Mission to Ceres (Posters) ( <i>GSA Planetary Geology Division</i> )	Exhibit Hall
309	9 a.m.	Precambrian Geology (Posters)	Exhibit Hall
310	9 a.m.	Quaternary Geology: Pleistocene to Holocene Deposits, Landforms and Processes (Posters)	Exhibit Hall
311	9 a.m.	T188. Inside or Out? Investigations into Driving Forces in Fluvial Systems (Posters) ( <i>GSA Quaternary Geology and Geomorphology Division</i> )	Exhibit Hall
312	9 a.m.	T189. New Applications of Geochronologic Techniques to Quaternary and Archaeological Settings (Posters) ( <i>GSA Quaternary Geology and Geomorphology Division; GSA Archaeological Geology Division; GSA Karst Division</i> )	Exhibit Hall
313	9 a.m.	T190. Paleocological Patterns, Ecological Processes, Modeled Scenarios: Crossing Temporal Scales to Understand an Uncertain Future (Posters) ( <i>GSA Quaternary Geology and Geomorphology Division; AASP - The Palynological Society; Canadian Association of Palynology; GSA Limnogeology Division; Paleooceanography/Paleoclimatology Discipline; SEPM [Society for Sedimentary Geology]; Paleontological Society</i> )	Exhibit Hall
314	9 a.m.	T196. Revisiting the Atlantic Continental Margin: New Insights on the Geologic Evolution of North American Passive Margin Basins (Posters) ( <i>SEPM [Society for Sedimentary Geology]; Marine/Coastal Science Discipline</i> )	Exhibit Hall
315	9 a.m.	T197. Sedimentary Basins (Posters)	Exhibit Hall
316	9 a.m.	T198. Shale Gas Basins: Their Stratigraphy, Sedimentary Environments, Tectonics, and Structural Evolution (Posters) ( <i>GSA Sedimentary Geology Division; GSA Structural Geology and Tectonics Division; GSA Energy Geology Division</i> )	Exhibit Hall
317	9 a.m.	Stratigraphy (Posters)	Exhibit Hall
318	9 a.m.	T210. Strike Slip Fault Systems Transfer Stress Inboard from the Subduction Zone Margin Leading to Basin Subsidence and Orogenesis, Are Conduits for Magmatism, and Are Responsible for Far-Traveled Terrane Translation (Posters) ( <i>GSA Structural Geology and Tectonics Division; GSA Mineralogy, Geochemistry, Petrology, and Volcanology Division</i> )	Exhibit Hall
319	9 a.m.	T214. Mountains across the Oceans: Caledonian, Variscan, and Appalachian Orogenies through Time (Posters) ( <i>GSA Structural Geology and Tectonics Division; EGU Division on Tectonics and Structural Geology; GSA Mineralogy, Geochemistry, Petrology, and Volcanology Division</i> )	Exhibit Hall
320	9 a.m.	Volcanology (Posters)	Exhibit Hall
321	1:30 p.m.	T186. Estimating the Timing and Characteristics of Continental Earthquakes from Geologic Data ( <i>GSA Quaternary Geology and Geomorphology Division</i> )	Room 336

# Sessions Calendar

All 342 Technical Sessions will take place in the Baltimore Convention Center.

View <https://gsa.confex.com/gsa/2015AM/webprogram/start.html> for details and to browse the entire meetings schedule, or download GSA's smart-phone app at <https://gsa.confex.com/gsa/2015AM/meetingapp.cgi>.

NO.	TIME	DESCRIPTION (COSPONSORS)	LOCATION
322	1:30 p.m.	Economic Geology	Room 331/332
323	1:30 p.m.	Geochemistry: Frontiers in Geochemistry	Room 317
324	1:30 p.m.	Geoinformatics	Room 349/350
325	1:30 p.m.	Geomorphology: Channels and Channel Change at Short to Long Time Scales	Room 342
326	1:30 p.m.	Geophysics/Geodynamics	Room 322/323
327	1:30 p.m.	Paleontology: Building the Fossil Record: Taphonomic and Paleoecological Controls on Fossilization	Room 315
328	1:30 p.m.	Stratigraphy and Sediments, Carbonates	Room 340
329	1:30 p.m.	P5. Appalachian Geomorphology II ( <i>GSA Quaternary Geology and Geomorphology Division</i> )	Room 327/328/329
330	1:30 p.m.	T27. Intersections of Sustainability and Geosciences ( <i>GSA Environmental and Engineering Geology Division; GSA Geology and Society Division</i> )	Room 339
331	1:30 p.m.	T54. Geomorphology and Hydrology of Wildland Fires ( <i>GSA Quaternary Geology and Geomorphology Division; GSA Environmental and Engineering Geology Division</i> )	Room 307
332	1:30 p.m.	T92. Clear As Mud? Advancing Communication in the Geosciences ( <i>GSA Geology and Society Division; GSA Committee on Geology and Public Policy; GSA Geoscience Education Division</i> )	Room 343
333	1:30 p.m.	T100. Advances in Groundwater Modeling ( <i>GSA Hydrogeology Division; GSA Karst Division</i> )	Room 341
334	1:30 p.m.	T101. Arsenic: Source to Sustainability II ( <i>GSA Hydrogeology Division; GSA Geobiology &amp; Geomicrobiology Division; GSA Geology and Society Division; GSA Environmental and Engineering Geology Division; International Society of Groundwater for Sustainable Development</i> )	Room 337
335	1:30 p.m.	T119. Geological Interactions within the Global Carbon Cycle ( <i>GSA Karst Division; International Research Center on Karst under the Auspices of UNESCO; Karst Waters Institute; National Cave and Karst Research Institute; GSA Quaternary Geology and Geomorphology Division; GSA Mineralogy, Geochemistry, Petrology, and Volcanology Division; Geochemical Society; GSA Hydrogeology Division</i> )	Room 345/346
336	1:30 p.m.	T125. Lakes of the World ( <i>GSA Limnogeology Division; GSA Quaternary Geology and Geomorphology Division</i> )	Room 347/348
337	1:30 p.m.	T143. What Makes a Juicy Rock? Global Climate Events and Deposition of Organic Rich Shales through Time ( <i>Geochemical Society; GSA Energy Geology Division; AASP - The Palynological Society</i> )	Room 309
338	1:30 p.m.	T152. Geobiology of Critical Transitions: Integrating Fossils, Proxies, and Models III ( <i>GSA Geobiology &amp; Geomicrobiology Division; Paleontological Society; Geochemical Society</i> )	Room 325/326
339	1:30 p.m.	T161. Echinoderm Paleobiology: Diversity, Form, and Phylogeny ( <i>Paleontological Society</i> )	Room 316



NO.	TIME	DESCRIPTION (COSPONSORS)	LOCATION
340	1:30 p.m.	T175. Oceans, Fire, and Ice of the Outer Solar System ( <i>GSA Planetary Geology Division; GSA Structural Geology and Tectonics Division; GSA Quaternary Geology and Geomorphology Division; GSA Geophysics Division; GSA Mineralogy, Geochemistry, Petrology, and Volcanology Division</i> )	Room 344
341	1:30 p.m.	T212. Deconstructing Rodinia: Neoproterozoic-Cambrian Geologic Evolution of Laurentia's Margins ( <i>GSA Structural Geology and Tectonics Division; GSA Geophysics Division; GSA Sedimentary Geology Division; GSA Mineralogy, Geochemistry, Petrology, and Volcanology Division; Precambrian Geology; SEPM [Society for Sedimentary Geology]; Geochemical Society; Society of Economic Geologists; Paleoceanography/Paleoclimatology Discipline; Paleontological Society</i> )	Room 314
342	1:30 p.m.	T214. Mountains across the Oceans: Caledonian, Variscan, and Appalachian Orogenies through Time ( <i>GSA Structural Geology and Tectonics Division; EGU Division on Tectonics and Structural Geology; GSA Mineralogy, Geochemistry, Petrology, and Volcanology Division</i> )	Room 308

# 2016 CALENDAR

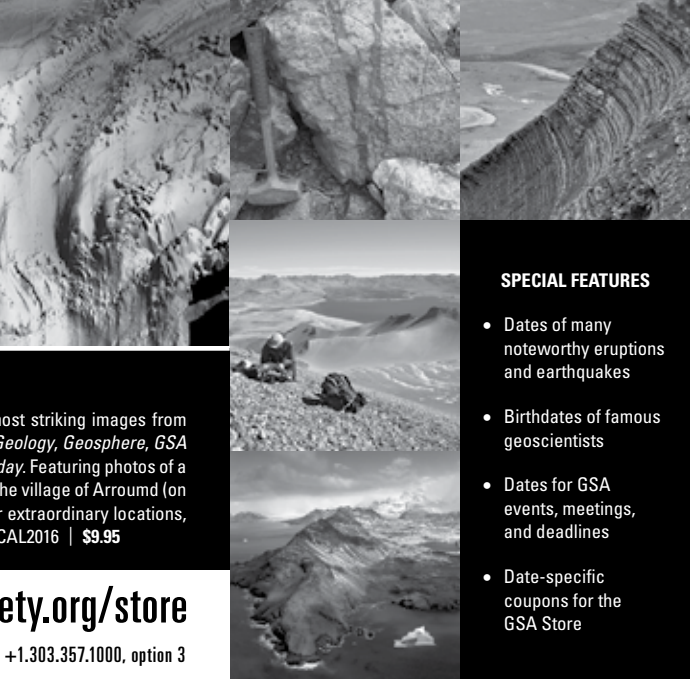
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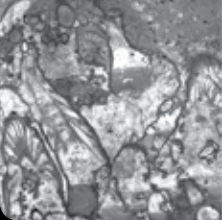
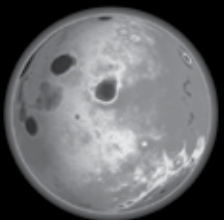




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- Dates for GSA events, meetings, and deadlines
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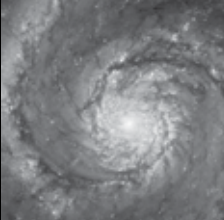



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# Technical Sessions

Meeting policy prohibits the use of cameras or sound-recording equipment at technical sessions and poster sessions.



A no-smoking policy has been established by the Program Committee and will be followed in all meeting rooms for technical sessions.

AM

SUNDAY

## NOTICE

In the interest of public information, the Geological Society of America provides a forum for the presentation of diverse opinions and positions. The opinions (views) expressed by speakers and exhibitors at these sessions are their own and do not necessarily represent the views or policies of the Geological Society of America.



## NOTE INDEX SYSTEM

Numbers (3-4, 15-4) indicate session and order of presentation within that session.

\* denotes speaker

## SUNDAY, 1 NOVEMBER 2015

### MORNING ORAL TECHNICAL SESSIONS

#### SESSION NO. 1

**P1. Celebrating the Genius of William 'Strata' Smith: Bicentennial Anniversary of Smith's Revolutionary Map I (GSA History and Philosophy of Geology Division; GSA Sedimentary Geology Division; GSA Geology and Society Division; Association of American State Geologists; Geological Society of London; History of Earth Sciences Society; Paleontological Society; GSA Karst Division)**

8:00 AM, Baltimore Convention Center, Room 327/328/329

George H. Davis, Renee Clary and Suzanne O'Connell, Presiding

- 1-1 8:00 AM Davis, George H.\*; Chan, Marjorie; Clary, Renee M.; Krantz, Robert W.; Lyttle, Peter T.; Nickless, Edmund; O'Connell, Suzanne; Price, Jonathan G.; Stephens, Daniel B.; Thorleifson, L. Harvey: **PURPOSE AND OVERVIEW OF GSA'S BICENTENARY CELEBRATION OF THE PUBLICATION IN 1815 OF WILLIAM SMITH'S MAP 'A DELINEATION OF THE STRATA OF ENGLAND AND WALES, WITH PART OF SCOTLAND', THE FIRST GEOLOGICAL MAP OF AN ENTIRE COUNTRY**
- 1-2 8:05 AM Nickless, Edmund\*: **PRACTICAL AND APPLIED CONTEXT OF SMITH'S CONTRIBUTIONS**
- 1-3 8:35 AM Stephens, Daniel B.\*; Stephens, Deborah A.: **THE ROLE OF WILLIAM SMITH'S AGRICULTURAL IMPROVEMENTS TO PRISLEY FARM IN THE DEVELOPMENT OF THE GEOLOGIC MAP**
- 9:00 AM **INTRODUCTION OF KEYNOTE SPEAKER**
- 1-4 9:05 AM Torrens, Hugh\*: **WILLIAM SMITH (1769-1839)'S SEARCHES FOR A MONEY-EARNING CAREER TO 1820**
- 9:55 AM **BREAK**
- 1-5 10:10 AM Wilson, Mark A.\*; Taylor, Paul D.; Palmer, Timothy J.: **WILLIAM SMITH AS A PALEONTOLOGIST: HIS VIEWS ON THE ORIGIN OF FOSSILS, THEIR PRESERVATION AND THE HISTORY OF LIFE**

- 1-6 10:35 AM Şengör, A.M. Celâl\*: **SMITH'S MAPPING IN CONTEXT OF HISTORY OF GEOLOGY**

#### SESSION NO. 2

##### *Marine/Coastal Science*

8:00 AM, Baltimore Convention Center, Room 342

Yuting Li and Peter D. Clift, Presiding

- 2-1 8:00 AM Kahn, Beryl C.M.\*; Feldman, Howard R.; Girgenti, Christopher D.; Molinaro, Daniel M.: **CONSTRUCTING A MAN-MADE OYSTER REEF IN THE LITTLE HELLGATE SALT MARSH, RANDALL'S ISLAND, NEW YORK: A PROJECT OVERVIEW**
- 2-2 8:15 AM Bullard, Elizabeth M.\*: **CHANGES IN ROCKY INTERTIDAL MOLLUSCAN ASSEMBLAGES ALONG AN ANTHROPOGENIC GRADIENT**
- 2-3 8:30 AM Pico, Tamara\*; Mitrovica, Jerry X.; Ferrier, Ken L.: **SEDIMENT LOADING AT THE YELLOW RIVER DELTA: MODELING DEPOSITIONAL DYNAMICS AND IMPACT ON REGIONAL SEA LEVEL**
- 2-4 8:45 AM Mantay, Kirk\*: **EVOLUTION AND REVOLUTION IN COASTAL FLOODPLAIN RECONNECTION METHODS**
- 2-5 9:00 AM Weinstock, Jane B.\*; Bassett, Kari N.: **DEATH OF A DROWNED FOREST: TSUNAMI RISK ON THE CONWAY COAST, SOUTH ISLAND, NEW ZEALAND**
- 2-6 9:15 AM Ranasinghe, Pradeep\*; Donnelly, Jeffrey P.; Ambillapitiya, T.; Senevirathne, B.S.M.C.K.; Rajapaksha, R.P.S.K.: **SIGNATURES OF PRE-2004 INDIAN OCEAN TSUNAMI EVENTS FROM SRI LANKA**
- 2-7 9:30 AM Li, Yuting\*; Clift, Peter D.; Boening, Philipp; Guilderson, Tom; Giosan, Liviu: **CONTROLS ON SEDIMENT FLUX THROUGH THE INDUS SUBMARINE CANYON DURING THE LAST GLACIAL CYCLE**
- 2-8 9:45 AM Keller, Ed\*: **COASTLINES AT A CROSSROAD: ROLE OF SCIENCE AND VALUES**
- 10:00 AM **BREAK**

SESSION NO. 2

- 2-9 10:15 AM Gomez, Christopher A.\*: **THE ANTHROPOCENE: OBSERVATIONS AND EXPECTATIONS FOR COASTAL EVOLUTION AND SEDIMENTARY RECORDS**
- 2-10 10:30 AM Halsey, Susan D.\*; Sevon, William D.: **STATUS OF RECOVERY FROM SUPERSTORM SANDY, NORTHERN NEW JERSEY SHORE: LESSONS FROM THE FIRST 1000 DAYS**
- 2-11 10:45 AM Tormey, Blair R.\*; Peek, Katie McDowell; Young, Robert S.: **ASSESSING CLIMATE CHANGE AND HAZARD VULNERABILITY IN THE BUILT ENVIRONMENT: A METHODOLOGY FOR COASTAL NATIONAL PARKS**
- 2-12 11:00 AM Flynn, Michael James\*: **A MULTI-HAZARD VULNERABILITY ASSESSMENT OF COASTAL LANDMARKS ALONG CAPE HATTERAS NATIONAL SEASHORE**
- 2-13 11:15 AM Henderson, Lauren\*: **CORRELATION OF SEDIMENTARY STRUCTURES IN DAVENPORT, CA**
- 2-14 11:30 AM FitzGerald, Duncan M.\*; Hein, Christopher J.; Hughes, Zoe J.; Kulp, Mark; Georgiou, Ioannis Y.; Miner, Mike: **FUTURE OF BARRIER ISLANDS: A FUNCTION OF BACKBARRIER SUSTAINABILITY**
- 11:45 AM **BREAK**

SESSION NO. 3

*Paleontology: Ancient Life in Deep Time: Temporal and Geographic Trends in Fossil Distributions*

8:00 AM, Baltimore Convention Center, Room 316

Thomas H. Boag and Marko Manojlovic, Presiding

- 3-1 8:00 AM Ebbestad, Jan Ove R.\*; Högström, Anette E.S.; Meinhold, Guido; Jensen, Sören; Palacios, Teodoro; Høyberget, Magne; Taylor, Wendy L.; Novis, Linn; Ou, Zhiji: **STRATIGRAPHY OF THE EDIACARAN AND BASAL CAMBRIAN OF THE DIGERMULEN PENINSULA, NORTHERN NORWAY**
- 3-2 8:15 AM Landing, Ed\*; Kouchinsky, Artem; Westrop, Stephen R.; Geyer, Gerd; Bowring, Samuel A.: **10 M.Y. EVOLUTIONARY STASIS OF EARLIEST CAMBRIAN (TERRENEUVIAN) MOLLUSK-RICH FAUNAS AND CAMBRIAN EVOLUTIONARY RADIATION CORRELATIONS**
- 3-3 8:30 AM Moore, John L.\*; Porter, Susannah M.; Webster, Mark; Maloof, Adam C.: **SMALL SHELLY FOSSILS FROM THE DYERAN-DELAMARAN (“LOWER”-“MIDDLE” CAMBRIAN) BOUNDARY INTERVAL OF THE PIOCHE-CALIENTE REGION, NEVADA, USA**
- 3-4 8:45 AM Lam, Adriane R.\*; Stigall, Alycia L.: **APPLYING BAYESIAN AND MAXIMUM-LIKELIHOOD METHODS TO CENTURY-OLD HYPOTHESES: THE LATE ORDOVICIAN RICHMONDIAN INVASION**
- 3-5 9:00 AM Reeder, Jessie L.\*; Dattilo, Benjamin F.; Freeman, Rebecca L.; Argast, Anne; Peters, Winifried S.: **ORDOVICIAN SMALL SHELLY FAUNA FROM THE ELGIN MEMBER OF THE MAQUOKETA: ECOLOGICALLY DWARFED OR TAPHONOMICALLY BIASED?**
- 3-6 9:15 AM Kusnerik, Kristopher M.\*; Holland, Steven M.: **BIOGEOGRAPHY OF THE JURASSIC SUNDANCE SEAWAY OF WESTERN NORTH AMERICA: A TEST OF THE SINGLE NORTHERN ENTRANCE**
- 3-7 9:30 AM Wan, Xiaojiao\*; Xi, Dangpeng; Jiang, Tian; Li, Wei: **CRETACEOUS TERRESTRIAL BIOTA AND LAKE ENVIRONMENT IN NE CHINA**
- 9:45 AM **BREAK**
- 3-8 10:00 AM Ramezani, Jahandar\*; Roberts, Eric M.; Eberth, David A.; Rogers, Raymond R.; Bowring, Samuel A.: **LATITUDINAL CORRELATION OF TERRESTRIAL ECOSYSTEMS ACROSS THE WESTERN INTERIOR BASIN DURING THE ZENITH OF DINOSAUR DIVERSITY: HIGH-PRECISION**

- U-PB ZIRCON GEOCHRONOLOGY FROM THE CAMPANIAN OF NORTH AMERICA
- 3-9 10:15 AM Hartman, Joseph H.\*: **UPPER CRETACEOUS DAKOTA FORMATION CONTINENTAL MOLLUSKS – RESURRECTION OF WESTERN INTERIOR SEAWAY EASTERN SEABOARD OCCURRENCES**
- 3-10 10:30 AM Anderson, Laurie C.\*; Pagnac, Darrin; Belanger, Christina; Shelton, Sally; Price, Maribeth: **DIGITIZING ANCIENT SEAS TO ADVANCE STUDENT RESEARCH AND PUBLIC OUTREACH THROUGH THE SD MINES MUSEUM OF GEOLOGY**
- 3-11 10:45 AM Case, Judd A.\*: **CHRONOSTRATIGRAPHIC DATA FROM PATAGONIA AND ANTARCTICA ADDS PRECISION TO FAUNAL TIME FRAMES, BUT CREATES UNCERTAINTY AS TO THE ORIGIN OF THE EOCENE ANTARCTIC LAND MAMMAL FAUNA**
- 3-12 11:00 AM Rector, Amy L.\*; Campisano, Christopher J.; O'Neill, Kelsey D.: **PRESENTATION: LATE MIOCENE AND PLIOCENE HOMININ BIOGEOGRAPHY: COMPARATIVE ANALYSES OF EASTERN AND SOUTHERN AFRICAN FAUNA**
- 3-13 11:15 AM Zhang, Yang Wendy\*; Li, Mingsong; Ogg, James G.; Montgomery, Paul; Huang, Chunju; Chen, Zhong Qiang; Shi, Zhiqiang; Enos, Paul; Lehrmann, Dan: **CYCLE-CALIBRATED MAGNETOSTRATIGRAPHY OF MIDDLE CARNIAN FROM SOUTH CHINA: IMPLICATIONS FOR LATE TRIASSIC TIME SCALE AND TERMINATION OF THE YANGTZE PLATFORM**
- 3-14 11:30 AM Dunn, Regan E.\*; Madden, Richard: **LEAF AREA INDEX, MAMMALIAN SPECIES RICHNESS AND MAMMALIAN COMMUNITY STRUCTURE IN SOUTH AMERICA TODAY AND IN THE MIDDLE CENOZOIC**

SESSION NO. 4

*Recent Advances in Hydrogeology I*

8:00 AM, Baltimore Convention Center, Room 331/332

Todd W. Rayne and Yu-Feng Forrest Lin, Presiding

- 4-1 8:00 AM Tulley, Skyley\*; Matheson, Ephram C.; Howell, Brock; Gherasim, Janelle; Larsen, Kenneth; Zacharias, Daniel J.; Emerman, Steven H.; Bradford, Joel A.: **HISTORICAL CHANGES IN SPRING DISCHARGE IN THE WHITE MESA CULTURAL AND CONSERVATION AREA, MANTI-LA SAL NATIONAL FOREST, SOUTHEASTERN UTAH**
- 4-2 8:15 AM Rayne, Todd W.\*; Garner, Meredith M.; Lautz, Laura K.: **USING MULTIPLE METHODS TO EVALUATE GROUNDWATER – SURFACE WATER INTERACTION IN A STREAM**
- 4-3 8:30 AM Kisfalusi, Zachary David\*; Peterson, Eric W.; Taye, Tamru; O'Reilly, Catherine; Sanks, Kelly; Rothschild, Tyler James: **THE EFFECTS OF TILE DRAIN INPUT ON A GAINING STREAM: USING A THERMAL TRACER**
- 4-4 8:45 AM Lin, Yu-Feng Forrest\*; Stumpf, Andrew J.; Luo, Yaqi; Kumar, Praveen: **USING DISTRIBUTED TEMPERATURE SENSING TO MONITOR POTENTIAL SUBSURFACE TEMPERATURE CHANGES IN AN INTENSIVELY MANAGED LANDSCAP**
- 4-5 9:00 AM Ball, Jonas\*: **ESTIMATING POTENTIAL GROUND WATER RECHARGE USING SUBSISTENCE FLOWS IN THE RIO GRANDE / BRAVO, PECOS AND DEVILS RIVER SUBBASINS OF WEST TEXAS, USA**
- 4-6 9:15 AM Long, Molly M.\*; Whittemore, Donald O.; Stotler, Randy L.: **CHARACTERIZING GROUNDWATER-SURFACE WATER INTERACTIONS USING PHYSICAL DATA AND GEOCHEMICAL AND ISOTOPIC ANALYSES IN KANSAS**
- 4-7 9:30 AM Smith, Jacqueline A.\*; Ervolina, Emma; Barry, Bryan: **MICROPLASTIC POLLUTION IN NEW YORK STATE WATERWAYS: A FUTURE BIOMARKER FOR THE ANTHROPOCENE?**

- 9:45 AM **BREAK**
- 4-8 10:00 AM Sainvil, Anny K.\*; Singha, Kamini; Voytek, Emily B.: **USING THE SELF-POTENTIAL METHOD TO ANALYZE THE TEMPORAL AND SPATIAL VARIATION OF SHALLOW GROUNDWATER FLOW THROUGH MEADOWS WITHIN THE BOULDER CREEK CRITICAL ZONE OBSERVATORY IN BOULDER, COLORADO**
- 4-9 10:15 AM Evans, Sarah G.\*; Ge, Shemin; Liang, Sihai: **ANALYSIS OF GROUNDWATER FLOW IN MOUNTAINOUS, HEADWATER CATCHMENTS WITH PERMAFROST**
- 4-10 10:30 AM Gatz-Miller, Hannah\*; Weissmann, Gary S.: **MAPPING SUBSURFACE HETEROGENEITY TO ESTIMATE TRANSPORT CHARACTER OF THE BULK FUELS SPILL SATURATED PLUME, KIRTLAND AIR FORCE BASE, ALBUQUERQUE, NEW MEXICO**
- 4-11 10:45 AM White, P.A.\*; Tschritter, C.; Graham, D.: **CHARACTERISATION OF GROUNDWATER SYSTEMS AND GEOTHERMAL RESERVOIRS IN THE UPPER WAIKATO AREA, TAUPO VOLCANIC ZONE, NEW ZEALAND**
- 4-12 11:00 AM Akhbari, Daria\*; Hesse, Marc A.: **CAUSES OF ABNORMALLY LOW PRESSURE AT BRAVO DOME AND ITS IMPLICATIONS FOR CARBON CAPTURE AND STORAGE (CCS)**
- 4-13 11:15 AM Afonja, Sr., Raphael\*: **META-SYNTHESIS AND MATHEMATICAL MODELING OF REVERSE OSMOSIS SYSTEM PERFORMANCE DURING SURFACE WATER TREATMENT: A DATA MINING APPROACH**
- 4-14 11:30 AM Fillingham, Joseph H.\*; Singer, Marian J.; Hayes, Nicholas D.: **WELLNTEL IS SUPPORTING RESEARCH BY TRANSFORMING GROUNDWATER DATA CROWDSOURCING**
- 4-15 11:45 AM Song, Xin\*; Wei, Changlong; Lipson, Dave: **ESTIMATION OF DUAL-DOMAIN MASS-TRANSFER COEFFICIENT USING MULTIPLE APPROACHES FOR GROUNDWATER REMEDIATION**

**SESSION NO. 5****Structural Geology: Geometry and Kinematics from Mapping and Modeling**

8:00 AM, Baltimore Convention Center, Room 336

Joseph L. Allen and Graham B. Baird, Presiding

- 5-1 8:00 AM Wu, Long\*; Adam, Jurgen; Trudgill, Bruce: **4D EVOLUTION OF SALT DIAPYR REACTIVATION IN AN OBLIQUE EXTENSIONAL SYSTEM, NW AUSTRALIA: INSIGHTS FROM SCALED PHYSICAL MODELS**
- 5-2 8:15 AM Li, Jianjun\*; Mitra, Shankar: **EXPERIMENTAL MODELING OF THE GEOMETRY AND EVOLUTION OF STRUCTURES ABOVE DUCTILE AND FRICTIONAL DETACHMENTS**
- 5-3 8:30 AM O'Hara, Alex P.\*; Jacobi, Robert D.; Sheets, David H.: **A PREDICTIVE MODEL FOR FRACTURE INTENSIFICATION DOMAIN VARIATIONS: STRAIN ENERGY DENSITY AS A FUNCTION OF FAULT SLIP**
- 5-4 8:45 AM Thigpen, J. Ryan\*; Ashley, Kyle T.; Law, Richard D.: **UNDERSTANDING KINEMATIC DISPLACEMENT RATE EFFECTS ON TRANSIENT THERMAL PROCESSES: A COMPARISON OF ANALYTICAL (TI-DIFFUSION) AND NUMERICAL (FINITE-ELEMENT) SOLUTIONS TO FOOTWALL HEATING IN THRUST BELTS**
- 5-5 9:00 AM Kokkalas, Sotirios\*; Jones, Richard R.; Long, Jonathan; Woods, Caitlin; Gilment, Sebastien: **STRUCTURAL EVOLUTION OF THE JEBEL HAFEET ANTICLINE (AL AIN, UAE): A MULTI-SCALE APPROACH TO MODEL FRACTURE PATTERNS AND KINEMATIC FOLD EVOLUTION**
- 5-6 9:15 AM Zhang, Jr., Yanling\*; Guo, Yanru: **THE STRUCTURAL CHARACTERISTICS AND EVOLUTION OF THE WESTERN ORDOS THRUST\_ BELT**

- 5-7 9:30 AM Alemu, Tadesse B.\*; Abdelsalam, Mohamed; Atnafu, Balemwal; Enkurie, Dawit: **SEDIMENTOLOGIC AND STRUCTURAL FEATURES OF AN EXHUMED INTRACONTINENTAL SAG BASIN; THE MEKELLE SEDIMENTARY BASIN IN ETHIOPIA**
- 9:45 AM **BREAK**
- 5-8 10:00 AM Allen, Joseph L.\*; Green, II, Michael R.; Merson, Matthew Q.; Lyon, Eva C.: **PSEUDOTACHYLITES AND RELATED BRITTLE FAULTS FROM THE IKERTÔQ THRUST ZONE, GREENLAND: FAULT GEOMETRY AND KINEMATICS**
- 5-9 10:15 AM Baird, Graham B.\*; Regan, Sean P.: **DISTINGUISHING AND CONSTRAINING THE TIMING OF SHAWINIGAN AND OTTAWAN OROGENY DEFORMATION IN THE EASTERN ADIRONDACK HIGHLANDS NEAR TICONDEROGA, NEW YORK STATE**
- 5-10 10:30 AM Regan, Sean P.\*; Geer, Phillip S.; Walsh, Greg J.; Williams, Michael L.; Baird, Graham B.; Grover, Timothy W.; Valley, Peter M.; Pless, Claire R.; Jercinovic, Michael J.: **STRUCTURAL EVOLUTION OF THE EASTERN ADIRONDACK HIGHLANDS, SOUTHERN GRENVILLE PROVINCE**
- 5-11 10:45 AM Farrar, Stewart S.\*: **TWO PERIODS OF GARNET LEUCOGRANITE FORMATION IN THE GOCHLAND TERRANE, VA**
- 5-12 11:00 AM Kunk, Michael J.\*; Yeh, Meng-Wan; Blackmer, Gale C.; McAleer, Ryan J.: **<sup>40</sup>AR/<sup>39</sup>AR DATING CONSTRAINTS ON THE METAMORPHIC AND COOLING HISTORIES OF THE BALTIMORE COMPLEX SOUTHWEST, WEST AND NORTH OF BALTIMORE, MARYLAND**
- 5-13 11:15 AM Yeats, Ian\*; Helper, Mark; Hunt, Brian B.: **APPLICATION OF AIRBORNE LIDAR TO GEOLOGIC MAPPING IN CENTRAL TEXAS**

**SESSION NO. 6****T1. Bridging Two Continents: Active Intracontinental Tectonics in Asia and North America and the Associated Geohazards**

8:00 AM, Baltimore Convention Center, Room 349/350

Jing Liu, An Yin and Mian Liu, Presiding

- 8:00 AM **INTRODUCTORY REMARKS**
- 6-1 8:05 AM Holt, William E.\*; Wang, Xinguo; Ghosh, Atreyee: **A COMPARISON OF THE DYNAMICS OF NORTH AMERICA AND THE INDIA-EURASIA COLLISION**
- 6-2 8:25 AM Cunningham, Dickson\*: **LITHOSPHERIC CONTROLS ON INTRACONTINENTAL MOUNTAIN BUILDING AND EARTHQUAKE HAZARDS IN THE GOBI CORRIDOR REGION OF CENTRAL ASIA, AND COMPARISONS WITH THE INTERIOR OF NORTH AMERICA**
- 6-3 8:40 AM Levandowski, Will\*; Zellman, Mark S.; Briggs, Richard W.: **GRAVITY-DRIVEN STRAIN IN THE NORTH AMERICAN GREAT PLAINS**
- 6-4 8:55 AM Sun, Yanpeng\*; Shaw, John H.; Guan, Shuwei; Ma, Dade: **CENOZOIC DEFORMATION HISTORY OF Q Aidam Basin AND ITS TECTONIC IMPLICATIONS**
- 6-5 9:10 AM Wegmann, Karl W.\*; Mendelson, Tamra; Sabaj-Pérez, Mark H.; Smith, Stephen G.; Lopresti, Michael; Gosse, John C.; Gallen, Sean Francis; Bayasgalan, Gantulga: **CONSTRAINING THE LATE CENOZOIC TOPOGRAPHIC EVOLUTION OF CENTRAL MONGOLIA (HANGAY MTNS) USING LANDSCAPE METRICS AND SEQUENCE DIVERGENCE OF FRESHWATER FISHES**
- 6-6 9:25 AM Liu, Mian\*: **ACTIVE TECTONICS AND SEISMICITY IN INTRACONTINENTAL CHINA: A REVIEW**
- 9:40 AM **BREAK**
- 6-7 10:00 AM Oskin, Michael E.\*; Elliott, Austin J.; Duan, Benchun; Liu-Zeng, Jing; Liu, Zaifeng; Shao, Yanxiu; Prush, Veronica; Morelan, Alex; Chester, Judith S.; Elizondo, Daniel: **EARTHQUAKE GATES: LINKING RUPTURE LENGTH TO**

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SUNDAY

- GEOLOGICALLY CONSTRAINED DYNAMICS OF FAULT COMPLEXITY, WITH EXAMPLES FROM THE ALTYN TAGH AND SAN ANDREAS FAULTS**
- 6-8 10:20 AM Liu, Jing\*; Chen, Tao; Shao, Yanxiu; Zhang, Peizhen; Hudnut, Ken; Lei, Qiyun; Li, Zhanfei: **CUMULATIVE OFFSETS REVEALED BY NEWLY-ACQUIRED AIRBORNE LIDAR DATA ALONG THE LAOHUSHAN SECTION OF THE HAIYUAN FAULT, NORTHERN TIBETAN PLATEAU**
- 6-9 10:35 AM Li, Zhigang\*; Liu, Jing; Jia, Dong; Chen, Wei; Wei, Wang; Sun, Chuang: **QUATERNARY ACTIVITY OF THE RANGE FRONT BLIND THRUST AND ITS SPLAY FAULTS IN THE LONGMEN SHAN PIEDMONT, REVEALED BY SEISMIC IMAGING AND GROWTH STRATA RECORDS**
- 6-10 10:50 AM Chen, Guifan\*; Li, Dewei; Bartholomew, Mervin J.; Armstrong, Taylor F.; Feng, Minxuan: **THE MS 7.5 14 APRIL 1955 ZHEDUOTANG EARTHQUAKE AND A RECORD OF HOLOCENE-LATE PLEISTOCENE PALEOSEISMICITY ALONG THE ZHEDUOTANG FAULT WITHIN THE XIANSUIHE FAULT ZONE, SICHUAN PROVINCE, CHINA**
- 6-11 11:05 AM Gamble, Eric\*; Cox, Randel Tom; Hatcher, Jr., Robert D.; Glasbrenner, Jacob C.; Bouzeid, Karim: **QUATERNARY FAULTING IN BLOUNT COUNTY TENNESSEE AND ITS IMPLICATIONS FOR ACTIVE TECTONISM IN THE EASTERN TENNESSEE SEISMIC ZONE**
- 6-12 11:20 AM Brooks, Edward M.\*; Stein, Seth; Spencer, Bruce D.: **USING HISTORICAL INTENSITY DATA TO ASSESS LONG-TERM PERFORMANCE OF EARTHQUAKE HAZARD MAPS**
- 6-13 11:35 AM Stein, Seth\*; Liu, Mian: **CHALLENGES IN ASSESSING INTRAPLATE SEISMIC HAZARD**

## SESSION NO. 7

**T5. Bridging Two Continents: Geologic Configuration of the Tibetan Plateau Region Prior to the Indo-Asian Collision: Setting the Stage for Development of a High Elevation Plateau (GSA Structural Geology and Tectonics Division)**

8:00 AM, Baltimore Convention Center, Room 347/348

Amy L. Weislogel, Delores M. Robinson and Chengshan Wang, Presiding

- 7-1 8:00 AM Burchfiel, B. Clark\*; Wang, D.: **TECTONIC ASSEMBLY OF SOUTHEASTERN CHINA AND INDOCHINA FROM LATE PALEOZOIC TO PRESENT: INTERACTION BETWEEN DIFFERENT TECTONIC SYSTEMS BEFORE AND DURING DEVELOPMENT OF THE TIBETAN PLATEAU**
- 7-2 8:20 AM Chen, Xiaoyu\*; Liu, Junlai; Han, Xin: **CONTRASTING EXHUMATION HISTORIES ALONG A CRUSTAL-SCALE STRIKE-SLIP FAULT ZONE: THE EOCENE TO MIOCENE AILAO SHAN-RED RIVER SHEAR ZONE IN SOUTHEASTERN TIBET**
- 7-3 8:35 AM Shang, Fei\*; Weislogel, Amy L.; Robinson, Delores M.; Sharma, Shikha; Chen, Ruiqian; Jackson, Jr., William T.; Qi, Zhaolin; Tripathi, Aradhna: **LOW LATITUDE TERRESTRIAL CLIMATE OF SOUTHEASTERN TIBET REVEALED THROUGH CLUMPED ISOTOPE THERMOMETRY: IMPLICATIONS FOR THE LATE CRETACEOUS ELEVATION HISTORY OF SOUTHEASTERN TIBET**
- 7-4 8:50 AM Jackson, Jr., William T.\*; Robinson, Delores M.; Weislogel, Amy L.; Shang, Fei; Jian, Xing: **UTILIZING DETRITAL ZIRCON DATA TO UNDERSTAND INDISTINCT PROVENANCE AGE SIGNATURES THROUGHOUT THE EASTERN TIBETAN PLATEAU**
- 7-5 9:05 AM Duan, Liang\*; Meng, Qing-Ren: **TECTONIC AND SEDIMENTARY EVOLUTION OF TRIASSIC NANPANJIANG BASIN, SOUTH CHINA**
- 7-6 9:20 AM Yin, An\*: **THE SONGPAN-GANZI TERRANE OF TIBET: WAS IT A PART OF SOUTH CHINA SINCE THE NEOPROTEROZOIC?**
- 7-7 9:35 AM Jian, Xing\*; Weislogel, Amy L.; Pullen, Alex: **DETRITAL ZIRCON U-PB AGES AND HF ISOTOPES OF TRIASSIC**

**SONGPAN-GANZI AND YIDUN TURBIDITES AND IMPLICATIONS FOR THE CLOSURE OF EASTERN PALEO-TETHYS OCEAN**

- 7-8 9:50 AM Zuza, Andrew V.\*; Yin, An; Wu, Chen: **THE NEOPROTEROZOIC-PALEOZOIC TECTONIC HISTORY OF THE QILIAN SHAN AND ITS CONTROL ON DEVELOPMENT OF THE TIBETAN PLATEAU'S NORTHERN MARGIN**
- 7-9 10:05 AM Lippert, Peter C.\*; Huang, Wentao; van Hinsbergen, Douwe J.J.; Ding, Lin; Li, Zhenyu; Dupont-Nivet, Guillaume: **LHASA'S JURASSIC-TO-PALEOCENE LATITUDE: IMPLICATIONS FOR THE CENOZOIC TECTONICS AND CLIMATE OF TIBET**
- 7-10 10:25 AM Ingalls, Miquela\*; Rowley, David B.; Olack, Gerard; Colman, Albert: **PALEOCENE-EARLY EOCENE HIGH ELEVATION FOR THE LINZIZONG ARC IMPLIES LARGE-SCALE SUBDUCTION OF CONTINENTAL CRUST DURING INDIA-ASIA COLLISION**
- 7-11 10:40 AM Li, Lin\*; Garzzone, Carmala: **EARLY CENOZOIC EVOLUTION OF THE WESTERN HOH XIL BASIN, CENTRAL TIBETAN PLATEAU**
- 7-12 10:55 AM Haproff, Peter Jasura\*; Yin, An: **U-PB ZIRCON GEOCHRONOLOGY, THERMOBAROMETRY, AND GEOCHEMISTRY OF LATE CRETACEOUS-AGED GRANITOIDES IN THE NORTHERN INDO-BURMA RANGES, NE INDIA; INSIGHTS INTO NORTHERN GANGDESE BELT ROCKS IN THE EASTERNMOST HIMALAYAN OROGEN**
- 7-13 11:10 AM Zhuang, Guangsheng\*; Najman, Yani; Guillot, Stéphane; Roddaz, Martin; Antoine, Pierre-Olivier; Carter, Andrew; Marivaux, Laurent; Métais, Grégoire: **CONSTRAINTS ON THE COLLISION AND THE PRE-COLLISION TECTONIC CONFIGURATION BETWEEN INDIA AND ASIA FROM DETRITAL GEOCHRONOLOGY, THERMOCHRONOLOGY, AND GEOCHEMISTRY STUDIES IN THE LOWER INDUS BASIN, PAKISTAN**
- 7-14 11:30 AM Jagoutz, Oliver\*; Bailey, Elizabeth; Weiss, Benjamin P.; Eddy, Michael P.; Royden, Leigh H.; Tikoo, Sonia M.: **NEW PALEOMAGNETIC RESULTS FROM LADAKH, WESTERN HIMALAYA SUPPORT MULTI-STAGE COLLISION SCENARIO BETWEEN INDIA AND EURASIA**
- 7-15 11:45 AM Chapman, James B.\*; Robinson, Alex C.; Worthington, James; Carappa, Barbara; Kapp, Paul; Gadoev, Mustafa; Illhom, Oimahmadov: **MESOZOIC SHORTENING AND SYN-TECTONIC SEDIMENTATION IN THE SOUTHERN PAMIR: IMPLICATIONS FOR GNEISS-DOME METAMORPHISM AND CRUSTAL THICKENING**

## SESSION NO. 8

**T32. Urban Geochemistry (International Association of GeoChemistry; Geochemical Society; GSA Environmental and Engineering Geology Division; GSA Geology and Society Division)**

8:00 AM, Baltimore Convention Center, Room 308

W. Berry Lyons, David T. Long, Joel Moore and Elizabeth Herndon, Presiding

- 8-1 8:00 AM Piatak, Nadine M.\*; Seal, II, Robert R.; Buszka, Paul M.; Cole, Travis R.; Green, Carlin: **SLAG: WHAT IS IT GOOD FOR? PHOSPHATE REMOVAL AND ACID-NEUTRALIZING CAPACITY OF STEELMAKING SLAG FROM THE CALUMET AREA, IL AND IN**
- 8-2 8:15 AM Gherasim, Janelle\*; Oliverson, Colby; McNeff, Joshua; Nichols, Jarrett; Tulley, Skyler; Roberts, Sterling; Christensen, Brennan; Emerman, Steven H.; Simon, Alexander T.; Cadet, Eddy: **GEOCHEMICAL AND SOCIOLOGICAL STUDY OF BACKYARD WELLS AND GARDENS IN UTAH VALLEY, UTAH**
- 8-3 8:30 AM Kruge, Michael A.\*: **USING ENVIRONMENTAL FORENSICS TO DISTINGUISH LEGACY AND ONGOING CONTAMINATION IN URBAN WATERWAYS**

- 8-4 8:45 AM Larsen, Daniel\*: **APPLICATION OF GROUNDWATER TRACERS TOWARD SUSTAINABILITY ANALYSIS OF GROUNDWATER IN MEMPHIS, TENNESSEE**
- 8-5 9:00 AM Jefferson, Anne J.\*; Bell, Colin D.; McMillan, Sara K.; Clinton, Sandra: **QUANTIFYING THE INFLUENCES OF STORMWATER CONTROL MEASURES ON URBAN HEADWATER STREAMFLOW**
- 8-6 9:20 AM Fulweiler, Robinson W.\*; Maguire, Timothy J.: **CITY SHORTCUTS: DOCUMENTING SI EXPORT PATHWAYS IN AN URBAN ECOSYSTEM**
- 8-7 9:40 AM Steele, Meredith K.\*: **THE CATION CONUNDRUM: BENIGN INDICATORS OR IMPORTANT MECHANISMS IN AQUATIC ECOSYSTEMS?**
- 10:00 AM **BREAK**
- 8-8 10:15 AM Moore, Joel\*; Mueller, Corey; Woodward, Gregory: **ROAD SALT AND CONCRETE AS SIGNIFICANT CONTRIBUTORS TO HIGH ION CONCENTRATIONS & HIGH SPECIFIC CONDUCTANCE IN URBAN STREAMS**
- 8-9 10:30 AM Woodward, Gregory\*; Moore, Joel: **ROAD SALT (NACL) RUNOFF INCREASES SOIL PH AND SIGNIFICANTLY ALTERS CATION EXCHANGE CHEMISTRY IN SOILS AND AQUIFERS**
- 8-10 10:45 AM Ledford, Sarah H.\*; Lutz, Laura K.: **MODELING THE TRANSPORT AND FATE OF ROAD SALT IN URBAN FLOODPLAINS**
- 8-11 11:00 AM Vesely, William C.\*; Callahan, Timothy J.; Vulava, Vijay M.: **DISSOLVED ORGANIC CARBON FLUXES IN FORESTED AND URBAN WATERSHEDS**
- 8-12 11:15 AM Toran, Laura\*; Klein, Trevor: **NITROGEN CYCLING IN AN URBAN STREAM NEAR PHILADELPHIA**
- 8-13 11:30 AM Graney, Joseph R.\*; Zhu, Weixing; Titus, John: **HHMI SPONSORED UNDERGRADUATE RESEARCH: STUDYING BIOGEOCHEMICAL TRANSFORMATIONS OF REACTIVE NITROGEN AND METAL SPECIES IN URBAN ROADSIDE ECOSYSTEMS**
- 8-14 11:45 AM Ravansari, Roozbeh\*; Lemke, Lawrence D.; McElmurry, Shawn P.: **SPATIAL VARIABILITY AND ASSOCIATIONS AMONG TRACE METALS IN URBAN AGRICULTURAL GARDEN SOILS**

**SESSION NO. 9**

**T52. From the River Channel to the Drainage Divide: Processes, Driving Mechanisms, and the Direction of Topographic Change in the Appalachians (GSA Quaternary Geology and Geomorphology Division)**

8:00 AM, Baltimore Convention Center, Room 307

Gregory Hancock, Frank J. Pazzaglia and Sean F. Gallen, Presiding

- 8:00 AM **INTRODUCTORY REMARKS**
- 9-1 8:05 AM Ruetenik, Gregory A.\*; Moucha, Robert; Hoke, Gregory D.: **DYNAMIC TOPOGRAPHY, STREAM CAPTURE, AND THE SEDIMENTARY RECORD**
- 9-2 8:20 AM Liu, Lijun\*: **REJUVENATION OF APPALACHIAN TOPOGRAPHY CAUSED BY SUBSIDENCE-INDUCED DIFFERENTIAL EROSION**
- 9-3 8:35 AM Amidon, William H.\*; Roden-Tice, Mary K.; Anderson, Alyssa J.; Shuster, David: **AN UNEXPLAINED PULSE OF LATE CRETACEOUS EXHUMATION IN NORTHERN NEW ENGLAND**
- 9-4 8:50 AM Gallen, Sean Francis\*: **EVIDENCE FOR REGIONAL LANDSCAPE DISEQUILIBRIUM DUE TO EROSIONAL DESTRUCTION OF A MAIN DRAINAGE DIVIDE IN THE SOUTHERN APPALACHIANS, USA**
- 9-5 9:05 AM Harbor, David J.\*: **DELAYED AND EPISODIC EROSIONAL DISSECTION OF AN UPLIFTED APPALACHIAN MARGIN**
- 9-6 9:25 AM Hancock, Gregory S.\*; Whitten, Jennifer; Shintani, Christina; Southworth, Scott: **<sup>10</sup>BE-DERIVED BARE-BEDROCK**

**EROSION RATES ON RIDGELINES IMPLY LANDSCAPE TRANSIENCE IN THE BLUE RIDGE, SHENANDOAH NATIONAL PARK, VIRGINIA**

- 9:40 AM **BREAK**
- 9-7 9:55 AM Thaler, Evan\*; Covington, Matthew D.: **APPARENT DISEQUILIBRIUM OF CHANNEL PROFILES IN THE BUFFALO RIVER BASIN, AR**
- 9-8 10:10 AM Kite, J. Steven\*; Patterson, Catherine R.; Haddox, Chris: **HUNTING FOR NATURE'S REFRIGERATORS AMONG COLLUVIAL AND KARST LANDFORMS OF THE APPALACHIAN MOUNTAINS**
- 9-9 10:25 AM Schaney, Mitzy L.\*: **RADIOCARBON DATING HISTOSOLS IN THE PEATLANDS OF CANAAN VALLEY NATIONAL WILDLIFE REFUGE, WEST VIRGINIA**
- 9-10 10:40 AM Snyder, Noah P.\*; Merritts, Dorothy J.; Walter, Robert C.; Feibel, Samuel; Gigliotti, Sophia; Hoffman, Aaron; Johnson, Kaitlin; Markey, Erin; Walther, Mason; Xu, Chi: **COMPARISON OF ANTHROPOCENE VALLEY-BOTTOM SEDIMENTATION IN GLACIATED NEW ENGLAND AND THE UNGLACIATED MID-ATLANTIC REGION: PRELIMINARY RESULTS**
- 9-11 11:00 AM Fisher, Beth A.\*; Yoo, Kyungsoo; Aufdenkampe, Anthony K.; Nater, Ed: **DEEP HILLSLOPE SCALE INVENTORY OF MINERAL SURFACE AREA AND MINERALOGY IN CHRISTINA RIVER BASIN CRITICAL ZONE OBSERVATORY**

**SESSION NO. 10**

**T60. An Updated View on Caribbean Tectonics (GSA Geophysics Division; GSA Mineralogy, Geochemistry, Petrology, and Volcanology Division)**

8:00 AM, Baltimore Convention Center, Room 319/320

Margarete Jadamec, Kevin Burke and Andrew V. Newman, Presiding

- 8:00 AM **INTRODUCTORY REMARKS**
- 10-1 8:15 AM Collins, Laurel S.\*: **EMERGENCE OF THE ISTHMUS OF PANAMA**
- 10-2 8:35 AM Beutel, Erin K.\*: **WHY FLORIDA IS STILL ATTACHED TO NORTH AMERICA: IT'S YUCATAN'S FAULT**
- 10-3 8:50 AM Mynhier, Kelci N.\*; Farris, David W.: **GRAVITY MODELING CONSTRAINTS ON THE GEOMETRY OF THE GATUN-CHAGRES BASIN AND TECTONIC EVOLUTION OF NORTH-CENTRAL PANAMA**
- 10-4 9:05 AM Flores, Kennet E.\*: **THE FORMATION OF THE MIDDLE AMERICA AND THE PACIFIC OCEAN**
- 10-5 9:20 AM LaFemina, Peter\*; Govers, Rob; Ruiz, Andres; Geirsson, Halldor; Mora - Paez, Hector; Camacho, Eduardo: **COCOS RIDGE COLLISION, DEFORMATION OF THE WESTERN CARIBBEAN AND FINAL CLOSURE OF THE ISTHMUS OF PANAMA**
- 9:40 AM **BREAK**
- 10-6 9:55 AM Fisher, Donald M.\*; Gardner, Thomas W.; Morell, Kristin; Marshall, Jeffrey; Sak, Peter B.: **LATE MIOCENE TO RECENT TECTONIC EVOLUTION OF THE UPPER PLATE OF THE MIDDLE AMERICA TRENCH, COSTA RICA AND WESTERN PANAMA**
- 10-7 10:15 AM Cochran, William J.\*; Spotila, James A.; Prince, Philip S.: **RAPID EXHUMATION OF CRETACEOUS ARC ROCKS ALONG THE BLUE MOUNTAIN RESTRAINING BEND, JAMAICA, USING APATITE (U-TH)/HE THERMOCHRONOMETRY**
- 10-8 10:30 AM Morell, Kristin\*: **THE NEOGENE PLATE TECTONIC HISTORY OF THE SOUTHERN CENTRAL AMERICA CONVERGENT MARGIN AND ITS IMPACT ON UPPER PLATE DEFORMATION AND VOLCANISM**
- 10-9 10:45 AM Jadamec, Margarete\*; Fischer, Karen M.: **3D GEODYNAMIC MODELS OF SLAB DRIVEN MANTLE FLOW BENEATH THE CARIBBEAN PLATE**

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SUNDAY

SESSION NO. 10

- 10-10 11:00 AM Pan, Ruiguang\*; Farris, David W.: **MIOCENE ARC MAGMATISM IN WESTERN PANAMA AND ITS CONSTRAINTS ON MANTLE WEDGE AND TECTONIC CHANGE**
- 10-11 11:15 AM Fowler, III, Gary D.\*; Farris, David W.: **RECENT GEOCHEMICAL CONSTRAINTS ON THE WESTERN PANAMA CANAL BASIN VOLCANIC ARC ROCKS**
- 11:30 AM **DISCUSSION**
- 11:45 AM **CONCLUDING REMARKS**

SESSION NO. 11

**T69. Closing the Diversity Gap in Geoscience: Successful Models, Best Practices, Benefits, Outcomes, and Next Steps (GSA Geology and Society Division; American Geophysical Union)**

8:00 AM, Baltimore Convention Center, Room 337

Ashanti Johnson, David Siegfried and Lois Ricciardi, Presiding

- 11-1 8:00 AM Karsten, Jill\*: **FINDING THE TIPPING POINTS FOR BROADENING PARTICIPATION IN THE GEOSCIENCES**
- 11-2 8:15 AM O'Connell, Suzanne\*; Johnson-Thornton, Rene; Ku, Tim C.; Patton, Peter; Resor, Phillip; Royer, Dana L.: **MEETING THE CHALLENGE OF ATTRACTING DIVERSE STUDENTS TO GEOSCIENCE**
- 11-3 8:30 AM McDaris, John R.\*; Manduca, Cathryn A.: **CHARACTERIZING THE PRESENCE AND PRACTICES OF GEOSCIENCE PROGRAMS AT MINORITY SERVING INSTITUTIONS**
- 11-4 8:45 AM Atchison, Christopher L.\*; Houlton, Heather R.: **PROMOTING ACCESS AND INCLUSION IN THE GEOSCIENCES THROUGH INTERNATIONAL COMMUNITY ENGAGEMENT**
- 11-5 9:00 AM Schimmel, Keith A.\*; Bililign, Solomon: **SUCCESSFUL MODEL FOR INCREASING DIVERSITY AND CAPACITY IN GEOSCIENCES THROUGH A NOAA COOPERATIVE SCIENCE CENTER**
- 11-6 9:15 AM Soeder, Daniel J.\*: **ENGAGING A TRIBAL COLLEGE IN THE ASSESSMENT OF OIL AND GAS RESOURCES ON A SIOUX INDIAN RESERVATION**
- 11-7 9:30 AM Houlton, Heather R.\*; Keane, Christopher M.: **INCREASING DIVERSITY IN THE DEEP CARBON OBSERVATORY**
- 11-8 9:45 AM Crumbly, Isaac J.\*; Hodges, Jackie; Kar, Aditya; Rashidi, Lisa: **ESTABLISHING A K-18 GEOSCIENCES PIPELINE FOR AFRICAN AMERICANS AND OTHER URMS: THE COOPERATIVE DEVELOPMENTAL ENERGY PROGRAM**
- 11-9 10:00 AM Ricciardi, Lois\*; Johnson, Ashanti; Whitney, Vivian; Ithier-Guzmán, Warner; Braxton, LaTanya: **MS PHD'S-GEO REU: PROMOTING RETENTION, INCLUSIVITY AND MEANINGFUL ENGAGEMENT IN THE GEOSCIENCES FOR URM PARTICIPANTS OF NSF REU PROGRAMS**
- 11-10 10:15 AM Jamieson Marsh, Lexi\*; Vance, Kelsey; Currano, Ellen: **THE BEARDED LADY PROJECT: A CREATIVE RESPONSE TO GENDER STEREOTYPES IN PALEONTOLOGY**
- 11-11 10:30 AM Gutierrez, Benjamin T.\*; Jearld, Ambrose; Liles, George; Scott, Onjale: **STRIVING TO INCREASE THE PRESENCE OF UNDERREPRESENTED MINORITIES IN THE SCIENCES: THE PARTNERSHIP EDUCATION PROGRAM**
- 11-12 10:45 AM Barkley, Morgan N.\*: **UTILIZING IN-DEPTH FIELD BASED PEER-TO-PEER LEARNING GROUPS WITHIN A STUDY ABROAD PROGRAM TO OVERCOME THE DIVERSITY GAP WITHIN THE GEOSCIENCES**
- 11-13 11:00 AM Doser, Diane I.\*; Walsh, Elizabeth A.; Jin, Lixin; Loughheed, Vanessa L.; Hamdan, Lina K.: **LESSONS LEARNED FROM YEARS 1 AND 2 OF THE TIERA (TRAINING IN ENVIRONMENTAL RESEARCH AND ACADEMIC SUCCESS) PROGRAM**

- 11-14 11:15 AM McGarry, Brad\*; Wielandt, Paulina: **INTEGRATING AUTISTIC STUDENTS INTO A GEOSCIENCE CURRICULUM**
- 11-15 11:30 AM Asher, Pranoti M.\*; Furukawa, Harry; Williams, Billy; Adamec, Bethany: **VIRTUAL POSTER SHOWCASE HELPS TO BROADEN PARTICIPATION IN THE EARTH AND SPACE SCIENCES**
- 11-16 11:45 AM Barnes, James R.\*: **A MILITARY VETERAN'S PERSPECTIVE ON INTEGRATING INTO COLLEGE**

SESSION NO. 12

**T70. Digital Technology in Real and Virtual Geoscience Experiences I (GSA Geoinformatics Division; GSA Environmental and Engineering Geology Division; GSA Geology and Health Division; GSA Geology and Society Division; GSA Geophysics Division; GSA Geoscience Education Division; GSA History and Philosophy of Geology Division; GSA Hydrogeology Division; GSA Karst Division; GSA Limnogeology Division; GSA Mineralogy, Geochemistry, Petrology, and Volcanology Division; GSA Planetary Geology Division; GSA Quaternary Geology and Geomorphology Division; GSA Sedimentary Geology Division; GSA Archaeological Geology Division; GSA Structural Geology and Tectonics Division; National Association of Geoscience Teachers; Geo2YC Division of the National Association of Geoscience Teachers; International Association for Geoscience Diversity)**

8:00 AM, Baltimore Convention Center, Room 339

Declan De Paor, Steven J. Whitmeyer and Callan Bentley, Presiding

- 8:00 AM **INTRODUCTORY REMARKS**
- 12-1 8:05 AM Anastasio, David\*; Bodzin, Alec; Sharif, Raghida; Rutzmoser, Scott: **GEOSPATIAL THINKING AND REASONING ENHANCED IN A STRUCTURAL GEOLOGY AND TECTONICS COURSE USING WEB GIS**
- 12-2 8:20 AM Vollmer, Frederick W.\*: **ORIENT 3: A NEW INTEGRATED SOFTWARE PROGRAM FOR ORIENTATION DATA ANALYSIS, KINEMATIC ANALYSIS, SPHERICAL PROJECTIONS, AND SCHMIDT PLOTS**
- 12-3 8:35 AM Rollins, Jeffrey M.\*; Gomez, Bridget N.; De Paor, Declan G.; Burgin, Stephen; Simpson, Carol: **VIRTUAL EXPANSION OF UNDERGRADUATE FIELD RESEARCH EXPERIENCES – SHEEP MOUNTAIN ANTICLINE, WYOMING**
- 12-4 8:50 AM Karabinos, Paul\*; Merkhofer, Lisa: **COMBINING RECTIFIED HIGH-RESOLUTION GIGAPAN IMAGES AND AN INTERACTIVE STRAIN PROGRAM TO TEST THE RF-PHI METHOD FOR ANALYSIS OF CONGLOMERATES**
- 12-5 9:05 AM Bentley, Callan\*; Rohrback-Schiavone, Robin; Dudek, Marissa J.; Pitts, Alan: **FAKE FIELD TRIPS: USING GIGAPANS OF OUTCROPS AND HAND SAMPLES AS “BRICKS” IN CONSTRUCTING AN UNREAL VIRTUAL FIELD EXPERIENCE**
- 12-6 9:20 AM Smith, Shane V.\*; Dager-Smith, Sara E.: **DEVELOPING VIRTUAL LAB ACTIVITIES FOR ONLINE GEOSCIENCE AND STEM TEACHER EDUCATION COURSES USING WEB-BASED DIGITAL TECHNOLOGIES**
- 9:35 AM **BREAK**
- 12-7 9:50 AM Richards, Bill D.\*: **MOBILE-DEVICE, CLOUD-BASED, IN-CLASS INTERACTION AS A FLIPPED MODEL AND ITS EFFICACY EXPRESSED THROUGH ASSESSMENT RESULTS**
- 12-8 10:05 AM Foxworth, Lance\*; Scott, Griffin; Curcio, Dante; Levine, Norman; Kaufman, Charlie: **COMMUNICATING EARTHQUAKE HAZARDS THROUGH GIS-BASED STORY MAPPING**
- 12-9 10:20 AM Kessler, Holger\*; Harrap, Rob; Thorpe, Steve; Hutchinson, Jean; Ondercin, Matthew; Myers, Antony; Richardson, Steven: **3D CONVERGENCE - GEOLOGY, GAMES, AND COMMUNITY ENGAGEMENT**



- 12-10 10:35 AM Harlow, George E.\*; Webster, James D.; Ebel, Denton S.: **GEOSCIENCE, EDUCATION AND UNPUBLISHED RESEARCH DATA**
- 12-11 10:50 AM Aguilar, Rebecca Jessica\*; Aiken, Carlos L.V.; White, Jr., Lionel S.: **PHOTOREALISTIC MODELING OF OUTCROPS AND APPLICATIONS FOR DIGITIZING GEOLOGY**
- 12-12 11:05 AM Rohrbach-Schiavone, Robin\*; Bentley, Callan: **MILLIMETERS TO MICRONS: TINY SAMPLES, BIG PICTURES**

**SESSION NO. 13**

**T85. Preparing Pathways in K–12 Classrooms for Tomorrow's Diverse Geoscience Workforce: Teachers, Students, and Communities (GSA Geoscience Education Division; GSA Diversity in the Geosciences Committee; National Earth Science Teachers Association; GSA Geology and Society Division; National Association of Geoscience Teachers)**

8:00 AM, Baltimore Convention Center, Room 322/323

Marilyn J. Suiter and Keith A. Sverdrup, Presiding

- 8:00 AM **INTRODUCTORY REMARKS**
- 13-1 8:15 AM Snow, Eleanour\*: **ONRAMPS GEOSCIENCE: DELIVERING A UNIVERSITY GEOLOGY COURSE IN TEXAS HIGH SCHOOLS**
- 13-2 8:30 AM Schmidt, Richard W.\*; Helmke, Martin: **A WELL UNTAPPED: OVERCOMING THE OBSTACLES INHIBITING DUAL ENROLLMENT AGREEMENTS IN THE GEOSCIENCES**
- 13-3 8:45 AM Smith, John F.\*: **EXAMINING FRACTURES IN CERTIFICATION, CURRICULUM, AND COMMUNITY: LESSONS FROM EARTH SCIENCE AND A SCIENCE TEACHING METHODS COURSE IN AN ALTERNATIVE CERTIFICATION PROGRAM**
- 13-4 9:00 AM Serpa, Laura\*; Esposito, Ellen: **SUPPORTING A BETTER EDUCATION IN MATH AND SCIENCE (SABE MAS) AND THE MASTERS OF ARTS IN TEACHING SCIENCE (MATS) AT THE UNIVERSITY OF TEXAS AT EL PASO**
- 13-5 9:15 AM Sanders, Randall S.\*: **CONNECTING GRADE 3-12 STUDENTS TO NATURAL GEOSCIENCE PROCESSES IN THEIR LOCAL URBAN NATIONAL PARK**
- 13-6 9:30 AM Schmidt, Peter\*; Ludman, Allan; Jakim, David; Leou, Mary: **INTO THE WOODS: TRAINING URBAN ELEMENTARY TEACHERS TO USE THE OUTDOORS AS A CLASSROOM TO IMPROVE ENVIRONMENTAL LITERACY**
- 9:45 AM **DISCUSSION**
- 13-7 10:00 AM Semken, Steven\*; Bos, Colette; Garcia, Angel A.: **GEOSCIENCE EDUCATIONAL OUTREACH AND WORKFORCE DEVELOPMENT IN AN UNDERSERVED, MINORITY-MAJORITY RURAL MINING REGION**
- 13-8 10:15 AM Sverdrup, Keith A.\*; Cornelison, Deborah: **PREPARING K-12 TEACHERS FOR HIGH-NEED SCHOOLS**
- 13-9 10:30 AM Brame, Roderic I.\*; Pitts Bannister, Vanessa; Brame, Rachel: **SYSTEMIC EFFORTS TO IMPROVE TEACHER QUALITY IN STEM CREATES PROGRAMS WITH POTENTIAL TO INCREASE DIVERSITY: WILL THIS INSPIRE THE NEXT GENERATION OF GEOSCIENTIST?**
- 13-10 10:45 AM DiPrinzio, Tovah\*: **TEACHING EARTH SCIENCE AS A LANGUAGE: ENGLISH LANGUAGE LEARNERS AND LANGUAGE OF EARTH SCIENCE FOR THE SECONDARY SCHOOL URBAN CLASSROOM**
- 13-11 11:00 AM Slattery, William\*; Lunsford, Suzanne K.; Jacomet, Patrick; Brown, Douglas; Crawford, Robert: **SCIENCE TEACHING FOR OHIO'S NEW ECONOMY (STONE); BUILDING A MORE DIVERSE GEOSCIENCE WORKFORCE THROUGH A K-12 TEACHER PROFESSIONAL DEVELOPMENT PROGRAM**

- 13-12 11:15 AM Hernandez, Juanmanuel\*; Marcum-Dietrich, Nanette; Gill, Susan; Stoudt, Carolyn: **TEACHING ENVIRONMENTAL SUSTAINABILITY - MODEL MY WATERSHED**
- 13-13 11:30 AM Anderson, Peter\*; Snow, Jonathan E.: **TERRAELM: AN EXERCISE IN EARTH SCIENCE INSTRUCTION**
- 11:45 AM **CONCLUDING REMARKS**

**SESSION NO. 14**

**T108. Nanomaterials and Contaminants in Hydrogeology (GSA Hydrogeology Division; Geochemical Society)**

8:00 AM, Baltimore Convention Center, Room 345/346

William E. Sanford and Yan Vivian Li, Presiding

- 8:00 AM **INTRODUCTORY REMARKS**
- 14-1 8:05 AM Cathles, III, Lawrence M.\*; Giannelis, Emmanuel P.: **OVERVIEW OF A NEW CLASS OF INERT, INNOCUOUS TRACER NANOPARTICLES**
- 14-2 8:25 AM Li, Yan Vivian\*; Cathles, III, Lawrence M.: **WHY ARE CARBON NANOPARTICLES NOT STICKY IN POROUS MEDIA?**
- 14-3 8:40 AM Hawkins, Adam J.\*; Zhao, Russell; Cathles, III, Lawrence M.: **COMPARISON OF C-DOT NANOPARTICLE AND IODIDE TRACER BREAKTHROUGH CURVES IN A SHALLOW FRACTURE-DOMINATED AQUIFER**
- 14-4 8:55 AM Sanford, William E.\*; King, Charlene; Li, Yan Vivian: **DUAL TRACER LABORATORY EXPERIMENTS USING CARBON NANOPARTICLES AND BROMIDE IN HETEROGENEOUS AND REACTIVE POROUS MEDIA**
- 14-5 9:10 AM Guilvaiee, Bahareh Hassanpour\*; Odame-Boahene, Michael; Cathles, III, Lawrence M.; Steenhuis, Tammo: **NANOPARTICLE TRANSPORTATION IN UNSATURATED POROUS MEDIA**
- 14-6 9:25 AM Berkowitz, Brian\*; Naftaly, Aviv; Dror, Ishai: **VISUALIZATION AND MODELING OF NANOPARTICLE TRANSPORT IN POROUS MEDIA**
- 9:40 AM **BREAK**
- 14-7 9:55 AM Mui, Julie\*; Ngo, Jennifer; Kim, Bojeong: **AGGREGATION AND COLLOIDAL STABILITY OF COMMERCIALY AVAILABLE AL<sub>2</sub>O<sub>3</sub> NANOPARTICLES IN AQUATIC ENVIRONMENTS**
- 14-8 10:10 AM Harrison, Daniel J.\*; Poda, Aimee R.; Gellasch, Christopher A.: **NANO - TITANIUM DIOXIDE (TiO<sub>2</sub>) INTEGRATED CONCRETE: AN ASSESSMENT OF WEATHERING INTO NATURAL WATERS UNDER UV PHOTO ACTIVATION AND ACIDIC PRECIPITATION CONDITIONS**
- 14-9 10:25 AM Sanders, Jonathan\*; Knappett, Peter S. K.; Miller, Gretchen; Pavia-Sanders, Adriana; Wooley, Karen: **REMEDIATING CONTAMINATED AQUIFERS WITH MAGNETIC ENGINEERED NANOPARTICLES**
- 14-10 10:40 AM Nolan, Jason\*; Pan, Donald; Healy, Olivia; Kiat, Rebecca; Jung, Soyung; Stange, Marty; Campbell, Kate M.; Weber, Karrie A.: **OXIDATIVE DISSOLUTION OF NATURALLY-OCCURRING URANIUM IN SHALLOW AQUIFERS**
- 14-11 10:55 AM Winfield, DeMichael D.\*: **AN INVESTIGATION INTO THE WATER QUALITY AND CONTAMINANT TRANSPORT IN A MIDDLE GEORGIA WATER SYSTEM**
- 14-12 11:10 AM Gutches, Kristina M.\*; Jin, Li; Lautz, Laura K.; Zhou, Xiaoli; Lu, Zunli: **USING HALOGENS AND DISCRIMINANT ANALYSIS TO DISTINGUISH AMONG SOURCES OF SALINITY IN THE TIOUGHNIAGA RIVER, CENTRAL NEW YORK**

AM

SUNDAY

## SESSION NO. 15

**T121. New Perspectives in Karst Geomicrobiology and Redox Geochemistry: Advances from 20 Years of Interdisciplinary Research and Exploring Our Future Frontiers (GSA Karst Division; GSA Geobiology & Geomicrobiology Division; Karst Waters Institute; National Cave and Karst Research Institute; Geochemical Society)**

8:00 AM, Baltimore Convention Center, Room 340

Annette Summers Engel, John R. Spear, Sarah K. Carmichael, Hazel A. Barton and Philip C. Bennett, Presiding

- 8:00 AM **INTRODUCTORY REMARKS**
- 15-1 8:05 AM Brown, Amy L.\*; Martin, Jonathan B.; Sreaton, Elizabeth; Ezell, John; Gulley, Jason: **FROM THE SPRING TO THE BASIN: THE INFLUENCE OF RECHARGE PATTERNS ON AQUIFER REDOX STATE AND CONTAMINANT TRANSPORT**
- 15-2 8:25 AM Tagne Kamgue, Gilles Valdez\*; Florea, Lee J.: **ANTHROPOGENIC NUTRIENT LOADING ON EPIGENIC KARST AQUIFER IN SOUTHEASTERN KENTUCKY**
- 15-3 8:40 AM Cashay, Mara L.\*; Carmichael, Sarah K.; Zorn, Bryan T.; Bräuer, Suzanna L.: **IMPACT OF EXOGENOUS NUTRIENTS ON MN-OXIDIZING MICROBIAL CONSORTIA AMONG CAVES OF THE SOUTHERN APPALACHIAN MOUNTAINS**
- 15-4 8:55 AM van Beynen, Philip\*; Niedzielski, Michael; Alsharif, Kamal: **COMPARATIVE STUDY OF SPECIFIC GROUNDWATER VULNERABILITY OF A KARST AQUIFER IN CENTRAL FLORIDA**
- 15-5 9:15 AM Young, Caitlin\*; Martin, Jonathan B.; Pain, Andrea J.; Huang, Laibin; Ogram, Andrew: **MICROBIALY DRIVEN NITROGEN CYCLING IN YUCATAN CENOTES**
- 15-6 9:30 AM Webster, Kevin D.\*; Schimmelmann, Arndt; Sauer, Peter E.: **SEASONAL FLUCTUATIONS IN THE METHANE CONCENTRATION OF CAVE AIR**
- 9:45 AM **BREAK**
- 15-7 10:00 AM Kieft, Thomas L.\*; Onstott, Tullis; Lau, C.Y.M.; Magnabosco, Cara; Slater, Greg F.; Stepanauskas, Ramunas; van Heerden, Esta: **MICROBIAL CARBON CYCLING IN THE DEEP BIOSPHERE OF THE KAAPVAAL CRATON, SOUTH AFRICA**
- 15-8 10:20 AM Macalady, Jennifer L.\*; Lovrinic, Spencer; Cardman, Zena; Schaperdoth, Irene; Mainiero, Maurizio; Mariani, Sandro: **ORIGIN AND GEOMICROBIOLOGY OF MAZE-LIKE CAVE WALL FORMATIONS**
- 15-9 10:40 AM Melim, Leslie A.\*; Spilde, Michael N.; Northup, Diana E.: **GEOMICROBIOLOGY OF CAVE PEARLS: NEW EVIDENCE FROM CARLSBAD CAVERN**
- 15-10 10:55 AM Spear, John R.\*: **MICROBIAL BIOFABRICS IN CAVES: REFLECTIONS INFORM THE FUTURE**
- 15-11 11:10 AM Joop, Mark W.\*: **THE ORIGIN OF H<sub>2</sub>S AND H<sub>2</sub>SO<sub>4</sub> IN SULFURIC ACID CAVES: AN ENVIRONMENTAL CHEMISTRY PERSPECTIVE**
- 15-12 11:25 AM Gary, Marcus\*: **MICROBIAL INFLUENCE OF AQUEOUS GEOCHEMICAL ENVIRONMENTS: SISTEMA ZACATON, MEXICO**
- 11:45 AM **CONCLUDING REMARKS**

## SESSION NO. 16

**T134. Radiation Effects, Mineralogy, and Materials Science of Actinides I: In Honor of Rodney C. Ewing, 2015 Roebling Medalist (Mineralogical Society of America; GSA Mineralogy, Geochemistry, Petrology, and Volcanology Division; Geochemical Society)**

8:00 AM, Baltimore Convention Center, Room 317

Peter C. Burns, William J. Weber, Ian Parsons, E. Bruce Watson, Alexandra Navrotsky and Ginger Sigmon, Presiding

- 16-1 8:00 AM Macfarlane, Allison M.\*: **NUCLEAR WASTE DISPOSAL IN THE UNITED STATES AND ELSEWHERE: SUCCESSES AND FAILURES**
- 16-2 8:20 AM Logsdon, Mark J.\*: **MANAGEMENT OF SNF/HLW: INSIGHTS FROM RISK MANAGEMENT OF SULFIDE-BEARING MINE WASTES**
- 16-3 8:35 AM Krivovichev, Sergey V.\*; Yudinsev, S.V.; Pakhomova, Anna S.: **MURATAITE CERAMICS: A COMPLEX MATRIX FOR COMPLEX RADIOACTIVE WASTE**
- 16-4 8:55 AM Ushakov, Sergey V.\*; Pavlik, III, Alfred J.; Navrotsky, Alexandra; Weber, Richard J. K.; Benmore, Chris J.; Neuefeind, Joerg C.: **X-RAY AND NEUTRON DIFFRACTION ON LASER HEATED LEVITATED SAMPLES: SUCCESSES AND CHALLENGES**
- 9:10 AM **DISCUSSION**
- 16-5 9:25 AM Lian, Jie\*; Yao, Tiankai: **SINTERED UO<sub>2</sub> FUELS BY FIELD ASSISTED SINTERING TECHNOLOGY – ACCIDENT TOLERANCE AND FUEL PERFORMANCE MODELING**
- 16-6 9:40 AM Bruno, Jordi\*: **REDUCTIVE VERSUS OXIDATIVE ALTERATION OF URANIUM(IV) DIOXIDE, PATHWAYS AND IMPLICATIONS FOR SPENT NUCLEAR FUEL ALTERATION**
- 16-7 9:55 AM Tracy, Cameron L.\*; Lang, Maik K.; Pray, John M.; Palomares, Raul I.; Zhang, Fuxiang; Park, Changyong; Trautmann, Christina; Skuratov, Vladimir A.; Ewing, Rodney C.: **REDOX RESPONSE OF ACTINIDE OXIDES AND OXYHYDROXIDES TO HIGHLY IONIZING RADIATION**
- 16-8 10:10 AM Rittman, Dylan R.\*; Ewing, Rodney C.; Tracy, Cameron L.; Cusick, Alex B.; Yalisove, Steven M.; Abere, Michael J.; Torralva, Ben: **ULTRAFAST LASERS - A PATHWAY TO UNDERSTANDING THE DYNAMIC BEHAVIOR OF SWIFT HEAVY ION IRRADIATION**
- 10:25 AM **BREAK**
- 16-9 10:40 AM Abe, Takeyasu\*; Nakamura, Michihiko; Kuribayashi, Takahiro: **OH DEFECTS IN NON-METAMICT XENOTIME**
- 16-10 10:55 AM Park, Sulgiye\*: **EFFECTS OF IRRADIATION-INDUCED STRUCTURAL DISORDERING IN ZIRCONATE PYROCHLORES AT HIGH PRESSURES**
- 16-11 11:10 AM Heffernan, Karina\*; Ross, Nancy L.; Spencer, Elinor; Boatner, Lynn: **EFFECT OF COMPOSITION ON THE HIGH-PRESSURE BEHAVIOR OF MONAZITE, A RARE-EARTH PHOSPHATE**
- 16-12 11:25 AM Eaton-Magana, Sally\*; Moe, Kyaw Soe: **TEMPERATURE EFFECTS ON RADIATION STAINS IN NATURAL DIAMONDS**
- 16-13 11:40 AM Breeding, Christopher M.\*: **A COMPARISON OF NATURAL AND LABORATORY-INDUCED RADIATION DAMAGE IN GEM DIAMOND**

## SESSION NO. 17

**T146. Palynology (AASP - The Palynological Society; GSA Quaternary Geology and Geomorphology Division; Paleontological Society)**

8:00 AM, Baltimore Convention Center, Room 309

Peter P. McLaughlin Jr., Iain Prince, Lanny H. Fisk and Kara Bogus, Presiding

- 17-1 8:00 AM Mantle, Daniel J.\*; Laurie, John R.; Nicoll, Robert S.; Bordorkos, Simon; Crowley, Jim L.; Wood, Geoff; McKellar, John: **UTILISING U-PB ZIRCON CA-IDTIMS DATING TO PRECISELY RECALIBRATE THE PERMIAN-EARLY TRIASSIC PALYNOZONES OF EASTERN AUSTRALIA**
- 17-2 8:15 AM Mangerud, Gunn\*; Paterson, Niall W.; Riding, James B.: **TRIASSIC DINOFLAGELLATE CYSTS OF THE PRESENT ARCTIC – A REVIEW**
- 17-3 8:30 AM Paterson, Niall W.\*; Mangerud, Gunn; Mørk, Atle; Lundschieen, Bjørn Anders: **LATE TRIASSIC (CARNIAN-NORIAN) PALYNOLOGY OF THE DE GEERDALEN FORMATION, SENTRALBANKEN HIGH, BARENTS SEA**
- 17-4 8:45 AM Doyle, James A.\*; Tanrikulu, Sinem; Delusina, Irina: **POLLEN AND SPORES OF THE GLEN ROSE FORMATION (EARLY ALBIAN, TEXAS) AND THEIR IMPLICATIONS FOR CORRELATION OF OTHER SEQUENCES**
- 17-5 9:00 AM Stukins, Stephen\*; van Cappelle, Marijn; Daly, Robert, J.; Hampson, Gary J.; Johnson, Howard, D: **PALYNOLOGICAL CONTENT AND PALYNOFACIES ANALYSIS OF A MIXED TIDE- AND WAVE-INFLUENCED DELTAIC DEPOSIT: THE CRETACEOUS SEGO SANDSTONE, UTAH, USA**
- 17-6 9:15 AM Bell, Kimberley M.\*; Sweet, Arthur R.: **INVESTIGATING 'HORNY' TRIPROJECTATE POLLEN**
- 17-7 9:30 AM Harrington, Guy\*; Boomer, Ian; Campion, Neil; Hughes, Gareth; Jakeman, Marcus; de Ville de Goyet, Frederic; Polling, Marcel; Cornick, Paul: **PALYNOLOGY OF THE PALEOCENE-EOCENE BOUNDARY IN THE WILCOX GROUP AT THE RED HOT TRUCK STOP, EASTERN GULF OF MEXICO, USA**
- 17-8 9:45 AM Steeman, Thomas\*; De Weirdt, Julie; Noiret, Corentin; De Putter, Thierry; Mees, Phlorias; Smith, Thierry; Yans, Johan; Louwye, Stephen: **THE LANDANA SECTION (CABINDA, ANGOLA): A NEW REFERENCE PALEOCENE – EOCENE DINOFLAGELLATE CYST RECORD FOR EQUATORIAL REGIONS?**
- 10:00 AM **BREAK**
- 17-9 10:15 AM Lukaye, Joshua\*; Sserubiri, Tonny; Sempala, Vivienne: **PALYNOLOGICAL STUDY OF SEVEN PETROLEUM EXPLORATION WELLS FROM THE ALBERTINE GRABEN, UGANDA**
- 17-10 10:30 AM van der Velden, Daan\*; Verschuren, Dirk; Louwye, Stephen: **CALIBRATION OF FOSSIL NON POLLEN PALYNOFORMS AS A PALAEOVEGETATION PROXY**
- 17-11 10:45 AM Yao, Qiang\*; Liu, Kam-biu: **A PALYNOLOGICAL STUDY OF WETLAND DEVELOPMENT IN THE SHARK RIVER ESTUARY, EVERGLADES, FLORIDA, SINCE THE MID-HOLOCENE**
- 17-12 11:00 AM Black, Morgan\*; Brooke, Sharon; O'Keefe, Jen: **BEFORE EUROPEANS: PALEOECOLOGY OF SURFICIAL UNITS IN ROWAN COUNTY, KY, USA**
- 17-13 11:15 AM Gurdebeke, Pieter R.\*; Pospelova, Vera; Mertens, Kenneth N.; Chana, Jasmin; Dallimore, Audrey; Louwye, Stephen: **DINOFLAGELLATE CYSTS IN RECENT SEDIMENTS FROM FJORDS OF WESTERN VANCOUVER ISLAND (BRITISH COLUMBIA, CANADA)**
- 17-14 11:30 AM Franca, Sr., Marlon\*; Cohen, Sr., Marcelo Canceled Lisboa; Pessenda, Sr., Luiz Carlos Ruiz: **VEGETATION AND MORPHOLOGY CHANGES IN THE MOUTH OF THE**

**AMAZON AND DOCE RIVER DURING THE LATE QUATERNARY**

- 17-15 11:45 AM Rass Masood, Farhat\*: **PALYNOSTRATIGRAPHY OF MIDDLE TRIASSIC STRATA OF SALT RANGE, PAKISTAN**

## SESSION NO. 18

**T149. Co-Evolution of Life and Planet: Broad-Scale Controls on Biodiversity I (Paleontological Society; Paleontological Association)**

8:00 AM, Baltimore Convention Center, Room 314

Peter J. Harries and Richard J. Twitchett, Presiding

- 8:00 AM **INTRODUCTORY REMARKS**
- 18-1 8:05 AM Smith, Alan G.\*: **SOME SPECULATIONS ON THE ORIGIN OF LATER PRECAMBRIAN "MOLAR-TOOTH" STRUCTURES**
- 18-2 8:20 AM Edwards, Cole T.\*; Fike, David A.; Saltzman, Matthew R.; Adrain, Jonathan M.; Westrop, Stephen R.: **SULFUR ISOTOPIC ( $\delta^{34}\text{S}$ ) EVIDENCE FOR MARINE ANOXIA AND LINKS TO LOWER ORDOVICIAN (TREMADOCIAN) TRILOBITE EXTINCTIONS**
- 18-3 8:35 AM Servais, Thomas\*; Martin, Ronald E.; Nuetzel, Alexander: **NO 'PHYTOPLANKTON BLACKOUT' IN THE LATE PALEOZOIC**
- 18-4 8:50 AM Foster, William J.\*; Danise, Silvia; Sedlacek, Alexa R.C.; Twitchett, Richard J.: **ENVIRONMENTAL CONTROLS ON THE RECOVERY OF BENTHIC INVERTEBRATE COMMUNITIES IN THE WAKE OF THE LATE PERMIAN MASS EXTINCTION**
- 18-5 9:05 AM Twitchett, Richard J.\*: **ANIMALS OR THE ENVIRONMENT? BIOTURBATION AS A KEY CONTROL ON EARLY MESOZOIC BIODIVERSITY**
- 18-6 9:20 AM Powell, Matthew G.\*; Glazier, Douglas S.: **ASYMMETRIC GEOGRAPHIC RANGE EXPANSION EXPLAINS THE LATITUDINAL DIVERSITY GRADIENTS OF FOUR MAJOR TAXA OF MARINE PLANKTON**
- 18-7 9:35 AM Dunhill, Alexander\*: **DINOSAUR BIOGEOGRAPHIC STRUCTURE AND MESOZOIC CONTINENTAL FRAGMENTATION: A NETWORK-BASED APPROACH**
- 18-8 9:55 AM Nicholson, David B.\*; Holroyd, Patricia A.; Barrett, Paul M.: **LATITUDINAL DIVERSITY GRADIENTS IN MESOZOIC NON-MARINE TURTLES**
- 10:10 AM **BREAK**
- 18-9 10:25 AM Lenton, Timothy M.\*: **EARTH'S COMPLEXITY REVOLUTION**
- 18-10 10:45 AM Martin, Ron\*: **TECTONIC FORCING OF MARINE BIODIVERSIFICATION AND BIOGEOCHEMICAL CYCLES**
- 18-11 11:00 AM Bambach, Richard K.\*; Bush, Andrew M.: **SUSTAINED MESOZOIC-CENOZOIC DIVERSIFICATION OF MARINE METAZOA: A ROBUST SIGNAL FROM THE FOSSIL RECORD**
- 18-12 11:15 AM Lazarus, David\*; Wiese, Robert; Renaudie, Johan: **ARE GENERA AND 10 MY BINNED DATA ADEQUATE FOR STUDIES OF DIVERSITY AND ENVIRONMENTAL CHANGE?**
- 18-13 11:30 AM Harries, Peter J.\*; Cardenas, Andres L.; Mondal, Subhronil: **SHOULD THE LONG-TERM BIOTIC RESPONSES TO ENVIRONMENTAL CHANGES BE LINEAR/ EXPONENTIAL?: PERSPECTIVES FROM PLANKTIC FORAMINIFERA AND MARINE BIVALVES**
- 18-14 11:45 AM Brombacher, Anieke\*; Wilson, Paul A.; Bailey, Ian; Ezard, Thomas H.G.: **DISENTANGLING SYNERGISTIC CLIMATE DRIVERS ON THE ANAGENETIC EVOLUTION OF PLANKTONIC FORAMINIFERA**

AM

SUNDAY

## SESSION NO. 19

**T153. Mass Extinction Causality: Records of Anoxia, Acidification, and Global Warming during Earth's Greatest Crises I (GSA Mineralogy, Geochemistry, Petrology, and Volcanology Division; Paleontological Society; Volcanic and Magmatic Studies Group; Mineralogical Society of America; Geological Society of London)**

8:00 AM, Baltimore Convention Center, Room 310

David P.G. Bond, Paul B. Wignall and Mike Widdowson, Presiding

- 19-1 8:00 AM Holland, Steven M.\*; Patzkowsky, Mark E.: **THE STRATIGRAPHY OF MASS EXTINCTION**
- 19-2 8:15 AM Ward, Peter L.\*: **CLIMATE THROUGHOUT GEOLOGIC TIME HAS BEEN CONTROLLED PRIMARILY BY THE BALANCE BETWEEN ABRUPT WARMING CAUSED BY VOLUMINOUS EFFUSIVE ERUPTIONS OF BASALTIC MAGMA OVER MONTHS TO HUNDREDS OF THOUSANDS OF YEARS AND ABRUPT COOLING CAUSED BY MAJOR EXPLOSIVE ERUPTIONS OF EVOLVED MAGMAS OVER HOURS TO DAYS**
- 19-3 8:30 AM Faggetter, Luke E.\*; Wignall, Paul B.; Sun, Yadong; Pruss, Sara B.: **THE SEARCH FOR ROECE IN NORTHWEST SCOTLAND**
- 19-4 8:45 AM McLaughlin, Patrick\*; Emsbo, Poul; Brett, Carlton E.; Vandenbroucke, Thijs; Saltzman, Matt: **MASS EXTINCTION AND DIACHRONISM: RECONCILING THE END ORDOVICIAN ROCK RECORD**
- 19-5 9:00 AM Beard, J. Andrew\*; Bush, Andrew M.; Hren, Michael T.: **FACIES ANALYSIS AND  $\delta^{13}\text{C}_{\text{ORG}}$  RECORDS ACROSS THE LOWER KELLWASSER EQUIVALENT (UPPER DEVONIAN) IN NEW YORK AND PENNSYLVANIA**
- 19-6 9:15 AM Bush, Andrew M.\*; Beard, J. Andrew; Hren, Michael T.: **TIMING OF THE LOWER KELLWASSER EXTINCTION (LATE DEVONIAN) RELATIVE TO DARK SHALE DEPOSITION IN THE APPALACHIAN BASIN**
- 19-7 9:30 AM Marshall, John E.A.\*; Tel'nova, Olga; Astin, Tim: **THE FRASNIAN-FAMENNIAN MASS EXTINCTION: UNDER THE VOLCANO BUT WITHOUT THE BURP**
- 19-8 9:45 AM Schoepfer, Shane D.\*; Algeo, Thomas J.; Williford, Kenneth H.; Ward, Peter D.: **OPEN-OCEAN NITROGEN LIMITATION PRECEDED THE END-TRIASSIC MASS EXTINCTION: EVIDENCE FROM HAIDA GWAIL, BRITISH COLUMBIA**
- 19-9 10:00 AM Lindström, Sofie\*; Sanei, Hamed; van de Schootbrugge, Bas; Pedersen, Gunver; Dybkjær, Karen; Bjerrum, Christian J.; Hansen, Katrine Hovedskov: **VOLCANIC INDUCED ENVIRONMENTAL STRESS DURING THE END-TRIASSIC EVENT**
- 19-10 10:15 AM Schaller, Morgan F.\*; Olsen, Paul E.; Wright, James D.; Kent, Dennis V.: **A GRADUAL INCREASE IN PCO<sub>2</sub> ACROSS THE ABRUPT END-TRIASSIC EXTINCTION**
- 19-11 10:30 AM Thibodeau, Alyson M.\*; Corsetti, Frank A.; Ritterbush, Kathleen A.; Yager, Joyce Ann; West, A. Joshua; Ibarra, Yadira; Bottjer, David J.; Berelson, Will; Bergquist, Bridget A.: **MERCURY CONCENTRATIONS AND ISOTOPES AS TRACERS OF CAMP IN TRIASSIC-JURASSIC STRATA FROM MULLER CANYON, NEVADA**
- 19-12 10:45 AM Yager, Joyce A.\*; West, A. Joshua; Corsetti, Frank A.; Berelson, William M.; Bottjer, David J.; Rosas, Silvia: **TIMING OF CARBON ISOTOPE EXCURSIONS DURING THE LATE TRIASSIC AND EARLY JURASSIC: NEW MODELING CONSTRAINTS FOR CARBON CYCLE PERTURBATIONS ASSOCIATED WITH THE EMPLACEMENT OF THE CENTRAL ATLANTIC MAGMATIC PROVINCE**
- 19-13 11:00 AM Olsen, Paul E.\*: **FIRE AND ICE: SUPER-ERUPTIONS, VOLCANIC WINTERS, THE END-TRIASSIC EXTINCTION, AND THE RISE OF DINOSAUR-DOMINANCE**

- 19-14 11:15 AM Martindale, Rowan C.\*; Košir, Adrijan: **RESPONSE OF SHALLOW-WATER CARBONATES AND REEF SYSTEMS TO THE TOARCIAN OCEAN ANOXIC EVENT (183 MA) ON THE DINARIC CARBONATE PLATFORM (SLOVENIA)**
- 19-15 11:30 AM Gulbranson, Erik L.\*; Harper, Carla J.; Serbet, Rudolph; Hieger, Timothy J.; Taylor, Edith L.; Taylor, Thomas N.: **PALEOECOLOGY AND PALEOCLIMATOLOGY OF AN EARLY JURASSIC (TOARCIAN) VOLCANIC LAKE SYSTEM, ANTARCTICA: IMPLICATIONS FOR THE ROLE OF FERRAR MAGMATIC INTRUSION ON THE TOARCIAN CARBON CYCLE**
- 19-16 11:45 AM Pugh, Autumn C.\*; Little, Crispin T.S.\*; Metodiev, Lubomir S.; Wignall, Paul B.; Newton, Robert J.; Savov, Ivan; Riding, James B.: **MACROEVOLUTIONARY TRENDS AND PALAEOENVIRONMENTAL CHANGES DURING THE EARLY TOARCIAN MASS EXTINCTION IN BULGARIA**

## SESSION NO. 20

**T157. Eat, Prey, Love, and Burrow: Tracing Animal Behavior through Time (Paleontological Society; SEPM (Society for Sedimentary Geology))**

8:00 AM, Baltimore Convention Center, Room 315

Adiël A. Klompmaker, Devapriya Chattopadhyay and Patricia H. Kelley, Presiding

- 20-1 8:00 AM Rodland, David L.\*: **DEAD OR ALIVE: USING SCLEROBIONT DENSITY DISTRIBUTION AND HOST GROWTH MODELS TO HELP DISTINGUISH BETWEEN LIVE-HOST AND POST-MORTEM COLONIZATION**
- 20-2 8:15 AM McLain, Matthew A.\*; Siviero, Bethania; Nelsen, David; Brand, Leonard R.; Chadwick, Arthur V.: **TYRANNOSAUR CANNIBALISM: A CASE OF A TOOTH-TRACED TYRANNOSAUR BONE IN THE LANCE FORMATION OF EASTERN WYOMING**
- 20-3 8:30 AM Hasiotis, Stephen T.\*; Jones, Matthew F.; Falk, Amanda; Platt, Brian F.: **ACTUALISTIC STUDY OF VERTEBRATE ICHNOLOGY—UNDERSTANDING THE BEHAVIOR THAT PRODUCES TRACKWAYS, SWIM TRAILS, AND FEEDING PATTERNS OF VERTEBRATES**
- 20-4 8:45 AM Martin, Anthony J.\*: **SIGNS OF LIFE ON AN 'ANOXIC' LAKE BOTTOM: FISH AND INVERTEBRATE FEEDING TRACES IN DEEP-WATER FACIES OF THE GREEN RIVER FORMATION (EARLY EOCENE), WYOMING USA**
- 20-5 9:05 AM Labandeira, Conrad C.\*: **MAJOR PROCESSES IN THE DEVELOPMENT OF ARTHROPOD HERBIVORY ON LAND**
- 20-6 9:25 AM Kowalewski, Michal\*: **AS GOOD AS IT GETS: QUANTITATIVE LESSONS FROM TRACE FOSSILS PRODUCED BY DRILLING PREDATORS**
- 20-7 9:45 AM Chattopadhyay, Devapriya\*; Zuschin, Martin; Tomasovych, Adam: **HOW EFFECTIVE ARE THE ECOLOGICAL INNOVATIONS AGAINST DRILLING PREDATION - INSIGHT FROM RECENT BIVALVE ASSEMBLAGE OF THE NORTHERN RED SEA**
- 20-8 10:00 AM Kelley, Patricia H.\*; Dieltl, Gregory P.; Visaggi, Christy C.: **DRILLING PREDATION ON BIVALVES ACROSS THE PLIO-PLEISTOCENE EXTINCTION IN THE U.S. MIDDLE ATLANTIC COASTAL PLAIN**
- 20-9 10:15 AM Neely, Samuel H.\*; Kelley, Patricia H.: **PREDATOR-PREY INTERACTIONS FROM THE TJÖRNES PENINSULA, ICELAND, ACROSS THE TRANS-ARCTIC INVASION**
- 20-10 10:30 AM Klompmaker, Adiël A.\*; Karasawa, Hiroaki; Ando, Yusuke: **DRILLING PREDATION ATTRIBUTED TO OCTOPODS IN CENOZOIC MOLLUSKS FROM JAPAN**
- 20-11 10:45 AM Getty, Patrick R.\*; Bush, Andrew M.; Wagner, David: **TREPTICHNUS: AN ANTI-PREDATOR MAZE?**
- 20-12 11:00 AM Selly, Tara\*; Huntley, John Warren; Shelton, Kevin L.; Schiffbauer, James D.: **CAUGHT IN THE ACT: ICHNOFOSSIL RECORD OF SELECTIVE PREDATION BY CAMBRIAN TRILOBITES**

- 20-13 11:15 AM Brandt, Danita S.\*: **CAMBRIAN ORIGIN FOR MODERN ARTHROPOD MOLTING BEHAVIOR**
- 20-14 11:30 AM Ekdale, A.A.\*; Lehane, James: **EVOLUTION OF BENTHIC ANIMAL BEHAVIOR IN THE DEEP SEA AS REFLECTED IN THE GRAPHOGLYPID TRACE FOSSIL RECORD**
- 20-15 11:45 AM Jensen, Sören\*; White, Chris E.; Barr, Sandra M.: **THE HIGH HEAD MEMBER TRACE FOSSILS OF NOVA SCOTIA, CANADA: A REMARKABLE ASSEMBLAGE OF LOWER CAMBRIAN DEEP-WATER ICHNOFOSSILS**

**SESSION NO. 21**

*T177. When Water Meets Rock: Aqueous Alteration in the Solar System (GSA Planetary Geology Division; Geochemical Society; GSA Mineralogy, Geochemistry, Petrology, and Volcanology Division)*

8:00 AM, Baltimore Convention Center, Room 344

Rebecca N. Greenberger and John F. Mustard, Presiding

- 21-1 8:00 AM Ming, Douglas W.\*; Morris, Richard V.; Clark, III, Benton C.; Yen, Albert S.; Gellert, Ralf: **AQUEOUS ALTERATION ON MARS: EVIDENCE FROM LANDED MISSIONS**
- 21-2 8:20 AM Fraeman, Abigail A.\*; Edwards, Christopher S.; Ehlmann, Bethany L.; Arvidson, Raymond E.; Horgan, Briony H.; Rice, Melissa S.: **A DETAILED INVESTIGATION OF LOWER MT. SHARP USING COORDINATED ORBITAL DATASETS**
- 21-3 8:35 AM Graham, Heather V.\*; McAdam, Amy; Stern, Jennifer C.: **ASSESSING THE EFFECTS OF SOLUTION CHEMISTRY ON THE  $\Delta D$  COMPOSITION WEATHER MINERALS: ISOTOPE ANALYSIS OF STRUCTURE WATERS IN SYNTHETIC PHYLLOSILICATES FORMED IN EXTREME PH AND SALINE FLUIDS**
- 21-4 8:50 AM Sapers, Haley Morgan\*; Osinski, Gordon R.; Pontefract, Alexandra; Tornabene, Livio L.: **IMPACT GENERATED HYDROTHERMAL SYSTEMS: EARTH, MARS, AND BEYOND**
- 21-5 9:10 AM Greenberger, Rebecca N.\*; Mustard, John F.; Osinski, Gordon R.; Tornabene, Livio L.; Pontefract, Alexandra; Marion, Cassandra L.; Flemming, Roberta L.; Wilson, Janette H.; Cloutis, Edward A.: **HYPERSPETRAL MAPPING OF A HYDROTHERMAL VUG AND ITS WEATHERING PRODUCTS AT THE HAUGHTON IMPACT STRUCTURE, CANADA**
- 21-6 9:25 AM Benison, Kathleen C.\*; Mormile, Melanie R.; Johnson, Sarah S.: **USING PETROGRAPHY AND SPECTROSCOPY TO DETECT LIFE IN EVAPORITES AND IRON OXIDE CONCRETIONS: SUGGESTIONS FOR THE SEARCH FOR MODERN AND ANCIENT LIFE ON MARS**
- 21-7 9:40 AM Bishop, Janice L.\*; Gross, Christoph; Parente, Mario; Wray, James J.; Horgan, Briony; Viviano-Beck, Christina; Seelos, Frank P.: **THE TRANSITION FROM NEUTRAL TO ACIDIC ALTERATION AT MAWRTH VALLIS AS OBSERVED FROM THE MINERALOGICAL RECORD**
- 9:55 AM **BREAK**
- 21-8 10:10 AM Catalano, Jeffrey G.\*; Chemtob, Steven M.; Nickerson, Ryan; Morris, Richard V.: **FEROUS SMECTITES AND THE REDOX EVOLUTION OF EARLY MARS**
- 21-9 10:30 AM Phillips-Lander, Charity\*; Elwood Madden, Megan E.; Miller, Jamie: **PLAGIOCLASE DISSOLUTION RATES AND MECHANISMS IN NEAR SATURATED BRINES: IMPLICATIONS FOR POST-NOACHIAN AQUEOUS ALTERATION ON MARS**
- 21-10 10:45 AM Quinn, Daven P.\*; Ehlmann, Bethany: **THE DEPOSITION AND ALTERATION HISTORY OF THE NORTHEAST SYRTIS LAYERED SULFATES**
- 21-11 11:00 AM Mustard, John F.\*; Wiseman, Sandra M.; Goudge, Timothy A.: **MECHANISMS FOR OLIVINE CARBONATION AT THE NILI FOSSAE/ISIDIS BASIN BOUNDARY, MARS: EVIDENCE FOR INTENSE SURFACE AQUEOUS**

**ACTIVITY OR LOW TEMPERATURE SURFACE ALTERATION**

- 21-12 11:15 AM Wiseman, Sandra M.\*; Mustard, John F.: **RELATIVE CARBONATE ABUNDANCES THROUGHOUT NILI FOSSAE, MARS**
- 21-13 11:30 AM Brown, Adrian\*; Viviano-Beck, Christina E.: **SERPENTINIZATION IN THE UPPER MARTIAN CRUST**
- 21-14 11:45 AM Viviano-Beck, Christina E.\*; Murchie, Scott L.; Beck, Andrew W.; Dohm, James M.: **THE IGNEOUS AND ALTERATION HISTORY OF THE GREATER THARSIS REGION, MARS**

**SESSION NO. 22**

*T179. Coordination of Civil Earth Observations: Review, Status, and Applications of Earth Observation Systems (GSA Geology and Society Division)*

8:00 AM, Baltimore Convention Center, Room 325/326

Timothy Stryker, Presiding

- 8:00 AM **INTRODUCTORY REMARKS**
- 22-1 8:05 AM Dickinson, Tamara L.\*: **EARTH OBSERVATIONS ASSESSMENT AND PLANNING**
- 22-2 8:20 AM Applegate, David\*; Leith, William: **THE ROLE OF EARTH OBSERVATION IN DISASTER RISK REDUCTION**
- 22-3 8:35 AM Barrett, Heather\*; Krekeler, Mark P.S.; Crumbaker, Joahua; Yang, Bo; Bittner, Angela Kathleen: **PRELIMINARY MATERIALS INVESTIGATIONS TO SUPPORT SEARCH AND RECOVERY USING HYPERSPECTRAL REMOTE SENSING: INITIAL GEOMATERIALS AND CLOTHING RESULTS**
- 22-4 8:50 AM Calvin, Wendy\*; Davies, Gwendolyn E.; Pace, Elizabeth; Pearson, Neil: **HYSPIRI PREPARATORY DATA FOR ENERGY AND MINERAL RESOURCES**
- 22-5 9:05 AM Zamudio, Joe A.\*: **MAPPING MINERALS WITH WORLDVIEW-3 DATA, EXAMPLES FROM NEVADA AND CALIFORNIA**
- 22-6 9:20 AM Mars, John C.\*; Robinson, Jr., Gilpin R.; Hammarstrom, Jane M.; Ludington, Steve; Zurcher, Lukas; Folger, Helen; Gettings, Mark E.; Solano, Federico; Kress, Thomas: **INTEGRATION OF REMOTE-SENSING ALTERATION MAPPING INTO NEW GEOSPATIAL-STATISTICAL, QUANTITATIVE MINERAL RESOURCE METHODS**
- 22-7 9:35 AM Hubbard, Bernard E.\*; Mars, John C.; Kokaly, Raymond F.; Hooper, Donald: **MINERAL MAPPING OF ALLUVIAL FAN, AEOLIAN AND LACUSTRINE DEPOSITS AROUND THE SALTON SEA, CALIFORNIA USING MICA: A NEW TOOL FOR RAPID CLASSIFICATION OF HYSPIRI VSWIR IMAGERY**
- 9:50 AM **BREAK**
- 22-8 10:05 AM Riter, J.C. Alexis\*; Kearney, Michael S.; Mo, Yu: **ANALYSIS OF THE IMPACT OF THE 2010 DEEPWATER HORIZON OIL SPILL ON SOUTHEASTERN LOUISIANA MARSHES BASED ON LANDSAT SATELLITE DATA**
- 22-9 10:20 AM Hook, Simon\*: **HYSPIRI, HYTES AND ECOSTRESS FOR GEOLOGICAL STUDIES**
- 22-10 10:35 AM Ramsey, Michael S.\*: **DECIPHERING SOIL MOISTURE AND SURFACE COMPOSITION OF THE WORLD'S DRYLANDS USING THERMAL INFRARED AIRBORNE AND SPACEBORNE DATA**
- 22-11 10:50 AM Khan, Shuhab\*; Okyay, Unal; Ahmad, Laeiq; Shah, Mohammad Tahir: **HIGH-RESOLUTION, GROUND-BASED HYPERSPECTRAL IMAGING OF GEOLOGICAL OUTCROPS AND HAND-SPECIMENS**
- 22-12 11:05 AM Harvey, Janet C.\*; Stock, Joann; Buckland, Kerry: **MAKO LWIR HYPERSPECTRAL DATA ANALYSIS FOR FAULT STUDIES UTILIZING CORRELATION OF OFFSET PLUTONIC TERRAINS AND SOURCING OF ALLUVIAL DEPOSITS TO CROSS-FAULT DRAINAGE BASINS**

AM

SUNDAY



SESSION NO. 22

22-13 11:20 AM Delgado Arias, Sabrina\*; Escobar, Vanessa; Brown, Molly; Neumann, Thomas; Jasinski, Michael F.; Markus, Thorsten: **ICE, CLOUD AND LAND ELEVATION SATELLITE-2 (ICESAT-2) APPLICATIONS IN THE CONTEXT OF THE NATIONAL PLAN**

SESSION NO. 23

**T189. New Applications of Geochronologic Techniques to Quaternary and Archaeological Settings (GSA Quaternary Geology and Geomorphology Division; GSA Archaeological Geology Division; GSA Karst Division)**

8:00 AM, Baltimore Convention Center, Room 341

Harrison Gray, Michelle Summa Nelson and Kerry Riley, Presiding

8:00 AM **INTRODUCTORY REMARKS**

- 23-1 8:05 AM Forman, Steve\*; Tripaldi, Alfonsina: **EOLIAN DEPOSITIONAL EVENTS DURING THE PAST 55 KA AT A SUBTROPICAL INLAND PALEO-DUNE FIELD AND INFERRED CLIMATE VARIABILITY, WESTERN PAMPAS, ARGENTINA**
- 23-2 8:20 AM Katsiaficas, Nathan J.\*; Wang, Xiaomei; Ayers, John C.: **CHARACTERIZATION OF LOESS AND ALLUVIUM INPUTS INTO MODERN SOILS IN MIDDLE TENNESSEE USING ZIRCON U-PB GEOCHRONOLOGY**
- 23-3 8:35 AM Halfen, Alan F.\*; Johnson, William C.; Messner, Claire A.; Gaines, Edmund P.; Hanson, Paul R.; Rittenour, Tammy M.; Young, Aaron R.: **REFINING PALEOENVIRONMENTAL CONDITIONS DURING THE PLEISTOCENE-HOLOCENE TRANSITION IN EASTERN BERINGIA USING POST-IR IRSL**
- 23-4 8:50 AM Townsend, Kirk F.\*; Rittenour, Tammy M.: **EPISODIC ARROYO ENTRENCHMENT AND AGGRADATION IN KANAB CREEK, SOUTHERN UTAH**
- 23-5 9:05 AM Lepper, Kenneth\*; Lewis, Adam R.; Zamora, Felix J.; Ramsey, Meridith A.; Kowalewski, Douglas E.; Willenbring, Jane K.: **NOVEL ADAPTATIONS OF OSL DATING PROCEDURES REVEAL EPISODIC DEPOSITION ON HIGH ELEVATION ANTARCTIC FANS**
- 23-6 9:20 AM Rittenour, Tammy\*; Wooldridge, Sayge C.; Cotter, James F.P.; Arends, Heather E.: **SINGLE-GRAIN OSL CHRONOLOGY OF ICE RETREAT AND STAGES OF GLACIAL LAKE BENSON, WEST-CENTRAL MINNESOTA, USA**
- 23-7 9:35 AM Thackray, Glenn D.\*; Staley, Amie E.; Rittenour, Tammy: **A FRESH LOOK AT LATE PLEISTOCENE MOUNTAIN GLACIATION IN CENTRAL IDAHO**
- 9:50 AM **BREAK**
- 23-8 10:05 AM Mahan, Shannon A.\*; Lepper, Kenneth: **OPTICAL DATING: A LUMINOUS PAST AND A VERY BRIGHT FUTURE**
- 23-9 10:25 AM Gray, Harrison\*: **ESTIMATION OF SEDIMENT TRANSPORT RATE VIA LUMINESCENCE EQUIVALENT DOSES OF RIVER SEDIMENT**
- 23-10 10:40 AM Granger, Darryl E.\*; Caffee, Marc W.; Zhao, Zhijun; Odom, III, William E.: **HIGH-PRECISION ISOCHRON BURIAL DATING USING A GAS-FILLED-MAGNET**
- 23-11 11:00 AM Lifton, Nathaniel A.\*: **EXPLORING TIME-DEPENDENT GEOMAGNETIC AND ATMOSPHERIC EFFECTS ON COSMOGENIC NUCLIDE PRODUCTION-RATE SCALING**
- 23-12 11:20 AM Odom, III, William E.\*; Granger, Darryl E.: **CALIBRATING <sup>26</sup>AL PRODUCTION USING SOLAR PANELS**
- 23-13 11:35 AM Moore, Angus K.\*; Granger, Darryl E.; Laureano, Fernando V.: **COSMOGENIC <sup>36</sup>CL IN MAGNETITE: A NEW TOOL FOR EROSION RATES**
- 11:50 AM **CONCLUDING REMARKS**

SESSION NO. 24

**T208. Perspectives on Orogenic Evolution, Dating Brittle Faults and Mylonitic Shear Zones, Bending Mountains, and Assembling Supercontinents I: A Session to Honor the Career of Ben Van Der Pluijm (GSA Structural Geology and Tectonics Division)**

8:00 AM, Baltimore Convention Center, Room 343

Arlo Brandon Weil, Eric Tohver, Bernard Housen and Samuel Haines, Presiding

- 24-1 8:00 AM Mager, Stephanie M.\*; Marshak, Stephen: **GENERATION AND EVOLUTION OF FAULT-PARALLEL VEINS IN A FOLD-THRUST BELT**
- 24-2 8:15 AM Marshak, Stephen\*; Wilkerson, M. Scott; DeFrates, Joshua: **FORMATION OF CRENULATION CLEAVAGE AND KINK BANDS IN THE BARABOO SYNCLINE, WISCONSIN: A MECHANISM TO ACCOMMODATE SUBSIMPLE SHEAR DURING REGIONAL FOLDING**
- 24-3 8:30 AM Murphy, J. Brendan\*; Waldron, John W.F.; Nance, R. Damian: **INTERPRETATION OF OPHIOLITE COMPLEXES: A TWEETER IN WOOFER'S CLOTHING?**
- 24-4 8:50 AM Tikoff, Basil\*; Michels, Z.D.; Braudy, Nicole; Stetson-Lee, Tor: **CRYSTALLOGRAPHIC VORTICITY AXES ANALYSES FROM THE WESTERN IDAHO SHEAR ZONE: EVIDENCE FOR OROGENIC-SCALE TRANSPRESSION**
- 24-5 9:05 AM Craddock, John\*; Craddock, Suzanne: **STRAIN VARIATIONS IN MARBLES ACROSS THE PROTEROZOIC GRENVILLE OROGEN, USA**
- 24-6 9:20 AM Ward, William P.\*; McClelland, William C.; Coble, Matthew A.; Malone, Shawn J.: **TIMING OF DEFORMATION AND METAMORPHISM IN THE PEARYA TERRANE FROM U-PB SIMS ANALYSIS OF MONAZITE AND TITANITE**
- 24-7 9:35 AM Scibiorski, Elisabeth\*; Tohver, Eric; Jourdan, Fred: **COOLING AND EXHUMATION ALONG THE CURVED ALBANY-FRASER OROGEN, WESTERN AUSTRALIA**
- 9:50 AM **BREAK**
- 24-8 10:05 AM Tiwari, Sudheer Kumar\*; Singh, Nisha; Balu, Sivalingam; Biswal, Tapas Kumar: **EARLY DUCTILE THRUSTING AND LATE STAGE BRITTLE SHEARING IN THE SOUTH DELHI TERRANE OF ARAVALLI DELHI MOBILE BELT, NW INDIA; IMPLICATION FOR THE EXHUMATION OF GRANULITES**
- 24-9 10:20 AM Shaw, Jessica\*; Johnston, Stephen T.: **OROCLINAL BUCKLING OF THE ARMORICAN CONTINENTAL RIBBON: AN ALTERNATIVE TECTONIC MODEL FOR PANGEAN AMALGAMATION AND VARISCAN OROGENESIS**
- 24-10 10:35 AM Kodama, Kenneth P.\*; Minguez, Daniel: **THE SYNCHONEITY AND DURATION OF THE SHURAM CARBON-ISOTOPE EXCURSION**
- 24-11 10:55 AM Weil, Arlo Brandon\*; Yonkee, Adolph: **ESTABLISHING AMS AS A ROBUST PROXY FOR LAYER-PARALLEL SHORTENING IN WEAKLY DEFORMED CLASTIC ROCKS FROM COMPLEX RETROARC AND FORELAND SYSTEMS**
- 24-12 11:10 AM Del Greco, Cassandra\*; Johnston, Stephen T.; Gutierrez-Alonso, Gabriel; Fernández-Lozano, J.: **KINEMATICS OF OROCLINE RELATED SHORTENING IN THE PONGA UNIT: STRUCTURAL ANALYSIS OF THE TARNA SYNFORM AND THE RIO MONASTERIO ANTIFORM, NORTHERN SPAIN**
- 24-13 11:25 AM Housen, Bernard A.\*: **MAGNETIC FABRICS, PALEOMAGNETISM, AND U-PB ZIRCON AGES OF CLASTIC MARINE SEDIMENTS: IMPLICATIONS FOR PROVENANCE AND TECTONIC HISTORY OF THE GOLD BEACH TERRANE**

# POSTER TECHNICAL SESSIONS

## SESSION NO. 25

### T13. *Geologic Energy Research (Posters) (GSA Energy Geology Division; GSA Environmental and Engineering Geology Division)*

9:00 AM, Baltimore Convention Center, Exhibit Hall

Authors will be present from 3:30 to 5:30 PM

Booth #

- |       |    |   |       |    |   |
|-------|----|---|-------|----|---|
| 25-1  | 1  | Geboy, Nicholas J.*; Kolker, Allan; Lefticariu, Liliana; Vancil, Gary: <b>A COMPOSITIONAL DATA ANALYSIS APPROACH TO UNDERSTANDING TRACE ELEMENT DISTRIBUTION DURING BENEFICIATION OF AN ILLINOIS BASIN COAL</b>   | 25-17 | 17 | Lotero, Andrea*; Borges, Oscar; Contreras, Juan: <b>INTERPLAY BETWEEN DEFORMATION AND SUPERFICIAL MASS FLUXES IN DEEP-WATER COMPRESSIONAL SYSTEMS</b>   |
| 25-2  | 2  | Tucker, Brendon G.*; Ruhl, Laura: <b>THE NATURE OF RARE EARTH ELEMENTS IN WEATHERED COAL COMBUSTION PRODUCTS</b>  | 25-18 | 18 | Bockisch, Christiana D.*; Williams, Lynda B.; Hartnett, Hilairy; Shock, Everett L.; Gould, Ian R.: <b>DEHYDRATION AND DEOXYGENATION OF ORGANIC COMPOUNDS UNDER HYDROTHERMAL CONDITIONS</b>  |
| 25-3  | 3  | Bumrongjaroen, Walairat*; Livingston, Richard A.; Amde, Amde M.; Davis, Jeff: <b>INVESTIGATION OF THE COAL MINERAL PRECURSORS OF FLY ASH GLASSES USING CLUSTER ANALYSIS OF PARTICLE SEM DATA</b>  | 25-19 | 19 | Hackley, Paul C.*; Valentine, Brett J.; Lohr, Celeste D.; Enomoto, Catherine B.: <b>BURIAL HISTORY AND HEAT FLOW IN THE TUSCALOOSA MARINE SHALE PLAY AREA: PRELIMINARY INSIGHTS FROM PETROGRAPHIC APPROACHES</b>  |
| 25-4  | 4  | Schwab, Drew R.*; Bidgoli, Tandis S.; Taylor, Michael H.; Stearns, Leigh A.: <b>DETERMINING THE RISK FOR INDUCED SEISMICITY ASSOCIATED WITH PILOT-SCALE CO<sub>2</sub> INJECTION AT WELLINGTON FIELD, SUMNER COUNTY, KANSAS</b>                                       | 25-20 | 20 | Lohr, Celeste D.*; Hackley, Paul C.; Valentine, Brett J.; Enomoto, Catherine B.: <b>PRELIMINARY THERMAL GRADIENT EVALUATION IN THE TUSCALOOSA MARINE SHALE PLAY AREA</b>  |
| 25-5  | 5  | Jiao, Zunsheng*; Coddington, Kipp; McLaughlin, J. Fred; Quillinan, Scott; Bentley, Ramsey: <b>CCUS PROVIDES AN INTEGRATED STRATEGY FOR THE SUSTAINABLE ENERGY FUTURE OF ENERGY PROLIFIC BASINS IN WYOMING AND CHINA</b>   | 25-21 | 21 | Nandi, Sourav Krishna*; Weisberg, Wesley R.; Evans, Kevin R.: <b>LARGE-SCALE CYCLICITY IN GAMMA-RAY AND MAGNETIC SUSCEPTIBILITY PROFILES OF THE UPPER MISSISSIPPIAN FAYETTEVILLE SHALE, NORTHERN ARKANSAS</b>   |
| 25-6  | 6  | Larsen, Kenneth*; Wang, Weihong: <b>ASSESSING GEOTHERMAL POTENTIAL IN UTAH (USA) AND ITS IMPACT ON THE ECONOMY AND ENVIRONMENT USING GIS MAPPING</b>  | 25-22 | 22 | Roberts-Ashby, Tina L.*; Hackley, Paul C.; Lohr, Celeste D.: <b>NEW INSIGHT INTO LOWER CRETACEOUS OIL SYSTEMS OF THE SOUTH FLORIDA BASIN</b>  |
| 25-7  | 7  | Park, Byeong-Hak*; Kim, Hyoung-Soo; Lee, So-Yoon; Park, Junghui; Lee, Kang-Kun: <b>SPATIAL AND TEMPORAL VARIATION IN HEATING AND COOLING DEMAND AND ITS EFFECT ON GROUND SOURCE HEAT PUMP (GSHP) SYSTEMS</b>  | 25-23 | 23 | Hill, John M.*; Kyle, J. Richard; Caesar, Kylie; Loyd, Sean J.: <b>PETROGRAPHIC AND ISOTOPIC EVIDENCE FOR MICROBIAL INFLUENCE IN THE ORIGIN OF THE BOLING SALT DOME CALCITE CAP ROCK, HOUSTON DIAPIR PROVINCE, TEXAS</b>                                      |
| 25-8  | 8  | Miano, Sandra Cecilia*: <b>SITE SELECTION FOR NEW NUCLEAR POWER PLANTS</b>  | 25-24 | 24 | Ferrone, Marjorie Ellen*; Dmochowski, Jane Ellen: <b>POSSIBLE UNTAPPED HYDROCARBON PLAYS IN THE MUDDY FORMATION OF THE BIGHORN BASIN, WYOMING</b>   |
| 25-9  | 9  | Miano, Sandra Cecilia*; Pires, Fernando R.M.: <b>LAGOA REAL ALBITITE URANIUM DEPOSITS, BAHIA, BRAZIL</b>  | 25-25 | 25 | Curtis, Meghan D.*; Morrison, Ernie R.; Mourning, Rusty C.; Bischoff, William D.; Parcell, William C.: <b>RESERVOIR CHARACTERIZATION OF THE JOHNSON ZONE WITHIN THE CHEROKEE GROUP: HUBERT FIELD COMPLEX, LOGAN COUNTY, KANSAS</b>                            |
| 25-10 | 10 | Volker, Morgan*; Mouser, Paula J.; Plata, Desiree; Blotvogel, Jens; Borch, Thomas; Heyob, Katie M.: <b>ACCUMULATION OF SHORTER ETHOXYLATE CHAIN LENGTHS DURING ANAEROBIC BIODEGRADATION OF NONYLPHENOL ETHOXYLATE SURFACTANTS USED IN HYDRAULIC FRACTURING FLUIDS</b> | 25-26 | 26 | Jahan, Shakura*; Uddin, Ashraf; Savrda, Charles; Pashin, Jack C.: <b>PETROLEUM SOURCE ROCK EVALUATION OF UPPER EOCENE KOPILI SHALE, BENGAL BASIN, BANGLADESH</b>  |
| 25-11 | 11 | Varonka, Matthew S.*; Engle, Mark A.; Gallegos, Tanya J.; Kulongoski, Justin T.; Bates, Anne L.; Schell, Tiffani; Orem, William H.: <b>ORGANIC SUBSTANCES IN PRODUCED WATER FROM THREE UNCONVENTIONAL OIL PLAYS</b>   | 25-27 | 27 | Dahlqvist, Peter*; Erlström, Mikael; Alm, Per-Gunnar; Rindby, Anders; Larsson, Anna: <b>GEOCHEMICAL AND GEOPHYSICAL CHARACTERIZATION OF THE ALUM SHALE FORMATION BY USE OF HIGH RESOLUTION XRF CORE SCANNING AND ACOUSTIC TELEVIEWER, ÖLAND, SOUTH SWEDEN</b> |
| 25-12 | 12 | Sheets, Julia M.*; Welch, Susan A.; Cole, David R.; Olesik, John; Lutton, Anthony; Edgin, Matt; Chipera, Steve: <b>PHOSPHATE MINERALS IN MUDROCK: A POSSIBLE SOURCE OF TRACE METALS IN FLOWBACK WATER</b>   |       |    |   |
| 25-13 | 13 | Drummond, Jesse*: <b>REVERSE ENGINEERING GAS MIGRATION CONDITIONS: FORENSIC INSIGHTS AND LESSONS LEARNED FROM RESIDENTIAL WELL INVESTIGATIONS</b>   |       |    |   |
| 25-14 | 14 | Nwozor, Kingsley*; Yardley, Gareth: <b>IDENTIFYING THE CAUSES OF OVERPRESSURE IN HPHT SETTINGS: THE NON-UNIQUENESS OF DENSITY-VELOCITY CROSSPLOTS</b>   |       |    |   |
| 25-15 | 15 | Lopez, Dina L.*; Grimaldi, David A.; Astray, Gonzalo: <b>ON THE INTEGRATION OF GEOLOGICAL, GEOCHEMICAL, AND GEOPHYSICAL DATA</b>  |       |    |   |
| 25-16 | 16 | Burchwell, Andrew*: <b>NUCLEAR WELL LOG PROPERTIES OF NATURAL GAS HYDRATE RESERVOIRS</b>  |       |    |   |

## SESSION NO. 26

### *Engineering Geology (Posters)*

9:00 AM, Baltimore Convention Center, Exhibit Hall

Authors will be present from 3:30 to 5:30 PM

Booth #

- |      |    |   |
|------|----|---|
| 26-1 | 28 | Omogbehin, Thomas Omotola*; Ajidahun, Emmanuel Jeminiyi: <b>THE PHYSICO-CHEMICAL PARAMETERS RESPONSIBLE FOR ROAD FAILURES IN SOUTHERN NIGERIA</b>   |
| 26-2 | 29 | Kaunda, Rennie B.*: <b>TOWARD IMPROVED RISK ASSESSMENT OF INTERNAL EROSION-INDUCED EMBANKMENT FAILURE: A NEW NEURAL NETWORK APPROACH</b>  |
| 26-3 | 30 | Huo, Runke*; Yang, Tengtian; Song, Zhanping: <b>THE DEGRADATION REGULARITY OF PHYSICAL-MECHANICAL PROPERTIES OF SANDSTONE SUBJECTED TO ACID CORROSION AND ITS ENGINEERING APPLICATION</b> |
| 26-4 | 31 | Kang, Sangsoo*; Park, Seunghwan; Kim, Donghui; Back, Hwanjo: <b>GIS-BASED SPATIAL ANALYSIS FOR THE PREDICTION OF FLOODED AREA IN AN UNDERGROUND LIMESTONE MINE</b>                        |
| 26-5 | 32 | Shelton, Lori Summer*: <b>STABILITY ASSESSMENT OF MAN-MADE SLOPES VS. EXISTING NATURAL SLOPES: A CASE STUDY AT TENNESSEE VALLEY AUTHORITY KINGSTON COAL ASH SPILL</b>                     |

## SESSION NO. 26

- 26-6 33 Gomez, Christopher A.\*; Hart, Deirdre Erin: **EVOLUTION OF THE WEST TOKYO FLOODPLAIN AND MULTI-HAZARDS ALONG THE TAMAGAWA**
- 26-7 34 Jenson, Aubri\*; Schwartz, Benjamin F.: **MODELING SPELEOGENESIS AND AQUIFER DEVELOPMENT IN A COASTAL CARBONATE PLATFORM: QUINTANA ROO, MEXICO**
- 26-8 35 Egenolf, Evan\*; Ganshin, Yuri: **PORE-PRESSURE PREDICTION IN SEDIMENTARY ROCKS USING SEISMIC DATA ACQUIRED AT THE ROCK SPRINGS UPLIFT (RSU) IN SOUTHWESTERN WYOMING**
- 26-9 36 Kimura, Sho\*; Kaneko, Hiroaki; Noda, Shohei; Ito, Takuma; Minagawa, Hideki: **AN INVESTIGATION OF RING-SHEAR DISPLACEMENT FOR CONTROLLING SHEAR ZONE FORMATION OF SAND**
- 26-10 37 Dybel, Bradley E.\*: **GUIDELINES FOR QUALIFICATIONS OF PRACTITIONERS FOR RESIDENTIAL GEOLOGIC EVALUATIONS**

## SESSION NO. 27

*T20. Embedded Research Projects in Upper Level Undergraduate Courses: A Plausible Panacea for the Dwindling Science and Engineering (S&E) Researchers Community (Posters) (Council on Undergraduate Research Geosciences Division; GSA Environmental and Engineering Geology Division)*

9:00 AM, Baltimore Convention Center, Exhibit Hall

Authors will be present from 3:30 to 5:30 PM

Booth #

- 27-1 38 Nord, Julia A.\*; Lukes, Laura A.; Hazel, Stephanie; Usher, Bethany: **ENABLING UNDERGRADUATE STUDENT RESEARCH EXPERIENCES BY EMBEDDING INQUIRY ACTIVITIES INTO GEOSCIENCE CURRICULUM**
- 27-2 39 Matthews, Tessa\*; Budd, Sarah K.; Isiorho, Solomon A.: **NUTRIENT AND DISSOLVED OXYGEN LEVELS OF AN OPEN AQUIFER SYSTEM**
- 27-3 40 Yelderman, Jr., Joe C.\*; Taylor, Kori; Wong, Stephanie; Hamilton, Wayne: **CAN AN UNDERGRADUATE THESIS BE IMBEDDED IN A CLASS PROJECT; A CASE STUDY IN PROGRESS**
- 27-4 41 McMichael, Kaitlin N.\*; Isiorho, K. Solomon: **WHAT IS THE RELATIONSHIP BETWEEN WATERFOWL POPULATION AND THE MPN OF A ZOO'S POND IN INDIANA?**
- 27-5 42 Bamgbelu, Oloruntobiloba A.\*; Omole, David O.; Ndambuki, Julius M.: **SURFACE AND GROUNDWATER RESEARCH IN SOUTH AFRICA: AN UNDERGRADUATE CLASS EXPERIENCE**
- 27-6 43 Johnston, Shelby\*; Isiorho, K. Solomon: **OBSERVATION OF THE SEDIMENT GRAIN SIZE DISTRIBUTION CHANGE ALONG A CREEK PROFILE IN INDIANA, USA**
- 27-7 44 Henry, Darrell J.\*: **THE PET ROCK PROJECT, A COURSE-EMBEDDED RESEARCH PROJECT IN UNDERGRADUATE GEOSCIENCE EDUCATION: INTRODUCTION TO RESEARCH, DEVELOPMENT OF COMMUNICATION SKILLS AND MEANS OF PROGRAMMATIC ASSESSMENT**
- 27-8 45 Omole, David O.\*; Isiorho, Solomon A.; Tenebe, Theophilus; Emenike, PraiseGod: **STUDENT EMERSION IN ENGINEERING AND GEOSCIENCES RESEARCH: ONE-WAY OF STRENGTHENING THE DISCIPLINES**
- 27-9 46 Kime, Brittany\*; Isiorho, Solomon A.; Smith, Jared; Davis, Branden: **GROUPING THROUGH THE MUD WITH SNAKES: THE WETLAND CLASS GROUP PROJECT!**
- 27-10 47 McRivette, Michael W.\*; Bartels, William S.; Lincoln, Timothy N.; Wilch, Thomas I.: **GIS AS A COMMON PLATFORM FOR UNDERGRADUATE RESEARCH IN COURSES AND DIRECTED STUDIES AT ALBION COLLEGE**

## SESSION NO. 28

**Geochemistry (Posters)**

9:00 AM, Baltimore Convention Center, Exhibit Hall

Authors will be present from 3:30 to 5:30 PM

Booth #

- 28-1 48 McKnight, Diane M.\*; Dyson, Ivelisse; Esposito, Rhea M.; Gooseff, Michael: **ECOGEOCHEMICAL CONNECTIONS: WEATHERING OF SILICATE MINERALS CONTROLS DIATOM BIODIVERSITY IN MICROBIAL MATS IN GLACIAL MELTWATER STREAMS OF THE MCMURDO DRY VALLEYS, ANTARCTICA**
- 28-2 49 Welch, Kathleen A.\*; Leslie, Deborah; Lyons, W. Berry: **STABLE ISOTOPIC VARIABILITY IN TWO GLACIER MELTWATER STREAMS, TAYLOR VALLEY, ANTARCTICA**
- 28-3 50 Welch, Susan A.\*; Miller, Laura A.; McAdams, Brandon C.; Trierweiler, Annette M.; Restrepo, Carla; Carey, Anne E.: **WEATHERING OF REE-BEARING MINERAL PHASES IN THE SIERRA DE LAS MINAS: IMPLICATIONS FOR THE TOTAL CA FLUX**
- 28-4 51 Deuerling, K.M.\*; Martin, Jonathan B.; Martin, Ellen E.; Scribner, Cecilia A.; Collazo, Daniel F.: **SEASONAL EVOLUTION AND SPATIAL DISTRIBUTION OF WEATHERING IN WESTERN GREENLAND**
- 28-5 52 Filippelli, Gabriel M.\*; Adamic, Jessica F.; Nichols, Deborah: **DOWNWIND, AND DOWNSTREAM: THE LINGERING IMPACTS OF CITIES ON THEIR ENVIRONMENT**
- 28-6 53 Wang, Sr., ZePeng\*; Liu, JianZhong; Yang, Sr., ChengFu; Wang, Sr., DaFu; Chen, Sr., FaEn: **THE SBT AND GOLD-ANTIMONY MINERALIZATION, SW GUIZHOU, CHINA**
- 28-7 54 Roller, Goetz\*: **<sup>187</sup>RE-<sup>187</sup>OS NUCLEAR GEOCHRONOMETRY: CONSTRAINING OXYGEN AS A LIGHT ELEMENT WITHIN THE EARTH'S CORE FROM RE/OS, IR/OS AND PD/PT FRACTIONATION TRENDS**
- 28-8 55 Gardner, Daniel J.\*; Elliott, W. Crawford; Rabideaux, Nathan M.: **A COMPARATIVE MINERALOGICAL ANALYSIS BETWEEN TWO KAOLIN BEARING FORMATIONS, SANDERSVILLE, GEORGIA**
- 28-9 56 Janes, Darwin\*; Baxter, Ethan F.; Ague, Jay J.; Dragovic, Nora; Ostwald, Claire: **SAMARIUM-NEODYMIUM DATES OF IGNEOUS GARNETS IN NEW ENGLAND SHOW TEMPORAL CORRELATION WITH HIGH-TEMPERATURE AND ULTRA-HIGH TEMPERATURE METAMORPHISM DURING THE ACADIAN OROGENY**
- 28-10 57 Scott, Brandt E.\*; Metcalf, J.; Flowers, Rebecca; Koenig, Alan E.: **EXPLORING THE ROLE OF APATITE CHEMISTRY ON APATITE (U-TH)/HE DATES**
- 28-11 58 Drexler, Maxwell S.\*; Watson, E. Bruce; Cherniak, Daniele J.: **PRELIMINARY RESULTS FOR NITROGEN DIFFUSION IN POTASSIUM FELDSPAR**
- 28-12 59 Johnsen, Racheal L.\*; Burnley, Pamela; Malchow, Russell; Adcock, Christopher T.: **TOWARD A PREDICTIVE MODEL FOR BACKGROUND RADIATION: PREDICTING GAMMA EXPOSURE RATES IN THE TWIN PEAKS VOLCANIC FIELD, UTAH, US**
- 28-13 60 Szopa, Krzysztof\*; Wlodyka, Roman; Chew, David M.; Gaweda, Aleksandra: **APATITE VS. TITANITE: WHICH IS BETTER FOR U-PB DATING? A CASE STUDY FROM THE CIESZYN MAGMA PROVINCE, SOUTHERN POLAND, CENTRAL EUROPE**
- 28-14 61 Ziegler, Michael J.\*; Waite, Amanda J.; Montes, Camilo; Martin, Ellen E.; MacFadden, Bruce; Jaramillo, Carlos: **EXPLORING THE NEODYMIUM ISOTOPIC SIGNATURES OF MARINE SEDIMENTS FROM OUTCROPS ACROSS PANAMA: A CASE STUDY TO BETTER UNDERSTAND SHOALING OF THE CENTRAL AMERICAN SEAWAY**
- 28-15 62 Wade, Randall\*; Hansen, Edward C.; Peaslee, Graham F.: **TRACE ELEMENTAL ANALYSIS OF COPPER INCLUSIONS IN THE PORTAGE LAKE VOLCANICS SERIES OF THE KEWEENAW PENINSULA, MI USING PARTICLE-INDUCED X-RAY EMISSION SPECTROSCOPY (PIXE)**

- 28-16 63 Sharma, Raven\*; Fayek, Mostafa; Yarie, Quentin; Scherba, Craig: **U-PB GEOCHRONOLY OF URANINITE FROM THE SAGAR PROPERTY, LABRADOR TROUGH, NORTHERN QUEBEC**
- 28-17 64 Beck, Kimberly D.\*: **INVESTIGATION OF THE LEAD ISOTOPE SIGNATURES OF MARINE SEDIMENTS IN RELATION TO THE LEAD ISOTOPE SIGNATURES OF NORTHERN ANDEAN ORES**
- 28-18 65 Kopera, Kristin\*; Allin, Nicholas C.; Mathur, Ryan: **CU ISOTOPE COMPOSITIONS OF OLIVINE FROM MANTLE XENOLITHS IN SAN CARLOS, ARIZONA**
- 28-19 66 Tulsy, Emma T.\*; Gill, Benjamin C.; Caddick, Mark J.: **CONTACT METAMORPHISM AND THE RELEASE OF CARBON AND SULFUR VOLATILES: A STUDY OF THE EFFECTS OF DIABASE EMPLACEMENT**
- 28-20 67 Blomgren, Valerie J.\*; Crossey, Laura J.; Karlstrom, Karl E.: **INFLUENCE OF THE VALLES CALDERA IN SUPPLYING CO<sub>2</sub> TO GEOTHERMAL SPRINGS IN NORTHERN NEW MEXICO**
- 28-21 68 Salerno, Ross\*; Samson, Scott: **DETRITAL MONAZITE AGES FROM MISSISSIPPI RIVER ALLUVIUM – DISPLAYS FURTHER UTILITY AS A SUCCESSFUL PROVENANCE INDICATOR**
- 28-22 69 Venkata Chari, Shruti\*; Rodriguez Espinosa, Pedro Francisco; Escobedo Urias, Diana Cecilia: **METAL CONCENTRATIONS AND PROVENANCE STUDIES OF SEDIMENTS FROM PUEBLA RIVER BASIN, CENTRAL MEXICO: AN URBAN-VOLCANIC ZONE**
- 28-23 70 Oyewumi, Oluyinka\*; Litwin, Brian, J.: **SOURCES AND SPATIAL DISTRIBUTION OF TRACE AND MAJOR ELEMENTS WITHIN THE SCANTIC RIVER WATERSHED, EAST WINDSOR, CT**
- 28-24 71 Martinez, Aaron M.\*; Boyer, Diana L.; Love, Gordon D.; Droser, Mary L.: **MULTIPROXY CHARACTERIZATION OF THE CLEVELAND SHALE IN THE APPALACHIAN BASIN**
- 28-25 72 Everhart, Cheyenne S.\*; Martin, Ellen E.; Deuerling, K.M.; Martin, Jonathan B.; Clements, Kaylin; Collazo, Daniel F.: **IMPLICATIONS FOR THE EXTENT OF WEATHERING IN GREENLAND MORAINES BASED ON PB AND SR ISOTOPES**
- 28-26 73 DeLuca, Nicole M.\*; Levin, Naomi E.; Bedaso, Zelalem K.; Zaitchik, Benjamin F.; Waugh, Darryn W.; Harman, Ciaran; Shanko, Dula: **SPATIAL AND TEMPORAL VARIATION IN THE ISOTOPIC COMPOSITION OF ETHIOPIAN RAINFALL**
- 28-27 74 Barrasso, Thomas\*; Castañeda, Isla; Ricketts, Richard D.: **CENTRAL ASIAN CLIMATE VARIABILITY DURING THE PAST 13,500 YEARS: THE ORGANIC GEOCHEMICAL RECORD OF LAKE ISSYK-KUL, KYRGYZSTAN**
- 28-28 75 Caesar, Kylie\*; Kyle, J. Richard; Loyd, Sean J.: **GEOCHEMICAL MODELING OF THE ROLE OF SULFATE IN THE PRECIPITATION OF CALCITE CAP ROCKS FOR GULF OF MEXICO SALT DOMES**
- 28-29 76 Cavanaugh, Carley M.\*; Costa, Mathew. A.; Oyewumi, Oluyinka: **TRACE ELEMENT DISTRIBUTION IN THE SIMSBURY AND AVON SECTIONS OF THE FARMINGTON RIVER: LOCATING SOURCES OF ANTHROPOGENIC CONTAMINANTS WITHIN STREAM SEDIMENTS**
- 28-30 77 Diring, Sarah E.\*; Hsu-Kim, Heileen: **MERCURY CAPTURE DURING ARTISANAL AND SMALL-SCALE GOLD MINING (ASGM) USING LOW-COST SULFURIZED CARBON**
- 28-31 78 Bradley, Sarah L.\*; Mackay, Alexandra R.; Herman, Ellen K.; McGuire, Molly M.: **CHARACTERIZATION OF THE COLLOIDAL PHASE OF ABANDONED MINE DRAINAGE IN PENNSYLVANIA STREAMS**
- 28-32 79 Parnell, Sheriee Rene\*; Phillips-Lander, Charity; Elwood Madden, Andrew S.; Elwood Madden, Megan E.: **MAGNESITE DISSOLUTION IN NEAR SATURATED BRINES: UNEARTHING MARS' AQUEOUS ALTERATION HISTORY**
- 28-33 80 Zhang, Chunfu\*: **STABLE H AND O ISOTOPE ANALYSES OF MODERN WATER SAMPLES FROM COLORADO AND UTAH, USA: IMPLICATIONS FOR (PALEO)ALTIMETRY**
- 28-34 81 Truong, Katherine T.\*; Hren, Michael T.: **UNDERSTANDING THE RELATIONSHIP BETWEEN ENVIRONMENTAL FACTORS AND THE DEUTERIUM/HYDROGEN RATIOS FOUND IN N-ALKANES BETWEEN VARYING PLANT SPECIES**
- 28-35 82 Landis, Joshua D.\*; Sharma, Mukul; Renock, Devon: **ORIGIN OF RADIUM ORPHANED DURING HYDRAULIC FRACTURING OF BLACK SHALE**
- 28-36 83 MacKenzie, Lindsay Ann\*; Hinman, Nancy W.; Hofmann, Michael H.: **PROVENANCE AND REDOX CHEMISTRY OF THE MAOTIANSHAN SHALE, YUNNAN, CHINA AND IMPLICATIONS FOR THE PRESERVATION OF THE CHENGJIANG BIOTA**
- 28-37 84 Ketcheside, William Daniel\*; Ruhl, Laura; Potra, Adriana; Pollock, Erik D.: **STRONTIUM ISOTOPIC RATIOS OF SURFACE WATERS IN THE HISTORIC TRI-STATE MINING DISTRICT AS AN IDENTIFIER OF SOURCES, WATER MIXING, AND CONTAMINATION**
- 28-38 85 Turner, Adam C.E.\*; Herrmann, Achim D.; Barrick, James E.; Algeo, Thomas J.: **NITROGEN ISOTOPE DYNAMICS OF THE LATE PENNSYLVANIAN MIDCONTINENT SEA: AN EXAMPLE FROM THE HEEBNER SHALE**
- 28-39 86 Sun, Hongbing\*; Panuccio, Elaine; Sarwar, Muhammad: **ARSENIC SEQUESTRATION BY PYRITE, IRON SULFATE, AND ZERO VALENT IRON IN SOIL WATER**
- 28-40 87 Oakes, Abigail M.\*; Hren, Michael T.: **TEMPORAL VARIATIONS IN HYDROGEN AND CARBON ISOTOPES: UNDERSTANDING HOW PHYSIOLOGICAL DIFFERENCES BETWEEN TAXONOMIC CLASSES AFFECT ISOTOPIC FRACTIONATION IN PLANT LEAF WAXES**
- 28-41 88 Sevilla, Laisa\*; Corbett, J. Elizabeth; Martin, Isabella; Ho, Lauren; Sun, Eric; Zhang, Amy; Newton, Robert; Vincent, Susan; Petee, Dorothy M.: **VARIATIONS IN BIOGEOCHEMISTRY AND GREENHOUSE GAS EMISSIONS FOUND WITHIN DIFFERENT VEGETATION SITES IN A TIDAL MARSH LOCATED IN THE HUDSON RIVER ESTUARY**
- 28-42 89 Coleman, Shelby S.\*; Harvey, Rodger: **AN INVESTIGATION OF COAL DUST TRANSPORT NEAR THE LAFAYETTE RIVER, NORFOLK, VA**
- 28-43 90 Socorro, Jander\*; Maurrasse, Florentin J-M.R.; Sanchez-Hernandez, Yosmel: **GLOBAL IMPLICATIONS OF THE N-ALKANES DISTRIBUTION IN THE NEGATIVE CARBON ISOTOPE SPIKE OF SEGMENT C2, EL PUI SECTION, ORGANYÀ BASIN, CATALUNYA, SPAIN**
- 28-44 91 Saxena, Divya\*: **A STABLE ISOTOPE AND TRACE ELEMENT APPROACH TO UNDERSTANDING TEMPERATURE AND SALINITY CHANGES IN THE CARIBBEAN DURING PIOCENE**
- 28-45 92 Pilewski, Jr., John D.\*; Harris, Daniel B.; Fredrick, Kyle C.: **EFFECTS OF LOCAL STRATIGRAPHY ON LAND SNAIL POPULATION**
- 28-46 93 Rutherford, Jr., Danny L.\*; Pribil, Michael: **USING DIRECT COMBUSTION AND SYRINGE INJECTION FOR THE ISOTOPIC ANALYSIS OF MERCURY**

## SESSION NO. 29

*Geoinformatics (Posters)*

9:00 AM, Baltimore Convention Center, Exhibit Hall

Authors will be present from 3:30 to 5:30 PM

Booth #

- 29-1 94 Hunter, Daniel John\*: **EVALUATING THE ACCURACY OF LINEAR AND GEOSTATISTICAL INTERPOLATION METHODS IN SUBSURFACE MAPPING**
- 29-2 95 Claroni, Daniel J.\*; Connors, Christopher D.; Harbor, David J.; Pfaff, David; Barney, Zachary; Ball, Stephen M.: **AUGMENTING GROUND-BASED 3-D MODELING WITH UAV PHOTOGRAPHY**
- 29-3 96 Swain, Taylor\*; Mookerjee, Matty; Chan, Marjorie A.; Gil, Yolanda; Goodwin, Charles; Pavlis, Terry L.; Shipley, Thomas F.; Tikoff, Basil: **EARTH-CENTERED COMMUNICATION FOR CYBERINFRASTRUCTURE (EC3): INCORPORATING A JOINT CYBER-SCIENCE AND GEOSCIENCE PERSPECTIVE INTO DESIGNING FIELD DATA MANAGEMENT SYSTEMS**

SESSION NO. 29

- 29-4 97 Latysh, Natalie E.\*; McKinney, Kevin C.; McClees-Funinan, Ricardo: **UNDERSTANDING THE PAST TO CREATE A FUTURE - MODERNIZING THE U.S. GEOLOGICAL SURVEY PALEONTOLOGICAL COLLECTIONS**
- 29-5 98 Walker, Lindsay J.\*; Landman, Neil H.; Thomas, Ellen; O'Leary, Ruth; Hussaini, Bushra M.; Scalbom, Linda: **WORKFLOW FOR CONSERVING AND DIGITIZING HISTORIC MICROFOSSIL COLLECTIONS AT THE AMERICAN MUSEUM OF NATURAL HISTORY**
- 29-6 99 Faundeen, John\*; Burley, Tom; Govoni, David; Henkel, Heather S.; Martin, Elizabeth; Montgomery, Ellyn; Zolly, Lisa; Hutchison, Viv; Tessler, Steve; Ladino, Cassandra: **THE DEVELOPMENT AND USE OF A DATA LIFECYCLE MODEL IN A FEDERAL SCIENCE AGENCY**
- 29-7 100 Gross, M. Benjamin\*; Johns, Erica M.; Rowan, Linda R.; Mayernik, Matthew S.; Khan, Huda J.; Daniels, Michael D.; Krafft, Dean B.: **GUIDING DEVELOPMENT OF A GEOSCIENCE-FOCUSED SEMANTIC WEB APP: END-USER ENGAGEMENT IN THE EARTHCOLLAB PROJECT**
- 29-8 101 Kolankowski, Sophia\*; Fox, Peter; Ma, Xiaogang: **DEEP-TIME DATA INFRASTRUCTURE: INTEGRATING OUR CURRENT GEOLOGIC DATABASES**

SESSION NO. 30

**T44. Our Data Belong in Our Hands: 3-D Printing—The Future of Geoscience Research and Education (Posters) (GSA Geoinformatics Division; GSA Quaternary Geology and Geomorphology Division)**

9:00 AM, Baltimore Convention Center, Exhibit Hall

Authors will be present from 3:30 to 5:30 PM

Booth #

- 30-1 102 Sukop, Michael C.\*; Florea, Lee J.; Garcia, Sade M.; Cunningham, Kevin J.: **THREE-DIMENSIONAL PRINTING FOR CARBONATE AQUIFER CHARACTERIZATION**
- 30-2 103 Ishutov, Sergey\*; Hasiuk, Franciszek; Harding, Chris; Gray, Joe: **3-D PRINTING PORE SYSTEMS TO PHOTOCOPY RESERVOIR ROCKS**
- 30-3 104 Hasiuk, Franciszek\*: **3D PRINTING POROUS ROCK MODELS: A REVIEW OF METHODS, MATERIALS, CURRENT LIMITATIONS, AND FUTURE POTENTIAL**
- 30-4 105 Low, P.C.\*; Pfaff, D. M.: **3-D PRINTING AS TOOL FOR TEACHING CRYSTALLOGRAPHY**
- 30-5 106 Gaylord, Brendan\*; Patwardhan, Kaustubh: **USING 3-D PRINTED GEOLOGIC FOLD MODELS AS TANGIBLE TEACHING TOOLS IN INTRODUCTORY GEOSCIENCE COURSES**
- 30-6 107 Tewksbury, David A.\*: **3D PRINTING OF ELEVATION DATASETS: ASTER & SRTM DEMS, LIDAR DSMS & DTMS**
- 30-7 108 Pietras, Jeffrey T.\*; Johnston, David; Greene, Christopher M.: **INEXPENSIVE WORKFLOW TO PRODUCE HIGH QUALITY 3D MODELS FOR GEOSCIENCE EDUCATION AND RESEARCH**
- 30-8 109 Saginor, Ian\*: **COMMUNICATING VOLCANIC HAZARDS WITH 3D PRINTED MODELS**
- 30-9 110 Glesener, Gary\*: **3D PRINTING IN THE MEDL-CMC**
- 30-10 111 Horowitz, Seth\*; Schultz, Peter H.: **PRINTING PLANETARY LANDSCAPES AND BEYOND**
- 30-11 112 Rodriguez-Ford, L.\*; Ford, A.J.; Nolan, M.C.: **HOLDING AN ASTEROID: USING 3-D PRINTING TO MODEL ASTEROIDS**
- 30-12 113 Perez, Victor J.\*; Grant, Claudia; Hendrickson, Megan; Tovani, Jason: **MEASURING MEGALODON: CLASSROOM DRIVEN RESEARCH MADE POSSIBLE WITH 3D TECHNOLOGY**
- 30-13 114 Mahmood, Shaun\*; Deeg, Claudia; Thomas, Ellen; Landman, Neil H.; O'Leary, Ruth; Hussaini, Bushra M.: **3D-PRINTING MICROFOSSILS**
- 30-14 115 Firth, John V.\*: **MAKING MICRO MACRO: METHODS FOR ACCURATE HAND-SIZED 3D PRINTED REPLICAS OF THE MOST COMMON MARINE MICROFOSSILS**

- 30-15 116 Wynn, Tiffany\*; Petrundy, Loren; Jett, Jennifer; Whittaker, Scott: **FORAMINIFERA PHOTOGRAMMETRY: ENHANCING 3D MODELING METHODS**

SESSION NO. 31

**Geology and Health (Posters)**

9:00 AM, Baltimore Convention Center, Exhibit Hall

Authors will be present from 3:30 to 5:30 PM

Booth #

- 31-1 117 Metcalf, Meredith J.\*; Day, Sydney; Hara, Joel; Quimby, Katherine: **EXPLORING GEO-SPECIFIC TRENDS OF COMMON HEALTH RELATED GROUNDWATER CONTAMINANTS**
- 31-2 118 Martinez-Sacristan, Hernando\*: **GEOLOGY AND HEALTH: REASONING ABOUT DICHOTOMIES BETWEEN SCIENTIFIC-ADMINISTRATOR, SCIENTIST – POLITICIAN, AND ADMINISTRATOR-POLITICIAN**
- 31-3 119 Olshevski, Stuart\*; Ravi, Sujith; Li, Junran; Sharratt, Brenton: **PARTICULATE MATTER EMISSIONS FROM BIOCHAR-AMENDED SOILS: A POTENTIAL HEALTH HAZARD?**
- 31-4 120 Sani, Ehsan Shirzaei\*; Zhang, Zhewen; Garlapati, Prasanthy; Fisher, Omar Z.; Wunder, Stephanie L.; Kim, Bojeong: **DEVELOPMENT OF IN-SITU REMEDIATION TECHNIQUE FOR POLYCYCLIC AROMATIC HYDROCARBONS IN SOILS: I. STABILITY OF FLUORESCENT-LABELLED SiO<sub>2</sub> NANOPARTICLE-SUPPORTED LIPID BILAYER IN MICRO-MODELS**
- 31-5 121 Nganje, Therese Ntonzi\*; Adamu, Christopher Iorfa; Hursthouse, Andrew; McLellan, Iain; Edet, Aniekan; Stirling, David: **SOIL CONTAMINATION AND RISK ASSESSMENT IN AREAS COVERED BY SHALE BEDROCK IN PARTS OF SOUTH EASTERN NIGERIA**
- 31-6 122 Momoh, Abuh\*; Olukoga, Abiodun; Mhlongo, Sphiwe Emmanuel; Yenne, Ezekiel: **COAL WORKERS PNEUMOCONIOSIS: KNOWLEDGE, ATTITUDE AND OPINION AMONGST PERSONNEL OF ODAGBO COAL MINE, NIGERIA**
- 31-7 123 Jahan, Khurshid\*; Ali, Iqbal: **PROSPECT OF VERY SHALLOW GROUNDWATER USE IN THE SALINE AND ARSENIC PRONE COASTAL AQUIFERS OF BENGAL DELTA**
- 31-8 124 Anand, Niharika\*; Ray, Sujata: **SIMULTANEOUS PRESENCE OF PYRETHROID AND ORGANOCHLORINE RESIDUES IN HUMAN BREAST MILK FROM NADIA, WEST BENGAL, INDIA**
- 31-9 125 Faltas, Christina\*; Duarte, Alix; Duzgoren-Aydin, Nurdan S.; Coleman, Natalia: **THE EFFECTS OF LEAD ON BLOOD-BRAIN BARRIER**
- 31-10 126 Hunt, Andrew\*; Entwistle, Jane A.: **BIOACCESSIBLE LEAD (PB) IN SOIL SOURCE ATTRIBUTION BY INDIVIDUAL PARTICLE ANALYSIS (IPA): A CASE STUDY OF SIX SOILS FROM MITROVICA, REPUBLIC OF KOSOVO**
- 31-11 127 Lee, Donghwan\*; Giardino, John R.; Benden, Mark; Dengo, Carlos; Rsser, C. Suzanne: **THE ROLE OF ERGONOMIC HEALTH IN THE GEOSCIENCE CURRICULUM: A MULTI-LEVEL INTERVENTION APPROACH**

SESSION NO. 32

**Geoscience Education (Posters)**

9:00 AM, Baltimore Convention Center, Exhibit Hall

Authors will be present from 3:30 to 5:30 PM

Booth #

- 32-1 128 Davis, Peter\*: **THE GEOLOGY OF ENERGY: AN OPTIMISTIC INTRODUCTORY GEOLOGY CLASS THAT EXPOSES THE MYTH OF AN ENERGY CRISIS**
- 32-2 129 Cohen, Edward\*: **TEACHING CLIMATE CHANGE CONCEPTS TO MIDDLE SCHOOL STUDENTS USING MULTIMEDIA SIMULATIONS AND VIDEO FROM CLIMATE SCIENTISTS' FIRSTHAND EXPERIENCE**



- 32-3 130 Frus, Rebecca Jane\*; Pun, Aurora: **CLIMATE CHANGE LEARNING ACTIVITY TO INCREASE SCIENCE LITERACY AND UNDERSTANDING OF CLIMATE CHANGE IMPACTS**
- 32-4 131 Kilibarda, Zoran\*: **TEACHING CLIMATE CHANGE SCIENCE AT INDIANA UNIVERSITY NORTHWEST**
- 32-5 132 Yager, Kristie\*; Barone, Jessica L.; Colosimo, Amanda: **2YC STUDENTS PUT THEIR SKILLS TO WORK**
- 32-6 133 Hubenthal, Michael\*: **BREAKING STUDENTS' MENTAL MODELS OF ROCKS BY BENDING THEM**
- 32-7 134 Wilson, Carolyn\*; Keane, Christopher: **INVESTIGATING THE INTRODUCTORY GEOSCIENCE COURSE**
- 32-8 135 Dean III, Robert L.\*: **LABORATORY BASED ANALOGS OF GEOLOGIC PHENOMENA FOR THE EARTH SCIENCE CLASSROOM**
- 32-9 136 Bitting, Kelsey S.\*; Fried, Michael; Roberts, Jennifer A.: **UNDERSTANDING STUDENT PROCRASTINATION ON PROJECTS: WHOSE PROBLEM IS IT?**
- 32-10 137 Jones, Jason P.\*; McConnell, David A.; Dixon, Jennifer L.; Nietfeld, Dr. John L.: **HOW ACCURATE ARE STUDENTS IN PREDICTING THEIR EXAM PERFORMANCE?**
- 32-11 138 Flecchia, Nicole Marie\*; Caccamo, Victoria; Lindner, Charles; Palmer, Shane; Pietraszek, Alyssa; Wallace, Michael: **STUDENT-RUN GEOLOGY TRIP TO ICELAND**
- 32-12 139 LaDue, Nicole\*; Eschenbrenner, Alecia: **THE SEMIOTICS OF STRATIGRAPHIC DIAGRAMS**
- 32-13 140 Acosta Colón, Angel A.\*; Llerandi-Román, Pablo A.: **GEOSCIENCES AT ISMUL-UPRA**
- 32-14 141 Newman, Julie\*; Sparks, David W.; Fowler, Debra; Ewing, Ryan; Macik, Maria; Miller, Brent V.; Olszewski, Thomas D.; Reece, Bobby; Sandoval, Carolyn; Marcantonio, Franco: **DESIGNING GEOLOGY AND GEOPHYSICS CURRICULA FROM THE GROUND UP**
- 32-15 142 Bomar, Brandi Lynette\*; Evans, Indya; Abolins, Mark: **IMPACT OF A 2014 NINE-WEEK INTENSIVE UNDERGRADUATE RESEARCH EXPERIENCE ON A PRE-SERVICE TEACHER'S ACTIVE LEARNING PRACTICES AT THE SALVATION ARMY'S SUMMER 2015 DAY CAMP IN NASHVILLE, TN**
- 32-16 143 Hill, Christopher L.\*; Rapp, George: **APPROACHES TO INTERDISCIPLINARY GRADUATE EDUCATION: TRAINING IN THE HISTORICAL SCIENCES**
- 32-17 144 Rhodes, Dallas D.\*: **DEMOGRAPHIC CHARACTERISTICS OF THE GEOLOGICAL SOCIETY OF AMERICA'S MEMBERSHIP AND DIFFERENCES AMONG THE REGIONAL SECTIONS, 2006-2014**
- 33-5 149 Ross, Robert M.\*; Swaby, Andrielle N.; Duggan-Haas, Don; Allmon, Warren D.; Lucas, Mark D.; Mikkelsen, Paula M.: **A NEW NATIONAL SERIES OF "TEACHER-FRIENDLY GUIDES" TO REGIONAL EARTH SCIENCE: CONTENT FOR PLACE-BASED APPROACHES TO EARTH SYSTEM SCIENCE EDUCATION**
- 33-6 150 Passow, Michael J.\*: **SUPPORTING NGSS IMPLEMENTATION EFFORTS BY EXPANDING THE EARTH2CLASS APPROACH TO PROFESSIONAL DEVELOPMENT**
- 33-7 151 Manning, Cheryl L.B.\*: **THE CLEAN COLLECTION OF RESOURCES IS NGSS ALIGNED. NOW WHAT?**
- 33-8 152 Gochis, Emily E.\*; Huntoon, Jacqueline E.; Wojick, Christopher L.; Baltensperger, Brad; Bergman, Brenda; Guth, Alexandria; Tubman, Stephanie; Savonen, Ben; Davis, Josh; Jackson, Meral: **MI-STAR THEMES DEMONSTRATE GEOSCIENCE'S ROLE IN THE DEVELOPMENT OF NGSS INTEGRATED SCIENCE CURRICULUM**
- 33-9 153 Dauphinais, Donna M.\*; Maher Sobhani, Barbra: **TRANSFORMING EXISTING INTEGRATED SCIENCE COURSES FOR PRE-SERVICE TEACHERS TO INCREASE NGSS ALIGNMENT AND MODEL INNOVATIVE INSTRUCTIONAL METHODS**
- 33-10 154 Rogers, Melissa J. B.\*; Petrone, Christopher J.; Harcourt, Patricia; Merrill, Jennifer; Hedges, Gary; Mead, Tonyea; Ramey, Kate; Motley, Erin; Argo, Jenna: **MADE CLEAR CLIMATE CHANGE ACADEMY: SUPPORTING NGSS IMPLEMENTATION IN DELAWARE AND MARYLAND**
- 33-11 155 Colaianne, Blake\*: **CONTENT, CRAFT, AND CAREERS: AN INTEGRATED RECIPE FOR EARTH SCIENCE EDUCATION**
- 33-12 156 Bohls-Graham, C. Elaine\*; Ellins, Katherine K.; Segent, Connie: **BUILDING BRIDGES WHILE BUILDING BLUEPRINTS: AUTHENTIC EXPERIENCES DEVELOPING DIG TEXAS BLUEPRINTS UNITS**
- 33-13 157 Stearns, Cathleen\*; Glose, Thomas J.; Crumlish, Julianna; Swensen, Katherine; Lowry, Christopher S.: **DEVELOPING REAL WORLD EXAMPLES OF EARTH SCIENCE REFERENCE TABLES FOR URBAN SCHOOLS**
- 33-14 158 Oyewumi, Oluyinka\*; Balisciano, Nicholas; Thomas, Jeffrey; Drew, Sally; Bednarski, Marsha; Larsen, Kristine: **INTEGRATING NEXT GENERATION SCIENCE STANDARDS: MODELS ON WATER AVAILABILITY PROBLEMS IN THE US**

## SESSION NO. 34

**T69. Closing the Diversity Gap in Geoscience: Successful Models, Best Practices, Benefits, Outcomes, and Next Steps (Posters) (GSA Geology and Society Division; American Geophysical Union)**

9:00 AM, Baltimore Convention Center, Exhibit Hall

Authors will be present from 3:30 to 5:30 PM

Booth #

## SESSION NO. 33

**T66. Beginning a New Era in Earth Science Education: The Role of Geoscience in Implementing the Next Generation Science Standards (Posters) (National Earth Science Teachers Association; GSA Geoscience Education Division; National Association of Geoscience Teachers; GSA Geology and Society Division)**

9:00 AM, Baltimore Convention Center, Exhibit Hall

Authors will be present from 3:30 to 5:30 PM

Booth #

- 33-1 145 Brey, James A.\*; Geer, Ira W.; Weinbeck, Robert S.; Mills, Elizabeth W.; Nugnes, Kira A.; Asokan, Anupa; Stimach, Abigail E.: **AMS DATASTREME PROJECT AND THE NGSS**
- 33-2 146 Workman Ford, Kerry\*: **INNOVATION, COLLABORATION, AND THE ART OF TEACHING**
- 33-3 147 Olds, Shelley E.\*: **NGSS ALIGNED DATA-RICH LEARNING MATERIALS FOR THE NEXT GENERATION SCIENTISTS**
- 33-4 148 Larsen, Kristine\*: **RECOGNIZING AND COMBATING TEACHER MISCONCEPTIONS AND ANXIETIES RELATED TO THE MIDDLE SCHOOL EARTH AND SPACE SCIENCES DISCIPLINARY CORE IDEAS IN NGSS**
- 34-1 159 St. John, Kristen\*; Collins, Jennifer; Brey, James A.; Hams, Jacquelyn; Krissek, Lawrence; Hovan, Steven A.; Jones, Megan; Gill, Thomas E.; Mills, Elizabeth W.: **THE MSI-REACH PROGRAM: TRAINING AND MENTORING MSI FACULTY IN PALEOCLIMATE SCIENCE FOR TEACHING AND STUDENT RESEARCH**
- 34-2 160 Beck, Dina\*; Feldman, Howard R.: **TEACHING PALEOBIOLOGY TO CHILDREN WITH AUTISM**
- 34-3 161 Kirk, Karin B.\*; Kulick, Katherine M.; Defur, Sharon H.; McDaris, John R.; Baer, Eric M.D.; Macdonald, R. Heather: **TEACHING THE STUDENTS YOU HAVE: INSIGHTS AND STRATEGIES FOR INCLUSIVE INSTRUCTION**
- 34-4 162 Cotter, James F.P.\*; Anderson Fohnagy, Heidi: **UNIVERSITY OF MINNESOTA, MORRIS GEOLOGY PROGRAM INITIATIVES TO ADVANCE THE PARTICIPATION OF NATIVE AMERICANS IN THE GEOSCIENCE WORK FORCE**
- 34-5 163 Bentley, Andrew Phillip Keller\*; Petcovic, Heather L.; Turner, Sheldon P.; LaDue, Nicole D.; Her, Xai; Cartwright, Tina; Mogk,

- David W.; Ward, Emily M. Geraghty: **GO-NEEDS: IDEAL MODELS FOR BROADENING PARTICIPATION IN THE GEOSCIENCES AT TWO-YEAR AND MINORITY-SERVING COLLEGES**
- 34-6 164 Mousavi, Mazda\*; Ting, Cheng: **CHALLENGES IN A COMMUNITY COLLEGE GEO-SCIENCE CLASSROOM**
- 34-7 165 Moore, Samuel\*; Paine, Jeffrey G.; Caudle, Tiffany; Costley, Ruth; Flaig, Peter P.; Frebourg, Greg; Scanlon, Bridget R.: **THE APPROACH AND SUCCESS OF THE GEORFORCE PROGRAM AT THE JACKSON SCHOOL OF GEOSCIENCES FOR CLOSING THE DIVERSITY GAP IN GEOSCIENCES**
- 34-8 166 Olivo, Carlos\*: **GETTING IT RIGHT: DEVELOPING A SUSTAINABLE PATHWAY FOR EDUCATING UNDERREPRESENTED PUERTO RICAN STUDENTS IN GEOSCIENCES**
- 34-9 167 Hallock, Pamela\*: **GRADUATE MENTORING: A CREATIVE PROCESS**

## SESSION NO. 35

**T70. Digital Technology in Real and Virtual Geoscience Experiences (Posters) (GSA Geoinformatics Division; GSA Environmental and Engineering Geology Division; GSA Geology and Health Division; GSA Geology and Society Division; GSA Geophysics Division; GSA Geoscience Education Division; GSA History and Philosophy of Geology Division; GSA Hydrogeology Division; GSA Karst Division; GSA Limnogeology Division; GSA Mineralogy, Geochemistry, Petrology, and Volcanology Division; GSA Planetary Geology Division; GSA Quaternary Geology and Geomorphology Division; GSA Sedimentary Geology Division; GSA Archaeological Geology Division; GSA Structural Geology and Tectonics Division; National Association of Geoscience Teachers; Geo2YC Division of the National Association of Geoscience Teachers; International Association for Geoscience Diversity)**

9:00 AM, Baltimore Convention Center, Exhibit Hall

Authors will be present from 3:30 to 5:30 PM

Booth #

- 35-1 168 De Paor, Declan G.\*; Whitmeyer, Steven J.; Bentley, Callan; Team GEODE, I.M.: **INTERACTIVE DIGITAL LEARNING FOR GEOSCIENCE STUDENTS: EARTHQUIZ AND OTHER WEB-HOSTED CHALLENGES**
- 35-2 169 Maloney, Katie M.\*; Eyles, Carolyn H.; Brodeur, Jason J.: **INVESTIGATING THE APPLICATIONS OF GOOGLE EARTH PRO IN FIRST YEAR EARTH AND ENVIRONMENTAL SCIENCES**
- 35-3 170 Giorgis, Scott\*; Mahlen, Nancy; Anne, Kirk: **VISUALIZING TOPOGRAPHY AND THE RULE OF V'S USING AN AUGMENTED REALITY SANDBOX**
- 35-4 171 Schwimmer, Reed A.\*; Weindorfer, Kaitlyn: **COMPARING GOOGLE EARTH AND MY MAPS IN DISSEMINATING GEOLOGIC FIELD SITE INFORMATION**
- 35-5 172 Buchanan, Tyler J.\*; Cawthorn, Thomas R.; Harris, Dan W.: **GEOLOGIC M'APP'ING MARYLAND'S ROAD OUTCROPS**
- 35-6 173 Dulin, Shannon A.\*; Leeman, John R.: **PODCASTING AS AN OUTREACH AND TEACHING TOOL: LESSONS LEARNED FROM YEAR ONE OF DON'T PANIC GEOCAST**
- 35-7 174 Chraibi, Victoria L. Shaw\*; Mumgaard, Annie; Loope, Cynthia; French, Kathleen: **EXAMINE EVOLUTION! VIRTUAL FIELD TRIP PROGRAM IN NEBRASKA**
- 35-8 175 Burgess, Jerry L.\*: **GEOSCIENCE LITERACY: USING CRATER LAKE AS A PEDAGOGICAL TOOL TO FOSTER INQUIRY AND CRITICAL THINKING IN THE CONTEXT OF A VIRTUAL SIMULATION**
- 35-9 176 Francis, Hannah Ruth\*; Kennedy, Ben; Beane, Rachel; Hampton, Samuel J.: **VIRTUAL VS. PHYSICAL FIELD EXPERIENCE OF A LAVA FLOW FIELD, NGARUHOE, NEW ZEALAND**
- 35-10 177 Robinson, Caroline\*; Firth, John; St. John, Kristen E.: **COMBINING VIRTUAL AND ACTUAL MUD: AN INTERACTIVE**

**GOOGLE EARTH OCEAN SEDIMENT RESOURCE COMPLIMENTS A REAL IODP SEDIMENT CORE KIT**

- 35-11 178 Mayer, Paul S.\*; Coorrough Burke, Patricia; Herbst, Pete; Webbink, Kate; Lambruschi, Marc; Grant, Sharon: **DIGITIZATION, RESEARCH TOOL, AND EDUCATIONAL WEBSITE: THE VIRTUAL SILURIAN REEF, A MODEL FOR STREAMLINE WEB DEVELOPMENT USING A DATABASE**
- 35-12 179 Schmidt, Jr., Martin F.\*: **MAKING DIGITAL GEOLOGIC MAPS USEFUL TO CITIZENS AND STUDENTS**
- 35-13 180 Scharman, Mitchell R.\*; Mattox, Forrest; Martino, Ronald L.: **USE OF GIGAPAN PHOTOGRAPHY TO AID IN DETAILED STRATIGRAPHIC ANALYSIS**
- 35-14 181 Woods, Terri L.\*; Woods, John A.; Woods, Michael R.: **USING THE KREYLOS AUGMENTED REALITY SANDBOX TO TEACH TOPOGRAPHIC MAPS AND SURFICIAL PROCESSES IN INTRODUCTORY GEOLOGY LAB AT EAST CAROLINA UNIVERSITY**
- 35-15 182 Shervais, Katherine A.H.\*; Pratt-Sitaula, Beth; Crosby, Christopher J.; Douglas, Bruce J.; Niemi, Nathan A.; Wang, Guoquan; Charlevoix, Donna: **TEACHING TERRESTRIAL LASER SCANNING AND STRUCTURE FROM MOTION IN UNDERGRADUATE FIELD COURSES: A FIELD EDUCATION MODULE**
- 35-16 183 Urbanski, Tara L.\*; Alhumimidi, Mansour; White, Jr., Lionel S.; Aiken, Carlos L.V.: **PHOTGRAMMETRIC APPLICATIONS IN GEOSCIENCE TRAINING AND EDUCATION**
- 35-17 184 Barnes, Robert\*; Gupta, Sanjeev; Ortner, Thomas; Huber, Ben; Paar, Gerhard; Muller, Jan-Peter; Giordano, Michele; Willner, Konrad: **PRO3D@: A TOOL FOR HIGH RESOLUTION RENDERING AND GEOLOGICAL ANALYSIS OF MARTIAN ROVER-DERIVED DIGITAL OUTCROP MODELS**
- 35-18 185 Kidman, Genevieve C.\*; MacLean, John S.; Maxwell, David J.: **NEW KINEMATIC MODEL OF THE SOUTHERN UTAH VIRGIN ANTICLINE THROUGH NEW 3-D STEREOSCOPIC AND TRADITIONAL FIELD METHODS**

## SESSION NO. 36

**T75. Field-Based Educational Research: Insights from Field Camps, Field Trips, and Field-Based Courses (Posters) (GSA Geoscience Education Division; National Association of Geoscience Teachers)**

9:00 AM, Baltimore Convention Center, Exhibit Hall

Authors will be present from 3:30 to 5:30 PM

Booth #

- 36-1 186 Dykas, Matthew\*; Valentino, David: **PREDICTING PERFORMANCE IN AN UNDERGRADUATE GEOLOGY FIELD CAMP FROM ACADEMIC- AND PERSONALITY-RELATED FACTORS**
- 36-2 187 Holloway, Gail M\*; Elmore, R. Douglas: **USING GEOLOGY FIELD EXPERIENCES TO FOSTER STUDENT ENGAGEMENT**
- 36-3 188 Whitmeyer, Shelley J.\*; deBrun, Guy: **FIELD TRIPS IN LARGE INTRODUCTORY CLASSES-WHY NOT?**
- 36-4 189 Wallstrom, Erica\*; Culler, Lauren; Virginia, Ross A.: **A MODEL FOR STUDENT-DRIVEN RESEARCH IN THE POLAR REGIONS: PARTNERING INTERNATIONAL HIGH SCHOOL STUDENTS WITH GRADUATE STUDENTS AND STEM EDUCATORS**
- 36-5 190 Granados, R.\*; Price, A. E.; Rhodes, K.; Rodriguez, R.; Rowley, T.; Giardino, John R.; Hernandez, H.; Knappett, P. S. K.; Li, Yanmei: **A BI-NATIONAL APPROACH TO EDUCATION AND RESEARCH: AN ASSESSMENT OF SURFACE WATER AND GROUNDWATER RESOURCES IN THE SAN MIGUEL DE ALLENDE REGION, GUANAJUATO, MEXICO**
- 36-6 191 Twitchett, Richard J.\*; Bowman, Vanessa C.; Crame, J. Alistair; Dunhill, Alexander M.; Foster, William J.; Little, Crispin T.S.; McGowan, Alistair J.; Pugh, Autumn C.; Witts, James D.: **FOSSILBLITZ! EXTENDING THE BIOBLITZ CONCEPT TO DEEP TIME**

- 36-7 192 Blake, David E.\*; Morrow, IV, Robert H.; Peach, Brandon Tyler; Diecchio, Richard J.; LaMaskin, Todd A.: **IPAD GEOLOGIC MAPPING: INEXPENSIVE TECHNOLOGY FOR A POWERFUL APPLIED LEARNING FIELD EXPERIENCE**

## SESSION NO. 37

**T77. Geology and Hydrology in the National Parks: Research, Mapping, and Resource Management (Posters) (GSA Hydrogeology Division; GSA Geology and Society Division)**

9:00 AM, Baltimore Convention Center, Exhibit Hall

Authors will be present from 3:30 to 5:30 PM

Booth #

- 37-1 193 Manker, Craig R.\*; Springer, Kathleen B.; Pigati, Jeffrey S.; Mahan, Shannon A.: **LATE QUATERNARY EXPANSION AND CONTRACTION OF DESERT WETLANDS IN RESPONSE TO ABRUPT CLIMATE CHANGE: TULE SPRINGS FOSSIL BEDS NATIONAL MONUMENT (TUSK), NEVADA**
- 37-2 194 O'Meara, Stephanie A.\*; Karpilo, Ronald D.; Witt, Derek R.; Chappell, James R.; Hybels, Georgia: **SHOWCASING GEOLOGIC RESOURCES INVENTORY PRODUCTS FOR UTAH NATIONAL PARKS**
- 37-3 195 Hunt, Paula J.\*; McColloch, Gayle H.; McColloch, Jane S.; Blake, Jr., Bascombe M.; Peck, Robert L.; Matchen, David L.: **BEDROCK GEOLOGY OF THE NEW RIVER GORGE NATIONAL RIVER, WEST VIRGINIA MAPPING TEN QUADRANGLES IN THE NEW RIVER GORGE**
- 37-4 196 Weary, David J.\*; Orndorff, Randall C.; Harrison, Richard W.; Repetski, John E.: **U.S. GEOLOGICAL SURVEY GEOLOGIC MAPPING IN THE OZARK NATIONAL SCENIC RIVERWAYS AREA, SOUTHEASTERN MISSOURI**
- 37-5 197 VanderMeer, Sarah M.\*; Kehew, Alan E.: **SURFICIAL MAPPING OF PICTURED ROCKS NATIONAL LAKESHORE, MICHIGAN: INDIAN TOWN 7.5-MINUTE QUADRANGLE**
- 37-6 198 Smith, Taryn E.\*; Schmitz, Darrel W.: **SURFICIAL MAPPING OF THE VICKSBURG NATIONAL MILITARY PARK**
- 37-7 199 Scruggs, Paul L.\*; Hatcher, Jr., Robert D.; Wunderlich, Andrew L.; Hansen, Bryan; Rehner, Justin R.: **DETAILED GEOLOGIC MAPPING OF THE OBED WILD AND SCENIC RIVER AND SURROUNDING AREA: FOX CREEK, HEBBERTSBURG, AND LANCING 7.5-MINUTE QUADRANGLES**
- 37-8 200 Hawkins, John F.\*; Steltenpohl, Mark; VanDervoort, Dane S.; Poole, Josh D.: **GEOLOGY OF HORSESHOE BEND NATIONAL MILITARY PARK**
- 37-9 201 Fleeger, Gary M.\*: **GEOLOGY OF THE APPALACHIAN TRAIL IN PENNSYLVANIA**
- 37-10 202 Stirling, Trinity\*; Jimenez, Marie; Smith, Elliott; Boodhoo, Thea; Chure, Daniel J.: **PALEONTOLOGICAL RESOURCE MANAGEMENT: THE ONGOING STRUGGLE TO PROTECT VERTEBRATE FOSSILS IN DINOSAUR NATIONAL MONUMENT**
- 37-11 203 Kupfer, Kate L.\*; Zdanowski, Sarah E.; MacLean, John S.: **CITIZEN SCIENCE IN CEDAR BREAKS NATIONAL MONUMENT**
- 37-12 204 Muhs, Daniel R.\*; Lancaster, Nicholas; Skipp, Gary: **GEOCHEMICAL EVIDENCE FOR A COMPLEX ORIGIN OF THE KELSO DUNES, MOJAVE NATIONAL PRESERVE, CALIFORNIA**
- 37-13 205 Fairley, Jerry P.\*; Larson, Peter B.; Lindsey, Cary R.; Villegas, Gabriela; Aunan, Megan M.; Nickelson, Shane; Price, Adam: **COMPARING SHALLOW GROUND TEMPERATURES IN ACID-SULFATE AND HIGH-CHLORIDE, CIRCUM-NEUTRAL HYDROTHERMAL DISCHARGE AREAS OF YELLOWSTONE NATIONAL PARK, WYOMING**
- 37-14 206 Harrison, Michael\*; Hoover, Rachael H.; Hernandez, Alexander V.; Sonnenthal, Nathan; Peláez, Jess: **INTERDISCIPLINARY MICRO-ENVIRONMENTAL INVESTIGATION OF THE CANE SPRING AREA OF THE MOJAVE NATIONAL PRESERVE: INITIAL PROJECT FINDINGS**

- 37-15 207 Hoffman, Claire\*; Tobin, Benjamin W.; Valle, Cynthia M.; Childres, Hampton; Gandee, Michele N.; Schenk, Edward R.: **MODELING THE WATER SUPPLY OF GRAND CANYON NATIONAL PARK—THE EFFECT OF CLIMATE CHANGE ON A KARSTIC AQUIFER**
- 37-16 208 Leonard, Ashlon E.\*; Blackstock, Joshua M.; Hays, Phillip D.: **MARGARET WHITE SPRINGS RECHARGE STUDY, BUFFALO NATIONAL RIVER, NORTH-CENTRAL ARKANSAS, USA**
- 37-17 209 Stinedurf, Stacey K.\*; Hacker, David B.; Schuster, Kelsey M.; Timko, Samuel B.: **GEOLOGY OF MOSQUITO LAKE STATE PARK, TRUMBULL COUNTY, OHIO AND WEST BRANCH STATE PARK, PORTAGE COUNTY, OHIO**

## SESSION NO. 38

**T96. Geologic Maps and Their Derivatives (Posters) (Association of American State Geologists; GSA Quaternary Geology and Geomorphology Division)**

9:00 AM, Baltimore Convention Center, Exhibit Hall

Authors will be present from 3:30 to 5:30 PM

Booth #

- 38-1 210 Tucker, Robert D.\*; Roig, Jean-Yves; Peters, Stephen G.: **THE GEOLOGY AND MINERAL RESOURCES OF MADAGASCAR PRESENTED IN THREE NEW MAPS (1:1M SCALE): BEDROCK GEOLOGY, METALLOGENIC SUBSTANCES AND INDUSTRIAL MINERAL DEPOSITS**
- 38-2 211 Soller, David R.\*; Withers, Emma; Pitts, Alan; Garrity, Christopher P.; Wardwell, Robert C.; Stamm, Nancy R.: **WORLD WAR II-ERA GEOLOGIC MAPS AND REPORTS OF PACIFIC ISLANDS – IMPROVING THEIR ACCESSIBILITY VIA THE WEB**
- 38-3 212 Easton, R.M.\*; Magnus, S.J.: **PRECAMBRIAN GEOLOGY OF THE GRENVILLE OROGEN IN EASTERN ONTARIO FROM AEROMAGNETIC AND COMPILED GEOLOGICAL DATA**
- 38-4 213 Russell, Hazen A.J.\*; Knight, Ross D.; Kjarsgaard, Bruce A.; Sharpe, David R.: **APPLICATION OF PXRF TO A CHEMOSTRATIGRAPHIC FRAMEWORK FOR THE QUATERNARY OF SOUTHERN ONTARIO**
- 38-5 214 Burt, Abigail K.\*; Bajc, Andy F.; Hamilton, Stewart; Brunton, Frank R.; Priebe, Elizabeth; Mulligan, Riley P.M.: **GROUNDWATER GEOSCIENCE INITIATIVE: MAPPING ONTARIO'S GROUNDWATER RESOURCE**
- 38-6 215 Stamm, Nancy R.\*; Soller, David R.; Wardwell, Robert C.; Garrity, Christopher P.; McMacken, Dennis K.; Acosta, Alex V.; Gishay, Michael F.: **THE NATIONAL GEOLOGIC MAP DATABASE -- A RESOURCE FOR GEOLOGIC MAPPING**
- 38-7 216 Horton, John D.\*; San Juan, Carma A.; Stoesser, Douglas: **THE UNITED STATES GEOLOGIC MAP COMPILATION (SGMC) GEODATABASE**
- 38-8 217 Haugerud, Ralph A.\*; Wells, Ray E.; Niem, Alan; Niem, Wendy A.; Ma, Lina; Evarts, Russell C.: **GEOLOGIC MAP OF THE GREATER PORTLAND AREA, OREGON AND WASHINGTON**
- 38-9 218 McGrew, Allen J.\*; Snoke, Arthur W.: **OLD ROCKS AND NEW INSIGHTS FROM GEOLOGIC MAPPING OF THE NORTHERN EAST HUMBOLDT RANGE METAMORPHIC CORE COMPLEX, ELKO COUNTY, NEVADA**
- 38-10 219 Thompson, Ren A.\*; Fridrich, Christopher J.; Chan, Christine; Beard, L. Sue; Workman, Jeremiah B.: **GEOLOGY OF THE DEATH VALLEY JUNCTION 30' X 60' QUADRANGLE — THE BASIS FOR INTERPRETING THE VOLCANO-TECTONIC EVOLUTION OF THE CENTRAL DEATH VALLEY AREA**
- 38-11 220 Berry, Margaret E.\*: **GEOLOGIC MAPPING IN AREAS SURROUNDING THE SOUTH PLATTE RIVER CORRIDOR IN EASTERN COLORADO REVEALS EVIDENCE OF RAPID INCISION WITHIN TRIBUTARY BOX CANYONS DURING HISTORICAL TIMES**
- 38-12 221 Thompson, Ren A.\*; Shroba, Ralph R.; Turner, Kenzie J.; Cosca, Michael A.; Fridrich, Christopher J.; Brandt, Theodore R.: **GEOLOGY OF THE ALAMOSA 30' X 60' QUADRANGLE, COLORADO — AN EAST-WEST TRANSECT ACROSS THE SAN LUIS BASIN OF THE NORTHERN RIO GRANDE RIFT**

SESSION NO. 38

			Booth #
38-13	222	Paine, Jeffrey G.*; Collins, Edward W.: <b>GEOLOGIC MAPPING OF THE TEXAS GULF OF MEXICO COASTAL PLAIN</b>	
38-14	223	McCulloh, Richard P.*; Heinrich, Paul V.; John, Chacko J.: <b>GEOLOGIC MAPPING OF THE MISSISSIPPI RIVER DELTA REGION AT 1:100,000 SCALE</b>	39-1 238
38-15	224	Carpenter, Nicholas D.*; Schley, Rhett D.; Barineau, Clinton I.; Sagul, Douglas A.; Mueller, Paul A.: <b>THE ZANA GRANITE AND KOWALIGA GNEISS: MAP RELATIONSHIPS AND GEOCHEMICAL CHARACTERISTICS OF ORDOVICIAN AND SILURIAN PLUTONS IN THE EASTERN BLUE RIDGE OF ALABAMA</b>	Green, Andrew*; Cooper, J. Andrew G.; Salzman, Leslee: <b>SHELF MORPHOLOGY AND SUBMERGED SHORELINE PRESERVATION: EXAMPLES FROM KWAZULU-NATAL, SOUTH AFRICA</b>
38-16	225	Ball, Stephen M.*; Connors, Christopher D.; Wala, Virginia T.: <b>CONSTRUCTING PHOTOGRAMMETRY-BASED THREE-DIMENSIONAL MODELS FOR USE IN GEOLOGIC MAPPING</b>	39-2 239
38-17	226	Schusler, Kyle Lee*: <b>SURFICIAL GEOLOGIC MAP OF THE WASHINGTON 7.5 MINUTE QUADRANGLE, TAZEVELL COUNTY, IL</b>	Wehmiller, J.F.*; York, Linda L.; Pellerito, Vincent; Thieler, E. Robert: <b>RACEMIZATION-INFERRED AGE DISTRIBUTION OF MOLLUSKS IN THE US ATLANTIC MARGIN COASTAL SYSTEM</b>
38-18	227	Gates, Gwendolyn M.*; Malone, David H.; Shields, William: <b>SURFICIAL GEOLOGIC MAP OF THE METAMORA 7.5 MINUTE QUADRANGLE IN WOODFORD COUNTY, IL</b>	39-3 240
38-19	228	Bouleanu, Tom Michael*: <b>SURFICIAL GEOLOGIC MAP OF THE EUREKA 7.5 MINUTE QUADRANGLE IN WOODFORD COUNTY, IL</b>	Hanebuth, Till J.J.*; Zhang, Wenyang; Oberle, Ferdinand K.; Cui, Yongsheng; Santos, Ana I.; Lantzsich, Hendrik: <b>SHELF MUD DEPOCENTERS AND STORM-DRIVEN BOTTOM TRANSPORT CONTROLLING THEIR FORMATION</b>
38-20	229	Kenning, Brett Michael*; Malone, David H.; Shields, William: <b>SURFICIAL GEOLOGIC MAP OF THE BENSON 7.5 MINUTE QUADRANGLE, WOODFORD COUNTY, IL</b>	39-4 241
38-21	230	McGillivray, Krista M.*; Malone, David H.; Shields, William: <b>SURFICIAL GEOLOGIC MAP OF THE BLOOMINGTON WEST 7.5 MINUTE QUADRANGLE IN MCLEAN COUNTY, IL</b>	Uptegrove, Jane*; Monteverde, Donald H.; Stanford, Scott D.; Gagliano, Michael P.; Carone, Alexandra R.: <b>ONSHORE-OFFSHORE CORRELATION OF QUATERNARY INCISED VALLEYS AND TIDAL PALEOCHANNELS, CAPE MAY, NJ</b>
38-22	231	Topping, Elena Maria Peinado*; Malone, David H.; Shields, William: <b>GEOLOGIC MAP OF THE 7.5 MINUTE ROANOKE QUADRANGLE IN WOODFORD COUNTY, ILLINOIS</b>	39-5 242
38-23	232	Drzyzga, Scott A.*; Blewett, William L.; Sherrod, Laura A.; Wang, Hong: <b>NORTHERN MICHIGAN'S COMINGLED MUNISING AND GRAND MARAIS MORAINES AND THEIR RELATIONS WITH RELICT SHORELINES OF GLACIAL LAKE ALGONQUIN</b>	Ponte, Ali*; Cribb, Coty; Madsen, John: <b>IMPORTANCE OF REGIONAL GEOPHYSICAL AND GEOLOGICAL STUDIES OF OFFSHORE WIND ENERGY AREAS</b>
38-24	233	Kehew, Alan E.*; Esch, John M.; Linker, John S.; Kozlowski, Andrew L.; Woolever, Caleb; Ewald, Stephanie K.; Guzman, Ivan; Karki, Sita: <b>A NEW GEOLOGIC MAP FOR BARRY COUNTY, MICHIGAN</b>	39-6 243
38-25	234	Andrews, Jr., William*; Overfield, Bethany; Anderson, Warren H.: <b>GEOLOGIC SOURCES OF RADON IN KENTUCKY: PRELIMINARY ANALYSIS</b>	Haulsee, Kenneth*; Trembanis, Arthur; DuVal, Carter: <b>QUANTIFYING MACRO-SCALE GEOMORPHOLOGICAL CHANGES POST-HURRICANE SANDY AT ASSATEAGUE ISLAND UTILIZING BATHYMETRIC MAPPING TECHNIQUES</b>
38-26	235	O'Brien, Rachel*; Shaffer, Christopher; Fleeger, Gary M.: <b>BEDROCK ELEVATION AND SEDIMENT THICKNESS MAPS FOR A PORTION OF THE GLACIATED APPALACHIAN PLATEAU, NORTHWESTERN PA</b>	39-7 244
38-27	236	Shaffer, Christopher*; O'Brien, Rachel: <b>UNDERGRADUATE RESEARCH EXPERIENCES: THE ROLE OF GIS IN SUPPORT OF REGIONAL MAPPING IN NORTHWESTERN PENNSYLVANIA</b>	McMullen, Katherine Y.*; Poppe, Lawrence J.; Winner, William G.: <b>SEA-FLOOR FEATURES AND SEDIMENTARY ENVIRONMENTS IN WESTERN BLOCK ISLAND SOUND, OFFSHORE OF FISHERS ISLAND, NEW YORK</b>
38-28	237	Mersch, Arthur J.*; Southworth, Scott; Rankin, Douglas W.; Holm-Denoma, Christopher S.; Tollo, Richard P.; Aleinikoff, John N.: <b>PRELIMINARY GEOLOGIC MAP OF THE MOUNT ROGERS AREA, VA-NC-TN: FIELD RELATIONSHIPS OF NEOPROTEROZOIC VOLCANISM AND GLACIATION IN THE BLUE RIDGE</b>	39-8 245
			Mahmud, Akim*; Pendleton, Elizabeth; Brothers, Laura; Andrews, Brian; Thieler, E. Robert: <b>REPURPOSING NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION (NOAA) HYDROGRAPHIC DATA FOR SEA FLOOR SEDIMENT MAPPING ALONG THE CONTINENTAL SHELF OF THE DELMARVA PENINSULA</b>
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			Cribb, Coty*; Ponte, Ali; Madsen, John: <b>ANALYSIS OF SIDE-SCAN SONAR DATA TO CONSTRAIN GEOLOGIC SETTING OF OFFSHORE WIND ENERGY AREAS</b>
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			Friedrichs, Andrew*; DuVal, Carter; Trembanis, Arthur: <b>OBSERVATIONS OF RIPPLE VARIABILITY ALONG THE ASSATEAGUE ISLAND INNER CONTINENTAL SHELF</b>
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			Ousley, Jase D.*; Engle, Jason A.; Maglio, Coraggio K.; Brutsché, Katherine E.; McFall, Brian C.: <b>MORPHOLOGICAL ADJUSTMENT OF NEARSHORE PLACED DREDGED MATERIAL, ST. JOHN'S COUNTY, FLORIDA</b>
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			Wondolowski, Nicholas A.*; Hubeny, J. Bradford; Tibert, Neil E.; Neilson, Miles; Rizzo, Brian; King, John W.: <b>GEOSPATIALLY REFERENCED AND GROUND-TRUTHED HOLOCENE ESTUARINE SEISMIC STRATIGRAPHY OF THE WESTMORELAND PARK REGION, CENTRAL POTOMAC ESTUARY, VA</b>
			39-13 250
			Neilson, Miles A.*; Clevenger, Megan; Wondolowski, Nicholas A.; Tibert, Neil; Hubeny, J. Bradford; Rizzo, Brian: <b>STRATIGRAPHIC ARCHITECTURE OF THE TIDAL POTOMAC AND RAPPAHANNOCK RIVERS ALONG THE COASTAL CLIFFS OF VIRGINIA'S HISTORIC NORTHERN NECK</b>

SESSION NO. 40

*Paleoclimatology/Paleoceanography (Posters)*

9:00 AM, Baltimore Convention Center, Exhibit Hall

Authors will be present from 3:30 to 5:30 PM

			Booth #
40-1	251	Cullen, Kate*; Flores, Cindy; Gross, Jason; Hall, James T.; Kaufman, Zachary; O'Connell, Suzanne; Robakiewicz, Elena; Stewart, Graham: <b>THE WEDDELL SEA IN THE PLIOCENE: INTERPRETING THE SEDIMENT RECORD FROM ODP SITES 693 AND 697</b>	

SESSION NO. 39

**T127. Continental Shelf and Estuarine Seafloor Mapping and Shallow Stratigraphy on the North American East Coast (Posters) (GSA Quaternary Geology and Geomorphology Division; Marine/Coastal Science Discipline)**

9:00 AM, Baltimore Convention Center, Exhibit Hall

Authors will be present from 3:30 to 5:30 PM

- 40-2 252 Burke, Janet\*; Hull, Pincelli: **THROUGH THE WALLS: BIOTIC AND ABIOTIC DETERMINANTS OF PLANKTONIC FORAMINIFERAL POROSITY IN CORE TOP ASSEMBLAGES**
- 40-3 253 Weiss, Anna M.\*; Martindale, Rowan: **IMPORTANCE OF THE ASSOCIATION BETWEEN CRUSTOSE CORALLINE ALGAE AND CORALS TO REEF BUILDING IN THE FOSSIL RECORD**
- 40-4 254 Yamamura, Daigo\*; Suarez, Celina: **ASSESSING THE AUTHENTICITY OF STABLE ISOTOPE COMPOSITIONS IN VERTEBRATE SKELETAL REMAINS: IMPLICATIONS FOR PALEOCLIMATIC INTERPRETATION OF THE UPPER CRETACEOUS KAIPAROWITS FORMATION, SOUTHERN UTAH**
- 40-5 255 Qi, Xiao\*; Soreghan, Gerilyn S.; Sano, Hiroyoshi: **AN ICEHOUSE DUST CYCLICITY RECORD PRESERVED FROM THE CARBONIFEROUS-PERMIAN AKIYOSHI LIMESTONE (JAPAN)**
- 40-6 256 Barrett, Kevin D.\*; Hotchkiss, Sara C.: **SOIL PROTOZOAN AND ARTHROPOD FOSSILS GIVE CLUES TO A DYNAMIC MOISTURE REGIME ON THE LEEWARD SLOPE OF KOHALA VOLCANO, HAWAII**
- 40-7 257 Jackson, Kevin E.\*; Uno, Kevin T.; Polissar, Pratigya J.; deMenocal, Peter: **CHANGING VEGETATION IN NORTHEAST AFRICA: PLANT WAX CARBON ISOTOPE RATIOS INDICATE LATE MIOCENE APPEARANCE OF C4 GRASSES**
- 40-8 258 Witts, James D.\*; Newton, Robert J.; Wignall, Paul B.; Bottrell, Simon H.; Francis, Jane E.: **A NEW HIGH RESOLUTION SULFUR ISOTOPE RECORD ACROSS THE CRETACEOUS-PALEOGENE (K-PG) MASS EXTINCTION EVENT IN ANTARCTICA**
- 40-9 259 Mills, Tanner\*; Dworkin, Steve I.: **PALEOCEANOGRAPHIC CONDITIONS THAT RESULTED IN THE ACCUMULATION OF ORGANIC MATTER IN THE MIDDLE PENNSYLVANIAN HERMOSA GROUP, SOUTHWESTERN SHELF, PARADOX BASIN, UTAH**
- 40-10 260 Hall, Tricia L.\*; Wilson, Terry J.; Henrys, Stuart: **NEOGENE SEISMIC STRATIGRAPHY AND SEDIMENT VOLUMES, VICTORIA LAND BASIN, MCMURDO SOUND, ANTARCTICA**
- 40-11 261 D'haenens, Simon\*; Tsong, Rain; Hull, Pincelli M.: **PELAGIC DYNAMICS IN A STABLE, WARM CLIMATE STATE: INSIGHTS FROM THE MIDDLE EOCENE**
- 40-12 262 Galloway, Jennifer\*; Grasby, Stephen E.; Dewing, Keith; Hadlari, Thomas; Sanei, Hamed; Swindles, Graeme T.: **CHEMOSTRATIGRAPHY OF UPPER JURASSIC TO LOWER CRETACEOUS STRATA OF THE SVERDRUP BASIN, CANADIAN HIGH ARCTIC**
- 40-13 263 Prue, Ann Marie\*; Upchurch, Garland R.; Chin, Karen: **ESTIMATING CLIMATE FROM THE LATE CRETACEOUS FLORA OF THE TWO MEDICINE FORMATION, MONTANA: COMPARISON OF UNIVARIATE METHODS AND DIGITAL LEAF PHYSIOGNOMY**
- 40-14 264 Judd, Emily J.\*; Miklus, Nicole M.; Ivany, Linda C.; Sijp, Willem P.; Affek, Hagit P.: **HIGH-LATITUDE SEASONALITY IN A GREENHOUSE EARTH: VARIATIONS IN TEMPERATURE AND PRECIPITATION THROUGHOUT THE EOCENE INFERRED FROM ANTARCTIC BIVALVES**
- 40-15 265 Maharjan, Dev\*; Jiang, Ganqing; Peng, Yongbo: **THE SULFUR CYCLE ACROSS THE EARLY MISSISSIPPIAN POSITIVE  $\delta^{34}\text{S}$  EXCURSION**
- 40-16 266 Zhelezinskaia, Iadviga N.\*; Farquhar, James; Kaufman, Alan J.: **FACIES AND BIOLOGICAL CONTROLS ON THE PRESERVATION OF ATMOSPHERIC INPUTS IN ARCHEAN MARINE ENVIRONMENTS**
- 40-17 267 Gammariello, Robert\*; Ibarra, Yadira; Petryshyn, Victoria A.; Corsetti, Frank A.; Bottjer, David J.; Greene, Sarah E.; Tripathi, Aradhna: **THE ROLE OF CLIMATE CHANGE IN MASS EXTINCTIONS: USING STROMATOLITES TO CONSTRAIN TEMPERATURES DURING TIMES OF BIOTIC CRISIS**
- 40-18 268 Waldeck, Anna\*; Colman, Albert: **RECONSTRUCTING CAMBRIAN CLIMATES USING OXYGEN ISOTOPE DATA FROM SMALL SHELLY FOSSILS**
- 40-19 269 Casturi, Lokin\*; Saylor, Joel E.; Nie, Junsheng; Saadeh, Crystal M.: **MIO-PLIOCENE GRAIN-SIZE RECORD OF THE ZHADA BASIN POINTS TO DECREASED INTENSITY AND INCREASED VARIABILITY OF THE INDIAN SUMMER MONSOON IN THE SW TIBETAN PLATEAU**
- 40-20 270 Jiménez, Grisel\*: **FORMATION MICROSCANNER (FMS) DATA AND ORBITAL CYCLE RECORDS: PRELIMINARY INTERPRETATION FROM THE ASIAN MONSOON IODP EXPEDITION 346**
- 40-21 271 Saadeh, Crystal\*: **MID-PLIOCENE ONSET OF ECCENTRICITY CYCLES IN THE ZHADA BASIN, SOUTHWESTERN TIBETAN PLATEAU**
- 40-22 272 Harbour, Thomas Austin\*; St. John, Kristen: **COMPARING THE RELATIVE CONTRIBUTION OF ICEBERG VS. SEA ICE-RAFTED SEDIMENT DURING TIMES OF HIGH AND LOW IRD ACCUMULATION AT SITE 918, SE GREENLAND MARGIN**
- 40-23 273 Chen, Sami Li\*; Ravelo, Ana Christina; Clague, David A.: **CONSTRAINING SEASONAL AND VERTICAL DISTRIBUTIONS OF PLANKTONIC FORAMINIFERA FOR PALEOCLIMATE RECONSTRUCTION SINCE MIS3 AT THE AXIAL SEAMOUNT, JUAN DE FUCA RIDGE**
- 40-24 274 Peck, Dylan Aditya\*; Domack, Eugene; Rosenheim, Brad; Leventer, Amy; Shevenell, Amelia E.: **EVIDENCE FOR EXTENSIVE VOLCANISM IN THE DEGLACIATION OF THE HUGO-ANVERS ISLAND TROUGH**
- 40-25 275 Morales-Collazo, Jose Angel\*; Ramirez-Martinez, Wilson R.; Winter, Amos; Santos Mercado, Hernán; Cobb, Kim M.; Sayani, Hussein; Grothe, Pamela R.; Edwards, R. Lawrence; Min, Angela; Cheng, Hai: **RECONSTRUCTING SEA SURFACE TEMPERATURES IN THE CARIBBEAN DURING THE EARLY-MID HOLOCENE FROM A REEF EXPOSURE IN CANADA HONDA, ENRIQUILLO VALLEY, DOMINICAN REPUBLIC**
- 40-26 276 Harrison, Emily Irene\*; Culver, Stephen J.; Leorri, Eduardo; Mallinson, David J.; Noor, Shazili A.M.; Parham, Peter R.; Vijayan, V.R.: **BULK SEDIMENT MAGNETIC SUSCEPTIBILITY OF HOLOCENE SEDIMENT IN THE MALACCA STRAIT, OFF NORTHWESTERN PENINSULAR MALAYSIA**
- 40-27 277 Donovan, Bailey G.\*; Culver, Stephen J.; Leorri, Eduardo; Mallinson, David J.; Vijayan, V.R.; Shazili, Noor A.M.; Parham, Peter R.: **HOLOCENE SEDIMENTARY RECORD FROM THE NORTHEASTERN MALACCA STRAIT: INSIGHTS FROM BULK SEDIMENT MAGNETIC SUSCEPTIBILITY ANALYSIS**
- 40-28 278 Whitley, Cameron J.\*; Leorri, Eduardo; Culver, Stephen J.; Mallinson, David J.; Woodson, Anna Lee; Reed, Devon M.; Hindes, Haley E.; Vijayan, V. R.; Shazili, Noor A.M.; Parham, Peter R.: **REGIONAL CORRELATION OF THE HOLOCENE SEDIMENTARY RECORD, SUNDA SHELF, SOUTH CHINA SEA**
- 40-29 279 Cofield, Shannon McMahon\*; Darby, Dennis A.; St. John, Kristen: **HISTORY OF ICE-RAFTING IN THE ARCTIC OCEAN DURING THE LAST GLACIAL MAXIMUM**
- 40-30 280 Wiles, Gregory\*; Deck, Clara B.; D'Arrigo, Rosanne D.; Solomina, Olga; Anchukaitis, Kevin; Dolgova, Ekaterina: **NORTH PACIFIC DECADEAL CLIMATE VARIABILITY: COMPARISON OF TREE RING RECORDS AND CLIMATE RECONSTRUCTIONS FROM THE EASTERN AND WESTERN BASINS**
- 40-31 281 Martin, Samuel Q.\*; Culver, Stephen J.; Leorri, Eduardo; Mallinson, David J.; Shazili, Noor A.M.; Buzas, Martin A.: **DISTRIBUTION AND TAXONOMY OF MODERN BENTHIC FORAMINIFERA OF THE SUNDA SHELF (SOUTH CHINA SEA) OFF PENINSULAR MALAYSIA**
- 40-32 282 Rand, Cari\*; Nawiesniak, Julie; St. John, Kristen: **A METHODOLOGICAL STUDY OF HANDHELD X-RAY FLUORESCENCE ANALYSIS, AND ITS APPLICATIONS TOWARDS MARINE SEDIMENT CHEMOSTRATIGRAPHY**



## SESSION NO. 40

- 40-33 283 Toledo, Francesca L.\*; Ramirez, Wilson: **USING *MONTASTRAEA FAVEOLATA* AS PROXY FOR CARIBBEAN SST DURING THE HOLOCENE, ENRIQUILLO LAKE, DOMINICAN REPUBLIC**
- 40-34 284 Burkett, Ashley\*; Rathburn, Anthony; De Deckker, Patrick; Martin, Jonathan B.; Eggins, Stephen M.; Nash, Graham; Perez, Elena M.: **TRACE ELEMENTAL GEOCHEMISTRY OF BENTHIC FORAMINIFERA LIVING ON THE AUSTRALIAN MARGIN**
- 40-35 285 Gigstad, Kate M.\*; Bulson, Erin E.; Fraiser, Margaret L.; Gulbranson, Erik L.; Rasbury, Troy: **TOWARDS APPLICATIONS OF B-ISOTOPE GEOCHEMISTRY FOR PALEO-OCEAN CHEMISTRY RECONSTRUCTION**
- 40-36 286 Benson, Josephine\*; Ivory, Sarah; Russell, James M.: **VEGETATION AND CLIMATE CHANGE IN EQUATORIAL EAST AFRICA FROM A 6000 YR POLLEN RECORD, LAKE EDWARD, UGANDA**
- 40-37 287 Jackson, Margaret S.\*; Kelly, Meredith A.; Russell, James M.; Howley, Jennifer A.; Doughty, Alice M.; Baber, Margaret B.; Loomis, Shannon E.; Zimmerman, Susan H.: **GLACIER FLUCTUATIONS IN THE RWENZORI MOUNTAINS, UGANDA, DURING LATE-GLACIAL TIME**
- 40-38 288 Driese, Steven G.\*; Horn, Sally P.; Ballard, Joanne P.; Li, Zheng-Hua; Boehm, Mathew S.: **MICROMORPHOLOGICAL INTERPRETATION OF LATE PLEISTOCENE TO HOLOCENE PALEOENVIRONMENTAL HISTORY OF ANDERSON POND, TENNESSEE, USA**
- 40-39 289 Kim, Soo Hyun\*; Hotchkiss, Sara C.: **A 36,000 RECORD OF ASIAN DUST DEPOSITION IN HAWAII: PALEOCLIMATIC IMPLICATIONS**
- 40-40 290 Enzel, Yehouda\*; Quade, Jay; Kushnir, Yochanan: **CHALLENGING NORTHWARD SHIFTS OF THE INDIAN OCEAN BOREAL SUMMER ITCZ AND THE ROLE OF THE INDIAN SUMMER MONSOON IN INCREASING EARLY-MID HOLOCENE AND EARLIER INTERGLACIAL PRECIPITATION OVER ARABIA: REVISITING THE PALEOHYDROLOGICAL RECORDS**
- 40-41 291 Misinay, Il, Daniel\*; Wiles, Gregory; Lawson, Daniel E.; Wiesenberg, N.: **LATE HOLOCENE GLACIAL HISTORY OF MUIR INLET, GLACIER BAY NATIONAL PARK AND PRESERVE, ALASKA**
- 40-42 292 Yakabowskas, Dana Michelle\*; Park Boush, Lisa E.; Myrbo, Amy: **A 6000 YEAR MULTI-PROXY PALEOCLIMATE RECORD FROM A COASTAL POND AND BLUE HOLE ON THE ISLAND OF ELEUTHERA, BAHAMAS**
- 41-5 297 McGrath, Sarah\*; Jacobel, Allison; McManus, Jerry F.: **GEOCHEMICAL COMPARISON OF PINK AND WHITE *GLOBIGERINOIDES RUBER*: INVESTIGATING HABITAT NICHES AND THEIR PALEOCLIMATIC SIGNIFICANCE**
- 41-6 298 Allen, Katherine A.\*; Hoenisch, Baerbel; Eggins, Stephen M.; Haynes, Laura L.; Rosenthal, Yair; Yu, Jimin: **SR/CA OF PLANKTIC FORAMINIFERAL CALCITE VARIES WITH PH AND DIC IN CULTURE EXPERIMENTS**
- 41-7 299 Borrelli, C.\*; Gabitov, R. I.; Messenger, S. R.; Nguyen, A. N.; Torres, M. E.; Kessler, J. D.: **INVESTIGATION OF BENTHIC FORAMINIFERAL "NON-TRADITIONAL" STABLE ISOTOPES TO RECONSTRUCT METHANE FLUXES IN SEDIMENTARY ENVIRONMENTS**
- 41-8 300 Mojtahid, Meryem\*; Hennekam, Rick; De Nooijer, Lennart; Reichart, Gert-Jan; Jorissen, Frans; de Lange, Gert: **RECONSTRUCTING SOUTHEASTERN MEDITERRANEAN BOTTOM AND SURFACE WATER ENVIRONMENTS DURING SAPROPEL S1 USING LASER-ICPMS ELEMENTAL RATIOS ON FORAMINIFERAL SHELLS**
- 41-9 301 Woodson, Anna Lee\*; Leorri, Eduardo; Culver, Stephen J.; Mallinson, David J.; Vijayan, V.R.; Thunell, Robert C.; Parham, Peter R.; Shazili, Noor A.M.: **MG/CA INFERRED PALEOTEMPERATURE DURING THE MID- TO LATE HOLOCENE FROM THE SUNDA SHELF, SOUTH CHINA SEA**
- 41-10 302 Hindes, Haley E.\*; Culver, Stephen J.; Leorri, Eduardo; Mallinson, David J.; Parham, Peter R.; Shazili, Noor A.M.: **HOLOCENE SEDIMENTARY RECORD FROM THE SUNDA SHELF, OFF PENINSULAR MALAYSIA: INSIGHTS FROM ELEMENTAL, ISOTOPIC AND BULK SEDIMENT MAGNETIC SUSCEPTIBILITY ANALYSES**
- 41-11 303 Kornecki, Krystyna M.\*; Katz, Miriam E.; Stager, Curt; McCarthy, Francine M.G.; Schaller, Morgan F.: **USING MICROFOSSILS TO RECONSTRUCT WATER QUALITY HISTORY IN LAKE GEORGE, NY**
- 41-12 304 Dalsing, Risa E.\*; Hoffmann, Sharon S.: **MICROFOSSIL AND SEDIMENT GRAIN SIZE RECORDS FROM INTERMEDIATE DEPTHS IN THE LABRADOR SEA**
- 41-13 305 Verlaak, Zoe R.F.\*; Collins, Laurel S.; Allen, Joshua: **VERTICAL DISTRIBUTION OF LIVING (STAINED) BENTHIC FORAMINIFERA IN THE EVERGLADES, SOUTH FLORIDA, USA**
- 41-14 306 Sider, Maria N.\*; Collins, Laurel S.: **BENTHIC FORAMINIFERA OF A TROPICAL MANGROVE-SEAGRASS-CORAL REEF ECOSYSTEM, CARIBBEAN PANAMA**
- 41-15 307 Beckwith, Sean Thomas\*; Hallock, Pamela: **DISTRIBUTION OF *ARCHAIAS ANGULATUS* ON THE INNER WEST FLORIDA SHELF: SUBSTRATA AND WATER CHEMISTRY VERSUS TEMPERATURE**
- 41-16 308 Kegel, Jessica\*; Kemp, Andrew C.; Leorri, Eduardo; Culver, Stephen J.; Horton, B.P.: **HIGH RESOLUTION SEA-LEVEL RECONSTRUCTION AT SAND HILL POINT, NORTH CAROLINA: A COMPARISON OF TWO APPROACHES IN A MICROTIDAL SETTING**
- 41-17 309 Ishman, Scott\*; Shevenell, Amelia; Domack, Eugene; Leventer, Amy; Rosenheim, Brad; Vadman, Kara; Prentice, Michael: **USING MICROFOSSIL AND BIOGEOCHEMICAL DATA TO RESOLVE THE DEGLACIAL HISTORY OF THE ANVERS ISLAND TROUGH, WEST ANTARCTIC PENINSULA MARGIN**
- 41-18 310 Hull, Katherine\*; Alvarez Zariqian, Carlos A.; Bassetti, Maria Angela; Holbourn, Ann: **CHARACTERIZATION OF OSTRACOD ASSEMBLAGES IN THE EAST CHINA SEA (IODP SITE U1429) DURING THE LAST GLACIAL/INTERGLACIAL CYCLE (LAST ~30 KY)**
- 41-19 311 Orhun, Ozlem Gurocak\*; Belanger, Christina: **BODY SIZE AND ABUNDANCE OF BENTHIC FORAMINIFERA AS INDICATORS OF LOW OXYGEN CONDITIONS OF THE GULF OF ALASKA**
- 41-20 312 Balas, Erin K.\*; Katz, Miriam E.; Poirier, Robert K.; Cronin, Thomas M.; Willard, Debra A.: **RECONSTRUCTING PAST**

## SESSION NO. 41

***T139. Insights from Microfossils, from Traditional to Novel Approaches (Posters) (Cushman Foundation; Paleontological Society; Geochemical Society; Paleontological Research Institute; GSA Quaternary Geology and Geomorphology Division)***

9:00 AM, Baltimore Convention Center, Exhibit Hall

Authors will be present from 3:30 to 5:30 PM

Booth #

- 41-1 293 Lazarus, David\*; Renaudie, Johan; Diver, Patrick: **NSB: A NEW, EXPANDED AND IMPROVED DATABASE OF MARINE PLANKTONIC MICROFOSSIL DATA**
- 41-2 294 Seefelt, Ellen L.\*; Self-trail, Jean M.; Schultz, Arthur P.: **DOCUMENTING THE EFFECT OF POST-SAMPLING CALCAREOUS MICROFOSSIL DISSOLUTION IN ORGANIC AND/OR PYRITE-RICH SEDIMENTS USING THREE SAMPLING TECHNIQUES**
- 41-3 295 Sheward, Rosie M.\*; Gibbs, Samantha; Bown, Paul; Poulton, Alex: **CELL PHYSIOLOGY TO SPECIES SUCCESS: UNIQUE INSIGHTS INTO COCCOLITHOPHORE COMMUNITIES FROM EXQUISITE FOSSIL COCCOSPHERES AND MODERN GROWTH PROXIES**
- 41-4 296 Costelloe, A. R.\*; Horton, B.P.; Wilson, B.: **QUANTITATIVELY IDENTIFYING TEMPORAL ASSEMBLAGE TURNS AND SPECIES CONTRIBUTIONS**

- RELATIVE SEA-LEVEL AND ENVIRONMENTAL CHANGE DURING MIS 5A: MICROPALAEONTOLOGICAL ANALYSIS OF GOMEZ PIT, VA (~70-80 KA)**
- 41-21 313 Wright, Nicky M.\*; Scher, Howie D.; Seton, Maria; Williams, Simon E.: **FILLING THE SOUTHERN OCEAN CIRCULATION GAP: INSIGHTS FROM THE KERGUELEN PLATEAU**
- 41-22 314 Breen, Paige\*; D'haenens, Simon; Edgar, Kirsty; Hull, Pincelli: **CREATING AN EXTENSIVE, MULTI-SPECIES PLANKTIC ISOTOPE RECORD AT A MIDDLE EOCENE HIGH LATITUDE SITE**
- 41-23 315 Fung, Megan K.\*; Katz, Miriam E.; Browning, James V.; Miller, Kenneth G.; Wright, James D.: **EXPLORING EARLY EOCENE HYPERTHERMALS FROM AN ONSHORE COREHOLE ON THE NEW JERSEY PALEO-CONTINENTAL SHELF (ODP 174AX)**
- 41-24 316 Fluegeman, Richard\*; Fender, Matt; Gysen, Taylor; Hayes, Emily Blythe; Jones, John K.; Khameiss, Belkasim; Mocci, Brian: **BENTHIC FORAMINIFERAL PALEOECOLOGY OF RELATIVE SEA LEVEL CYCLE TE 3.2 (EOCENE; BARTONIAN) IN THE EASTERN GULF COASTAL PLAIN: A TWO SITE STUDY**
- 41-25 317 Gradstein, Felix M\*; Borgo, Giovanni: **NEW INSIGHTS IN THE FORAMINIFERAL GENUS *TURRILINA* ANDREAE (1884)**
- 41-26 318 Gysen, Taylor\*; Fluegeman, Richard; Grigsby, Jeffrey D.; Nicholson, Kirsten N.: **TECTONIC IMPLICATIONS OF PALEOENVIRONMENT FROM DEEP SEA LIMESTONE AND PLANKTONIC FORAMINIFERA OF THE NEW CALEDONIA BASIN FROM DSDP SITE 206**
- 41-27 319 Lamela, Philip\*; Collins, Laurel S.: **MARINE PALEOENVIRONMENTS OF THE PALEOCENE CANNONBALL FORMATION, NORTH DAKOTA**
- 41-28 320 Gradstein, Felix M\*; Watkins, David K.: **A QUANTITATIVE RE-ANALYSIS OF THE LATE CRETACEOUS NANNOFOSSIL ZONATION, WESTERN INTERIOR SEAWAY**
- 41-29 321 Kelly, Abigail\*; Cohen, Phoebe: **DETERMINING THE ABUNDANCE OF MICROFOSSILS ACROSS THE LOWER KELLWASSER EVENT IN UPSTATE NEW YORK**
- 41-30 322 Gierlowski-Kordesch, Elizabeth\*; Cassle, Christopher: **MICROCONCHIDS IN TERRESTRIAL TO MARINE TRANSITIONS**
- 41-31 323 Over, D.Jeffrey\*: **APPARATUS OF YAOXIANOGNATHUS SP., CONODONTA, FROM THE VIOLA FORMATION, FORT WORTH BASIN, UPPER ORDOVICIAN (MID MOHAWKIAN)**
- 41-32 324 Liu, Huaibao P.\*; Bergström, Stig M.; Witzke, Brian J.; Briggs, Derek E. G.; McKay, Robert M.: **CONODONT APPARATUSES FROM THE MIDDLE ORDOVICIAN WINNESHIEK SHALE, IOWA, USA**
- 41-33 325 Ash, J.\*; Manning-Berg, A.R.; Kah, L.C.: **TAPHONOMIC GRADE FOR SILICIFIED MICROBIAL MATS OF THE ANGMAAT FORMATION, BYLOT SUPERGROUP, BAFFIN ISLAND**
- 42-4 329 Dahl, Robyn Mieko\*; Droser, Mary L.; Richards-Dinger, Keith: **MODELING THE DENSITY OF FOSSILS FROM CROSS-SECTION EXPOSURES: AN EXAMPLE FROM THE ORDOVICIAN OF THE ARROW CANYON RANGE, NV**
- 42-5 330 Chow, Brandon T.\*; Ranganathan, Meghana I.; Wang, Steve C.; Roopnarine, Peter D.; Angielczyk, Kenneth D.: **INFERRING PRIMARY EXTINCTION LEVELS IN LATE PERMIAN FOOD WEBS USING APPROXIMATE BAYESIAN COMPUTATION**
- 42-6 331 Opazo, L. Felipe\*; Abades, Sebastian R.; Balseiro, Diego; Hendy, Austin J.W.; Kowalewski, Michal: **TESTING THE RELATIONSHIP BETWEEN NUTRIENTS AND FUNCTIONAL DIVERSIFICATION**
- 42-7 332 Soriano, Carmen\*; Engel, Michael S.; Grimaldi, David A.; Sohn, Jae-Cheon; Santiago-Blay, Jorge; Saupe, Erin E.; Solorzano-Kraemer, Monica: **AMBER PROJECTS AT THE ADVANCED PHOTON SOURCE (ANL)**
- 42-8 333 Longar, Anne E.\*; Keller, Jonathan S.; McNulty, Kieran P.; Fox, David L.; Mitchell, Jackson N.: **PARSING POPULATIONS USING MORPHOLOGY: 3D MANDIBLE LANDMARKS SEPARATE SISTER SPECIES OF POCKET MICE (MAMMALIA: RODENTIA)**

## SESSION NO. 43

*Paleontology: Trends in Morphology and Size (Posters)*

9:00 AM, Baltimore Convention Center, Exhibit Hall

Authors will be present from 3:30 to 5:30 PM

Booth #

- 43-1 334 Madan, Meena A.\*; Prothero, Donald; Syverson, Valerie J.: **STASIS IN GREAT HORNED OWLS FROM THE LA BREA TAR PITS DURING THE LAST GLACIAL-INTERGLACIAL CYCLE**
- 43-2 335 Honer, Naava Hadassah\*; Hunter, John P.; Hubbe, Mark: **EVOLUTIONARY RATES IN INDIVIDUAL TOOTH LOCI IN THE *TETONIUS* AND *PSEUDOTETONIUS* LINEAGE OF ANAPTOMORPHINE PRIMATES**
- 43-3 336 Rowland, Stephen M.\*; Parry, Lauren E.: **AGE PROFILE OF TERMINAL PLEISTOCENE COLUMBIAN MAMMOTHS FROM THE TULE SPRINGS FOSSIL BEDS OF SOUTHERN NEVADA**
- 43-4 337 Gearty, William\*; Payne, Jonathan L.: **PHYLOGENETIC AND FOSSIL EVIDENCE FOR A COMMON BODY SIZE ATTRACTOR IN MARINE MAMMALS**
- 43-5 338 Borce, Bridget\*; Deméré, Thomas A.; Berta, Annalisa: **INTRASPECIFIC VARIATION IN CRANIAL AND MANDIBULAR MORPHOLOGY OF THE EXTINCT RIVER DOLPHIN *PARAPONTOPORIA STERNBERGI* FROM THE UPPER PLOCIENE SAN DIEGO FORMATION, SOUTHERN CALIFORNIA, USA**
- 43-6 339 Lucas, Spencer G.\*; Hunt, Adrian P.; Buskirk, Bret L.: **NEW LARGE COPROFAUNAS FROM THE PENNSYLVANIAN OF NEW MEXICO AND THE EOCENE OF VIRGINIA DEMONSTRATE THE PERVASIVE NATURE OF THE SHARK SURPLUS PARADOX IN SHALLOW MARINE ENVIRONMENTS**
- 43-7 340 Mitchell, Michaela\*; Ciampaglio, C.N.: **ORIGINS OF FILTER FEEDING IN LAMNIFORM SHARKS**
- 43-8 341 Belben, Rachel\*; Twitchett, Richard J.; Underwood, C; Johanson, Z: **LAMNIFORM SHARK TOOTH MORPHOMETRICS SHOW A SHIFT IN COMMUNITY STRUCTURE OVER THE K/PG MASS EXTINCTION EVENT**
- 43-9 342 Fuller, Keith R.\*; Ciampaglio, C.N.; Jacquemin, Stephen J.: **PRELIMINARY FINDINGS FROM A MORPHOLOGICAL COMPARISON OF SPECIES WITHIN THE GENERA *ISURUS* AND *CARCHARODON***
- 43-10 343 Robins, Cristina M.\*; Freierman, Adam; O'Neill, Hannah K.; Pearson, Lillian K.; Luque, Javier; Portell, Roger W.: **SEXUAL DIMORPHISM AND ONTOGENY WITHIN THE FOSSIL CRAB *PALAEOPINNIXA* SP. (BRACHYURA: HEXAPODIDAE)**
- 43-11 344 Okamoto, Kristina\*; Clapham, Matthew E.: **LONG-TERM TRENDS IN NAUTILID MORPHOSPACE AND THE ROLE OF MASS EXTINCTIONS**

## SESSION NO. 42

*Paleontology: The Analytical Toolkit: Evaluating Bias, Specimens, and Relationships (Posters)*

9:00 AM, Baltimore Convention Center, Exhibit Hall

Authors will be present from 3:30 to 5:30 PM

Booth #

- 42-1 326 Dunhill, Alexander M.\*; Walker, Fiona; Woods, Mark A.; Newell, Andrew J.; Benton, Michael J.: **A SMALL-SCALE STUDY OF SAMPLING BIAS - THE CHALK OF HAMPSHIRE, UK**
- 42-2 327 Zhou, Heather J.\*; Wang, Daniel; Wang, Steve C.; Wang, Chengying; Gai, Linda; Moore, John L.; Porter, Susannah M.; Maloof, Adam C.: **ACCOUNTING FOR THE SIGNOR-LIPPS EFFECT IN ESTIMATING THE DURATION AND NUMBER OF PULSES IN THE CAMBRIAN EXPLOSION**
- 42-3 328 Pierrehumbert, Nadia D.\*: **EVALUATING TAPHONOMIC AND TAXONOMIC BIAS IN STUDIES OF PALEOCOMMUNITY DISSIMILARITY**

SESSION NO. 43

- 43-12 345 Rivera, Alexei A.\*: **NAUTILOID MACROEVOLUTION: AN INTERPLAY OF ADAPTIVE SHELL FORM, PREDATION, AND SPECIES SELECTION**
- 43-13 346 Anderson, Brendan Matthew\*; Allmon, Warren D.: **SEPTA AREN'T RARE IN GASTROPODS!**
- 43-14 347 LaPointe, Cullen W.\*; Nagel-Myers, Judith; McRoberts, Christopher: **MORPHOMETRIC ANALYSIS OF SHAPES CHANGES IN A MIDDLE DEVONIAN PTERIOD BIVALVE LINEAGE**
- 43-15 348 Chrpa, Michelle E.\*: **EVALUATING CHANGES IN MORPHOMETRY AND PALEOECOLOGY OF FAMILY TRIGONIIDAE (MOLLUSCA: BIVALVIA)**
- 43-16 349 Williams, Mario A.\*; Harnik, Paul G.: **EGG SIZE EVOLUTION IN RESPONSE TO HISTORICAL REGIME SHIFTS IN THE GULF OF MEXICO**
- 43-17 350 Bano, Lauren Summer\*; Griffin, Christopher T.: **INTEGRATING HISTOLOGY AND MORPHOLOGY TO ASSESS THE SKELETAL MATURITY OF EARLY-DIVERGING DINOSAUR MORPHS**

SESSION NO. 44

**T146. Palynology (Posters) (AASP - The Palynological Society; GSA Quaternary Geology and Geomorphology Division; Paleontological Society)**

9:00 AM, Baltimore Convention Center, Exhibit Hall

Authors will be present from 3:30 to 5:30 PM

- | Booth # |   |
|---------|---|
| 44-1    | 351 Mander, Luke*: <b>MANUAL CLASSIFICATION OF POLLEN GRAINS IN THE DIGITAL ERA</b>   |
| 44-2    | 352 Pentesco, Justin T.*; McCarthy, Francine M.G.: <b>PALYNOLOGICAL EVIDENCE OF CLIMATE- DRIVEN HYDROLOGIC ISOLATION OF LAKE SUPERIOR FROM THE REST OF THE GREAT LAKES; IMPLICATIONS FOR FUTURE CLIMATE SCENARIOS</b> |
| 44-3    | 353 Krueger, Andrea M.*; Garner, Caitlin S.; Riddick, Nicholas J.; Drijejan, Matea; McCarthy, Francine M.G.: <b>THE NON-POLLEN PALYNOMORPH RECORD OF MEROMICTIC LAKES: VALUE IN STUDIES OF ANTHROPOGENIC IMPACT</b>   |
| 44-4    | 354 Riddick, Nicholas J.*; Volik, Olena; McCarthy, Francine M.G.; Krueger, Andrea; Danesh, Donya: <b>ASSESSING THE EFFECT OF ACETOLYSIS ON DESMIDS, A POTENTIALLY VALUABLE PALEOLIMNOLOGICAL PROXY</b>                |
| 44-5    | 355 Smyshlyaeva, Olesya I.*; Kozhin, Mikhail N.; Ershova, Ekaterina G.; Popova, Ksenia: <b>THE VEGETATION HISTORY OF THE WHITE SEA ISLANDS (PORYA BAY, NORTH RUSSIA)</b>  |
| 44-6    | 356 Haque, Syeda Jesmin*; Rahman, S.M. Habibur: <b>STANDARD PALYNOLOGICAL SLIDES FROM CONTEMPORARY FLOWERS OF DHAKA, BANGLADESH</b>   |
| 44-7    | 357 Marret, Fabienne*; Mudie, Petra; Mertens, Kenneth N.; Shumilovskikh, Lyudmila: <b>ATLAS OF MODERN DINOFLAGELLATE CYST DISTRIBUTION IN THE BLACK SEA CORRIDOR</b>  |
| 44-8    | 358 Fisk, Lanny H.*; Maloney, Dave F.; Pfeiffer, Brendan J.: <b>RECORDS OF SEVERE DROUGHT IN CALIFORNIA DURING PLEISTOCENE INTERGLACIALS</b>  |
| 44-9    | 359 Fisk, Lanny H.*; Maloney, Dave F.; Pfeiffer, Brendan J.; Peck, Phillip R.: <b>PALYNOLOGY OF THE "PECTEN CLAY" IN THE PLIOCENE SAN JOAQUIN FORMATION, KETTLEMAN HILLS, CENTRAL CALIFORNIA, USA</b>                 |
| 44-10   | 360 Ramirez, Edwin*; Pardo-Trujillo, Andres; Plata, Angelo; Vallejo, Felipe; Trejos, Raul: <b>PALYNOLOGY OF THE CENOZOIC AMAGÁ BASIN (NORTHWESTERN SOUTH AMERICA): BIOSTRATIGRAPHY AND PALEOENVIRONMENTS</b>          |
| 44-11   | 361 Pardo-Trujillo, Andres*; Diaz, Andres; Plata, Angelo: <b>PALYNOFLORA FROM THE VOLCANICLASTIC SEQUENCE OF ARANZAZU: A SINGULAR RECORD OF NEOGENE NEOTROPICAL VEGETATION IN THE COLOMBIAN CENTRAL CORDILLERA</b>    |

- 44-12 362 Oguadinma, Vivian Onyinyechukwu\*; Okoro, Anthony Uwaoma: **PALYNOLOGICAL AND LITHIFACIES APPROACH TO PALEO-ENVIRONMENTAL AND SEQUENCE STRATIGRAPHIC INTERPRETATION OF AMEKI FORMATION OUTCROPPING IN UMUNYA- OGBUNIKE AREAS, NORTHERN NIGER DELTA BASIN, NIGERIA**
- 44-13 363 Michoux, Daniel\*: **DINOCYSTS AND NANNOFOSSILS FROM THE MARNES DE DONZACQ, BASAL LUTETIAN (MIDDLE EOCENE) OF SOUTHWESTERN FRANCE**
- 44-14 364 Zobaa, Mohamed K.\*; Sallam, Emad S.; Obob-Ikuenobe, Francisca E.: **PALYNOLOGICAL EVIDENCE FOR EPICONTINENTAL DRY SUBTROPICAL TO TEMPERATE CLIMATIC CONDITIONS DURING THE EOCENE IN THE SOUTHEAST MEDITERRANEAN**
- 44-15 365 Smith, Catherine\*; Domack, Eugene; Shevenell, Amelia; Leventer, Amy; Gulick, Sean; Frederick, Bruce; Fernández, Rodrigo: **A NEW EOCENE SEDIMENTARY SEQUENCE FROM ANTARCTICA AND ITS PALYNOLOGIC CHARACTER**
- 44-16 366 Brooke, Sharon\*; O'Keefe, Jen: **FUNGAL FORMS AS ECOLOGICAL INDICATORS AT THE BIG BROWN MINE (UPPER PALEOCENE, TEXAS, USA)**
- 44-17 367 Baghai-Riding, Nina\*; Hottot, Carol L.; Davis, Kendal; Davidson, Taylor: **PALYNOLOGICAL EVIDENCE FOR A LATITUDINAL MOISTURE GRADIENT IN THE LATE JURASSIC MORRISON FORMATION**
- 44-18 368 Mantle, Daniel J.\*; Hannaford, Carey; Riding, James B.: **LATE TRIASSIC PALYNOLOGY OF THE MUNGAROO AND BRIGADIER FORMATIONS, NORTHERN CARNARVON BASIN, NW AUSTRALIA**
- 44-19 369 Lupia, Richard\*; Strout, Greg; Larson, Preston: **MORPHOLOGY AND ULTRASTRUCTURE OF THE PERMIAN TAENIATE POLLEN GENERA HAMIAPOLLENITES AND VITTATINA**
- 44-20 370 Rubinstein, Claudia V.\*; García Muro, Victoria J.; Martínez, Marcelo A.: **PALYNOLOGY AND PALYNOFACIES ANALYSIS OF THE LLANDOVERY-WENLOCK LA CHILCA FORMATION, SAN JUAN PRECORDILLERA, ARGENTINA**
- 44-21 371 Agić, Heda\*; Moczydłowska-Vidal, Malgorzata; Willman, Sebastian: **PRASINOPHYTE WORLD: BIODIVERSITY OF ORGANIC-WALLED MICROFOSSILS FROM THE TONIAN VISINGSÖ GROUP, SWEDEN**
- 44-22 372 Rubinstein, Claudia V.\*; de la Puente, G. Susana; Delabroye, Aurélien; Astini, Ricardo A.: **LATE ORDOVICIAN-EARLY SILURIAN PALYNOMORPHS FROM THE CORDILLERA ORIENTAL, CENTRAL ANDEAN BASIN, NORTHWESTERN ARGENTINA: A CONTRIBUTION TO THE ADVENT OF VASCULAR PLANTS IN SOUTH AMERICA**

SESSION NO. 45

**T173. Impact Cratering on Earth and in the Solar System (Posters) (GSA Planetary Geology Division; GSA Geophysics Division)**

9:00 AM, Baltimore Convention Center, Exhibit Hall

Authors will be present from 3:30 to 5:30 PM

- | Booth # |   |
|---------|---|
| 45-1    | 373 Kolankowski, Sophia*; Fox, Peter: <b>CORRELATIONS BETWEEN THE GEOLOGIC PROCESSES OF IMPACT CRATERS ON EARTH AND MARS</b>  |
| 45-2    | 374 Geissman, John W.*; Ferguson, John F.; Koeberl, Christian; Spilde, Michael N.; Ali, Abdul-Mehdi S.: <b>THE GARLAND (TEXAS, USA) "DEBRIS FIELD": SOMETHING UNUSUAL HAPPENED AT EARTH'S SURFACE IN THE LATE CRETACEOUS</b>  |
| 45-3    | 375 King, Jr., David T.*; Adrian, David R.; Ormo, Jens; Petruny, Lucille; Hagerty, Justin J.; Gaither, Tenielle A.; Jaret, Steven J.: <b>FLYNN CREEK IMPACT STRUCTURE, TENNESSEE: ITS CRATER-FILLING BRECCIA IN COMPARISON TO TWO OTHER SMALL PALEOZOIC IMPACT STRUCTURES AND THEIR BRECCIA UNITS</b> |

- 45-4 376 Harris, R. Scott\*: **EVIDENCE OF LOW-PRESSURE SHOCK DEFORMATION IN EARLY MESOZOIC LAMPROPHYRES ON THE SOUTHEASTERN MARGIN OF NORTH AMERICA: ENDOGENIC OR IMPACT?**
- 45-5 377 Galinskaya, Karina\*; Abbott, Dallas H.; Gibson, James; Breger, Dee; Mesko, Gary; Gusiakov, Viacheslav; Kiselev, Alexei; Amelin, Ivan: **PROPOSED IMPACT LAKES IN THE RUSSIAN HEARTLAND**
- 45-6 378 Connelly, Daniel P.\*; Presser, Jaime L.B.: **MAPCIS, NEW IMAGING REVEALS DEEP STRUCTURE**
- SESSION NO. 46**  
**Structural Geology (Posters)**  
9:00 AM, Baltimore Convention Center, Exhibit Hall  
Authors will be present from 3:30 to 5:30 PM  
Booth #
- 46-1 379 Potter, Jr., Donald B.\*; Jenkins, William T.; Burns, Ethan F.: **ALLEGHANIAN CUMBERLAND OVERTHRUST AT SYCAMORE FALLS, FIERY GIZZARD, TRACY CITY, TENNESSEE**
- 46-2 380 Lupo, Mary Elizabeth\*; Tull, James F.: **RELATIONSHIPS PERTAINING TO STRATIGRAPHIC ASSIGNMENTS OF APPALACHIAN WESTERN BLUE RIDGE STRATIGRAPHY UNDER CURRENT REEVALUATION, GEORGIA AND TENNESSEE**
- 46-3 381 Musser, Karen\*; Peterson, V.L.; Rahl, Jeffrey M.: **MACRO- TO MICRO-SCALE PARTITIONING OF STRAIN AND KINEMATICS WITHIN THE CHUNKY GAL MOUNTAIN FAULT, BLUE RIDGE PROVINCE, SOUTHERN APPALACHIAN MOUNTAINS**
- 46-4 382 Mitchel, Kelford C.\*; Sullivan, Walter A.: **AN ANALYSIS OF DEFORMATION MECHANISMS WITHIN AN OUTCROP OF THE DYER LONG POND COMPLEX, JEFFERSON, MAINE**
- 46-5 383 Hill, Jenna E.\*; Sullivan, Walter A.: **THE RECORD OF DEXTRAL STRIKE/SLIP MOTION IN THE LIMESTONE MEMBER OF THE WATERVILLE FORMATION, MAINE**
- 46-6 384 Pirovane, Nathan D.\*; Evans, Mark A.: **PALEO-FLUID EVOLUTION AND MINERAL PARAGENESIS ALONG MESOZOIC FAULTS: HARTFORD BASIN**
- 46-7 385 Schweigel, Taylor\*; Jacobi, Robert D.; Hrywnak, Anna; O'Hara, Alex; Hanson, Stacey; Mitchell, Charles E.: **FAULT EFFECTS IN THE UTICA BASED ON CORE FROM THE MOHAWK VALLEY REGION, NYS**
- 46-8 386 Thompson, M.D.\*: **STRUCTURAL GEOLOGY OF THE NEWTON 7.5-MINUTE QUADRANGLE, MIDDLESEX, NORFOLK AND SUFFOLK COUNTIES, MASSACHUSETTS**
- 46-9 387 Cunningham, Vincent F.\*; Spears, Anna V.; Mills, Ciara M.; Bailey, Christopher M.: **KINEMATIC HISTORY OF DUCTILE AND BRITTLE DEFORMATION AT THE BLUE RIDGE-PIEDMONT BOUNDARY, CENTRAL VIRGINIA**
- 46-10 388 Costa, Matthew\*; Evans, Mark A.: **FLUID HISTORY AND PALEO-OVERBURDEN ALONG A RETRODEFORMED CROSS-SECTION IN THE EASTERN VALLEY AND RIDGE PROVINCE, CENTRAL PENNSYLVANIA**
- 46-11 389 Evans, Mark A.\*: **THE STRUCTURAL GEOMETRY AND DEVELOPMENT OF THE CENTRAL APPALACHIAN VALLEY & RIDGE PROVINCE, SOUTH-CENTRAL PENNSYLVANIA**
- 46-12 390 Gajda, Emily Sarah\*; Evans, Mark A.: **PALEO-FLUID HISTORY OF THE NITTANY ANTICLINE, VALLEY AND RIDGE PROVINCE OF PENNSYLVANIA**
- 46-13 391 Davis, Benjamin L.\*; Tull, James F.: **GEOLOGY OF THE DADEVILLE COMPLEX IN THE CAMP HILL AND THORNTON 7.5' QUADRANGLES, APPALACHIAN INNER PIEDMONT OF ALABAMA**
- 46-14 392 Ni, Liangtian\*; Zhong, Jianhua; Li, Yong; Hao, Bing; Sun, Ningliang; Liu, Chuang: **TYPICALLY SOFT DUPLEX STRUCTURES IN JURASSIC SYSTEM IN WESTERN CHAIDAM BASIN, CHINA**
- 46-15 393 Li, Yong\*; Zhong, Jianhua; Mao, Cui; Ni, Liangtian; Shao, Zhufu; Chen, Bin; Liu, Shengxin; Hao, Bing; Sun, Ningliang; **FRACTURES SYSTEMS IN THE DISTRICT 4 OF TAHE OIL-FIELD IN XINJIANG, CHINA**
- 46-16 394 Zhong, Jianhua\*; Li, Yong; Ni, Liangtian; Shao, Zhufu; Chen, Bin; Liu, Shengxin; Hao, Bing; Sun, Ningliang: **THE ULTRA DEEP-WATER LAKE OF MIDDLE SHA 3 FORMATION DURING PALEOGENE IN DONGYING SAG, EASTERN CHINA**
- 46-17 395 Zhang, Dongdong\*; Liu, Chiyang; Wang, Jianqiang: **LATE-EOCENE TECTONIC EVENT IN QIKOU SAG OF BOHAI BASIN**
- 46-18 396 Berry, Allison\*; Lewis, Jonathan: **HIGH UPLIFT RATES COINCIDENT WITH NORMAL FAULTING, SOUTHERN CENTRAL RANGE, TAIWAN**
- 46-19 397 Bressers, Cathleen\*; Lewis, Jonathan: **ANALOG MODELING THE SUBDUCTION OF THE CHINESE CONTINENTAL MARGIN FRACTURE ZONE PROMONTORY IN WESTERN TAIWAN**
- 46-20 398 Kone, Salif\*; Diallo, Mahamadou; Makhlof, Mohamed Ben; LY, Saidou: **STRUCTURAL CONTROLS ON GOLD MINERALIZATION AT THE LOULO GOLD DISTRICT (YALEA NORTH AND WARABA AREAS) FOR EXPLORATION TARGETING**
- 46-21 399 Tewksbury, Barbara J.\*; McLean, Theodore J.: **ACCOMMODATING LAYER SHRINKAGE AND FAULT SLIP IN A POLYGONAL FAULT SYSTEM: MESO-SCALE STRUCTURES IN THE KHOMAN FORMATION, WESTERN DESERT, EGYPT**
- 46-22 400 Zhang, Weicheng\*; Eckert, Andreas: **VARIABLE STRESS ORIENTATIONS IN THE OFFSHORE NILE DELTA: THE ROLE OF SALT AS A MECHANICAL DETACHMENT HORIZON**
- 46-23 401 Fleming, Zachariah D.\*; Pavlis, Terry L.: **MULTIPLE PHASES OF LOW-ANGLE NORMAL FAULTING FROM THE PRECAMBRIAN TO THE NEOGENE IN THE IBEX HILLS AND SARATOGA HILLS, CA**
- 46-24 402 Woodring, Danielle N.\*; Yoerg, Adam C.; Walker, J. Douglas; Andrew, Joseph E.; Möller, Andreas: **GEOLOGIC AND GEOCHRONOLOGIC RECONNAISSANCE OF THE SOUTHEAST OWLSHEAD MOUNTAINS IN SOUTHERN DEATH VALLEY, CALIFORNIA**
- 46-25 403 Wirtz, Yannick\*; Behl, Richard; Onderdonk, Nate: **SIGNIFICANT TECTONIC SHORTENING NOT INCLUDED IN BALANCED CROSS-SECTIONS IS ACCOMMODATED BY MAP-SCALE AND OUTCROP-SCALE DEFORMATION IN THE MONTEREY AND SISQUOC FORMATIONS, SANTA MARIA BASIN, CALIFORNIA**
- 46-26 404 Rahl, Jeffrey M.\*; McGrew, Allen J.; Wolfe, Franklin: **DETAILED SEM-EBSD ANALYSIS OF A QUARTZITE MYLONITE FROM THE RUBY-EAST HUMBOLDT EXTENSIONAL SHEAR ZONE, ELKO COUNTY, NEVADA**
- 46-27 405 Jakeway, Jackson\*; Morgan, Sven; Student, James J.: **TRANSITION FROM SUB GRAIN ROTATION TO GRAIN BOUNDARY MIGRATION IN A QUARTZITE. AN EXAMPLE FROM THE AUREOLE SURROUNDING THE EUREKA-JOSHUA FLAT-BEER CREEK PLUTON OF EASTERN CALIFORNIA**
- 46-28 406 Trimble, John D.\*; Meigs, Andrew; Wannamaker, Philip E.: **A REFINED STRUCTURAL MODEL OF THE OREGON CASCADES ARC-BACKARC TECTONIC PROVINCE**
- 46-29 407 Thorne, Sarah\*; Surpless, Benjamin: **USING STREAM CHANNEL PROFILES TO ASSESS FAULT SLIP RATE VARIABILITY AND TO EVALUATE FAULT SEGMENTATION: A CASE STUDY FROM THE WASSUK RANGE NORMAL FAULT, WESTERN NEVADA**
- 46-30 408 Crues, Ashton\*; Surpless, Benjamin: **USING 3D DIGITAL MODELS TO PERFORM OUTCROP-BASED STRAIN ANALYSIS: A CASE STUDY FROM THE STILLWELL ANTICLINE, WEST TEXAS**
- 46-31 409 Deng, Chao\*; Fossen, Haakon; Gawthorpe, Robert; Rotevatn, Atle; Jackson, Christopher A.-L.: **NORMAL FAULT GROWTH AND STRUCTURAL EVOLUTION DURING MULTIPHASE RIFTING: OSEBERG FAULT BLOCK, NORTHERN NORTH SEA**
- 46-32 410 Tigli, Tufan\*; Çemen, Ibrahim: **STRUCTURAL MODELING OF THE CRETACEOUS DERDERE AND KARABABA**

- RESERVOIRS IN THE CEMBERLITAS OIL FIELD, SOUTHEASTERN TURKEY**
- 46-33 411 Frieman, Ben M.\*; Kuiper, Yvette D.; Monecke, Thomas; Kelly, Nigel M.: **STRUCTURAL CHARACTERISTICS AND DISTRIBUTION OF STRAIN ASSOCIATED WITH DEXTRAL TRANSPRESSION ALONG THE LARDER LAKE-CADILLAC DEFORMATION ZONE IN THE SOUTHERN ABITIBI SUBPROVINCE, CANADA**
- 46-34 412 Gaschot, Bertrand\*; Craddock, John P.; Malone, David H.: **MAGNETIC FABRICS IN AN EOCENE ANDESITIC DIKE, UPPER PLATE, HEART MOUNTAIN SLIDE, WY**
- 46-35 413 Mejia Hernandez, Maria Carolina\*: **THE EASTERN CORDILLERA IS A COMPLEXLY DEFORMED FOLD-THRUST BELT WHICH WAS UPLIFTED AND EXHUMED FROM THE OLIGOCENE TO PRESENT AGE**
- 46-36 414 Mazzitelli, Manuela Amelia\*; Mahoney, Brian J.; Balgord, Elizabeth; Giambiagi, Laura B.; Kimbrough, Dave; Lossada, Ana Clara; McCann, Chaz: **EVOLUTION OF THE MANANTIALES BASIN, SAN JUAN, ARGENTINA: CONSTRAINING MIOCENE OROGENIC PATTERNS IN THE SOUTH-CENTRAL ANDES**
- 46-37 415 Lapadat, Ioan Alexandru\*; Imber, Jonathan; Yielding, Graham; Iacopini, David; McCaffrey, Ken; Long, Jonathan; Jones, Richard R.: **OCCURRENCE AND DEVELOPMENT OF NORMAL FAULT-RELATED FOLDS WITHIN A HETEROGENEOUS SEDIMENTARY SEQUENCE: A CASE STUDY FROM INNER MORAY FIRTH, OFFSHORE SCOTLAND**
- 46-38 416 Sapiie, Benyamin\*; Kurniawan, Ade; Pamumpuni, Astyka; Danil, Dicky; Gunawan, Indra: **NEW INSIGHT OF STRUCTURAL EVOLUTION OF THE TIMOR ISLAND AND AUSTRALIAN CONTINENTAL MARGIN**
- 46-39 417 Zhang, Huining\*; Eckert, Andreas: **FLUID FLOW THROUGH JOINTED DEFORMATION BANDS**
- 46-40 418 Basnet, Shiva\*; Mitra, Shankar: **CONTROLS OF PRE-EXISTING NORMAL FAULTS ON THE GEOMETRY AND LOCATION OF THRUST FAULTS IN FOLD-THRUST BELTS**
- 46-41 419 Borhara, Krishna\*; Onasch, Charles M.: **ASSESSING THE ROLE OF SILICA GEL AS A FAULT WEAKENING MECHANISM IN THE TUSCARORA SANDSTONE**
- 46-42 420 Abbuhl, Brittany M.\*; Cronin, Vincent S.: **INEXPENSIVE PHYSICAL MODEL OF ELASTIC DEFORMATION AROUND A STRIKE-SLIP FAULT**
- 46-43 421 Andrea, Ross A.\*; Murphy, Michael A.; Liu, Yiduo A.: **FRACTURE INTENSITY, FREQUENCY, AND PERMEABILITY OF A NORMAL FAULT SPLAY**
- 46-44 422 Brink-Roby, David\*; Mitra, Gautam; Yonkee, Adolph; Evans, Mark A.: **CHARACTERIZING THE REGIONAL FLUID-FLOW SYSTEM OF THE WYOMING SALIENT, SEVIER FOLD-THRUST BELT**
- 47-4 426 Levander, Alan\*; Oncken, Onno; Niu, Fenglin: **THE GLACIAL BUZZSAW, ISOSTASY, AND GLOBAL CRUSTAL MODELS**
- 47-5 427 Stockman, Morgan\*; Polun, Sean G.; Gomez, Francisco; Tesfaye, Samson: **NEOTECTONIC AND SEISMOTECTONIC ASSESSMENT OF THE 1961 KARA KORE EARTHQUAKE IN THE MARGINAL GRABENS OF THE AFAR RIFT (ETHIOPIA)**
- 47-6 428 Liu, Yiduo A.\*; Murphy, Michael A.; van Wijk, Jolante W.; Cannon, John Matt; Snow, Jonathan E.; Anderson, Peter Z.; Yao, Yao: **ORIGIN OF LATE CRETACEOUS IGNEOUS ACTIVITY IN THE NORTHERN GULF OF MEXICO BASIN**
- 47-7 429 Noda, Atsushi\*: **FOREARC BASINS: TYPES, GEOMETRIES, AND RELATIONSHIPS TO SUBDUCTION ZONE DYNAMICS**
- 47-8 430 Hickcox, Kelly\*; Horrell, David; Polun, Sean G.; Tesfaye, Samson; Gomez, Francisco: **RATES OF SURFICIAL AND TECTONIC PROCESSES IN THE AFAR RIFT (ETHIOPIA) BASED ON REBOUND TEST HAMMER MEASUREMENTS AND ROCK WEATHERING**
- 47-9 431 Jirón, Rebecca L.\*; Burbank, Douglas W.; Strecker, Manfred R.; Alonso, Ricardo N.: **NEOGENE TO QUATERNARY DEFORMATION AND INTERMONTANE BASIN EVOLUTION IN THE HUMAHUACA BASIN, EASTERN CORDILLERA OF THE CENTRAL ANDES, NW ARGENTINA (23.5°S)**
- 47-10 432 Horrell, David\*; Polun, Sean G.; Hickcox, Kelly; Stockman, Morgan; Bedassa, Gemechu; Tesfaye, Samson; Gomez, Francisco: **CONSTRAINTS ON TIMING OF FAULT INITIATION IN THE AFAR RIFT (ETHIOPIA) USING FLUVIAL INCISION AND TCN DATING**
- 47-11 433 Kedenburg, Michael\*; Sadove, Gephen; Ramirez S, Diego A.; Foster, David A.; Montes, Camilo: **TECTONIC EVOLUTION OF THE ISTHMUS OF PANAMA: THERMOCHRONOLOGIC EVIDENCE FOR LATE MIOCENE ISTHMUS UPLIFT FROM CENOZOIC SEDIMENTS, SOUTHWESTERN PANAMA**
- 47-12 434 Liu, Xiaobing\*; Wen, Zhixin; Zhang, Guangya; WANG, Zhaoming; Song, Chengpeng: **STRUCTURE, SEDIMENTATION AND HYDROCARBON ACCUMULATION OF THE NEO-TETHYS PASSIVE MARGIN BASINS: EXAMPLES OF THE GIANT GAS FIELDS FROM (ULTRA-)DEEP-WATER EASTERN MEDITERRANEAN AND EAST AFRICA**
- 47-13 435 Chicangana, German E.\*; Vargas-Jimenez, Carlos Alberto; Mora - Paez, Hector: **THE SEISMICITY OF THE ALGECIRAS FAULT SYSTEM, SOUTHWESTERN COLOMBIA**
- 47-14 436 Xue, Liang\*; Abdelsalam, Mohamed: **REVIEW OF GEOMORPHOLOGIC PROXIES FOR UPLIFT ON FLUVIAL SYSTEMS: A CASE STUDY FROM THE RWENZORI MOUNTAINS, THE EAST AFRICAN RIFT SYSTEM**
- 47-15 437 Ramos Arias, Sr., Mario Alfredo\*; Centeno-García, Elena; Ortega Obregón, Carlos; Solari Lovati, Luigi: **U-PB GEOCHRONOLOGICAL EVIDENCE ABOUT ASSEMBLAGE AND DISMEMBERING CYCLE AT WESTERN OF PANGEA: TEZIUTLÁN MASSIF, PUEBLA, MÉXICO, AT EASTERN OAXAQUIA MICROCONTINENT**
- 47-16 438 Flynn, Helen Flynn\*; Gani, Nahid D.: **UNDERSTANDING FAULT ZONE ARCHITECTURE AND PERMEABILITY STRUCTURES IN A RIFT SETTING: NORMAL FAULTS FROM THE ETHIOPIAN PLATEAU, EAST AFRICAN RIFT SYSTEM**
- 47-17 439 Cavallotti, C.J.\*; Lewis, J.C.: **ANALYSIS OF FOCAL MECHANISM SOLUTIONS TO INVESTIGATE AN APPARENT ASEISMIC ZONE BENEATH THE SOUTHERN CENTRAL RANGE, TAIWAN**
- 47-18 440 Gani, Nahid D.\*; Neupane, Prabhat C.: **SURFACE RESPONSE TO DYNAMIC TOPOGRAPHY WITHIN THE ETHIOPIAN PLATEAU, EAST AFRICAN RIFT SYSTEM**
- 47-19 441 Anderson, Thomas H.\*: **THE JURASSIC (170-150 MA) MEXICO-ALASKA MEGASHEAR, A CONTINENTAL-SCALE FAULT BETWEEN THE GULF OF MEXICO AND ALASKA**
- 47-20 442 Castillo, Bryan\*; Emry, Erica; Nyblade, Andrew A.; Durrheim, Raymond; Raveloson, Andriamiranto: **STRUCTURE UNDER THE BUSHVELD COMPLEX, SOUTH AFRICA FROM RECEIVER FUNCTIONS**

## SESSION NO. 47

*Tectonics/Tectonophysics (Posters)*

9:00 AM, Baltimore Convention Center, Exhibit Hall

Authors will be present from 3:30 to 5:30 PM

Booth #

- 47-1 423 Mana, Sara\*; Beck, Catherine C.: **TECTONOMAGMATIC EVOLUTION OF THE EAST AFRICAN RIFT SYSTEM AS DOCUMENTED IN WEST TURKANA, KENYA**
- 47-2 424 Montesi, Laurent\*: **RELATION BETWEEN VOLCANISM AND RIFT SEGMENT IN THE EAST AFRICAN RIFT: INSIGHTS FROM A COMPARISON WITH ULTRASLOW OCEANIC RIDGES**
- 47-3 425 Contreras, Juan\*; Suter, Max: **A MECHANICAL STABILITY MODEL OF PROGRADATIONAL CARBONATE PLATFORM MARGINS UNDER TECTONIC LOADS: DEFORMATION OF CRETACEOUS CARBONATE PLATFORMS IN THE SIERRA MADRE ORIENTAL FOLD-THRUST BELT (EAST-CENTRAL MEXICO)**
- 47-16 438 Flynn, Helen Flynn\*; Gani, Nahid D.: **UNDERSTANDING FAULT ZONE ARCHITECTURE AND PERMEABILITY STRUCTURES IN A RIFT SETTING: NORMAL FAULTS FROM THE ETHIOPIAN PLATEAU, EAST AFRICAN RIFT SYSTEM**
- 47-17 439 Cavallotti, C.J.\*; Lewis, J.C.: **ANALYSIS OF FOCAL MECHANISM SOLUTIONS TO INVESTIGATE AN APPARENT ASEISMIC ZONE BENEATH THE SOUTHERN CENTRAL RANGE, TAIWAN**
- 47-18 440 Gani, Nahid D.\*; Neupane, Prabhat C.: **SURFACE RESPONSE TO DYNAMIC TOPOGRAPHY WITHIN THE ETHIOPIAN PLATEAU, EAST AFRICAN RIFT SYSTEM**
- 47-19 441 Anderson, Thomas H.\*: **THE JURASSIC (170-150 MA) MEXICO-ALASKA MEGASHEAR, A CONTINENTAL-SCALE FAULT BETWEEN THE GULF OF MEXICO AND ALASKA**
- 47-20 442 Castillo, Bryan\*; Emry, Erica; Nyblade, Andrew A.; Durrheim, Raymond; Raveloson, Andriamiranto: **STRUCTURE UNDER THE BUSHVELD COMPLEX, SOUTH AFRICA FROM RECEIVER FUNCTIONS**



- 47-21 443 Pardo-Trujillo, Andres\*; Restrepo-Moreno, Sergio A.; Vallejo, Diego F; Flores, José-Abel; Trejos, Raúl A; Foster, David A; Barbosa-Espitia, Ángel Antonio; Bernet, Matthias; Marin-Ceron, Maria Isabel; Kamenov, George D.: **NEW THERMOTECTONIC AND PALEO-ENVIRONMENTAL CONSTRAINTS FROM THE WESTERN CORDILLERA AND ASSOCIATED SEDIMENTARY BASINS (NORTHERN ANDES, COLOMBIA): THE BIRTH OF A MAJOR OROGRAPHIC BARRIER AND THE CHOCO BIO-GEOGRAPHIC REGION?**
- 47-22 444 Carrillo, N. Alejandra\*; Carvajal, Luisa F; Gomez, Jefferson; Restrepo-Moreno, Sergio A.; Weber, Marion: **MORPHOTECTONIC RESPONSE (UPLIFT/EXHUMATION) OF LITHO-TECTONIC BLOCKS ADJACENT TO ANTIOQUEÑO PLATEAU (NORTHERN ANDES): A THERMOCHRONOLOGY ANALYSES APPROACH ON CRETACEOUS AND PERMIAN INTRUSIVES**
- 47-23 445 Ülgen, Semih Can\*; Lom, Nalan; Sunal, Gursel; Natalin, Boris; Şengör, A.M. Celâl: **STRUCTURAL FEATURES AND TECTONIC EVOLUTION OF PALAEZOIC SEQUENCE IN ISTANBUL ZONE, NW TURKEY**
- 47-24 446 Restrepo-Moreno, Sergio A.\*; Bernet, Matthias; Vinasco, Cesar; Foster, David A.; Marin-Ceron, Maria Isabel; Min, Kyoungwon; Parra, Luis N.: **DO U/PB AGE DISTRIBUTIONS ON DETRITAL ZIRCON GRAINS FROM MIOCENE SEDIMENTARY SEQUENCES IN NORTHERN COLOMBIA REALLY IMPLY FULL CLOSURE OF THE CENTRAL AMERICAN SEAWAY (CAS) AND DEVELOPMENT OF A MAJOR FLUVIAL CONNECTION BETWEEN CENTRAL AND SOUTH AMERICA?**
- 47-25 447 Wyssession, Michael E.\*; Pratt, Martin; Aleqabi, Ghassan; Wiens, Douglas; Nyblade, Andrew A.; Shore, Patrick; Rambolamanana, Gerard; Rakotondraibe, Tsiriandrimanana; Sy Tanjona Andriampenanana ny Ony, Fenitra: **THE SEISMIC STRUCTURE OF MADAGASCAR: A SYNTHESIS OF STUDIES USING BODY AND SURFACE WAVES**
- 47-26 448 Noriega, Santiago\*; Restrepo-Moreno, Sergio A.; Vinasco, Cesar; Foster, David A.; Min, Kyoungwon; Bernet, Matthias; Marin-Ceron, Maria Isabel; Kamenov, George D.; Botero, Manuela: **THERMOCHRONOLOGIC AND GEOMORPHIC CONSTRAINS OF CENOZOIC UPLIFT IN THE NORTHWESTERN CENTRAL CORDILLERA-COLOMBIA**
- 47-27 449 Spencer, Christopher J.\*; Kirkland, Christopher L.: **VISUALIZING THE SEDIMENTARY RESPONSE THROUGH THE OROGENIC CYCLE WITH MULTI-DIMENSIONAL SCALING**
- 47-28 450 Qin, Pengbo\*; Huang, Danian: **COMBINE GRAVITY DATA TO INTERPRET THE DEEP SEISMIC REFLECTION PROFILE IN XINGCHENG AREA OF THE WESTERN LIAONING PROVINCE**
- 47-29 451 Rohrer, Sean M.\*; Bemis, Sean P.: **CAN WE EXTRACT INTERSEISMIC STRAIN ACCUMULATION SIGNALS FROM HISTORIC AERIAL PHOTOGRAPHS AND MODERN HIGH-RESOLUTION TOPOGRAPHY?**
- 47-30 452 Lu, Pengyu\*; Huang, Danian: **CURRENT STATUS OF SINOPROBE SOFTWARE DEVELOPMENT**
- 47-31 453 Jiang, Tao\*; Xu, Xuechun; Zheng, Changqing: **STUDY ON DEEP SEISMIC REFLECTION PROFILE ALONG NORTHERN MARGIN OF NORTH CHINA PLATFORM**
- 47-32 454 Clift, Peter D.\*; Brune, Sascha; Quinteros, Javier: **CLIMATE MODULATED EROSION AND SEDIMENT FLUX CONTROL OFFSHORE CRUSTAL STRUCTURE AT SOUTH CHINA SEA CONTINENTAL MARGIN**
- 47-33 455 Chen, Zhigeng\*; Chen, Mo: **THE VISIBLE EARTHQUAKE FOCAL RELICS OF 7.0 MAGNITUDE EARTHQUAKE OCCURRED IN 216.8MA IN EAST QINLING MOUNTAINS, CHINA**
- 47-34 456 Bhattarai, Indu\*; Gani, Nahid D.; Meservy, Cody: **REVEALING THE LINK BETWEEN TECTONICS, TOPOGRAPHY AND EXHUMATION OF THE SIWALIK FORELAND BASIN, NEPAL, HIMALAYA: AN INTEGRATION OF QUANTITATIVE GEOMORPHIC ANALYSIS AND DETRITAL THERMOCHRONOLOGY**
- 47-35 457 Yang, Shaomin\*: **COSEISMIC DISPLACEMENTS IN THE TIBET SIDE INDUCED BY THE 2015 GORKLA NEPAL EARTHQUAKE**
- 47-36 458 Collops, Cody L.\*; McKenzie, N. Ryan; Stockli, Daniel F.; Singh, Birendra P.; Webb, A. Alexander G.; Hughes, Nigel C.; Myrow, Paul M.: **ZIRCON (U-TH)/HE THERMOCHRONOMETRIC CONSTRAINTS ON THE EXHUMATION OF THE LESSER HIMALAYA OF NORTHWEST INDIA AND IMPLICATIONS FOR NEOGENE SEAWATER EVOLUTION**
- 47-37 459 Pinan Llamas, Aranzazu\*; Möller, Charlotte; Andersson, Jenny: **STRUCTURAL CHARACTERIZATION OF THE SOUTHERN SECTION OF THE MYLONITE ZONE AND THE EASTERN SEGMENT IN THE BUA AREA, SVECONORWEGIAN OROGEN, SW SWEDEN**
- 47-38 460 Neace, Erika R.\*; Nance, R. Damian; Murphy, J. Brendan; Lancaster, Penelope J.; Shail, Robin K.: **U-PB LA-ICPMS ZIRCON GEOCHRONOLOGY OF THE GRANITES OF THE CORNUBIAN BATHOLITH, SW ENGLAND**
- 47-39 461 VanDervoort, Dane S.\*; Steltenpohl, Mark G.; Schwartz, Joshua J.: **U-PB AGES FROM THE DADEVILLE COMPLEX, SOUTHERNMOST APPALACHIANS, EASTERN ALABAMA: AN ACCRETED TACONIC ARC**
- 47-40 462 Jaret, Steven J.\*; Rasbury, Troy: **PROVENANCE OF THE CAMBRIAN SEDIMENTS ON THE PASSIVE MARGIN OF LAURENTIA: A COMPARISON OF THE POTSDAM SANDSTONE AND THE POUGHQUAG QUARTZITE IN UPSTATE NY**
- 47-41 463 Shatford, Sally\*; Siddoway, Christine; Perez, Sergio; Cadow, Charlotte: **LAURENTIA INTRACONTINENTAL BREAKUP STRUCTURES AND PALEOGEOGRAPHY, ILLUMINATED BY DETRITAL ZIRCON AGE SPECTRA FROM NEOPROTEROZOIC-CAMBRIAN SANDSTONES OF REGIONAL EXTENT IN COLORADO, USA**
- 47-42 464 Williams, Randolph T.\*; Goodwin, Laurel B.; Mozley, Peter S.; Beard, Brian L.; Johnson, Clark M.; Huntington, Katharine W.: **TECTONIC CONTROLS ON FAULT-ZONE FLOW PATHWAYS IN THE RIO GRANDE RIFT: INSIGHTS FROM C, O, SR, AND CLUMPED ISOTOPE ANALYSES OF SYNTECTONIC CALCITE CEMENT**
- 47-43 465 Petronis, Michael\*; Castillo, Geno; Lindline, Jennifer; Zebrowski, J.P.; McCarthy, William; Lemen, Daren; McIntosh, William: **PALEOMAGNETIC, ANISOTROPY OF MAGNETIC SUSCEPTIBILITY, AND GEOCHRONOLOGIC DATA FROM THE BUENA VISTA INTRUSION, NORTH-CENTRAL NEW MEXICO**
- 47-44 466 Lindline, Jennifer\*; Bosbyshell, Howell; Romero, Andrew; Cedillo, Danielle: **CONTRASTING STRUCTURAL SETTING FOR 1.4 GA GRANITES IN THE SOUTHERN SANGRE DE CRISTO MOUNTAINS, NEW MEXICO: EVIDENCE FOR PARTITIONED INTRACRATONIC DEFORMATION**
- 47-45 467 Pignotta, Geoffrey\*; Mahoney, J. Brian: **TIMING AND RATE OF EXHUMATION OF THE BOULDER AND PIONEER BATHOLITHS IN SOUTHWESTERN MONTANA**
- 47-46 468 Link, Benjamin J.\*; Andronicos, Christopher L.; Ridgway, Kenneth D.: **DETRITAL ZIRCON CONSTRAINTS ON THE TIMING OF PROGRADE METAMORPHISM WITHIN THE MACLAREN GLACIER METAMORPHIC BELT, ALASKA RANGE SUTURE ZONE**
- 47-47 469 Smith, Emily F.\*; Nelson, Lyle L.; Macdonald, Francis A.: **THE BECK SPRING DOLOMITE MOUNTAINS AND THE CA. 740-717 MA SARATOGA OROGENY**
- 47-48 470 Chen, Nancy M.\*; Clemens-Knott, Diane: **COMPARISON OF DETRITAL ZIRCON POPULATIONS OF THE GOLCONDA ALLOCHTHON (NORTHERN NEVADA) WITH METAMORPHIC PENDANTS IN THE WESTERN SIERRA NEVADA FOOTHILLS (CENTRAL CALIFORNIA)**
- 47-49 471 Petronis, Michael\*; Trevino, Sarah F.; Gordon, Logan; Castillo, Geno; Lemen, Daren; Pluhar, Christopher J.: **DEFORMATION ACROSS THE EASTERN MONO BASIN,**

SESSION NO. 47

**ADOBE HILLS, CALIFORNIA REVEALED VIA PRELIMINARY PALEOMAGNETIC DATA**

- 47-50 472 Vogl, James J.\*; Foster, David A.: **ALONG-STRIKE DIFFERENCES IN RATES OF EARLY EOCENE CORE COMPLEX DEVELOPMENT IN THE WESTERN NORTH AMERICAN CORDILLERA AND POTENTIAL GEODYNAMIC CONTROLS**

SESSION NO. 48

**T3. Bridging Two Continents (Posters): Comparative Studies of Accretionary Orogenesis in the Central Asian Orogenic Belt, North American Cordillera, and Other Orogenic Belts (GSA Structural Geology and Tectonics Division; GSA Mineralogy, Geochemistry, Petrology, and Volcanology Division)**

9:00 AM, Baltimore Convention Center, Exhibit Hall

Authors will be present from 3:30 to 5:30 PM

Booth #

- 48-1 473 Long, Sr., Xiaoping\*; Sun, Min; Yuan, Chao; Xiao, Wenjiao; Kröner, Alfred: **TECTONIC AFFINITY OF THE ALTAI-MONGOLIA TERRANE IN THE CENTRAL ASIAN OROGENIC BELT**
- 48-2 474 Zhang, Hui\*; Peng, Chenglong: **THE EVOLUTION OF THE NW-TRENDING SECTION OF THE SHUICHENG-ZIYUN AULACOGEN IN GUIZHOU PROVINCE, CHINA**
- 48-3 475 Dai, Chuangu\*; Chen, Jianshu; Wang, Min; Zhang, Hui: **THE GEOLOGICAL EVOLUTION AND TECTONIC DIVISIONS OF THE SOUTHWESTERN SECTION OF THE JIANGNAN OROGEN IN SOUTH CHINA**
- 48-4 476 Riggs, Nancy R.\*; Cecil, M. Robinson; Stone, Paul; Stevens, Calvin H.; Sanchez, Taylor B.: **PERMIAN ARC MAGMATISM AND ITS DETRITAL RECORD IN SOUTHWEST LAURENTIA**
- 48-5 477 Coons, Joseph R.\*; Chapman, Alan D.: **STRUCTURAL AND U-PB DETRITAL ZIRCON GEOCHRONOLOGIC CONSTRAINTS ON THE ORIGIN OF THE CONDREY MOUNTAIN SCHIST, CALIFORNIA - OREGON**
- 48-6 478 Stübner, Konstanze\*; Drost, Kerstin; Ehlers, Todd A.; Böhme, Madelaine: **DIACHRONOUS CENOZOIC EXTENSION AND RIFT-BASIN FORMATION IN THE SOUTHERN BALKANS EXEMPLIFIED BY THE PIRIN MTS. AND SANDANSKI BASIN, SW BULGARIA**
- 48-7 479 McPhee, Peter J.\*: **THE FIRST OROGEN-SCALE CROSS SECTION OF THE WESTERN TAURIDES FOLD-THRUST BELT, SOUTHERN TURKEY**

SESSION NO. 49

**T4. Bridging Two Continents (Posters): Diamonds, Zircons and Native Elements in the Mantle: New Discoveries and Models on the Properties and Petrogenesis of Oceanic Mantle Lithosphere (GSA Mineralogy, Geochemistry, Petrology, and Volcanology Division; GSA Structural Geology and Tectonics Division; MSA Mineral Physics; GSA Geophysics Division; Mineralogical Society of America; Geochemical Society)**

9:00 AM, Baltimore Convention Center, Exhibit Hall

Authors will be present from 3:30 to 5:30 PM

Booth #

- 49-1 480 Alparslan, Gözde\*; Dilek, Yildirim: **STRUCTURAL ARCHITECTURE OF A LATE TRIASSIC - EARLY JURASSIC, SEA OF JAPAN TYPE BACKARC BASIN OCEANIC LITHOSPHERE IN THE CENTRAL PONTIDES (ANATOLIA)**
- 49-2 481 Stewart, E.M.\*; Baxter, Ethan F.: **ONSET OF GRAMPIAN OROGENESIS CONSTRAINED BY HIGH PRECISION SM-ND GARNET AGE OF THE BALLANTRAE OPHIOLITE**
- 49-3 482 Wu, Weiwei\*; Yang, Jing-Sui; Chen, Songyong; Lian, Dongyang; Liu, Fei; Zhang, Cai; Zhao, Yijue; Wu, Yong: **PETROLOGY, GEOCHEMISTRY AND GEOCHRONOLOGY OF GABBROS FROM THE SHIQUANHE OPHIOLITIC MÉLANGE, WESTERN TIBET: IMPLICATIONS FOR AN INTRA-OCEANIC SUBDUCTION ZONE WITHIN THE NEO-TETHYAN OCEAN**

- 49-4 483 Lian, Dongyang\*; Yang, Jingsui; Dilek, Yildirim; Robinson, Paul T.; Wu, Weiwei; Wang, Yunpeng; Liu, Fei; Ding, Yi: **DIAMONDS AND MOISSANITE FROM THE ALADAG OPHIOLITE OF THE EASTERN TAURIDE BELT, SOUTHERN TURKEY: A FIRST REPORT**
- 49-5 484 Jie, Huang\*; Jingsui, Yang; Cong, Zhang: **METAMORPHIC EVOLUTION OF ECLOGITE FROM SUMDO [1]LAHSA BLOCK OF TIBETAN PLATEAU:PHASE EQUILIBRIA IN NCKMNFMASHTO SYSTEM**
- 49-6 485 Zhao, Hui\*; Yang, Jing-Sui; Liu, Fei; Xiong, Fahui; Zhang, Lan: **GEOCHEMISTRY AND GEOCHRONOLOGY OF THE SAGA ALKALINE BASALT IN SOUTHERN TIBET**
- 49-7 486 Lei, Kang\*; Pei-xi, Xiao; Hui-bo, Zhao: **MELT-CRYSTAL INTERACTION DURING CRUST-MANTLE MAGMA MIXING: THE ZIRCON U-PB, HF-O ISOTOPE AND MINERAL MICROANALYSIS OF GRANITOIDS AND MAFIC ENCLAVES IN KARAMAY PLUTON, WEST JUNGGAR, NW CHINA**

SESSION NO. 50

**T8. Bridging Two Continents (Posters): Supercontinents In Earth's History: New Perspectives from Precambrian Geology of Asia and North America**

9:00 AM, Baltimore Convention Center, Exhibit Hall

Authors will be present from 3:30 to 5:30 PM

Booth #

- 50-1 487 Houlihan, Emily\*; Runkel, Anthony; Feinberg, Joshua M.; Cowan, Clinton A.; Titus, Sarah: **PALEOMAGNETIC AGE CONSTRAINTS OF MID-CONTINENT RIFT STRATA, NORTHERN MINNESOTA**
- 50-2 488 Katusin, Karastin Daun\*; Meert, Joseph G.; Sinha, Anup K.; Pandit, M.K.: **PROTEROZOIC PENINSULAR INDIA: NORTH-SOUTH INDIA COLLISION**
- 50-3 489 Wu, Sr., Weiping\*; Yang, Cai; Tao, Ma; Ting, Dong; Zheng, Wu; Shuangqing, Zhan: **GEOCHRONOLOGICAL FRAMEWORK AND TECTONIC BACKGROUND OF GRANITES IN SOUTHERN MARGIN (ANHUI AREA) OF THE NORTH CHINA BLOCK**
- 50-4 490 Weiping, Wu\*; Yang, Cai; Tao, Ma; Ting, Dong; Zheng, Wu; Shuangqing, Zhan: **THE GEOCHRONOLOGY AND ITS TECTONIC SIGNIFICANCE OF QINYANG-JIUHUASHAN COMPLEX GRANITE, ANHUI PROVINCE, CHINA**
- 50-5 491 Murphy, J. Brendan\*; Shellnutt, J. Gregory: **FROM GONDWANA TO PANGAEA: GENESIS OF WEST AVALONIAN SILICIC IGNEOUS ROCKS FROM NEOPROTEROZOIC TO LATE ORDOVICIAN BY REPEATED PARTIAL MELTING OF THE LOWER CRUST**
- 50-6 492 Kang, Ji-Hoon\*; Lee, Deok-Seon; Noh, Sin Young; Jeong, Jin-Woo; Koh, Sang-Mo; Hayasaka, Yasutaka: **SOURCE AND RELATIVE AGE OF REE MINERALIZATION IN THE CHUNGJU-GOESAN AREA, NORTHWESTERN OGcheon RIFT BASIN, KOREA**
- 50-7 493 Mitchell, Ria L.\*; Sheldon, Nathan D.: **SEDIMENTARY PROVENANCE AND WEATHERING PROCESSES IN THE 1.1 GA MIDCONTINENTAL RIFT OF THE KEWEENAW PENINSULA, MICHIGAN, USA**

**AFTERNOON ORAL TECHNICAL SESSIONS**

SESSION NO. 51

**Recent Advances in Hydrogeology II**

1:30 PM, Baltimore Convention Center, Room 331/332

Sam Earman and Daniel J. Goode, Presiding

- 51-1 1:30 PM Corley, Megan\*; Forte, Jenna; Mutiti, Samuel: **MOBILIZATION AND TRANSLOCATION OF SUBSURFACE LEAD BY TITHONIA ROTUNDIFOLIA**
- 51-2 1:45 PM Tembo, Mutande K.\*; Mutiti, Samuel: **ANTHROPOGENIC IMPACTS ON THE WATER QUALITY OF THE KAFUE**

- RIVER AND ITS ROLE IN THE PROLIFERATION OF THE WATER HYACINTH (*EICHHORNIA CRASSIPES*) WEED**
- 51-3 2:00 PM Kaur, Jasmeet\*; Schoonen, Martin A.: **HYDROXYL RADICAL FORMATION AND TRICHLOROETHYLENE DEGRADATION IN PYRITE-CHALCOPYRITE DISPERSIONS**
- 51-4 2:15 PM Golab, James A.\*; Clark, Allan Koehl; Hasiotis, Stephen T.: **BIOTURBATION-INFLUENCED FLUID PATHWAYS WITHIN A CARBONATE PLATFORM SYSTEM: THE APTIAN-ALBIAN GLEN ROSE LIMESTONE**
- 51-5 2:30 PM Raisanen, Derek C.W.\*; Hasiotis, Stephen T.: **POTENTIAL AFFECTS OF VERTEBRATE BURROWS ON FLUID FLOW: AN EXAMPLE FROM THE MORRISON FORMATION, SOUTHEAST UTAH**
- 51-6 2:45 PM Salam, Monia\*; Brown, Leroy; Aslam, Khadija; Agbato, Joseph; Das, Urmil; Griffith, Natifa; Halm, Kofi; Heralall, Sasha; Suriel, Mariel; Dhar, Ratan: **STORMWATER SURVEY: A NOBLE APPROACH TO TAILOR THE EDUCATION AND OUTREACH EFFORTS OF RESIDENTS IN FLOOD AFFECTED AREA IN QUEENS COUNTY, NEW YORK CITY**
- 3:00 PM **BREAK**
- 51-7 3:15 PM Straka, Kelli M.\*; Reeve, Andrew S.: **SPATIAL AND TEMPORAL ASSESSMENT OF HYDROLOGIC PROCESSES OF NEW ENGLAND VERNAL POOLS**
- 51-8 3:30 PM Ladd, Bethany\*; Ryan, M. Cathy: **INSIGHTS INTO A COLD-WATER GEYSER USING TOTAL DISSOLVED GAS PRESSURE**
- 51-9 3:45 PM OConnor, Michael\*; Cardenas, M. Bayani; Neilson, Bethany T.; Kling, George W.: **CONTROLS ON ARCTIC GROUNDWATER FLOW AND ITS IMPACTS ON CARBON PROCESSING**
- 51-10 4:00 PM Goode, Daniel J.\*: **MAPPING GROUNDWATER WITHDRAWAL FOOTPRINTS AT THE SUB-BASIN SCALE**
- 51-11 4:15 PM Earman, Sam\*: **USE OF DEEP (AND SHALLOW) PASSIVE CAPILLARY SAMPLERS (PCAPS) TO EXAMINE SOIL WATER MOVEMENT AND GROUNDWATER RECHARGE PROCESSES**
- 51-12 4:30 PM Wander, Matthew C.F.\*; Bickmore, Barry R.: **THE VALENCE MULTIPOLE MODEL-A NEW COMPUTATIONAL METHOD TO EXPIRE PORE SCALE WATER DYNAMICS AND REACTIVITY OF GROUNDWATER IN ALUMINOSILICATES**
- 51-13 4:45 PM Sebari, Imane\*; Rouchdi, Mohamed; Heggy, Essam; Al-Maktoumi, Ali; Normand, Jonathan; Scabbia, Giovanni; Avouac, Jean-Philippe: **TREND ANALYSIS OF SOIL MOISTURE AND ITS IMPLICATION IN UNDERSTANDING GROUNDWATER DYNAMIC IN FOSSIL AQUIFERS: AL-SHARQYA CASE STUDY**
- AND TI-CLINOHUMITE-BEARING SERPENTINITES FROM SOUTHWESTERN TIANSHAN, CHINA**
- 52-4 2:25 PM Snoeyenbos, David\*; Peterman, Emily M.: **PHOSPHATIC GARNET FROM METAPELITIC SCHISTS OF WESTERN MASSACHUSETTS AND EASTERN GREECE**
- 52-5 2:40 PM Peterman, Emily M.\*; Snoeyenbos, David R.: **ATYPICAL DISSOLUTION-REPRECIPITATION REACTIONS IN ZIRCON FROM HP/UHP METAPELITES**
- 52-6 2:55 PM Chen, Yi-Xiang\*; Zhou, Kun; Zheng, Yong-Fei: **GARNET GEOCHEMISTRY RECORDS THE ACTION OF METAMORPHIC FLUIDS IN ULTRAHIGH-PRESSURE DIORITIC GNEISS FROM THE SULU OROGEN**
- 52-7 3:10 PM Ogasawara, Yoshihide\*; Shimizu, Rentaro; Sakamaki, Kunihiko: **DIVERSITY OF THE KOKCHETAV METAMORPHIC DIAMONDS AND THEIR FORMATIONS RELATED WITH H<sub>2</sub>O-RICH FLUID CONDITIONS**
- 52-8 3:25 PM Liou, J.G.\*; Ogasawara, Yoshihide; Igarashi, Mina; Tsai, Chin-Ho: **CONTAMINATION OF DIAMONDS IN UHP METAMORPHIC ROCKS - AN EXAMPLE FROM THE DABIE TERRANE, CHINA -**
- 52-9 3:40 PM Wei, Chunjing\*: **MODELLING OF THE PHASE RELATIONS IN HIGH- AND ULTRAHIGH-PRESSURE ECLOGITES**
- 52-10 4:00 PM Cao, Wentao\*; Gilotti, Jane A.; Massonne, Hans-Joachim; Foster, Jr., Charles T.; Ferrando, Simona: **PARTIAL MELTING OF ULTRAHIGH-PRESSURE ECLOGITES FROM THE NORTH-EAST GREENLAND CALEDONIDES**
- 52-11 4:15 PM Chen, Ren-Xu\*; Li, Kun; Zheng, Yong-Fei: **CARBONATE AND SILICATE MELTS IN DEEP SUBDUCTION ZONE: PETROLOGICAL CONSTRAINTS FROM UHP ECLOGITE FROM ERZGEBIRGE IN CENTRAL EUROPE**
- 52-12 4:30 PM Ferrero, Silvio\*; Ziemann, Martin A.; Angel, Ross J.; O'Brien, Patrick J.; Wunder, B.: **SIGNIFICANCE OF KUMDYKOLITE, KOKCHETAVITE AND CRISTOBALITE CRYSTALLIZED FROM MELT INCLUSIONS IN FELSIC GRANULITES, ORLICA-SNIEZNIK DOME (BOHEMIAN MASSIF)**
- 52-13 4:45 PM Shihong, Sr., Tian\*: **LITHIUM ISOTOPIC COMPOSITION AND CONCENTRATION OF THE INDIAN CONTINENTAL CRUST**
- 52-14 5:00 PM Zhao, Zi-Fu\*; Dai, Li-Qun; Zheng, Yong-Fei: **TWO TYPES OF THE CRUST-MANTLE INTERACTION IN CONTINENTAL SUBDUCTION ZONES**
- 52-15 5:15 PM Zheng, Yong-Fei\*; Zhou, Li-Gang; Xia, Qiong-Xia: **ECLOGITES RECORD THE TECTONIC TRANSITION FROM OCEANIC SUBDUCTION TO CONTINENTAL COLLISION**

## SESSION NO. 53

**T6. Bridging Two Continents: Mid-Latitude Climate during Cretaceous Greenhouse States: Comparison between East Asia and North America**

1:30 PM, Baltimore Convention Center, Room 347/348

Stephan A. Graham and Xiaoqiao Wan, Presiding

## SESSION NO. 52

**T2. Bridging Two Continents: Advances in Crustal Subduction and Ultrahigh-Pressure Metamorphism (GSA Structural Geology and Tectonics Division; Mineralogical Society of America; GSA Mineralogy, Geochemistry, Petrology, and Volcanology Division; Geochemical Society)**

1:30 PM, Baltimore Convention Center, Room 349/350

Jane A. Gilotti and Yong-Fei Zheng, Presiding

- 52-1 1:30 PM Baldwin, Suzanne L.\*; Malusà, Marco G.; Fitzgerald, Paul G.; Webb, Laura E.: **DECIPHERING THE 4-D EVOLUTION OF CENOZOIC (U)HP TERRANES**
- 52-2 1:50 PM Zhang, Junfeng\*; Liu, Wenlong; Shi, Feng: **DEFORMATION OF HYDROUS MINERALS IN SUBDUCTION CHANNEL: TECTONIC IMPLICATIONS**
- 52-3 2:10 PM Shen, Tingting\*; Zhang, Lifei; Hermann, Jörg; Wu, Fu-Yuan; Padrón-Navarta, José Alberto; Chen, Jing: **UHP METAMORPHISM DOCUMENTED IN TI-CHONDRODITE-**

- 53-1 1:30 PM Jones, Matthew M.\*; Sageman, Bradley B.: **A 15-MYR LATE CRETACEOUS CARBONATE CARBON ISOTOPE CHEMOSTRATIGRAPHY FROM THE WESTERN INTERIOR BASIN FOR GLOBAL CORRELATION**

- 53-2 1:45 PM Tessin, Allyson\*; Hendy, Ingrid; Sheldon, Nathan D.; Schroder-Adams, Claudia; Elderbak, Khalifa: **CARBON BURIAL AND BOTTOM WATER REDOX IN THE CANADIAN BASIN OF THE WESTERN INTERIOR SEAWAY DURING THE CONIACIAN-SANTONIAN**

- 53-3 2:00 PM Petersen, Sierra V.\*; Tabor, Clay R.; Carpenter, Scott J.; Meyer, Kyle W.; Lohmann, Kyger C.; Poulsen, Christopher J.: **A FRESH LOOK: SALINITY AND TEMPERATURE OF THE WESTERN INTERIOR SEAWAY USING THE CLUMPED ISOTOPE PALEOTHERMOMETER**

- 53-4 2:15 PM Lowery, Christopher M.\*; Leckie, R. Mark: **TEMPORAL AND GEOGRAPHIC DISTRIBUTION OF ANOXIA IN THE HEMI-PELAGIC CARBONATES OF THE TURONIAN-CAMPANIAN NIOBRARA FORMATION, U.S. WESTERN INTERIOR**
- 53-5 2:30 PM Leckie, R. Mark\*; Elderbak, Khalifa; Lowery, Christopher M.; Parker, Amanda L.: **PALEOCEANOGRAPHY AND PALEOENVIRONMENTAL CHANGES OF THE CENOMANIAN/TURONIAN BOUNDARY INTERVAL (94-93 MA): THE RECORD OF OCEANIC ANOXIC EVENT 2 IN THE WESTERN INTERIOR SEA**
- 53-6 2:45 PM Fricke, Henry\*; Montellano Ballesteros, Marisol; Wilson, Gregory P.; Sewall, Jacob O.; Sertich, Joseph; Fastovsky, David E.: **LOOKING OVER THE LATE CRETACEOUS CORDILLERA: A COMPARISON OF STABLE ISOTOPE RECORDS AND CLIMATE MODEL SIMULATIONS FROM UTAH AND NEW MEXICO WITH THOSE FROM BAJA CALIFORNIA, MEXICO**
- 53-7 3:00 PM Bhattacharya, Janok P.\*: **GLACIO-EUSTATIC VERSUS TECTONIC ORIGIN OF HIGH-FREQUENCY SEQUENCES IN THE MID-LATITUDE CRETACEOUS FORELAND BASINS OF NORTH AMERICA**
- 53-8 3:15 PM Singer, Brad S.\*; Meyers, Stephen R.; Sageman, Bradley B.; Jicha, Brian R.; Condon, Daniel: **IMPROVING CRETACEOUS TIME SCALE UNCERTAINTIES VIA MULTI-COLLECTOR 40AR/39AR DATING**
- 53-9 3:30 PM Wang, Chengshan\*; Graham, Stephan A.; Wan, Xiaoqiao; Chamberlain, C. Page; Wang, Pujun; Huang, Yongjian; Wu, Huaichun; Gao, Yuan: **CONTINENTAL SCIENTIFIC DRILLING OF CRETACEOUS SONGLIAO BASIN: CONTINUOUS HIGH-RESOLUTION TERRESTRIAL ARCHIVES UNDER GREENHOUSE CLIMATE**
- 53-10 3:45 PM Wang, Tiantian\*; Ramezani, Jahandar; Wang, Chengshan: **HIGH-PRECISION U-PB GEOCHRONOLOGIC CONSTRAINTS ON THE LATE CRETACEOUS LACUSTRINE SUCCESSIONS OF THE SONGLIAO BASIN, NORTHEAST CHINA**
- 53-11 4:00 PM Chamberlain, C. Page\*; Ibarra, Daniel E.; Caves, Jeremy K.; Gao, Yuan; Graham, Stephan A.; Wang, Chengshan: **LATE CRETACEOUS TERRESTRIAL CLIMATE RECORDED IN THE SONGLIAO BASIN, CHINA**
- 53-12 4:15 PM Ibarra, Daniel E.\*; Jones, Matthew M.; Graham, Stephan A.; Sageman, Bradley B.; Chamberlain, C. Page: **INVESTIGATING THE CONIACIAN-SANTONIAN IN THE SONGLIAO BASIN AND POSSIBLE LINKS TO OCEANIC ANOXIC EVENT 3**
- 53-13 4:30 PM Gao, Yuan\*; Ibarra, Daniel E.; Caves, Jeremy K.; Wang, Chengshan; Chamberlain, C. Page; Graham, Stephan A.; Du, Xiaojing; Wu, Huaichun: **MID-LATITUDE TERRESTRIAL CLIMATE OF EAST ASIA LINKED TO GLOBAL CLIMATE IN THE LATE CRETACEOUS: EVIDENCES FROM STABLE ISOTOPES AND CLAY MINERALS OF THE SCIENTIFIC CORE IN THE SONGLIAO BASIN**
- 53-14 4:45 PM Suarez, Marina B.\*; Suarez, Celina; You, Hailu; Kirkland, James I.: **THE EARLY CRETACEOUS CHEMOSTRATIGRAPHIC AND PALEOCLIMATE RECORD OF NORTHWEST CHINA AND WESTERN NORTH AMERICA**
- 53-15 5:00 PM Ludvigson, Greg A.\*; Gonzalez, Luis A.; Joeckel, R.M.; Möller, Andreas: **TERRESTRIAL CARBONATE RECORDS OF CRETACEOUS (APTIAN-ALBIAN) CARBON ISOTOPE EXCURSIONS FROM DEPOSITS IN NORTH AMERICA AND CHINA**
- 53-16 5:15 PM Jagoutz, Oliver\*; Macdonald, Francis A.; Royden, Leigh H.: **LATE CRETACEOUS-EARLY EOCENE CLIMATE CHANGE LINKED TO TECTONIC EVOLUTION OF NEO-TETHYAN SUBDUCTION SYSTEMS**

## SESSION NO. 54

*T29. Restoring the Nation's Largest Estuary: Lessons Learned from Efforts to Address Changes in Water Quality and Ecosystem Structure and Function within the Context of Landscape Change and Climate Variability in the Chesapeake Bay and Its Watershed (GSA Geology and Society Division; GSA Hydrogeology Division; GSA Environmental and Engineering Geology Division; GSA Quaternary Geology and Geomorphology Division)*

1:30 PM, Baltimore Convention Center, Room 308

Christopher P. Carlson, Scott W. Phillips, Joel D. Blomquist, Lewis C. Linker and William C. Dennison, Presiding

- 1:30 PM **INTRODUCTORY REMARKS**
- 54-1 1:40 PM Phillips, Scott W.\*; Dennison, William C.: **NEW INSIGHTS IN RESTORING THE NATION'S LARGEST ESTUARY: SCIENCE-BASED EVIDENCE FOR WATER-QUALITY IMPROVEMENTS, CHALLENGES, AND OPPORTUNITIES IN THE CHESAPEAKE BAY ECOSYSTEM**
- 54-2 1:55 PM Claggett, Sally\*: **FORESTS AND WATER POLICIES IN THE CHESAPEAKE: WHERE WE STAND AND FUTURE PLANS**
- 54-3 2:10 PM Blomquist, Joel D.\*; Moyer, Douglas L.; Keisman, Jennifer L.D.; Sekellick, Andrew J.; Sweeney, Jeff: **COMPARING OBSERVED CHANGES IN NUTRIENT AND SEDIMENT FLUX TO CHESAPEAKE TRIBUTARIES WITH PROCESS-BASED MODEL PREDICTIONS**
- 54-4 2:25 PM Keisman, Jennifer L.D.\*; Blomquist, Joel D.; Devereux, Olivia; Johnston, Matthew; Lamotte, Andrew; Sekellick, Andrew J.; Sweeney, Jeff: **COMPARING NUTRIENT INPUTS, LAND USE CHANGES, AND IMPLEMENTATION OF BEST MANAGEMENT PRACTICES ACROSS SPACE AND TIME HELPS EXPLAIN CHANGES IN NUTRIENT LOADS TO CHESAPEAKE BAY**
- 54-5 2:40 PM Ator, Scott W.\*; Garcia, Ana Maria: **IMPROVED UNDERSTANDING OF NITROGEN FATE AND TRANSPORT IN SUPPORT OF EXPLAINING WATER-QUALITY TRENDS IN THE CHESAPEAKE BAY WATERSHED**
- 54-6 2:55 PM Zhang, Qian\*; Ball, William P.; Moyer, Douglas L.: **LONG-TERM EXPORT OF NITROGEN, PHOSPHORUS, AND SEDIMENT IN THE SUSQUEHANNA RIVER BASIN: ANALYSIS OF DECADAL-SCALE TRENDS AND SUB-BASIN MASS BALANCES**
- 54-7 3:10 PM Langland, Michael\*: **SEDIMENT TRANSPORT AND CAPACITY CHANGE IN THREE RESERVOIRS, LOWER SUSQUEHANNA RIVER BASIN, PENNSYLVANIA AND MARYLAND 1900-2012**
- 54-8 3:25 PM Pizzuto, James\*; Skalak, Katherine; Mahan, Shannon A.; Keeler, Jeremy; Karwan, Diana; Benthem, Adam: **TOWARDS UNDERSTANDING AND PREDICTING SUSPENDED SEDIMENT LAG TIMES IN THE CHESAPEAKE BAY WATERSHED**
- 54-9 3:40 PM Skalak, Katherine\*; Noe, Gregory B.; Hupp, Cliff R.; Benthem, Adam; Pizzuto, James; Karwan, Diana: **QUANTIFYING SEDIMENT TRANSPORT PROCESSES, RATES, AND STORAGE IN CHESAPEAKE BAY WATERSHEDS**
- 54-10 3:55 PM Pohl, Kari\*; Coles, Victoria; Hood, Raleigh; Allen, Jenny; Wood, Bob: **CHESAPEAKE BAY CLIMATE EXTREMES AND VARIABILITY: A RECENT PAST, PRESENT, AND NEAR FUTURE ANALYSIS**
- 54-11 4:10 PM Rice, Karen C.\*; Moyer, Douglas L.: **ANALYSIS OF LONG-TERM HYDROLOGIC RECORDS IN CHESAPEAKE BAY WATERSHED**
- 54-12 4:25 PM Johnson, Zachary C.\*; Hitt, Nathaniel P.; Snyder, Craig D.: **MODELING THERMAL EFFECTS OF CLIMATE CHANGE FROM LANDFORM PREDICTORS OF GROUNDWATER INFLUENCE IN CHESAPEAKE BAY HEADWATER STREAMS**

- 54-13 4:40 PM Collard, Laura Johnson\*; Little, Samuel; Harcourt, Patricia: **MADE CLEAR ICCE COMMUNITY PROJECT: INCREASING CAPACITY IN THE CHESAPEAKE BAY AND ITS WATERSHED THROUGH REGIONAL CLIMATE CHANGE WORKSHOPS**
- 54-14 4:55 PM Dennison, William C.\*; Phillips, Scott W.; Kelsey, Heath: **DEVELOPING A GLOBAL NETWORK OF MONITORING SCIENTISTS**
- 54-15 5:10 PM Enloe, Margaret\*: **SUCCESSSES & CHALLENGES IN CHESAPEAKE BAY SCIENCE COMMUNICATIONS**

## SESSION NO. 55

**T48. Geomicrobiology: Microbes as a Geologic Force on Modern and Ancient Earth (GSA Geobiology & Geomicrobiology Division; Geochemical Society)**

1:30 PM, Baltimore Convention Center, Room 338

Nathan Yee and Clara S. Chan, Presiding

- 55-1 1:30 PM Schoonen, Martin A.\*; Sahai, Nita: **THE IMPORTANCE OF CO<sub>2</sub> ON THE AVAILABILITY OF PHOSPHATE ON THE PREBIOTIC EARTH**
- 55-2 1:45 PM Johnson, Kristin N.\*; Williams, Lynda B.; Gould, Ian R.; Hartnett, Hilairy E.; Shock, Everett L.: **MINERAL-ASSISTED ORGANIC TRANSFORMATIONS OF CARBOXYLIC ACIDS AT HYDROTHERMAL CONDITIONS**
- 55-3 2:00 PM Tutolo, Benjamin M.\*; Seyfried, Jr., William E.; Tosca, Nicholas: **FE-SILICATE STABILITY, REACTIVE TRANSPORT PROCESSES, AND FLUXES OF H<sub>2</sub> FROM HYDROTHERMAL VENTS THROUGH EARTH HISTORY**
- 55-4 2:15 PM Joshi, Prakash\*: **THE ROLE OF MONTMORILLONITE CLAY MINERALS IN THE CATALYSIS AND CHIRAL SELECTION OF RNA SYNTHESIS**
- 55-5 2:30 PM Retallack, Gregory J.\*: **GEOCHEMICAL SOCIETY INGERSON LECTURE: ARCHEAN (3.35 GA) LIFE ON LAND IN WESTERN AUSTRALIA**
- 55-6 2:45 PM Hill, Carolyn M.\*; Corcoran, Patricia L.: **MICROBIALY INDUCED SEDIMENTARY STRUCTURES (MISS) FROM THE PALEOPROTEROZOIC GORDON LAKE FORMATION, HURONIAN SUPERGROUP, CANADA**
- 55-7 3:00 PM Wilmeth, Dylan T.\*; Grim, Sharon L.; Krusor, Megan; Johnson, Hope A.; Berelson, William M.; Stamps, Blake W.; Stevenson, Bradley S.; Piazza, Olivia; Corsetti, Frank A.; Spear, John R.: **MICROBIAL METABOLISMS INFLUENCE CARBONATE PRECIPITATION IN A LAMINATED MICROBIAL MAT**
- 55-8 3:15 PM O'Reilly, Shane S.\*: **MOLECULAR EVIDENCE FOR A MICROBIAL ROLE IN OOID FORMATION AND PRESERVATION OF MOLECULAR BIOSIGNATURES IN ANCIENT OOLITE**
- 55-9 3:30 PM Onstott, Tullis\*; Lau, C.Y.M.; Magnabosco, Cara; Slater, Greg F.; Sherwood Lollar, Barbara; Kieft, Thomas; Stepanauskas, Ramunas; van Heerden, Esta; Borgonie, G.: **THE DEEP CONTINENTAL BIOSPHERE: ABUNDANCE, DIVERSITY AND ACTIVITY**
- 55-10 3:45 PM Macalady, Jennifer L.\*; Cardman, Zena; Schaperdoth, Irene; Broad, Kenneth; Kakuk, Brian: **FAST-GROWING SLIME CURTAINS REVEAL A DYNAMIC NITROGEN (AND IRON?) WORLD IN THE SHALLOW SUBSURFACE**
- 55-11 4:00 PM Marnocha, Cassandra L.\*; Powell, Deborah H.; Sabanayagam, Chandran; Tuerk, Amalie L.; Hanson, Thomas E.; Chan, Clara S.: **SPATIAL RELATIONSHIPS AND PHYSICAL DYNAMICS OF CHLOROBACULUM TEPIDUM AND EXTRACELLULAR S(0) GLOBULES**
- 55-12 4:15 PM Kafantaris, Fotios-Christos A.\*; Druschel, Gregory; Dvorski, Sabine; Schmitt-Kopplin, Philippe; Hu, Yongfeng: **REACTIVITY OF ELEMENTAL SULFUR NANOPARTICLES AND THEIR ROLE ON THE BIOGEOCHEMICAL CYCLING OF SULFUR**

- 55-13 4:30 PM Santelli, Cara\*; Rosenfeld, Carla; James, Bruce: **ENVIRONMENTAL IMPACT OF FUNGI-MEDIATED REDOX TRANSFORMATIONS OF SELENIUM**
- 55-14 4:45 PM Hinkle, Margaret A.G.\*; Santelli, Cara; Post, Jeffrey E.: **IMPACT OF BUFFERS ON MYCOGENIC MANGANESE OXIDE FORMATION**
- 55-15 5:00 PM Fowler, Alexandré\*; Santelli, Cara; Teng, H. Henry: **FUNGI-INDUCED CHEMICAL WEATHERING OF ASBESTIFORM CHRYSOTILE**
- 55-16 5:15 PM Dovick, Meghan A.\*; Kulp, Thomas R.: **MINERALS MADE BY MICROBES THAT METABOLIZE ANTIMONY (SB) UNDER ANOXIC CONDITIONS**

## SESSION NO. 56

**T58. Undergraduate Research Talks: The Next Step in Student Research Projects (GSA Geoscience Education Division; GSA Quaternary Geology and Geomorphology Division; GSA Geoinformatics Division; Council on Undergraduate Research Geosciences Division)**

1:30 PM, Baltimore Convention Center, Room 318

Jacqueline A. Smith, Bradley G. Johnson and Edward C. Hansen, Presiding

- 56-1 1:30 PM Pettit, Mary\*; Carnes, Lorrie; Cummins, Taylor; Giampa, Rachel; Johnson, Noel; Sowell, Erin; Kimball, Katie; Vogt, Peter R.; Pazzaglia, Frank; Kodama, Kenneth: **ROCK MAGNETIC CYCLOSTRATIGRAPHY AND PALEOMAGNETIC STUDY OF THE PLUM POINT MEMBER OF THE CALVERT FORMATION, CALVERT CLIFFS, MD**
- 56-2 1:45 PM Koeberle, Raleigh\*; Hudak, Michael R; Furman, Tanya: **CRYSTAL SIZE DISTRIBUTION AND TEXTURAL ANALYSIS AT THRIHNUKAGIGUR VOLCANO, ICELAND**
- 56-3 2:00 PM Cipar, Jacob\*; Gall, Helen; Furman, Tanya: **PETROGENESIS OF INTERMEDIATE LAVAS AT HASANDAG STRATOVOLCANO, CENTRAL ANATOLIA**
- 56-4 2:15 PM Perlmutter, Eliana\*; Wilson, Thomas; Hampton, Samuel; Blake, Daniel: **TOOLS FOR ESTIMATING ASH FALL THICKNESS: USING REFERENCE PHOTOGRAPHS TO IMPROVE ACCURACY**
- 56-5 2:30 PM Shields, Jessie E.\*; Wirth, Karl R.; Toraman, Erkan; Fornash, Katherine F.; Whitney, Donna L.: **TRACKING THE CHEMICAL EVOLUTION OF SUBDUCTION ZONE ROCKS**
- 56-6 2:45 PM Thurston, Olivia G.\*; Garver, John I.: **RADIOACTIVITY OF THE LUCERNE PLUTON, MAINE: EVIDENCE FOR POST-INTRUSIVE URANIUM REDISTRIBUTION**
- 56-7 3:00 PM Suarez, Kaitlyn\*; Garver, John I.; Davidson, Cameron: **NATURAL AND LABORATORY EXAMPLES OF ANNEALING RADIATION DAMAGE IN ZIRCON**
- 3:15 PM **BREAK**
- 56-8 3:30 PM Rieden, Hannah\*; Johnson, Bradley G.: **THE EFFECTS OF MILL DAMS ON PIEDMONT STREAMS IN THE NORTH CAROLINA COUNTIES OF IREDELL, ROWAN, CABARRUS, AND MECKLENBURG**
- 56-9 3:45 PM Yon, Jeffrey C.E.\*; MacLean, John S.: **CHANNEL EVOLUTION OF THE LOWER SAN JUAN RIVER, SE UTAH**
- 56-10 4:00 PM Donovan, Bailey G.\*; Tormey, Blair R.: **SEDIMENTARY STRUCTURES IN CARBONATE EOLIANITES AS INDICATORS OF CLIMATE INSTABILITY AND INTENSE STORMS DURING THE LAST INTERGLACIAL; ELEUTHERA ISLAND, BAHAMAS**
- 56-11 4:15 PM Maloney, Katie M.\*; Ingram, Rebekah C.; MacLachlan, John C.; Lee, Rebecca E.: **QUANTIFYING ERODED SEDIMENT VOLUME DURING DRUMLIN FORMATION IN SIMCOE COUNTY**
- 56-12 4:30 PM Arrue, Dayana A.\*; Ramlogan, Marlon V.; Rouff, Ashaki A.: **USING STA COMBINED WITH FTIR TO COMPARE**



- AMMONIA GAS RELEASE AND THERMAL PROPERTIES OF COMMON FERTILIZERS**
- 56-13 4:45 PM Papadimitrios, Sacha\*; Bank, Carl-Georg; Chazan, Michael: **RECONSTRUCTING GEOMORPHOLOGY AT A STONE AGE ARCHAEOLOGICAL SITE**
- 56-14 5:00 PM Garcia Blanco, Zulema\*; Boger, Rebecca: **STUDY OF HISTORICAL CHANGES IN WATER-WARD EXTENT OF SALT MARSHES IN NEW YORK CITY'S SPRING CREEK, IDLEWILD, AND PELHAM BAY PARKS**
- 56-15 5:15 PM Oldfield, Lauren\*; Maclachlan, John C.; Lee, Rebecca E.: **MAPPING THE IMPACTS OF ICELAND'S KATLA SUBGLACIAL VOLCANO ON THE MÝRDALSJÖKULL GLACIER**

**SESSION NO. 57****T65. Utilizing 2-D and 3-D Near-Surface Geophysics to Generate Improved Surface and Subsurface Geologic Maps**

1:30 PM, Baltimore Convention Center, Room 322/323

Gregory S. Baker and Brian Miller, Presiding

- 1:30 PM **INTRODUCTORY REMARKS**
- 57-1 1:35 PM Keating, Kristina\*: **THE USE OF NUCLEAR MAGNETIC RESONANCE TO CHARACTERIZE THE NEAR SURFACE FOR GEOPHYSICAL APPLICATIONS**
- 57-2 1:55 PM Sherrod, Laura A.\*; Kozlowski, Andrew; Bird, Brian; Blewett, William; Drzyzga, Scott; Musa, Dea; Schlosser, Kenneth; Swiontek, Jarred P.: **IMPROVING GLACIAL GEOLOGY MAPS AND INTERPRETATIONS THROUGH GEOPHYSICS**
- 57-3 2:15 PM White, Benjamin T\*; Miller, Brian; Klug, Eric R.; Straffin, Eric C.; Burkhart, Patrick A.: **INTERIOR SEDIMENTARY STRUCTURE OF THE JACKVILLE ESKER, PENNSYLVANIA**
- 57-4 2:30 PM Nyquist, Jonathan E.\*; Stone, Janet Radway; Joesten, Peter K; Lane, John W.: **REFINING THE STRATIGRAPHY OF COMPLEX GLACIAL AND POSTGLACIAL DEPOSITS USING 3D GPR AT HADDAM MEADOWS STATE PARK, HADDAM CONNECTICUT**
- 57-5 2:45 PM Waters, Brent\*; Doctor, Daniel H.; Maynard, Joel: **USING GEOPHYSICS TO MAP BEDROCK FAULTS, DIKES, AND SURFICIAL GEOLOGY IN RELATION TO KARST FEATURES IN THE BRIERY BRANCH QUADRANGLE, ROCKINGHAM COUNTY, VIRGINIA**
- 57-6 3:00 PM Kerns, Curtis Samuel\*; Miller, Brian: **THE APPLICATION OF MULTICHANNEL ANALYSIS OF SURFACE WAVES TO IDENTIFY ABANDONED MINE TUNNELS**
- 57-7 3:15 PM Jeon, Kyungho\*; Giardino, John R.: **UTILIZATION OF GAMMA-RAY PROFILES FOR ANALYZING MEGAFLOOD TURBIDITES**
- 3:30 PM **BREAK**
- 57-8 3:45 PM Adedeji, Funmilayo Caroline\*: **AN APPRAISAL OF GROUNDWATER RESOURCES OF THE BASEMENT COMPLEX OF ABEOKUTA, SOUTHWESTERN NIGERIA: USING ELECTRICAL RESISTIVITY AND BOREHOLE DATA EVALUATION**
- 57-9 4:00 PM Ozcep, F.\*; Karabulut, S.; Ozel, O.; Caglak, F.; Aydin, S.: **GEOPHYSICAL PROPERTIES OF SOILS AND EARTHQUAKE SITE RESPONSE ANALYSES IN BUYUKADA/ PRINCES ISLANDS (ISTANBUL) BU USING EERA SOFTWARE**
- 57-10 4:15 PM Eaton, Timothy T.\*; Ludman, Allan; Gales, Ellen; Marsh, Jeffrey; Lippitt, Cliff: **MAGNETIC CONSTRAINTS ON THE SOUTHWESTERN CONTACT OF THE BOTTLE LAKE IGNEOUS COMPLEX NEAR PASSADUMKEAG MOUNTAIN, ME**
- 57-11 4:30 PM Cromwell, Geoffrey\*; Danskin, Wesley R.; Glockhoff, Carolyn; Martin, D.J.: **3D GEOLOGIC MODEL OF THE**

**TRANSBOUNDARY SAN DIEGO-TIJUANA AREA, USA AND MEXICO**

- 57-12 4:45 PM Dahlqvist, Peter\*; Jørgensen, Flemming; Bach, Torben; Høyer, Anne-Sophie; Triumf, Carl-Axel; Persson, Lena; Bastani, Mehrdad; Erlström, Mikael: **SEMI-AUTOMATIC 3D-MODELLING OF LARGE AEM-DATASET, A CASE STUDY FROM A SKYTEM SURVEY IN SWEDEN**

**SESSION NO. 58****T66. Beginning a New Era in Earth Science Education: The Role of Geoscience in Implementing the Next Generation Science Standards (National Earth Science Teachers Association; GSA Geoscience Education Division; National Association of Geoscience Teachers; GSA Geology and Society Division)**

1:30 PM, Baltimore Convention Center, Room 321

Michael J. Passow, Michael E. Wyssession, Jacqueline E. Huntoon, Emily E. Gochis, Alexandria Guth and Ashley E. Miller, Presiding

- 58-1 1:30 PM Kirst, Scott R.\*; Flood, Tim P.: **INCREASING EFFICACY WITH PRE-SERVICE TEACHERS VIA A COMBINED SCIENCE AND SCIENCE METHODS COURSE**
- 58-2 1:45 PM Wyssession, Michael E.\*: **OPPORTUNITIES AND CHALLENGES OF INCORPORATING EARTH AND SPACE SCIENCES INTO THE NEXT GENERATION SCIENCE STANDARDS**
- 58-3 2:00 PM Colson, Mary\*: **THE GEOSCIENCES: A NATURAL FIT FOR 3-D LEARNING ENVISIONED BY THE NGSS**
- 58-4 2:15 PM Robeck, Ed\*: **INFORMING EFFORTS TO SUPPORT NGSS IMPLEMENTATION: NEEDS ASSESSMENT DATA AND DISCUSSION**
- 58-5 2:30 PM Awad, Aida\*; Buhr Sullivan, Susan M.; Robeck, Ed; Duggan-Haas, Don: **ESS IN NGSS: THE WORK OF A DIVERSE COMMUNITY TOWARD FULL IMPLEMENTATION**
- 58-6 2:45 PM Huntoon, Jacqueline E.\*; Gochis, Emily E.; Bergman, Brenda; Tubman, Stephanie; Savonen, Ben; Guth, Alexandria; Davis, Josh; Jackson, Meral: **MI-STAR: UNIVERSITY AND K-12 EDUCATORS PARTNER TO IMPROVE SCIENCE EDUCATION IN MICHIGAN**
- 58-7 3:00 PM Guth, Alexandria L.\*; Savonen, Ben; Tyrrell, Jennie; Huntoon, Jacqueline E.; Gochis, Emily E.; Robeck, Ed: **IDENTIFYING STUDENT CONCEPTIONS TO ENHANCE NEXT GENERATION SCIENCE STANDARDS (NGSS) ALIGNED CURRICULA**
- 58-8 3:15 PM Mattox, Stephen\*; Huntoon, Jacqueline E.; Gochis, Emily; Guth, Alexandria; Savonen, Ben; Tubman, Stephanie; Robeck, Ed; Bergman, Brenda; Grivins, Jennifer; Sobolak, Christina: **THE MI-STAR MODEL: INTEGRATION OF PROFESSIONAL AND CURRICULUM DEVELOPMENT TO ADDRESS NGSS AT THE MIDDLE SCHOOL LEVEL**
- 58-9 3:30 PM Tubman, Stephanie\*; Bowman, Luke J.; Grazul, Kendall; Rizley, Kurt; Guth, Alexandria L.; Gochis, Emily E.; Huntoon, Jacqueline E.; Mattox, Stephen R.: **LEARNING THE THREE DIMENSIONS OF NGSS THROUGH EARTH SCIENCE APPLICATIONS: THREE EXAMPLES FROM THE MI-STAR CURRICULUM**
- 58-10 3:45 PM Kinzler, Rosamond J.\*; Contino, Julie: **DEVELOPING NEW TEACHERS' UNDERSTANDING OF SCIENCE AND SCIENCE INQUIRY WITH THE NGSS FRAMEWORK**
- 58-11 4:00 PM McAuliffe, Carla\*: **USING FEDERALLY FUNDED CURRICULAR MATERIALS TO MEET NEXT GENERATION SCIENCE STANDARDS IN EARTH SYSTEM SCIENCE**
- 58-12 4:15 PM Holzer, Missy\*: **NEW JERSEY, THE NGSS, AND A VENUE FOR EARTH AND SPACE SCIENCE EDUCATION**
- 58-13 4:30 PM Jacobs, Belinda E.\*; Ellins, Katherine K.; Pearce, Trey; Riggs, Eric M.; Serpa, Laura F.; Stocks, Eric: **RIGOROUS INSTRUCTION IN THE EARTH SCIENCE CLASSROOM**



- IN THE WAKE OF THE NGSS: IMPLEMENTING THE DIG TEXAS BLUEPRINTS**
- 58-14 4:45 PM Thomas, Jeff D.\*; Drew, Sally; Balisciano, Nicholas; Oyewumi, Oluyinka; Bednarski, Marsha; Larsen, Kristine: **IMPLEMENTING NGSS: A SECONDARY SCHOOL UNIT TO CONSTRUCT AN EXPLANATION OF LOCAL PLATE DYNAMICS**
- 58-15 5:00 PM Schmidt, Jr., Martin F.\*: **USING LOCAL GEOLOGY AND DIGITAL GEOLOGIC MAPS FOR NGSS PERFORMANCE EXPECTATIONS**
- 58-16 5:15 PM Dooley, Jr., Howard L.\*; Murray, Daniel P.; Fogleman, Jr., Jay: **ADAPTING AN EFFECTIVE MATH SCIENCE PARTNERSHIP TO SUPPORT THE NGSS**

## SESSION NO. 59

*T70. Digital Technology in Real and Virtual Geoscience Experiences II (GSA Geoinformatics Division; GSA Environmental and Engineering Geology Division; GSA Geology and Health Division; GSA Geology and Society Division; GSA Geophysics Division; GSA Geoscience Education Division; GSA History and Philosophy of Geology Division; GSA Hydrogeology Division; GSA Karst Division; GSA Limnogeology Division; GSA Mineralogy, Geochemistry, Petrology, and Volcanology Division; GSA Planetary Geology Division; GSA Quaternary Geology and Geomorphology Division; GSA Sedimentary Geology Division; GSA Archaeological Geology Division; GSA Structural Geology and Tectonics Division; National Association of Geoscience Teachers; Geo2YC Division of the National Association of Geoscience Teachers; International Association for Geoscience Diversity)*

1:30 PM, Baltimore Convention Center, Room 339

Declan De Paor, Steven J. Whitmeyer and Callan Bentley, Presiding

- 1:30 PM **INTRODUCTORY REMARKS**
- 59-1 1:35 PM De Paor, Declan G.\*: **BEYOND THE GOOGLE EARTH API—CESIUM, A PLUGIN-FREE, WEBGL-BASED VIRTUAL GLOBE**
- 59-2 1:50 PM Katopody, David T.\*; Oldow, John S.; Eriksson, Susan: **FIELD GEOLOGY IN THE DIGITAL AGE: LEVERAGING GOOGLE EARTH VISUALIZATIONS TO ENHANCE GEOLOGIC MAPPING PRODUCTIVITY**
- 59-3 2:05 PM Magagna, Alessandra\*; Giardino, Marco; Perotti, Luigi; Ferrero, Elena: **GEOSCIENCE EDUCATION RESEARCH MERGING SMARTPHONE-AIDED FIELD TRIPS AND GOOGLE EARTH FOR GEOMORPHOLOGIC LANDSCAPE ANALYSIS**
- 59-4 2:20 PM Guth, Peter L.\*: **VIRTUAL FIELD ASSISTANT: TERRAIN ANALYSIS IN THE FIELD WITH GEOLOGICALLY FOCUSED GIS ON A SMARTPHONE OR TABLET**
- 59-5 2:35 PM Pitts, Alan\*; Bentley, Callan; Rohrback-Schiavone, Robin; Dudek, Marissa J.: **A DIGITAL FIELD GUIDE: USING GIGAPIXEL IMAGERY AND GOOGLE EARTH AS TOOLS TO CREATE DIGITAL FIELD GUIDES AND VIRTUAL FIELD EXPERIENCES IN GEOLOGY**
- 59-6 2:50 PM Muller, Otto H.\*; Valentino, David: **NYSGA GUIDEBOOKS AND GEOSPATIAL INDEX NOW AVAILABLE ONLINE FOR FREE**
- 3:05 PM **BREAK**
- 59-7 3:20 PM Shackleton, John R.\*: **APPLICATIONS OF VIRTUAL ROCK OUTCROPS TO TEACHING AND RESEARCH WITH EXAMPLES FROM EASTERN WEST VIRGINIA AND THE MOHAWK VALLEY OF NEW YORK**
- 59-8 3:35 PM Stirling, Trinity\*; Boodhoo, Thea; Jimenez, Marie; Smith, Elliott; Chure, Daniel J.: **THE DIGITAL QUARRY PROJECT: BRINGING DINOSAUR NATIONAL MONUMENT'S CARNEGIE QUARRY ONLINE FOR RESEARCHERS, INTERPRETERS AND THE PUBLIC**

- 59-9 3:50 PM Platek, Jennifer L.\*; Johnson, Jessica M.: **REAL EARTH, VIRTUAL MARS: USING DIGITAL TECHNOLOGY TO EXPLORE MARS VIA EARTH ANALOGS**
- 59-10 4:05 PM Dudek, Marissa J.\*; Bentley, Callan; Rohrback-Schiavone, Robin; Pitts, Alan: **GIGAPANS AND THEIR USE IN GEOSCIENCE EDUCATION AND FIELD RESEARCH**
- 59-11 4:20 PM Rouchdi, Mohamed\*; Sebari, Imane; Heggy, Essam; Al-Maktoumi, Ali; Normand, Jonathan; Scabbia, Giovanni; Avouac, Jean-Philippe: **RADARS SURFACE AND SUBSURFACE IMAGING TECHNIQUES: A MUST LEARN TECHNIQUE FOR REMOTE SENSING GRADUATE STUDIES IN HYPER-ARID AREAS**
- 59-12 4:35 PM Whitmeyer, Steven J.\*; De Paor, Declan G.; Pavlis, Terry L.: **DIGITAL TECHNOLOGY IN THE CLASSROOM AND THE FIELD: COGNITIVE AFFORDANCES AND HINDRANCES**

## SESSION NO. 60

*T71. Enticing Urban Youth to the Geosciences (GSA Geology and Society Division)*

1:30 PM, Baltimore Convention Center, Room 324

Alexander E. Gates, Presiding

- 1:30 PM **INTRODUCTORY REMARKS**
- 60-1 1:35 PM Gates, Alexander E.\*: **EFFECTIVE AND SUSTAINABLE STRATEGIES TO ATTRACT UNDERSERVED, INNER CITY YOUTH TO THE GEOSCIENCES**
- 60-2 1:50 PM White, Lisa D.\*; Serpa, Laura F.; Maygarden, Diane F.: **USING A PARTNERSHIP PROGRAM MODEL AND FIELD-BASED EXPERIENCES TO CREATE A NETWORK OF URBAN YOUTH ENGAGED IN THE GEOSCIENCES: PROJECT METALS**
- 60-3 2:05 PM Adetunji, Oludurotimi\*; Levine, Roger: **AN APPROACH FOR DISCOVERING AND INSPIRING FUTURE GEOSCIENTISTS IN URBAN SETTINGS AND BEYOND**
- 60-4 2:20 PM Stokes, Philip J.\*; Flessa, Karl W.; Levine, Roger; Gates, Alexander E.; Gray, Floyd: **FROM RESEARCH TO PRACTICE: STEERING URBAN YOUTH INTO GEOSCIENCE**
- 60-5 2:35 PM Barrett, Kirk\*; Moore, Kevin: **ATTRACTING AFRICAN AND HISPANIC AMERICANS AT HIGH-PERFORMING HIGH SCHOOLS TO GEOSCIENCE**
- 60-6 2:50 PM Ebel, Denton S.\*; Kinzler, Rosamond J.; Harlow, George E.; Webster, James D.; Sessa, Jocelyn A.; Nadeau, Patricia A.; Ustunisik, Gokce: **FIELD AND LAB PRACTICUM PROVIDES TOOLS TO INSPIRE GEOSCIENCE CLASSROOM LEARNING**
- 60-7 3:05 PM Nagy-Shadman, Elizabeth A.\*: **GEOSCIENCE OPPORTUNITIES FOR STUDENTS IN LOS ANGELES, CALIFORNIA**
- 3:20 PM **BREAK**
- 60-8 3:35 PM West, R. Brown\*: **EXPLORING THE SAN GABRIEL MOUNTAINS WITH AN UPWARD BOUND COHORT FROM SOUTH CENTRAL LOS ANGELES: ANATOMY OF AN UN-NATURAL DISASTER**
- 60-9 3:50 PM Lozar, Francesca\*; Delfino, Massimo; Cirilli, Francesca; Giardino, Marco: **"URBAN FOSSILS": HALF-SERIOUS REFLECTIONS ON FOSSILIZATION PROCESSES**
- 60-10 4:05 PM Pfirmman, Stephanie\*: **FIRST YEAR SEMINAR – SCIENCE ON THE SIDE**
- 60-11 4:20 PM Childers, Daniel P.\*; Etherington, Christopher N.: **LAB FIRST: TEACHING CONCEPTS IN GEOSCIENCES BY LEADING WITH AN ENGAGING LABORATORY EXPERIENCE**
- 60-12 4:35 PM Leinbach, Adrienne A.\*; Miller, Gretchen L.; Rollins, Stephanie L.: **LESSONS LEARNED IN THIRTEEN YEARS OF TEACHING ONLINE**

## SESSION NO. 61

**T72. Ethics of Geoscience in Practice and Application (GSA Geology and Society Division; GSA Geoscience Education Division; SEPM (Society for Sedimentary Geology); GSA Quaternary Geology and Geomorphology Division; GSA Environmental and Engineering Geology Division; International Association for the Promotion of Geoethics (IAPG); National Association of Geoscience Teachers; GSA Structural Geology and Tectonics Division; Society of Economic Geologists)**

1:30 PM, Baltimore Convention Center, Room 337

Cindy Palinkas and Vincent S. Cronin, Presiding

- 61-1** 1:30 PM Bobrowsky, Peter\*; Peppoloni, Silvia; Di Capua, Giuseppe: **GEOETHICS IN CANADA: EXAMINING DIVERSITY IN THE GEOSCIENTIFIC COMMUNITY**
- 61-2** 1:45 PM Williams, John W\*; Warner, Jack L.: **GEOSCIENCE PROFESSIONAL ETHICS TRENDS INDICATED BY NATIONAL ASSOCIATION OF STATE BOARDS OF GEOLOGY (ASBOG®) SURVEYS**
- 61-3** 2:00 PM Gath, Eldon M.\*: **IS THE CALIFORNIA GEOLOGICAL SURVEY'S POSITION ON ACTIVE FAULT ZONING AND MITIGATION LOGICAL OR ETHICAL IN LIGHT OF 40+ YEARS OF EARTHQUAKE GEOLOGY RESEARCH?**
- 61-4** 2:15 PM Dybel, Bradley E.\*: **HOW WILL NEVADA'S "HOMEOWNER'S PROTECTION ACT" OF 2015 AFFECT THE ETHICAL STANDARDS OF FORENSIC GEOLOGISTS?**
- 61-5** 2:30 PM Blauvelt, Robert P.\*: **IMPLICATIONS OF GEOLOGIC LICENSURE**
- 61-6** 2:45 PM Siegel, Donald I.\*: **SHOOTING THE MESSENGER: HOW THE OPPOSITION TO FRACKING NOW DEALS WITH SCIENTIFIC FACTS**
- 61-7** 3:00 PM Lutz, Tim\*: **GEOETHICS: SENSING THE TENSION BETWEEN THE WAY THE WORLD IS AND THE WAY IT SHOULD BE – IN OUR CLASSROOM**
- 3:15 PM **BREAK**
- 61-8** 3:30 PM Perkins, Dexter\*: **CAN WE TEACH ETHICAL THINKING?**
- 61-9** 3:45 PM Bank, Carl-Georg\*; Ryan, Anne Marie: **A PROPOSED FRAMEWORK FOR INTRODUCING ETHICS TO GEOSCIENCE STUDENTS IN THEIR UNDERGRADUATE YEARS**
- 61-10** 4:00 PM Cronin, Vincent S.\*: **EMBEDDING ELEMENTS OF GEOETHICS IN AN INTRODUCTORY PHYSICAL GEOLOGY LAB COURSE**
- 61-11** 4:15 PM Levine, Norman\*; Kaufman, Charlie: **USING PRACTICAL COMMUNITY-BASED PROJECTS TO INFUSE ETHICS INTO GEOSCIENCE CURRICULUM**
- 61-12** 4:30 PM Mogk, David W.\*: **GEOETHICS 101: A COURSE FOR GEOSCIENCE MAJORS AND NON-MAJORS**
- 61-13** 4:45 PM Geissman, John W.\*: **SOME EXAMPLES OF THE INCORPORATION OF GEOETHICS IN UNDERGRADUATE SCIENCE AND GEOSCIENCE CURRICULA**
- 61-14** 5:00 PM Palinkas, Cindy\*; Cronin, Vincent S.; Di Capua, Giuseppe; Peppoloni, Silvia: **HOW TO MAKE GEOETHICS A POINT OF REFERENCE FOR SOCIETY: THE IAPG NETWORK**
- 61-15** 5:15 PM Magagna, Alessandra\*; Lozar, Francesca; Giardino, Marco; Lombardo, Vincenzo; Perotti, Luigi: **GEOMEDIA-WEB: AN ITALIAN MULTIMEDIA NETWORK FOR DISSEMINATION OF KNOWLEDGE ON GEORESOURCES AND HAZARDS**

## SESSION NO. 62

**T103. Contaminant Transport, Fate, and Remediation in Fractured Rocks (GSA Hydrogeology Division; GSA Environmental and Engineering Geology Division; Geochemical Society)**

1:30 PM, Baltimore Convention Center, Room 345/346

Claire R. Tiedeman, Michelle M. Lorah and Lee Slater, Presiding

- 62-1** 1:30 PM Vitale, Sarah A.\*; Robbins, Gary A.: **USING DISSOLVED OXYGEN ALTERATION TO IDENTIFY CONNECTING TRANSMISSIVE FRACTURES AND DETERMINE VERTICAL FLOW VELOCITY IN CRYSTALLINE BEDROCK WELLS**
- 62-2** 1:45 PM Metcalf, Meredith J.\*; Robbins, Gary A.; Thomas, Margaret A.; Warzecha, William; Young, Matthew: **COMPLEXITIES OF ARSENIC CONTAMINATION IN FRACTURED BEDROCK WELLS OF CONNECTICUT**
- 62-3** 2:00 PM Bedir, Sr., Mourad\*; Houatmia, Faten; Khomsi, Sami; Lachaal, Fethi: **HIGHLIGHTS OF OLIGO-MIOCENE SILICOCLASTIC HYDROGEOLOGIC RESERVOIR SYSTEMS IN NORTHEASTERN TUNISIA AFRICAN MARGIN**
- 62-4** 2:15 PM Becker, Matthew\*; Cole, Matthew; Ciervo, Christopher: **MEASURING HYDRAULIC CONNECTION IN FRACTURED BEDROCK WITH PERIODIC HYDRAULIC TESTS**
- 62-5** 2:35 PM Saylor, Frances Claire\*; Fort, Michael; Cardiff, Michael: **AQUIFER PARAMETER ESTIMATION FOR FRACTURED BEDROCK USING MULTI-FREQUENCY OSCILLATORY FLOW INTERFERENCE TESTING**
- 62-6** 2:50 PM Reynolds, David\*: **SUBSURFACE CHARACTERISATION, MODELLING, MONITORING, AND REMEDIATION OF FRACTURED ROCKS - OVERVIEW OF THE NRC REPORT**
- 62-7** 3:10 PM Doe, Thomas W.\*: **CROSS-CUTTING IMPORTANCE OF FRACTURE-MATRIX INTERACTION TO GROUNDWATER, GEOTHERMAL, AND PETROLEUM PERFORMANCE**
- 3:25 PM **BREAK**
- 62-8** 3:40 PM Robinson, Judith\*; Slater, Lee; Parker, Beth L.; Keating, Kristina; Day-Lewis, Fred; Johnson, Carole D.; Rose, Carla; Robinson, Tonian; Meyer, Jessica R.; Pehme, Peeter E.: **INVESTIGATING GEOPHYSICAL TECHNOLOGIES TO CHARACTERIZE PORE GEOMETRIC PROPERTIES CONTROLLING CONTAMINANT MASS TRANSPORT IN FRACTURED ROCK**
- 62-9** 3:55 PM Tsoflias, George\*; Becker, Matthew: **FIELD GPR IMAGING OF FLOW AND TRANSPORT IN A DISCRETE FRACTURE: CAPABILITIES AND LIMITATIONS**
- 62-10** 4:15 PM Lemke, Lawrence D.\*; Pruehs, Amanda M.: **INFLUENCE OF BEDROCK TRANSMISSIVITY ON 1,4-DIOXANE TRANSPORT IN A COUPLED BEDROCK-GLACIAL AQUIFER SYSTEM**
- 62-11** 4:30 PM Kelly, Kevin F.\*; Bond, Bob; Breiner, John; Dieck, Eric B.: **HIGH-RESOLUTION FRACTURE NETWORK DELINEATION FOR IN SITU BIOREMEDIATION USING FLUORESCENT TRACER DYES**
- 62-12** 4:45 PM Curtis, Gary P.\*; Imbrigiotta, Thomas E.; Tiedeman, Claire R.: **SIMULATING BIOREMEDIATION OF CHLOROETHENES IN A FRACTURED ROCK AQUIFER**
- 62-13** 5:00 PM Yang, Fan\*; Novakowski, Kent: **THE TRANSPORT OF HEAT BY FLOWING GROUNDWATER IN A DISCRETE FRACTURE**
- 62-14** 5:15 PM Heron, Gorm\*; Baker, Ralph; Griepke, Steffen: **IN-SITU THERMAL TREATMENT OF FRACTURED ROCK**

## SESSION NO. 63

**T113. Effects of Urbanization on Hydrological and Geochemical Cycling in Surface and Ground Waters (GSA Hydrogeology Division; GSA Environmental and Engineering Geology Division; GSA Geology and Society Division)**

1:30 PM, Baltimore Convention Center, Room 336

Claire Welty, Aditi S. Bhaskar, John M. Sharp, Joel Moore and Elizabeth Herndon, Presiding

- 63-1 1:30 PM Sharp, John M.\*: **EFFECTS OF URBANIZATION ON SHALLOW HYDROGEOLOGIC SYSTEMS**
- 63-2 1:45 PM Noor Azy, Fikri\*; Memed, Sr., Mochamad Wachyudi; Nandang, Sr., Nandang; Prayogi, Tantowi Eko: **GROUNDWATER QUANTITY AND QUALITY MONITORING OF NORTH JAKARTA CITY, INDONESIA**
- 63-3 2:00 PM Rosales-Lagarde, Laura\*; Pastén-Zapata, Ernesto; Ledesma-Ruiz, Rogelio; Mählknecht, Jürgen: **CHARACTERIZATION OF THE UNDERSATURATED ZONE OF THREE AQUIFERS SUPPLYING THE MONTERREY METROPOLITAN AREA, MEXICO AS A STEP TOWARD UNDERSTANDING THE GROUNDWATER RECHARGE**
- 63-4 2:15 PM Tucker, IV, James\*; Yelderman, Jr., Joe C.: **POTENTIAL OVER-DEVELOPMENT AND AQUIFER CO-MINGLING IN THE HENSELL "MIDDLE TRINITY" AQUIFER; A STUDY WITH BI-PARTISAN MANAGEMENT SUPPORT**
- 63-5 2:30 PM Hauwert, Nico M.\*: **ROLE OF KARST STUDIES IN GROUNDWATER PROTECTION MANAGEMENT OF THE BARTON SPRINGS SEGMENT OF THE EDWARDS AQUIFER IN AUSTIN TEXAS**
- 63-6 2:50 PM Wong, Corinne I.\*; Banner, Jay; Barnes, Jaime D.; Roland, Collin J.: **TRACING CHLORIDE SOURCES IN URBAN WATERWAYS IN AUSTIN, TEXAS USING STABLE CHLORINE ISOTOPES**
- 63-7 3:10 PM Thomas, Brian F.\*: **URBAN HYDROLOGY: GROUNDWATER/SURFACE WATER INTERACTION**
- 3:30 PM **BREAK**
- 63-8 3:45 PM Bhaskar, Aditi S.\*; Archfield, Stacey A.; Hogan, Dianna: **URBANIZATION WITH LOW IMPACT DEVELOPMENT AND EFFECTS ON STREAM BASE FLOW**
- 63-9 4:00 PM Massoudieh, Arash\*; Maghrebi, Mahdi: **A NEW FRAMEWORK FOR FORWARD AND INVERSE MODELING OF STORMWATER LIDS**
- 63-10 4:15 PM Brinkley, Scott\*; Wagner, III, J. Sage: **DROUGHT MITIGATION STRATEGY VIA 'RAIN FARMS'; A CASE STUDY FOR SACRAMENTO, CALIFORNIA**
- 63-11 4:30 PM Hon, Rudi\*; Dillon, Peter; Rice, Mikaela; Bello, Bianca; Beutel, David; Besancon, James: **DE-ICER PATHWAYS FROM IMPERVIOUS SURFACES TO STREAMS AND PUBLIC WATER SUPPLIES**
- 63-12 4:45 PM Besancon, James\*; Hon, Rudolph: **ENVIRONMENTAL CHEMISTRY OF A SNOW DISPOSAL SITE, BOSTON, MASSACHUSETTS**
- 63-13 5:00 PM Eaton, Timothy T.\*: **TIDAL INCURSIONS AND WATER QUALITY IN A CSO-IMPACTED WETLAND CREEK: USE OF TEMPERATURE AND CONDUCTIVITY METHODS**
- 63-14 5:15 PM Doody, Thomas R.\*; Reisinger, A.J.; Kaushal, Sujay S.; Rosi-Marshall, Emma; Groffman, Peter M.: **BIOGEOCHEMICAL EVALUATION OF RESTORED URBAN STREAMS**

## SESSION NO. 64

**T131. Gemological Research in the 21st Century: Exploration, Geology, and Characterization of Diamonds and other Gem Minerals**

1:30 PM, Baltimore Convention Center, Room 342

James E. Shigley, Dona Mary Dirlam, Wuyi Wang, Lee A. Groat, Thomas Stachel, Barbara L. Dutrow, Howard Coopersmith, Nancy J. McMillan and William B. Simmons, Presiding

- 64-1 1:30 PM Harlow, George E.\*: **GEM MATERIALS: RESEARCH INTO THEIR ROLE IN THE EARTH SYSTEM**
- 64-2 1:50 PM Haggerty, Stephen E.\*: **RELATION BETWEEN MICRO- AND MACRO-DIAMONDS: MYTH, MYOPIA OR BOTH?**
- 64-3 2:05 PM Smit, Karen V.\*; Shirey, Steven B.; Wang, Wuyi: **TYPE IB DIAMOND FORMATION RELATED TO GONDWANA ASSEMBLY: EVIDENCE FROM RE-OS ISOTOPIC COMPOSITIONS OF WEST AFRICAN SULPHIDE INCLUSIONS**
- 64-4 2:20 PM Shirey, Steven B.\*; Smit, Karen V.; Nestola, Fabrizio; Steele, Andrew; Bulanova, Galina P.; Smith, Chris B.: **NEOPROTEROZIC RE-OS AGE OF A SULFIDE INCLUSION IN A SUPERDEEP DIAMOND: IMPLICATIONS FOR MANTLE CONVECTION BENEATH JUINA, BRAZIL**
- 64-5 2:35 PM Hart, Alan\*: **DIFFERENTIAL HARDNESS OF DIAMOND DETERMINES THE FORM OF MOGUL CUT STONES: THE CASE OF THE KOH-I-NOOR**
- 64-6 2:50 PM Byrne, Keal S.\*; Post, Jeffrey E.; Butler, James E.: **LUMINESCENCE INVESTIGATIONS OF NATURAL COLOR-CHANGING DIAMONDS**
- 3:05 PM **BREAK**
- 64-7 3:20 PM Alonso-Perez, Raquel\*: **THE HAMLIN NECKLACE AND MOUNT MICA TOURMALINES**
- 64-8 3:40 PM Palke, Aaron C.\*; Renfro, Nathan D.; Berg, Richard B.: **GLASSY MELT INCLUSIONS IN SAPPHIRES FROM THE ROCK CREEK AND MISSOURI RIVER DEPOSITS IN MONTANA, USA**
- 64-9 3:55 PM Koivula, John I.\*; Renfro, Nathan D.; Stone-Sundberg, Jennifer Leigh: **PRODUCTION OF SPURIOUS PARTIALLY HEALED FRACTURES IN SYNTHETIC CORUNDUM THROUGH HIGH-TEMPERATURE FUSION**
- 64-10 4:10 PM Cartier, Laurent E.\*; Meyer, Joana Beatrice; Krzemnicki, Michael S.: **ORIGIN AND SPECIES DETERMINATION OF ORGANIC GEMS: DNA FINGERPRINTING AS A NOVEL METHOD IN GEMOLOGY**
- 64-11 4:25 PM Lin, Xiayang\*; Heaney, Peter: **THE CAUSE OF IRIDESCENCE IN NATURAL QUARTZ CRYSTALS FROM THE JALGAON DISTRICT, INDIA**
- 64-12 4:40 PM Klyukin, Yury I.\*; Sublett, D. Matthew; Miller, J. William; Speer, Wade E.; Bodnar, R.J.: **FLUID EVOLUTION AT THE NORTH AMERICAN EMERALD MINE, HIDDENITE, NORTH CAROLINA**
- 64-13 4:55 PM Simmons, William B.\*; Falster, Alexander U.; Felch, Myles; Francis, Carl A.: **GEM POLLUCITE FROM MT. MICA PEGMATITE, OXFORD CO., MAINE**
- 64-14 5:10 PM Wise, Michael A.\*: **THE GEM DEPOSITS OF HIDDENITE, NORTH CAROLINA: A UNIQUE OCCURRENCE OF HYDROTHERMAL EMERALD AND HIDDENITE**

SUNDAY

PM

## SESSION NO. 65

**T134. Radiation Effects, Mineralogy, and Materials Science of Actinides II: In Honor of Rodney C. Ewing, 2015 Roebling Medalist (Mineralogical Society of America; GSA Mineralogy, Geochemistry, Petrology, and Volcanology Division; Geochemical Society)**

1:30 PM, Baltimore Convention Center, Room 317

Peter C. Burns, William J. Weber, Ian Parsons, E. Bruce Watson, Alexandra Navrotsky and Ginger Sigmon, Presiding

- 65-1** 1:30 PM Lang, Maik\*; Zhang, Fuxiang; Zhang, Jiaming; Tracy, Cameron L.; Palomares, Raul I.; Trautmann, Christina; Ewing, Rodney C.: **STRUCTURAL TRANSFORMATIONS INDUCED AT EXTREME CONDITIONS: COUPLING HIGH-PRESSURE CELLS WITH ENERGETIC ION BEAMS**
- 65-2** 1:50 PM Bornhorst, Theodore J.\*; Ewing, Rodney C.; Poulsen, Christopher J.; Stefano, Christopher J.: **A MODEL FOR PRESERVATION OF UNIVERSITY MINERAL COLLECTIONS: THE MICHIGAN MINERAL ALLIANCE**
- 65-3** 2:05 PM Fayek, Mostafa\*; Luo, Jin-cheng; Hu, Ruizhong; Bi, Xianwu; Hawthorne, Frank C.: **THE XIANSHI URANIUM DEPOSIT, SOUTH CHINA: THE WORLD'S LARGEST SOURCE OF VORLANITE (CAU<sup>6+</sup>)O<sub>4</sub>**
- 65-4** 2:20 PM Lussier, Aaron J.\*; Rouvimov, Sergei; Burns, Peter C.; Simonetti, Antonio: **NUCLEAR-BLAST INDUCED NANOTEXTURES IN TRINITITE QUARTZ AND ZIRCON GRAINS**
- 2:35 PM **DISCUSSION**
- 65-5** 2:50 PM Turner, Katlyn M.\*; Lin, Yu; Zhang, Fuxiang; Mao, Wendy; Burns, Peter C.; Ewing, Rodney C.: **STRUCTURAL EVOLUTION OF A URANYL PEROXIDIE NANO-CAGE FULLERENE: U<sub>60</sub>, AT ELEVATED PRESSURES**
- 65-6** 3:05 PM Olds, Travis\*: **STABILITY AND CATION EXCHANGE DYNAMICS OF  $\Gamma$ -IRRADIATED U<sub>60</sub>**
- 65-7** 3:20 PM Dzik, Ewa\*; Burns, Peter C.; Navrotsky, Alexandra: **ENTHALPIES OF FORMATION OF URANYL PHOSPHATES: METATORBERNITE, METAANKOLEITE, AND METAURANOCIRCITE**
- 65-8** 3:35 PM Spano, Tyler L.\*; Dustin, Megan K.; Turner, Madison; Simms, Zoë; Burns, Peter C.: **MATERIALS PROPERTIES OF SYNTHETIC URANYL VANADATE MINERAL ANALOGUES POSSESSING THE FRANCEVILLITE ANION TOPOLOGY**
- 3:50 PM **BREAK**
- 65-9** 4:05 PM Plasil, Jakub\*: **URANYL SULFATES: NEWS ON MINERALOGY, CRYSTAL CHEMISTRY AND OCCURRENCE**
- 65-10** 4:20 PM Sharifironizi, Melika\*; Burns, Peter C.; Fein, Jeremy B.; Szymanowski, Jennifer: **SOLUBILITY AND CALORIMETRY STUDIES OF K-ZIPPEITE: DETERMINATION OF STANDARD STATE THERMODYNAMIC PROPERTIES**
- 65-11** 4:35 PM Shuller-Nickles, Lindsay\*: **A MECHANISTIC UNDERSTANDING CATION INCORPORATION INTO SOLID PHASES**
- 65-12** 4:50 PM Guo, Xiaofeng\*; Navrotsky, Alexandra; Kukkadapu, Ravi K.; Engelhard, Mark; Lanzirrotti, Antonio; Newville, Matt; Ilton, Eugene; Sutton, Stephen R.; Xu, Hongwu: **STRUCTURE AND STABILITY OF URANIUM CONTAINING IRON GARNETS**

## SESSION NO. 66

**T138. From the Caspian to Mediterranean: Environmental Change and Human Response during the Quaternary (IGCP 610) (Paleontological Society; Paleoceanography/Paleoclimatology Discipline; Avalon Institute of Applied Sciences, Canada; GSA Archaeological Geology Division)**

1:30 PM, Baltimore Convention Center, Room 325/326

Valentina Yanko-Hombach and Tamara Yanina, Presiding

- 1:30 PM **INTRODUCTORY REMARKS**
- 66-1** 1:35 PM Yanko-Hombach, Valentina\*; Yanina, Tamara: **THE QUATERNARY HISTORY OF THE PONTO-CASPIAN BASINS**
- 66-2** 1:50 PM Mudie, Petra\*: **ADVANCES IN PALYNOLOGY OF THE BLACK SEA CORRIDOR: A DECADE OF IGCP COLLABORATION**
- 66-3** 2:10 PM Gerasimenko, Natalia P.\*: **SHORT PERIOD PALAEOCLIMATIC CHANGES RECORDED BY POLLEN AND LITHOPEDELOGY IN THE KAYDAKY-PRYLUKY UNITS (TERRESTRIAL EQUIVALENTS OF MIS 5) IN SOUTHERN UKRAINE**
- 66-4** 2:25 PM Koral, Hayrettin\*: **NEOTECTONICS OF ANATOLIA IN CROSSROADS OF AN EVOLVING OROGEN -- A SUMMARY**
- 66-5** 2:40 PM Rohozin, Yevhenii\*; Mudie, Petra; Mudryk, Inna; Gerasimenko, Natalia P.: **NEW APPROACH TO PALYNOLOGICAL STUDY OF THE DANUBE DELTA AND SHELF**
- 66-6** 2:55 PM Gerasimenko, Natalia P.\*: **SHORT-TERM HOLOCENE CLIMATIC CHANGES PALYNOLOGICALLY RECORDED IN DEPOSITS AT ARCHAEOLOGICAL SITES IN SOUTHERN UKRAINE**
- 3:10 PM **BREAK**
- 66-7** 3:25 PM Ferguson, Shannon\*; Mudie, Petra; Warny, Sophie; Popescu, Speranta-Maria: **PLEISTOCENE-HOLOCENE (MIS 5-1) CLIMATIC CHANGES IN SW BLACK SEA: PALYNOLOGY OF DSDP SITE 380**
- 66-8** 3:40 PM Stockhecke, Mona\*; Bechtel, Achim; Schubert, Carsten; Peterse, Francien; Randlett, Marie-Eve; Timmermann, Axel: **TEMPERATURE ESTIMATES AND HYDROCLIMATE VARIABILITY IN CORRESPONDENCE TO DANSGAARD-OESCHGER EVENTS AND GLACIAL TERMINATIONS FROM THE EASTERN MEDITERRANEAN**
- 66-9** 3:55 PM Brittingham, Alex\*; Hren, Michael T.; Hartman, Gideon; Adler, Daniel; Wilkinson, Keith; Gasparyan, Boris: **LATE PLEISTOCENE PALEOCLIMATE RECONSTRUCTION AT LUSAKERT CAVE, ARMENIA**
- 66-10** 4:10 PM Marret, Fabienne\*; Bradley, Lee; Shumilovskikh, Lyudmila; Ivanova, Elena; Murdmaa, Ivor: **ENVIRONMENTAL CHANGES IN THE SE AND NE BLACK SEA DURING THE LATE QUATERNARY: PALYNOLOGICAL EVIDENCE**
- 66-11** 4:25 PM Herrle, Jens O.\*; Bollmann, Jörg; Gebühr, Christina: **HOLOCENE SEA SURFACE SALINITY CHANGES IN THE NORTHERN AEGEAN SEA: EVIDENCE FROM SIZE VARIATIONS OF EMILIANA HUXLEYI-COCCOLITHS**
- 66-12** 4:40 PM Kondariuk, Tetiana\*; Yanko-Hombach, Valentina; Kovalishina, Svetlana: **FORAMINIFERA AS INDICATORS OF ENVIRONMENTAL STRESS IN MARINE ECOSYSTEMS: NEW EVIDENCE FROM THE ROMANIAN AND UKRAINIAN SHELF (BLACK SEA)**
- 66-13** 4:55 PM Smyntyna, Olena V.\*: **INTERPRETATION OF HUMAN RESPONSE TO THE GLOBAL CLIMATE CHANGE IN NORTH-WESTERN BLACK SEA REGION ON THE PLEISTOCENE-HOLOCENE BOUNDARY: FROM LINEAR APPROACH TOWARDS THEORETICAL DIVERSITY**
- 5:10 PM **CONCLUDING REMARKS**

## SESSION NO. 67

**T149. Co-Evolution of Life and Planet: Broad-Scale Controls on Biodiversity II (Paleontological Society; Paleontological Association)**

1:30 PM, Baltimore Convention Center, Room 314

Peter J. Harries and Richard J. Twitchett, Presiding

- 67-1 1:30 PM Waterson, Amy M.\*; Schmidt, Daniela N.; Valdes, Paul J.; Holroyd, Patricia A.; Nicholson, David B.; Barrett, Paul M.: **MODELLING THE PALEOENVIRONMENTAL NICHES OF TESTUDINES: A DEEP-TIME PERSPECTIVE**
- 67-2 1:45 PM Ward, Peter D.\*; Mitchell, Ross N.: **DIVERSITY, OXYGEN AND TRUE POLAR WANDER**
- 67-3 2:00 PM Schweitzer, Carrie E.\*; Feldmann, Rodney M.: **DIVERSITY AND NICHE PARTITIONING IN PRIMITIVE CRABS (DECAPODA: BRACHYURA)**
- 67-4 2:15 PM Patzkowsky, Mark E.\*; Congreve, Curtis R.; Krug, Andrew Z.; Sclafani, Judith A.: **ONSHORE-OFFSHORE PATTERNS OF ORDOVICIAN DIVERSIFICATION IN THE BRACHIOPOD ORDER STROPHOMENIDA: A PHYLOGENETIC PERSPECTIVE**
- 67-5 2:30 PM Flynn, Andrew\*; Peppe, Daniel J.; Abuhl, Brittany; Williamson, Thomas E.: **DIVERSE EARLY PALEOCENE FOSSIL FLORA FROM THE OJO ALAMO SANDSTONE, SAN JUAN BASIN, NEW MEXICO, USA: IMPLICATIONS FOR LOCAL AND REGIONAL RESPONSES TO THE CRETACEOUS-PALEOGENE EXTINCTION EVENT**
- 67-6 2:45 PM Rankin, Brian D.\*; Holroyd, Patricia A.; Vavrek, Matthew J.; Theodor, Jessica M.: **THE LATITUDINAL DIVERSITY GRADIENT WITHIN LATEST CRETACEOUS AND EARLY PALEOGENE MAMMALIAN ASSEMBLAGES FROM THE WESTERN INTERIOR OF NORTH AMERICA**
- 3:00 PM **BREAK**
- 67-7 3:15 PM Rovelli, Remy\*; Garb, Matthew P.; Landman, Neil H.; Myers, Corinne; Dastas, Natalie R.; Larina, Ekaterina; Naujokaityte, Jone: **INFLUENCE OF IMPACT SITE PROXIMITY TO K/PG RECOVERY OF ECOSYSTEM STRUCTURE AND DIVERSITY: NEW INSIGHT FROM THE GULF COASTAL PLAIN AND ATLANTIC COASTAL PLAIN**
- 67-8 3:30 PM Rizzo, Adriana I.\*; Huang, Shan; Jablonski, David: **THERMAL GRADIENTS AND GEOGRAPHIC RANGES: BIODIVERSITY ACROSS THE TEMPERATE PACIFIC 5 MA-PRESENT**
- 67-9 3:45 PM Shin, Caren\*; Iwatani, Hokuto; Kase, Tomoki; Yasuhara, Moriaki: **TROPICAL OSTRACOD DIVERSITY AND PALEOBIOGEOGRAPHY IN THE INDO-PACIFIC**
- 67-10 4:00 PM Saube, Erin E.\*; Qiao, Huijie; Myers, Corinne; Soberón, Jorge M.; Townsend Peterson, A.; Hunter, Stephen; Singarayer, Joy S.; Valdes, Paul J.: **ON THE GENERATION OF LATITUDINAL DIVERSITY GRADIENTS**
- 4:15 PM **DISCUSSION**
- 4:30 PM **CONCLUDING REMARKS**

## SESSION NO. 68

**T153. Mass Extinction Causality: Records of Anoxia, Acidification, and Global Warming during Earth's Greatest Crises II (GSA Mineralogy, Geochemistry, Petrology, and Volcanology Division; Paleontological Society; Volcanic and Magmatic Studies Group; Mineralogical Society of America; Geological Society of London)**

1:30 PM, Baltimore Convention Center, Room 310

David P.G. Bond, Paul B. Wignall and Mike Widdowson, Presiding

- 68-1 1:30 PM Ernst, Richard E.\*: **HOW LARGE IGNEOUS PROVINCES AFFECT CLIMATE AND SOMETIMES CAUSE EXTINCTIONS**

- 68-2 1:50 PM Payne, Jonathan L.\*; Lau, Kimberly V.; Jost, Adam B.; Altiner, Demir; Bachan, Aviv; Kump, Lee R.; Lehrmann, Daniel J.; Maher, Kate; Meyer, Katja M.; van de Schootbrugge, Bas: **THE ROLE OF OCEAN ANOXIA IN MODULATING EARTH SYSTEM RECOVERY FOLLOWING MASS EXTINCTION EVENTS**
- 68-3 2:10 PM Jerram, Dougal A.\*; Jones, Morgan T.; Svensen, Henrik; Planke, Sverre: **THE EFFECTS OF LARGE IGNEOUS PROVINCES ON THE GLOBAL CARBON AND SULPHUR CYCLES: UNDERSTANDING THE SOURCES, THE SINKS AND ERUPTION STYLES**
- 68-4 2:25 PM Grasby, Stephen E.\*; Beauchamp, Benoit; Bond, David P.G.; Wignall, Paul B.; Sanei, Hamed: **THREE EXTINCTION EVENTS (CAPITANIAN CRISIS, LATEST PERMIAN EXTINCTION, AND THE SMITHIAN/SPATHIAN EXTINCTION) MARKED BY MERCURY ANOMALIES IN NW PANGAEA**
- 68-5 2:40 PM Brand, Uwe\*; Blamey, Nigel J.F.; Griesshaber, Erika; Posenato, Renato; Angiolini, Lucia; Azmy, Karem; Farabegoli, Enzo; Came, Rosemarie E.: **METHANE HYDRATE: KILLER CAUSE OF EARTH'S GREATEST MASS EXTINCTION**
- 68-6 2:55 PM Kasemann, Simone A.\*; Wood, Rachel A.; Clarkson, Matthew; Lenton, Timothy; Daines, Stuart; Richoz, Sylvain; Meixner, Anette; Poulton, Simon W.; Tipper, Edward: **OCEAN ACIDIFICATION AND THE PERMO-TRIASSIC MASS EXTINCTION: PROCESS AND MANIFESTATION**
- 68-7 3:10 PM Vanderkluysen, Loyc\*; Self, Stephen; Jay, Anne E.; Sheth, Hetu C.; Clarke, Amanda B.: **TRANSITIONS IN LAVA EMPLACEMENT RECORDED IN THE DECCAN TRAPS SEQUENCE (INDIA)**
- 68-8 3:25 PM Mateo, Paula\*; Keller, Gerta; Puneekar, Jahnavi: **EARLY TO LATE MAASTRICHTIAN ENVIRONMENTAL CHANGES LINKED TO DECCAN TRAPS AND NINETYEAST RIDGE VOLCANISM: CASE STUDY OF THE INDIAN OCEAN**
- 68-9 3:40 PM Puneekar, Jahnavi\*; Keller, Gerta; Fantasia, Alicia; Mateo, Paula; Spangenberg, Jorge; Adatte, Thierry: **FINE-TUNING LATE MAASTRICHTIAN FAUNAL UPHEAVALS, CLIMATIC EVENTS AND MAJOR VOLCANIC EPISODES**
- 68-10 3:55 PM Keller, Gerta\*; Puneekar, Jahnavi; Mateo, Paula; Adatte, Thierry; Font, Eric; Spangenberg, Jorge: **THE LAST 250 KYR BEFORE THE END-CRETACEOUS MASS EXTINCTION**
- 68-11 4:10 PM Adatte, Thierry\*; Keller, Gerta; Schoene, Blair; Samperton, Kyle M.; Font, Eric; Sial, Alcides N.; De Lacerda, Luiz Drude; Puneekar, Jahnavi; Fantasia, Alicia; Khadri, Syed: **PALEOENVIRONMENTAL INFLUENCE OF DECCAN VOLCANISM RELATIVE TO THE KT EXTINCTION**
- 68-12 4:25 PM Tobin, Thomas S.\*; Bitz, Cecilia M.: **MODELLED CLIMATIC EFFECTS FROM DECCAN TRAPS CO<sub>2</sub> RELEASE**
- 68-13 4:40 PM Bermúdez, Hermann Darío\*; Keller, Gerta; Stinnesbeck, Wolfgang; García, Jenny; Trieloff, Mario; Rodríguez, José Vicente; Bolívar, Liliana; Mateo, Paula; Adatte, Thierry: **DISCOVERY OF A PRISTINE CHICXULUB IMPACT GLASS SPHERULE DEPOSIT ON GORGONILLA ISLAND, COLOMBIA, IN THE EASTERN PACIFIC OCEAN**
- 68-14 4:55 PM Witts, James D.\*; Whittle, Rowan J.; Wignall, Paul B.; Crame, J. Alistair; Francis, Jane E.; Newton, Robert J.; Bowman, Vanessa C.: **NO SAFER IN THE SOUTH: A SHALLOW MARINE MOLLUSCAN RECORD OF THE CRETACEOUS-PALEOGENE (K-PG) MASS EXTINCTION EVENT IN ANTARCTICA**
- 68-15 5:10 PM Stanley, Steven M.\*: **THE CAUSES AND INTENSITIES OF MASS EXTINCTIONS**

**SESSION NO. 69****T155. Timing of the Origins and Evolution of Unicellular Eukaryotes (AASP - The Palynological Society; Commission Internationale de la Microflore du Paléozoïque CIMP (International Commission of the Palaeozoic Microflora); Paleontological Society)**

1:30 PM, Baltimore Convention Center, Room 316

Malgorzata Moczydlowska-Vidal, Stanley Awramik and Heda Agić, Presiding

- 1:30 PM **INTRODUCTORY REMARKS**
- 69-1 1:35 PM Falkowski, Paul G.\*: **THE EVOLUTIONARY SELECTION OF UNICELLULAR EUKARYOTES**
- 69-2 1:55 PM Porter, Susannah M.\*: **TINY VAMPIRES IN ANCIENT SEAS: EVIDENCE FOR PREDATION VIA PERFORATION IN NEOPROTEROZOIC MICROFOSSILS**
- 69-3 2:15 PM Moczydlowska-Vidal, Malgorzata\*; Agić, Heda; Willman, Sebastian: **THE EARLY EVOLUTIONARY HISTORY OF CHLOROPLASTIDA BASED ON THE MICROFOSSIL RECORD**
- 69-4 2:30 PM Riding, James B.\*; Wiggan, Nikolas J.; Fensome, Robert A.; Mattioli, Emanuela: **THE EVOLUTION OF PHYTOPLANKTON DURING THE EARLY MESOZOIC**
- 69-5 2:50 PM Agić, Heda\*; Moczydlowska-Vidal, Malgorzata; Yin, Leiming: **THE MESOPROTEROZOIC RUYANG GROUP, CHINA: A HOTSPOT OF EARLY EUKARYOTE BIODIVERSITY**
- 69-6 3:05 PM Tang, Qing\*: **ORGANIC-WALLED MICROFOSSILS FROM THE TONIAN GOUHOU FORMATION, HUAIBEI REGION, NORTH CHINA CRATON, AND THEIR BIOSTRATIGRAPHIC IMPLICATIONS**
- 3:20 PM **BREAK**
- 69-7 3:35 PM Riedman, Leigh Anne\*; Sadler, P.M.: **GLOBAL SPECIES RICHNESS RECORD AND BIOSTRATIGRAPHIC POTENTIAL OF EARLY TO MIDDLE NEOPROTEROZOIC EUKARYOTE FOSSILS**
- 69-8 3:50 PM Moore, Kelsey R.\*; Bosak, Tanja; Macdonald, Francis A.; Lahr, Daniel J.G.; Newman, Sharon; Pruss, Sara B.: **MICROFOSSIL ASSEMBLAGES IN THE CRYOGENIAN NONGLACIAL INTERLUDE (~660-640 MA) OF NAMIBIA, ZAMBIA, MONGOLIA AND ARCTIC ALASKA**
- 69-9 4:05 PM Lipps, Jere H.\*; Simison, W. Brian: **ORIGIN AND AGE OF HETEROTROPHIC SKELETAL MICROBIAL EUKARYOTES**
- 69-10 4:20 PM Goldstein, Susan T.\*: **DISPERSAL, DORMANCY, AND THE EVOLUTION OF THE TEST AND LIFE CYCLE IN FORAMINIFERA**
- 69-11 4:35 PM Wiggan, Nikolas J.\*; Riding, James B.: **PLANKTON EVOLUTION DURING THE BAJOCIAN (MIDDLE JURASSIC, 170—168 MA): A MAJOR TRANSITION IN THE MODERN EUKARYOTIC PHYTOPLANKTON**
- 69-12 4:50 PM McCarthy, Francine M.G.\*; Mertens, Kenneth N.; Matsuoka, Kazumi; Gu, Haifeng; Takano, Yoshihito: **CONSTRAINING THE ORIGINATION OF THE FRESHWATER DINOFLAGELLATE *PERIDINIUM WISCONSINENSE* EDDY FROM THE MARINE *SCRIPPSIELLA* LINEAGE USING PHYLOGENETIC AND BIOSTRATIGRAPHIC EVIDENCE**
- 5:05 PM **CONCLUDING REMARKS**

**SESSION NO. 70****T159. The Fossil Record of Parasite-Host Interactions: New Perspectives and Approaches (Paleontological Society; Advances in Parasitology Special Volume Fund)**

1:30 PM, Baltimore Convention Center, Room 315

John Warren Huntley and Kenneth De Baets, Presiding

- 70-1 1:30 PM Littlewood, Tim\*; De Baets, Kenneth: **THE IMPORTANCE OF FOSSILS IN INTEGRATIVE PARASITOLOGY**

- 70-2 1:50 PM Walker, Sally E.\*; Hancock, Leanne G.; Bowser, Samuel S.: **DIVERSITY, BIOGEOGRAPHY, BODY SIZE AND THE FOSSIL RECORD OF PARASITIC FORAMINIFERA**
- 70-3 2:05 PM De Baets, Kenneth\*; Dentzien-Dias, Paula; Upeniece, Ieva; Verneau, Olivier; Donoghue, Philip C.J.: **THE WORM'S TURN: CONSTRAINING THE DEEP ORIGIN AND EVOLUTION OF PARASITIC FLATWORMS WITH FOSSIL EVIDENCE**
- 70-4 2:20 PM Huntley, John Warren\*; De Baets, Kenneth; Scarponi, Daniele: **THE TRACE FOSSIL RECORD OF TREMATODE-BIVALVE PARASITE-HOST INTERACTIONS**
- 70-5 2:35 PM Scarponi, Daniele\*; Azzarone, Michele; Huntley, John Warren: **Holocene Record of Trematode-Bivalve Interaction in Regressive Back-barrier Settings of the Po Plain (Italy)**
- 70-6 2:50 PM Smrecak, Trisha A.\*; Brandt, Danita S.: **SCLEROBIONT-DEFINED DEPTH GRADIENT IN THE MIDDLE DEVONIAN OF THE MICHIGAN BASIN, USA**
- 70-7 3:05 PM Brett, Carlton E.\*; Wilson, Mark A.; Thomka, James R.: **LONG-TERM PARASITIC INTERACTIONS IN ANCIENT ECHINODERMS**
- 3:20 PM **BREAK**
- 70-8 3:35 PM Donovan, Stephen K.\*: **INTERPRETING EPIZOOZOIC INFESTATIONS IN FOSSIL ECHINODERMS: WHEN IS IT A PARASITE?**
- 70-9 3:55 PM Syverson, V. J. P.\*: **CHANGING FREQUENCIES OF INFESTATION TRACES AND REACTION FEATURES IN PALEOZOIC CRINOID COLUMNS**
- 70-10 4:10 PM Gahn, Forest J.\*; Kelly, R. Scott; Baumiller, Tomasz K.: **THE ROLE OF CRINOID ANAL TUBES IN MINIMIZING THE NEGATIVE EFFECTS OF INFESTING PLATY CERATID GASTROPODS**
- 70-11 4:25 PM Nagler, Christina\*; Haug, Carolin; Haug, Joachim T.: **FOSSIL AND EXTANT PARASITIC ARTHROPODS AND HOW THEY ENLIGHTEN EACH OTHER**
- 70-12 4:40 PM Martin, Anthony J.\*; Varricchio, David J.: **INSECTS USING ONE ANOTHER DURING THE LATE CRETACEOUS: TRACE FOSSIL EVIDENCE OF PARASITOID (OR WAS IT CLEPTOPARASITE?) BEHAVIOR IN THE TWO MEDICINE FORMATION, MONTANA**
- 70-13 4:55 PM Antell, Gwen Simmons\*: **AN OLD TWIST ON A NEW PROBLEM: INFERRING THE PALEODISTRIBUTION OF THE PARASITE *CAENOCHOLAX* (STREPSIPTERA: MYRMECOLACIDAE) FROM A NEW FOSSIL DISCOVERY**
- 70-14 5:10 PM Labandeira, Conrad C.\*: **THE FUNDAMENTAL IMPORTANCE OF PARASITOIDS IN TERRESTRIAL ECOSYSTEMS**

**SESSION NO. 71****T171. Exploring the Sedimentary Rock Record of Mars (GSA Planetary Geology Division; GSA Sedimentary Geology Division; GSA Quaternary Geology and Geomorphology Division)**

1:30 PM, Baltimore Convention Center, Room 344

Kathryn M. Stack, Kenneth Edgett and Kevin Lewis, Presiding

- 71-1 1:30 PM Le Deit, Laetitia\*; Hauber, Ernst; Mangold, Nicolas; Pondrelli, Monica; Fueten, Frank; Bourgeois, Olivier; Mège, Daniel; Flahaut, Jessica; Adeli, Solmaz; Le Mouélic, Stéphane: **THE SEDIMENTARY ROCK RECORD OF MARS AS VIEWED FROM THE LAST DECADE OF ORBITAL MISSIONS**
- 71-2 1:50 PM Milliken, Ralph E.\*; Grotzinger, John: **UNDERSTANDING THE SEDIMENTARY RECORD OF MARS THROUGH GLOBAL STRATIGRAPHY AND ORBITAL FACIES**
- 71-3 2:05 PM Edgett, Kenneth S.\*: **THE SEDIMENTARY BEDROCK OF THE MARTIAN HEAVILY CRATERED TERRAIN**
- 71-4 2:20 PM Bennett, Kristen A.\*; Bell, III, James F.: **INVESTIGATING THE ORIGIN OF CENTRAL MOUNDS ON MARS**



- 71-5 2:35 PM Gregg, Tracy K.P.\*; Zimbelman, James R.: **THE MEDUSAE FOSSAE FORMATION ON MARS: HOW BIG WAS IT?**
- 71-6 2:50 PM Schultz, Peter H.\*; Zarate, Marcelo: **LOESSOID DEPOSITS IN ARGENTINA AND ON MARS**
- 71-7 3:05 PM McCubbin, Francis\*; Boyce, Jeremy; Szabó, Tímea; Santos, Alison; Tartèse, Romain; Domokos, Gabor; Vazquez, Jorge A.; Moser, Desmond E.; Jerolmack, Douglas J.; Keller, Lindsay P.: **INSIGHTS INTO THE MARTIAN REGOLITH FROM MARTIAN METEORITE NORTHWEST AFRICA 7034**
- 71-8 3:25 PM Sun, Vivian Z.\*; Milliken, Ralph E.: **ANCIENT AND RECENT CLAY FORMATION ON MARS AS REVEALED FROM A GLOBAL SURVEY OF HYDRATED MINERALS IN CRATER CENTRAL PEAKS**
- 71-9 3:40 PM Powell, Kathryn E.\*; Arvidson, Raymond E.; Zanetti, Michael: **THE STRATIGRAPHIC RECORD EXPOSED AT THE RIM AND WALLS OF IAZU CRATER, MARS**
- 71-10 3:55 PM Buz, Jennifer\*; Ehlmann, Bethany L.; Pan, Lu: **MINERALOGY AND STRATIGRAPHY OF GALE CRATER RIM, WALL, AND FLOOR UNITS**
- 71-11 4:10 PM Edgar, Lauren A.\*: **EXPLORING THE SEDIMENTARY ROCK RECORD OF MARS: INSIGHTS GAINED FROM THE OPPORTUNITY AND CURIOSITY ROVERS**
- 71-12 4:30 PM Yingst, R. Aileen\*; Edgett, Kenneth; Kah, Linda C.; McBride, Marie J.; Minitti, Michelle E.; Stack, Kathryn M.; Schieber, Juergen; Grotzinger, John P.; Goetz, Walter; Rowland, Scott K.: **SEDIMENTARY EARLY MARS REVEALED AT THE MICROSACLE AT PAHRUMP HILLS, GALE CRATER**
- 71-13 4:45 PM Kronyak, R.E.\*; Kah, L.C.; Grotzinger, J.P.; Fisk, M.R.; Sumner, D.Y.; Nachon, M.; Mangold, N.; Blaney, D.L.; Rapin, W.; Wiens, R.C.: **GARDEN CITY: A COMPLEX VEIN SYSTEM OBSERVED BY THE CURIOSITY ROVER AT PAHRUMP HILLS, GALE CRATER, MARS**
- 71-14 5:00 PM Heydari, Ezat\*; Edgett, Kenneth S.; Malin, Michael C.; Minitti, Michelle E.; Yingst, R. Aileen; Gellert, Ralf; Thompson, Lucy M.; Rowland, Scott K.; Hallet, Bernard; Sullivan, R.: **TEXTURAL AND GEOCHEMICAL CHARACTERISTICS OF SOIL TARGETS OF GALE CRATER, MARS**
- 71-15 5:15 PM Lapotre, Mathieu G.A.\*; Ehlmann, Bethany L.; Minson, Sarah E.; Ayoub, Francois; Arvidson, Raymond E.; Buz, Jennifer; Fraeman, Abigail A.; Bridges, Nathan T.; Ewing, Ryan; Rubin, David M.: **IMPLICATIONS OF ACTIVE SURFACE PROCESSES FOR THE INTERPRETATION OF THE MARTIAN SEDIMENTARY ROCK RECORD: AEOLIAN SANDS, SEDIMENTS, AND THEIR SOURCES AT GALE CRATER**
- 72-5 2:40 PM Törnqvist, Torbjörn E.\*; Shen, Zhixiong; Mauz, Barbara: **INSIDE AND OUT: ALLOGENIC VS. AUTOGENIC CONTROLS OF THE LOWER MISSISSIPPI RIVER**
- 72-6 3:00 PM Willenbring, Jane K.\*: **NATURAL OR ANTHROPOGENIC: (MIS?)INTERPRETTING FLOODPLAIN GRAIN-SIZE STRUCTURE, FLOOD RECURRENCE AND SEDIMENTATION RATES**
- 3:20 PM **BREAK**
- 72-7 3:35 PM Mahan, Shannon A.\*; Garcia, Antonio F.; Dean, Daniel: **A MODEL OF HOLOCENE TERRACE PRODUCTION IN THE CENTRAL COAST RANGES OF CALIFORNIA**
- 72-8 3:50 PM Riley, Kerry\*; Rittenour, Tammy: **MID-LATE HOLOCENE ARROYO CUT-FILL DYNAMICS: HYDRO-CLIMATE AND COMPLEX INTER-BASIN RESPONSE**
- 72-9 4:05 PM Pazzaglia, Frank J.\*; Carter, Mark W.; Rittenour, Tammy; Malenda, Helen Fitzgerald: **FLUVIAL RESPONSES TO BASE LEVEL, CLIMATE, AND ACTIVE TECTONICS: SOUTH ANNA RIVER, CENTRAL APPALACHIAN PIEDMONT, LOUISA COUNTY, VIRGINIA**
- 72-10 4:20 PM Aslan, Andres\*; Nichols, Doug; Boraas, Marisa: **EARLY OLIGOCENE UPLIFT OF THE ROCKY MOUNTAINS BASED ON U-PB DATING OF FLUVIAL CONGLOMERATES FROM SOUTHWESTERN WYOMING AND NORTHWESTERN COLORADO**
- 72-11 4:35 PM Sincavage, Ryan\*: **THE COMPLEX INTERACTION OF FLUVIAL PROCESSES AND TECTONICS AS RECORDED BY THE HOLOCENE STRATIGRAPHIC ARCHIVE OF SYLHET BASIN, BANGLADESH**
- 72-12 4:50 PM Jonell, Tara N.\*; Clift, Peter D.; Carter, Andrew: **DOWN AND OUT IN ZANSKAR: CONTROLS ON SEDIMENT BUFFERING AND PROVENANCE IN THE HIMALAYAN RAIN SHADOW, NORTHWEST INDIA**
- 72-13 5:05 PM Zaki, Abdallah S.\*: **RECONSTRUCTION THE RESIDUALS OF THE LOST DRAINAGE SYSTEMS ON THE EOCENE PLATEAU OF WESTERN DESERT OF EGYPT**
- 5:20 PM **CONCLUDING REMARKS**

## SESSION NO. 73

***T198. Shale Gas Basins: Their Stratigraphy, Sedimentary Environments, Tectonics, and Structural Evolution (GSA Sedimentary Geology Division; GSA Structural Geology and Tectonics Division; GSA Energy Geology Division)***

1:30 PM, Baltimore Convention Center, Room 307

Ibrahim Çemen, Jack C. Pashin, James O. Puckette and Denise J. Hills, Presiding

1:30 PM **INTRODUCTORY REMARKS**

## SESSION NO. 72

***T188. Inside or Out? Investigations into Driving Forces in Fluvial Systems (GSA Quaternary Geology and Geomorphology Division)***

1:30 PM, Baltimore Convention Center, Room 340

Kerry Riley and Tammy Rittenour, Presiding

1:30 PM **INTRODUCTORY REMARKS**

- 72-1 1:35 PM Ackerman, Tobias R.\*; Pizzuto, James: **POINT BAR AND OVERBANK DEPOSIT STORAGE TIME DISTRIBUTIONS IN A SIMULATED MEANDERING RIVER**
- 72-2 1:50 PM Hasbargen, Leslie\*; Booth, Peter T.; Busby, David; Walling, Derek: **VIEWS OF THE RIVER: FLOOD RECORDS, LIDAR, UAV, AND CANOE BASED MONITORING OF MEANDER MIGRATION IN UPSTATE NEW YORK**
- 72-3 2:05 PM Sobieszczyk, Steven\*: **DECOUPLING TURBIDITY AND DISCHARGE IN LANDSLIDE PRONE WATERSHEDS OF THE CASCADE RANGE, OREGON, USA**
- 72-4 2:20 PM Kim, Wonsuck\*; Baumanis, Carolina: **MIGRATION REVERSALS IN GRAIN-SIZE TRANSITIONS TO SHORELINE**
- 73-1 1:35 PM Çemen, Ibrahim\*; Pashin, Jack C.; Puckette, James O.: **DEVONIAN-MISSISSIPPIAN SHALE GAS PLAYS IN THE SOUTHERN MIDCONTINENT AND SOUTHERN APPALACHIANS: A REVIEW**
- 73-2 1:50 PM Ettensohn, Frank R.\*: **CRATONWARD EXTENSION OF DARK, GAS-SHALE DEPOSITION THROUGH BASIN YOKING: EXAMPLES FROM THE ORDOVICIAN AND DEVONIAN OF NORTH AMERICA**
- 73-3 2:10 PM Pashin, Jack C.\*: **SALINIC-ACADIAN FORELAND BASIN ON THE ALABAMA PROMONTORY: CHALLENGES FOR NATURAL GAS DEVELOPMENT IN STRUCTURALLY COMPLEX SHALE FORMATIONS**
- 73-4 2:25 PM Sharma, Shikha\*; Chen, Ruiqian; Agrawal, Vikas: **BIOGEOCHEMICAL EVIDENCES OF OSCILLATING REDOX CONDITIONS DURING DEPOSITION OF ORGANIC-RICH INTERVALS IN THE MIDDLE DEVONIAN MARCELLUS SHALE**
- 73-5 2:40 PM Yin, Hongwei\*; Zhu, Zhen; Jia, Dong; Chen, Zhuxin: **THE ROLE OF SALT IN THE PRESERVATION AND EXPLORATION PROSPECT OF SHALE GAS IN SICHUAN BASIN, WESTERN CHINA**

SESSION NO. 73

- 73-6 2:55 PM Findlay, III, Clyde Pitt\*; Weislogel, Amy L.: **INFLUENCE OF THE GONDWANIDE MAGMATIC ARC ON THE KAROO BASIN, SOUTH AFRICA**  
3:10 PM **BREAK**
- 73-7 3:25 PM Thibodeaux, Brandon J.\*; Pashin, Jack C.: **EMPLACEMENT, BURIAL HISTORY, AND THERMAL MATURATION OF GIANT DEFORMED SHALE MASSES IN THE CONASAUGA FORMATION, SOUTHERN APPALACHIAN THRUST BELT**
- 73-8 3:40 PM Spiegel, Ethan B.\*; Pietras, Jeffrey T.: **CHEMOSTRATIGRAPHY OF THE ORDOVICIAN TRENTON AND UTICA GROUPS: A CONTINUUM OF FACIES RELATIONSHIPS BETWEEN CARBONATE SHELF, SLOPE, AND BASIN DEPOSITS IN CENTRAL MOHAWK VALLEY, NY**
- 73-9 3:55 PM Eble, Cortland F.\*; Hickman, John B.: **SOURCE ROCK QUALITY AND MATURATION TRENDS IN THE UTICA SHALE PLAY IN EAST-CENTRAL OHIO**
- 73-10 4:10 PM Yilmaz, Ismail Omer\*; Hosgor, Izzet: **POSSIBLE SOURCE ROCKS ON THE TAURIDE CARBONATE PLATFORM: RECORDS OF EQUIVALENT OF CENOMANIAN-TURONIAN ANOXIA AND KIMMERIDGIAN BLACK SHALE IN KONAK-1 WELL (GURUN, SIVAS, CENTRAL TURKEY)**
- 73-11 4:30 PM Heij, Gerhard\*; Elmore, R. Douglas; Roberts, Jennifer M.; Steullet, Alex; Rose, Dustin; Dulin, Shannon A.: **THE MAGNETIC FABRIC OF NORTH AMERICAN SHALES: INSIGHTS INTO DIAGENETIC AND BURIAL PROCESSES**
- 73-12 4:45 PM Powers, Michael\*; Pashin, Jack C.: **EXPLORING MICRO X-RAY COMPUTED TOMOGRAPHY AND SCANNING ELECTRON MICROSCOPY AS TOOLS FOR SHALE ANALYSIS**  
5:05 PM **CONCLUDING REMARKS**

SESSION NO. 74

**T208. Perspectives on Orogenic Evolution, Dating Brittle Faults and Mylonitic Shear Zones, Bending Mountains, and Assembling Supercontinents II: A Session to Honor the Career of Ben Van Der Pluijm (GSA Structural Geology and Tectonics Division)**

1:30 PM, Baltimore Convention Center, Room 343

Arlo Brandon Weil, Eric Tohver, Bernard Housen and Samuel Haines, Presiding

- 74-1 1:30 PM Haines, Samuel H.\*: **GRADED FAULT ROCKS AND A HYDROFRACTURED FAULT ZONE AT THE SNAKE RANGE DETACHMENT, NV, USA: SLIP ON A LOW-ANGLE NORMAL FAULT AT SEISMIC VELOCITIES**
- 74-2 1:45 PM Boles, Austin\*; van der Pluijm, Ben: **METEORIC FLUID INFILTRATION INTO THE CENTRAL ALPINE FAULT (NEW ZEALAND) REVEALED BY ISOTOPIC INVESTIGATION OF CLAY GOUGE**
- 74-3 2:00 PM Lynch, Erin\*; van der Pluijm, Ben A.: **STABLE ISOTOPES OF HYDROGEN IN CLAY MINERALS IN FAULT GOUGE REVEALS METEORIC FLUID INFILTRATION IN THE SUBANDEAN FOLD-THRUST BELT, ARGENTINA**
- 74-4 2:15 PM Marone, Chris\*; Carpenter, Brett: **REFLECTIONS ON FAULTS: BEN VAN DER PLUIJM'S CONTRIBUTIONS TO OUR UNDERSTANDING OF SHEAR FABRIC, CLAY NANOCOATINGS, AND FAULT ZONE PROPERTIES**
- 74-5 2:30 PM Evans, James P.\*; Bradbury, Kelly; Moser, Amy C.; Springer, Sarah; Forand, David H.; Jacobs, Joe: **ANALYSIS OF SAN ANDREAS FAULT ZONE COMPOSITION AND STRUCTURE; SYSTEMATIC MINERALOGIC AND STRUCTURAL STUDIES**
- 74-6 2:45 PM Mazzoli, Stefano\*; Amoroso, Ortensia; Ascione, Alessandra; Bigi, Sabina; Ciotoli, Giancarlo; Parente, Mariano; Ruggiero, Livio; Tartarello, Maria Chiara; Zollo, Aldo: **'EARTHQUAKE RESERVOIRS' AND NON-VOLCANIC DEGASSING IN AN ACTIVELY EXTENDING OROGEN, SOUTHERN APENNINES, ITALY**

- 74-7 3:00 PM Vrolijk, Peter\*; Pevear, David: **FAULT DATING – HISTORY AND EVOLUTION**  
3:20 PM **BREAK**
- 74-8 3:35 PM Pana, Dinu Ion\*; van der Pluijm, Ben: **COMMON JURASSIC TO EOCENE TECTONIC EVOLUTION OF THE SOUTHERN CANADIAN ROCKY MOUNTAINS FOLD-AND-THRUST BELT AND OMINECA BELT; EVIDENCE FROM <sup>40</sup>AR/<sup>39</sup>AR DATING**
- 74-9 3:50 PM Ault, Alexis K.\*; Reiners, Peter W.; Evans, James P.; Thomson, Stuart N.: **LINKING HEMATITE (U-TH)/HE DATING WITH THE MICROTTEXTURAL RECORD OF SEISMICITY IN THE WASATCH FAULT DAMAGE ZONE, UTAH**
- 74-10 4:05 PM Wells, Michael L.\*; Yonkee, Adolph; Giallorenzo, Michael A.; Spell, Terry L.; Zanetti, Kathleen: **UV LASERPROBE <sup>40</sup>AR/<sup>39</sup>AR DATING OF EARLY INTERNAL STRAIN AND LATE FLUID-INDUCED STRAIN LOCALIZATION ASSOCIATED WITH THE WILLARD THRUST, UTAH**
- 74-11 4:20 PM McAleer, Ryan J.\*; Merschat, Arthur J.; Kunk, Michael J.; Southworth, Scott; Wintsch, Robert P.: **REACTION SOFTENING IN RHYOLITES OF THE MOUNT ROGERS FORMATION AND CARBONIFEROUS DEFORMATION ON THE BLUE RIDGE THRUST, VA–NC–TN**
- 74-12 4:35 PM Prior, Michael G.\*; Stockli, Daniel F.; Singleton, John S.: **MIOCENE EXTENSIONAL DEVELOPMENT OF THE HARQUAHALA MOUNTAINS CORE COMPLEX, WEST-CENTRAL ARIZONA: MAGNITUDE AND RATES OF SLIP ALONG THE EAGLE EYE DETACHMENT**

SESSION NO. 75

**T217. Rift-Drift, Seafloor Spreading, and Subduction Zone Tectonics of Collisional Orogens: Comparative Analysis of the Circum-Mediterranean and Appalachian-Caledonian Orogenic Belts (GSA Structural Geology and Tectonics Division; GSA Geophysics Division; GSA Mineralogy, Geochemistry, Petrology, and Volcanology Division; GSA Sedimentary Geology Division; GSA Quaternary Geology and Geomorphology Division; Marine/Coastal Science Discipline)**

1:30 PM, Baltimore Convention Center, Room 341

Andrea Festa and Yildirim Dilek, Presiding

- 1:30 PM **INTRODUCTORY REMARKS**
- 75-1 1:35 PM Hatcher, Jr., Robert D.\*: **ALPS-APPALACHIANS COMPARISON: WORTHWHILE EXERCISE OR "APPLES AND ORANGES?"**
- 75-2 1:55 PM Dilek, Yildirim\*; Furnes, Harald: **CONTINENT-PROXIMAL BACKARC BASIN DEVELOPMENT AND CLOSURE IN THE NORWEGIAN CALEDONIDES, NORTHERN APPALACHIANS AND ANATOLIAN TETHYSIDES**
- 75-3 2:10 PM Burton, William C.\*; Kunk, Michael J.; Bailey, Christopher M.; McAleer, Ryan J.; Spears, David B.: **CORRELATING TERRANES AND THERMOTECTONIC HISTORIES OF CENTRAL VIRGINIA AND NORTHERN VIRGINIA AND MARYLAND, USA**
- 75-4 2:25 PM Raymond, Loren A.\*; Merschat, Arthur J.: **DISMEMBERED OPHIOLITES OF THE ASHE METAMORPHIC SUITE OF NW NORTH CAROLINA, USA**
- 75-5 2:40 PM Honsberger, Ian W.\*: **THE DYNAMICS OF TACONIAN SUBDUCTION ZONE METAMORPHISM AND EXHUMATION: INSIGHTS FROM POLYMETAMORPHOSED MAFIC ROCKS IN THE VERMONT APPALACHIANS**
- 75-6 2:55 PM Kuiper, Yvette D.\*: **A SUBDUCTED OCEANIC SPREADING RIDGE MODEL FOR MID-PALEOZOIC EASTERN NEW ENGLAND AND SOUTHERN MARITIME CANADA**
- 75-7 3:10 PM Kurz, Walter\*; Fritz, Harald; Woelfler, Andreas: **CENOZOIC TECTONICS OF THE ALPINE-CARPATHIAN-MEDITERRANEAN SYSTEM: HOW MANY PLATES, HOW MANY SUBDUCTION ZONES?**

- 3:25 PM **BREAK**
- 75-8 3:40 PM Okay, Aral\*: **PONTIDES - AN ACCRETIONARY OROGEN IN THE CIRCUM-MEDITERRANEAN REGION**
- 75-9 4:00 PM Festa, Andrea\*; Dilek, Yildirim; Ogata, Kei; Pini, Gian Andrea: **COMPARATIVE ANALYSIS OF OLISTOSTROMES (SEDIMENTARY MÉLANGES) IN THE APENNINE AND APPALACHIAN OROGENIC BELTS AND THE PROCESSES OF THEIR FORMATION**
- 75-10 4:15 PM Tartarotti, Paola\*; Festa, Andrea; Benciolini, Luca; Balestro, Gianni: **SERPENTINITE MELANGES IN THE WESTERN ALPS METAOPHIOLITES AND THEIR SIGNIFICANCE IN DETECTING THE PRIMARY PHYSIOGRAPHY OF OCEANIC MANTLE-SEDIMENT INTERFACE**
- 75-11 4:35 PM Balestro, Gianni\*; Festa, Andrea; Dilek, Yildirim; Tartarotti, Paola: **REMNANTS OF A LATE JURASSIC DETACHMENT SHEAR ZONE IN THE MONVISO META-OPHIOLITE COMPLEX (WESTERN ALPS)**
- 75-12 4:50 PM Shimabukuro, David H.\*; Battistella, Claire; Alvarez, Walter: **TETHYAN OCEAN-CONTINENT TRANSITION AND OCEANIC CORE COMPLEX OPHIOLITES OF CALABRIA AND BASILICATA, SOUTHERN ITALY**
- 75-13 5:05 PM Xie, Yanxue\*; Dilek, Yildirim: **STRUCTURE OF THE YARLUNG-ZANGBO SUTURE ZONE (TIBET): NATURE & TIMING OF OCEANIC LITHOSPHERE FORMATION AND COLLISIONAL EVENTS IN EASTERN NEOTETHYS**
- 5:20 PM **DISCUSSION**

**SESSION NO. 76**

**T219. Intraplate and Divergent Boundary Volcanism: A Tribute to the Distinguished Career of David Clague (GSA Mineralogy, Geochemistry, Petrology, and Volcanology Division; Geochemical Society; Mineralogical Society of America; Marine/Coastal Science Discipline)**

1:30 PM, Baltimore Convention Center, Room 319/320

Wendy A. Bohrsen and Jacqueline Dixon, Presiding

- 76-1 1:30 PM Coumans, Jason P.\*; Stix, John; Clague, David A.; Minarik, William G.; Layne, Graham: **THE MAGMATIC ARCHITECTURE OF TANEY SEAMOUNT-A, NORTHEAST PACIFIC OCEAN**
- 76-2 1:45 PM Rubin, Kenneth H.\*; Sinton, John; White, Scott: **WALKING THE CONTACT UNDER WATER: GEOLOGIC MAPPING OF SUBMARINE VOLCANO HISTORIES**
- 76-3 2:00 PM Ryan, Michael Patrick\*: **SOLITARY WAVES AND DEEP MAGMA MIGRATION IN THE 1959 ERUPTIONS AT KILAUEA IKI, KILAUEA VOLCANO, HAWAI'I**
- 76-4 2:15 PM Helz, Rosalind T.\*; Cottrell, E.; Kelley, Katherine A.; Brounce, M.N.: **OLIVINE-MELT EQUILIBRATION AND REDOX RELATIONSHIPS IN SCORIA FROM THE 1959 ERUPTION OF KILAUEA VOLCANO, HAWAI'I**
- 76-5 2:30 PM Swanson, Donald A.\*: **ERUPTION CYCLES AND EXPLOSIVE HAZARDS AT KILAUEA VOLCANO, HAWAI'I**
- 2:50 PM **MGPV 2015 DISTINGUISHED CAREER AWARD CITATION FOR DAVID A. CLAGUE**
- 76-6 3:10 PM Clague, David A.\*; Portner, Ryan A; Paduan, Jennifer Brophy; Dreyer, Brian: **SUMMIT OVERFLOW PERIODS, CALDERA FORMATION, EXPLOSIVE ERUPTION PERIODS, AND VARYING MAGMA FLUX AT BASALTIC VOLCANOES**
- 3:30 PM **DISCUSSION**
- 76-7 3:40 PM Frey, Frederick A.\*; Nobre Silva, Ines G; Weis, Dominique: **HAWAIIAN-EMPEROR RIDGE AND NINETYEAST RIDGE: A COMPARISON OF TWO HOTSPOT TRACKS**
- 4:00 PM **BREAK**
- 76-8 4:15 PM Bizimis, Michael\*: **SPINEL PERIDOTITES FROM THE HAWAIIAN HOTSPOT AS PROBES OF MANTLE HETEROGENEITY**

- 76-9 4:30 PM Natland, James H.\*: **FOUR VOLCANOES IN THE PACIFIC**
- 76-10 4:45 PM Cousens, Brian\*; Weis, Dominique; Constantin, Marc; Scott, Steve: **THE HIMU CONNECTION IN ENRICHED MID-OCEAN RIDGE BASALTS FROM EXPLORER RIDGE, NORTHEAST PACIFIC OCEAN**
- 76-11 5:00 PM Dixon, Jacqueline\*: **VOLATILES IN MID-OCEANIC RIDGE AND OCEANIC ISLAND BASALTS (OR MY ADVENTURES WITH DAVID CLAGUE)**
- 76-12 5:15 PM Hauri, E.H.\*; MacLennan, J.; McKenzie, D.P.; Gronvold, K.; Oskarsson, N.; Shimizu, Nobumichi: **VARIABLE UPPER MANTLE CO<sub>2</sub>/NB AND CO<sub>2</sub> ABUNDANCES: EVIDENCE FROM UNDEGASSED MELT INCLUSIONS FROM BORGARHRAUN, NORTHERN ICELAND**

**SESSION NO. 77**

**P1. Celebrating the Genius of William 'Strata' Smith: Bicentennial Anniversary of Smith's Revolutionary Map II (GSA History and Philosophy of Geology Division; GSA Sedimentary Geology Division; GSA Geology and Society Division; Association of American State Geologists; Geological Society of London; History of Earth Sciences Society; Paleontological Society; GSA Karst Division)**

2:00 PM, Baltimore Convention Center, Room 327/328/329

George H. Davis, Renee Clary and Suzanne O'Connell, Presiding

- 2:00 PM **INTRODUCTION: SUZANNE O'CONNELL**
- 77-1 2:05 PM Wigley, Peter\*: **WILLIAM SMITH FROM FULLERS EARTH TO GOOGLE EARTH**
- 77-2 2:45 PM Raymo, Maureen E.\*: **MAPPING AND PALEOCLIMATE SCIENCE - SMITH'S LEGACY**
- 77-3 3:10 PM Meinert, Lawrence D.\*: **GEOLOGIC MAPPING AND MINERAL RESOURCES**

**MONDAY, 2 NOVEMBER 2015****MORNING ORAL TECHNICAL SESSIONS****SESSION NO. 78**

**Paleontology: Limits to Life: Trends in Origination and Extinction**

8:00 AM, Baltimore Convention Center, Room 315

Simon A.F. Darroch and Daniel Killam, Presiding

- 78-1 8:00 AM Trubovitz, Sarah\*; Stigall, Alycia L.; Anderson, James A.: **RECONSTRUCTING THE GREAT ORDOVICIAN BIODIVERSIFICATION EVENT THROUGH BRACHIOPODS OF OKLAHOMA**
- 78-2 8:15 AM Stigall, Alycia L.\*; Wright, David F.; Lam, Adriane R.; Bauer, Jennifer E.: **BIOTIC IMMIGRATION EVENTS, SPECIATION, AND BIODIVERSITY IN ORDOVICIAN SEAS OF LAURENTIA**
- 78-3 8:30 AM Smits, Peter D.\*: **HOW DO BIOLOGICAL TRAITS AFFECT BRACHIOPOD TAXONOMIC SURVIVAL? A HIERARCHICAL BAYESIAN APPROACH**
- 78-4 8:45 AM Freeman, Rebecca L.\*; Miller, James F.; Dattilo, Benjamin F.: **BRACHIOPODS, BIOMERES, AND BIOFACIES: INTERPRETING THE CAUSE OF LATE CAMBRIAN-EARLIEST ORDOVICIAN EXTINCTION IN A SHALLOW CRATONIC SEA, CENTRAL TEXAS**
- 78-5 9:00 AM Sclafani, Judith A.\*; Congreve, Curtis R.; Krug, Andrew Z.; Patzkowsky, Mark E.: **DYNAMICS OF EXTINCTION AND RECOVERY: A STUDY OF MORPHOSPACE SHIFTS DURING AND AFTER THE LATE ORDOVICIAN MASS EXTINCTION**

AM

MONDAY

## SESSION NO. 78

- 78-6** 9:15 AM Krug, Andrew Z.\*; Congreve, Curtis R.; Patzkowsky, Mark E.: **DIFFERENTIAL RECOVERY FROM CLUSTERED ORIGINATIONS IN THE RECOVERY FROM THE LATE ORDOVICIAN MASS EXTINCTION**
- 78-7** 9:30 AM Payne, Jonathan L.\*; Heim, Noel A.; Knope, Matthew L.; Bush, Andrew M.; McCauley, Douglas J.: **COMPARATIVE INTENSITY AND SELECTIVITY OF THE EMERGING SIXTH EXTINCTION IN THE OCEAN**
- 78-8** 9:45 AM Foote, Michael\*; Ritterbush, Kathleen A.; Miller, Arnold I.: **HIERARCHICAL DECOMPOSITION OF GEOGRAPHIC RANGE AND ITS IMPLICATIONS FOR UNDERSTANDING EXTINCTION RESISTANCE IN MARINE ANIMAL GENERA**
- 78-9** 10:00 AM Orzechowski, Emily A.\*; Heim, Noel A.; Knope, Matthew L.; Payne, Jonathan L.; Finnegan, Seth: **TESTING THE LAW OF CONSTANT EXTINCTION WITHIN MARINE ADAPTIVE ZONES**
- 78-10** 10:15 AM Warnock, Rachel C.M.\*; Heath, Tracy A.; Stadler, Tanja: **THE FOSSILIZED BIRTH-DEATH PROCESS FOR ESTIMATING SPECIATION AND EXTINCTION RATES**
- 80-1** 8:05 AM Clift, Peter D.\*; East, Amy E.: **ACCRETIONARY OROGENS IN SOUTH ASIA AND ALASKA COMPARED AND CONTRASTED**
- 80-2** 8:25 AM Xiao, Wenjiao\*; Natal'in, Boris; Şengör, A.M. Celâl: **THE OROGENIC BELTS IN CENTRAL ASIA AND THEIR CHARACTERISTICS**
- 80-3** 8:40 AM McKay, Matthew P.\*; Gray, Keith D.; Jackson, Jr., William T.; Thomas, William A.: **HIGHWAY TO THE SUTURE ZONE: A COMPARATIVE STUDY OF TERRANE ACCRETION BETWEEN THE MESOZOIC SALMON RIVER SUTURE ZONE OF THE NORTHWESTERN U.S. CORDILLERA AND THE CENOZOIC PENGLAI SUTURE, TAIWAN**
- 80-4** 8:55 AM Yin, Jiyuan\*; Chen, Wen; Xiao, Wenjiao; Yuan, Chao; Sun, Min; Long, Sr., Xiaoping: **LATE CARBONIFEROUS RIDGE SUBDUCTION AND CONTINENTAL GROWTH IN THE WEST JUNGGAR OF NW CHINA: INSIGHTS FROM ALASKAN-STYLE MAGMATIC ASSOCIATIONS**
- 80-5** 9:10 AM Bold, Uyanga\*; Macdonald, Francis A.; Smith, Emily F.; Crowley, James L.: **INITIATION OF SUBDUCTION BELOW THE ZAVKHAN TERRANE OF MONGOLIA AND THE ONSET OF ACCRETIONARY OROGENESIS IN THE CENTRAL ASIAN OROGENIC BELT**
- 80-6** 9:25 AM Cope, Tim D.\*; Williams, Nicholas J.: **INITIATION AND DEVELOPMENT OF THE CENTRAL ASIAN OROGENIC BELT: THE VIEW FROM NORTH CHINA**
- 80-7** 9:40 AM Jiang, Yingde\*; Schulmann, Karel; Sun, Min; &#x0160;tipšká, Pavla; Guy, Alexandra; Lexa, Ondrej; Janoušek, Vojtěch: **MELTING ACCRETIONARY WEDGE AND BUILDING MATURE CONTINENTAL CRUST IN THE ALTAI OROGENIC BELT, CENTRAL ASIA**

## SESSION NO. 79

**P1. Celebrating the Genius of William 'Strata' Smith: Bicentennial Anniversary of Smith's Revolutionary Map III (GSA History and Philosophy of Geology Division; GSA Sedimentary Geology Division; GSA Geology and Society Division; Association of American State Geologists; Geological Society of London; History of Earth Sciences Society; Paleontological Society; GSA Karst Division)**

8:00 AM, Baltimore Convention Center, Room 327/328/329

George H. Davis, Renee Clary and Suzanne O'Connell, Presiding

- 8:00 AM **INTRODUCTION: RENEE CLARY**
- 79-1** 8:15 AM Kastens, Kim A.\*; Ryan, William B.F.: **A COMPARISON OF SMITH'S GEOLOGICAL MAPPING AND THARP/HEEZEN'S SEAFLOOR MAPPING: WHY DID THESE MAPS ENABLE NEW THINKING ABOUT EARTH PROCESSES?**
- 79-2** 8:40 AM Krantz, Robert W.\*: **BEYOND MAPPING: 3D GEOLOGIC INTERPRETATION**
- 79-3** 9:05 AM Beck, Susan\*; Zandt, George; Ward, Kevin; Delph, Jonathan R.: **MAPPING CONTINENTAL LITHOSPHERE – 25 YEARS OF SEISMIC IMAGING IN THE ANDES**
- 79-4** 9:30 AM McSween, H.Y.\*: **STRATIGRAPHIC MAPPING IN PLANETARY EXPLORATION**
- 79-5** 9:55 AM Thorleifson, Harvey\*: **THE THIRD CENTURY OF GEOLOGICAL MAPPING: WHAT WILL CHANGE?**
- 10:20 AM **BREAK**
- 79-6** 10:40 AM Butler, Robert W.H.\*; Bond, Clare E.: **ANCHORS AWEIGH - MAPPING ON THE EDGE OF REASON**
- 79-7** 11:05 AM Baker, Victor R.\*: **MAPPING AS THINKING: GEOLOGY AS THE PREMIER SCIENCE OF SYNTHETIC REASONING**
- 79-8** 11:30 AM Clary, Renee M.\*: **HISTORICAL IMPACT AND PHILOSOPHICAL PROJECTIONS FOR WILLIAM SMITH'S 1815 MAP**
- 9:55 AM **BREAK**
- 80-8** 10:10 AM He, Dengfa\*: **TWO-STAGE GROWTH MODEL OF THE JUNGGAR BASIN BASEMENT: CONSTRAINS FROM GEOCHRONOLOGY AND GEOCHEMISTRY OF THE BOREHOLE CARBONIFEROUS-PERMIAN VOLCANIC ROCKS**
- 80-9** 10:25 AM Jahn, Bor-ming\*; Valui, Galina; Kruk, Nikolai; Gonevchuk, V.; Usuki, Masako; Wu, Jeremy T.J.: **MESOZOIC TO EARLY CENOZOIC GRANITOIDS OF THE SIKHOTEALIN OROGENIC BELT, RUSSIAN FAR EAST: PETROGENESIS, CRUSTAL GROWTH AND REGIONAL TECTONIC EVOLUTION**
- 80-10** 10:40 AM Liu, Shaofeng\*: **OBLIQUE CLOSURE OF THE NORTHEASTERN PALAEO-TETHYS IN CENTRAL CHINA**
- 80-11** 10:55 AM Li, Xianghui\*: **MULTIPLE SOURCES OF THE UPPER TRIASSIC FLYSCH IN EASTERN HIMALAYA OROGEN, TIBET, CHINA: IMPLICATIONS TO PALEOGEOGRAPHY AND PALEOTECTONIC EVOLUTION**

## SESSION NO. 81

**T4. Bridging Two Continents: Diamonds, Zircons and Native Elements in the Mantle: New Discoveries and Models on the Properties and Petrogenesis of Oceanic Mantle Lithosphere (GSA Mineralogy, Geochemistry, Petrology, and Volcanology Division; GSA Structural Geology and Tectonics Division; MSA Mineral Physics; GSA Geophysics Division; Mineralogical Society of America; Geochemical Society)**

8:00 AM, Baltimore Convention Center, Room 347/348

Yildirim Dilek, Paul T. Robinson, Juhn G. Liou and Jingsui Yang, Presiding

- 81-1** 8:00 AM Liou, Juhn G.\*; Tsujimori, Tatsuki; Yang, Jing-Sui; Zhang, Ruyuan; Ernst, W. G.: **DEEP UPPER MANTLE RECYCLING OF CRUSTAL MATERIALS: EVIDENCE FROM UHP MINERALS IN COLLISIONAL OROGENS, OPHIOLITES, AND XENOLITHS**
- 81-2** 8:15 AM Yang, Jing-Sui\*; Wirth, Richard; Xiong, Fahui; Xu, Xiangzhen; Tian, Yazhou; Huang, Zhu; Robinson,

- Paul T.; Dilek, Yildirim: **FORMATION OF OPHIOLITE-HOSTED DIAMONDS BY DEEP SUBDUCTION OF OCEANIC LITHOSPHERE: EVIDENCE FROM MINERAL INCLUSIONS**
- 81-3 8:30 AM Yamamoto, Shinji\*; Kawai, Kenji; Maruyama, Shigenori: **BRIDGING TWO CONTINENTS: EVIDENCE OF CONTINENTAL CRUST NEAR THE MANTLE TRANSITION ZONE FROM THE LUOBUSA PODIFORM CHROMITITES**
- 81-4 8:45 AM Robinson, Paul T.\*; Yang, Jingsui; Zhu, Huang; Tian, Yazhou; Xiong, Fahui: **WHAT ZIRCON IN OPHIOLITIC PERIDOTITES AND CHROMITITES REVEALS ABOUT UPPER MANTLE PROCESSES**
- 81-5 9:00 AM Zhang, Ru Yuan\*; Yang, Jingsui; Ernst, W.G.; Jahn, Bor-ming; Iizuka, Yoshiyuki; Guo, Guolin: **DISCOVERY OF *IN SITU* SUPER-REDUCING, UHP PHASES IN LUOBUSA OPHIOLITIC CHROMITITES, TIBET: NEW INSIGHT INTO THE DEEP UPPER MANTLE AND THE TRANSITION ZONE**
- 81-6 9:15 AM Xiong, Fahui\*: **MINERAL AND PETROLOGY OF CR-RICH OPHIOLITIC CHROMITITES OF BULQIZA, EASTERN OPHIOLITIC BELT, ALBANIA**
- 81-7 9:30 AM Tian, Yazhou\*; Yang, Jingsui; Robinson, Paul T.; Xiong, Fahui: **THE TWO METALLOGENIC STAGES FOR SARTOHAY CHROMITITE**
- 81-8 9:45 AM Olds, Eric Peter\*; Sanborn, Matthew E.; Teague, Timothy T.; Yin, Qing-zhu: **CHROMIUM ISOTOPES OF CHROMITE GRAINS FROM THE KT BOUNDARY AT THE WESTERN CRETACEOUS SEA PALEO-MARGIN: EVIDENCE FOR EXCAVATION AND EJECTION OF OCEANIC CRUST AND/OR UPPER MANTLE BY THE IMPACT**
- 10:00 AM **BREAK**
- 81-9 10:15 AM Dick, Henry J.B.\*; Gao, Changui; Zhou, Huaiyang; Standish, Jared J.; Marschall, Horst: **REMELTING THE GONDWANAN MANTLE**
- 81-10 10:30 AM Dilek, Yildirim\*; Uysal, Ibrahim; Ersoy, E. Yalçın: **COMPOSITIONS AND MELT EVOLUTION OF PERIDOTITES IN THE MESOZOIC PERI-GONDWANAN OPHIOLITES, AND NEOTETHYAN MANTLE TECTONICS**
- 81-11 10:45 AM Casey, John\*; Gao, Yongjun; Zhang, Xiaojing; Dewey, John F.: **PLATE ACCRETION OF THE ORDOVICIAN BAY OF ISLANDS OPHIOLITE AND HOT SUBDUCTION/SUBCRETION DURING THE EVOLUTION OF A FORE-ARC R-TR-TR TRIPLE JUNCTION AS THE TACONIC ARC ENCRACED UPON LAURENTIA**
- 81-12 11:00 AM Liu, Fei\*; Yang, Jing-Sui; Dilek, Yildirim; Lian, Dongyang; Zhao, Hui; Xie, Yanxue; Zhang, Li: **STRUCTURE, GEOCHEMISTRY AND GEOCHRONOLOGY OF THE WESTERN YARLUNG ZANGBO OPHIOLITES IN SOUTHERN TIBET (CHINA), AND IMPLICATIONS FOR THE NEOTETHYAN TECTONICS**
- 81-13 11:15 AM Guo, Guolin\*: **MID-OCEAN RIDGE (MOR) AND SUPRASUBDUCTION ZONE (SSZ) GEOLOGICAL EVENTS IN THE YARLUNG ZANGBO SUTURE ZONE: EVIDENCE FROM THE MINERAL RECORD OF MANTLE PERIDOTITES**
- 81-14 11:30 AM Yu, Hong\*; Li, Hongyan; Wang, Dong; Niu, Zhijian; Hou, Guowang; Zhang, Ke; Wang, Tianqi: **STUDY OF THE ORIENTED MICROSTRUCTURE IN APATITE FROM ULTRABASIC ROCK OF THE DABIE - SULU ULTRA-HIGH PRESSURE TERRANE**
- 81-15 11:45 AM Li, Yanqing\*: **RECYCLING OF OCEANIC CRUST FROM A STAGNANT SLAB IN THE MANTLE TRANSITION ZONE: EVIDENCE FROM CENOZOIC CONTINENTAL BASALTS IN ZHEJIANG PROVINCE, SE CHINA**

## SESSION NO. 82

*T9. Developing Proxies for Human Impact on Soil and Sediment Mass Transfer throughout the Holocene (GSA Quaternary Geology and Geomorphology Division; Past Global Changes (PAGES)—GLoSS Working Group; GSA Geology and Society Division; GSA Soils and Soil Processes Interdisciplinary Interest Group; GSA Archaeological Geology Division)*

8:00 AM, Baltimore Convention Center, Room 318

Thomas Hoffmann, Timothy P. Beach and Gary Stinchcomb, Presiding

8:00 AM **INTRODUCTORY REMARKS**

- 82-1 8:15 AM Latrubesse, Edgardo\*: **SOURCE TO SINK AND THE HUMAN FACTOR IN LARGE FLUVIAL SYSTEMS: THE CASE OF SOUTH AMERICA**
- 82-2 8:35 AM Johnson, Katharine M.\*; Ouimet, William B.: **IMPACTS OF TERRAIN ROUGHNESS ON 18TH-20TH CENTURY LAND USE DISTRIBUTION AND SEDIMENT MASS TRANSFER IN SOUTHERN NEW ENGLAND**
- 82-3 8:50 AM Schmidt, Amanda H.\*; Neilson, Thomas B.; Bierman, Paul R.; Sosa-Gonzalez, Veronica; Bower, Jennifer A.; Rood, Dylan H.; Ouimet, William B.: **USING <sup>10</sup>BE AND SHORT-LIVED FALLOUT RADIONUCLIDES TO TRACK SEDIMENT MOVEMENT THROUGH WATERSHEDS IN YUNNAN, CHINA**
- 82-4 9:05 AM Sosa-Gonzalez, Veronica\*; Schmidt, Amanda H.; Bierman, Paul R.; Neilson, Thomas B.; Singleton, Adrian; Qiu, Yue; Bower, Jennifer A.; Rood, Dylan H.: **UNDERSTANDING SEDIMENT SOURCING AND EROSION CONTROLS FROM <sup>10</sup>BE MEASUREMENTS IN FLUVIAL SEDIMENTS FROM YUNNAN, CHINA**
- 82-5 9:20 AM Singleton, Adrian\*; Henck Schmidt, Amanda; Sosa-Gonzalez, Veronica; Qiu, Yue; Neilson, Thomas; Greene, Emily Sophie; Bierman, Paul; Rood, Dylan; Campbell, Mary K.; Woodmansee, Sylvia Jane: **EFFECTS OF GRAIN SIZE AND MINERALOGY ON THE DISTRIBUTION OF FALLOUT RADIONUCLIDES <sup>7</sup>BE, <sup>10</sup>BE, <sup>137</sup>CS, AND <sup>210</sup>PB IN SEDIMENT**
- 82-6 9:35 AM Ouimet, William B.\*; Dethier, David P.; Johnson, Katharine; Kotikian, Maneh; Wicherski, Will: **QUANTIFYING 18<sup>TH</sup> TO EARLY 20<sup>TH</sup> CENTURY HUMAN IMPACTS ON HILLSLOPES AND SEDIMENT MOBILIZATION IN SOUTHERN NEW ENGLAND AND COLORADO FRONT RANGE**
- 9:50 AM **BREAK**
- 82-7 10:05 AM Nicoll, Kathleen\*: **BEYOND "HISTORIC TRASH" FINDS – METHODOLOGICAL APPROACHES AND GEOARCHAEOLOGICAL CASE STUDIES OF SITE FORMATION AND HUMAN AGENCY FROM THE MIDDLE EAST AND THE US SOUTHWEST**
- 82-8 10:25 AM Beach, Timothy\*; Luzzadder-Beach, Sheryl; Krause, Samantha M.; Eshleman, Sara: **A TALE OF THREE NEOTROPICAL FLOODPLAIN WETLANDS OF BELIZE**
- 82-9 10:40 AM Mueller, Raymond G.\*; Joyce, Arthur; Goman, Michelle F.; Cesta, Jason M.; Lock, Gracie: **ANTHROPOGENIC INFLUENCED GEOMORPHIC EVOLUTION OF STREAM CHANNELS AND COASTAL ENVIRONMENTS ADJACENT TO IMPORTANT ARCHAEOLOGICAL SITES IN THE LOWER RIO VERDE VALLEY, OAXACA, MEXICO**
- 82-10 10:55 AM Leigh, David S.\*; Gragson, Theodore L.; Coughlan, Michael R.: **NEOLITHIC AND YOUNGER LEGACY SEDIMENTS AND SOILS ALONG SUMMITS OF THE WESTERN PYRENEES MOUNTAINS, FRANCE**
- 82-11 11:10 AM Thieme, Donald\*; Stinchcomb, Gary: **ANTHRACITE COAL AS A PROXY FOR HUMAN IMPACT AND ENVIRONMENTAL CHANGE, MID-ATLANTIC U.S.A**

AM

MONDAY



SESSION NO. 82

- 82-12 11:25 AM Munoz, Samuel\*: **DEVELOPING A LONG-TERM PERSPECTIVE OF FLOODING IN THE MISSISSIPPI RIVER BASIN USING FLUVIO-LACUSTRINE SEDIMENTS**  
 11:45 AM **DISCUSSION**  
 11:55 AM **CONCLUDING REMARKS**

SESSION NO. 83

**T18. Metals in Ore Fluids: Sources, Concentrations, Modes of Transport, and Precipitation (Society of Economic Geologists; Geochemical Society; GSA Mineralogy, Geochemistry, Petrology, and Volcanology Division)**

8:00 AM, Baltimore Convention Center, Room 322/323

Ryan Mathur and Martin Appold, Presiding

- 83-1 8:00 AM Bodnar, R.J.\*: **METALS IN ORE-FORMING FLUIDS AND PROCESSES ASSOCIATED WITH FORMATION OF ECONOMIC MINERAL DEPOSITS**
- 83-2 8:20 AM Huff, G.F.\*: **EVOLUTION OF LI-ENRICHED OILFIELD BRINES IN DEVONIAN CARBONATES OF THE SOUTH-CENTRAL ALBERTA BASIN, CANADA**
- 83-3 8:35 AM Smith, Sarah Elisabeth\*; Appold, Martin S.: **PREDICTION OF MVT ORE FLUID METAL CONCENTRATIONS FROM SOLID SOLUTION METAL CONCENTRATIONS IN ORE-STAGE CALCITE**
- 83-4 8:50 AM Appold, Martin S.\*: **HOW ZN-PB-RICH ARE SEDIMENTARY BRINES THAT FORM CARBONATE-HOSTED ZN-PB ORE DEPOSITS? RECENT PROGRESS AND UNRESOLVED QUESTIONS**
- 83-5 9:05 AM Sahoo, Prabodha Ranjan\*; Khan, Israil; Venkatesh, A.S.; Golani, P R: **A VMS LIKE COPPER-GOLD MINERALIZATION IN THE ALWAR BASIN OF NORTH DELHI FOLD BELT, WESTERN INDIA: EVIDENCES FROM GEOLOGICAL ASPECTS**
- 83-6 9:20 AM Anand, R.\*; Mishra, Gaurav: **GENESIS OF MAGNESITE DEPOSITS OF ARCHEAN SARGUR SUPRACRUSTAL BELT, KARNATAKA, INDIA**  
 9:35 AM **BREAK**
- 83-7 9:50 AM Frank, Mark R.\*; Lubanowski, Colby; Fraley, Kendle; Lanzirotti, Antonio: **COPPER, IRON, AND ZINC IN SULFUR-RICH MAGMATIC VOLATILE PHASES AT 500-700 °C AND 100 MPA**
- 83-8 10:10 AM Sublett, D. Matthew\*; Gonzalez, Maria Mercedes; Bodnar, R.J.: **PARTITIONING BEHAVIOR OF SODIUM AND POTASSIUM BETWEEN IMMISCIBLE FLUIDS IN THE H<sub>2</sub>O-NACL-KCL SYSTEM AT MAGMATIC CONDITIONS**
- 83-9 10:25 AM Cruz-Pérez, Miguel Angel\*; Canet, Carles; Franco, Sara I.; Camprubí, Antoni; González-Partida, Eduardo; Rajabi, Abdorrahman: **BOILING AND FLUID EVOLUTION IN ACTIVE AND FOSSIL HYDROTHERMAL SYSTEMS: A COMPARATIVE APPROACH BASED ON FLUID INCLUSION CASE STUDIES FROM MEXICO**
- 83-10 10:40 AM Bain, Wyatt\*; Cline, Jean S.; Marsh, Timothy M.: **THE APPLICATION OF FLUID INCLUSION RESEARCH TO PORPHYRY COPPER EXPLORATION IN THE KABBA PROSPECT, MOHAVE COUNTY, ARIZONA**
- 83-11 10:55 AM Swain, S.K.\*; Sarangi, S.; Srinivasan, R.; Mazumdar, A.; Satyanarayanan, M.: **SULFUR ISOTOPE AND REE GEOCHEMICAL STUDIES OF AURIFEROUS QUARTZ CARBONATE VEINS FROM CENTRAL LODE SYSTEM, GADAG GOLD FIELD, DHARWAR CRATON, INDIA: IMPLICATIONS ON SOURCE OF ORE FLUIDS**
- 83-12 11:10 AM Segato, Alysa\*; Kendall, Brian; Hanley, Jacob: **FURTHER INSIGHTS INTO MO ISOTOPE VARIATIONS IN MOLYBDENITES FROM DIFFERENT ORE DEPOSITS**
- 83-13 11:25 AM Korzeb, Stanley\*; Scarberry, Kaleb; Zimmerman, Jarred L.; Gammons, Christopher: **NEW INTERPRETATIONS OF VEIN GENESIS FOR THE EMERY MINING DISTRICT, POWELL COUNTY, MONTANA**

SESSION NO. 84

**T47. Geology and Health: A Decade of Progress (GSA Geology and Health Division; GSA Geology and Society Division)**

8:00 AM, Baltimore Convention Center, Room 325/326

Thomas H. Darrah, Suzette A. Morman, Andrew Hunt, Kevin E. Nick and Saugata Datta, Presiding

- 8:00 AM **INTRODUCTORY REMARKS**
- 84-1 8:05 AM Darrah, Thomas H.\*: **A CHANGING PARADIGM IN ENVIRONMENTAL METAL CHEMISTRY?**
- 84-2 8:20 AM Schoonen, Martin A.\*; Kaur, Jasmeet: **MINERAL-INDUCED REACTIVE OXYGEN SPECIES RESEARCH IN THE CONTEXT OF MEDICAL GEOLOGY: AN UPDATE**
- 84-3 8:35 AM Sharp, Rosalie M.\*; Fitzstevens, Maia G.; Brabander, Daniel J.: **URBAN CARBON CYCLE RISKS AND RESOURCES: ASSESSING THE POTENTIAL OF MUNICIPAL COMPOST IN URBAN SOIL LEAD REMEDIATION**
- 84-4 8:50 AM Gallagher, Ciaran L.\*; Oettgen, Hannah L.; Okhai, Disha C.; Brabander, Daniel J.: **ASSESSING RISKS AND POTENTIAL BENEFITS OF HARVESTING URBAN FRUIT**
- 84-5 9:05 AM Datta, Saugata\*; Vega, Michael; Kumar, Naresh; Barua, Shovon; Johannesson, Karen; Kempton, Pamela; Bhattacharya, Prosun: **GEOGENIC MN IN DRINKING WATERS OF WEST BENGAL, INDIA**
- 84-6 9:20 AM Jacobs, Alan M.\*; Acheampong, Nana Y.; Amin, Isam E.: **CORRELATION BETWEEN MAGNESIUM CONCENTRATIONS IN THE DRINKING WATER AND ISCHEMIC HEART DISEASE MORTALITY RATE IN OHIO, USA**  
 9:35 AM **BREAK**
- 84-7 9:50 AM Londono, S. Carolina\*; Williams, Lynda B.: **EVIDENCE FOR CLAY MINERAL SORPTION OF BACTERIAL NUTRIENTS CAUSING GROWTH INHIBITION**
- 84-8 10:05 AM Maurais, Tony H.S.\*; Donohue, Keri B.; Garcia-Reyero, Natalia; Perkins, Edward J.; Gellasch, Christopher A.; Brueggemeyer, Mary T.; Gust, Kurt A.: **CYTOTOXICITY ASSESSMENT OF HIGH-NITROGEN COMPOUNDS USING A NOVEL IN VITRO MULTI-CELLULAR APPROACH**
- 84-9 10:20 AM Schmidt, Millicent P.\*; Reeder, Richard J.: **TRANSFORMATION BEHAVIOR AND STRUCTURE OF A SERIES OF AMORPHOUS CALCIUM CARBONATE/ PHOSPHATE HYBRIDS**
- 84-10 10:35 AM Kinder, Katherine M.\*; Gellasch, Christopher A.; Dusenbury, James S.; Timmes, Thomas C.; Brueggemeyer, Mary T.; Hughes, Thomas M.; Meade, Terry G.: **THE EFFECT OF TEMPERATURE AND HUMIDITY ON THE TRANSFER OF AIRBORNE BENZENE INTO WATER PRODUCED BY CONDENSATION WATER FROM AIR TECHNOLOGY**
- 84-11 10:50 AM Nath, Samuel Hunter\*; Dere, Ashlee Laura Denton: **SOIL PROPERTIES INFLUENCING THE SPATIAL DISTRIBUTION OF ANTHRAX IN NORTHWEST MINNESOTA**
- 84-12 11:05 AM Horton, Ashley\*; Ruhl, Laura: **KIDNEY STONE SYNTHESIS UNDER VARYING CONDITIONS**

SESSION NO. 85

**T55. Investigating Coastal Environments: A Tribute to Derald G. Smith (GSA Quaternary Geology and Geomorphology Division; GSA Limnogeology Division; Marine/Coastal Science Discipline)**

8:00 AM, Baltimore Convention Center, Room 336

Harry M. Jol, Presiding

- 8:00 AM **INTRODUCTORY REMARKS**
- 8:05 AM **OVERVIEW OF DERALD G. SMITH'S CAREER**
- 85-1 8:15 AM Thompson, Todd A.\*; Johnston, John W.; Loope, Henry M.; Jol, Harry M.: **SHORELINE ARCHITECTURE DURING A**



- LAKE-LEVEL RISE AND FALL OF THE UPPER GREAT LAKES OVER A PERIOD OF SEVERAL MILLENNIA**
- 85-2** 8:30 AM Psuty, Norbert P.\*; Schmelz, William J.; Greenberg, Joshua; Beal, Irina: **DISPLACEMENT AND RECOVERY: THE POST-HURRICANE SANDY GEOMORPHOLOGICAL EVOLUTION OF THE FORT TILDEN SITE, GATEWAY NATIONAL RECREATION AREA**
- 85-3** 8:45 AM Elliott, Emily A.\*; McKee, Brent A.; Rodriguez, Antonio B.: **ESTUARINE SEDIMENTATION, <sup>210</sup>Pb AND AGE MODELS IN A CHANGING WORLD – THE RIGHT FIT MAKES ALL THE DIFFERENCE**
- 85-4** 9:00 AM Cornell, Sean\*; Gildner, Brett R.; Loski, Brett; Oakley, Adrienne; Bochicchio, Christopher: **SOIL ANALYSIS OF MID-ATLANTIC BARRIER ISLAND GHOST FORESTS ON ASSATEAGUE ISLAND, VIRGINIA: IMPLICATIONS FOR MODELING THE IMPACTS OF SEA-LEVEL RISE**
- 85-5** 9:15 AM Wood, Kelsey Lynn\*; Prestegaard, Karen L.; Kaufman, Alan J.: **SPATIAL VARIATIONS IN SEDIMENT TYPE, ACCRETION RATES, AND RECORDS OF N ISOTOPIC CHANGE IN FRESHWATER TIDAL MARSH CHANNELS**
- 85-6** 9:30 AM Palermo, Rose\*; Mohrig, David; Piliouras, Anastasia; Swanson, Travis: **RATES AND MECHANISMS OF EROSION GENERATING A WAVE-CUT PLATFORM AT SARGENT BEACH, TEXAS, USA**
- 9:45 AM **BREAK**
- 85-7** 10:00 AM Fisher, Timothy G.\*: **SPILLWAYS EMANATING FROM GLACIAL LAKE AGASSIZ COASTLINES**
- 85-8** 10:15 AM Jol, Harry M.\*; Oviatt, Charles G.; Jewell, Paul; Schide, Katherine H.: **SUBSURFACE IMAGING OF THE SNOWPLOW, LAKE BONNEVILLE, UTAH**
- 85-9** 10:30 AM Pile, Jeremy\*; Soria, Janneli Lea A.; Switzer, Adam D.; Siringan, Fernando; Daag, Arturo: **GEOPHYSICAL EVIDENCE OF STORM IMPACT AND RECOVERY: A GROUND PENETRATING RADAR INVESTIGATION, BAY-BAY SPIT, BICOL, PHILIPPINES**
- 85-10** 10:45 AM Moorman, Brian J.\*; Stevens, Christopher: **USING GROUND PENETRATING RADAR TO AID IN THE MODELING OF SHALLOW WATER SEDIMENTATION AND PERMAFROST GROWTH IN THE MACKENZIE DELTA, CANADA**
- 85-11** 11:00 AM Carlson, Brandee N.\*; Nittrouer, Jeffrey A.; Ma, Hongbo; Moodie, Andrew J.: **CHANNEL INFILLING PROCESSES ON THE HUANGHE (YELLOW RIVER) DELTAIC COASTAL PLAIN, CHINA**
- 85-12** 11:15 AM Johnston, John W.\*; Wolfe, Brent B.; Hall, Roland I; Edwards, Thomas W.D.: **PALEOHYDROGRAPHIC RECONSTRUCTIONS NEAR THE PEACE-ATHABASCA DELTA IN THE MACKENZIE RIVER BASIN OF WESTERN CANADA**
- 11:30 AM **DISCUSSION: SPECIAL PUBLICATION**
- 11:40 AM **CONCLUDING REMARKS**
- 86-3** 8:45 AM Burns, William J.\*: **COLLECTING AND USING LANDSLIDE INVENTORY DATA IN OREGON**
- 86-4** 9:00 AM Slaughter, Stephen L.\*: **THE WASHINGTON GEOLOGICAL SURVEY'S RECENTLY RESTORED LANDSLIDE HAZARDS PROGRAM: A LOOK AT THE FUTURE OF LANDSLIDE MAPPING IN THE STATE OF WASHINGTON**
- 86-5** 9:15 AM LaHusen, Sean Richard\*; Duvall, Alison R.; Booth, Adam M.; Montgomery, David R.: **TIMING OF LONG-RUNOUT LANDSLIDES NEAR OSO, WA REVEALS PERSISTENT POSTGLACIAL HILLSLOPE INSTABILITY**
- 86-6** 9:30 AM Crawford, Matthew M.\*; Bryson, Lindsey S.: **THE KENTUCKY GEOLOGICAL SURVEY LANDSLIDE PROGRAM: FROM INVENTORY TO TARGETED RESEARCH**
- 9:45 AM **BREAK**
- 86-7** 10:00 AM Witt, Anne C.\*: **INVESTIGATING RECENT SURFACE MINING-RELATED LANDSLIDES IN THE APPALACHIAN COALFIELDS OF SOUTHWESTERN VIRGINIA**
- 86-8** 10:15 AM Hervás, Javier\*: **NEW NATIONAL LANDSLIDE INVENTORIES OF SPAIN, CYPRUS AND ANDORRA FOR PAN-EUROPEAN LANDSLIDE SUSCEPTIBILITY ASSESSMENT**
- 86-9** 10:30 AM Boje, Søren\*; Devoli, Graziella; Colleuille, Hervé: **LANDSLIDE INVENTORY MANAGEMENT AND USAGE IN THE NORWEGIAN EWS**
- 86-10** 10:45 AM Klose, Martin\*; Damm, Bodo; Maurischat, Philipp: **A HISTORICAL TIME SERIES OF LANDSLIDE EVENTS IN GERMANY AND ITS APPLICATION IN IMPACT AND VULNERABILITY ASSESSMENT**
- 86-11** 11:00 AM Sánchez-Espeso, Javier M. Sánchez Espeso\*; Remondo, Juan Remondo Tejerina; Bonaachea, Jaime Bonaachea Pico; Bruschi, Viola Bruschi; González-Díez, Alberto González Díez; Rivas, María Rivas Mantecon: **LANDSLIDE DATABASE IN THE LOWER SECTION OF THE BASIN OF DEBA RIVER IN GUIPUZCUA, SPAIN: A TOOL FOR THE DEVELOPMENT OF HAZARD AND RISK SCENARIOS**
- 86-12** 11:15 AM Watts, Chester F.\*; Huber, Robert; Karki, Nirjung: **ROCK SLOPE STABILITY ANALYSES USING STRUCTURE-FROM-MOTION SOFTWARE AND UNMANNED AERIAL VEHICLES**
- 11:30 AM **CONCLUDING REMARKS**
- 11:45 AM **MEETING OF "FRIENDS OF LANDSLIDE INVENTORY" GROUP**

## SESSION NO. 87

***T74. Extended Geology Trips with Special Emphasis on Study Abroad***

8:00 AM, Baltimore Convention Center, Room 337

Tania-Maria Anders and Mark Boryta, Presiding

## SESSION NO. 86

***T56. Landslide Inventories and Time Series: Data Collection, Statistics, Geospatial Analysis, and Relationships to Other Geohazards (GSA Environmental and Engineering Geology Division; GSA Quaternary Geology and Geomorphology Division; GSA Geoinformatics Division)***

8:00 AM, Baltimore Convention Center, Room 307

Martin Klose, Dalia B. Kirschbaum, Lynn M. Highland and Bodo Damm, Presiding

- 8:00 AM **INTRODUCTORY REMARKS**
- 86-1** 8:15 AM Roberts, Nicholas J.\*; McKillop, Robin; Hermanns, Reginald L.; Clague, John; Oppikofer, Thierry: **DEVELOPING A GLOBAL INVENTORY OF DISPLACEMENT WAVES FROM SUBAERIAL LANDSLIDES**
- 86-2** 8:30 AM Kirschbaum, Dalia\*: **USING CITIZEN SCIENCE TO GROW A GLOBAL LANDSLIDE CATALOG**
- 87-1** 8:00 AM Uzunlar, Nuri\*: **MAPPING THE GLOBE: GEOLOGICALLY AND CULTURALLY**
- 87-2** 8:20 AM Jordan, Brennan T.\*: **LEARNING ABOUT VOLCANISM AND LIVING WITH VOLCANOES: ICELAND VOLCANOLOGY FIELD CAMP**
- 87-3** 8:35 AM Theissen, Kevin M.\*; Hickson, Thomas A.: **THEY DON'T SELL ICE IN ICELAND! LESSONS LEARNED ON A FIELD GEOLOGY COURSE IN THE LAND OF FIRE AND ICE**
- 87-4** 8:50 AM Hawkins, John F.\*; Steltenpohl, Mark G.: **TIPS, TRICKS, AND LESSONS LEARNED AFTER 2 COUNTRIES, 19 DAYS, AND 8 FLIGHTS ABOUT HOW TO INITIATE AND IMPLEMENT A SUCCESSFUL UNDERGRADUATE FIELD BASED STUDY ABROAD PROGRAM TO ICELAND AND SCOTLAND**

SESSION NO. 87

- 87-5** 9:05 AM Anders, Tania-Maria\*: **STUDY ABROAD IN SCOTLAND: ORGANIZING AND RUNNING A SUCCESSFUL GEOSCIENCE SUMMER PROGRAM**
- 87-6** 9:20 AM Besonen, Mark R.\*; Anders, Tania-Maria; Smith, Richard; Sollitto, Michael; Simcik, Martha; Davis, Mary Beth L.: **TAMUCC ISLANDERS IN SCOTLAND 2015—A GEOLOGY-FOCUSED, FACULTY-LED, SUMMER STUDY ABROAD PROGRAM**
- 87-7** 9:35 AM Skinner, Lisa A.\*: **LIVING THE VOLCANO: HOW TO DESIGN A SUCCESSFUL SHORT-TERM INTERNATIONAL FIELD COURSE**
- 9:50 AM **BREAK**
- 87-8** 10:05 AM Walker, Becca\*; Boryta, Mark; Bray-Ali, Julie; Mrofka, David D.; Ketting-Olivier, Amanda: **DESIGN AND IMPLEMENTATION OF EXTENDED FIELD PROGRAMS FOR INTRODUCTORY GEOSCIENCE STUDENTS: PROGRAM ELEMENTS TO PROMOTE CONTENT, SKILLS, AND AFFECTIVE GAINS**
- 87-9** 10:25 AM Boryta, Mark\*; Walker, Becca; Mrofka, David D.; Carlos, Richard; Ketting-Olivier, Amanda; Bray-Ali, Julie: **INTERSESSION FIELD TRIPS EXTEND OPPORTUNITIES FOR INTRODUCTORY STUDENTS**
- 87-10** 10:40 AM Borella, Maxwell\*; Gravley, Darren M.; Hampton, Samuel: **A GEOLOGIC JOURNEY ABROAD - A DECADE OF LESSONS LEARNED IN GEOLOGY STUDY ABROAD PROGRAMS**
- 87-11** 10:55 AM Hampton, Samuel\*; Gravley, Darren M.; Borella, M.W.: **EMBEDDING RESEARCH IN A COUPLED STUDY ABROAD PROGRAMME AND SEMESTER COURSE**
- 87-12** 11:10 AM Davis, P. Thompson\*; Ackert, Jr., Robert P.: **BENTLEY ABROAD EARTH SCIENCE COURSES IN NEW ZEALAND AND ICELAND**
- 87-13** 11:25 AM Pratt-Sitaula, Beth\*; Upreti, Bishal: **"GEOSCIENCE IN THE HIMALAYA" STUDY ABROAD PROGRAM IN NEPAL**
- 87-14** 11:40 AM Guerra, Ernesto\*: **TEXAS A&M UNIVERSITY-CORPUS CHRISTI STUDY ABROAD PROGRAM**
- 11:55 AM **DISCUSSION**
- 88-7** 9:30 AM Cheek, Kim A.\*: **LEARNING PROGRESSIONS AS A FRAMEWORK FOR GER: POSSIBILITIES AND CAUTIONS**
- 88-8** 9:45 AM McNeal, Peggy\*; Petcovic, Heather; Reeves, Patricia: **USING ONLINE FOCUS GROUPS TO REVEAL TEACHER PERSPECTIVES ON CLIMATE CHANGE EDUCATION**
- 88-9** 10:00 AM Ryker, Katherine\*: **CONNECTING TEACHING BELIEFS AND PRACTICES IN POST-SECONDARY GEOSCIENCE CLASSROOMS**
- 88-10** 10:15 AM Czajka, C. Doug\*; McConnell, David A.: **EVALUATING THE TEACHING BELIEFS AND PRACTICES OF GEOSCIENCE FACULTY**
- 88-11** 10:30 AM Chermak, John\*; Drezek McConnell, Kathryn: **AUTHENTIC ASSESSMENT OF STUDENT LEARNING IN LARGE CLASSROOMS: OXYMORON OR OPPORTUNITY?**
- 88-12** 10:45 AM Sliko, Jennifer L.\*: **HOW EFFECTIVE IS YOUR PEDAGOGY? USING THE MOTIVATED STRATEGIES FOR LEARNING QUESTIONNAIRE AND THE GEOSCIENCE CONCEPT INVENTORY TO MEASURE STUDENT ENGAGEMENT IN CLASS**
- 88-13** 11:00 AM Pelch, Michael A.\*; McConnell, David: **CAN FOCUSING ON THE CONNECTIONS BETWEEN SCIENCE AND SOCIETY IN AN INTRODUCTORY GEOLOGY COURSE CHANGE THE WAY STUDENTS PERCEIVE THE RELEVANCE OF SCIENCE?**
- 88-14** 11:15 AM Lundgren, Lisa M.\*; Crippen, Kent J.; MacFadden, Bruce J.; Dunckel, Betty A.; Ellis, Shari; Gardner, Eleanor E.: **EXPLORING SOCIAL MEDIA AS A RESEARCH TOOL FOR MEASURING ENGAGEMENT IN A PALEONTOLOGICAL COMMUNITY OF PRACTICE**
- 88-15** 11:30 AM LaDue, Nicole\*; Hubenthal, Michael: **BROADER IMPACTS AND EVALUATION: AN ENTRY POINT TO ENGAGE PHYSICAL SCIENTISTS IN DISCUSSIONS OF GEOSCIENCE EDUCATION RESEARCH**
- 88-16** 11:45 AM St. John, Kristen\*; Macdonald, Heather; Feig, Anthony D.; LaDue, Nicole; Lukes, Laura A.; McNeal, Karen S.; Riggs, Eric M.; McDaris, John R.: **SHAPING THE FUTURE OF GEOSCIENCE EDUCATION RESEARCH: A COMMUNITY EFFORT**

SESSION NO. 88

**T83. Methods for Conducting Research about Teaching and Learning in the Geosciences (GSA Geoscience Education Division; National Association of Geoscience Teachers)**

8:00 AM, Baltimore Convention Center, Room 339

Nicole LaDue, Laura A. Lukes, Katherine Ryker and Kim A. Cheek, Presiding

- 88-1** 8:00 AM Sexton, Julie M.\*: **OVERVIEW OF THE RESEARCH METHODS USED BY GEOSCIENCE EDUCATION RESEARCHERS**
- 88-2** 8:15 AM Dolphin, Glenn\*: **NOTHING IN QUALITATIVE RESEARCH MAKES SENSE EXCEPT IN THE LIGHT OF (ENTER THEORETICAL FRAMEWORK HERE)**
- 88-3** 8:30 AM Petcovic, Heather L.\*; Sexton, Julie M.: **MIXED UP ABOUT MIXED METHODS? AN OVERVIEW OF MIXED METHODS RESEARCH DESIGNS**
- 88-4** 8:45 AM Roemmele, Christopher Marc\*: **USING MIXED-METHODS TO INVESTIGATE GEOLOGICAL BLINDNESS: THE ATTITUDES AND CONCEPTUAL UNDERSTANDING OF INTRODUCTORY GEOLOGY STUDENTS**
- 88-5** 9:00 AM Burrell, Shondricka\*; Lombardi, Doug; Bailey, Janelle: **THE EFFECT OF A STUDENT-CENTERED ACADEMIC INTERVENTION ON TEACHER PRACTICE IN HIGH SCHOOL EARTH SCIENCE CLASSROOMS: A MIXED METHODS STUDY**
- 88-6** 9:15 AM Kastens, Kim A.\*; Rivet, Ann: **USING AN ITEM RESPONSE MODELING APPROACH TO ASSESS STUDENTS' PROFICIENCY AROUND ANALOG MODELS IN HIGH SCHOOL EARTH SCIENCE**

SESSION NO. 89

**T84. Practical Faculty-Related Issues & Trans-Disciplinary Pedagogical Strategies Associated with Classroom Transformation**

8:00 AM, Baltimore Convention Center, Room 321

Gregory S. Baker and Jennifer A. Roberts, Presiding

- 8:00 AM **INTRODUCTORY REMARKS**
- 89-1** 8:05 AM Miller, Emily R.\*: **IMPROVING UNDERGRADUATE STEM TEACHING AND LEARNING: THE EXPERIENCE OF THE AAU UNDERGRADUATE STEM EDUCATION INITIATIVE**
- 89-2** 8:25 AM Egger, Anne E.\*; Baldassari, Carol; Doser, Diane I.; Herbstrith, Krista; Iverson, Ellen; Lee, Sabra; Manduca, Cathryn A.; McConnell, David A.; Pelch, Michael A.; Steer, David N.: **TAKING A SYSTEMS APPROACH TO SUPPORTING FACULTY IN TRANSFORMING TEACHING AND LEARNING**
- 89-3** 8:45 AM Zweifel, Erica\*; Richardson, Randall M.: **NATIONAL ASSOCIATION OF GEOSCIENCE TEACHERS: SUPPORTING FACULTY DEVELOPMENT**
- 89-4** 9:00 AM Riihimaki, Catherine A.\*: **LONG-TERM PARTNERSHIPS WORK BEST: LESSONS FROM TRANSFORMING CLASSROOMS THROUGH THE PRINCETON SCIENCE AND ENGINEERING EDUCATION INITIATIVE**
- 89-5** 9:15 AM McConnell, David A.\*: **FLIPPING ROCKS: FINDING THE TIME IN CLASS TO STOP LECTURING**
- 89-6** 9:30 AM Patton, Matthew T.\*; Arthurs, Leilani: **THE POTENTIAL ROLE OF STUDENTS IN THE TRANSFORMATION OF**

- LARGE INTRODUCTORY-LEVEL COLLEGE STEM COURSES**
- 89-7 9:45 AM Fredrick, Kyle C.\*: **WHEN PREREQUISITES ARE NOT ENOUGH: INTEGRATING QUANTITATIVE SKILLS REMEDIATION INTO AN UPPER-LEVEL HYDROLOGY COURSE**
- 10:00 AM **BREAK**
- 89-8 10:15 AM Bitting, Kelsey S.\*; Schneider, Blair Benson; Roberts, Jennifer A.: **THE NATURE OF RESISTANCE: USING STUDENT COMMENTS AND LEARNING THEORY TO EASE THE TRANSITION TO ACTIVE LEARNING**
- 89-9 10:30 AM Gagnier, Kristin\*: **SPATIAL THINKING IN GEOSCIENCE: LESSONS FROM AN INTERDISCIPLINARY COLLABORATION BETWEEN COGNITIVE SCIENTISTS AND GEOSCIENTISTS**
- 89-10 10:45 AM Thorson, Robert M.\*; Park Boush, Lisa; Getty, Patrick R.; Ouimet, William B.: **FIVE PATHWAYS TO INTRODUCTORY GEOSCIENCE AT UCONN: A NEW MODEL**
- 89-11 11:00 AM Dmochowski, Jane Ellen\*; Coward, Elizabeth: **ACTIVE LEARNING IN THE EARTH AND ENVIRONMENTAL SCIENCE COLLEGE CLASSROOM**
- 89-12 11:15 AM Kreager, Bailey Zo\*; Arthurs, Leilani: **ACTIVE LEARNING STRATEGIES IN UNDERGRADUATE STEM COURSES, A LITERATURE REVIEW**
- 89-13 11:30 AM Barbosa, Alayde A.\*: **UTILIZING CONCEPT MAPPING TO CONVERT A PASSIVE STYLE PHYSICAL GEOLOGY LECTURE TO AN ENGAGED AND ACTIVE CLASSROOM**

**SESSION NO. 90****T91. Using Place-Based and/or Data Driven Approaches in Geoscience Undergraduate Teaching and Research (Council on Undergraduate Research Geosciences Division)**

8:00 AM, Baltimore Convention Center, Room 338

Diana Dalbotten and Emily Goesling, Presiding

- 8:00 AM **INTRODUCTORY REMARKS**
- 90-1 8:05 AM Dalbotten, Diana\*; Bueno Watts, Nievita; Berthelote, Antony R.; Eriksson, Susan C.: **GEOSCIENCE ALLIANCE 3: A CHANGING CLIMATE'S EFFECT ON RIVERS, ESTUARIES, OCEANS, FIRST FOODS, AND TRIBAL HEALTH**
- 90-2 8:20 AM Tano, Mervyn\*: **PUTTING FIRST THINGS FIRST: WHY IT'S ABOUT INTEGRATING WESTERN SCIENCE INTO TRADITIONAL KNOWLEDGE SYSTEMS AND NOT THE OTHER WAY AROUND**
- 90-3 8:35 AM Garcia, Angel A.\*; Semken, Steven; Brandt, Elizabeth: **FIELD ETHNOGEOLOGY IN THE CARIBBEAN: RESEARCH TO INFORM PLACE-BASED GEOSCIENCE EDUCATION AIMED AT ENHANCING EQUITY AND DIVERSITY FOR INDIGENOUS STUDENTS**
- 90-4 8:50 AM Bueno Watts, Nievita\*; Berthelote, Antony R.; Lichtenberg, Janene; Patrick, Daniel; Dalbotten, Diana: **SUSTAINABLE LAND AND WATER RESOURCES REU: COMMUNITY-INSPIRED RESEARCH MEETS OPEN INQUIRY**
- 90-5 9:05 AM Moosavi, Sadredin C.\*; Oaks, Sherry D; Low, Russanne; Metlay, Suzanne T.: **THE SPECIAL PLACE PROJECT: INCORPORATING FIELD DATA TO TEST STUDENT HYPOTHESES IN PLACE-BASED CASE STUDIES ASSISTED BY THE NASA-FUNDED EARTH ED 2YC PROGRAM**
- 90-6 9:20 AM Bolman, Jacquelyn\*: **INTER-TRIBAL STUDENT SERVICES (I.S.S.): COLLABORATIVE ACTIONS IN BUILDING, GUIDING, AND MENTORING THE FUTURE TRIBAL GEOSCIENCES WORKFORCE**
- 9:35 AM **DISCUSSION**
- 9:50 AM **BREAK**

- 90-7 10:05 AM Manduca, Cathryn A.\*; Blockstein, David; Bralower, Timothy J.; Davis, Felica; Doser, Diane I.; Egger, Anne E.; Gosselin, David C.; Iverson, Ellen; Kastens, Kim A.; Orr, Cailin Huyck: **LINKING GEOSCIENCE AND SOCIETAL ISSUES: A STRATEGY FOR MAKING GEOSCIENCE MORE CENTRAL IN HIGHER EDUCATION**
- 90-8 10:20 AM Tso, Jonathan\*: **STRATEGIES IN RECRUITING AND RETAINING GEOLOGY MAJORS AT RADFORD UNIVERSITY, VIRGINIA**
- 90-9 10:35 AM Reese, Joseph F.\*: **EDINBORO ENVIRONMENTAL ASSAULT MISSION: A MODEL FOR A PLACE-BASED, FIELD-DRIVEN EXERCISE TO CONNECT INTRODUCTORY STUDENTS WITH THEIR LOCAL ENVIRONMENTAL SURROUNDINGS**
- 90-10 10:50 AM Bier, Sara E.\*: **FROM WOOLLY MAMMOTHS TO A SUPERFUND SITE: A PLACE-BASED ENVIRONMENTAL GEOLOGY COURSE IN SALTVILLE, VIRGINIA**
- 90-11 11:05 AM Domenech, Julia A.\*: **BUILDING ENVIRONMENTAL LITERACY THROUGHOUT BOTH LOCAL AND GLOBAL COMMUNITIES**
- 11:20 AM **DISCUSSION**
- 11:35 AM **CONCLUDING REMARKS**

**SESSION NO. 91****T105. Fate and Remediation of Organic and Metal Contaminants in Wetlands and Sediments (GSA Hydrogeology Division; GSA Environmental Engineering and Geology Division; Geochemical Society)**

8:00 AM, Baltimore Convention Center, Room 343

Michelle M. Lorah, Isabelle Cozzarelli and Upal Ghosh, Presiding

- 91-1 8:00 AM Wadhawan, Amar R.\*; Bouwer, Edward J.: **CHROMIUM FATE AND TRANSPORT IN ESTUARINE SEDIMENTS: ROLE OF GEOCHEMICAL PROCESSES IN SUPPORTING MNR**
- 91-2 8:15 AM Stoliker, Deborah L.\*; Repert, Deborah A.; Smith, Richard L.; Song, Bonkeun; Conaway, Christopher H.; LeBlanc, Denis R.; McCobb, Timothy D.; Hyun, Sung Pil; Koh, Dong-Chan; Kent, Douglas B.: **FACTORS IMPACTING THE FATE AND TRANSPORT OF WASTEWATER-DERIVED NITROGEN AND ARSENIC DURING GROUNDWATER DISCHARGE TO A FLOW-THROUGH LAKE**
- 91-3 8:35 AM Galloway, Jennifer\*; Palmer, Michael; Jamieson, Heather E.; Patterson, R. Timothy; Falck, Hendrik; Swindles, Graeme T.; Howell, Dana; Stavinga, Drew; Nasser, Nawaf; Roe, Helen M.: **ESTABLISHING BACKGROUND ARSENIC CONCENTRATIONS IN AN AREA IMPACTED BY ~75 YEARS OF GOLD MINING IN SUBARCTIC CANADA**
- 91-4 8:50 AM Ziegler, Brady A.\*; Schreiber, Madeline E.; Cozzarelli, Isabelle M.: **THE ROLE OF SEDIMENTS IN AS CYCLING IN HYDROCARBON PLUMES**
- 91-5 9:05 AM DeSisto, Stephanie L.\*; Jamieson, Heather E.; Parsons, Michael B.: **EVALUATION OF A LOW-ORGANIC SOIL COVER FOR REMEDIATION OF ARSENIC-RICH GOLD MINE TAILINGS**
- 91-6 9:20 AM Heyes, Andrew\*; Gilmour, Cynthia; Bell, James T.; Butera, Denise; McBurney, Alyssa: **BIOGEOCHEMICAL AND HYDROLOGICAL CONTROLS ON THE FLUX OF MERCURY AND METHYLMERCURY IN FIRST ORDER COASTAL PLAIN WATERSHEDS OF THE CHESAPEAKE BAY**
- 91-7 9:40 AM Rhodes, Amy L.\*; Guswa, Andrew J.: **STORAGE AND RELEASE OF ROAD-SALT CONTAMINATION FROM A CALCAREOUS LAKE-BASIN FEN, STOCKBRIDGE, MASSACHUSETTS, USA**
- 9:55 AM **BREAK**

AM

MONDAY

SESSION NO. 91

- 91-8 10:10 AM Cozzarelli, Isabelle M.\*; Skalak, Katherine J.; Kent, Douglas B.; Mumford, Adam C.; Benthem, Adam; Haase, Karl B.; Orem, William H.; Galloway, Joel; Engle, Mark A.; Akob, Denise: **GEOCHEMICAL INVESTIGATIONS OF WASTEWATER SPILLS RELATED TO UNCONVENTIONAL OIL DEVELOPMENT IN THE WILLISTON BASIN**
- 91-9 10:25 AM Mumford, Adam C.\*; Cozzarelli, Isabelle M.; Fraser, Andrea; Klinges, Julia Grace; Akob, Denise: **IMPACT OF UNCONVENTIONAL GAS WASTE WATER DISPOSAL ON THE STRUCTURE AND ACTIVITY OF SURFICIAL STREAM MICROBIAL COMMUNITIES**
- 91-10 10:40 AM Baedecker, Mary Jo\*; Eganhouse, Robert P.; Cozzarelli, Isabelle M.: **OIL IN THE SHALLOW SUBSURFACE: WHICH HYDROCARBONS ARE MOST RESISTANT TO DEGRADATION IN THE OIL AND IN THE GROUNDWATER PLUME**
- 91-11 10:55 AM Sowers, Kevin R.\*: **ONGOING PILOT-SCALE FIELD STUDIES TO EVALUATE THE EFFICACY OF BIOREMEDIATION FOR TREATMENT OF PCB-IMPACTED SEDIMENTS**
- 91-12 11:15 AM Kjellerup, Birthe V.\*; Jing, Ran; Edwards, Sarah J.: **BIOREMEDIATION OF POLYCHLORINATED BIPHENYLS IN SEDIMENT USING BIOFILMS ON ACTIVATED CARBON**
- 91-13 11:30 AM Bouwer, Edward J.\*; Chow, Steven; Lorah, Michelle M.; Durant, Neal; Wadhawan, Amar: **DUAL-BIOFILM REACTIVE BARRIER FOR TREATMENT OF CHLORINATED BENZENES AT ANAEROBIC-AEROBIC INTERFACES IN CONTAMINATED GROUNDWATER AND SEDIMENTS**
- 91-14 11:45 AM Lorah, Michelle M.\*; Akob, Denise M.; Dunlap, Darren; Teunis, Jessica: **CULTURE TESTING FOR A DUAL-BIOFILM REACTIVE BARRIER FOR TREATMENT OF CHLORINATED BENZENES IN WETLAND GROUNDWATER AND SEDIMENT**
- ENVIRONMENT: RESULTS FROM LONG-TERM CAVE MONITORING IN CENTRAL TEXAS**
- 92-6 9:45 AM Beddows, Patricia A.\*; Mandic, Magda; Ford, Derek C.; Schwarcz, Henry P.: **INTRA- AND INTER-CAVE DRIP  $\Delta D$  AND  $\Delta^{18}O$  ISOTOPIC LAGS AND DAMPING FROM MONITORING IN THREE CAVES ALONG AN ALTITUDINAL GRADIENT, VANCOUVER ISLAND, BRITISH COLUMBIA, CANADA**
- 92-7 10:00 AM Cooper, Max P.\*; Covington, Matthew D.: **A SIMPLE COMPUTER MODEL FOR PARAGENETIC GALLERY FORMATION**
- 92-8 10:15 AM Gandee, Michele N.\*; Valle, Cynthia M.; Tobin, Benjamin W.; Hoffman, Claire; Childres, Hampton; Schenk, Edward R.: **KARST GROUNDWATER VULNERABILITY MAPPING: APPLICATION OF THE COP AND EPIK METHODS TO THE KAIBAB PLATEAU, GRAND CANYON NATIONAL PARK**
- 10:30 AM **BREAK**
- 92-9 10:45 AM Beddows, Patricia A.\*; Mallon, Edward K.: **REGIONAL AQUIFER MONITORING NETWORK IN THE COASTAL KARST OF THE YUCATAN PENINSULA USING CAVE PEARL PROJECT OPEN-SOURCE HARDWARE, WITH COMPARISON TO COMMERCIAL INSTRUMENTAL RECORDS**
- 92-10 11:05 AM Turner, Noel L.\*; Knierim, Katherine J.; Blackstock, Joshua M.; Kresse, Tim M.; Hays, Phillip D.: **ESTABLISHMENT OF AN INTERACTIVE MAP TO ASSESS KARST DEVELOPMENT AND ITS INFLUENCE ON GROUNDWATER QUALITY IN NORTHERN ARKANSAS**
- 92-11 11:20 AM Vesper, Dorothy J.\*: **KARST, CONTAMINATION AND PUBLIC HEALTH: MEETING AT THE EXPOSURE POINT**
- 92-12 11:35 AM Schindel, Geary M.\*: **HAZARDOUS MATERIALS RELEASE STRATEGIES FOR KARST TERRAINS**
- 11:50 AM **CONCLUDING REMARKS**

SESSION NO. 92

*T120. Karst Processes and Speleogenesis: Advances in Monitoring, Modeling, and Measurements (GSA Hydrogeology Division; GSA Karst Division; Karst Waters Institute; National Cave and Karst Research Institute; GSA Quaternary Geology and Geomorphology Division)*

8:00 AM, Baltimore Convention Center, Room 340

Benjamin F. Schwartz and Matthew D. Covington, Presiding

- 8:00 AM **INTRODUCTORY REMARKS**
- 92-1 8:05 AM Tobin, Benjamin W.\*; Schwartz, Benjamin F.; Springer, Abraham E.; Stevens, Larry; Ledbetter, Jeri; Valle, Cynthia M.; Schenk, Edward R.: **REMOTE KARST SPRING CHARACTERIZATION AND GROUPING TO FOCUS LONG-TERM MONITORING EFFORTS IN SEQUOIA, KINGS CANYON, AND GRAND CANYON NATIONAL PARKS**
- 92-2 8:25 AM Jones, William K.\*: **HYDROLOGY OF THE SINKING CREEK/MUDDY CREEK KARST BASIN, GREENBRIER COUNTY, WV**
- 92-3 8:40 AM Wong, Stephanie\*; Yelderman, Jr., Joe C.: **PAIRING TRACERS WITH MONITORING TO IMPROVE UNDERSTANDING OF KARST SPRING COMPLEX PROCESSES**
- 92-4 8:55 AM Spangler, Lawrence E.\*: **HYDROGEOLOGIC CHARACTERIZATION AND VULNERABILITY ASSESSMENT OF THE ASHLEY SPRING GROUNDWATER FLOW SYSTEM, UINTA MOUNTAINS, UTAH**
- 9:10 AM **BREAK**
- 92-5 9:25 AM Wong, Corinne I.\*; Banner, Jay: **TRANSFORMATION OF RAINFALL  $\delta^{18}O$  VARIABILITY BY THE CAVE AND KARST**

SESSION NO. 93

*T127. Continental Shelf and Estuarine Seafloor Mapping and Shallow Stratigraphy on the North American East Coast (GSA Quaternary Geology and Geomorphology Division; Marine/Coastal Science Discipline)*

8:00 AM, Baltimore Convention Center, Room 309

Joseph Kelley and Laura Brothers, Presiding

- 8:00 AM **INTRODUCTORY REMARKS**
- 93-1 8:15 AM Chandler, Emily A.\*; Kelley, Joseph T.; Belknap, Daniel F.: **SEDIMENTATION ACCUMULATION PATTERNS IN THE DAMARISCOTTA RIVER ESTUARY**
- 93-2 8:30 AM Nifong, Kelly L.\*; Ward, Larry G.: **DEVELOPMENT OF A LATE QUATERNARY DEPOSITIONAL MODEL OF PORTSMOUTH HARBOR AND ADJACENT SHELF, NEW HAMPSHIRE**
- 93-3 8:45 AM Ward, Larry G.\*; McAvoy, Zachary S.; Anziani, Maxlimer Vallee; Nagel, Erin; Kelley, Nifong: **DEPOSITIONAL SYSTEMS ON THE NORTHERN MASSACHUSETTS AND NEW HAMPSHIRE INNER CONTINENTAL SHELF: USE OF HIGH RESOLUTION SEAFLOOR MAPPING TO UNDERSTAND IMPACTS OF GLACIATION, MARINE PROCESSES AND SEA-LEVEL FLUCTUATIONS**
- 93-4 9:00 AM Schwab, William C.\*; Baldwin, Wayne E.; Denny, Jane F.; Warner, John C.; Safak, Ilgar; List, Jeffery H.: **APPLICATION OF GEOLOGIC MAPPING OF THE INNER CONTINENTAL SHELF TO COASTAL EVOLUTION AND NEARSHORE SEDIMENT TRANSPORT PROCESSES RESEARCH, AN EXAMPLE FROM FIRE ISLAND, NEW YORK**
- 93-5 9:20 AM Miselis, Jennifer\*; Hapke, Cheryl J.; Locker, Stanley; Nelson, Timothy; Buster, Noreen A.; Brenner, Owen; Wadman,

- Heidi M.; McNinch, Jesse E.: **USING NEARSHORE GEOPHYSICS TO UNDERSTAND POST-STORM BEACH RECOVERY: LINKS TO SPATIALLY-VARIABLE WAVE RAVINEMENT?**
- 93-6 9:40 AM Cooper, J. Andrew G.\*: **LOWER THAN PRESENT SEA LEVELS: SEARCHING FOR SUBMERGED SHORELINES IN THE BRITISH ISLES**
- 10:00 AM **BREAK**
- 93-7 10:15 AM Trembanis, Arthur\*; Miller, Douglas; Kennedy, Elise; DuVal, Carter; Friedrichs, Andrew; Haulsee, Kenneth: **RECENT GEOPHYSICAL AND MORPHODYNAMIC OBSERVATIONS ALONG THE ASSATEAGUE ISLAND INNER CONTINENTAL SHELF IN RELATION TO SUPERSTORM SANDY**
- 93-8 10:30 AM Pendleton, Elizabeth A.\*; Brothers, Laura; Mahmud, Akim; Thieler, E. Robert: **USING AUTOMATED IMAGE CLASSIFICATION TO LINK GEOMORPHOLOGY AND SHALLOW STRATIGRAPHY ALONG THE DELMARVA PENINSULA**
- 93-9 10:45 AM Brothers, Laura\*; Foster, David S.; Pendleton, Elizabeth A.; Thieler, E. Robert: **DISTRIBUTION AND TENTATIVE AGES OF AN EXTENSIVE PALEOCHANNEL NETWORK OFFSHORE OF THE DELMARVA PENINSULA, U.S.A**
- 93-10 11:00 AM Smoak, Erin\*; White, Scott; Wilson, Alicia; Leier, Andrew: **DEPOSITIONAL ENVIRONMENTS DURING SEA-LEVEL RISE BASED ON PALEOCHANNEL FILL OFFSHORE CHARLESTON, SC**
- 93-11 11:15 AM King, Mary Lee\*; Hanebuth, Till JJ; Lobo, Francisco; Lantzsch, Hendrik; Schwenk, Tilmann: **FORMATION HISTORY AND OCEANOGRAPHIC CONTROL OF LATE HOLOCENE DEPOCENTERS IN THE NORTHERN GULF OF CADIZ, SOUTHERN SPAIN**
- 93-12 11:30 AM Borrelli, Mark\*; Smith, Theresa L.; Kennedy, Cristina; Oakley, Bryan A.; Hubeny, J. Bradford: **SCIENCE AND MAPPING IN VERY SHALLOW COASTAL WATERS WITH A PHASE-MEASURING SIDESCAN SONAR**
- 11:45 AM **INTRODUCTORY REMARKS**
- CRYSTAL GROWTH IN THE MURRAY FORMATION, GALE CRATER, MARS**
- 94-6 9:40 AM Young, Brennan\*; Chan, Marjorie A.: **FRACTURE AND GYPSUM DIAGENESIS IN THE TRIASSIC MOENKOPI FORMATION, SOUTHERN UTAH: ANALOG RELEVANCE TO MARS**
- 94-7 9:55 AM Gellert, Ralf\*; Arvidson, Raymond; Clark, III, Benton; Ming, Douglas W.; Morris, Richard V.; Squyres, Steven W.; Yen, Albert S.: **DISTINCT IGNEOUS APXS ROCK COMPOSITIONS ON MARS FROM PATHFINDER, MER AND MSL**
- 94-8 10:10 AM Thorpe, Michael T.\*; Hurowitz, Joel A.: **TRACING BASALTIC SEDIMENTATION FROM DEPOSITION TO LITHIFICATION**
- 94-9 10:25 AM McLennan, S. M.\*; Cino, C. D.; Dehouck, E.: **GEOCHEMICAL CONSTRAINTS ON THE ORIGIN OF SECONDARY MINERAL ASSEMBLAGES IN SEDIMENTARY ROCKS ON MARS**
- 94-10 10:40 AM Cole, Shoshanna B.\*; Clark, III, Benton; Farrand, William H.; Herkenhoff, Kenneth E.; Morris, Richard V.; Ruff, Steven W.; Squyres, Steven W.; Yingst, R. Aileen: **IN-SITU EVIDENCE FOR ALTERATION BY ACID FOG ON HUSBAND HILL, GUSEV CRATER, MARS**
- 94-11 10:55 AM Fischer, Woodward W.\*; Slotznick, Sarah P.; Johnson, Jena; Webb, Samuel M.; Rasmussen, Birger; Fike, David A.; Raub, Timothy D.; Kirschvink, Joseph L.: **APPROACHES TO UNDERSTANDING AND EVALUATING THE QUALITY OF REDOX PROXY DATA IN ARCHEAN SEDIMENTARY SUCCESIONS**
- 94-12 11:15 AM Wallace, Adam F.\*; Schiffbauer, James D.; Mcevoy, Brianna: **INVESTIGATING THE INFLUENCE OF THE ORGANIC-WATER INTERFACE ON SILICATE MINERAL AUTHIGENESIS**
- 94-13 11:30 AM Taylor, Kevin G.\*; Dowey, Patrick: **MINERAL DIAGENESIS IN SILT- AND CLAY-RICH MUDSTONES: MACROSCOPIC TO MICROSCOPIC CHARACTERISTICS**
- 94-14 11:45 AM Tosca, Nicholas\*; Pruss, Sara B.; Strauss, Justin V.: **A SEDIMENTARY FINGERPRINT OF OSCILLATING REDOX THROUGH THE CAMBRIAN PERIOD**

AM

MONDAY

**SESSION NO. 94**

*T132. Mineralogy of Diagenesis on Earth and Mars: In Honor of Nicholas J. Tosca, 2015 MSA Awardee (Mineralogical Society of America; GSA Mineralogy, Geochemistry, Petrology, and Volcanology Division; GSA Planetary Geology Division; Geochemical Society)*

8:00 AM, Baltimore Convention Center, Room 342

Scott M. McLennan, M. Darby Dyar and Andrew H. Knoll, Presiding

- 8:00 AM **INTRODUCTORY REMARKS**
- 94-1 8:15 AM Grotzinger, John P.\*; Hurowitz, Joel A.; Blake, David; Fischer, Woodward W.; Fraeman, Abigail A.; Gellert, Ralf; McLennan, Scott M.; Sumner, Dawn; Vaniman, David; Wiens, R.C.: **MODELS FOR COMPOSITIONAL VARIATIONS IN THE MURRAY FORMATION MUDSTONE, GALE CRATER, MARS**
- 94-2 8:35 AM Siebach, Kirsten L.\*; Grotzinger, John P.; McLennan, S. M.; Baker, Michael B.; Gellert, Ralf; Hurowitz, Joel A.; Blaney, Diana L.: **SORTING OUT APXS COMPOSITIONAL VARIATIONS IN GALE CRATER SEDIMENTARY ROCKS, MARS**
- 94-3 8:50 AM Bish, David L.\*; Milliken, Ralph E.: **CLAY MINERALS ON MARS AND EARTH: INSIGHTS INTO LONG-TERM CLAY MINERAL STABILITY?**
- 94-4 9:10 AM Vaniman, David\*; Blake, David; Bristow, Thomas F.; Chipera, Steve; Gellert, Ralf; Ming, Douglas W.; Morris, Richard; Rampe, E.B.; Rapin, William: **DIAGENETIC MINERALOGY AT GALE CRATER, MARS**
- 94-5 9:25 AM Kah, L.C.\*; Kronyak, R.E.; Ming, D. W.; Grotzinger, J.P.; Schieber, J.; Sumner, D.Y.; Edgett, K.S.: **DIAGENETIC**

**SESSION NO. 95**

*T133. Mineralogy Writ Small: A Tribute to the Distinguished Career of David R. Veblen (Mineralogical Society of America; GSA Mineralogy, Geochemistry, Petrology, and Volcanology Division; Geochemical Society)*

8:00 AM, Baltimore Convention Center, Room 317

Peter J. Heaney, Joanne E. Stubbs and David C. Elbert, Presiding

- 95-1 8:00 AM Burnham, Charles W.\*: **DAVID VEBLEN'S DISCOVERY OF NON-CLASSICAL BIOPYRIBOLES**
- 95-2 8:15 AM Jenkins, David M.\*; Mueller, Bailey Louise; Campanaro, Benjamin: **CHEMICAL CONTROLS ON CHLORINE SUBSTITUTION INTO CALCIUM AMPHIBOLES**
- 95-3 8:30 AM Hawthorne, Frank C.\*: **STRUCTURE-GENERATING FUNCTIONS, POLYSOMATIC SERIES AND NON-POLYSOMATIC SERIES**
- 95-4 8:45 AM Buseck, Peter R.\*; Németh, Péter; Garvie, Laurence A.J.: **DIAMOND AT HIGH RESOLUTION: COMPLEX STRUCTURES AND REPORTED POLYMORPHS**
- 95-5 9:00 AM Wu, Jun\*; Buseck, Peter R.: **FINE TUNING OF HIGH PRESSURE IN TRANSMISSION ELECTRON MICROSCOPY FOR EARTH SCIENCES**
- 95-6 9:15 AM Lee, Seungyeol\*; Shen, Zhizhang; Xu, Huifang: **THE MINERALOGY, CRYSTAL CHEMISTRY, AND ORIGIN OF FRESHWATER FERROMANGANESE NODULES FROM GREEN BAY, LAKE MICHIGAN**
- 95-7 9:30 AM Livi, Kenneth\*: **MINERALOGY OF HYDROXYAPATITE IN ALLIGATOR GAR FISH SCALE**

SESSION NO. 95

- 95-8 9:45 AM Klementová, Mariana\*; Plášil, Jakub; Palatinus, Lukáš: **ELECTRON DIFFRACTION TOMOGRAPHY IN MINERALOGY**
- 95-9 10:00 AM Xu, Huifang\*: **APPLICATIONS OF ABERRATION-CORRECTED Z-CONTRAST IMAGING AND DENSITY FUNCTIONAL THEORY (DFT) IN MINERALOGICAL AND PETROLOGICAL STUDIES**
- 95-10 10:15 AM Navrotsky, Alexandra\*: **FROM CLUSTERS TO NANOPHASES TO MINERALS**
- 95-11 10:30 AM Ilton, Eugene\*; Kerisit, Sebastien; Massey, Michael S.; Bylaska, Eric J.; Elbert, David C.: **OXIDATION STATE AND ENVIRONMENTAL CONTROLS OF U INCORPORATED IN FE (OXYHYDR)OXIDES**
- 95-12 10:45 AM Elbert, David C.\*; Bereston, Margaux; Brenner, Dana C.; Stubbs, Joanne E.; Eng, Peter J.; Veblen, David R.: **SYNCHROTRON XRD INVESTIGATION OF TEMPERATURE- $A_{H_2O}$ -TIME RESOLVED DEHYDRATION OF METATORBERNITE**
- 95-13 11:00 AM Stubbs, Joanne E.\*; Chaka, Anne M.; Ilton, Eugene; Biber, Craig; Engelhard, Mark; Bargar, John R.; Eng, Peter J.: **SURFACE DIFFRACTION STUDIES OF  $UO_2$  - ATOMIC SCALE INSIGHTS INTO NANO-DIMENSIONED CORROSION RINDS**
- 95-14 11:15 AM Ling, Florence\*; Post, Jeffrey E.; Heaney, Peter J.; Ilton, Eugene; Santelli, Cara; Burgos, William D.; Rose, Arthur W.: **A CHARACTERIZATION OF SYNTHETIC AND NATURAL BIRNESSITES**
- 95-15 11:30 AM Hummer, Daniel\*; Hazen, Robert M.; Hystad, Grethe; Golden, Joshua; Downs, Robert T.: **MINERAL ECOLOGY AND EVOLUTION OF MANGANESE: USING REDOX SENSITIVE MINERALS TO PROBE EARTH'S HISTORY**
- 95-16 11:45 AM Heaney, Peter J.\*: **TIME'S ARROW IN THE TREES OF LIFE AND MINERALS**

SESSION NO. 96

**T145. Conodonts from Black Shales and Other Rocks: In Honor of Anita G. Harris**

8:00 AM, Baltimore Convention Center, Room 316

D. Jeffrey Over, Stephen A. Leslie, Randall C. Orndorff and John E. Repetski, Presiding

- 8:00 AM **INTRODUCTORY REMARKS**
- 96-1 8:05 AM Repetski, John E.\*; Over, D. Jeffrey; Leslie, Stephen A.; Orndorff, Randall C.; McPhee, John: **ANITA HARRIS - A CAREER OF SHINING LIGHT ON SUSPECT TERRAINS**
- 96-2 8:20 AM Dumoulin, Julie A.\*: **MICROFOSSILS WITH MACRO-IMPACT: ANITA HARRIS'S LEGACY IN ALASKAN GEOLOGY**
- 96-3 8:35 AM Stamm, Nancy R.\*; Soller, David R.: **PRESERVATION AND ACCESSIBILITY OF PAPER AND BORN-DIGITAL SCIENTIFIC INFORMATION - TWO EXAMPLES IN THE NATIONAL GEOLOGIC MAP DATABASE**
- 96-4 8:50 AM Leslie, Stephen A.\*; Goldman, Daniel: **INTEGRATED CONODONT AND GRAPTOLITE BIOSTRATIGRAPHY OF THE LOWER HARTFELL SHALE (SANDBIAN-KATIAN, LATE ORDOVICIAN), NEAR MOFFAT, SCOTLAND**
- 96-5 9:05 AM Waid, Christopher\*; Cramer, Bradley D.: **CONODONT BIOSTRATIGRAPHY AND CARBON STABLE ISOTOPE CHEMOSTRATIGRAPHY OF THE LLANDOVERY (SILURIAN) BLANDING, HOPKINTON, SCOTCH GROVE, AND LAPORTE CITY FORMATIONS OF IOWA (NW ILLINOIS BASIN)**
- 9:20 AM **BREAK**
- 96-6 9:35 AM Valenzuela-Ríos, J. Ignacio\*; Liao, Jau Chyn: **RECOGNITION OF GLOBAL LOWER DEVONIAN EVENTS IN THE SPANISH CENTRAL PYRENEES; A CONODONT PERSPECTIVE**

- 96-7 9:50 AM Liao, Jau Chyn\*; Valenzuela-Ríos, J. Ignacio; Gouwy, Sofie A.: **WAS THE TAGHANIC EVENT (GIVETIAN, MIDDLE DEVONIAN) ASSOCIATED WITH A SIGNIFICANT CONODONT EXTINCTION? A PYRENEAN VIEW**
- 96-8 10:05 AM Lanik, Amanda\*; Henderson, Charles M.: **CONODONT APPARATUS RECONSTRUCTION AND BIOSTRATIGRAPHY FROM THE HART RIVER FORMATION, EARLY CARBONIFEROUS, YUKON TERRITORY**
- 96-9 10:20 AM Wardlaw, Bruce R.\*; Nestell, Merlynd K.; Pope, John P.: **A COMPLETE APPARATUS FOR *IDIOPRIONIDUS CONJUNCTUS* FROM THE EXCELLO SHALE OF IOWA**
- 96-10 10:35 AM Terrill, David\*; Henderson, Charles M.: **CHEMICAL ANALYSIS OF CONODONT PLATFORM ELEMENTS AND THE IMPLICATIONS FOR CONODONT PHYLOGENY AND STRONTIUM ISOTOPE STRATIGRAPHY**
- 96-11 10:50 AM Canchola, Mary K.\*; Lambert, Lance L.: **FREQUENCY DISTRIBUTION OF CONODONTS AT THE MAXIMUM FLOODING SURFACE OF THE LOST BRANCH CYCLOTHEM (LATEST DESMOINESIAN STAGE), CENTRAL AND WESTERN UNITED STATES**
- 96-12 11:05 AM Epstein, Jack\*: **ANITA HARRIS AND A BLACK CONODONT: A PERSONAL REMEMBRANCE AND TRIBUTE**
- 11:20 AM **CONCLUDING REMARKS**

SESSION NO. 97

**T147. Biotic Interactions and Their Influence on Long-Term Evolution I (Paleontological Society)**

8:00 AM, Baltimore Convention Center, Room 314

Paul D. Taylor and Lee Hsiang Liow, Presiding

- 8:00 AM **INTRODUCTORY REMARKS**
- 97-1 8:05 AM Rabosky, Daniel L.\*: **A GENERAL MULTIPROCESS DIVERSIFICATION MODEL FOR PALEONTOLOGICAL AND MOLECULAR PHYLOGENETIC DATA**
- 97-2 8:25 AM Quental, Tiago B.\*; Pires, M.M.; Silvestro, Daniele: **CLADE COMPETITION AND DIVERSITY DEPENDENCE IN DEEP TIME**
- 97-3 8:45 AM Liow, Lee Hsiang\*: **REVISITING THE BIVALVE AND BRACHIOPOD SAGA USING NEW TOOLS AND DATA: THEY REALLY DID NOT PASS EACH OTHER IN THE NIGHT**
- 97-4 9:00 AM Reitan, Trond\*: **FURTHER REVISITING THE BIVALVE AND BRACHIOPOD SAGA; BEYOND PAIRWISE ANALYSIS**
- 97-5 9:15 AM Marshall, Charles R.\*; Lim, Jun Ying: **DEMONSTRATING THE CENTRAL ROLE OF DIVERSITY DEPENDENCE IN DRIVING SPECIES RICHNESS USING THE HAWAIIAN ARCHIPELAGO CHRONOSEQUENCE**
- 97-6 9:30 AM Ezard, Thomas HG\*; Purvis, Andy: **GEOLOGICAL AND CLIMATIC CHANGE DEFINE ECOLOGICAL LIMITS TO SPECIES DIVERSITY**
- 97-7 9:45 AM Bibi, Faysal\*; Kiessling, Wolfgang: **BIOTIC INTERACTIONS IN THE CONTEXT OF HUMAN EVOLUTION: THE FOSSIL RECORD OF LARGE MAMMALS**
- 97-8 10:00 AM Clarke, John\*; Friedman, Matt; Sallan, Lauren: **SHIPS FIRING IN THE NIGHT? MESOZOIC RISE OF TELEOSTS ACCOMPANIED BY DIVERSITY LOSS AND TRAIT SHIFTS IN HOLOSTEAN FISHES**
- 97-9 10:15 AM Edie, Stewart M.\*: **TESTING BIOTIC VS ENVIRONMENTAL FACTORS IN THE EVOLUTION OF MARINE BIVALVES: CHARACTER DISPLACEMENT AND CONVERGENCE AMONG RELATED SPECIES**
- 97-10 10:30 AM Tyler, Carrie L.\*; Roopnarine, Peter D.: **FOSSIL FOOD WEBS: QUANTIFYING CHANGES IN MARINE ECOSYSTEMS DURING TIMES OF ESCALATING PREDATOR-PREY INTERACTIONS**



- 97-11 10:45 AM Di Martino, Emanuela\*; Liow, Lee Hsiang; Taylor, Paul D.; Voje, Kjetil Lysne; Rust, Seabourne: **DOES COMPETITIVENESS CHANGE ON GEOLOGICAL TIME SCALES? HINTS FROM BRYOZOAN INTERACTIONS THROUGH TWO MILLION YEARS**
- 97-12 11:00 AM Simpson, Carl\*: **THE EVOLUTION OF BRYOZOAN POLYMORPHISM IS ENABLED BY THE COMPETITIVE OPPORTUNITIES GIVEN BY A LIFE-HISTORY RATCHET**

**SESSION NO. 98****T158. Perspectives on Multi-Element Skeleton Taphonomy: Case Studies, Approaches, and Advances (Paleontological Society)**

8:00 AM, Baltimore Convention Center, Room 319/320

Matthew B. Vrazo and James R. Thomka, Presiding

- 98-1 8:00 AM Plotnick, Roy E.\*; Behrensmeyer, Anna K.; Lyons, S. Kathleen; Smith, Felisa A.: **TERRESTRIAL LANDSCAPE TAPHONOMY AND THE FUTURE FOSSIL RECORD**
- 98-2 8:15 AM Carrano, Matthew T.\*; Rogers, Raymond R.; Oreska, Matthew P. J.; Curry Rogers, Kristina: **VERTEBRATE MICROFOSSIL BONEBEDS AS BENCHMARKS FOR TERRESTRIAL VERTEBRATE DIVERSITY AND PALEOECOLOGY THROUGH TIME**
- 98-3 8:30 AM Koy, Karen A.\*; Berry, Justin; Hanttula, Natassja; Hoover, Emilie; Pottebaum, Salena: **DIFFERENTIAL DECAY WITHIN VERTEBRATE SKELETAL ELEMENTS**
- 98-4 8:45 AM Knell, Michael J.\*: **THE UTILITY OF USING FOSSIL FRESHWATER TURTLE SHELLS TO ESTIMATE PALEOFLOW IN FLUVIAL CHANNEL DEPOSITS**
- 98-5 9:00 AM Hegna, Thomas\*: **TRILOBITES AS ARTHROPODS: THE IMPLICATIONS OF THE ARTHRODIAL MEMBRANE FOR TRILOBITE TAPHONOMY**
- 98-6 9:15 AM Thomka, James R.\*; Brett, Carlton E.; Bissett, Donald L.: **SMALL CARBONATE BUILDUPS IN THE MIDDLE SILURIAN OF SOUTHERN INDIANA: INFLUENCES ON ECHINODERM AND TRILOBITE TAPHONOMY**
- 9:30 AM **BREAK**
- 98-7 9:45 AM Lamsdell, James C.\*; Van Roy, Peter; Briggs, Derek: **A GIANT PTERYGOTID EURYPYTERID FROM THE EARLY ORDOVICIAN FEZOUATA BIOTA OF MOROCCO**
- 98-8 10:00 AM Vrazo, Matthew B.\*; Hunda, Brenda R.; Brett, Carlton E.: **TAPHONOMIC BIAS IN TAXONOMIC ASSIGNMENT: A SEMI-LANDMARK APPROACH TO DISTINGUISHING SPECIES OF SILURIAN EURYPYTERIDS**
- 98-9 10:15 AM Donovan, Stephen K.\*: **CONTRASTING PATTERNS OF PRESERVATION IN A JAMAICAN CAVE**
- 98-10 10:35 AM Mergelsberg, Sebastian T.\*; Dove, Patricia M.: **CRYSTALLINITY OF INORGANIC BIOMINERALS IN CRUSTACEANS IS INDEPENDENT OF THE ORGANIC FRAMEWORK**
- 98-11 10:50 AM Stein, Koen H.W.\*; de Winter, Niels J.; Snoeck, Christophe; Claeys, Philippe: **THE USE OF MICRO X-RAY FLUORESCENCE FOR DINOSAUR AND OTHER VERTEBRATE PALEONTOLOGICAL STUDIES**
- 98-12 11:05 AM Rogers, Christopher S.\*; Kearns, Stuart L.; McNamara, Maria E.; Orr, Patrick J.; Benton, Michael J.: **SKELETAL TAPHONOMY OF *CONFUCIUSORNIS* AND *MICRORAPTOR*: INSIGHTS INTO THE FORMATION OF THE JEHOLO BIOTA (LOWER CRETACEOUS, NE CHINA)**

**SESSION NO. 99****T163. A Matter of Perspective: Integrating Macro- and Micro-Scale Evidence in Investigations of Magmatic Origins and Histories (GSA Mineralogy, Geochemistry, Petrology, and Volcanology Division; Mineralogical Society of America; Geochemical Society; GSA Planetary Geology Division)**

8:00 AM, Baltimore Convention Center, Room 341

Tamara L. Carley, Tenley J. Banik, Lily L. Claiborne and Susanne McDowell, Presiding

- 99-1 8:00 AM Miller, Calvin F.\*; Claiborne, Lily L.; Gualda, Guilherme A.R.; Padilla, Abraham DeJ.; Thomas, Dylan; Carley, Tamara L.; Covey, Aaron K.: **IMPROVED PARTITION COEFFICIENTS FOR ZIRCON/MELT FROM IN SITU ANALYSIS OF GLASS AND CRYSTAL RIMS: COHERENT BEHAVIOR, STRONG TEMPERATURE DEPENDENCE**
- 99-2 8:15 AM Girard, Guillaume\*: **MINERAL-MELT PARTITION COEFFICIENTS AS A TOOL FOR INVESTIGATING FRACTIONAL CRYSTALLIZATION, MELT SEGREGATION AND LATE-STAGE CRYSTAL GROWTH IN YELLOWSTONE RHYOLITIC MAGMAS**
- 99-3 8:30 AM Truax, Olivia\*; Beane, Rachel; Gravley, Darren M.: **INSIGHTS INTO MAGMA PRODUCTION THROUGH QUARTZ GROWTH HISTORIES**
- 99-4 8:45 AM Seitz, Susanne\*; Putlitz, Benita; Baumgartner, Lukas; Escrig, Stéphane; Meibom, Anders; Bouvier, Anne-Sophie: **A NANOSIMS STUDY: MAGMA STORAGE AS RECORDED IN QUARTZ PHENOCRYSTS FROM A LARGE SILICIC PROVINCE (PATAGONIA, ARGENTINA)**
- 99-5 9:00 AM Pamukcu, Ayla S.\*; Wright, Kylie A.; Gualda, Guilherme A.R.; Miller, Calvin F.; Anderson, Alfred T.: **SIMPLY COMPLICATED: PERSPECTIVES ON SUPERERUPTIVE SYSTEMS FROM MULTIPLE AND VARIED DATASETS**
- 99-6 9:15 AM Michelfelder, Gary S.\*; Feeley, Todd; Wilder, Alicia: **CRUSTAL DIFFERENTIATION PROCESSES AT CERRO UTURUNCU, ANDEAN CENTRAL VOLCANIC ZONE, SW BOLIVIA: INSIGHTS FROM IN SITU SR ISOTOPIC ANALYSES OF PLAGIOCLASE PHENOCRYSTS**
- 99-7 9:30 AM Rivera, Tiffany A.\*; Schmitz, Mark D.: **RECORDS OF MAGMATIC EVOLUTION OF SMALL AND LARGE VOLUME RHYOLITES IN THE YELLOWSTONE VOLCANIC FIELD**
- 99-8 9:45 AM Ustunisik, Gokce\*; Loewen, Matthew W.; Nielsen, Roger L.; Tepley, Frank: **MAGMA CHAMBER DYNAMICS AS DOCUMENTED IN A SINGLE ERUPTIVE UNIT FROM MT. JEFFERSON, CENTRAL OREGON CASCADES**
- 99-9 10:00 AM Nadeau, Patricia A.\*; Webster, James D.; Monteleone, Brian D.; Shimizu, Nobumichi; Goldoff, Beth Ann: **MIXING? HEATING? ZONING? UNRAVELING THE MAGMATIC HISTORY OF PLEISTOCENE RHYOLITE AT AUGUSTINE VOLCANO**
- 10:15 AM **BREAK**
- 99-10 10:30 AM Currier, Ryan\*: **WHAT'S IN A PULSE?**
- 99-11 10:45 AM Giorgis, Scott\*; Chervin, Jenna; Horsman, Eric; Morgan, Sven: **CONSTRAINTS ON RATE OF IGNEOUS EMPLACEMENT USING PALEOMAGNETIC SECULAR VARIATION, MAIDEN CREEK SILL, HENRY MOUNTAINS, UT**
- 99-12 11:00 AM Gregg, Patricia\*; Grosfils, Eric B.; de Silva, Shanaka: **THE SUBORDINATE ROLE OF BUOYANCY IN TRIGGERING THE ERUPTION OF LARGE MAGMA RESERVOIRS**
- 99-13 11:15 AM Claiborne, Lily L.\*; Miller, Calvin F.; Lang, Nick P.; Ferguson, Charles A.; Varga, Robert J.; McDowell, Susanne M.; Cribb, J. Warner; Covey, Aaron K.: **AN IGNIMBRITE SANDWICH: UNDERSTANDING THE EVOLUTION OF THE PEACH SPRING TUFF SUPERERUPTION SYSTEM THROUGH PETROLOGIC EXAMINATION OF PRECEDING AND POSTDATING EXPLOSIVE ERUPTIONS – AN NSF-REU STUDY**

AM

MONDAY

## SESSION NO. 99

- 99-14 11:30 AM Lang, Nicholas P.\*; Claiborne, Lily L.; Miller, Calvin F.; McDowell, Susanne M.: **USING SATELLITE IMAGERY TO PROBE A SUPERERUPTION: A UNIQUE PERSPECTIVE ON MIOCENE-AGED VOLCANIC DEPOSITS IN NW ARIZONA AND SE CALIFORNIA – AN NSF REU STUDY**
- 99-15 11:45 AM Reimink, Jesse R.\*; Chacko, Tom; Davies, Joshua H.F.L.; Stern, Richard; Pearson, D. Graham; Heaman, Larry M.; Creaser, Robert A.: **DETAILED PETROCHRONOLOGY OF THE 4.02 GA IDIWHAA TONALITIC GNEISS: EVIDENCE REGARDING AMOUNT OF PRE-EXISTING HADEAN CONTINENTAL CRUST**

## SESSION NO. 100

**T173. Impact Cratering on Earth and in the Solar System (GSA Planetary Geology Division; GSA Geophysics Division)**

8:00 AM, Baltimore Convention Center, Room 344

Christian Koeberl and Jeffrey Plescia, Presiding

- 8:00 AM **INTRODUCTORY REMARKS**
- 100-1 8:05 AM Head, James W.\*: **PENROSE MEDAL LECTURE: PLANETARY EVOLUTION: A GEOLOGICAL PERSPECTIVE**
- 8:25 AM **DISCUSSION**
- 100-2 8:35 AM Schenk, Paul M.\*; Hoogenboom, Trudi; Johnson, Katherine; Kramer, Georgiana; Raymond, Carol A.; Russell, Christopher T.: **DAWN AT CERES & VESTA: CRATER MORPHOLOGIES & PROCESSES IN ICE & ROCK ON LOW-GRAVITY WORLDS**
- 100-3 8:55 AM Plescia, Jeffrey\*: **IMPACT CRATER: NEW INSIGHTS FROM THE MOON**
- 100-4 9:10 AM Susorney, Hannah C.\*; Barnouin, Olivier S.; Ernst, Carolyn M.; Neumann, Gregory A.: **THE DISTRIBUTION OF SURFACE ROUGHNESS AROUND COMPLEX IMPACT CRATERS ON MERCURY**
- 100-5 9:25 AM Schmerr, Nicholas C.\*; Banks, Maria E.; Daubar, Ingrid: **RECENT METEOROID IMPACTS ON MARS: SEISMIC SIGNAL PREDICTIONS**
- 100-6 9:40 AM Bauer, Aaron W.\*; Cox, Rónadh: **EUROPA'S ICE CAN BE BREACHED BY IMPACT: HYDROCODE MODELING CONSTRAINS THE CONDITIONS**
- 100-7 9:55 AM Ebel, Denton S.\*; Mahmood, Shaun; Jaret, Steven J.; Bigolski, John N.; Aldoroty, Rachel J.; Sessa, Jocelyn A.; Landman, Neil H.: **NEW JERSEY, A MOST HABITABLE PLACE DURING AN ASTEROID STRIKE: SHOCKED QUARTZ AND IRIIDIUM SPIKE CO-OCCUR BELOW A MAASTRICHTIAN MOLLUSK COMMUNITY ON THE NJ COASTAL PLAIN**
- 100-8 10:15 AM Glass, Billy P.\*: **MICROTEKTITES AND MICROKRYSSTITES: DEFINITIONS AND MODES OF FORMATION**
- 100-9 10:35 AM Koeberl, Christian\*: **GEOCHEMICAL CONSTRAINTS ON THE ORIGIN OF TEKTITES**
- 100-10 10:50 AM Harris, R. Scott\*; Schultz, Peter H.; Zarate, Marcelo Aristides: **NEW OBSERVATIONS OF BAHIA BLANCA MELT BRECCIAS: NARROWING THE SEARCH FOR A LARGE MIOCENE-PLIOCENE BOUNDARY IMPACT CRATER IN ARGENTINA**
- 100-11 11:05 AM Schulz, Toni\*; Sackl, Florian; Koeberl, Christian: **GEOCHEMICAL AND SR, ND, AND OS ISOTOPIC SIGNATURES OF TARGET ROCKS AND IMPACTITES FROM THE ZHAMANSHIN CRATER, KAZAKHSTAN**
- 100-12 11:20 AM Tohver, Eric\*; Schmieder, Martin; Erickson, Timmons M.; Lana, Cristiano; Timms, Nick; Jourdan, Fred: **STRATIGRAPHIC AND GEOCHRONOLOGICAL EVIDENCE FOR THE AGE OF AN IMPACTOGENIC THE ARAGUAINHA IMPACT STRUCTURE IN CENTRAL BRAZIL: AN END-PERMIAN IMPACTOGENIC TSUNAMI?**

- 100-13 11:35 AM Chatterjee, Sankar\*: **THE ORIGIN OF LIFE BY MOLECULAR SYMBIOSIS AT HYDROTHERMAL IMPACT CRATER LAKES**
- 11:50 AM **CONCLUDING REMARKS**

## SESSION NO. 101

**T184. African Environments across Space and through Time: Integrating Modern and Ancient Climate Data for Insights into Terrestrial Ecosystem Dynamics (GSA Quaternary Geology and Geomorphology Division; GSA Archaeological Geology Division; Paleontological Society; GSA Sedimentary Geology Division; Geochemical Society; Paleoceanography/Paleoclimatology Discipline)**

8:00 AM, Baltimore Convention Center, Room 331/332

David Patterson, Sophie B. Lehmann and Naomi E. Levin, Presiding

- 101-1 8:00 AM Caylor, Kelly\*: **WHEN CHANGE IS MORE OF THE SAME: THE INCREASING IMPORTANCE OF HYDROLOGICAL VARIABILITY ON ECOSYSTEM STRUCTURE AND FUNCTION**
- 101-2 8:20 AM Cerling, Thure E.\*; Mace, William D.; Davis, Micahel; Remien, Christopher: **HOW HOT IS IT ANYWAY? DAILY SKIN-SURFACE SOIL TEMPERATURE IN EAST AFRICA**
- 101-3 8:35 AM Ichoku, Charles\*; Ellison, Luke; Gatebe, Charles K.; Poudyal, Rajesh: **SATELLITE-BASED INVESTIGATION OF RECENT ENVIRONMENTAL AND LAND-COVER CHANGES DUE TO BIOMASS BURNING IN NORTHERN SUB-SAHARAN AFRICA**
- 101-4 8:50 AM Dupont, Lydie\*: **CLIMATE AND VEGETATION CHANGE IN SOUTH AFRICA AND NAMIBIA IN RELATION TO THE BENGUELA UPWELLING SYSTEM**
- 101-5 9:10 AM Stynder, Deano D.\*; Reed, Kaye E.; Braun, David R.; Levin, Naomi E.; Bishop, Laura C.; Lehmann, Sophie B.; Forrest, Frances; Patterson, David; Matthews, Thalassa: **CHANGING VIEWS ON THE EVOLUTION OF THE PLANT COMMUNITY ALONG THE SOUTH AFRICAN SOUTH-WEST COAST DURING THE PLIO-PLIOCENE**
- 101-6 9:25 AM Hover, Victoria C.\*; Ashley, Gail M.; Goman, Michelle F.; Maharjan, Dev; Owen, R. Bernhart; Delaney, Jeremy S.: **PLAYA LAKE AND MARGINAL WETLAND SEDIMENTS RECORD OVER 1000 YEARS OF CLIMATE SHIFTS AT LAKE SOLAI, EAST AFRICAN RIFT, KENYA**
- 101-7 9:40 AM Mander, Luke\*; Dekker, Stefan; Li, Mao; Mio, Washington; Punyasena, Surangi W.; Lenton, Timothy M.: **QUANTITATIVE CHARACTERIZATION OF SPATIAL PATTERNS IN DRYLAND VEGETATION**
- 9:55 AM **BREAK**
- 101-8 10:10 AM Jacobs, Louis L.\*; Polcyn, Michael J.; Mateus, Octávio; Schulp, Anne S.; Gonçalves, António Olímpio; Morais, Maria Luísa: **LONG-TERM, MULTI-SCALE PLATE AND GEOTECTONIC INFLUENCES ON PRIMATE PALEOENVIRONMENTS IN WEST AFRICA**
- 101-9 10:25 AM Faith, J. Tyler\*; Patterson, David; Blegen, Nick; O'Neill, Chris J.; Marean, Curtis W.; Peppe, Daniel J.; Tryon, Christian A.: **SIZE VARIATION OF EAST AFRICAN MOLE-RAT (TACHYORYCTES SPLENDENS) AND ITS IMPLICATIONS FOR LATE QUATERNARY CLIMATE CHANGE**
- 101-10 10:40 AM Negash, Enquye W\*; Alemseged, Zeresenay; Wynn, Jonathan G.; Bedaso, Zelalem K.; Bobe, René: **STABLE ISOTOPIC STUDY OF MODERN AND FOSSIL TRAGELAPHUS: INTERPRETING THE RANGE OF DIETARY SIGNALS WITHIN A SINGLE GENUS**
- 101-11 10:55 AM Uno, Kevin T.\*; Polissar, Pratigya J.; Bonnefille, Raymonde; deMenocal, Peter: **EVIDENCE FROM PLANT WAX BIOMARKERS FOR ECOLOGICALLY-DRIVEN EVOLUTIONARY EVENTS AT 2.8 MA IN THE LOWER OMO VALLEY, ETHIOPIA**

- 101-12 11:15 AM Currano, Ellen D.\*; Jacobs, Bonnie F.; Feseha, Mulugeta; Pan, Aaron D.: **RECONSTRUCTING PLANT-INSECT INTERACTIONS ACROSS THE PALEOGENE-NEOGENE BOUNDARY IN ETHIOPIA**
- 101-13 11:30 AM Jacobs, Bonnie F.\*; Currano, Ellen D.; Pan, Aaron D.; Feseha, Mulugeta: **CLIMATE OF THE EAST AFRICAN HIGHLANDS IN THE EARLY NEOGENE (21.7 MA) ESTIMATED FROM FOSSIL LEAVES OF THE MUSH VALLEY, ETHIOPIA**
- 101-14 11:45 AM Beverly, Emily J.\*; White, Joseph D.; Peppe, Daniel J.; Faith, J. Tyler; Blegen, Nick; Tryon, Christian: **LAKE VICTORIA MEGADROUGHT AND EQUATORIAL GRASSLAND EXPANSION DURING THE LATE PLEISTOCENE**

**SESSION NO. 102**

**T195. Paleoenvironmental Reconstruction of Hominin Sites: New Methods, New Data, and New Insights I (SEPM (Society for Sedimentary Geology); GSA Limnogeology Division; GSA Sedimentary Geology Division; GSA Quaternary Geology and Geomorphology Division; GSA Archaeological Geology Division)**

8:00 AM, Baltimore Convention Center, Room 324

Cynthia M. Liutkus-Pierce, Gail M. Ashley and Andrew S. Cohen, Presiding

- 8:00 AM **INTRODUCTORY REMARKS**
- 102-1 8:05 AM Lehmann, Sophie B.\*; Levin, Naomi E.; Passey, Benjamin H.; Cerling, Thure; Hu, Huanting: **TRIPLE OXYGEN ISOTOPES IN TEETH: IMPLICATIONS FOR RECONSTRUCTING PALEOARIDITY**
- 102-2 8:20 AM Liutkus-Pierce, Cynthia M.\*; Burns, Oliver E.; Grossman, Aryeh: **MONKEYS AND APES LIVING TOGETHER? A PALEOENVIRONMENTAL RECONSTRUCTION OF LOPEROT, A MIOCENE PRIMATE SITE IN WESTERN TURKANA**
- 102-3 8:35 AM Peppe, Daniel J.\*; McNulty, Kieran P.; MacLachy, Laura M.; Rossie, James B.; Lehmann, Thomas; Deino, Alan L.; Kingston, John D.; Fox, David L.; Jenkins, Kirsten E.; Lukens, William E.: **RESEARCH ON EAST AFRICAN CATARRHINE AND HOMINOID EVOLUTION (REACHE): A REGIONAL APPROACH TO UNDERSTANDING EARLY MIOCENE PALEOBIOLOGY AND PALEOENVIRONMENTS**
- 102-4 8:50 AM Hock, Devra\*: **A COMPREHENSIVE STUDY OF KEY PALEOENVIRONMENTAL CHANGES USING MAJOR FAUNAL TURNS FOCUSING IN THE TURKANA BASIN, KENYA**
- 102-5 9:05 AM Kingston, John D.\*; Deino, Alan L.; Hill, Andrew; Campisano, Christopher J.; Garello, Dominique; Sier, Mark J.; Yost, Chad L.; Stone, Jeffery R.; Cohen, Andrew S.; Billingsley, Anne L.: **A PLIO-PLEISTOCENE DRILL CORE FROM THE BARINGO BASIN, CENTRAL KENYAN RIFT VALLEY**
- 102-6 9:25 AM Garello, Dominique\*; Campisano, Christopher J.; Wynn, Jonathan G.; Arrowsmith, J. Ramón; Deino, Alan: **TEPHROCHRONOLOGY AND DEPOSITIONAL ENVIRONMENTS OF THE HADAR FORMATION FROM THE NORTHERN AWASH CORES OF THE HOMININ SITES AND PALEOLAKES DRILLING PROJECT (HSPDP)**
- 102-7 9:40 AM DiMaggio, Erin N.\*; Campisano, Christopher J.; Rowan, John; Dupont-Nivet, Guillaume; Deino, Alan; Garello, Dominique; Reed, Kaye E.; Arrowsmith, Ramón: **LATE PLIOCENE FOSSILIFEROUS SEDIMENTARY RECORD AND THE ENVIRONMENTAL CONTEXT OF EARLY HOMO FROM AFAR, ETHIOPIA**
- 102-8 9:55 AM Luedecke, Tina\*; Schrenk, Friedemann; Thiemeyer, Heinrich; Kullmer, Ottmar; Fiebig, Jens; Wacker, Ulrike; Mulch, Andreas: **PALEOENVIRONMENTAL RECONSTRUCTION BASED ON ISOTOPIC EVIDENCE OF EARLY HOMININ AND HERBIVORE DIETS (KARONGA BASIN, MALAWI)**

10:10 AM **BREAK**

- 102-9 10:25 AM Feibel, Craig S.\*; Beck, Catherine C.; Stockhecke, Mona; Gravina, Anna; Ortiz, Kevin; Campisano, Christopher J.; Cohen, Andrew S.: **SEEING DEEPER INTO THE MUD: INSIGHTS FROM THE WTK13 CORE, WEST TURKANA, KENYA**
- 102-10 10:45 AM Lupien, Rachel\*; Russell, James M.; Castañeda, Isla; Cohen, Andrew S.; Feibel, Craig S.: **LEAF WAX BIOMARKERS AS PROXIES FOR REGIONAL CLIMATE VARIATION DURING HOMININ EVOLUTION**
- 102-11 11:00 AM Yost, Chad L.\*; Cohen, Andrew S.; Feibel, Craig S.: **USING PHYTLITHS TO RECONSTRUCT EARLY PLEISTOCENE VEGETATION HISTORY FROM THE HOMININ SITES AND PALEOLAKES DRILLING PROJECT (HSPDP) WEST TURKANA, KENYA, DRILL CORE**
- 102-12 11:15 AM Lepre, Christopher J.\*: **MAGNETIC PROPERTIES OF ALTERED MUDSTONES FROM EARLY PLEISTOCENE LAKE LORENYANG, NORTHERN KENYA**
- 102-13 11:30 AM Behrensmeyer, Anna K.\*; Du, Andrew; Villasenor, Amelia; Patterson, David; Richmond, Brian G.; Hatala, Kevin; Roach, Neil T.: **EVIDENCE FOR SHIFTING BASE LEVELS AND CLIMATIC VS. TECTONIC CONTROLS ON THE FOSSIL RECORD OF THE OKOTE MEMBER, KOABI FORA FORMATION, EAST TURKANA**
- 11:45 AM **DISCUSSION**

**SESSION NO. 103**

**T209. Rheological Behavior of Ductile Lithosphere during Strain Localization (GSA Structural Geology and Tectonics Division)**

8:00 AM, Baltimore Convention Center, Room 308

Vasileios Chatzaras, Julie Newman and Basil Tikoff, Presiding

- 103-1 8:00 AM Klepeis, Keith\*; Miranda, Elena A.; Schwartz, Joshua J.; Stowell, Harold: **RHEOLOGICAL TRANSITIONS AND STRAIN LOCALIZATION IN LOWER CRUSTAL SHEAR ZONES: EVIDENCE FROM THE ROOT OF A CONTINENTAL ARC EXPOSED IN FIORDLAND, NEW ZEALAND**
- 103-2 8:20 AM Mahan, K.H.\*; Schulte-Pelkum, V.; Condit, Cailey B.; Baird, Graham B.; Allaz, Julien M.; Kelly, Nigel M.: **LOCALIZED SHEAR ZONES VERSUS DISTRIBUTED TECTONIC FABRICS: AN EXAMPLE FROM GEOLOGIC AND SEISMIC OBSERVATIONS IN PROTEROZOIC COLORADO BASEMENT**
- 103-3 8:40 AM Montesi, Laurent\*: **HOW DOES THE EVOLVING FABRIC OF ROCKS IN SHEAR ZONES AFFECTS THE STRENGTH OF CONTINENTAL OR OCEANIC LITHOSPHERE?**
- 103-4 9:00 AM Law, Richard D.\*: **OROGEN-SCALE ALONG-STRIKE CONTINUITY IN QUARTZ RECRYSTALLIZATION MICROSTRUCTURES ADJACENT TO THE MAIN CENTRAL THRUST: IMPLICATIONS FOR DEFORMATION TEMPERATURES, STRAIN RATES AND FLOW STRESSES**
- 103-5 9:15 AM Cavalcante, Geane Carolina\*; Silva, Marcos Egidio; Morales, Luiz Fernando Grafuhas; Lagoeiro, Leonardo Evangelista; Ferreira, Filipe: **THE CONTROL OF RECRYSTALLIZATION ON THE CRYSTALLOGRAPHIC PREFERRED ORIENTATION OF NATURALLY DEFORMED QUARTZ AND FELDSPAR, RIBEIRA BELT (SE BRAZIL)**
- 103-6 9:30 AM Xia, Haoran\*; Platt, John P.: **RHEOLOGICAL EVOLUTION OF THE LARAMIDE SUBDUCTION CHANNEL IN SOUTHERN CALIFORNIA**
- 103-7 9:45 AM Wells, Rachel\*; Holyoke, III, Caleb; Newman, Julie; Kronenberg, Andreas: **STRAIN LOCALIZATION PROCESSES IN EXPERIMENTALLY AND NATURALLY DEFORMED DOLOMITE**

AM

MONDAY

SESSION NO. 103

- 103-8 10:00 AM Labrousse, Loic\*; Huet, Benjamin; Le Pourhiet, Laetitia; Jolivet, Laurent; Burov, Evgueni: **RHEOLOGICAL IMPLICATIONS OF EXTENSIONAL DETACHMENTS: MEDITERRANEAN AND NUMERICAL INSIGHTS**
- 103-9 10:15 AM Diedesch, Timothy F.\*; Jessup, Micah J.; Cottle, John M.; Zeng, Lingsen: **DEFORMATION TEMPERATURE GRADIENTS AND KINEMATIC EVOLUTION OF A DISTRIBUTED MID-CRUSTAL SHEAR ZONE, LHAGOI KANGRI RANGE, SOUTHERN TIBET**
- 103-10 10:30 AM Liu, Junlai\*; Chen, Xiaoyu; Han, Xin; Guo, Wen; Lai, Yujing: **S-C MYLONITIZATION OF GRANITIC ROCKS ALONG MIDDLE-LOWER CRUST FAULT ZONES-EXEMPLIFIED BY THE HEFANGKOU DETACHMENT FAULT ZONE, YUNMENGSHAN, NORTH CHINA**
- 103-11 10:45 AM Helou, Christen E.\*; Wathen, Bryan; Wintsch, Robert P.; Yi, Keewook: **THE PERI-LAURENTIAN MARGIN OF SOUTHERN NEW ENGLAND: A TRANSPRESSIVE BOUNDARY FOR 200 MILLION YEARS**
- 103-12 11:00 AM Sullivan, Walter A.\*; Monz, Morgan E.; Boyd, Ariana S.: **LONG-TERM STRENGTH CONTRASTS BETWEEN TEXTURALLY SIMILAR FAULT ROCKS ACROSS A LARGE STRIKE-SLIP SHEAR ZONE: A CASE STUDY OF THE KELLYLAND FAULT ZONE, EASTERN MAINE**
- 103-13 11:15 AM Condit, Cailey B.\*; Mahan, Kevin H.; Orlandini, Omero F.; Rattanasith, Diana: **COMPETING CHEMICAL AND MECHANICAL PROCESSES PRODUCING GNEISSIC LAYERING IN A DEEP CRUSTAL SHEAR ZONE: AN EXAMPLE FROM SW MONTANA**
- 103-14 11:30 AM Chatzaras, Vasileios\*; Tikoff, Basil; Titus, Sarah; Kruckenberg, Seth C.; Withers, Anthony C.; Teyssier, Christian; Drury, Martyn: **MANTLE DEFORMATION AND STRAIN LOCALIZATION AT AN OCEANIC PALEOTRANSFORM FAULT: THE BOGOTA PENINSULA SHEAR ZONE**
- 103-15 11:45 AM Teyssier, Christian\*; Chatzaras, Vasileios; von der Handt, Anette; Warren, Jessica M.: **FEEDBACK BETWEEN HYDRATION AND DEFORMATION IN AN OCEANIC PALEOTRANSFORM (NEW CALEDONIA) FROM HIGH TEMPERATURE MYLONITIZATION TO SERPENTINIZATION**
- 104-5 9:10 AM Orme, Devon A.\*; Guenther, William R.; Laskowski, Andrew; Reiners, Peter W.: **LONG-TERM TECTONOTHERMAL HISTORY OF LARAMIDE BASEMENT FROM ZIRCON (U-TH)/HE AGE-EU CORRELATIONS**
- 104-6 9:25 AM Ginster, Ursula\*; Reiners, Peter W.; Farley, Ken A.; Nasdala, Lutz: **EFFECTS OF INGROWN RADIATION DAMAGE AND ANNEALING ON HELIUM DIFFUSION IN ZIRCON**
- 9:40 AM **BREAK**
- 104-7 9:55 AM Tremblay, Marissa M.\*; Shuster, David L.; Balco, Greg; Baden, Curtis W.: **LAST GLACIAL TEMPERATURES IN THE SIERRA NEVADA INFERRED FROM COSMOGENIC NOBLE GAS PALEOTHERMOMETRY**
- 104-8 10:15 AM McQuarrie, Nadine\*; Gilmore, Michelle E.; Rak, Adam J.; Ehlers, Todd A.: **UTILIZING COOLING HISTORIES TO DETERMINE THE GEOMETRY, SEQUENCE AND RATE OF FAULTING**
- 104-9 10:30 AM Stevens, Andrea L.\*; Balgord, Elizabeth; Carrapa, Barbara: **REANALYSIS OF APATITE FISSION TRACK THERMOCHRONOLOGY IN THE WIND RIVER RANGE PRODUCES REVISED LARAMIDE EXHUMATION HISTORY**
- 104-10 10:45 AM Bonich, Mariana B.\*; Samson, Scott D.; Flowers, Rebecca M.; Metcalf, James R.; Fedo, Christopher M.: **ISOTOPIC-THERMOCHRONOLOGIC CHARACTERIZATION OF APATITE AS A NEW PROXY FOR PROVENANCE ANALYSIS**
- 104-11 11:00 AM Fayon, Annia K.\*; Hansen, Lars: **EFFECTS OF DEFORMATION ON APATITE (U-TH)/HE SINGLE-GRAIN AGES**
- 104-12 11:15 AM Miller, Hayden B.D.\*; McKeon, Ryan E.; Johnson, Jena J.; Fischer, Woodward W.; Beukes, Nicholas J.; Farley, Kenneth A.: **COMBINED (U-TH)/NE AND (U-TH)/HE HEMATITE AGES AND <sup>4</sup>HE/<sup>3</sup>HE THERMOCHRONOLOGY OF THE TRANSVAAL SUPERGROUP, SOUTH AFRICA**

SESSION NO. 105

*GSA Special Nepal (Gorkha) Earthquake Session (GSA Quaternary Geology and Geomorphology Division; GSA International; GSA Geology and Society Division; GSA Structural Geology and Tectonics Division; The Geological Society of America)*

8:00 AM, Baltimore Convention Center, Room 345/346

Anke M. Friedrich and Elizabeth J. Catlos, Presiding

SESSION NO. 104

*T215. Novel Methods, Applications, and Data Interpretations in Thermochronology (Geochemical Society; GSA Structural Geology and Tectonics Division; GSA Geoinformatics Division; GSA Mineralogy, Geochemistry, Petrology, and Volcanology Division)*

8:00 AM, Baltimore Convention Center, Room 310

Alexis K. Ault and William R. Guenther, Presiding

- 104-1 8:00 AM Flowers, Rebecca M.\*; Baughman, Jaclyn S.; Johnson, Joshua E.; Landman, Rachel L.; Stanley, Jessica; Weisberg, Wesley R.; Metcalf, James R.: **EXPANDING THE TEMPERATURE SENSITIVITY RANGE AND APPLICABILITY OF THE (U-TH)/HE SYSTEM: SOME EXAMPLES**
- 104-2 8:20 AM Galster, Federico\*; Ovtcharova, Maria; Schaltegger, Urs; Müntener, Othmar: **THE COMPLEXITY OF RUTILE AND CONSEQUENCES FOR U-PB THERMOCHRONOLOGY**
- 104-3 8:35 AM Wong, Martin S.\*; Gans, Phillip B.; Zeitler, Peter; Idleman, Bruce: **FIELD CALIBRATION OF <sup>40</sup>AR/<sup>39</sup>AR K-FELDSPAR MULTIPLE DIFFUSION DOMAIN (MDD) THERMAL MODELS AT THE GRAYBACK NORMAL FAULT BLOCK, ARIZONA**
- 104-4 8:55 AM Hemming, Sidney R.\*; Brachfeld, Stefanie A.; Cook, Carys; Licht, Kathy; Pierce, Elizabeth L.; Reiners, Peter W.; Thomson, Stuart N.; van de Fliert, Tina; Williams, Trevor: **DETRITAL THERMOCHRONOLOGY OF ANTARCTIC GLACIGENIC SEDIMENTS: INSIGHTS INTO PAST**
- 8:00 AM **INTRODUCTORY REMARKS**
- 105-1 8:05 AM Lippert, Peter C.\*; van Hinsbergen, Douwe J.J.; Huang, Wentao; Dupont-Nivet, Guillaume: **A GREAT GREATER INDIA: A PALEOMAGNETIC PERSPECTIVE ON THE AMOUNT OF CENOZOIC SUBDUCTION AND UNDERTHRUSTING WITHIN THE CENTRAL HIMALAYA**
- 105-2 8:20 AM Avouac, Jean-Philippe\*; Meng, Lingsen; Melgar, Diego; Wei, Shengji; Wang, Teng; Bock, Yehuda; Ampuero, Jean-Paul; Stevens, Vicky; Galetzka, John; Genrich, Joachim: **UNZIPPING OF LOCKED MHT BY THE 2015, MW 7.8 GORKHA EARTHQUAKE, NEPAL**
- 105-3 8:35 AM Lay, Thorne\*: **SEISMOLOGICAL CHARACTERISTICS OF THE 25 APRIL 2015 MW 7.9 GORKHA, NEPAL EARTHQUAKE**
- 105-4 8:50 AM Carena, Sara\*; Verdecchia, Alessandro: **3D VISUALIZATION OF GEOLOGIC, GEODETIC, AND SEISMIC DATA FROM THE APRIL - MAY 2015, NEPAL, EARTHQUAKE DOUBLET**
- 105-5 9:05 AM Elliott, John Ross\*; Jolivet, Romain; Gonzalez, Pablo; Avouac, Jean-Philippe; Hollingsworth, James; Searle, Michael P.; Stevens, Vicky: **GEOMETRY OF THE MAIN**

- HIMALAYAN THRUST FAULT REVEALED BY THE GORKHA EARTHQUAKE**
- 105-6** 9:20 AM Knappe, Ellen\*; Bendick, Rebecca; Mencin, David; Upreti, Bishal; Aoudia, Abdelkarim; Galetzka, John; Bilham, Roger: **INCOMPLETE DÉCOLLEMENT RUPTURE IN THE 25 APRIL 2015 GORKHA EARTHQUAKE: IMPLICATIONS FOR POSTSEISMIC PROCESSES**
- 9:35 AM **DISCUSSION AND BREAK**
- 105-7** 9:50 AM Wesnousky, Steven G.\*; Angster, Stephen; Pierce, Ian; Fielding, Eric J.; Chamlagain, Deepak; Upreti, Bishal; Gautam, Dipendra; Kumahara, Yasuhiro; Nakata, Takashi: **INTERPRETATION OF PAST AND ONGOING PALEOSEISMIC INVESTIGATIONS ALONG THE HIMALAYAN FRONTAL THRUST IN CONTEXT OF BRIEF FIELD RECONNAISSANCE AFTER THE M7.8 APRIL 25, 2015 GORKHA EARTHQUAKE**
- 105-8** 10:05 AM Taylor, Michael H.\*; Styron, Richard H.; Murphy, Michael: **SEGMENTATION OF THE HIMALAYAN ARC – THE EFFECTS OF COLLISION OBLIQUITY ON THE DEVELOPMENT OF ACTIVE FAULTS AND EARTHQUAKE POTENTIAL**
- 105-9** 10:20 AM DeCelles, Peter G.\*: **STRUCTURAL-KINEMATIC SETTING OF THE 2015 GORKHA, NEPAL EARTHQUAKES: LESSONS FROM A CRITICALLY TAPERED OROGENIC WEDGE**
- 10:35 AM **DISCUSSION**
- 105-10** 10:40 AM Ojha, Tank P.\*; DeCelles, Peter G.: **LANDSLIDE DISTRIBUTION BEFORE AND THE AFTER THE 2015 GORKHA EARTHQUAKES IN CENTRAL NEPAL: RELATIONSHIPS WITH DIP SLOPES AND VILLAGES**
- 105-11** 10:55 AM Gallen, Sean Francis\*; Clark, Marin K.; Niemi, Nathan; Lupker, Maarten; Gajurel, Ananta Prasad; West, A. Joshua; Lowe, Katherine; Roback, Kevin: **COSEISMIC LANDSLIDE HAZARDS AND GEOMORPHIC CONSEQUENCES OF THE M<sub>w</sub> 7.8 GORKHA EARTHQUAKE, NEPAL**
- 105-12** 11:10 AM Andermann, Christoff\*; Behling, Robert; Cook, Kristen Lee; Emberson, Robert; Hovius, Niels; Marc, Odin; Motagh, Mahdi; Roessner, Sigrid; Sens-Schoenfelder, Christoph; Turowski, Jens Martin: **LANDSCAPE RESPONSE TO THE MW7.9 GORKHA EARTHQUAKE**
- 105-13** 11:25 AM Upreti, Bishal Nath\*: **GORKHA EARTHQUAKE 2015, NEPAL: PRESENT KNOWLEDGE AND FUTURE RESEARCH DIRECTION**
- 105-14** 11:40 AM Tucker, Brian E.\*; Acharya, Surya Prasad; Dixit, Amod Mani: **NEPAL'S SCHOOL EARTHQUAKE SAFETY PROGRAM: PAST ACCOMPLISHMENTS, FUTURE CHALLENGES**
- 11:55 AM **DISCUSSION**
- 106-3** 3 Bushman, Paul\*; Lloyd, Lucas; Heaslet, Ryan; Emerman, Steven H.: **MAGNETIC SUSCEPTIBILITY OF TREE LEAVES AS A SIMPLE, COST-EFFECTIVE MEANS OF MONITORING ATMOSPHERIC PARTICULATE MATTER CONCENTRATIONS ALONG THE WASATCH FRONT, UTAH**
- 106-4** 4 Yazbek, Lindsey D.\*; Simoneau, Samuel O.; Plenge, Megan F.: **THE IMPACTS OF RECYCLED WATER IRRIGATION IN SAN ANTONIO, TX**
- 106-5** 5 Bower, Jennifer\*; Perdrial, Nicolas: **IMPACTS OF COMPETITIVE SORPTION PROCESSES ON PB BIOACCESSIBILITY IN URBAN SOILS**
- 106-6** 6 McAlinden, Jordann\*; Rivera, Carlohugo; Mejia, Diana; Boroweic, Jolanta; McKeon, Jeffrey; Zdziarski, Mark; Freile, Deborah; Duzgoren-Aydin, Nurdan S.: **SPATIAL AND TEMPORAL DISTRIBUTION OF HEAVY METAL COMPOSITIONS IN URBAN SOILS IN NEW JERSEY (2007-2015)**
- 106-7** 7 Zamora, Felix\*; Jung, Hun Bok; McAlinden, Jordann; Rivera, Carlohugo; Mejia, Diana; Bryant, Jasmine; Duzgoren-Aydin, Nurdan S.: **WATER AND SEDIMENT QUALITY OF URBAN RIVERS IN NEW JERSEY**
- 106-8** 8 Sarker, Ananta\*; St Elin, Samantha; Lee, Sunwoo; Dhar, Ratan: **CHEMICAL CHARACTERIZATION OF URBAN LAKE WATER AND SOIL IN NEW YORK CITY**
- 106-9** 9 Welkey, Jessica M.\*; Toran, Laura: **CHANGES IN SEDIMENT LOADING OVER TIME ON AN ACTIVE MILITARY TRAINING FACILITY**
- 106-10** 10 DeGarmo, Christopher J.\*; Ruhl, Laura: **WATER QUALITY CHANGES ALONG AN URBAN WATERSHED: COLEMAN CREEK IN LITTLE ROCK, AR**
- 106-11** 11 Willard, Elizabeth\*; Hall, Cynthia: **ANALYSIS OF PHOSPHORUS AND NITROGEN CONTENT IN PHILADELPHIA SOILS THROUGH UV-VIS SPECTROPHOTOMETRY**
- 106-12** 12 Adamic, Jessica F.\*; Nichols, Deborah; Vong, Quyen H.; Ho, Christina; Ho, Cindy; Filippelli, Gabriel M.: **GEOCHEMISTRY OF URBAN SOILS IN INDIANAPOLIS, INDIANA: A STUDY OF LEAD AND OTHER ANTHROPOGENIC METALS AT THE RESIDENTIAL SCALE**
- 106-13** 13 Nichols, Deborah E.\*; Adamic, Jessica F.; Rollings, Amber J.; Filippelli, Gabriel M.: **FROM LEAD CONTAMINATION TO CLEAN-UP AND BEYOND: WORKGROUP FORMATION, COMMUNICATION AND COORDINATION FOR COMBATING ENVIRONMENTAL JUSTICE ISSUES IN INDIANAPOLIS, INDIANA (USA)**
- 106-14** 14 Robinson, Heather K.\*; Hasenmueller, Elizabeth A.; Criss, Robert E.: **TRANSPORT AND RESIDENCE OF CHLORIDE FROM ROAD SALT IN SHALLOW GROUNDWATERS, EAST-CENTRAL MISSOURI, USA**
- 106-15** 15 Pardo, Lorena\*; Alcantara, Ace; Zaman, Ashfaque; Dhar, Ratan: **OCCURRENCES OF FECAL INDICATIVE BACTERIA (FIBS) IN URBAN LAKE ENVIRONMENT**
- 106-16** 16 Carey, Matthew\*; Ruhl, Laura: **URBAN GEOCHEMISTRY AND WATER QUALITY OF ARKANSAS RIVER SURFACE WATER THROUGH THE LITTLE ROCK METROPOLITAN AREA**
- 106-17** 17 Haq, Shahan\*; Kaushal, Sujay S.; Hohman, Steven; Coplin, Jonathan; Duan, Shuiwang: **SALINIZATION ENHANCES MOBILIZATION OF NUTRIENTS FROM SEDIMENTS TO STREAMS**
- 106-18** 18 Soderberg, Keir\*; McCarthy, Declan P.; Hennet, Remy J.-C.: **VOLATILIZATION OF POLYCHLORINATED BIPHENYLS: IMPLICATIONS FOR THEIR DISTRIBUTION, FORENSICS AND TOXICITY IN URBAN ENVIRONMENTS**

## POSTER TECHNICAL SESSIONS

### SESSION NO. 106

**T32. Urban Geochemistry (Posters) (International Association of Geochemistry; Geochemical Society; GSA Environmental and Engineering Geology Division; GSA Geology and Society Division)**

9:00 AM, Baltimore Convention Center, Exhibit Hall

Authors will be present from 4:30 to 6:30 PM

Booth #

- 106-1** 1 Muñiz, Yvette\*; Plenge, Megan F; Shiels, R. David: **BIOGEOCHEMICAL CHARACTERIZATION OF A GASOLINE-CONTAMINATED AQUIFER**
- 106-2** 2 Walker, Roxanne Y.\*; Huot, Hermine; Cheng, Zhongqi; Shaw, Richard: **ASSESSING BLACK CARBON IN NYC'S URBAN SOILS**

MONDAY

POSTERS



## SESSION NO. 107

**T39. Sources, Transport, Fate, and Toxicology of Trace Elements and Organics in the Environment (Posters) (International Association of GeoChemistry; Geochemical Society; GSA Mineralogy, Geochemistry, Petrology, and Volcanology Division)**

9:00 AM, Baltimore Convention Center, Exhibit Hall

Authors will be present from 4:30 to 6:30 PM

Booth #

- 107-1 19 Goldstein, Harland L.\*; Breit, George N.; Reynolds, Richard L.: **TRACE ELEMENTS IN A DRYLAND SETTING OF GROUNDWATER DISCHARGE: LINKAGE BETWEEN GROUNDWATER AND DUST**
- 107-2 20 Witt, III, Emmitt C.\*; Pribil, Michael J.; Hogan, John P.; Wronkiewicz, David J.; Rutherford, Jr., Danny L.: **ISOTOPE AND CONCENTRATION CONSTRAINED SOURCES OF PB IN FUGITIVE DUSTS FROM UNSURFACED ROADS IN SOUTHEAST, MO**
- 107-3 21 Brown, Reid D.\*: **AEOLIAN TRANSPORT OF DUST-BORNE URANIUM CONTAMINATION**
- 107-4 22 McHugh, Kelly C.\*; Widom, Elisabeth; Spitz, Henry; Glover, Sam: **EVALUATING THE RELIABILITY OF TREE RINGS FOR MONITORING PAST ENVIRONMENTAL U CONTAMINATION**
- 107-5 23 Carlson, Timothy\*; McHugh, Kelly C.; Widom, Elisabeth: **SIGNATURES OF ENVIRONMENTAL CONTAMINATION IN LICHEN NEAR THE MOUND SITE, MIAMISBURG, OHIO**
- 107-6 24 Hetman, Emily V.\*; Rutila, Elizabeth C.; Glavich, Doug A.; Shiel, Alyssa E.: **ISOTOPIC AND ELEMENTAL COMPOSITIONS OF LICHENS AS TRACERS OF SMELTER EMISSIONS IN WASHINGTON STATE AND BRITISH COLUMBIA**
- 107-7 25 Gillispie, Elizabeth\*; Polizzotto, Matthew; Austin, Robert; Rivera, Nelson; Bolich, Richard E.; Amoozegar, Aziz; Duckworth, Owen: **INTEGRATED SOIL-BEDROCK SYSTEM ANALYSES REVEAL NEAR-SURFACE MANGANESE REPARTITIONING AND RELEASE TO GROUNDWATER IN NORTH CAROLINA**
- 107-8 26 Sarkar, Dibyendu\*; James, Richard; Zheng, Lei; Punamiya, Pravin; Das, Padmini; Datta, Rupali: **CHARACTERIZATION OF ALUMINUM-BASED DRINKING WATER TREATMENT RESIDUALS COLLECTED FROM VARIOUS PARTS OF THE UNITED STATES**
- 107-9 27 Jamil, Nadia B.\*; Punamiya, Pravin; Datta, Rupali; Sarkar, Dibyendu: **ANTIMONY REMOVAL FROM AQUEOUS SOLUTIONS: POTENTIAL FOR ALUMINUM-BASED DRINKING WATER TREATMENT RESIDUALS AS A "GREEN" SORBENT**
- 107-10 28 Beroff, Sara Estrella\*; WoldeGabriel, Giday; Musa, Dea; Ding, Mei; Kluk, Emily; Rearick, Michael; Perkins, George; Reimus, Paul W.; Katzman, Danny: **MINERALOGICAL STUDY OF SEDIMENTS IN CHROMIUM-CONTAMINATED PLUME: IMPLICATION FOR NATURAL ATTENUATION**
- 107-11 29 Priestaf, Michael J.\*; Renock, Devon: **AN ELECTROCHEMICAL STUDY OF CHROMIUM OXIDATION BY MANGANESE OXIDES**
- 107-12 30 Walker, Sarah M.\*; Marcano, Maria C.; Bender, Will M.; Becker, Udo: **IMAGING THE *IN SITU* REDUCTION OF CHROMIUM(VI) ON MAGNETITE SURFACES USING ELECTROCHEMICAL AFM**
- 107-13 31 Fitzpatrick, Devan J.\*; Rutila, Elizabeth C.; Glavich, Doug A.; Shiel, Alyssa E.: **EVALUATION OF TRACE METAL POLLUTION ASSOCIATED WITH TRAIN TRAFFIC IN THE PACIFIC NORTHWEST**
- 107-14 32 Barker, Amanda\*; Douglas, Thomas A.; Trainor, Thomas P.: **ATTENUATION OF LEAD AND ANTIMONY IN SHOOTING RANGE SOILS BY IRON AMENDMENTS**
- 107-15 33 Burnley, Pamela\*; Fernandez, Adela; Smith, Jeremiah; Goya, Alex; Haber, Daniel; Johnsen, Racheal; Marsac, Kara E.; Malchow, Russell: **EXAMINING THE SPATIAL SCALE OF VARIATIONS IN TERRESTRIAL GAMMA-RAY BACKGROUND OVER INDIVIDUAL BEDROCK GEOLOGIC UNITS**

- 107-16 34 Kitch, Gabriella\*; Drevnick, Paul; Low, P.C.: **MERCURY CYCLING IN HONEYSUCKLE CREEK WATERSHED AND BURT LAKE: NORTHERN MICHIGAN**
- 107-17 35 Matz, Jillian C.\*; Winters, Catherine G.: **DIEL PATTERNS IN DISSOLVED ORGANIC MATTER IN A FORESTED HEADWATER CATCHMENT IN MARYLAND**
- 107-18 36 Parsen, Michael J.\*; McDonald, Cory P.; Lathrop, Richard C.; Sorsa, Kirsti K.; Bradbury, Kenneth R.: **NITRATE PATTERNS, TRENDS, AND PATHWAYS IN GROUNDWATER IN SOUTH-CENTRAL WISCONSIN: A MODEL-BASED EVALUATION**
- 107-19 37 Canning, Caraline\*; Johnson, Erin; Krieg, Chelsea; Inamdar, Shreeram; Rowland, R. Douglas: **AFTER THE FLOOD: POTENTIAL LEACHING OF CARBON AND NITROGEN FROM SEDIMENTS**
- 107-20 38 Sosa, Numa Nahuel\*; Datta, Saugata; Zárate, Marcelo Aristide: **SEDIMENTOLOGICAL CONTROL ON ARSENIC OCCURRENCE IN CLAROMECÓ RIVER BASIN (SOUTHERN PAMPEAN PLAIN, ARGENTINA)**
- 107-21 39 Walsh, Meghan K.\*; Wagner, Eric J.; Weston, Nathaniel B.; Goldsmith, Steven T.: **EXPLORING POTENTIAL IMPACTS OF HYDRAULIC FRACTURING ON PENNSYLVANIA'S SURFACEWATERS USING TRACE ELEMENTAL CONCENTRATIONS IN STREAMBED SEDIMENTS**
- 107-22 40 Mathers, Cara\*; Levas, Stephen J.: **HEAVY METAL CONCENTRATIONS IN *CORBICULA FLUMINEA*: AN INVESTIGATION INTO ACCUMULATION FACTORS AND THE EFFECTS OF URBANIZATION ON WATERWAYS IN SOUTHEASTERN PENNSYLVANIA**
- 107-23 41 Kumar, Amishi\*; Brassell, Simon Christopher; Schimmelmann, Arndt; Sauer, Peter E.: **DISTRIBUTION AND SOURCES OF POLYCYCLIC AROMATIC HYDROCARBONS (PAHS) IN THE SANTA BARBARA BASIN**
- 107-24 42 Schaefer, Augustus\*; Wasylenki, Laura E.: **TOWARDS W ISOTOPE SIGNATURES AS A TRACER OF ENVIRONMENTAL CONTAMINATION: FRACTIONATION DURING SORPTION TO MN OXYHYDROXIDE**

## SESSION NO. 108

**T48. Geomicrobiology: Microbes as a Geologic Force on Modern and Ancient Earth (Posters) (GSA Geobiology & Geomicrobiology Division; Geochemical Society)**

9:00 AM, Baltimore Convention Center, Exhibit Hall

Authors will be present from 4:30 to 6:30 PM

Booth #

- 108-1 43 Kaddour, Hussein\*: **POTENTIAL SYNERGISM AND MUTUALISM IN THE ORIGINS OF LIFE: A ONE-POT EXPERIMENTAL APPROACH TO NON-ENZYMATIC RNA AND PEPTIDE POLYMERIZATION**
- 108-2 44 Estrada, Charlene F.\*; Kaddour, Hussein; Dalai, Punam; Bass, Garrett; Sahai, Nita: **ENHANCED VESICLE ASSEMBLY RATE AT THE MINERAL/WATER INTERFACE**
- 108-3 45 Dalai, Punam\*; Estrada, Charlene F.; Kaddour, Hussein; Bass, Garrett; Sahai, Nita: **FORMATION AND STABILITY OF MODEL MEMBRANES IN GEOCHEMICAL ENVIRONMENTS**
- 108-4 46 Mangiante, David M.\*; Gilbert, Benjamin; Schaller, Richard D.; Banfield, Jillian F.: **PHOTOREDUCTION OF FUMARATE BY ZNS IS INITIATED BY ULTRAFast ONE-ELECTRON TRANSFER**
- 108-5 47 Hopson, Heath Hilton\*; Khanna, Pankaj; Droxler, André W.; Lehrmann, Daniel J.; Harris, Paul M.: **DETAILED CORE FACIES DESCRIPTION OF AN UPPER CAMBRIAN MICROBIAL REEF COMPLEX (JAMES RIVER, MASON COUNTY, TEXAS)**
- 108-6 48 Kubik, Brian\*; Hopson, Heath Hilton; Pasquale Da Cruz Trotta, Roberto; Droxler, Andre Willy; Khanna, Pankaj; Fessahaie, Meron; Lehrmann, Daniel J.; Harris, Paul M.; Singh, Pulkit: **INTER-HERM GRAINSTONE ACCUMULATION IN AN UPPER CAMBRIAN MICROBIAL REEF COMPLEX AND ITS SUBSEQUENT SEDIMENT BURIAL (JAMES RIVER, MASON COUNTY, TEXAS)**



- 108-7 49 Testa, Maurice P.\*; Kirkland, Brenda L.: **ATTEMPTING TO IDENTIFY SPHEROIDAL STRUCTURES FOUND AT THE BASE OF ARAGONITE BOTRYOIDS**
- 108-8 50 Ilhardt, Peter D.\*; House, Christopher H.: **GEOCHEMISTRY AND MINERALOGY OF IRON MICROSTRUCTURES IN A NEOARCHEAN STROMATOLITE, CAMPBELL GROUP, SOUTH AFRICA**
- 108-9 51 Hoppes, Kara\*; Chan, Clara S.; Cabaniss, Kevin; Williams, Kenneth H.; Moore, Michael; Michael, Holly A.; Caplan, Jeffrey: **MICROBIAL IRON OXIDATION AND CONTRIBUTION TO FE OXIDE COATINGS IN AQUIFER SEDIMENT**
- 108-10 52 Chan, Clara S.\*; Field, Erin; Kato, Shingo; Emerson, David; Luther, III, George W.: **THE ROLE OF MICROAEROPHILIC FE-OXIDIZING MICROORGANISMS IN PRODUCING BANDED IRON FORMATIONS**
- 108-11 53 Broce, Jesse S.\*; Schiffbauer, James D.: **RATE LIMITATIONS ON FOSSIL PYRITIZATION UNDER EXPERIMENTAL CONDITIONS**
- 108-12 54 Zeidan, Mousa\*; Potochniak, Steven; Glamoclija, Mihaela: **MICROBE MINERAL INTERACTION IN SULFATE RICH PLAYAS AND THEIR RELEVANCE TO MARS**
- 108-13 55 Cadieux, Sarah Beth\*; White, Jeffrey R.; Pratt, Lisa M.: **LARGE FRACTIONATIONS OF C AND H ISOTOPES RELATED TO METHANE OXIDATION IN ARCTIC LAKES**
- 109-9 64 Santillan, Eugenio F.U.\*; Choi, Wanjo; Bennett, Philip C.; Leyris, Juliette: **THE EFFECTS OF BIOCIDES ON SUBSURFACE MICROBIAL POPULATIONS DURING HYDRAULIC FRACTURING IN THE EAGLE FORD FORMATION, TEXAS, USA**
- 109-10 65 Piazza, Olivia\*; Corsetti, Frank A.; Spear, John R.; Stamps, Blake W.; Stevenson, Bradley; Berelson, William M.: **MICROBIAL DIVERSITY OF OIDS FROM GREAT SALT LAKE, UT**
- 109-11 66 Dickson, Loretta D.\*; Calabrese, Joseph: **ISOLATION OF PLEOMORPHIC BACTERIAL *PHYLLOBACTERIUM SP.* FROM ENHYDRO AGATES**
- 109-12 67 Schmidt, Jenna M.\*; Steen, Andrew D.: **POTENTIAL ACTIVITIES OF EXTRACELLULAR ENZYMES IN THE DEEP SUBSURFACE SEDIMENTS OF THE BALTIC SEA BASIN**
- 109-13 68 Trexler, Ryan\*; Pfiffner, Susan M.; Akondi, Rawlings; Sharma, Shikha; Mouser, Paula J.: **OPTIMIZING METHODS FOR EXTRACTING LIPIDS FROM ORGANIC-RICH SUBSURFACE SHALE TO ESTIMATE MICROBIAL BIOMASS AND DIVERSITY**
- 109-14 69 Zhang, Li\*: **BIOREDUCTION OF NONTRONITE BY *SHEWANELLA ONEIDENSIS* MR-1 AND ITS OUTER MEMBRANE CYTOCHROME PROTEINS OMCA AND MTRC**
- 109-15 70 Smart, Sandra M.\*; McDaniel, Caleb; McDaniel, Kyle; Brake, Sandra; Hasiotis, Stephen T.: **SURVIVAL OF A STROMATOLITE-BUILDING, EUKARYOTIC MICROORGANISM IN A CO<sub>2</sub>-RICH ATMOSPHERE**

## SESSION NO. 109

**T51. Molecular Methodology and the Heart of Geobiology (Posters) (GSA Geobiology & Geomicrobiology Division; Geochemical Society)**

9:00 AM, Baltimore Convention Center, Exhibit Hall

Authors will be present from 4:30 to 6:30 PM

Booth #

- 109-1 56 Labrado, Amanda\*; Tsao, Leah; Hamilton, Trinity; Macalady, Jennifer L.: **MICROBIAL INFLUENCE ON ELEMENTAL SULFUR PRODUCTION AND CONSUMPTION IN A SULFIDIC CAVE SYSTEM**
- 109-2 57 Sharma, Shikha\*; Wilson, Travis: **ISOTOPIC EVIDENCE OF MICROBE-WATER-ROCK INTERACTIONS IN SHALE GAS PRODUCED WATERS**
- 109-3 58 Akondi, Rawlings\*; Sharma, Shikha; Pfiffner, Susan M.; Mouser, Paula J.; Trexler, Ryan; Warriar, Ajaya: **COMPARISON OF PHOSPHOLIPID AND DIGLYCERIDE FATTY ACID BIOMARKER PROFILES IN MARCELLUS SHALE CORES OF DIFFERENT MATURITIES**
- 109-4 59 Thomas, W. Kelley\*; Ghosh, Suman; Hendrix, Eric; Roe, Joe: **BACKGROUND MICROBIAL GENOMICS FROM MAJOR GROUNDWATER PRODUCTION AQUIFERS IN CENTRAL LOS ANGELES BASIN - A BASELINE STUDY**
- 109-5 60 Zinke, Laura A.\*; Buongiorno, Joy; Chou, Luoth; van Maldegem, Lennart; Petyshyn, Victoria; Shapiro, Russell S.; Stamps, Blake W.; Stevenson, Bradley S.; Spear, John R.; Corsetti, Frank A.: **COUPLED GEOCHEMICAL AND MICROBIOLOGICAL CHARACTERIZATION OF NON-CARBONATE FIRMGROUNDS FROM A MODERN SODA LAKE, WALKER LAKE, NEVADA**
- 109-6 61 Corsetti, Frank A.\*; Rempfert, Kaitlin; Santiago Ramos, Danielle; Santilli Nascimento, Gabriela; Zhang, Feifei; Loyd, Sean J.; Bertran, Emma; Stamps, Blake W.; Stevenson, Bradley; Spear, John R.: **SPATIAL VARIATIONS IN MICROBIAL COMMUNITY COMPOSITION BETWEEN WATER AND SEDIMENT SAMPLES IN LITTLE HOT CREEK, CALIFORNIA: IMPLICATIONS FOR THE ROLE OF TEMPERATURE IN CONTROLLING HOT SPRING DIVERSITY**
- 109-7 62 Spear, John R.\*; Daille, Leslie; Trivedi, Christopher; Bradley, James; Bojanowski, Caitlin; Johnson, Hope A.; Stamps, Blake W.; Stevenson, Bradley S.; Berelson, William M.; Corsetti, Frank A.: **CARBONATE-RICH CONES: A NEW MODERN ANALOGUE OF ANCIENT CONICAL STROMATOLITE FORMATION?**
- 109-8 63 Smaglik, Suzanne M.\*; Vietti, Laura A.: **WATER QUALITY, PIGMENT ANALYSIS, MICROSCOPY, AND GENOMICS DEFINE**

## SESSION NO. 110

**T53. Geoheritage Matters (Posters) (GSA Geology and Society Division; GSA Geoscience Education Division; GSA Quaternary Geology and Geomorphology Division)**

9:00 AM, Baltimore Convention Center, Exhibit Hall

Authors will be present from 4:30 to 6:30 PM

Booth #

- 110-1 71 Dela Pierre, Francesco\*; Giardino, Marco; Lozar, Francesca; Borghi, Alessandro; d'Atri, Anna; Masciocco, Luciano; Natalicchio, Marcello; Palomba, Mauro; Perotti, Luigi; Rolfo, Franco: **PROGEOPIEMONTE PROJECT: ENHANCING SCIENTIFIC AND SOCIAL ENGAGEMENT TO UNDERSTAND, PROMOTE AND PROTECT THE GEODIVERSITY OF THE PIEMONTE REGION (ITALY)**
- 110-2 72 Rose, William I.\*; Yye, Erika; Stein, Carol A; Stein, Seth: **GEOHISTORY AND GEOHERITAGE OF THE KEWEENAW AND ISLE ROYALE FAULTS, MICHIGAN**
- 110-3 73 van Wyk de Vries, Benjamin\*: **AN ANALYSIS OF THE SCIENTIFIC WRITING STYLE IN GEOLOGICAL WORLD HERITAGE AND GEOPARK REPORTS AND SUGGESTIONS FOR NOMINATION AND REPORT QUALITY IMPROVEMENT**
- 110-4 74 van Wyk de Vries, Benjamin\*: **ASSESSMENT OF THE GEOHERITAGE VALUE OF VOLCANOES AND FAULTS – (HOW) CAN THEY BE QUANTIFIED?**
- 110-5 75 Olive-Garcia, Cécile\*: **MANAGING AND PROMOTING A TECTONIC AND VOLCANIC WORLD HERITAGE PROPOSAL – PERSPECTIVES FROM THE CHAÎNE DES PUYS – LIMAGNE FAULT UNESCO NOMINATION**
- 110-6 76 Zavala, Bilberto\*; Churata, Danitza; Varela, Felipe: **PROPOSALS FOR THE CREATION AND MANAGEMENT OF GEOPARKS IN PERU**
- 110-7 77 Zavala, Bilberto\*; Fidel, Lionel; Posso, James: **COLCA CANYON AND VALLEY OF THE VOLCANOES OF ANDAGUA, THE FIRST GEOPARK PROPOSAL IN PERU**
- 110-8 78 Meyer, Herbert W.\*: **CONNECTING GEOHERITAGE SITES HAVING COMMON ASSETS: LINKS BETWEEN PETRIFIED FORESTS IN COLORADO, PERU, AND THAILAND**
- 110-9 79 Meyer, Herbert W.\*; Smeins, Melissa; Casadevall, Thomas: **DEVELOPING GEOHERITAGE ALONG THE GOLD BELT BYWAY, COLORADO**

SESSION NO. 110

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| <p>110-10 80 Mogk, David W.*: <b>GEOHERITAGE SITES: ESSENTIAL FOR GEOSCIENCE EDUCATION</b></p> <p>110-11 81 Rose, William I.*; Vye, Erika: <b>GEO FIELD TRIPS BY LAND AND LAKE HIGHLIGHT GEODIVERSITY OF MICHIGAN'S KEWEENAW</b></p> <p>110-12 82 Vye, Erika C.*; Rose, William I.: <b>CREATING AN INVENTORY OF THE GEODIVERSITY OF THE KEWEENAW PENINSULA AND ISLE ROYALE</b></p> <p>110-13 83 Semken, Steven*: <b>ONGOING AND POTENTIAL CONTRIBUTIONS BY EARTHSCOPE AND OTHER LARGE FACILITIES TO U.S. GEOHERITAGE RESOURCES</b></p> <p>110-14 84 Wood, Jim F.*; Kenworthy, Jason P.; Pranger, II, Harold Sherman: <b>AMERICA'S GEOLOGIC HERITAGE: ESTABLISHING PRINCIPLES AND A NATIONAL PARK SERVICE PROGRAM</b></p> <p>110-15 85 Cook, Terri L.*; Abbott, Lon D.: <b>COMMON GROUND: HOW GEOSCIENTISTS CAN HELP INCREASE PUBLIC AWARENESS OF GEOHERITAGE</b></p> | <p>112-2 96 McGovern, Matthew Glenn*; Benzing, Paul; Lowry, Christopher S.: <b>REAL TIME MEASUREMENTS OF STREAM STAGE AND TEMPERATURE WITH LOW COST DISTRIBUTED SENSORS</b></p> <p>112-3 97 Willens, Tia*; Lenczewski, Melissa: <b>APPLYING IDXXX SNAP KITS TO TESTING FOR ANTIBIOTIC RESIDUES IN WATER</b></p> <p>112-4 98 Rodriguez, R.*; Aviles, M.; Price, Amy E.; Rowley, T.; Rhodes, K.; Granados, R.; Knappett, P. S. K.; Li, Yanmei; Giardino, John R.; Hernandez, H.: <b>USING STABLE ISOTOPES TO EXAMINE THE RELATIONSHIP BETWEEN GROUNDWATER CHEMISTRY AND RAINWATER IN A SEMI-ARID BASIN: INDEPENDENCE AQUIFER, GUANAJUATO, MEXICO</b></p> <p>112-5 99 Bogeholz, Philine*; Frisbee, Marty D.: <b>QUANTIFYING GROUNDWATER/SURFACE-WATER INTERACTIONS IN SMALL TRIBUTARY DRAINAGES TO THE WABASH RIVER USING RADON-222 AND OTHER ENVIRONMENTAL TRACERS</b></p> <p>112-6 100 Dickman, Rebecca A.*; Patick, Olivia G.; Zimmerman, Bill; Glose, Thomas J.; Lowry, Christopher S.: <b>MONITORING LAKE ERIE WATER QUALITY USING CREATIVE METHODS IN CITIZEN SCIENCE</b></p> <p>112-7 101 Kanaley, Chelsea*; Gonzalez, Sara; Flanagan, Courtney; Glose, Thomas J.; Allen-King, Richelle M.; Lowry, Christopher S.: <b>COMPARING URBAN AND AGRICULTURAL NUTRIENT MASS FLUX INTO THE LOWER GREAT LAKES</b></p> <p>112-8 102 Gaikema, Mackenzie G.*; Fortier, Chantelle M.; Stefansky, Jasmine N.; Wesenberg, Mike P.; Robertson, Wendy M.: <b>WHAT IS CAUSING WATER QUALITY AND STREAMFLOW DECLINES IN SAGANING CREEK WATERSHED, MI?</b></p> <p>112-9 103 Guzzardi, Danielle*; Costa, Matthew; Oyewumi, Oluyinka: <b>EVALUATING THE IMPACT OF HUMAN ACTIVITIES ON THE CONCENTRATION OF TRACE AND MAJOR ELEMENTS IN THE FARMINGTON RIVER DRAINAGE SYSTEMS, WINDSOR CT</b></p> <p>112-10 104 Ward, Vanessa*; Benally, Rayanna; Crossey, Laura J.; Blomgren, Valerie J.; Smith, Jared Roman; Karlstrom, Karl: <b>THE EFFECTS OF GEOTHERMAL FLUIDS ON SURFACE WATER QUALITY IN THE JEMEZ RIVER SYSTEM IN NORTHERN NEW MEXICO</b></p> <p>112-11 105 Coburn, Jr., James E.*; Vitali, Jonathan M.; Glose, Thomas J.; Lowry, Christopher S.: <b>ANALYZING WATER QUALITY OVER VARIABLE FLOW CONDITIONS IN RURAL AND SUBURBAN STREAMS</b></p> <p>112-12 106 Tuttle, Caroline T.*; Crumlish, Julianna R.; Canty, Michael T.; Glose, Thomas J.; Lowry, Christopher S.: <b>ANALYZING DAILY VARIABILITY IN <i>E. COLI</i> CONCENTRATIONS IN AN URBAN STREAM</b></p> <p>112-13 107 Crumlish, Julianna R.*; Pereira dos Santos, Luiz Rafael; Glose, Thomas J.; Lowry, Christopher S.: <b>EVALUATING THE IMPACT OF HYDROLOGY AND COMBINED-SEWER OVERFLOWS ON URBAN BEACH CLOSURES</b></p> <p>112-14 108 Humphrey, Joseph*; Hanna, Eric; Hardage, Dana; Dingus, Jack; Barron, Jr., Herbert Pat: <b>STREAM CONTAMINATION: <i>ESCHERICHIA COLI</i> IN MIDDLE TENNESSEE</b></p> <p>112-15 109 Barron, Jr., Herbert Pat*; Dingus, Jack; Humphrey, Joseph; Hanna, Eric; Hardage, Dana; Dunkle, Kallina M.: <b>RIPARIAN BUFFER EFFECTS ON STREAM CONTAMINATION IN THE CITIES OF MILLERSVILLE AND GOODLETTSVILLE, TENNESSEE</b></p> <p>112-16 110 Rothschild, Tyler James*; O'Reilly, Catherine; Peterson, Eric W.: <b>EFFECTS ON WATER TABLE ELEVATION DUE TO TILE DRAINAGE INTO A RIPARIAN BUFFER ZONE</b></p> <p>112-17 111 Luh, Nicholas M.*; Ewanic, Jessica; Pereira dos Santos, Luiz Rafael; Glose, Thomas J.; Lowry, Christopher S.: <b>RELATIONSHIP BETWEEN STREAM STAGE AND DISCHARGE ON MAJOR TRIBUTARIES THAT ENTER LAKE ERIE</b></p> <p>112-18 112 Box, Carolyn L.*; Tobin, Benjamin W.: <b>ASSESSING HYPORHEIC EXCHANGE IN AN ARID, SPRING FED STREAM SYSTEM, BRIGHT ANGEL CREEK, GRAND CANYON NATIONAL PARK, AZ</b></p> |
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SESSION NO. 111

**T76. Geocorps™ America and Mosaics in Science Programs: Successful Partnerships Promoting Individual Professional Development and Application of Geoscience and Related Fields to Management of America's Public Lands (Posters) (GSA Geology and Society Division)**

9:00 AM, Baltimore Convention Center, Exhibit Hall

Authors will be present from 4:30 to 6:30 PM

Booth #

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| <p>111-1 86 Dobbins, Jeff*; Ruksznis, Abigail; Samuels, Joshua X.: <b>GEOLOGIC MAPPING OF THE CLARNO UNIT OF JOHN DAY FOSSIL BEDS NATIONAL MONUMENT, EASTERN OREGON, WITH IMPLICATIONS FOR THE CENOZOIC PLANT FOSSIL RECORD</b></p> <p>111-2 87 Coraci, Victoria E.*: <b>ENVIRONMENTAL IMPACTS OF BISON ON THE NORTH RIM OF GRAND CANYON NATIONAL PARK</b></p> <p>111-3 88 DeWitt, Chelsey*; Blair, Aaron; Ryan, Sandra E.: <b>GEOMORPHIC IMPACTS OF THE NORTHERN COLORADO FLOOD OF 2013 ON BLACK CANYON CREEK AND NORTH FORK BIG THOMPSON</b></p> <p>111-4 89 Goodling, Phillip J.*: <b>HYDROLOGY AND CHANGE IN GOLD LAKE BOG, WILLAMETTE NATIONAL FOREST, OREGON</b></p> <p>111-5 90 Cramer, Jennifer M.*: <b>MANAGING NON-COMMERCIAL (HOBBY) MINERAL COLLECTING ON THE WHITE MOUNTAIN NATIONAL FOREST</b></p> <p>111-6 91 Fonseca Crescioni, Gina*: <b>INVASIVE PLANT MAPPING OF FORESTED AREAS IN VALLEY FORGE NATIONAL HISTORICAL PARK</b></p> <p>111-7 92 Kraft, Samuel Martin*: <b>MANAGING SPATIAL DATA FOR WETLANDS IN THE SAN FRANCISCO BAY AREA</b></p> <p>111-8 93 Ford, III, James Walker*: <b>MAPPING LONGLEAF PINE RESTORATION USING GIS AT BIG THICKET NATIONAL PRESERVE</b></p> <p>111-9 94 Lee, Tarryn C.*: <b>SCIENCE AND EDUCATION AT CONGAREE NATIONAL PARK</b></p> | <p>112-9 103 Guzzardi, Danielle*; Costa, Matthew; Oyewumi, Oluyinka: <b>EVALUATING THE IMPACT OF HUMAN ACTIVITIES ON THE CONCENTRATION OF TRACE AND MAJOR ELEMENTS IN THE FARMINGTON RIVER DRAINAGE SYSTEMS, WINDSOR CT</b></p> <p>112-10 104 Ward, Vanessa*; Benally, Rayanna; Crossey, Laura J.; Blomgren, Valerie J.; Smith, Jared Roman; Karlstrom, Karl: <b>THE EFFECTS OF GEOTHERMAL FLUIDS ON SURFACE WATER QUALITY IN THE JEMEZ RIVER SYSTEM IN NORTHERN NEW MEXICO</b></p> <p>112-11 105 Coburn, Jr., James E.*; Vitali, Jonathan M.; Glose, Thomas J.; Lowry, Christopher S.: <b>ANALYZING WATER QUALITY OVER VARIABLE FLOW CONDITIONS IN RURAL AND SUBURBAN STREAMS</b></p> <p>112-12 106 Tuttle, Caroline T.*; Crumlish, Julianna R.; Canty, Michael T.; Glose, Thomas J.; Lowry, Christopher S.: <b>ANALYZING DAILY VARIABILITY IN <i>E. COLI</i> CONCENTRATIONS IN AN URBAN STREAM</b></p> <p>112-13 107 Crumlish, Julianna R.*; Pereira dos Santos, Luiz Rafael; Glose, Thomas J.; Lowry, Christopher S.: <b>EVALUATING THE IMPACT OF HYDROLOGY AND COMBINED-SEWER OVERFLOWS ON URBAN BEACH CLOSURES</b></p> <p>112-14 108 Humphrey, Joseph*; Hanna, Eric; Hardage, Dana; Dingus, Jack; Barron, Jr., Herbert Pat: <b>STREAM CONTAMINATION: <i>ESCHERICHIA COLI</i> IN MIDDLE TENNESSEE</b></p> <p>112-15 109 Barron, Jr., Herbert Pat*; Dingus, Jack; Humphrey, Joseph; Hanna, Eric; Hardage, Dana; Dunkle, Kallina M.: <b>RIPARIAN BUFFER EFFECTS ON STREAM CONTAMINATION IN THE CITIES OF MILLERSVILLE AND GOODLETTSVILLE, TENNESSEE</b></p> <p>112-16 110 Rothschild, Tyler James*; O'Reilly, Catherine; Peterson, Eric W.: <b>EFFECTS ON WATER TABLE ELEVATION DUE TO TILE DRAINAGE INTO A RIPARIAN BUFFER ZONE</b></p> <p>112-17 111 Luh, Nicholas M.*; Ewanic, Jessica; Pereira dos Santos, Luiz Rafael; Glose, Thomas J.; Lowry, Christopher S.: <b>RELATIONSHIP BETWEEN STREAM STAGE AND DISCHARGE ON MAJOR TRIBUTARIES THAT ENTER LAKE ERIE</b></p> <p>112-18 112 Box, Carolyn L.*; Tobin, Benjamin W.: <b>ASSESSING HYPORHEIC EXCHANGE IN AN ARID, SPRING FED STREAM SYSTEM, BRIGHT ANGEL CREEK, GRAND CANYON NATIONAL PARK, AZ</b></p> |
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SESSION NO. 112

**T99. A Showcase of Undergraduate Research in Hydrogeology (Posters) (GSA Hydrogeology Division; GSA Geoscience Education Division; Council on Undergraduate Research Geosciences Division)**

9:00 AM, Baltimore Convention Center, Exhibit Hall

Authors will be present from 4:30 to 6:30 PM

Booth #

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| <p>112-1 95 Patino, Lina C.*: <b>REU SITES IN THE DIVISION OF EARTH SCIENCES AT NSF</b></p> | <p>112-18 112 Box, Carolyn L.*; Tobin, Benjamin W.: <b>ASSESSING HYPORHEIC EXCHANGE IN AN ARID, SPRING FED STREAM SYSTEM, BRIGHT ANGEL CREEK, GRAND CANYON NATIONAL PARK, AZ</b></p> |
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- |        |   | Booth #   |
|--------|---|---|
| 112-19 | 113 Hahne, Sara*; deVries, Elsemarie; Moore, Laura J.; Cable, Jaye E.: <b>EXPLORING GROUNDWATER DYNAMICS IN A COASTAL FOREDUNE ENVIRONMENT</b>  | 114-1 129 Lindsey, Cary R.*; Price, Adam; Villegas, Gabriela; Fairley, Jerry P.; Larson, Peter B.: <b>INVESTIGATING A BREACHED FAULT RELAY RAMP WITH SHALLOW SEISMIC AND TEMPERATURE DATA</b>           |
| 112-20 | 114 Santiago Collazo, Felix Luis*: <b>HYDROLOGIC ANALYSIS OF A POPLAR-BASED PHYTOREMEDIATION SYSTEM</b>   | 114-2 130 Breiner, John*; Dieck, Eric B.; Bond, Bob; Kelly, Kevin F.; Lees, Ray E.: <b>PUMPING TEST FOR A DUAL AQUIFER SYSTEM SEPARATED BY OVER 30 FEET OF VADOSE ZONE</b>                              |
| 112-21 | 115 Walling, Derek*; Hasbargen, Leslie: <b>A COMPARISON OF GROUNDWATER AND ROCK GEOCHEMISTRY IN CENTRAL UPSTATE NEW YORK</b>  | 114-3 131 Tiedeman, Claire R.*; Barrash, Warren; Thrash, Colby; Johnson, Carole D.: <b>A HYDRAULIC TOMOGRAPHY EXPERIMENT IN CONTAMINATED FRACTURED SEDIMENTARY ROCKS, NEWARK BASIN, NEW JERSEY, USA</b> |
| 112-22 | 116 Robinson, Tonian*; Robinson, Judith; Slater, Lee; Parker, Beth L.; Rose, Carla; Keating, Kristina: <b>EVALUATING THE PERFORMANCE OF MODELS FOR MATRIX PERMEABILITY ESTIMATION FROM COMPLEX RESISTIVITY MEASUREMENTS AT TWO SEDIMENTARY ROCK SITES</b> | 114-4 132 Lacombe, Pierre J.*: <b>SAMPLING CVOC IN FRACTURED BEDROCK</b>  |
| 112-23 | 117 Olsen, Christopher D.*; Prestegaard, Karen L.: <b>GROUNDWATER MODELING OF SUBGLACIAL AQUIFERS BENEATH NEW JERSEY DURING THE LAST GLACIAL MAXIMUM</b>  | 114-5 133 Harte, Philip T.*; Brandon, William C.; Szaro, Jan; Gilbert, Edward; Sandin, Peter: <b>FIELD MEASUREMENTS OF BACK DIFFUSION USING EXISTING WELL BOREHOLES: WINDOWS INTO REMEDIAL OUTCOMES</b> |
| 112-24 | 118 Schreiber, Madeline E.*: <b>TIPS FOR APPLYING TO GRADUATE SCHOOL</b>  | 114-6 134 Brotsch, Jonathan*; Masse, Mary M; Tresino, Katelyn; Allen-King, R.M.: <b>NONLINEAR TCE SORPTION IN SEDIMENTARY ROCKS FROM THE NEWARK BASIN</b>   |

**SESSION NO. 113****T100. Advances in Groundwater Modeling (Posters) (GSA Hydrogeology Division; GSA Karst Division)**

9:00 AM, Baltimore Convention Center, Exhibit Hall

Authors will be present from 4:30 to 6:30 PM

- |   | Booth #   |
|---|---|
| 113-1 119 Congdon, Roger D.*: <b>WORKING WITH REAL DATA: GETTING ANALYTIC ELEMENT GROUNDWATER MODEL RESULTS TO FIT FIELD DATA</b>   | 114-7 135 Dieck, Eric B.*; Bond, Bob; Kelly, Kevin F.: <b>IMPROVING THE DESIGN OF IN SITU BIOREMEDIATION IN FRACTURED BEDROCK THROUGH 3D VISUALIZATION AND ANALYSIS</b> |
| 113-2 120 Sansone, Sarah Anne*; McFadden, Sawyer; Chowdhury, Shafiul; O'Connell, William: <b>GROUNDWATER FLOW MODELING TO EVALUATE THE IMPACT OF GROUNDWATER ON STREAM BANK EROSION IN THE STONY CLOVE CREEK WATERSHED, NEW YORK</b>          | 114-8 136 Imbrigiotta, Thomas E.*: <b>LONG-TERM EVALUATION OF VOLATILE ORGANIC COMPOUND DEGRADATION DUE TO BIOAUGMENTATION IN A FRACTURED-ROCK AQUIFER</b>              |
| 113-3 121 Durham, Michael C.*; Milewski, Adam M.: <b>EFFECTS OF INFILTRATION VARIABILITY ON MODELED TRANSMISSION LOSSES IN EPHEMERAL CHANNELS</b>   |   |
| 113-4 122 Park, Jai-Yong*; Lee, Sungho; Kim, Jun-Mo; Kihm, Jung-Hwi: <b>HYDROGEOLOGICAL NUMERICAL SIMULATION OF IMPACTS OF RAINFALL RATE ON GROUNDWATER FLOW AND LAND DEFORMATION IN AN UNSATURATED HETEROGENEOUS SLOPE AND ITS STABILITY</b> |   |
| 113-5 123 Spezia, Kyle*; Gottardi, Raphaël; Morra, Gabriele: <b>NUMERICAL MODELING OF FLUID FLOW AND HEAT TRANSFERS IN POROUS MEDIA: IMPLICATIONS FOR THE HYDROLOGY OF MID-CRUSTAL SHEAR ZONES</b>  |   |
| 113-6 124 Xu, Mo*; Zhang, Junjie; Duan, Yongxiang; Yu, Lishan: <b>CENTRIFUGE MODELING OF BROMIDE MIGRATION IN UNSATURATED SANDWICH LAYER SOILS</b>  |   |
| 113-7 125 Ketchum, David*: <b>HIGH RESOLUTION STATEWIDE GROUNDWATER RECHARGE MODELING IN NEW MEXICO</b>   |   |
| 113-8 126 Young, Nathan L.*; Simpkins, William W.: <b>UNDERSTANDING THE ROLE OF TILL FRACTURES IN WATER AND NUTRIENT FLUX AT THE WATERSHED SCALE</b>  |   |
| 113-9 127 Catolico, Nora*; Ge, Shemin; McCartney, John S.: <b>FLUID FLOW AND HEAT TRANSPORT IN A BOREHOLE THERMAL ENERGY STORAGE SYSTEM</b>   |   |
| 113-10 128 Crabtree, Brandon*: <b>MODELING GROUNDWATER SUPPLY AND USAGE: OKTIBBEHA COUNTY, MISSISSIPPI</b>  |   |

**SESSION NO. 114****T103. Contaminant Transport, Fate, and Remediation in Fractured Rocks (Posters) (GSA Hydrogeology Division; GSA Environmental and Engineering Geology Division; Geochemical Society)**

9:00 AM, Baltimore Convention Center, Exhibit Hall

Authors will be present from 4:30 to 6:30 PM

**SESSION NO. 115****T104. Delivery of Nutrients and Contaminants by Groundwater to Estuaries and Their Watersheds (Posters) (GSA Hydrogeology Division)**

9:00 AM, Baltimore Convention Center, Exhibit Hall

Authors will be present from 4:30 to 6:30 PM

- |   | Booth # |
|---|---------|
| 115-1 137 Duque, Carlos*; Sebok, Eva; Engesgaard, Peter: <b>SUBMARINE GROUNDWATER DISCHARGE DISTRIBUTION AND SALINE WEDGE LOCATION: A FIELD CASE STUDY (RINGKOBING FJORD, DENMARK)</b>  |         |
| 115-2 138 Russoniello, Christopher J.*; Konikow, Leonard; Michael, Holly A.: <b>ESTIMATING GROUNDWATER TRANSIT TIMES THROUGH A COASTAL AQUIFER USING MODPATH</b>  |         |
| 115-3 139 Jernigan, Jordan*; Humphrey, Jr., Charles; Serozi, Brent Davis; Iverson, Guy J.; O'Driscoll, Michael A.; Bean, Eban Z.; Kelley, Timothy: <b>ONSITE WASTEWATER SYSTEM NITROGEN CONTRIBUTIONS TO WATER RESOURCES IN THE PIEDMONT OF NORTH CAROLINA</b>  |         |
| 115-4 140 Hiza, Benjamin S.*; Whittecar, G. Richard: <b>GROUNDWATER AND TIDAL FLUX CONTROL WETLAND HYDROLOGY AT A FRESHWATER TIDAL WETLAND IN NORTHERN VIRGINIA, U.S.A</b>  |         |
| 115-5 141 Debnath, Palash*; Mukherjee, Abhijit; Joshi, Gopal; Rokade, Pramod: <b>CHARACTERIZATION OF THE SPATIAL AND TEMPORAL VARIATIONS OF SUBMARINE GROUNDWATER DISCHARGE IN A MICRO-TIDAL COAST OF BAY OF BENGAL, INDIA USING SEEPAGE METER MEASUREMENTS</b> |         |
| 115-6 142 Kasson, Arthur T.*; Batista, Fabian: <b>UTILIZING STABLE ISOTOPIC MEASUREMENTS TO ELUCIDATE COMPLEX SOURCES AND FATES OF POLLUTANT CHEMICALS ON LAND AND AT SEA</b>   |         |
| 115-7 143 Kim, Kyra H.*; Michael, Holly A.; Ullman, William: <b>SEDIMENT AND POREWATER OXYGEN DEMAND IN A SANDY BEACH AQUIFER, CAPE HENLOPEN, DELAWARE</b>  |         |
| 115-8 144 Zamora, Felix*; Jung, Hun Bok: <b>SUBMARINE GROUNDWATER DISCHARGE OF NUTRIENTS FROM URBAN COASTAL AQUIFERS IN NEW YORK CITY</b>   |         |
| 115-9 145 Cui, Zhengtao*; Welty, Claire; Gold, Arthur J.; Groffman, Peter M.; Miller, Andrew J.; Andino-Nolasco, Elvis J.; Barnes, Michael L.;  |         |

Kaushal, Sujay S.: **THREE-DIMENSIONAL MODELING OF SUBSURFACE NITROGEN TRANSPORT AT THE WATERSHED SCALE**

- 115-10 146 Babuin, J. Lisa\*; Genereux, David P.; Knappe, Detlef R.U.: **COUPLED GROUNDWATER AND VOLATILE ORGANIC COMPOUND FLUXES THROUGH A STREAMBED CONTRIBUTE TO OFF-SITE MIGRATION OF CONTAMINANTS IN A COASTAL PLAIN STREAM, NORTH CAROLINA**

## SESSION NO. 116

**T105. Fate and Remediation of Organic and Metal Contaminants in Wetlands and Sediments (Posters) (GSA Hydrogeology Division; GSA Environmental Engineering and Geology Division; Geochemical Society)**

9:00 AM, Baltimore Convention Center, Exhibit Hall

Authors will be present from 4:30 to 6:30 PM

Booth #

- 116-1 147 Munger, Zackary W.\*; Schreiber, Madeline E.; Gerling, Alexandra B.; Doubek, Jonathan P.; Hamre, Kathleen D.; Carey, Cayelan C.: **THE EFFECTS OF HYPOLIMNETIC OXYGENATION ON METAL RELEASE FROM SEDIMENTS AND REMOVAL FROM THE WATER COLUMN IN A SMALL, EUTROPHIC DRINKING WATER RESERVOIR**
- 116-2 148 Gilmour, Cynthia C.\*; Ghosh, Upal; Santillan, Eugenio F.U.: **IMPACTS OF ACTIVATED CARBON AMENDMENT ON HG METHYLATION, DEMETHYLATION AND MICROBIAL ACTIVITY IN MARSH SOIL**
- 116-3 149 Klinges, Julia Grace\*; Mumford, Adam C.; Akob, Denise; Cozzarelli, Isabelle M.: **INFLUENCES OF TYPICAL HYDRAULIC FRACTURING FLUID CONSTITUENTS ON THE STRUCTURE AND ACTIVITY OF IRON REDUCING MICROBIAL COMMUNITIES**
- 116-4 150 Haase, Karl B.\*; Mumford, Adam C.; Akob, Denise; Kozar, Mark D.; Cozzarelli, Isabelle M.: **TOWARDS MEASURING AND INTERPRETING TRACE LIGHT HYDROCARBONS IN SURFACE WATER AND GROUNDWATER**
- 116-5 151 Panja, Saumik\*; Das, Padmini; Datta, Rupali; Sarkar, Dibyendu: **PRELIMINARY STUDIES ON REMOVAL OF TETRACYCLINE AND CIPROFLOXACIN FROM SECONDARY WASTEWATER EFFLUENT BY VETIVER GRASS**
- 116-6 152 Taye, Tamru\*; O'Reilly, Catherine; Kisfalusi, Zachary David; Peterson, Eric W.; Twait, Richard; Rothschild, Tyler James; Sanks, Kelly M.; Perry, Bill: **THE EFFECTIVENESS OF AN HERBACEOUS RIPARIAN BUFFER ZONE IN REMOVING NITRATE FROM A TILE DRAIN INPUT AT A LOW ORDER STREAM IN CENTRAL ILLINOIS**
- 116-7 153 Garth, Rachel K.\*; Mutiti, Samuel; Datta, Saugata: **USING ISOTOPE TRACING TO UNDERSTAND GROUNDWATER AND SURFACE WATER INTERACTIONS AT A WETLAND SYSTEM IN MILLEDGEVILLE, GA**

## SESSION NO. 117

**T109. Reservoir Connectivity and Fluid Migration during Unconventional Oil and Gas Development: Implications for Hydraulic Fracturing, CO<sub>2</sub> Storage, Enhanced Oil Recovery, and Waste Water Injection (Posters) (GSA Hydrogeology Division; GSA Energy Geology Division)**

9:00 AM, Baltimore Convention Center, Exhibit Hall

Authors will be present from 4:30 to 6:30 PM

Booth #

- 117-1 154 Namhata, Argha\*; Karamalidis, Athanasios K.; Dilmore, Robert M.; Nakles, David V.: **DEVELOPMENT OF AN INTEGRATED ASSESSMENT MODEL FOR CO<sub>2</sub> STORAGE: OVERVIEW AND AREAS OF FUTURE DEVELOPMENT**
- 117-2 155 Gallegos, Tanya J.\*; Bern, Carleton R.: **THE ROLE OF WATER IN RECOVERY OF ENERGY RESOURCES**
- 117-3 156 Meng, Jingyao\*; Pashin, Jack C.: **FRACTURE ARCHITECTURE OF THE HIGH PLAINS AQUIFER, NORTHEASTERN TEXAS**

**PANHANDLE: IMPLICATIONS FOR GEOLOGIC STORAGE OF CARBON DIOXIDE**

- 117-4 157 Ritz, Jr., Robert W.\*; Gershenson, Naum; Dominic, David F.; Mehnert, Edward; Okwen, Roland T.: **CAPILLARY TRAPPING OF CO<sub>2</sub> IN RESERVOIRS WITH FLUVIAL ARCHITECTURE**
- 117-5 158 Shimabukuro, David H.\*; Horner, Timothy: **WASTEWATER DISPOSAL AND WATERFLOOD INJECTION VOLUMES IN CALIFORNIA**
- 117-6 159 Ha, Seung-Wook\*; Park, Byeong-Hak; Lee, Seongsun; Kim, Hyun-Jung; Lee, Kang-Kun: **EFFECT OF STRATIGRAPHIC HETEROGENEITY ON UPWARD MIGRATION OF CO<sub>2</sub> IN SATURATED POROUS MEDIA: LABORATORY EXPERIMENT AND NUMERICAL SIMULATION**

## SESSION NO. 118

**T112. Understanding Saline Fluid Flow Systems: From Saltwater Intrusion to Geologic-Scale Brine Migration (Posters) (GSA Hydrogeology Division; International Association of Hydrogeologists; Society of Economic Geologists)**

9:00 AM, Baltimore Convention Center, Exhibit Hall

Authors will be present from 4:30 to 6:30 PM

Booth #

- 118-1 160 Georgen, Jennifer\*: **MODELING THE EFFECTS OF SEA LEVEL CHANGE ON SUBMARINE GROUNDWATER FLOW IN THE CHESAPEAKE BAY REGION**
- 118-2 161 Chowdhury, Ali H.\*; Scanlon, Bridget R.: **IDENTIFYING GROUNDWATER SALINITY SOURCES IN THE TEXAS GULF COAST AQUIFER SYSTEM, USA**
- 118-3 162 Carpenter, Robert H.\*; Reid, Jeffrey C.: **GEOCHEMICAL LINEAMENTS AND TRENDS IN NURE GROUNDWATER DOMESTIC WELL DATA, AND THEIR GEOLOGICAL RELATIONSHIPS, NORTH CAROLINA COASTAL PLAIN**
- 118-4 163 Heiss, James W.\*; Michael, Holly A.: **THE EFFECTS OF TRANSIENT OCEANIC AND TERRESTRIAL FORCING AND BEACH TOPOGRAPHY ON FLOW AND SOLUTE TRANSPORT IN COASTAL AQUIFERS**
- 118-5 164 Peters, Chelsea N.\*; Ayers, John C.; Hornberger, George M.: **EVOLUTION OF SALINE AND ARSENIC CONTAMINATED GROUNDWATER IN SOUTHWEST BANGLADESH**
- 118-6 165 Eissa, Mustafa\*; Shouakar-Stash, Orfan; Parker, Beth; De-Dreuzy, Jean-Raynald: **MANAGING SALTWATER INTRUSION IN A POORLY-CONSTRAINED ARID AQUIFER, UTILIZING ISOTOPE AND GEOCHEMISTRY, NORTH WESTERN COAST, EGYPT**
- 118-7 166 Lopez, Teodolina\*; Antoine, Raphaël; Darrozes, José; Rabinowicz, Michel; Baratoux, David: **FORMATION OF POLYGONAL FRACTURE SYSTEMS AS A RESULT OF HYDRODYNAMICAL INSTABILITIES IN CLAY-RICH DEPOSITS**
- 118-8 167 Koneshloo, Mohammad\*; Scott, Kaileigh C.; Michael, Holly A.: **WHICH CONNECTIVITY METRICS CAN BE USED TO PREDICT SALINITY PATTERNS IN HETEROGENEOUS COASTAL AQUIFERS**

## SESSION NO. 119

**T113. Effects of Urbanization on Hydrological and Geochemical Cycling in Surface and Ground Waters (Posters) (GSA Hydrogeology Division; GSA Environmental and Engineering Geology Division; GSA Geology and Society Division)**

9:00 AM, Baltimore Convention Center, Exhibit Hall

Authors will be present from 4:30 to 6:30 PM

Booth #

- 119-1 168 Herrmann, Dustin\*; Darner, Robert; Shuster, William D.; Reeves, Howard W.; Hoard, Chris; Beeler, Stephanie: **INVESTIGATING GROUNDWATER COMPONENT OF MANAGED URBAN WATER CYCLES**
- 119-2 169 Price, Katie\*: **OPTICAL BRIGHTENERS AND SPECIFIC CONDUCTANCE AS INDICATORS OF LEAKY INFRASTRUCTURE IN ATLANTA, GA**

- 119-3 170 Witzigman, Christopher\*; Arnold, Emily G.; Toran, Laura: **WATER QUALITY IN RIPARIAN BUFFER ZONES OF TWO URBAN STREAMS**
- 119-4 171 Gible, Katherine T.\*; Lindquist, Eric; Pierce, Jennifer L.: **POST-FIRE DEBRIS FLOW PREDICTION MODELS AND DECISION MAKING AT THE WILDLAND URBAN INTERFACE OF BOISE, IDAHO**
- 119-5 172 Shannon, Andrew\*: **EVALUATING URBAN STREAM RESTORATION PROJECTS: A CONDITION ASSESSMENT OF THE WEST BRANCH OF INDIAN CREEK**
- 119-6 173 Devlin, Kelly\*; Zarella, Paul J.; Newman, Ashley; Nyquist, Jonathan E.; Toran, Laura: **USE AND LIMITATIONS OF GROUND PENETRATING RADAR TO MAP INFILTRATION IN AN URBAN STORMWATER BASIN**
- 119-7 174 Rice, Mikaela\*; Hon, Rudolph; Schaudt, Barry; Andronache, Constantin: **PERCOLATION AND INFILTRATION RATES OF DISSOLVED DEICER SOLUTIONS**
- 119-8 175 Arnold, Emily G.\*; Toran, Laura: **EFFECT OF RIPARIAN ZONES ON TURBIDITY IN URBAN STREAMS**
- 119-9 176 Barnes, Michael L.\*; Welty, Claire; Miller, Andrew J.: **HIGH-RESOLUTION DISTRIBUTED HYDROLOGIC MODELING ACROSS A GRADIENT OF DEVELOPMENT TYPES**
- 120-10 186 Santos, Emily A.\*: **UNDERSTANDING THE CHARACTERIZATION OF NITROGEN AS IT IS DISTRIBUTED SPATIALLY THROUGHOUT THE SAN JUAN BAY ESTUARY**
- 120-11 187 Love, Heath\*; Hubeny, J. Bradford; Oakley, Bryan A.; Borrelli, Mark: **LATE HOLOCENE STRATIGRAPHY OF FINE-SEDIMENT DEPOCENTERS WITHIN THE PLEASANT BAY AND NAUSET MARSH BACK BARRIER SYSTEMS, CAPE COD**
- 120-12 188 Sullivan, Ryan K.\*: **SUBAQUEOUS SOIL SURVEY AND TRACE METAL ANALYSIS OF THE BARNEGAT BAY, NEW JERSEY**
- 120-13 189 Prescott, Tammy\*; Tibert, Neil E.; Hubeny, J. Bradford; Powers, Jillian; Cronin, Thomas M.: **MICROFOSSILS AS INDICATORS FOR PALEO-MARSH ELEVATION IN THE TIDAL TRIBUTARIES OF THE POTOMAC RIVER (CHESAPEAKE BAY)**
- 120-14 190 Clift, Peter D.\*; Calvès, G r me; Huuse, Mads; Brusset, St phane: **GIANT MASS TRANSPORT DEPOSIT ON THE WESTERN INDIAN CONTINENTAL MARGIN: THE NATARAJA SLIDE**
- 120-15 191 Sambrotto, Raymond\*; Gribbin, Sarah; Bienstock, Wendy; Wong, Emily; Rahman, Aziza; Espinal, Marines; Sosa, Jennifer; Ventura, Amauri; Bartels, Julie: **NUTRIENT CYCLING IN THE PIERMONT MARSH BASED ON TIDAL TIME SERIES**
- 120-16 192 Jones, Margaret B.\*; Moore, Laura J.; Murray, A. Brad; McNamara, Dylan E.; Fenster, Michael S.: **CONSIDERING HOLISTIC COASTAL RESPONSE TO CLIMATE CHANGE AND MANAGEMENT SCENARIOS**
- 120-17 193 Bostick, Benjamin C.\*; Pericles, Sylvia; Peters, Ameena; Morrone, Dominick; Acosta, Jeffany; Liang, Min; Chowtie, Keesha; Yurtsever, Joshua: **MICROBIAL BATTERIES: ISOLATION OF PHOTOSYNTHETIC ANAEROBIC BACTERIA FROM PIERMONT MARSH**
- 120-18 194 Jackson, Nancy L.\*; Kaplan, Kayla; Nordstrom, Karl F.: **NATURE'S CONTRIBUTION TO FOREDUNE DEVELOPMENT ON DEVELOPED SHORELINES**
- 120-19 195 Cannon, John Matt\*; Saylor, Joel E.; Murphy, Michael A.; Liu, Yiduo A.: **EVALUATING DYNAMIC SUBSIDENCE MODEL PREDICTIONS USING GULF OF MEXICO GEOHISTORY ANALYSIS**
- 120-20 196 Reza, Mohammad\*; Peteet, Dorothy M.; Kovari, Stephen; Stern, Stephanie: **JAMAICA BAY, NEW YORK BLUE CARBON AND ITS HISTORY**
- 120-21 197 Natsir, Suhartati\*: **THE DISTRIBUTION OF RECENT BENTHIC FORAMINIFERA IN LETI ISLANDS WATERS**
- 120-22 198 Dobbins, William C.\*: **EMILIANIA HUXLEYI'S LIGHT CONTROLLED EFFECT ON ALKALINITY**
- 120-23 199 Nicosia, A.R.\*; Perez-Huerta, Alberto; Purca, Sara: **A HIGH-RESOLUTION STUDY OF OTOLITHS OF PERUVIAN HAKE (*MERLUCCIVUS GAYI*): EXPLORING THE CRYSTALLOGRAPHIC ARRANGEMENT OF ARAGONITE PRISMS TO IDENTIFY TRUE GROWTH INCREMENTS**
- 120-24 200 Mantay, Kirk\*: **A STREAM HISTORY SURPRISE - REVEALING NOVEL STREAM ECOSYSTEMS IN MARYLAND'S URBAN COASTAL PLAIN USING CONVENTIONAL SOIL CORE DATA**
- 120-25 201 Parrish, Chelsea L.\*; Hoskins, Dionne L.: **MERCURY CONCENTRATIONS IN SURFACE SEDIMENTS FROM THE MOUTH OF THE SAVANNAH RIVER, GEORGIA**
- 120-26 202 Wilkinson, Steffen\*; Nash, Graham; Rathburn, Anthony; Eggins, Stephen M.; De Deckker, Patrick: **ZINC, LEAD, AND CADMIUM CONCENTRATIONS IN LIVING (STAINED) BENTHIC FORAMINIFERAL CALCITE ACROSS A CONTAMINATION GRADIENT IN LAKE MACQUARIE, AUSTRALIA**
- 120-27 203 Ryang, Woo Hun\*; Kim, Seong Pil: **STRATIGRAPHIC ANALYSIS AND GEOACOUSTIC MODELLING AT THE DH-1, 2 LONG-CORE SITES IN THE KOREAN CONTINENTAL MARGIN OF THE EAST SEA**
- 120-28 204 Jackson, Jr., Chester W.\*; Bush, David M.; Neal, William J.: **DOCUMENTING BEACH LOSS IN FRONT OF SEAWALLS IN PUERTO RICO**

## SESSION NO. 120

*Marine/Coastal Science (Posters)*

9:00 AM, Baltimore Convention Center, Exhibit Hall

Authors will be present from 4:30 to 6:30 PM

Booth #

- 120-1 177 Figueroa, Maria C.\*; Arana Morales, Ashlyann; Ramirez, Wilson: **RECONSTRUCTING SEA SURFACE TEMPERATURES IN THE CARIBBEAN DURING THE HOLOCENE FROM A REEF EXPOSURE IN CA NADA HONDA, ENRIQUILLO VALLEY, DOMINICAN REPUBLIC**
- 120-2 178 Dykstra, Steven L.\*: **HYDRODYNAMIC TRANSPORT IN A SHALLOW, MICRO-TIDAL SALT MARSH SYSTEM, BANGS LAKE, MS**
- 120-3 179 Weiner, Molly E.\*; Gilbert, Lisa A.: **CHARACTERISTICS OF A RESILIENT NEW ENGLAND SALT MARSH**
- 120-4 180 Bean, Clayton\*; Carilli, Jessica: **HISTORICAL RECONSTRUCTION OF SEDIMENTATION ON CORAL REEFS IN ST. JOHN, USVI**
- 120-5 181 Bjornnton, John\*; Cruz, Alondra; Dempster, Shanon; Delgado, Brian; Penalo, Raquel; Valentin, Stephanie; Lucero, Keylen; Mittiga, Andrew; Martinez, Anjelle; Magadini, Debra: **ECO-FRIENDLY HABITAT RESTORATION: USING PHOTO-DEPRIVATION TO ERADICATE *PHRAGMITES AUSTRALIS* AND TO PROMOTE NATIVE PLANT SUCCESSION IN PIERMONT MARSH, NEW YORK**
- 120-6 182 Mattesini, Matthew M.\*; Whisner, Jennifer K.; Venn, Cynthia: **USING WATER LEVELS AND SALINITY TO CHARACTERIZE THE FLOW REGIME IN A TIDALLY-RESTRICTED MID-ATLANTIC SALT MARSH IN GREENBACKVILLE, VA**
- 120-7 183 Suresh Babu, Sujitha\*; Escobedo Ur as, Diana Cecilia; Jonathan, M.P.: **VARIATIONS IN PHYSICO-CHEMICAL PARAMETERS AND DISSOLVED TRACE METALS IN WATERS OF MANGROVE FRINGED BAHIA MAGDALENA LAGOON, BAJA CALIFORNIA SUR, MEXICO**
- 120-8 184 Atencio, Anna N.\*; McKee, Brent A.; Rodriguez, Antonio B.; Ridge, Justin T.; Jalowska, Anna M.: **OYSTER REEF AND MARSH ACCRETION RATES IN CORRESPONDENCE TO SEA-LEVEL RISE**
- 120-9 185 Dubossi, Derek\*; Gibson, Ashley; JeanPierre, Deanasia; Dorsey, Thomas; Mapp, Nick; Parra, Ericka; Ojeda, Keilyn; Adorno, Yessenia: **SEDIMENT DEPOSITION AND ACCRETION IN A HUDSON RIVER TIDAL MARSH**

- 120-29 205 Foote, Jeremy K.\*: **ALMANDINE GARNET SAND GRAINS ORIGIN AND DISTRIBUTION ALONG THE MAINE AND MASSACHUSETTS COASTLINE**
- 120-30 206 Moulton, Christopher\*; Rizzo, Brian; Tibert, Neil; Hubeny, J. Bradford; Lux, Robert: **CALIBRATING ESTUARINE SEA-LEVEL BASE ELEVATIONS FOR COMBINING GEOSPATIAL AND SEA LEVEL MODELS FOR THE TIDEWATER REGION OF THE CHESAPEAKE BAY**

## SESSION NO. 121

**T128. Field and Modeling Approaches to Understanding the Response of Coupled Barrier-Backbarrier Systems to Coastal Change (Posters) (SEPM (Society for Sedimentary Geology); Coastal Education & Research Foundation; GSA Quaternary Geology and Geomorphology Division)**

9:00 AM, Baltimore Convention Center, Exhibit Hall

Authors will be present from 4:30 to 6:30 PM

Booth #

- 121-1 207 Lauzon, Rebecca\*; Moore, Laura J.; Murray, A. Brad; Walters, David C.; Kirwan, Matthew L.; Fagherazzi, Sergio: **EFFECTS OF LATERAL EROSION BY WIND WAVES IN COUPLED BARRIER ISLAND-MARSH SYSTEMS**
- 121-2 208 Ridge, Justin T.\*; Rodriguez, Antonio B.; Theuerkauf, Ethan J.; VanDusen, Beth; Fegley, Stephen R.; Deaton, Charles D.: **VARIATIONS IN BARRIER-ISLAND RESISTANCE TO OVERWASH AT MONTHLY TO DECADEAL TIME SCALES**
- 121-3 209 Shawler, Justin L.\*; Hein, Christopher J.: **MULTI-PROXY RECORDS OF ANTHROPOGENIC IMPACTS ON FLUVIAL SEDIMENT SUPPLY FROM THE JOPPA FLATS TIDAL FLATS, NORTHERN MA**
- 121-4 210 Shuman, Claudia R.\*; Hein, Christopher J.; Canuel, Elizabeth A.: **A GEOCHEMICAL APPROACH TO DETERMINING VARIATIONS IN LONG-TERM SEDIMENT SOURCE AND SUPPLY TO A BARRIER ISLAND SYSTEM IN NORTHERN MASSACHUSETTS**
- 121-5 211 Ciarletta, Daniel J.\*; Lorenzo Trueba, Jorge; Passchier, Sandra: **ESTIMATING SEDIMENT TRANSPORT IN THE LOWER SHOREFACE, MANTOLOKING, NEW JERSEY**
- 121-6 212 Odezulu, Christopher I.\*; Lorenzo-Trueba, Jorge; Anderson, John B.; Wallace, Davin J.: **STRATIGRAPHIC AND SEDIMENTOLOGICAL EVIDENCES FOR UNPRECEDENTED SHORELINE MIGRATION RATE IN HISTORICAL TIME: FOLLETS ISLAND, TEXAS**

## SESSION NO. 122

**T134. Radiation Effects, Mineralogy, and Materials Science of Actinides: In Honor of Rodney C. Ewing, 2015 Roebling Medalist (Posters) (Mineralogical Society of America; GSA Mineralogy, Geochemistry, Petrology, and Volcanology Division; Geochemical Society)**

9:00 AM, Baltimore Convention Center, Exhibit Hall

Authors will be present from 4:30 to 6:30 PM

Booth #

- 122-1 213 Burns, Peter C.\*; Lobeck, Haylie; Balboni, Enrica: **THE IMPACT OF URANIUM MACROIONS ON SOLUBILITY**
- 122-2 214 Lussier, Aaron J.\*; Dzik, Ewa; Schmidt, Moritz; Burns, Peter C.: **{U<sub>60</sub>} NANOCUSTER ADSORPTION ONTO CLAY MINERAL SURFACES**
- 122-3 215 Hoover, Megan E.\*; Shuller-Nickles, Lindsay: **QUANTUM-MECHANICAL CALCULATIONS OF CA<sup>2+</sup>-INCORPORATION INTO UO<sub>2</sub>**
- 122-4 216 Balboni, Enrica\*; Simonetti, Antonio; Jones, Nina; Spano, Tyler L.; Dorais, Corinne; Burns, Peter C.; Hixon, Amy E.: **DETAILED CHEMICAL CHARACTERIZATION OF URANINITE: FORENSIC APPLICATIONS**
- 122-5 217 Spano, Tyler L.\*; Simonetti, Antonio; Balboni, Enrica; Dorais, Corinne; Burns, Peter C.; Hixon, Amy E.: **TRACE ELEMENT ANALYSIS OF URANIUM ORE CONCENTRATES: SOURCE**

**ATTRIBUTION, PROVENANCE INDICATOR, AND PROOF OF CONCEPT**

- 122-6 218 Konevnik, Yulia\*; Zakharova, Elena; Konstantin, Martynov; Burns, Peter C.: **NEPTUNIUM INTERACTION WITH CRYSTALLINE ROCK SURFACES**
- 122-7 219 Shabaga, Brandi\*; Fayek, Mostafa; Marlatt, James; Guo, Wang; Jian, Zhou; Zhanju, Wen: **GEOCHRONOLOGY AND MINERALOGY OF THE BAIYANGHE VOLCANIC-HOSTED BE-U DEPOSIT, XINJIANG PROVINCE, NW CHINA**
- 122-8 220 Perry, Samuel N.\*; Pigott, Jeffrey S.; Panero, Wendy R.: **URANIUM AND THORIUM STORAGE IN CASIO<sub>3</sub>-PEROVSKITE IN THE EARTH'S LOWER MANTLE**
- 122-9 221 Beirau, Tobias\*; Nix, William D.; Ewing, Rodney C.; Schneider, Gerold A.; Groat, Lee A.; Bismayer, Ulrich: **MECHANICAL PROPERTIES OF NATURAL RADIATION DAMAGED TITANITE AND TEMPERATURE INDUCED STRUCTURAL REORGANIZATION**

## SESSION NO. 123

**Paleontology: Fossils of the Neoproterozoic (Posters)**

9:00 AM, Baltimore Convention Center, Exhibit Hall

Authors will be present from 4:30 to 6:30 PM

Booth #

- 123-1 222 Barker, Henry Cleave\*; Cohen, Phoebe: **A REEXAMINATION OF THE DIVERSITY AND STRATIGRAPHIC DISTRIBUTION OF THE EARLY TONIAN APATITE SCALE MICROFOSSILS, FIFTEENMILE GROUP, YUKON**
- 123-2 223 Irvine, Spencer\*; Strauss, Justin V.; Cohen, Phoebe: **ABUNDANCE AND MORPHOLOGICAL VARIATION OF VASE SHAPED MICROFOSSILS FROM THE LATE TONIAN CALLISON LAKE FORMATION, YUKON**
- 123-3 224 Hall, Christine M.S.\*; Droser, Mary L.; Gehling, James G.: **BRANCHING OUT: ECOLOGY AND ONTOGENETIC PATTERNS OF THE EDIACARAN FOSSIL *RUGOCONITES***
- 123-4 225 Anderson, Ross P.\*; McMahon, Sean; Bold, Uyanga; Macdonald, Francis A.; Briggs, Derek E. G.: **MICROFOSSILS FROM CHERTS OF THE EDIACARAN SHUURGAT FORMATION, ZAVKHAN TERRANE, SOUTHWESTERN MONGOLIA**
- 123-5 226 Martí Mus, Mónica\*; Cortijo, Iván; Jensen, Sören; Palacios, Teodoro: **LATE EDIACARAN SKELETAL BODY FOSSIL ASSEMBLAGE FROM THE NAVALPINO ANTICLINE, CENTRAL SPAIN**
- 123-6 227 Jensen, Sören\*; Palacios, Teodoro; Barr, Sandra M.; White, Chris E.: **ORGANIC-WALLED MICROFOSSILS FROM THE EDIACARAN-CAMBRIAN GLOBAL BOUNDARY STRATOTYPE SECTION, CHAPEL ISLAND AND RANDOM FORMATIONS, NEWFOUNDLAND, CANADA**

## SESSION NO. 124

**Paleontology: Life on Land and in the Oceans: Paleoclimate and Paleoenvironmental Reconstructions (Posters)**

9:00 AM, Baltimore Convention Center, Exhibit Hall

Authors will be present from 4:30 to 6:30 PM

Booth #

- 124-1 228 Zhang, Chunfu\*; Wilson, Patrick J.: **DIET AND CLIMATE OF THE LATE MIOCENE *TELEOCERAS FOSSIGER* FROM WESTERN CENTRAL KANSAS: EVIDENCE FROM STABLE C & O ISOTOPE ANALYSES OF TOOTH ENAMEL SAMPLES**
- 124-2 229 Ruez, Jr., Dennis R.\*: **CLIMATE AND BUNNIES IN THE PLIOCENE OF SOUTHERN IDAHO**
- 124-3 230 Jud, Nathan A.\*; Nelson, Christopher: **FOSSIL LIANAS FROM THE MIOCENE OF PANAMA AND THEIR PALEOENVIRONMENTAL IMPLICATIONS**
- 124-4 231 Guggino Rivera, Ariel V.\*; Jud, Nathan A.; Wang, Hongshan: **A MORPHOTYPE CATALOG OF THE FOSSIL LEAVES FROM THE MID EOCENE DAWSON PIT LOCALITY (CLAIBORNE FORMATION, TN)**



- 124-5 232 Fisher, Jessica L.\*; Cantrill, David J.; Cluzel, Dominique; Garrouste, Romain; Grandcolas, Philippe; Lowry, II, Porter; Maurizot, Pierre; Munzinger, Jerome; Nel, Andre; Leslie, Andrew B.: **A MIOCENE FLORA FROM NEW CALEDONIA AND ITS IMPLICATIONS FOR UNDERSTANDING DIVERSITY AND PALEOCLIMATE**
- 124-6 233 Minges, Sydney Marie\*; Orzechowski, Emily A.; Finnegan, Seth: **RECONSTRUCTING LATE PLEISTOCENE PALEOENVIRONMENTS OF COASTAL CALIFORNIA: COMPARISON BETWEEN MODERN AND FOSSIL *CALLIANAX BIPLICATA* STABLE ISOTOPE PROFILES**
- 124-7 234 Brown, Garrett M.\*; Sclafani, Judith A.; Trampush, Sheila; Hajek, Elizabeth; Patzkowsky, Mark E.: **DISTRIBUTION AND ABUNDANCE OF BENTHIC MARINE TAXA IN SHELF MARGIN DEPOSITIONAL SEQUENCES: SAN ANDRES FORMATION (GUADALUPIAN, PERMIAN), LAST CHANCE CANYON, NEW MEXICO**
- 124-8 235 Wang, Yuwei\*; Leonard-Pingel, Jill; Cramer, Katie L.: **INFLUENCE OF ANTHROPOGENIC PRESSURES ON THE DEGRADATION OF CARIBBEAN CORAL REEFS IN BOCAS DEL TORO, PANAMA**
- 124-9 236 Maguire, Evin P.\*; Feldmann, Rodney M.; Casadio, Silvio A.; Schweitzer, Carrie E.: **EFFECT OF ANDEAN VOLCANISM ON NEOGENE MARINE INVERTEBRATES ON PENINSULA VALDÉS, ARGENTINA**
- 126-2 245 Hupp, Brittany N.\*; Mann, Keith O.: **HIGH RESOLUTION CONODONT BIOSTRATIGRAPHY OF THE DUNDEE LIMESTONE, MICHIGAN BASIN**
- 126-3 246 Peavey, F. Nicole\*: **REVIEW AND REVISION OF LUDLOW (SILURIAN) TO LOCHKOVIAN (DEVONIAN) SPATHOGNATHODONTID CONODONT TAXA**
- 126-4 247 Zimmerman, Alexander N.\*; Brown, Lewis M.; Rexroad, Carl B.: **A *NEOGNATHODUS*-BASED BIOZONATION FOR THE DESMOINESIAN SERIES (PENNSYLVANIAN) OF THE ILLINOIS BASIN**
- 126-5 248 Power, Margaret M.\*; Scientists, IODP Expedition 352: **PLEISTOCENE TO MIOCENE CALCAREOUS NANNOFOSSIL BIOSTRATIGRAPHY FROM IODP EXPEDITION 334 HOLE U1381A AND EXPEDITION 352 HOLE 1439A**
- 126-6 249 Routledge, Claire Marie\*; Kulhanek, Denise K.; Tauxe, Lisa; Scardia, Giancarlo; Singh, Arun D.; Steinke, Stephan; Wise, Sherwood W.; Expedition 355 Scientists, IODP: **MIOCENE-PLIOCENE CALCAREOUS NANNOFOSSIL BIOSTRATIGRAPHY OF IODP SITE U1457, ARABIAN SEA**
- 126-7 250 Unlu, Seher\*; Wise, Sherwood W.; Firth, John: **CALCAREOUS NANNOFOSSIL BIOSTRATIGRAPHY OF THE BRAZOS RIVER AREA, FALLS COUNTY, TEXAS**
- 126-8 251 Vaziri, Seyed Hamid\*; Matsuoka, Atsushi: **JURASSIC TO EARLIEST CRETACEOUS RADIOLARIANS FROM THE OPHIOLITE MELANGE IN EAST OF KERMANSHAH AREA, WEST IRAN**
- 126-9 252 Diaz, J.F.\*; Velez, M.I.: **BIOSTRATIGRAPHY OF THE TURONIAN-CONIACIAN BOUNDARY INTERVAL IN WESTERN SASKATCHEWAN: MICROPALAEONTOLOGICAL ANALYSIS OF THE CONTACT BETWEEN THE NIOBRARA AND CARLILE FORMATIONS**
- 126-10 253 Yager, Stacy L.\*; Fluegeman, Richard H.: **EARLY TO MIDDLE EOCENE PLANKTONIC FORAMINIFERAL BIOSTRATIGRAPHY OF ODP SITE #998 ON THE CAYMAN RISE, CARIBBEAN SEA**
- 126-11 254 Hanley, Caitlin M.\*; Oleinik, Anton: **DISTRIBUTION OF RECENT BENTHIC FORAMINIFERA ON THE SOUTHEAST FLORIDA REEF TRACT**
- 126-12 255 Förderer, Meena\*; Langer, Martin R.: **RAJA AMPAT: A HOTSPOT OF FORAMINIFERAL DIVERSITY**
- 126-13 256 Desai, Dipa\*; Tibert, Neil E.; Meyer, Herbert W.: **NONMARINE OSTRACODA FROM THE EOCENE FLORISSANT FORMATION, COLORADO, USA**
- 126-14 257 Portell, Roger W.\*; Lee, Harry G.; Edwards, Richard L.; Heatherington, Ann L.: **MARINE MICROMOLLUSKS OF THE PINECREST BEDS: AN UNDERTREATED YET PRODIGIOUS LATE PIOCENE FAUNAL ELEMENT; THE CASE OF THE FAMILY TORNIDAE**

## SESSION NO. 125

*Paleontology: The Role of Collections in Diversity, Databases, and Museums (Posters)*

9:00 AM, Baltimore Convention Center, Exhibit Hall

Authors will be present from 4:30 to 6:30 PM

Booth #

- 125-1 237 Hendy, Austin J.W.\*: **PROTECTING AND PROMOTING FOSSIL COLLECTIONS FROM NATIONAL AND STATE PARK AREAS OF SOUTHERN CALIFORNIA: OPPORTUNITIES FOR EDUCATION, OUTREACH, AND RESEARCH**
- 125-2 238 Scoles, Ian\*; Pfadt, Victoria A.; McKenzie, Scott C.: **FOSSILS FROM NORTHWESTERN PENNSYLVANIA**
- 125-3 239 Cohen, Leonie M.\*; Wang, Steve C.; Gingerich, Philip D.: **FOSSIL-BASED DATING OF THE DIVERGENCE OF HOMINOIDEA AND CERCOPITHECOIDEA**
- 125-4 240 Prothero, Donald\*: **HESPERHYINAE, A NEW SUBFAMILY OF EARLY-MIDDLE MIOCENE PECCARIES, AND ITS IMPLICATIONS FOR PALEOBIOLOGICAL DATA BASES**
- 125-5 241 Over, Jin-Si R.\*; Kelley, Patricia H.; Neely, Samuel H.; Erdie, Robert J.; MacNair, Conor C.; Oakes, William D.; Quinto, Caleb A.; VanDerkin, Hannah R.; Dietl, Gregory P.: **GEOGRAPHIC AND TEMPORAL COMPARISONS OF BIVALVE DIVERSITY IN THE PLIO-PLEISTOCENE OF VIRGINIA AND THE CAROLINAS**
- 125-6 242 Das, Shiladri S.\*; Goswami, Pritha; Paul, Shubhabrata; Bardhan, Subhendu; Mallick, Sumanta; Buragohain, Dipankar: **UNVEILING THE LOWER MIOCENE GASTROPOD DIVERSITY TREND OF KUTCH, INDIA**
- 125-7 243 Christie, Max\*; Patzkowsky, Mark E.; Congreve, Curtis R.: **PHYLOGENETIC DIVERSITY OF THE LUCINIDAE FROM THE PIOCENE TO MODERN IN THE WESTERN ATLANTIC**
- 126-10 253 Yager, Stacy L.\*; Fluegeman, Richard H.: **EARLY TO MIDDLE EOCENE PLANKTONIC FORAMINIFERAL BIOSTRATIGRAPHY OF ODP SITE #998 ON THE CAYMAN RISE, CARIBBEAN SEA**
- 126-11 254 Hanley, Caitlin M.\*; Oleinik, Anton: **DISTRIBUTION OF RECENT BENTHIC FORAMINIFERA ON THE SOUTHEAST FLORIDA REEF TRACT**
- 126-12 255 Förderer, Meena\*; Langer, Martin R.: **RAJA AMPAT: A HOTSPOT OF FORAMINIFERAL DIVERSITY**
- 126-13 256 Desai, Dipa\*; Tibert, Neil E.; Meyer, Herbert W.: **NONMARINE OSTRACODA FROM THE EOCENE FLORISSANT FORMATION, COLORADO, USA**
- 126-14 257 Portell, Roger W.\*; Lee, Harry G.; Edwards, Richard L.; Heatherington, Ann L.: **MARINE MICROMOLLUSKS OF THE PINECREST BEDS: AN UNDERTREATED YET PRODIGIOUS LATE PIOCENE FAUNAL ELEMENT; THE CASE OF THE FAMILY TORNIDAE**

## SESSION NO. 127

*T153. Mass Extinction Causality: Records of Anoxia, Acidification, and Global Warming during Earth's Greatest Crises (Posters) (GSA Mineralogy, Geochemistry, Petrology, and Volcanology Division; Paleontological Society; Volcanic and Magmatic Studies Group; Mineralogical Society of America; Geological Society of London)*

9:00 AM, Baltimore Convention Center, Exhibit Hall

Authors will be present from 4:30 to 6:30 PM

Booth #

## SESSION NO. 126

*Paleontology: Under the Lens: New Insight from Microfossils (Posters)*

9:00 AM, Baltimore Convention Center, Exhibit Hall

Authors will be present from 4:30 to 6:30 PM

Booth #

- 126-1 244 Xia, Wenchen\*; Zhang, Ning; Gao, Qiuling: **BIOGEOGRAPHIC EVOLUTION THROUGH THE PERMIAN-TRIASSIC BOUNDARY IN SOUTH CHINA**
- 127-1 258 Bartlett, Rickey\*; Elrick, Maya; Polyak, Victor J.; Asmerom, Yemane; Desrochers, André: **ABRUPT AND SHORT-LIVED GLOBAL MARINE ANOXIA ASSOCIATED WITH THE LATE ORDOVICIAN (HIRNANTIAN) MASS EXTINCTION DETECTED USING U ISOTOPES OF MARINE CARBONATES**
- 127-2 259 Batchelor, Cameron J.\*; Carmichael, Sarah K.; Waters, Johnny A.; Coleman, Drew S.; Kido, Erika; Suttner, Thomas; Gatovsky, Yury: **CONSTRAINING THE AGES OF LATE DEVONIAN EXTINCTION EVENTS IN THE CENTRAL ASIAN OROGENIC BELT (CAOB): U-PB ZIRCON AGES AND IGNEOUS PETROLOGY**

SESSION NO. 127

- 127-3 260 Lederer, Graham\*; Burgess, Seth D.; Bowring, Samuel A.; Polozov, Alexander: **TEMPO OF INTRUSIVE MAGMATISM IN THE SIBERIAN TRAPS**
- 127-4 261 Basu, Asish R.\*; Nestell, Galina P.; Ghosh, Nilotpal; Hunt, Andrew; Chakrabarty, Puloma; Nestell, Merlynd K.; Ellwood, Brooks: **MINERALOGICAL-GEOCHEMICAL EVIDENCE OF SILICA AND CARBON FLUX IN THE PERMIAN - TRIASSIC PALEO-TETHYS OCEAN**
- 127-5 262 Madhavaraju, Jayagopal\*; Lee, Yong Il; Scott, Robert W.; González-León, Carlos M.; Jenkyns, Hugh C; Ramasamy, Sooriamuthu: **FACIES, BIOSTRATIGRAPHY AND DEPOSITIONAL ENVIRONMENTS OF LOWER CRETACEOUS CARBONATE ROCKS OF THE MURAL FORMATION, CERRO PIMAS SECTION, SONORA, MÉXICO**
- 127-6 263 Brom, Krzysztof R.\*; Salamon, Mariusz A.; Szopa, Krzysztof; Brachaniec, Tomasz: **THE LILLIPUT EFFECT IN CRINOIDS AT THE END OF THE OCEANIC ANOXIC EVENT 2: A CASE STUDY FROM POLAND**
- 127-7 264 Coronado, Maricela\*; Keller, Gerta; Puneekar, Jahnavi; Mateo, Paula: **THE LAST 100,000 YEARS BEFORE THE END-CRETACEOUS MASS EXTINCTION**
- 127-8 265 Garber, Kacey\*; Day, Jed: **BRACHIOPOD SEQUENCE THROUGH THE UPPERMOST DEVONIAN HANGENBERG EXTINCTION INTERVAL IN THE WESTERN ILLINOIS BASIN-CENTRAL NORTH AMERICA**

SESSION NO. 128

**T156. Earth Underfoot: New Frontiers in Ichnology and Zoogeomorphology (Posters) (SEPM (Society for Sedimentary Geology); Paleontological Society)**

9:00 AM, Baltimore Convention Center, Exhibit Hall

Authors will be present from 4:30 to 6:30 PM

Booth #

- 128-1 266 Loeb, Samuel Bradshaw\*; Getty, Patrick Ryan: **THE NEOICHOLOGY OF AQUATIC INSECTS AND A POSSIBLE FOSSIL ANALOG**
- 128-2 267 Leyton-Nolan, Gabriela P.\*; Buynevich, Ilya V.: **MORPHOMETRY OF OICHNUSTRACES ON MOON SNAIL SHELLS ALONG A TIDE-DOMINATED SHORELINE, NAHANT BEACH, MASSACHUSETTS**
- 128-3 268 Schassburger, Alec\*; Kilbarda, Zoran: **ICHOFOSSILS OF THE ADRIATIC FLYSCH, MONTENEGRO**
- 128-4 269 Freimuth, William J.\*; Varricchio, David J.; Martin, Anthony J.: **USING INVERTEBRATE TRACES TO ASSESS SEDIMENTATION AT A RICH TERRESTRIAL VERTEBRATE LOCALITY FROM THE CRETACEOUS OF MONTANA**
- 128-5 270 Brundin, Justin\*; Morgan, Ryan: **THALASSINOIDES ISP. BURROW ORIENTATION IN THE CRETACEOUS WESTERN INTERIOR SEAWAY: A STATISTICAL TEST**
- 128-6 271 Maza, Zach A.\*; Buynevich, Ilya V.; Venn, Cynthia: **NOT JUST FOOL'S GOLD: XRF AND SEM ANALYSIS OF THE EFFECTS OF PYRITE ON A BIOTURBATED K-PG OUTCROP**
- 128-7 272 Kopcznski, Karen\*; Buynevich, Ilya V.; Curran, H. Allen; Hembree, Daniel I.; Nyquist, Jonathan E.: **NEOICHOLOGY AT THE SPEED OF LIGHT: GEORADAR SIGNAL RESPONSE TO VARYING BIOTURBATION SCENARIOS**
- 128-8 273 Buynevich, Ilya V.\*; Hembree, Daniel I.; Smith, Jon J.; Platt, Brian F.: **GEORADAR CHARACTERIZATION OF BIOTURBATION STRUCTURES IN CONTRASTING SOIL-GEOMORPHIC BIOTOPES, SOUTHERN ARIZONA**
- 128-9 274 Alves, Vitor Azevedo\*; Buynevich, Ilya V.; Hembree, Daniel I.; Smith, Jon J.; Platt, Brian F.: **SIGNAL POLARITY TRENDS IN GEORADAR IMAGES OF MAMMAL BURROW NETWORKS IN A HETEROGENEOUS MOUNTAIN SLOPE REGOLITH**
- 128-10 275 Roberts, Ian\*; Vainchtein, Dmitri; Buynevich, Ilya V.: **TOWARD AN IMPROVED CHARACTERIZATION OF DUNE BED GEOMETRY IN RADARGRAMS: IMPLICATIONS FOR AEOLIAN SEDIMENTOLOGY AND BIOGEOMORPHOLOGY**

- 128-11 276 Cao, Yumeng Melody\*; Curran, H. Allen; Glumac, Bosiljka: **TESTING THE USE OF PHOTOSHOP AND IMAGEJ FOR EVALUATING ICHNOFABRICS**
- 128-12 277 Barnes, William\*; Bladis, Marley; FitzGerald, Kendall; Gruning, Anton; Jones, Davitia; Kattrein, Amara; Kelly, Anne; Nigro, Matthew; Smith, Abigail; Voorheis, Brennan: **PLEISTOCENE-HOLOCENE TRACE FOSSILS IN LACUSTRINE STRATA, GENESEE RIVER VALLEY, NEW YORK**

SESSION NO. 129

**T157. Eat, Prey, Love, and Burrow: Tracing Animal Behavior through Time (Posters) (Paleontological Society; SEPM (Society for Sedimentary Geology))**

9:00 AM, Baltimore Convention Center, Exhibit Hall

Authors will be present from 4:30 to 6:30 PM

Booth #

- 129-1 278 Savrda, Charles\*; Daymond, Drew: **ROLE OF MUCUS SECRETION AND PYRITIZATION IN PRESERVING A RECORD OF BIOGENIC ACTIVITY IN A RESTRICTED ESTUARINE CHANNEL DEPOSIT**
- 129-2 279 Morgan, Chad A.\*; Henderson, Charles M.: **HYOLITHIDS, BACTERIA AND CESSPOOL PRESERVATION IN THE MIDDLE CAMBRIAN OF WESTERN CANADA**
- 129-3 280 Sime, John A.\*; Taylor, Paul D.; Wilson, Mark A.: **VARIATIONS ON A THEME: SHALLOW SCRATCHES INDICATE A DIVERSITY OF BEHAVIORS BY INQUILINE TRACE-MAKERS IN THE UPPER CRETACEOUS PIERRE SHALE**
- 129-4 281 Morgan, Ryan\*: **FAILED GYROLITHES BURROWS: A SEDIMENTOLOGICAL DILEMMA?**
- 129-5 282 Brundin, Justin\*; Morgan, Ryan: **SHIPWORMS AND CRABS: ICHNOLOGY OF A CRETACEOUS LAGOON**
- 129-6 283 Bayon, Richard\*; Garb, Matthew P.; Brophy, Shannon K.; Naujokaityte, Jone; Landman, Neil H.: **INTERPRETATION OF ENIGMATIC BURROWS WITHIN THE UPPER CRETACEOUS OWL CREEK FORMATION, TIPPAH COUNTY MISSISSIPPI**
- 129-7 284 Thomson, Tracy J.\*; Knauss, Mathew J.; Droser, Mary L.: **LARGE RUSOPHYCID TRACES FROM THE LOWER TRIASSIC: AN EXAMPLE OF CONVERGENT EVOLUTION IN ARTHROPOD PREDATORY BEHAVIOR**
- 129-8 285 Rojas, Alexis\*; Portell, Roger W.; Kowalewski, M.; Simon, Eric: **THE FOSSIL RECORD OF DRILLING PREDATION ON LINGULIDE BRACHIOPODS**
- 129-9 286 Bentlage, Rudolf J.\*; Albano, Paolo G.; Drummond, Hannah; Nagel-Myers, Judith; Zuschin, Martin: **INTENSITIES OF DRILLING PREDATION ON BIVALVES AROUND OIL PLATFORMS IN THE SOUTHERN PERSIAN (ARABIAN) GULF**
- 129-10 287 Visaggi, Christy C.\*; Dunham, Jeremy I.; Martinez, Jessica; Kelley, Patricia H.; Ivany, Linda C.: **TEMPORAL AND SPATIAL PATTERNS IN NATICID DRILLING PREDATION OF DOMINANT BIVALVE SPECIES IN THE BYRAM FORMATION OF MISSISSIPPI**
- 129-11 288 Cooke, Kimberly A.\*; Dalsing, Risa E.; Kelley, Patricia H.; Neely, Samuel H.; Micovic, Jennifer M.: **DRILLING PREDATION ON A PLEISTOCENE MOLLUSCAN ASSEMBLAGE FROM LA BELLE, FLORIDA, AND RELATION TO ENCOUNTER RATES**
- 129-12 289 Kelly, Bridget T.\*; Kelley, Patricia H.: **EVALUATING TAPHONOMIC BIASES ON DRILLING AND REPAIR SCAR FREQUENCIES FOR GLYCYMERIS FROM THE NORTH CAROLINA PLEISTOCENE**
- 129-13 290 Kerr, James\*; Kelley, Patricia: **PREDATION OF MESOZOIC AMMONITES THROUGH TIME AND SPACE: COMPARISON OF REPAIR SCAR FREQUENCY AND ANTIPREDATORY SHELL MORPHOLOGY IN NORTH AMERICA AND EUROPE**
- 129-14 291 Reeder, Grant\*; Nagel-Myers, Judith: **UNDER PRESSURE - FINITE-ELEMENT ANALYSIS OF CRUSHING PREDATION ON BIVALVE SHELLS**

- 129-15 292 Schachter, Laura\*; Kosloski, Mary Elizabeth: **THE IMPACT OF TAPHONOMY ON ESTIMATING REPAIR SCAR FREQUENCY**
- 129-16 293 Mincer, Sarah\*; Kosloski, Mary Elizabeth: **STAYING IN SHAPE: THE EFFECTS OF PREDATION ON MARINE GASTROPOD MORPHOLOGY**
- 129-17 294 Zonneveld, J.-P.\*; Zaim, Yahdi; Rizal, Yan; Aswan, Aswan; Bloch, Jonathan I.; Boyer, Douglas M.; Ciochon, Russell; Wilf, Peter; Gunnell, Gregg F.: **AVIAN FORAGING ON AN INTERTIDAL MUDFLAT SUCCESSION, TANJUNG FORMATION, SOUTH KALIMANTAN, INDONESIA**
- 129-18 295 Buskirk, Bret L.\*; Hunt, Adrian P.; Lucas, Spencer G.: **WHO'S EATING WHO? PRELIMINARY ANALYSIS OF ENIGMATIC BROMALITES FROM THE EOCENE FLORISSANT FORMATION, COLORADO**
- 129-19 296 Hunt, Adrian P.\*; Lucas, Spencer G.; Buskirk, Bret L.: **THE VALUE OF VOMIT: THE FOSSIL RECORD OF VERTEBRATE REGURGITALITES AND ITS SIGNIFICANCE**
- 129-20 297 Bartlett, Rickey\*; Elliott, David K.: **PIT-TRAPPING PREDATION STRATEGY: THE FIRST RECORD OF ANT-LION PITS IN THE FOSSIL RECORD**
- 129-21 298 Nypaver, Cole\*; McKenzie, Scott C.: **PTEROGOTID EURYPTERIDS: FEARSOME PREDATORS OR BLIND, LISTLESS, ALGAE-EATING BLIMPS?**
- 129-22 299 Bakker, Robert T.\*; Zoehfeld, K. Weidner: **STEREOPHONIC TYRANNOSAURS: EXTERNAL EAR CHANNEL PROVIDED PRECISION IN LOCATING PREY**
- 129-23 300 Montgomery, Homer\*: **COPROLITES OF PREDATOR AND PREY DINOSAURS IN THE AGUJA FORMATION OF TRANS-PECOS TEXAS**
- 129-24 301 Campbell, Carl\*; Morales, Michael; Poropat, Rick; Lukens, David: **HADROSAUR FOOTPRINT RECOVERED FROM A LATE MAASTRICHTION, UPPER HELL CREEK SANDSTONE IN GARFIELD COUNTY, MONTANA, UNITED STATES**
- 129-25 302 Sheperd, Zackary R.\*; McLain, Matthew A.; Snyder, Ivan; Chadwick, Arthur V.: **EASTERN WYOMING HARVESTER ANT MOUNDS REVEAL RICH VERTEBRATE MICROFOSSIL ASSEMBLAGE**
- 129-26 303 Tome, Catalina\*: **DIETARY SHIFTS IN A GRAZING RODENT AFTER THE TERMINAL PLEISTOCENE MEGAFUNA EXTINCTION**
- 130-6 309 Neely, Samuel H.\*; Kelley, Patricia H.; Baldwin, Robert J.; Hoskins, William L.; Kerr, Tyler U.; Liskiewicz, Christopher M.; Micovic, Jennifer M.; Stefan, Joseph M.; Swank, Emerson T.; Dietl, Gregory P.: **PALEOECOLOGICAL RELATIONSHIPS WITHIN PIOCENE BIVALVE ASSEMBLAGES FROM THE CAROLINAS AND VIRGINIA**
- 130-7 310 Sbardella, Claire A.\*; Leonard-Pingel, Jill; Michelson, Andrew V.: **LIVE/DEAD ANALYSIS OF MOLLUSCAN COMMUNITIES IN IMPACTED TEMPERATE LACUSTRINE ECOSYSTEMS: HIGH FIDELITY IN REMEDIATED LAKES AND EVIDENCE OF ANTHROPOGENIC IMPACT**
- 130-8 311 Fitzpatrick, Sarah A.\*; Kimball, Katalina C.; Spergel, Julian; Michelson, Andrew V.; Leonard-Pingel, Jill: **LIVE/DEAD COMPARISONS OF OSTRACODES IN TEMPERATE LAKES REVEAL EVIDENCE OF HUMANS: LOW FIDELITY IN IMPACTED LAKES, BUT HIGH FIDELITY IN REMEDIATED LAKES**
- 130-9 312 Tweitmann, Annalee\*: **MOLLUSCAN LIVE-DEAD AGREEMENT IN BARNEGAT BAY, NJ**
- 130-10 313 Zimmt, Joshua B.\*; Kosnik, Matthew A.; Lockwood, Rowan: **TAPHONOMIC CONDITION AS A PROXY FOR MOLLUSCAN TIME AVERAGING IN SYDNEY HARBOUR (NSW, AUSTRALIA)**
- 130-11 314 Hale, Kelly Elizabeth\*; Huntley, John Warren; Scarponi, Daniele; Stuart, III, Ronald Patrick: **TAPES PHILIPPINARUM AS AN ARCHIVE OF HEAVY METAL POLLUTION IN LAGOONS OF THE NORTHERN ADRIATIC COAST, ITALY: A BIVALVE SCLEROCHEMICAL APPROACH**
- 130-12 315 Moore, Jason R.\*; Weissmann, Gary S.: **TAPHONOMY AND PALEOECOLOGY IN A DISTRIBUTIVE FLUVIAL SYSTEM FRAMEWORK: MOST OF THE PRESENT ISN'T THE KEY TO MUCH OF THE PAST**
- 130-13 316 Anaya, Francis Marie-Lowrie\*; Giermakowski, J. Tomasz; Weissmann, Gary S.; Scuderi, Louis A.; Moore, Jason R.: **HOW SPATIALLY BIASED IS THE TERRESTRIAL FOSSIL RECORD?: A QUANTITATIVE ANALYSIS USING MODERN MAMMALIAN SPECIES AS A PROXY**
- 130-14 317 Pier, Jaleigh Q.\*; Nagel-Myers, Judith; Dietl, Gregory P.: **TEMPERATURE INDUCED BODY SIZE INCREASE IN A BENTHIC MARINE MOLLUSK FAUNA FROM SEYMOUR ISLAND, ANTARCTICA**
- 130-15 318 Long, Brooke L.\*; Anderson, Laurie C.; Engel, Annette Summers: **TESTING THE ASSOCIATION OF STEWARTIA FLORIDANA SHELL MORPHOLOGY WITH ENVIRONMENTAL PARAMETERS IN A COASTAL SEAGRASS AREA**
- 130-16 319 Bonuso, Nicole\*; Malenick, Bethany A.: **LATE PIOCENE CHANGES IN MACRO AND MICROFAUNA COMMUNITY ASSOCIATION DUE TO NUTRIENT AVAILABILITY**
- 130-17 320 Laird, Joshua D.\*; Belanger, Christina: **FUNCTIONAL ECOLOGY COMPARISONS BETWEEN CRETACEOUS BLACK HILLS AND MODERN GULF OF MEXICO COLD-SEEP COMMUNITIES**
- 130-18 321 Hong, Jongsun\*; Choh, Suk-Joo; Lee, Dong-Jin: **CAMBRIAN SERIES 3 MICROBIAL REEF-DOMINATED CARBONATE PLATFORM ON THE EASTERN SINO-KOREAN BLOCK**
- 130-19 322 Choh, Suk-Joo\*; Lee, Jeong-Hyun; Hong, Jongsun; Lee, Dong-Jin: **A NEW MIDDLE ORDOVICIAN REEF-BUILDING CONSORTIUM OF BIVALVE-SILICEOUS SPONGE-MICROBE FROM NORTH CHINA**
- 130-20 323 Roth, Emma E.\*; Pruss, Sara B.: **THE ADVENT OF THE CORAL REEF: ANIMAL ABUNDANCE IN UPPER ORDOVICIAN LOURDES FORMATION REEFS, WESTERN NEWFOUNDLAND**
- 130-21 324 Grajeda, III, Robert\*; Raymond, Anne; Schultz, Emily; Bryant, Vaughn: **GYMNOSPERM POLLEN AS A RESOURCE FOR TERRESTRIAL ARTHROPODS: THE LATE PALEOZOIC AND PRESENT COMPARED**

## SESSION NO. 130

**T160. Topics in Paleoecology: Modern Analogues and Ancient Systems (Posters) (Paleontological Society)**

9:00 AM, Baltimore Convention Center, Exhibit Hall

Authors will be present from 4:30 to 6:30 PM

Booth #

- 130-1 304 Lewis, Ronald D.\*; Smith, Christopher; Merrill, Destini; Tichenor, Hal (Ray): **COMPARISON OF ENCRUSTING FORAMINIFERA AT BANK BARRIER REEFS AND LAGOONAL PATCH REEFS FOUND AT SAN SALVADOR AND CAT ISLAND, BAHAMAS**
- 130-2 305 West, Kaydee J.\*; Smirnov, Kirill; Herbert, Gregory S.: **ALTERED BIOTIC INTERACTIONS IN THE ANTHROPOCENE: A 3.5 MYR BASELINE OF GASTROPOD DRILLING PREDATION FROM THE EASTERN GULF OF MEXICO**
- 130-3 306 Motz, Gary J.\*: **TAXONOMIC DIFFERENTIATION OF PREFERRED PREY ITEMS IN THE INDO-PACIFIC PERSISTENT HOTSPOT OF BIODIVERSITY**
- 130-4 307 Brazelton, Joseph D.\*; Forcino, Frank L.; Stafford, Emily S.: **INVESTIGATION OF DAMAGE PATTERNS INDUCED BY CRUSHING OF BIVALVE SHELLS**
- 130-5 308 Hugo, Nicholas\*; Tackett, Lydia S.: **A NEW METHOD FOR ESTIMATING ORIGINAL SIZE OF *MONOTIS* FROM COMMISSURAL SHELL FRAGMENTS AND APPLICATION TO NORIAN POPULATIONS FROM KIRITEHERE BEACH, NEW ZEALAND**

**SESSION NO. 131****Petrology, Igneous (Posters)**

9:00 AM, Baltimore Convention Center, Exhibit Hall

Authors will be present from 4:30 to 6:30 PM

- |        | Booth # |   |
|--------|---------|---|
| 131-1  | 325     | White, John C.*; Neave, David A.; Rotolo, Silvio G.; Parker, Don F.: <b>MANTLE HETEROGENEITY AND MELTING CONDITIONS IN THE STRAIT OF SICILY RIFT ZONE</b>   |
| 131-2  | 326     | Nelson, Wendy R.*; Furman, Tanya; Pitcavage, Erica M.: <b>EXPLORING THE LINK BETWEEN METASOMATIZED LITHOSPHERE AND CONTINENTAL RIFTING: A CASE STUDY OF THE EAST AFRICAN RIFT SYSTEM</b>  |
| 131-3  | 327     | Barrón-Díaz, Sr., Arturo Joaquín*; Paz Moreno, Francisco A.; Centeno-García, Elena; Herrera-Urbina, Saúl: <b>PETROGENETIC STUDY FROM THE ANOROGENIC MAFIC-ULTRAMAFIC MAGMAS CLOSE TO THE CAMBRIAN-PRECAMBRIAN BOUNDARY IN NW SONORA REGION</b>                                      |
| 131-4  | 328     | Mnich, Marissa E.*; Condit, Christopher D.; Seaman, Sheila J.: <b>A PETROGENETIC MODEL FOR THE SPRINGVILLE BASALTS IN EAST-CENTRAL ARIZONA</b>  |
| 131-5  | 329     | Kulp, Robert R.*: <b>AN ISOLATED INTRUSION OF THE YORK HAVEN TYPE OLIVINE DIABASE, (YHTOD)TERRE HILL, LANCASTER COUNTY, PENNSYLVANIA</b>  |
| 131-6  | 330     | Pratt, Richard*; Kaiser, Jason F.: <b>TESTING THE PHYSICAL AND CHEMICAL HOMOGENEITY OF A CINDER CONE: A CASE STUDY OF THE HENRY KNOLLS CINDER CONE VOLCANO IN SOUTH WEST UTAH</b>   |
| 131-7  | 331     | Takach, Marie*; Sicker, Camille; McCoy, Connor; Todd, Erin; Cole, Ron B.; Jicha, Brian R.; Wilson, Frederic H.; Yang, Jin-Hui; Wang, Hao: <b>ALONG-ARC GEOCHEMICAL TRENDS ON THE ALASKA PENINSULA: USING ARCHIVED U.S. GEOLOGICAL SURVEY SAMPLES FOR A SYNOPTIC GEOPRISMS STUDY</b> |
| 131-8  | 332     | Sikes, Eric*; Michelfelder, Gary S.; Salings, Emily E.; Rentz, Shannon P.: <b>MODIFICATION OF THE CONTINENTAL CRUST BY SUBDUCTION ZONE MAGMATISM AND VICE-VERSA: ACROSS-STRIKE GEOCHEMICAL VARIATIONS OF SILICIC LAVAS FROM THE MOGOLLON-DATIL VOLCANIC FIELD, SW NEW MEXICO</b>    |
| 131-9  | 333     | McHugh, Kelly C.*; Hart, William K.; Pearce, Nicholas J.G.; Preece, Shari; Coombs, Michelle L.: <b>INSIGHTS INTO HAYES VOLCANO (ALASKA) PETROGENESIS FROM MAJOR AND TRACE ELEMENT GLASS CHEMISTRY</b>   |
| 131-10 | 334     | Daly, George Edward*; Widom, Elisabeth: <b>MAFIC ENCLAVES AND EVIDENCE FOR MAGMA MINGLING AT MORNE PATATES VOLCANO, DOMINICA, LESSER ANTILLES</b>   |
| 131-11 | 335     | Kurzweil, Daniel*; Benimoff, Alan I.; Warner, Edward M.: <b>FURTHER STUDIES OF THE IGNEOUS ROCKS OF THE NORTHERN AND CENTRAL PHILMONT SCOUT RANCH IN CIMARRON, NM</b>   |
| 131-12 | 336     | Owens, Brent E.*; Buchwaldt, Robert; Hancox, Christina N.: <b>FURTHER EVIDENCE FOR DEVONIAN MAGMATISM REVEALED IN THE MAIDENS GNEISS, GOOCHLAND TERRANE, VIRGINIA</b>   |
| 131-13 | 337     | Zhou, Su*; Qiu, Ruizhao; Zhang, Linlin; Sun, Kai; Zhang, Guoqin; Chen, Lili; Liu, Cui: <b>GEOCHRONOLOGY AND GEOCHEMISTRY OF THE MESOZOIC GRANITOIDS IN THE SOUTH SECTION OF GREAT XING'AN RANGE, INNER MONGOLIA AND ITS TECTONIC IMPLICATIONS</b>                                   |
| 131-14 | 338     | Ogungbuyi, P.I.*; Janney, P.E.; Harris, C.: <b>THE PETROGENESIS AND GEOCHEMISTRY OF THE ZANDKOPSDRIFT CARBONATITE COMPLEX, NAMAQUALAND, SOUTH AFRICA</b>  |
| 131-15 | 339     | Raic, Sara*; Mogessie, Aberra; Krenn, Kurt: <b>CONTROLS ON MINERALIZATION IN THE BATHTUB INTRUSION, BABBITT DEPOSIT (DULUTH COMPLEX, MINNESOTA, USA): HALOGEN VARIATIONS IN APATITE AND COEXISTING FLUID INCLUSIONS</b>   |

- 131-16 340 Benson, T.R.\*; Mahood, Gail A.; Coble, Matthew A.: **CONTROLS ON ENRICHMENT OF ENERGY-CRITICAL ELEMENTS (LI, GA, REE) IN WEAKLY PERALKALINE MAGMAS OF THE MID-MIOCENE MCDERMOTT VOLCANIC FIELD, OREGON AND NEVADA, BASED ON *IN SITU* SHRIMP-RG ANALYSES OF QUARTZ-HOSTED MELT INCLUSIONS**

**SESSION NO. 132****T170. Experimental Investigations of Planetary Geologic Processes (Posters) (GSA Planetary Geology Division; Geochemical Society; GSA Mineralogy, Geochemistry, Petrology, and Volcanology Division)**

9:00 AM, Baltimore Convention Center, Exhibit Hall

Authors will be present from 4:30 to 6:30 PM

- |       | Booth # |  |
|-------|---------|--|
| 132-1 | 341     | Dyar, M. Darby*; Fassett, Caleb I.; Lepore, Kate; Breves, Elly A.; Boucher, Thomas; Giguere, Stephen; Rhodes, J. Michael; Vollinger, Michael; Anderson, Chloe: <b>MINOR AND TRACE ELEMENT ANALYSES USING LASER-INDUCED BREAKDOWN SPECTROSCOPY OF DOPED STANDARDS</b> |
| 132-2 | 342     | Harris, Thomas H.S.*: <b>SUBORBITAL OBSTRUCTION SHADOWING</b>  |
| 132-3 | 343     | Jaret, Steven J.*; Johnson, Jeffrey R.; Sims, Melissa; Ehm, Lars; Glotch, T. D.: <b>HIGH-PRESSURE DEFORMATION OF ANDESINE FELDSPAR: A COMPARISON OF STATIC AND DYNAMIC EXPERIMENTS</b>   |
| 132-4 | 344     | Martirosyan, Naira*: <b>REDUCTION OF MAGNESITE AT MANTLE CONDITIONS AND INFLUENCE OF WATER-CONTAINING FLUID ON THE REACTION RATE</b>   |
| 132-5 | 345     | Johnson, Mark*; Hughes, III, Richard: <b>GRAVITATIONAL MOLECULAR HYDRO-ACCRETION: A NOVEL MODEL EXPLAINING DISPARATE PLANETARY DEUTERIUM RATIOS AND THE PLAUSIBLE ORIGIN OF EARTH'S WATER</b>  |
| 132-6 | 346     | Lucas, Michael P.*; Emery, Joshua P.: <b>COMPOSITIONAL DIVERSITY AMONG HUNGARIA REGION ASTEROIDS: EVIDENCE FROM THE OBSERVATORY AND THE LABORATORY</b>   |

**SESSION NO. 133****T171. Exploring the Sedimentary Rock Record of Mars (Posters) (GSA Planetary Geology Division; GSA Sedimentary Geology Division; GSA Quaternary Geology and Geomorphology Division)**

9:00 AM, Baltimore Convention Center, Exhibit Hall

Authors will be present from 4:30 to 6:30 PM

- |       | Booth # |  |
|-------|---------|--|
| 133-1 | 347     | Zimbelman, James R.*; Johnson, Molly B.: <b>USE OF DIGITAL TERRAIN MODELS OF MARTIAN SAND DUNES TO ASSESS WIND FLOW PATTERNS</b>   |
| 133-2 | 348     | Clark, Stacey C.*; Berman, Daniel C.: <b>REGIONAL ANALYSES OF TRANSVERSE AEOLIAN RIDGES ON MARS: ORIENTATION, MORPHOLOGY, AND MORPHOMETRY</b>  |
| 133-3 | 349     | Rogers, A. Deanne*; Edwards, Christopher S.: <b>DISCRIMINATING BETWEEN CAUSES OF CRATER AND BASIN INFILLING IN THE MARTIAN HIGHLANDS</b>   |
| 133-4 | 350     | Neiman, Jordan A.*; Phillips, Brooke P.; Davatzes, Alexandra K.: <b>GLOBAL AND LOCALIZED STUDIES OF CRATER DEGRADATION ON MARS</b>   |
| 133-5 | 351     | Thomson, Bradley James*; Buczkowski, Debra L.; Crumpler, Larry S.; Seelos, Kimberly D.: <b>PROGRESS ON CREATING A 1:60 K GEOLOGIC MAP OF WESTERN AEOLIA MONS, MARS</b>   |
| 133-6 | 352     | Cull-Hearth, Selby*: <b>HYDRATED AND MAFIC MINERALOGY OF GANGES CHASMA, MARS</b>   |
| 133-7 | 353     | Cousin, Agnes*; Sautter, Violaine; Mangold, N.; Forni, Olivier; Toplis, Michael; Pinet, Patrick; Payré, Valérie; Gasnault, Olivier; Newsom, Horton E.; Wiens, R.C.: <b>DIVERSITY OF IGNEOUS ROCKS AT GALE CRATER, MARS</b> |

- 133-8 354 Edgett, Kenneth S.\*; Yingst, R. Aileen; Stack, Kathryn M.; Schieber, Juergen; Heydari, Ezat; Kronyak, Rachel E.; Kah, Linda C.; McBride, Marie J.; Kennedy, Megan R.; Krezoski, Gillian M.: **CURIOSITY'S MARS HAND LENS IMAGER (MAHLI) INITIAL INVESTIGATIONS OF LOWER AEOLIS MONS STRATA, GALE CRATER, MARS**
- 133-9 355 Williams, Rebecca M.E.\*; Malin, Michael C.; Lewis, Kevin; Edgar, Lauren A.: **BEDDING GEOMETRY OF BENCH-FORMING STRATA IN THE KYLIE AND KIMBERLEY REGIONS OF GALE CRATER**

## SESSION NO. 134

**T185. Coastal Hazards from Minutes to Millennia (Posters) (GSA Quaternary Geology and Geomorphology Division; GSA Geology and Society Division)**

9:00 AM, Baltimore Convention Center, Exhibit Hall

Authors will be present from 4:30 to 6:30 PM

Booth #

- 134-1 356 Nelson, Alan R.\*; Engelhart, Simon E.; Witter, Robert C.; DuRoss, Christopher B.: **AMS <sup>14</sup>C TESTS OF CORRELATIONS OF GREAT EARTHQUAKES ALONG THE CASCADIA SUBDUCTION ZONE, COASTAL OREGON**
- 134-2 357 Padgett, J. Scott\*; Engelhart, Simon E.; Hemphill-Haley, Eileen; Kelsey, Harvey M.; Witter, Robert C.: **STRATIGRAPHIC AND MICROFOSSIL EVIDENCE FOR THREE CASCADIA SUBDUCTION ZONE EARTHQUAKES AT JACOBY CREEK, ARCATA BAY, CALIFORNIA, USA**
- 134-3 358 Dura, Tina\*; Horton, Benjamin P.; Hong, Isabel; Cisternas, Marco; Ely, Lisa L.; Nelson, Alan R.; Nikitina, Daria; Pilarczyk, Jessica; Wesson, Robert L.: **2000-YEAR RECORD OF EIGHT TSUNAMIS AND ASSOCIATED SEISMIC LAND-LEVEL CHANGE, SOUTH-CENTRAL CHILE**
- 134-4 359 Arcos, Maria E.M.\*; Alcínov, Trajce; Lavine, Alexis; Kulkarni, Vikram; Hanson, Kathryn; Youngs, Robert; Mullin, Derek: **SOURCE PARAMETER SELECTION FOR PROBABILISTIC TSUNAMI HAZARD ANALYSIS IN EASTERN CANADA**
- 134-5 360 Kane, Haunani\*; Fletcher, Charles H.: **REVIEW AND ANALYSIS OF LATE HOLOCENE COASTAL DYNAMICS AT UPOLU, SAMOA**
- 134-6 361 Harrington, Joshua P.\*; Cox, Rónadh: **CHANGES IN SUPRATIDAL COASTAL BOULDER DEPOSITS (ARAN ISLANDS, IRELAND) MEASURED USING STRUCTURE-FROM-MOTION PHOTOGRAMMETRY**
- 134-7 362 Gerlach, Matthew J.\*; Engelhart, Simon E.; Kemp, Andrew C.; Moyer, Ryan P.; Smoak, Joseph M.; Bernhardt, Christopher: **RECONSTRUCTING COMMON ERA RELATIVE SEA-LEVEL CHANGES ON THE GULF COAST OF FLORIDA**
- 134-8 363 Capar, Paulina M.\*; Hawkes, Andrea D.; Horton, Benjamin P.: **DEVELOPING LATE HOLOCENE HIGH-RESOLUTION RELATIVE SEA-LEVEL RECORDS IN SOUTHERN NORTH CAROLINA**
- 134-9 364 Shaw, Timothy A.\*; Horton, Benjamin P.; Kemp, Andrew C.; Engelhart, Simon E.; Nikitina, Daria; Walker, Jennifer; Pilarczyk, Jessica E.; García-Artola, Ane: **COMMON ERA SEA-LEVEL, CHESAPEAKE BAY, U.S. ATLANTIC COAST**
- 134-10 365 Shmorhun, Nina\*; Barber, Donald C.; Kegel, Jessica: **CHARACTERIZING MODERN AND LATE HOLOCENE SALT MARSH FORAMINIFERA ASSEMBLAGES FROM SMYRNA CREEK, COASTAL NORTH CAROLINA AS PROXIES FOR SEA LEVEL**
- 134-11 366 Pons-Montalvo, Elizama\*; Aretxabaleta, Alfredo L.: **SPATIAL CHANGES IN SEA LEVEL ALONG THE EAST COAST OF THE UNITED STATES**
- 134-12 367 Gutierrez, Benjamin T.\*; Gieder, Katherina; Plant, Nathaniel; Thieler, E. Robert; Stippa, Saywer; Zeigler, Sara; Karpanty, Sarah: **PREDICTING BARRIER ISLAND GEOMORPHOLOGY AND IMPACTS TO PIPING PLOVER NESTING HABITAT DUE TO SEA-LEVEL RISE**

- 134-13 368 Mahmud, Zarrin\*; Blackwell, Bonnie A.B.; Florentin, Jonathan A.; Tüysüz, Okan; Tari, Ufuk; Li, Gavin L.; Blickstein, Joel I.B.; Genc, S. Can; Imren, Caner; Skinner, Anne R.: **FAULT FINDING: ESR DATING MOLLUSCS FROM MARINE TERRACES IN HATAY PROVINCE, TURKEY**
- 134-14 369 Tormey, Blair R.\*; Donovan, Bailey G.: **THE STORM IS UP, AND ALL IS ON THE HAZARD: IMPLICATIONS OF EXTREME STORM DEPOSITS IN THE BAHAMAS DURING THE LAST INTERGLACIAL**
- 134-15 370 Stromer, Zachary D.\*; Woodruff, Jonathan D.; Donnelly, Jeffrey P.: **THE GREAT COLONIAL HURRICANE OF 1635 – REASSESSING EXTREME FLOOD VULNERABILITY FOR THE SOUTHERN COAST OF MASSACHUSETTS**
- 134-16 371 Brenner, Owen\*; Lentz, Erika E.; Hapke, Cheryl J.: **USING A BEACH CHANGE ENVELOPE (BCE) TO ASSESS POST-STORM RECOVERY AND LONG TERM RESILIENCY**
- 134-17 372 Barbosa, Maria Emanuella\*; Bezerra, Hilario; Boski, Tomasz; Pinheiro Lima Filho, Francisco; Pinheiro Maia, Rúbson; McLaughlin, Jr., Peter P.: **THE INTERPLAY BETWEEN LATE QUATERNARY SEA-LEVEL CHANGES AND TECTONICS IN THE ASSU RIVER COSTAL PLAIN, NE BRAZIL: IMPLICATIONS FOR SEDIMENT DEPOSITION AND LANDFORMS**

## SESSION NO. 135

**T193. Sedimentary Environment and Process Studies: The Emerging Generation of Scientists (Posters) (GSA Sedimentary Geology Division; SEPM (Society for Sedimentary Geology))**

9:00 AM, Baltimore Convention Center, Exhibit Hall

Authors will be present from 4:30 to 6:30 PM

Booth #

- 135-1 373 Conlon, Erin H.\*; Meert, Joseph G.; Pandit, M.K.: **TIMING OF DEPOSITION IN MARWAR BASIN, RAJASTHAN, INDIA, USING GEOCHRONOLOGY AND PALEOMAGNETISM**
- 135-2 374 Cohen, Hanna F.\*; Young, Jordan M.; Wittmer, Jacalyn M.; Butler, Shane K.: **A SEDIMENTOLOGICAL AND GEOCHEMICAL APPROACH TO UNDERSTANDING THE BUTTER SHALES FROM THE WAYNESVILLE FORMATION (UPPER ORDOVICIAN) IN THE CINCINNATI ARCH**
- 135-3 375 Vega, Jordan\*; Burton, M. Isaac; Quiroga, Allison; Ramos, Mallory; Larson, Erik B.; Sumrall, Jonathan B.: **PETROGRAPHIC CORRELATION BETWEEN OUTCROPPINGS OF THE SILURIAN CARBONATES IN THE HIAWATHA NATIONAL FOREST OF THE UPPER PENINSULA OF MICHIGAN**
- 135-4 376 Quiroga, Allison\*; Ramos, Mallory; Vega, Jordan; Burton, M. Isaac; Larson, Erik B.; Sumrall, Jonathan B.: **ELEMENTAL AND MINERALOGICAL ANALYSIS OF THE ENGADINE GROUP IN THE UPPER PENINSULA, MI**
- 135-5 377 Ramos, Mallory\*; Quiroga, Allison; Burton, M. Isaac; Vega, Jordan; Larson, Erik B.; Sumrall, Jonathan B.: **USING MAGNETIC SUSCEPTIBILITY AND STABLE ISOTOPES TO CORRELATE OUTCROPS OF THE ENGADINE GROUP WITHIN THE HIAWATHA NATIONAL FOREST OF THE UPPER PENINSULA, MI**
- 135-6 378 Ryan, Patrick T.\*; Baldwin, Patrick W.; Perlman, Zachary; Lucas, Joseph S.; McGlue, Michael M.; Waite, Lowell; Woodruff, Olivia: **CYCLES IN THE DEEP: AN INTEGRATED STRATIGRAPHIC ANALYSIS OF THE MIDLAND BASIN IN THE LATE PENNSYLVANIAN USING SUBSURFACE DATASETS**
- 135-7 379 Pritt, Joseph J.\*; Benison, Kathleen C.: **DEPOSITIONAL ENVIRONMENTS OF THE QUARTERMASTER GROUP: EVIDENCE OF ACID SALINE LAKES AND SOILS IN WEST-CENTRAL KANSAS DURING THE LATE PERMIAN?**
- 135-8 380 Allred, Isaac\*; Hudson, Sam: **FLUVIAL ARCHITECTURE AND FACIES DISTRIBUTION OF THE CUTLER FORMATION WITHIN FISHER MINIBASIN, PARADOX BASIN, UTAH: SPATIAL TRENDS AND RESERVOIR CONNECTIVITY IN A SALT-INFLUENCED, SOURCE-PROXIMAL FLUVIAL SYSTEM**

- 135-9 381 Heness, Elizabeth A.\*; Langford, Richard P.: **SALT TECTONIC CONTROLS ON FACIES OF THE FLUVIAL TRIASSIC CHINLE FORMATION, GYPSUM VALLEY SALT WALL, COLORADO**
- 135-10 382 Jin, Cong\*; Dworkin, Steve I.; Nordt, Lee C.; Atchley, Stacy: **METEORIC DIAGENESIS OF CHINLE SANDSTONES, PETRIFIED FOREST NATIONAL PARK (ARIZONA, USA): A RECORD OF LATE TRIASSIC CLIMATE CHANGE**
- 135-11 383 Andeskie, Anna Sofia\*; Eichenlaub, Lynnette A.; Benison, Kathleen C.: **PRELIMINARY EVIDENCE OF EXTREME ENVIRONMENTS OF PANGAEA: RED BEDS AND EVAPORITES OF THE TRIASSIC MERCIA MUDSTONE OF NORTHERN IRELAND**
- 135-12 384 Furlong, Carolyn M.\*; Alexander, Felicia; LaGrange Rao, Maya; Wu, Angie; Zonneveld, John-Paul: **BIOTURBATION INFLUENCE ON RESERVOIR QUALITY: A CASE STUDY FROM THE LOWER TRIASSIC MONTNEY FORMATION OF THE WESTERN CANADIAN SEDIMENTARY BASIN**
- 135-13 385 Aluia, Viviana E.\*; Glumac, Bosiljka: **PETROGRAPHIC AND GEOCHEMICAL COMPARISON OF LIMESTONE AND CARBONATE BRECCIA FROM CALA MADONNA WITH THE CLASSIC TRIASSIC SHALLOWING-UPWARD CYCLES OF THE CAPO RAMA RESERVE (SICILY, ITALY)**
- 135-14 386 Sainvil, Anny K.\*; Glumac, Bosiljka: **INTRIGUING SEDIMENTARY STRUCTURES FROM THE JURASSIC TURNERS FALLS FORMATION OF THE DEERFIELD RIFT BASIN IN MASSACHUSETTS**
- 135-15 387 Wheatley, David Fairchild\*; Chan, Marjorie A.; Hansford, Mark; Treat, Ian; Foltz, Katy: **BRITTLE AND DUCTILE DEFORMATION STRUCTURES ASSOCIATED WITH CLASTIC PIPES, JURASSIC CARMEL FORMATION, SOUTHERN UTAH**
- 135-16 388 Morelli, Erica Christina\*; Parsons-Hubbard, Karla: **PETROGRAPHIC ANALYSIS OF ORIGIN AND EVOLUTION OF POROSITY IN LATE CRETACEOUS SEEP CARBONATE**
- 135-17 389 Ames, Carsyn\*; Leier, Andrew; Leckie, Dale A.; Heinze, Cody; Chesley, John; Rubino, Erica; Barbeau, David L.: **DETRITAL ZIRCON PROVENANCE OF PALEOGENE-NEOGENE FLUVIAL CONGLOMERATES AND THE CENOZOIC EVOLUTION OF THE NORTHERN ROCKIES AND SOUTHERN CANADIAN PLAINS**
- 135-18 390 Jones, Evan\*; Wang, Jianqiao; Plink-Bjorklund, Piret: **SCALING THE CALIFORNIA PALEORIVER: A SOURCE TO SINK APPROACH APPLIED TO FLASHY FLUVIAL DEPOSITS IN THE EARLY EOCENE WASATCH AND GREEN RIVER FORMATIONS, UINTA BASIN, UT**
- 135-19 391 Ono, Kenya\*; Plink-Bjorklund, Piret: **SUBMARINE CANYON COMPLEXES IN THE MIDDLE EOCENE TORREY SANDSTONE, ARDATH SHALE, AND SCRIPPS FORMATION, CALIFORNIA: ARCHIVES OF COMPLEX GEOLOGICAL HISTORY OF THE CONTINENTAL MARGIN**
- 135-20 392 Chilton, Kristin D.\*; Romans, Brian W.; Flynn, Shauna: **NORTH ATLANTIC OCEAN CIRCULATION RESPONSE TO CLIMATE CHANGE AT EOCENE-OLIGOCENE TRANSITION, IODP SITE U1411, NEWFOUNDLAND RIDGE DRIFT COMPLEX**
- 135-21 393 Jones, Rebecca H.\*; Flaig, Peter P.; Hasiotis, Stephen T.: **PALEOENVIRONMENTS OF ANCHOR MINE TONGUE AND UPPER SEGO EQUIVALENT STRATA IN THE RANGELY AREA OF COLORADO: TIDALLY-INFLUENCED DEPOSITS AND VARIABLE ICHNOLOGY ALONG A COMPLEX COASTLINE**
- 135-22 394 Nichols, Doug\*; Aslan, Andres: **PROVENANCE AND AGE OF THE BROWNS PARK BASAL CONGLOMERATE AND BISHOP CONGLOMERATE BASED ON U-PB DETRITAL ZIRCON AGES, NORTHWESTERN COLORADO**
- 135-23 395 El Belasy, Ahmed\*; El-Shahat, Adam; Genedi, Adel: **FACIES DEVELOPMENT AND DEPOSITIONAL FRAMEWORK OF THE MIDDLE MIOCENE CARBONATES (MARMARICA FORMATION) BETWEEN RAS EL-HEKMA AND MATRUH, NORTHWESTERN EGYPT**
- 135-24 396 Gardner, Jacob D.\*; Schmitt, James G.: **MINERALOGIC EVIDENCE OF PRESERVATIONAL CONDITIONS IN THE OLIGOCENE CANYON FERRY INSECT LAGERSTATTE, SOUTHWEST, MONTANA**
- 135-25 397 Lee, Rebecca E.\*; Maclachlan, John C.; Maloney, Katie M.; Eyles, Carolyn H.: **LANDSYSTEM ANALYSIS OF THREE OUTLET GLACIERS ON THE VATNAJÖKULL ICE CAP, ICELAND**
- 135-26 398 Oldfield, Lauren\*; Feist, Samantha; Lee, Rebecca E.; Maloney, Katie M.; Maclachlan, John C.; Eyles, Carolyn H.; Reinhardt, Eduard G.; Stuart, Heather L.: **EXPLORING THE HIDDEN STORIES LOCKED WITHIN SEDIMENT AND WATER IN HIDDEN RIVER CAVE, HORSE CAVE, KENTUCKY**
- 135-27 399 Sperazza, Michael\*; Holme, Ella: **METHODOLOGICAL ASSESSMENT OF QUANTITATIVE SMEAR SLIDE TECHNIQUES FOR USE WITH GEOLOGIC SAMPLES**
- 135-28 400 Wilcots, Julia\*; Husson, Jon; Peters, Shanan E.: **STROMATOLITE DISTRIBUTION IN SPACE AND TIME: A MACHINE-READING ASSISTED QUANTITATIVE ANALYSIS**
- 135-29 401 Bane, Lauren T.\*; Hiatt, Eric E.; Pufahl, Peir K.: **AUTHIGENIC AND DIAGENETIC PROCESSES IN THE PERU SHELF PHOSPHORITES: FUNDAMENTAL PROCESSES IN THE DEVELOPMENT OF ECONOMIC PHOSPHORITE AND IMPLICATIONS FOR ANCIENT ANALOGS**
- 135-30 402 Zobaa, Mohamed K.\*; El Beialy, Salah Y.; Taha, Asmaa A.; Oboh-Ikuenobe, Francisca E.: **IMPROVED GRAPHICAL REPRESENTATION OF SEDIMENTARY ORGANIC MATTER AS PALEOENVIRONMENTAL PARAMETERS**
- 135-31 403 Lugo Centeno, Cristina\*; Samson, Scott; Salerno, Ross: **DETRITAL MONAZITE AGES: A TECTONIC RECONSTRUCTION TOOL FOR PAST OROGENIC EVENTS?**
- 135-32 404 Smith, Curtis Scott\*; Soreghan, G.S.: **COMPARATIVE SEM ANALYSIS OF QUARTZ MICROTERTURES IN FLUVIAL SAND FROM TROPICAL, ARID, AND PROGLACIAL SYSTEMS: A POSSIBLE CLIMATE PROXY**
- 135-33 405 Yoerg, Adam\*; Roberts, Jennifer A.; Stotler, Randy L.; Fowle, David; Frappe, Shaun: **MORPHOLOGICAL ANALYSIS OF ALKALINE LAKE SEDIMENTS**
- 135-34 406 Lutiker, Michelle A.\*; McCollum, Mark S.; Johnson, Steven G.; Donoghue, Joseph F.: **VISUALIZING PARTICLE SIZE DISTRIBUTION PROFILES IN LAKE SEDIMENTS: A STUDY OF MIDCONTINENT STORMS**
- 135-35 407 Conwell, Christopher T.\*; Cerkez, Elizabeth B.; Buynevich, Ilya V.; Grandstaff, David E.: **ORIGIN OF ANOMALOUS MAGNETIC SUSCEPTIBILITY AND COLORATION IN RELICT ATLANTIC OYSTER SHELLS: GEOCHEMICAL INSIGHTS**
- 135-36 408 Weremeichik, Jeremy M.\*; Borrelli, Chiara; Mitchell, Jonney; Gabitov, Rinat I.: **ARAGONITE PRECIPITATION UNDER SIMULATED OCEANIC PRESSURES**

## SESSION NO. 136

*T195. Paleoenvironmental Reconstruction of Hominin Sites: New Methods, New Data, and New Insights (Posters) (SEPM (Society for Sedimentary Geology); GSA Limnogeology Division; GSA Sedimentary Geology Division; GSA Quaternary Geology and Geomorphology Division; GSA Archaeological Geology Division)*

9:00 AM, Baltimore Convention Center, Exhibit Hall

Authors will be present from 4:30 to 6:30 PM

Booth #

- 136-1 409 Yohler, Ryan Michael\*; Njau, Jackson K.; Brophy, J.G.: **A GEOPHYSICAL APPROACH TO UNDERSTANDING THE OLDUVAI GORGE BASIN SUBSURFACE: USING MAGNETICS TO TRACK BED I BASALT FLOWS**
- 136-2 410 Ascari, Silvia H\*: **ISOTOPIC ANALYSES OF FOSSIL BONES AND TEETH OF HERBIVORES AND CROCODILES FROM UPPER BED I, LOWER BED II, AND UPPER BED II OF THE OLDUVAI GORGE, TANZANIA**
- 136-3 411 Kearney, John\*; Johnson, Claudia C.; Njau, Jackson; Toth, Nick; Schick, Kathy: **RECONSTRUCTING PALEOENVIRONMENTS TO DETERMINE ECOLOGICAL EVOLUTIONARY DRIVERS FOR**



**HOMO ERECTUS DURING TIME OF BEDS III AND IV, OLDUVAI GORGE, TANZANIA**

- 136-4 412 Dean, Jonathan R.\*; Asrat, Asfawossen; Cohen, Andrew S.; Foerster, Verena; Just, Janna; Lamb, Henry F.; Leng, Melanie; Schabitz, Frank; Trauth, Martin H.; Viehberg, Finn: **NEW STABLE ISOTOPE RECORD FROM CHEW BAHIR, ETHIOPIA COVERING PAST 100KA**
- 136-5 413 Thompson-Munson, Megan\*; Castañeda, Isla; Lupien, Rachel; Russell, James M.: **LATE PLIOCENE AND EARLY PLEISTOCENE TEMPERATURE RECONSTRUCTIONS FROM PALEOLAKES OF THE WEST TURKANA AND NORTH AWASH BASINS, EAST AFRICA**
- 136-6 414 Ortiz, Kevin\*; Arrowsmith, J. Ramon; Cohen, Andrew; Feibel, Craig S.; Deino, Alan; Hill, Andrew; Beck, Catherine C.; Campisano, Christopher J.; Valachovic, Joseph; Kingston, John D.: **PALEOCLIMATE AND PALEOENVIRONMENTAL FORCING ON EARLY HUMANS: LOI ANALYSIS OF THREE HSPDP DRILL CORE SITES IN KENYA AND ETHIOPIA**
- 136-7 415 Gravina, Anna Naomi\*; Feibel, Craig S.; Beck, Catherine C.: **PALEOECOLOGY OF OSTRACODS FROM THE HOMININ SITES AND PALEOLAKES DRILLING PROJECT'S WEST TURKANA KAITIO CORE FROM WEST TURKANA, KENYA**
- 136-8 416 Stockhecke, Mona\*; Potts, Richard; Brown, Erik T.; Behrensmeyer, Anna K.; Dommain, Rene; Deino, Alan; Cohen, Andrew S.: **DEVELOPING TIMESERIES FROM COMPLEX LITHOSTRATIGRAPHIC DRILL CORE RECORDS OF ANCIENT LAKES BEDS IN EAST AFRICA: XRF RECORDS FROM THE OLOGESAILIE DRILL CORES (SOUTHERN KENYA)**
- 136-9 417 Cappio, Laura\*; Brown, Erik T.; Stockhecke, Mona; Potts, Richard; Dommain, Rene: **MICROFACIES ANALYSIS AND HIGH-RESOLUTION XRF SCANNING OF A LAMINATED PLEISTOCENE LACUSTRINE SEQUENCE FROM EAST AFRICA**

**SESSION NO. 137****T207. Folds and Folding: Earth's Surface to Depth (Posters) (GSA Structural Geology and Tectonics Division)**

9:00 AM, Baltimore Convention Center, Exhibit Hall

Authors will be present from 4:30 to 6:30 PM

Booth #

- 137-1 418 D'Ambrogio, Chiara\*; Maesano, Francesco Emanuele: **ACTIVE FOLDING IN A SUBSIDING SEDIMENTARY BASIN: A CASE STUDY IN THE PO BASIN (NORTHERN ITALY)**
- 137-2 419 DeLisle, Amanda\*: **PALEOFLUID HISTORY OF THE SANT CORNELI ANTICLINE, SOUTH-CENTRAL SPANISH PYRENEES**
- 137-3 420 Shackleton, John R.\*; DeLisle, Amanda: **CONTRASTING INTERPRETATIONS OF FRACTURING AT THE SANT CORNELI-BOIXOLS ANTICLINE: HOW DO WE DISTINGUISH FOLD-RELATED FRACTURES?**
- 137-4 421 Monfort, Eric M.\*; Gray, M.B.: **GRAIN-SCALE STRAIN ANALYSIS OF THE WHALEBACK ANTICLINE, BEAR VALLEY STRIP MINE SHAMOKIN, PENNSYLVANIA: PRELIMINARY RESULTS**
- 137-5 422 Crider, Juliet G.\*; Hodson, Keith R.: **STRUCTURE-FROM-MOTION PHOTOGRAMMETRY YIELDS SHAPE, SHORTENING, AND RHEOLOGY AT THE WHALEBACK ANTICLINE (EAST-CENTRAL PENNSYLVANIA)**
- 137-6 423 Steinbeck, Eli Jacob\*; Eckert, Andreas; Liu, Xiaolong: **A COMPARISON OF PRINCIPAL STRESS EVOLUTION IN CYLINDRICAL AND PERICLINAL BUCKLE FOLDS USING 3D FINITE ELEMENT ANALYSIS**
- 137-7 424 Damasceno, Davi R.\*; Eckert, Andreas: **THE INFLUENCE OF FLEXURAL-SLIP ON THE DEVELOPMENT OF DIFFERENT FOLD SHAPES**
- 137-8 425 Gutiérrez-Navarro, Rodrigo\*; Barboza-Gudiño, José Rafael; Fitz-Díaz, Elisa: **DEFORMATION HISTORY OF SIERRA DE CATORCE, SAN LUIS POTOSÍ, MÉXICO**

- 137-9 426 Long, Sean P.\*; Walker, Jerome P.: **FLEXURAL ISOSTATIC FOLDING DURING BRITTLE, LOW-ANGLE DETACHMENT FAULTING, GRANT RANGE, EASTERN NEVADA: A LONG-DURATION 'FIXED HINGE'**

- 137-10 427 MacLean, Elizabeth\*; Jadamec, Margarete: **LARGE SCALE THRUST-BREAKTHROUGH OF FOLDS IN THE BROOKS RANGE, ALASKA**

- 137-11 428 Mandal, Subhadip\*; Robinson, Delores M.; Kohn, Matthew J.; Das, Oindrila; Khanal, Subodha: **UPPER CRUSTAL STRUCTURE AND SHORTENING IN THE HIMALAYAN THRUST BELT IN KUMAUN, NORTHWEST INDIA**

- 137-12 429 Tewksbury, Barbara J.\*; Tarabees, Elhamy A.; Hanafy, Mahmoud I.; Mehtens, Charlotte: **EXTENSIVELY DEVELOPED NETWORK OF NON-TECTONIC SYNCLINES IN EOCENE LIMESTONE OF THE WESTERN DESERT, EGYPT**

**SESSION NO. 138****T208. Perspectives on Orogenic Evolution, Dating Brittle Faults and Mylonitic Shear Zones, Bending Mountains, and Assembling Supercontinents: A Session to Honor the Career of Ben Van Der Pluijm (Posters) (GSA Structural Geology and Tectonics Division)**

9:00 AM, Baltimore Convention Center, Exhibit Hall

Authors will be present from 4:30 to 6:30 PM

Booth #

- 138-1 430 Bhardwaj, Anamika\*; Biswal, Tapas Kumar: **EVOLUTION OF TRANS-ARAVALLI TERRAIN; A TECTONIC STUDY OF PUNAGARH BASIN, RAJASTHAN, INDIA**
- 138-2 431 Behera, Bhuban Mohan\*; Balu, Sivalingam; Biswal, Tapas Kumar; Mishra, Prasant Kumar: **DEFORMATION HISTORY OF SOUTHERN GRANULITE TERRANE; A STUDY OF THE MYLONITE AND PSEUDOTACHYLITE OF THE SALEM ATTUR AREA, TAMIL NADU, INDIA**
- 138-3 432 Schleicher, Anja M.\*; Boles, Austin; van der Pluijm, Ben A.: **RESPONSE OF CLAY HYDRATION TO THE 2011 TOHOKU EARTHQUAKE IN THE SHALLOW PORTION OF THE JAPAN TRENCH**
- 138-4 433 Kang, Ji-Hoon\*: **TECTONIC EVOLUTION OF THE CENTRAL OGCHEON BELT DURING PERMIAN-MIDDLE TRIASSIC SONGNIM AND EARLY-LATE JURASSIC DAEBO OROGENICS, KOREA**
- 138-5 434 Samkari, Abdulaziz Saleh\*; Farris, David W.: **STRUCTURAL EVOLUTION OF AD DAMM SHEAR ZONE, WESTERN SAUDI ARABIAN MARGIN AND ITS RELATION TO RED SEA RIFT SYSTEM**
- 138-6 435 Wong, Martin S.\*; Singleton, John S.; Cummings, Richard: **LATE CRETACEOUS TO EARLY TERTIARY EXTENSIONAL ORIGIN OF THE HARCUIVAR AND BUCKSKIN-RAWHIDE METAMORPHIC CORE COMPLEXES, ARIZONA**
- 138-7 436 Fitz-Díaz, Elisa\*; Hudleston, Peter; Tolson, Gustavo; Chávez-Cabello, Gabriel: **IS THE MEXICAN FOLD-THRUST BELT A PROGRESSIVE OR A SECONDARY OROCLINE? OR BOTH? INSIGHTS FROM THE KINEMATIC ANALYSIS OF FOLDS AND ILLITE DATING**

**SESSION NO. 139****T209. Rheological Behavior of Ductile Lithosphere during Strain Localization (Posters) (GSA Structural Geology and Tectonics Division)**

9:00 AM, Baltimore Convention Center, Exhibit Hall

Authors will be present from 4:30 to 6:30 PM

Booth #

- 139-1 437 Thissen, Christopher J.\*; Brandon, Mark T.: **STATISTICAL SYMMETRY OF LATTICE PREFERRED ORIENTATIONS: APPLICATIONS TO QUARTZ AND OLIVINE**
- 139-2 438 Hayman, Nicholas W.\*; Svartman Dias, Anna Eliza; Lima, Rodrigo; Lavier, Luc L.: **EXPLORING THE GEODYNAMICS OF CONTINENTAL CRUSTAL THINNING AND EXTENSION USING NUMERICAL MODELS AND GEOLOGICAL OBSERVATIONS**

MONDAY

POSTERS

SESSION NO. 139

- 139-3 439 Berkland, Michael\*; Gottardi, Raphael: **STRAIN ANALYSIS ACROSS A DETACHMENT SHEAR ZONE, PICACHO PEAK, AZ**
- 139-4 440 Eddy, Christopher M.\*; Koteas, G. Christopher: **STRAIN DISTRIBUTION DURING TRANSPRESSIONAL SHEARING ACROSS THE TACONIC-ACADIAN INTERFACE IN CENTRAL VERMONT**
- 139-5 441 Montz, William J.\*; Kruckenberg, Seth C.: **TIMING AND DURATION OF MIGMATITE CRYSTALLIZATION IN THE POTTERS POND MIGMATITE DOMAIN, WESTERN IDAHO SHEAR ZONE: RELATIONSHIPS BETWEEN PARTIAL MELTING AND DEFORMATION DURING TRANSPRESSION**
- 139-6 442 Kaufman, Sierra V.\*; Johannesen, Katharine: **RECRYSTALLIZED OLIVINE GRAIN SIZE SHOWING TECTONIC EMPLACEMENT HISTORY OF ULTRAMAFIC ROCKS IN THE BLUE RIDGE MOUNTAINS OF WESTERN NORTH CAROLINA**
- 139-7 443 Johannesen, Katharine\*; Kaufman, Sierra V.; Ianno, Adam J.: **DIFFERENTIAL DEFORMATION AND METAMORPHISM IN ULTRAMAFIC BODIES OF THE BLUE RIDGE MOUNTAINS, NC**

SESSION NO. 140

**GSA Special Nepal (Gorkha) Earthquake Session (Posters) (GSA Quaternary Geology and Geomorphology Division; GSA International; GSA Geology and Society Division; GSA Structural Geology and Tectonics Division; The Geological Society of America)**

9:00 AM, Baltimore Convention Center, Exhibit Hall

Authors will be present from 4:30 to 6:30 PM

Booth #

- 140-1 444 Brown, Larry\*; Behera, Laxmidar; Hubbard, Judith; Karplus, Marianne; Klemperer, Simon: **SEISMIC REFLECTION IMAGING OF THE HIMALAYAN SEISMOGENIC ZONE: PAST EXPERIENCE AND FUTURE STRATEGIES**
- 140-2 445 Poudel, Durga D.\*: **DEVELOPMENT OF NEPAL AGRO-INDUSTRIAL INFORMATION SYSTEM (NAIS): THE FIRST-STEP IN REBUILDING GORKHA EARTHQUAKE DEVASTATED RURAL NEPAL**
- 140-3 446 Wang, Fawu\*; Miyajima, Masakatsu; Dahal, Ranjan; Li, Tonglu: **THE EFFECT OF LANDSLIDE AND GEOLOGICAL STRUCTURE ON THE BUILDING DAMAGES CAUSED BY THE 2015.4.25 MW7.8 GORKHA EARTHQUAKE, NEPAL, AND THE KALIGANDAKI LANDSLIDE DAM**

SESSION NO. 141

**T1. Bridging Two Continents (Posters): Active Intracontinental Tectonics in Asia and North America and the Associated Geohazards**

9:00 AM, Baltimore Convention Center, Exhibit Hall

Authors will be present from 4:30 to 6:30 PM

Booth #

- 141-1 447 Daniel, Timothy\*; O'Shea, Thomas; Langille, Jackie; Blisniuk, Kim; Lee, Jeff: **CONSTRAINTS ON THE MAGNITUDE OF QUATERNARY OFFSET ALONG THE DEXTRAL BENTON SPRINGS FAULT, CENTRAL WALKER LANE, NEVADA**
- 141-2 448 Carena, Sara\*; Verdecchia, Alessandro: **COULOMB STRESS AND EARTHQUAKE PATTERNS IN DIFFUSE PLATE BOUNDARY REGIONS: AN EXAMPLE FROM WESTERN NEVADA AND EASTERN CALIFORNIA, USA**
- 141-3 449 Cunningham, Dickson\*; Zhang, Jin; Li, Yanfeng: **LATE CENOZOIC STRUCTURAL EVOLUTION OF THE SANWEISHAN AND NANJIESHAN, WESTERN CHINA: SINISTRAL TRANSPRESSIONAL REACTIVATION OF ARCHEAN BASEMENT DIRECTLY NORTH OF THE ALTYN TAGH FAULT ALONG TIBET'S EVOLVING NORTHERN BOUNDARY**
- 141-4 450 Elison, Liesl M.\*; Gilbert, Hersh; Chen, Chen; Yang, Xiaotao; Pavlis, Gary L.; Hamburger, Michael W.; Marshak, Stephen; Larson, Timothy: **INSIGHTS INTO THE WABASH VALLEY SEISMIC ZONE AND SURROUNDING REGIONS REVEALED BY THE OIINK SEISMIC DEPLOYMENT**

SESSION NO. 142

**T2. Bridging Two Continents (Posters): Advances in Crustal Subduction and Ultrahigh-Pressure Metamorphism (GSA Structural Geology and Tectonics Division; Mineralogical Society of America; GSA Mineralogy, Geochemistry, Petrology, and Volcanology Division; Geochemical Society)**

9:00 AM, Baltimore Convention Center, Exhibit Hall

Authors will be present from 4:30 to 6:30 PM

Booth #

- 142-1 451 Young, David J.\*: **SUPERSTRUCTURE OF THE WESTERN GNEISS REGION, NORWAY: A NEW PARADIGM FOR GIANT ULTRAHIGH-PRESSURE TERRANES?**
- 142-2 452 Wang, Chunguang\*; Liang, Yan; Xu, Wenliang: **FORMATIONS OF AMPHIBOLE-GABBRO AND AMPHIBOLE-BEARING PERIDOTITE THROUGH HYDROUS MELT-PERIDOTITE REACTION AND IN SITU CRYSTALLIZATION: AN EXPERIMENTAL STUDY**
- 142-3 453 Fitzgerald, Paul G.\*; Baldwin, Suzanne L.; Bermúdez, Mauricio A.; Webb, Laura E.; Little, Tim; Malusa, Marco G.; Miller, Scott R.; Seward, Diane: **CONSTRAINTS FROM LOW TEMPERATURE THERMOCHRONOLOGY ON EXHUMATION OF (U)HP TERRANES: THE EASTERN PAPUAN NEW GUINEA EXAMPLE**
- 142-4 454 Wang, Da\*; Vervoort, Jeffrey D.; Cao, Hui; Li, Guangxu: **GARNET SM-ND AND LU-HF GEOCHRONOLOGY OF ECLOGITES FROM WEIHAI, SULU UHP TERRANE, EASTERN CHINA**
- 142-5 455 Mattinson, Chris G.\*; Yoshida, Kenta; Hirajima, Takao; Kawakami, Tetsuo; Zhang, J.X.: **GARNET-HOSTED MULTIPHASE INCLUSIONS REFLECT FLUID COMPOSITIONS DURING SYN-EXHUMATION GARNET GROWTH, DULAN REGION, NORTH Q Aidam UHP TERRANE, WESTERN CHINA**
- 142-6 456 Liu, Penglei\*; Zhang, Junfeng: **POLYPHASE SOLID INCLUSIONS IN GARNET: INDICATOR OF MELT INFILTRATION OF EARLIER MINERAL INCLUSIONS**
- 142-7 457 Majka, Jaroslaw\*; Klonowska, Iwona; Kosminska, Karolina: **UHP KYANITE-BEARING ECLOGITE FROM MIEDZYGORZE IN THE WEST SUDETES (BOHEMIAN MASSIF) REVISITED**
- 142-8 458 Stüwe, Kurt\*; Schorn, Simon: **THE PLANKOGEL DETACHMENT OF THE EASTERN ALPS: PETROLOGICAL EVIDENCE FOR AN OROGEN-SCALE EXTRACTION FAULT**
- 142-9 459 Zhang, Long\*; Zheng, Yong-Fei; Chen, Ren-Xu: **ZIRCONOLOGICAL CONSTRAINTS ON THE TECTONIC TRANSITION FROM OCEANIC SUBDUCTION TO CONTINENTAL COLLISION IN THE UHP NORTH Q Aidam OROGEN, NORTHERN TIBET**
- 142-10 460 Meyer, Jake M.\*; Mattinson, Chris G.; Zhang, J.X.: **FLUID RELEASE AND POSSIBLE YO-YO SUBDUCTION RECORDED BY ECLOGITE, NORTH Q Aidam UHP TERRANE, WESTERN CHINA**
- 142-11 461 Dai, Li-Qun\*; Zheng, Yong-Fei; Zhao, Zi-Fu: **RECYCLING OF NOBLE GASES BY CONTINENTAL DEEP SUBDUCTION**
- 142-12 462 Petroff, Matthew J.\*; Schwarzenbach, Esther M.; Caddick, Mark J.; Gill, Benjamin C.: **SYROS, GREECE: A GEOCHEMICAL WINDOW INTO SUBDUCTION ZONE PROCESSES**
- 142-13 463 Zhang, Jiawei\*; Huang, Zhilong; Luo, Taiyi; Dai, Chuangu; Zhang, Hui: **ORIGIN OF THE MIDDLE TRIASSIC GEJIU-KAIYUAN BASALTS IN WESTERN YANGTZE BLOCK AND THEIR GENETIC ASSOCIATION WITH THE EMEISHAN LARGE IGNEOUS PROVINCE MAGMATISM AND PALEO-TETHYS SUBDUCTION**

SESSION NO. 143

**T6. Bridging Two Continents: Mid-Latitude Climate during Cretaceous Greenhouse States: Comparison between East Asia and North America (Posters)**

9:00 AM, Baltimore Convention Center, Exhibit Hall

Authors will be present from 4:30 to 6:30 PM

## Booth #

- 143-1 464 Wu, Huaichun\*; Zhang, Shihong; Hinnov, Linda; Jiang, Ganqing; Wang, Chengshan; Wan, Xiaoqiao: **CYCLOSTRATIGRAPHY AND ORBITAL TUNING OF THE TERRESTRIAL UPPER TURONIAN–LOWER DANIAN IN SONGLIAO BASIN, NORTHEASTERN CHINA**
- 143-2 465 Bai, Jingjing\*; Huang, Yongjian: **FRAMBOIDAL AND DISSEMINATED PYRITE IN THE UPPER CRETACEOUS SEDIMENTARY ROCKS AT SONGLIAO BASIN: EVIDENCE FOR THE REDOX FLUCTUATION FROM THE UNIT 1 OF NENJIANG FORMATION**
- 143-3 466 Parker, Amanda L.\*; Leckie, R. Mark; Sageman, Bradley B.; Jones, Matthew M.; Bralower, Timothy J.; Oakes, Rosie: **THE ONSET OF OCEANIC ANOXIA EVENT 2 (~94 MA) IN THE U.S. WESTERN INTERIOR SEA: FORAMINIFERAL RESPONSE TO THE DEVELOPMENT OF ANOXIA IN A SHALLOW EPICONTINENTAL SEA**
- 143-4 467 Olsen, Paul E.\*; Sha, Jingeng; Kinney, Sean T.; Hemming, Sidney R.; Rasbury, Troy; Jaret, Steven J.: **GEOCHRONOLOGY AND ASTROCHRONOLOGY OF MID- TO HIGH-LATITUDE MESOZOIC CONTINENTAL SYSTEMS OF CHINA AND LOW-LATITUDE NORTH AMERICA**

## SESSION NO. 144

**T215. Novel Methods, Applications, and Data Interpretations in Thermochronology (Posters) (Geochemical Society; GSA Structural Geology and Tectonics Division; GSA Geoinformatics Division; GSA Mineralogy, Geochemistry, Petrology, and Volcanology Division)**

9:00 AM, Baltimore Convention Center, Exhibit Hall

Authors will be present from 4:30 to 6:30 PM

## Booth #

- 144-1 468 Rak, Adam J.\*; McQuarrie, Nadine: **BASIN EVOLUTION AND ITS EFFECTS ON PREDICTED FORELAND BASIN THERMOCHRONOMETERS USING SEQUENTIAL FORWARD KINEMATIC AND THERMAL MODELS OF THE NORTHERN BOLIVIAN ANDES**
- 144-2 469 McKeon, Ryan E.\*; Farley, Kenneth A.: **EXPLORING MDD BEHAVIOR IN HEMATITE: WHAT CAUSES IT AND WHAT CAN WE DO WITH IT**
- 144-3 470 Channer, Michael A.\*; Ault, Alexis K.; Reiners, Peter W.; Shuster, David L.: **(U-TH)/HE AND <sup>4</sup>HE/<sup>3</sup>HE CONSTRAINTS ON SECONDARY FE-OXIDE MINERALIZATION IN SOUTHWESTERN NEW MEXICO**
- 144-4 471 Haviv, Itai\*; Vaks, Anton; Mason, Andrew; Bar-Matthews, Mira; Frumkin, Amos; Ayalon, Avner: **(U-TH)/HE GEOCHRONOLOGY OF SPELEOTHEMS: COLD-CLIMATE FULL RETENTIVITY ACROSS GEOLOGIC TIMESCALES (10<sup>4</sup>-10<sup>7</sup> YR)**
- 144-5 472 Butler, Victoria Lynn\*; Roberge, Wayne G.; Watson, E. Bruce; Tailby, Nick D.; Ackerson, Mike R.: **CLUSTER ANALYSIS: A NEW TOOL FOR DETERMINING SEDIMENT PROVENANCE**
- 144-6 473 Baughman, Jaclyn S.\*; Flowers, Rebecca M.; Dhansay, Taufeeq; Metcalf, James R.; Stoner, Ryan: **INFLUENCE OF RADIATION DAMAGE ON TITANITE (U-TH)/HE DATES FROM THE KAAPVAAL CRATON, SOUTHERN AFRICA**
- 144-7 474 Weisberg, Wesley R.\*; Metcalf, James R.; Flowers, Rebecca M.; Donelick, Ray: **MULTI-MINERAL (U-TH)/HE THERMOCHRONOMETRY OF THE STANDARD BOULDER AND OUTCROPS OF THE MCCLURE MOUNTAIN SYENITE, WET MOUNTAINS, COLORADO**
- 144-8 475 Piccione, Gavin G.\*; Pi Puig, Teresa; Rasbury, Troy; Sole Vinas, Jesus: **CONCORDANT U-PB AND (U-TH)/HE FLUORITE AGES FROM THE TAXCO MINING DISTRICT, MEXICO**

## SESSION NO. 145

**T219. Intraplate and Divergent Boundary Volcanism: A Tribute to the Distinguished Career of David Clague (Posters) (GSA Mineralogy, Geochemistry, Petrology, and Volcanology Division; Geochemical Society; Mineralogical Society of America; Marine/Coastal Science Discipline)**

9:00 AM, Baltimore Convention Center, Exhibit Hall

Authors will be present from 4:30 to 6:30 PM

## Booth #

- 145-1 476 Bohron, Wendy A.\*; Spera, Frank J.; Schmidt, Jason S.: **CRUSTAL VS. MANTLE CONTRIBUTIONS TO MAGMA COMPOSITIONAL DIVERSITY: NEW INSIGHT THROUGH APPLICATION OF MASS- AND ENERGY-CONSTRAINED THERMODYNAMIC MODELS**
- 145-2 477 Huang, Shichun\*; Humayun, Munir: **PETROGENESIS OF HIGH-CAO LAVAS FROM MAUNA KEA, HAWAII: CONSTRAINTS FROM TRACE ELEMENT ABUNDANCES**
- 145-3 478 Hudak, Michael R.\*; Feineman, Maureen; Agostini, Samuele; LaFemina, Peter: **A LEAKY TRANSFORM IN SOUTHERN ICELAND? OIB-LIKE MAGMA ON THE REYKJANES PENINSULA**
- 145-4 479 Dreyer, Brian M.\*; Gill, James B.; Clague, David A.: **CLOSED SYSTEM BEHAVIOR IN MAGMA BATCHES FROM AN INTERMEDIATE SPREADING MID-OCEAN RIDGE SEGMENT: ENDEAVOUR, JUAN DE FUCA RIDGE**
- 145-5 480 Portner, Ryan A.\*; Dreyer, Brian; Clague, David A.; Spelz, Ronald; Lowenstern, Jake; Paduan, Jennifer; Carey, Steven: **RHYOLITE ERUPTION ON A MID-OCEAN RIDGE: ALARCON RISE, GULF OF CALIFORNIA**
- 145-6 481 Kauahikaua, Jim\*; Campbell, John Frisbee; Clague, David A.: **OFFSHORE EXTENTS OF HOLOCENE HAWAIIAN LAVA FLOWS**
- 145-7 482 Zierenberg, Robert\*; Clague, David A.; Paduan, Jennifer Brophy; Caress, David W.: **NEW MAPS FOCUS 30-ODD YEARS OF INVESTIGATION OF THE ESCANABA TROUGH SPREADING CENTER**
- 145-8 483 Greaney, Allison T.\*; Rudnick, Roberta L.; Helz, Rosalind T.; Gaschnig, Richard M.; Piccoli, Philip M.; Ash, Richard: **THE BEHAVIOR OF CHALCOPHILE AND SIDEROPHILE ELEMENTS DURING MAGMATIC DIFFERENTIATION AS OBSERVED IN KILAUEA IKI LAVA LAKE, HAWAII**
- 145-9 484 Paduan, Jennifer Brophy\*; Clague, David A.; Caress, David W.; Dreyer, Brian; Portner, Ryan A.; Martin, Julie Fero; Chadwick, William W.: **HIGH-RESOLUTION MAPPING AND SAMPLING OF HISTORIC FLOWS ON THE JUAN DE FUCA AND GORDA RIDGES**
- 145-10 485 Caress, David W.\*; Clague, David A.; Paduan, Jennifer Brophy; Thomas, Hans: **VERTICAL DEFORMATION OF THE AXIAL SEAMOUNT SUMMIT FROM REPEATED 1-M SCALE BATHYMETRY SURVEYS WITH THE MBARI MAPPING AUV**
- 145-11 486 Townsend, Meredith Rose\*; Pollard, David D.: **JOINTING AROUND MAGMATIC DIKES AS A PRECURSOR TO THE DEVELOPMENT OF VOLCANIC PLUGS**
- 145-12 487 Li, Xiaowei\*; Li, Jie; Bader, Thomas; Mo, Xuanxue; Scheltens, Mark; Chen, Zhenyu; Xu, Jifeng; Yu, Xuehui; Huang, Xiongfei: **EVIDENCE FOR CRUSTAL CONTAMINATION IN INTRA-CONTINENTAL OIB-LIKE BASALTS FROM WEST QINLING, CENTRAL CHINA: A RE-OS PERSPECTIVE**
- 145-13 488 Park, Kye-Hun\*; Song, Yong-Sun; Chun, Jong-Hwa: **SR, ND AND PB ISOTOPIC COMPOSITIONS OF THE CENOZIC ALKALI BASALTS OF THE ULLEUNG-DO AND DOK-DO IN THE SEA OF KOREA: COMPARISON WITH THE DELAMINATED CONTINENTAL LITHOSPHERIC MANTLE OF EAST ASIA**
- 145-14 489 Brueseke, Matthew E.\*; Downey, Anna C.; Dodd, Zachary C.; Hart, William K.: **GEOCHEMICAL AND SR-ND-PB ISOTOPE CONSTRAINTS ON CENOZOIC BASALTIC VOLCANISM IN THE UPPER WIND RIVER BASIN, WYOMING, USA**

SESSION NO. 145

- 145-15 490 Whyte, Colin\*; Karlstrom, Karl E.; Crossey, Laura J.; Poreda, Robert; Van Wagenen, Brittany; Darrah, Thomas H.: **HELIUM ISOTOPE GEOCHEMISTRY ACROSS THE CONTINENTAL U.S. LINKED TO MANTLE TOMOGRAPHIC IMAGES**
- 145-16 491 Perez Romero, Velveth\*; Porter, Ryan C.; Riggs, Nancy R.: **SEISMIC INVESTIGATION OF THE SAN FRANCISCO VOLCANIC FIELD**

**AFTERNOON ORAL  
TECHNICAL SESSIONS**

SESSION NO. 146

***T7. Bridging Two Continents: New Insights into the Mechanisms of Continental Deformation from Sinoprobe Deep Seismic Reflection Profiling And Receiver-Function Studies Of The Lithosphere***

1:30 PM, Baltimore Convention Center, Room 347/348

Shuwen Dong and Larry Brown, Presiding

- 146-1 1:30 PM Xu, Xiao\*; Gao, Rui; Wang, Haiyan; Guo, Xiaoyu; Li, Wenhui; Xiong, Xiaosong; Keller, G. Randy; Liu, Mian; Yin, An; Encarnacion, John: **SINO-US COOPERATION ON DEEP SEISMIC REFLECTION/REFRACTION STUDIES AND EDUCATION FOCUSED ON CONTINENTAL TECTONICS: RESULTS OF COOPERATION ON THE LONGMEN SHAN AND LIUPAN SHAN IN THE EASTERN AND NORTHEASTERN MARGINS OF TIBETAN PLATEAU**
- 146-2 1:45 PM Dong, Shu-Wen\*; Li, Ting-Dong; Gao, Rui; Lv, Qing-Tian; Chen, Xuan-Hua; SinoProbe, Team: **WHAT HAS THE SINOPROBE DECODED FOR THE LITHOSPHERE OF THE CONTINENTAL CHINA FROM DEEP SEISMIC REFLECTION PROFILING?**
- 146-3 2:00 PM Keller, G. Randy\*; Xu, Xiao; Gao, Rui; Guo, Xiaoyu; Zhu, Xiaosan: **AN INTEGRATED GEOPHYSICAL AND GEODYNAMIC STUDY OF THE STRUCTURE AND EVOLUTION OF THE LONGMENSAN REGION, EASTERN TIBET**
- 146-4 2:15 PM Dong, Shuwen\*; Zhang, Yueqiao; Zhang, Fuqin; Cui, Jianjun; Chen, Xuanhua; Zhang, Shuanhong; Miao, Laicheng; Li, Jianhua; Shi, Wei; Li, Zhenhong: **THE COMPARISON OF THE OROGENIC PROCESSES IN THE CIRCUM-PACIFIC AREA DURING JURASSIC-CRETACEOUS PERIOD**

SESSION NO. 147

***Quaternary Geology: Melting Ice, Sea-Level Change, and New Insights into Old Geomorphic Paradigms***

1:30 PM, Baltimore Convention Center, Room 319/320

Ben Edwards and John R. Giardino, Presiding

- 147-1 1:30 PM Kochtitzky, William\*; Edwards, Ben; Mariño, Jersey; Manrique, Nelida: **TROPICAL ICE-CAP FOUND TO BE MELTING SLOWER, THE CASE OF NEVADO COROPUNA VOLCANIC COMPLEX SOUTHERN PERU**
- 147-2 1:45 PM Edwards, Ben\*; Kochtitzky, William: **ASSESSING THE GLOBAL POTENTIAL FOR VOLCANO-GLACIER INTERACTIONS**
- 147-3 2:00 PM Malone, Andrew G.O.\*: **CLIMATE DRIVERS OF EQUILIBRIUM LINE ALTITUDE CHANGES AT 4 LOW-LATITUDE ANDEAN GLACIERS FROM 1980 TO 2010: DIFFERENT DRIVERS, BUT LIKELY CONTINUED RETREAT IN A WARMING WORLD**
- 147-4 2:15 PM Shukla, Anil D.\*; Juyal, Navin: **GEOCHEMICAL FINGER PRINTING OF THE LATE QUATERNARY VALLEY-FILL DEPOSITS IN THE ALAKNANDA VALLEY, CENTRAL HIMALAYA, INDIA**

- 147-5 2:30 PM O'Neal, Michael\*; Meglioli, Andres; Schreiber, Erika: **MODELING THE DISTRIBUTION OF MOUNTAIN PERMAFROST IN THE CENTRAL ANDES, SAN JUAN, ARGENTINA**
- 147-6 2:45 PM Molnia, Bruce F.\*: **USING REPEAT PHOTOGRAPHY TO DOCUMENT DECADAL TO CENTURY SCALE GLACIER AND LANDSCAPE CHANGE - ALASKA**
- 147-7 3:00 PM Figueiredo, Salette Amaral\*: **RISK-BASED FORECASTS OF COASTAL RESPONSE TO SEA LEVEL RISE IN SOUTHERN BRAZIL**
- 147-8 3:15 PM Schmelz, William J.\*; Spahn, Andrea; Ames, Katherine; Greenberg, Joshua; Beal, Irina; Psuty, Norbert P.: **INTERACTIONS OF SEDIMENT SUPPLY AND COASTAL TOPOGRAPHY AT SANDY HOOK, NEW JERSEY. (GATEWAY NATIONAL RECREATION AREA)**
- 147-9 3:30 PM Schmelz, William J.\*; Silveira, Tanya M.; Beal, Irina; Greenberg, Joshua; Spahn, Andrea; Ames, Katherine; Psuty, Norbert P.: **TRENDS OF DUNE CREST DISPLACEMENT 1976-2012, FIRE ISLAND, NEW YORK**
- 3:45 PM **BREAK**
- 147-10 4:00 PM Davias, Michael\*: **THEY DON'T BUILD 'EM LIKE THEY USED TO; EXAMINING LIDAR OF MODIFIED COSTAL TERRACE SURFACES SHOWS THE CAROLINA BAY LANDFORM TO BE ROBUST WHEN THREATENED WITH ALTERATION BY GRADUALISTIC PROCESSES**
- 147-11 4:15 PM Wiemann, Michael C.\*; Jacobs, Bonnie F.; Pan, Aaron D.; Kappelman, John: **FOSSIL FORESTS OF CHILGA, ETHIOPIA**
- 147-12 4:30 PM Williams, John W.\*; Uhen, Mark; Goring, Simon; Ashworth, Allan C.; Bills, Brian; Blois, Jessica; Charles, Don; Graham, Russell W.; Smith, Alison J.; Grimm, Eric: **COMMUNITY-SUPPORTED DATA REPOSITORIES IN PALEOECOLOGY AND PALEOCLIMATOLOGY: THE 'MIDDLE TAIL' BETWEEN GEOSCIENTIFIC USERS AND GEOINFORMATICS**
- 147-13 4:45 PM Kelkar, Kaytan\*; Giardino, John R.: **MASS MOVEMENT VULNERABILITY IN THE SAN JUAN MOUNTAINS, COLORADO: A PILOT 3-D MAPPING APPROACH**
- 147-14 5:00 PM Sevon, W.D.\*: **ORIENTATION OF BLUE MOUNTAIN IN PENNSYLVANIA: EFFECT ON CREATION OF COLLUVIUM**
- 147-15 5:15 PM Shoemaker, Kurt A.\*; Erjavec, James: **EARLY IMPOUNDMENT HISTORY OF PLEISTOCENE LAKE TIGHT: NEW INSIGHTS FROM SUBSURFACE STUDY OF THE TEAYS FORMATION, PIKE COUNTY, OHIO**

SESSION NO. 148

***P2. Savor the Cryosphere (GSA Quaternary Geology and Geomorphology Division; GSA Environmental and Engineering Geology Division; The Extreme Ice Survey; Earth Vision Institute)***

1:30 PM, Baltimore Convention Center, Room 327/328/329

Patrick Burkhart, Greg Baker and Paul Baldauf, Presiding

- 1:30 PM **INTRODUCTORY REMARKS**
- 148-1 1:35 PM Alley, Richard B.\*: **POLAR ICE AND SEA LEVEL: INSIGHTS AND UNCERTAINTIES**
- 148-2 2:20 PM Thompson, Lonnie G.\*: **THE CLIMATIC CHANGES RESPONSIBLE FOR THE DISAPPEARANCE OF TROPICAL MOUNTAIN GLACIERS AND THE SOCIETAL CONSEQUENCES**
- 148-3 3:05 PM Balog, James D.\*: **THE EXTREME ICE SURVEY, A PHOTOGRAPHIC STUDY OF GLACIAL RETREAT**
- 3:35 PM **CHASING ICE**
- 4:55 PM **QUESTIONS & ANSWERS**

## SESSION NO. 149

**T3. Bridging Two Continents: Comparative Studies of Accretionary Orogenesis in the Central Asian Orogenic Belt, North American Cordillera, and Other Orogenic Belts II (GSA Structural Geology and Tectonics Division; GSA Mineralogy, Geochemistry, Petrology, and Volcanology Division)**

1:30 PM, Baltimore Convention Center, Room 349/350

John Wakabayashi, Wenjiao Xiao and Laura E. Webb, Presiding

- 1:30 PM **INTRODUCTORY REMARKS**
- 149-1 1:35 PM Sigloch, Karin\*; Mihalynuk, Mitchell G.: **TOMOGRAPHIC EVIDENCE FOR CONTINENTAL-SCALE SUTURING IN NORTH AMERICA – A METHODOLOGY FOR OROGENS GLOBALLY**
- 149-2 1:55 PM Wakabayashi, John\*: **VARIETY OF OROGENIC ULTRAMAFIC BODY INTERNAL CHARACTER AND CONTACT RELATIONSHIPS REFLECTS DIVERSE EMPLACEMENT MECHANISMS**
- 149-3 2:10 PM Ferguson, Charles A.\*: **AUTO-SUBDUCTION MODEL FOR THE SEVIER-LARAMIDE (~125-50 MA) OROGENY OF WESTERN NORTH AMERICA**
- 149-4 2:25 PM Valentino, Joshua\*; Spotila, James A.; Owen, Lewis A.; Buscher, Jamie: **ROCK UPLIFT AT THE TRANSITION FROM FLAT SLAB TO NORMAL SUBDUCTION: THE KENAI RANGE, SE ALASKA**
- 149-5 2:40 PM Chapman, Alan D.\*; Jacobson, Carl E.; Ernst, W. G.; Grove, Marty; Hourigan, Jeremy; Johnston, Scott M.; Dumitru, Trevor A.; Ducea, Mihai N.: **ASSEMBLING THE WORLD'S TYPE SHALLOW SUBDUCTION COMPLEX: DETRITAL ZIRCON GEOCHRONOLOGIC CONSTRAINTS ON THE ORIGIN OF THE NACIMIENTO BLOCK, CENTRAL CALIFORNIA COAST RANGES**
- 149-6 2:55 PM Arnold, Lisa\*; Chapman, Alan D.: **THE ORIGIN OF THE NACIMIENTO BLOCK: A GEO-THERMOCHRONOLOGIC ANALYSIS**
- 3:10 PM **BREAK**
- 149-7 3:25 PM Helmstaedt, Herwart H.\*; Schulze, Daniel J.: **LOWER CRUSTAL AND MANTLE XENOLITHS OF NAVAJO DIATREMES – WITNESSES OF ACCRETIONARY TECTONICS IN THE COLORADO PLATEAU REGION**
- 149-8 3:40 PM Tufano, Brandon C.\*; Pietras, Jeffrey T.: **MODELING REGIONAL VERSUS LOCAL SUBSIDENCE IN THE CANADIAN CORDILLERAN FORELAND BASIN**
- 149-9 3:55 PM Stübner, Konstanze\*; Ratschbacher, Lothar; Rutte, Daniel: **EXHUMATION PROCESSES IN HIGH MOUNTAINS: GNEISS DOME FORMATION AND EROSION IN THE PAMIRS**
- 149-10 4:10 PM Herrington, Richard J.\*; Hollis, Steven; Cooper, Mark; Stobbs, Iain; Rushton, Adrian; Jeffries, Teresa: **AGE AND GEOCHEMISTRY OF THE CHARLESTOWN GROUP, IRELAND: IMPLICATIONS FOR THE GRAMPIAN-TACONIC OROGENY AND REGIONAL MINERAL POTENTIAL**

## SESSION NO. 150

**T10. Frontiers in Geoarchaeology (GSA Archaeological Geology Division; GSA Quaternary Geology and Geomorphology Division)**

1:30 PM, Baltimore Convention Center, Room 318

Laura R. Murphy and Justin A. Holcomb, Presiding

- 1:30 PM **INTRODUCTORY REMARKS**
- 150-1 1:35 PM Cordova, Carlos E.\*: **THE AMERICAS BEFORE US: GEOARCHAEOLOGICAL CAPABILITIES FOR STUDYING A CONTINENT WITH AND WITHOUT HUMANS**
- 150-2 1:50 PM Fadem, Cynthia M.\*: **TOWARDS A GEOARCHAEOLOGICAL THEORY**
- 150-3 2:05 PM Herrmann, Edward W.\*; Wilson, Jeremy J.; Monaghan, G. William; Pike, Mathew: **THE PEDAGOGY OF**

**GEOARCHAEOLOGY: INTEGRATING THEORY WITH PRACTICE IN UNDERGRADUATE LEARNING EXPERIENCES**

- 150-4 2:20 PM Mandel, Rolfe\*: **THE APPLICATION OF GEOSCIENTIFIC METHODS AND THEORIES IN THE SEARCH FOR PRE-CLOVIS SITES: LESSONS FROM THE GREAT PLAINS**
- 150-5 2:40 PM Murphy, Laura R.\*: **TOWARD A QUANTITATIVE LANDSCAPE GEOARCHAEOLOGY: IMPLICATIONS FOR HUNTER-GATHERER LAND-USE INTENSIFICATION AND POPULATIONS**
- 150-6 2:55 PM White, Adam\*; Lorenzi, Varenka; Stevens, Lora: **FECAL STEROL BIOMARKERS AS INDICATORS OF POPULATION CHANGE: AN EXAMPLE FROM THE CAHOKIA ARCHAEOLOGICAL COMPLEX, MADISON COUNTY, ILLINOIS**
- 150-7 3:10 PM Kajtez, Irina\*; Milosevic, Stefan: **GIS APPROACH TOWARDS A METHODOLOGY FOR IDENTIFYING DISTRIBUTION AND VISIBILITY OF OPEN-AIR PALAEO-LITHIC SITES: CASE STUDY OF ZAPADNA MORAVA (SERBIA) RIVER VALLEY**
- 3:25 PM **BREAK**
- 150-8 3:40 PM Nicoll, Kathleen\*: **SURVEYING THE PAST THROUGH MODERN MEANS: WHERE WE AT? WITH GIS, LIDAR AND "THE INTERNET"**
- 150-9 4:00 PM de Smet, Il, Timothy S.\*: **ADVANCES IN ARCHAEOLOGICAL GEOPHYSICS**
- 150-10 4:15 PM Kysar Mattiotti, Giuseppina\*; Placidi, Marco; Perroni, Mara Gallia; Paolucci, Riccardo; Quinti, Simone; Mele, Angelo: **A NEW METHODOLOGICAL APPROACH TO THE STUDY OF UNDERGROUND ARCHAEOLOGICAL SITES IN THE URBAN CONTEXT: CASE STUDIES FROM ROME, ITALY**
- 150-11 4:30 PM Holcomb, Justin A.\*; Sawyer, Alicia: **QUANTIFYING CONTEXT: INTEGRATING PXRF CHEMOSTRATIGRAPHY AND THIN-SECTION MICROMORPHOLOGY AT SKAGAFJÖRÐUR, NORTHERN ICELAND**
- 150-12 4:45 PM Fallu, Daniel J.\*: **EARTHQUAKES, LANDSLIDES AND THE PERFECT STORM: GEOARCHAEOLOGY OF COMPLEX LANDSCAPE INTERACTIONS AT MYCENAE, GREECE, 3.2 KA–2.8 KA**
- 150-13 5:00 PM Patania, Ilaria\*; Goldberg, Paul; Wu, Xiaohong; Chi, Zhang; Bar-Yosef, Ofer; Cohen, David: **MICROMORPHOLOGICAL ANALYSIS OF THE LATE UPPER PALAEO-LITHIC LAYERS OF XIANRENDONG CAVE**
- 150-14 5:15 PM Huska, Andrea\*; Powell, Wayne; Mathur, Ryan; Bankoff, H. Arthur; Filipovic, Vojislav; Bulatovic, Aleksander: **ISOTOPICALLY PROVENANCING TIN IN BRONZE ARTIFACTS, CENTRAL BALKANS**

## SESSION NO. 151

**T13. Geologic Energy Research I (GSA Energy Geology Division; GSA Environmental and Engineering Geology Division)**

1:30 PM, Baltimore Convention Center, Room 321

Brett J. Valentine, J. Fred McLaughlin and Marc L. Buursink, Presiding

- 1:30 PM **INTRODUCTORY REMARKS**
- 151-1 1:35 PM Kolker, Allan\*; Hower, James C.; Senior, Connie; Groppo, John G.; Scott, Clint; Deonaraine, Amrika: **RARE EARTH BEARING TRACE PHASES IN COAL ASH: WHERE ARE THEY?**
- 151-2 1:50 PM Hower, James C.\*; Groppo, John G.; Honaker, Rick Q.; Eble, Cortland: **CONTRIBUTION OF THE RARE EARTH-RICH TONSTEIN TO THE CHEMISTRY OF FIRE CLAY (EASTERN KENTUCKY) COAL-DERIVED FLY ASH**
- 151-3 2:05 PM Lopano, Christina L.\*; Stuckman, Mengling, Y.; Thomas, Christine L.; Jain, Jinesh; Granite, Evan: **GEOCHEMICAL CHARACTERIZATION OF RARE EARTH ELEMENTS**

- IN COAL COMBUSTION BYPRODUCTS UTILIZING SYNCHROTRON TECHNOLOGY**
- 151-4 2:20 PM Yang, Jon\*; Torres, M. E.; Verba, Circe; Hakala, J. Alexandra: **ASSESSING THE POTENTIAL REMOBILIZATION OF RARE EARTH ELEMENTS FROM BLACK SHALE DURING HYDRAULIC FRACTURING OPERATIONS**
- 151-5 2:35 PM Ward, Colin R.\*; Kelloway, Sarah; Marjo, Christopher; Wainwright, Irene; Cohen, David: **QUANTITATIVE INORGANIC PROFILING OF COAL SEAMS USING CORE-SCANNING XRF TECHNIQUES**
- 151-6 2:50 PM Presswood, Severin\*; Rimmer, Susan M.; Anderson, Ken B.; Filiberto, Justin: **GEOCHEMICAL AND PETROGRAPHIC ALTERATION OF RAPIDLY HEATED COALS FROM THE HERRIN (NO. 6) COAL SEAM, ILLINOIS BASIN**
- 3:05 PM **BREAK**
- 151-7 3:20 PM Hill, Scott J.\*; Petersen, Erich U.; Chan, Marjorie A.: **HUMIC-ACID AND BACTERIAL CONTROL OF MINERALIZATION AT A TABULAR SANDSTONE URANIUM DEPOSIT, SAHARA MINE, UTAH**
- 151-8 3:35 PM Haynes, IV, Lewis L.\*: **ASSESSMENT OF DOWN-HOLE MEMBRANE-DIFFUSED HYDROGEN FOR STIMULATING URANIUM REDUCTION AND IMMOBILIZATION**
- 151-9 3:50 PM Potter, Christopher J.\*; Zielinski, Robert A.; Hall, Susan M.; Wales, Patrick M.; Aylor, Jr., Joseph; Beard, James: **MICROSTRUCTURAL STUDY OF CONTROLS ON URANIUM MINERALIZATION AT COLES HILL, VIRGINIA**
- 151-10 4:05 PM Cotter, Z.M.K.\*; Haagsma, A.; Conner, A.; Larsen, G.E.; Burchwell, A.; Jimenez, M.; Grove, B.; Gerst, J.; Gupta, N.: **AN OVERVIEW OF POTENTIAL CAMBRIAN AGED CO<sub>2</sub> STORAGE RESERVOIRS IN OHIO**
- 151-11 4:20 PM Grimaldi, David A.\*; Lopez, Dina L.; Magaña, Maria Ines: **DISSOLVED GASES IN THERMAL WATERS FROM THE SAN VICENTE GEOTHERMAL FIELD, EL SALVADOR**
- 151-12 4:35 PM Quillinan, Scott\*; McLaughlin, J. Fred; McLing, Travis L.: **RESERVOIR FLUID CHARACTERIZATION: KEY TO EFFECTIVE CCUS RESERVOIR ASSESSMENT**
- 151-13 4:50 PM Merrill, Matthew D.\*; Hunt, Andrew G.: **FARNHAM DOME AND GRASSY TRAILS FIELDS, UTAH - CO<sub>2</sub> ACCUMULATION SOURCES AND MIGRATION PATHS**
- 151-14 5:05 PM Buursink, Marc L.\*: **COMPARING AND CONTRASTING NATURAL CARBON DIOXIDE ACCUMULATIONS IN SOUTHERN CALIFORNIA**
- 5:20 PM **CONCLUDING REMARKS**

**SESSION NO. 152****T15. Dimension Stone and Heritage Stone: Quarries, Building Stones, Monuments, Sculpture, Utilitarian Stones, and More**

1:30 PM, Baltimore Convention Center, Room 339

Joseph T. Hannibal, Barry J. Cooper and Björn Schouenborg, Presiding

- 152-1 1:30 PM Cooper, Barry John\*: **INTERNATIONALLY SUPPORTED HERITAGE STONE DESIGNATION: A PROGRESS REPORT**
- 152-2 1:45 PM Byerly, Don\*; Knowles, Susan: **TENNESSEE MARBLE**
- 152-3 2:00 PM Piero Primavori, P.P.\*; Andrea Angheben, A.A.: **TRENTINO PORPHYRY: A NOMINATION FOR "GLOBAL HERITAGE STONE RESOURCE" FROM ITALY**
- 152-4 2:15 PM Lacombe, Pierre J.\*: **STONE SLEEPERS OF THE CAMDEN AND AMBOY RAILROAD, NEW JERSEY**
- 152-5 2:30 PM Walter, Susan M.\*: **VICTORIAN BLUESTONE: PROPOSAL FOR NOMINATION FOR A "GLOBAL HERITAGE STONE RESOURCE"**
- 152-6 2:45 PM Shaffer, Nelson R.\*: **INDIANA LIMESTONE--WORLD CLASS STONE RESOURCE**
- 152-7 3:00 PM Kamanga, Tamara Faith\*: **GETTING TO KNOW THE DIMENSION STONES OF MALAWI: A HERITAGE CONCERN**

- 152-8 3:15 PM Freire-Lista, Jr., David Martín\*; Fort, Sr., Rafael: **CADALSO DE LOS VIDRIOS LEUCOGRANITE: A CANDIDATE FOR GLOBAL HERITAGE STONE RESOURCE FROM SPAIN**
- 152-9 3:30 PM Dino, Giovanna Antonella\*; Borghi, Alessandro; Canali, Francesco; Castelli, Daniele Cesare; Cooper, Barry J.: **THE CANDOGLIA MARBLE FROM VERBANO CUSIO OSSOLA QUARRY BASIN (NORTHWESTERN ITALIAN ALPS): CHARACTERIZATION, QUARRYING EVOLUTION AND APPLICATION FOR THE MILANO CATHEDRAL CONSTRUCTION**
- 152-10 3:45 PM Meyer, Gurli B.\*; Heldal, Tom; Grenne, Tor; Willemoes-Wissing, Bjørn; Jansen, Øystein James: **PETROGRAPHY OF NORWEGIAN MILLSTONES: A TOOL FOR VISUAL IDENTIFICATION OF QUARRY SITES**
- 152-11 4:00 PM Hannibal, Joseph T.\*; Bolton, David W.: **THE STONES OF BALTIMORE: CLASSIC NINETEENTH CENTURY BUILDING AND MONUMENTAL STONES**
- 152-12 4:15 PM Piero Primavori, P.P.\*; Gabriele Vola, G.V.; Flavio Jadoul, F.J.: **ARABESCATO OROBICO: A NOMINATION FOR "GLOBAL STONE HERITAGE RESOURCE"**
- 152-13 4:30 PM Freire-Lista, Jr., David Martín\*; Fort, Sr., Rafael: **ENHANCEMENT OF HERITAGE BASED ON THE CANDIDACY OF GLOBAL HERITAGE STONE RESOURCE AND PROVINCE NOMINATION ON THE IBERIAN PENINSULA. CASE STUDY: THE PIEDRA BERROQUEÑA PROVINCE**
- 152-14 4:45 PM Aloiz, Emily\*; Grissom, Carol A.; Livingston, Richard A.: **THE RISE AND FALL OF THE SENECA SANDSTONE INDUSTRY**
- 152-15 5:00 PM Sharma, Vinod Kumar\*: **HERITAGE STONE IN INDIA**
- 152-16 5:15 PM Hamida, Diab\*: **ONYX FROM AIN SMARA (NORTH-EASTERN ALGERIA): A NATURAL STONE TO BE CONSIDERED AS A GLOBAL HERITAGE STONE**

**SESSION NO. 153****T39. Sources, Transport, Fate, and Toxicology of Trace Elements and Organics in the Environment (International Association of GeoChemistry; Geochemical Society; GSA Mineralogy, Geochemistry, Petrology, and Volcanology Division)**

1:30 PM, Baltimore Convention Center, Room 322/323

LeeAnn Munk, David T. Long and W. Berry Lyons, Presiding

- 1:30 PM **INTRODUCTORY REMARKS**
- 153-1 1:35 PM Eckstein, Yoram\*; Simonton, David S.: **COAL MINING WASTE AS SOURCE OF HEAVY METALS IN SURFACE- AND GROUND-WATER**
- 153-2 1:50 PM Harkness, Jennifer S.\*; Sulkin, Barry; Vengosh, Avner: **EVIDENCE FOR LEAKING OF TWO COAL ASH STORAGE PONDS TO LOCAL SURFACE WATER AND GROUNDWATER IN TENNESSEE**
- 153-3 2:05 PM Cravotta, III, Charles A.\*: **BROMIDE, CHLORIDE, AND ASSOCIATED BRINE CONSTITUENTS IN WATERS FROM COAL-BEARING ROCKS IN PENNSYLVANIA**
- 153-4 2:20 PM Burrows, Jill E.\*; Cravotta, III, Charles A.; Peters, Stephen C.: **ENHANCED AL AND ZN REMOVAL FROM COAL-MINE DRAINAGE DURING RAPID OXIDATION AND PRECIPITATION OF FE OXIDES AT NEAR-NEUTRAL PH**
- 153-5 2:35 PM Seal, II, Robert R.\*; Piatak, Nadine M.; Jones, Perry M.; Woodruff, Laurel G.: **PRE-MINING OXYGEN, HYDROGEN, AND SULFUR ISOTOPE CHARACTERISTICS OF SURFACE WATERS DRAINING THE MINERALIZED BASAL ZONE OF THE DULUTH COMPLEX, NORTHERN MINNESOTA**
- 153-6 2:50 PM Simonton, David Scott\*; Eckstein, Yoram: **MINING IMPACTED GROUNDWATER AS A SOURCE OF HYDROGEN SULFIDE GAS IN HOMES**
- 153-7 3:05 PM Knight, Nicole A.\*; Milke, Kyle P.; Knight, Dallan C.; Hayes, Sarah M.: **ENVIRONMENTAL RISK POTENTIAL OF**



**TELLURIUM-RICH MINE TAILINGS IN A HISTORIC MINING DISTRICT IN DELAMAR, NEVADA**

3:20 PM **BREAK**

- 153-8 3:35 PM Maest, A.S.\*; Nordstrom, D. Kirk: **A CHROMATOGRAM OF GEOCHEMICAL REACTIONS: INTERPRETING HUMIDITY CELL TESTS**
- 153-9 3:50 PM Allen, Sarah M.\*; Jackson, Joshua W.; Abbott, Morgan; Larsen, Kenneth; Cadet, Eddy; Emerman, Steven H.: **TRACE METALS IN SURFACE WATER, GROUNDWATER, STREAM SEDIMENTS, AND AGRICULTURAL SOILS OF THE NORTHERN PENINSULA OF HAITI**
- 153-10 4:05 PM Levas, Stephen J.\*; Radomile, Danielle; Goldsmith, Steven T.: **THE EFFECTS OF LAND USE ON THE BIOACCUMULATION OF HEAVY METALS IN ASIAN CLAMS: AN INDICATION OF STREAM HEALTH**
- 153-11 4:20 PM Cheng, Zhongqi\*; Paltseva, Anna; Maddaloni, Mark; Scheckel, Kirk G.: **LEAD STABILIZATION AND ARSENIC MOBILIZATION BY PHOSPHATE AND ALTERNATIVE AMENDMENTS: IMPLICATIONS ON URBAN SOIL REMEDIATION AND URBAN AGRICULTURE**
- 153-12 4:35 PM Hanley, Kaila M.\*; Waligroski, Garrett J.; Grannas, Amanda M.; Walsh, Meghan K.; Smith, Devin F.; Goldsmith, Steven T.: **EVALUATING CONTROLS ON TRICLOSAN EXPORT IN A RURAL TO SUBURBAN WATERSHED: INSIGHTS FROM THE EAST BRANCH OF THE BRANDYWINE CREEK**
- 153-13 4:50 PM Woodward, Emily E.\*; Andrews, Danielle M.; Watson, Jack E.; Williams, Clinton F.: **QUANTIFICATION OF THREE ESTROGEN HORMONES IN SOILS AND GROUND WATERS SAMPLED FROM THE PENN STATE LIVING FILTER WASTEWATER IRRIGATION SITE**
- 153-14 5:05 PM Jochum, Tobias\*; Popp, Juergen; Frosch, Torsten: **SOIL MICROBIAL RESPONSE TO BENZENE CONTAMINATION: NEW ON-SITE GAS ANALYSIS TECHNIQUE REVEALS RESPIRATION AND BIODEGRADATION KINETICS**
- 5:20 PM **CONCLUDING REMARKS**

**SESSION NO. 154**

***T61. Geophysical Solutions to Geological Problems: Current Research Results and the Annual George P. Woollard Award Presentation (GSA Geophysics Division)***

1:30 PM, Baltimore Convention Center, Room 340

Samantha E. Hansen and Nicholas C. Schmerr, Presiding

- 154-1 1:30 PM Mousa, Ahmed S.\*; Mickus, Kevin L.; Al-Rahim, Ali: **THE DEPTH TO BASEMENT IN THE WESTERN DESERT OF IRAQ FROM A POWER SPECTRUM ANALYSIS OF GRAVITY AND MAGNETIC DATA**
- 154-2 1:45 PM Jallouli, Chokri\*; Gabtni, Hakim: **A SUITABLE PROCESS FOR REGIONAL-RESIDUAL SEPARATION OF GRAVITY FIELD**
- 154-3 2:00 PM Reeve, Andrew S.\*; Slater, Lee; Comas, Xavier: **MEASURING BIOGENIC GAS EBULLITION EVENTS USING HYDRAULIC HEAD TIME SERIES DATA IN CARIBIBOU BOG, MAINE**
- 154-4 2:15 PM Terry, Neil\*; Slater, Lee; Comas, Xavier; Reeve, Andrew S.; Schäfer, Karina V. R.; Yu, Zhongjie: **THE INFLUENCE OF PRESSURE ON FREE PHASE GAS DYNAMICS IN A NORTHERN PEATLAND FROM FIELD-SCALE RESISTIVITY IMAGING**
- 154-5 2:30 PM Wright, William\*; Ramirez, Jorge; Comas, Xavier: **USING HYDROGEOLOGICAL METHODS FOR ESTIMATING RATES OF BIOGENIC GAS PRODUCTION IN PEAT SOILS OF THE FLORIDA EVERGLADES**
- 154-6 2:45 PM McClellan, Matthew D.\*; Shahan, Thomas; Sharp, Nathan; Comas, Xavier: **USING HIGH FREQUENCY GROUND PENETRATING RADAR (GPR) AT THE LABORATORY**

**SCALE TO INVESTIGATE THE SPATIAL VARIABILITY IN RELEASES OF BIOGENIC GASES FROM THREE SUBTROPICAL WETLAND ECOSYSTEMS IN CENTRAL FLORIDA**

3:00 PM **BREAK**

- 154-7 3:15 PM Roberts, Sterling\*; Matheson, Ephram C.; Natter, Daniel H.; Sutterfield, David R.; Fletcher, Andrew W.; Arnoff, Michael J.; Lawrence, Andrew C.; Emerman, Steven H.; Fellows, Steven A.: **GEOPHYSICAL AND HYDROLOGICAL SURVEY TO ASSESS THE ECONOMIC POTENTIAL OF A GOSSAN IN THE EASTERN UINTA MOUNTAINS, UTAH**
- 154-8 3:30 PM Natter, Daniel H.\*; Bushman, Paul; Butterfield, Nicholas J.; Huffaker, Bret; Murphy, Chid; Kerswell, Buchanan; Emerman, Steven H.: **GEOPHYSICAL MAPPING OF DIKES IN THE EASTERN UINTA MOUNTAINS, NORTHEASTERN UTAH**
- 154-9 3:45 PM Russo, R.M.\*; Mocanu, Victor; Stanciu, Christian; Hongsresawat, Sutatcha; Bremner, Paul; Torpey, Megan; Panning, Mark; Foster, David A.: **CRUSTAL AND UPPER MANTLE STRUCTURE AND FABRICS BENEATH EASTERN IDAHO AND WESTERN OREGON: RESULTS FROM THE IDOR PASSIVE SEISMIC PROJECT**
- 154-10 4:00 PM Burdick, Scott\*; Olugboji, Tolulope; Lekic, Vedran: **INVESTIGATING CONTINENTAL RIFTING IN THE WESTERN US WITH SEISMIC METHODS**
- 4:15 PM **BREAK**
- 4:30 PM **INTRODUCTION OF WOOLLARD SPEAKER BY DR. JOE KIRSCHVINK**
- 154-11 4:40 PM Evans, David A.D.\*: **PALEOMAGNETIC INSIGHTS ON LONG-TERM EVOLUTION OF THE CORE, MANTLE, AND SURFACE ENVIRONMENT**

**SESSION NO. 155**

***T64. Rotations, Oroclinal Bending; Variscan-Alleghenian Nondipoles; Diagenetic Enigmatic Remagnetizations; Vignettes of Orogenies and Oceans: A Celebration of Rob Van der Voo's Career (GSA Geophysics Division; GSA Structural Geology and Tectonics Division; GSA Sedimentary Geology Division)***

1:30 PM, Baltimore Convention Center, Room 338

John W. Geissman and Joseph G. Meert, Presiding

- 155-1 1:30 PM Li, Shihu\*; Deng, Chenglong; Sun, Lu; Qin, Huafeng; Zhu, Rixiang: **PRELIMINARY PALEOMAGNETIC RESULTS FROM THE CENOZOIC ROCKS OF INDOCHINA: EVIDENCE FOR OLIGOCENE-MIDDLE MIOCENE ROTATION OF THE SOUTHEAST TIBETAN PLATEAU**
- 155-2 1:45 PM Xu, XinXin\*; Evans, David A.D.; Panzik, Joseph E.; Linnemann, Ulf; Hofmann, Mandy; Hessert, Jenna; Hanson, R.: **PALEOMAGNETISM OF MESOPROTEROZOIC LAVAS IN THE BARBY FORMATION OF THE SINCLAIR REGION, SOUTHERN NAMIBIA**
- 155-3 2:00 PM van der Pluijm, Ben\*; Fitz-Diaz, Elisa; Nemkin, Samantha; Van der Voo, Rob: **DATING THE PALEOMAGNETIC FOLD TEST**
- 155-4 2:20 PM Nemkin, Samantha R.\*; Fitz-Diaz, Elisa; van der Pluijm, Ben; Van der Voo, Rob: **DATING SYNFOOLDING REMAGNETIZATION EVENTS IN THE CENTRAL SIERRA MADRE ORIENTAL, MEXICO**
- 155-5 2:35 PM Belica, Mercedes Elise\*; Tohver, Eric; Pisarevsky, Sergei A.; Jourdan, Fred: **THE PROBLEM WITH EAST GONDWANA; A MID-PERMIAN GLIMPSE FROM THE SYDNEY BASIN, AUSTRALIA**
- 155-6 2:50 PM Meert, Joseph G.\*: **PRECAMBRIAN VAN DER VOO: A BRIEF HISTORY**
- 155-7 3:05 PM Şengör, A.M. Celâl\*; Natal'In, Boris; Van der Voo, Rob; Sunal, Gursel: **THE EVOLUTION OF THE ALTAIDS FROM THE EDIACARAN TO THE EARLIEST CRETACEOUS: MOUNTAIN- AND CONTINENT-MAKING IN ASIA**

MONDAY

PM

SESSION NO. 155

- 155-8 3:25 PM Geissman, John W.\*; Cung, Chi; Borgfeldt, Taylor: **NEW PALEOMAGNETIC DATA FROM UPPER PERMIAN/ LOWER TRIASSIC VOLCANIC SEQUENCES AND CRETACEOUS RED BEDS FROM NORTHERN VIETNAM--THEIR BEARING ON THE ACCRETION HISTORY OF SOUTHEAST ASIA AND ORTHOGONAL DEMAGNETIZATION DIAGRAMS KNOWN AND LOVED**
- 155-9 3:40 PM Elmore, R. Douglas\*; Manning, Earl B; Steullet, Alex; Roberts, Jennifer Marie: **ORIGIN OF CHEMICAL REMAGNETIZATIONS IN SHALES**
- 155-10 3:55 PM Rowley, David B.\*; Ingalls, Miquela: **DIACHRONOUS INDIA-EURASIA COLLISION IN RELATION TO SLAB BREAK-OFF: KINEMATIC AND RECONSTRUCTION CONSTRAINTS ON THE SIZES AND SHAPES OF GREATER INDIA AND GREATER TIBET**
- 155-11 4:15 PM Yonkee, Adolph\*; Weil, Arlo Brandon: **PALEO-STRESS AND STRAIN AND VERTICAL-AXIS ROTATION PATTERNS ACROSS THE PAMPEAN FLAT-SLAB REGION**
- 155-12 4:30 PM Rowan, Christopher J.\*; Roberts, Andrew P.: **CONSTRAINING THE NEOGENE ROTATION HISTORY OF THE HIKURANGI MARGIN, NEW ZEALAND, USING COMBINED MAGNETIC FABRIC AND PALEOMAGNETIC DATA**
- 155-13 4:45 PM Cengiz Cinku, Mualla\*; Hisarli, Z. Mumtaz; Ustaómer, Timur; Keskin, Mehmet: **PALEOMAGNETIC RESULTS OF NEOGENE VOLCANIC ROCKS IN EASTERN ANATOLIA; EVIDENCE OF BLOCK ROTATIONS ALONG THE EAST AND NORTH ANATOLIAN FAULTS**

SESSION NO. 156

**T75. Field-Based Educational Research: Insights from Field Camps, Field Trips, and Field-Based Courses (GSA Geoscience Education Division; National Association of Geoscience Teachers)**

1:30 PM, Baltimore Convention Center, Room 337

Miriam Barquero-Molina, Angela Van Boening, Heather L. Petcovic and Lauren N. Holder, Presiding

- 156-1 1:30 PM Smith, Michael Sean\*; Goodwin, Charles; Mogk, David W.; Henry, Darrell J.: **CREATING THE SENSORIUM OF A GEOLOGIST: CALIBRATING PROFESSIONAL PERCEPTION THROUGH ENCOUNTERS WITH CONSEQUENTIAL OBJECTS UNDER THE GUIDANCE OF SKILLED PROFESSIONALS IN THE FIELD**
- 156-2 1:45 PM Shipley, Thomas F.\*; Atit, Kinnari R.; Weisberg, Steven M.; Gagnier, Kristin: **CHALLENGES TO REASONING AND LEARNING ABOUT 3D SPATIAL RELATIONS: BRIDGING THE GAP BETWEEN LAB-RESEARCH AND FIELD-BASED EDUCATION**
- 156-3 2:05 PM Hannula, Kimberly A.\*: **DEVELOPMENT OF PENETRATIVE THINKING SKILLS IN A SOPHOMORE FIELD COURSE AND STRUCTURAL GEOLOGY**
- 156-4 2:20 PM Petcovic, Heather L.\*; Pope, Allen; Tinigin, Laura; Ormand, Carol J.; LaDue, Nicole D.: **PIXEL: INVESTIGATING STUDENTS' CONCEPTS OF PIXELS AND SENSE OF SCALE IN THE FIELD**
- 156-5 2:35 PM Van Boening, Angela\*; Riggs, Eric M.: **FIELD HANDS: CONSTRUCTING MEANING FROM STUDENT GESTURES IN THE FIELD**
- 2:50 PM **BREAK**
- 156-6 3:05 PM Atchison, Christopher L.\*: **CHALLENGING TRADITIONAL MODELS OF FIELD-BASED INSTRUCTION IN THE GEOSCIENCES WITH INCLUSIVELY-DESIGNED STRATEGIES**
- 156-7 3:20 PM Gilley, Brett Hollis\*: **THE ROLE OF FIELDS TRIPS IN THE DEVELOPMENT OF STRONG LEARNING COMMUNITIES ON THE SEA TO SKY HIGHWAY**

- 156-8 3:35 PM Hughes, III, Richard\*: **RECRUITING AND DEVELOPING GEOSCIENCE MAJORS AT THE COMMUNITY COLLEGE LEVEL THROUGH A ROBUST FIELD CLASS PROGRAM**
- 156-9 3:50 PM Kaiser, Jason F.\*; Hogan, John; MacLean, John S.; Hargrave, Jennifer E.: **USING STUDENT-LED FIELD TRIPS TO CREATE ACTIVE LEARNING ENVIRONMENTS AND VALIDATE STUDENT INTERPRETATIONS**
- 156-10 4:05 PM Judge, Shelley A.\*; Kelley, Daniel F.; Wilson, Terry J.; Millan, Cristina; Blocher, William; Hall, Tricia L.; Royce, Karen; Darrah, Thomas H.: **PEER COMMUNICATION AND INSTRUCTION AS AN EDUCATIONAL TOOL AT THE OHIO STATE UNIVERSITY FIELD CAMP**
- 4:20 PM **BREAK**
- 156-11 4:35 PM Semken, Steven\*; Bruce, Geoffrey; Anbar, Ariel D.; Buxner, Sanlyn; Karlstrom, Karl; Crossey, Laura J.: **COMPLEMENTARY (NOT COMPARATIVE) RESEARCH ON GEOSCIENCE TEACHING AND LEARNING IN VIRTUAL AND IN-SITU FIELD ENVIRONMENTS**
- 156-12 4:55 PM Pyle, Eric J.\*; Whitmeyer, Steven J.: **PAPER OR PLASTIC?: A COMPARISON OF STUDENT MAPPING PERFORMANCE USING TRADITIONAL AND DIGITAL METHODS**
- 5:15 PM **DISCUSSION**

SESSION NO. 157

**T94. Entering Our Third Century in the Footsteps of William Smith: Status and Future of Geological Mapping (Association of American State Geologists; GSA Quaternary Geology and Geomorphology Division)**

1:30 PM, Baltimore Convention Center, Room 336

Richard C. Berg, Holger Kessler, Peter T. Lytle, Hazen A.J. Russell and Harvey Thorleifson, Presiding

- 157-1 1:30 PM Orndorff, Randall C.\*; St-Onge, M.R.: **SMALL-SCALE MAPS BRING THE WORLD TOGETHER – THE COMMISSION FOR THE GEOLOGICAL MAP OF THE WORLD (CGMW)**
- 157-2 1:50 PM Harrison, Matt\*; Robida, Francois; Komac, Marko; Duffy, T.: **ONEGEOLOGY – A SUCCESSFUL GLOBAL OPEN ACCESS MODEL FOR UP-TO-DATE GEOSCIENCE DATA USING A DISTRIBUTED DATA SYSTEM**
- 157-3 2:10 PM Soller, David R.\*; Stamm, Nancy R.: **IMPROVING ACCESS TO GEOSCIENCE INFORMATION -- THE REDESIGNED NATIONAL GEOLOGIC MAP DATABASE**
- 157-4 2:30 PM San Juan, Carma A.\*; Horton, John D.; Emsbo, Poul; Stoesser, Douglas; McLaughlin, Patrick I.: **TOWARDS AN INTEGRATED 1:500,000-SCALE DIGITAL GEOLOGIC MAP OF THE UNITED STATES—ADVANCING THE VISION OF W. SMITH**
- 157-5 2:45 PM Kavage Adams, Rebecca\*: **BUCKBOARD TO IPAD: A TRIBUTE TO SOUTH MOUNTAIN MAPPERS AND THEIR METHODS**
- 157-6 3:00 PM Baumberger, Roland\*; Kissling, Eduard; Herwegh, Marco: **DERIVATION AND VERIFICATION OF A STRUCTURAL 3D MODEL OF THE HASLITAL (AAR MASSIF, SWITZERLAND) FROM REMOTE SENSING AND FIELD DATA**
- 157-7 3:15 PM Dambrink, Roula\*; Maljers, Denise; Schokker, Jeroen; Stafleu, Jan: **TAILOR-MADE MAPS GENERATED FROM 3D GEOLOGICAL VOXEL MODELS**
- 3:30 PM **BREAK**
- 157-8 3:45 PM Brush, Jade Ashley\*; Pavlis, Terry L.; Hurtado, Jr., José M.; Knott, Jeffrey R.: **EVALUATING METHODS OF FIELD-BASED 3D VISUALIZATION AND THEIR APPLICATION TO MAPPING METAMORPHIC TERRANES: AN EXAMPLE FROM THE PANAMINT MOUNTAINS, CALIFORNIA**

- 157-9 4:00 PM Faulds, James E.\*; Hinz, Nicholas H.; Siler, Drew L.; Coolbaugh, Mark F.; Dering, Gregory; Edwards, Joel; Anderson, Ryan B.; Forson, Corina; Sadowski, Andrew J.: **DETAILED CONVENTIONAL AND INNOVATIVE 3D GEOLOGIC MAPS OF GEOTHERMAL SYSTEMS IN THE GREAT BASIN REGION, WESTERN USA: CRITICAL COST-EFFECTIVE TOOLS FOR GEOTHERMAL EXPLORATION**
- 157-10 4:15 PM MacCormack, Kelsey E.\*: **INTEGRATED MAPPING AND 3D MODELLING AT THE ALBERTA GEOLOGICAL SURVEY: COMMUNICATING COMPLEX GEOSCIENCE INFORMATION TO EVERYONE**
- 157-11 4:30 PM Pavlis, Terry L.\*; Brush, Jade; Cobb, Joshua: **PAPER MAPPING IS DEAD AND FLAT MAP GEOLOGIC ANALYSIS HAS ONE FOOT IN THE GRAVE: THE NEW REVOLUTION IN THREE DIMENSIONAL STRUCTURAL ANALYSIS USING INEXPENSIVE TERRAIN MODELS AND VISUALIZATION SOFTWARE**
- 157-12 4:45 PM Russell, Hazen A.J.\*; Bajc, Andy F.; Brunton, Frank R.; Carter, Terry; Logan, Charles E.: **TOWARD A 3-D HYDROSTRATIGRAPHIC FRAMEWORK FOR SOUTHERN ONTARIO**
- 157-13 5:00 PM Schokker, Jeroen\*; Dambrink, Roula; van Campenhout, Ignace: **URBAN-SCALE 3D SUBSURFACE MODELING OF ROTTERDAM (THE NETHERLANDS)**
- 157-14 5:15 PM Thorleifson, Harvey\*: **THE NEW GEOLOGICAL MAP OF MINNESOTA**

**SESSION NO. 158*****T98. The Great Images in Geology I (GSA History and Philosophy of Geology Division; History of Earth Sciences Society)***

1:30 PM, Baltimore Convention Center, Room 325/326

Renee M. Clary and Joanne Bourgeois, Presiding

- 158-1 1:30 PM Kardel, Troels\*: **ON DEDUCING THE UNOBSERVABLE: NICOLAUS STENO'S SEMINAL ILLUSTRATIONS IN EARTH SCIENCE AND BIOLOGY TELL ABOUT A METHOD TO DESCRIBE CONCEALED MECHANISMS AND SOLID TRANSFORMATIONS**
- 158-2 1:45 PM Luzzini, Francesco\*: **DESCRIPTION, ANALOGY, SYMBOLISM, FAITH. JESUIT SCIENCE AND ICONOGRAPHY IN THE EARLY MODERN DEBATE ON THE ORIGIN OF SPRINGS**
- 158-3 2:00 PM Taylor, Kenneth L.\*: **SUSANNA DRURY'S 'PROSPECTS' OF THE GIANT'S CAUSEWAY, NORTHERN IRELAND: VIEWS OF COLUMNAR BASALT MADE FAMOUS THROUGH ENGRAVINGS BY VIVARÈS (1743)**
- 158-4 2:15 PM Vaccari, Ezio\*: **GIOVANNI ARDUINO'S 1758 CROSS-SECTION REVISITED: A CLASSIC IMAGE FOR THE ORIGINS OF LITHOSTRATIGRAPHY**
- 158-5 2:30 PM Clary, Renee M.\*: **LYELL'S *ELEMENTS OF GEOLOGY* (1838) AND THE ORIGINS OF THE CLASSIC ROCK CYCLE DIAGRAM**
- 158-6 2:45 PM Bourgeois, Joanne\*: **MESHING ALL OF GEOLOGY WITH THE HISTORY OF LIFE: THE "SYNOPTIC VIEW OF THE LEADING PHENOMENA OF GEOLOGY\*," 1836 (WILLIAM BUCKLAND AND THOMAS WEBSTER)**
- 158-7 3:00 PM Leviton, Alan E.\*; Aldrich, Michele: **GEOLOGIC LANDSCAPES OF THE ABYSSINIAN AND INDIAN SURVEYS (1860S & 1870S) AS A CHALLENGE TO GRADUALISM**
- 3:15 PM **BREAK**
- 158-8 3:30 PM Sime, John A.\*: **THE ILLUSTRATION OF NATURE RECAST: JACOB GREEN'S MODELS OF AMERICAN TRILOBITES**
- 158-9 3:45 PM Rowland, Stephen M.\*; Davidson, Jane P.: **THE HISTORY-OF-LIFE POSTER SERIES OF AUSTRIAN ARTIST FRITZ**

**ZERRITSCH: A MID-TWENTIETH CENTURY EUROPEAN EXAMPLE OF PALEONTOLOGICAL ICONOGRAPHY**

- 158-10 4:00 PM Aalto, K.R.\*: **FERDINAND ZIRKEL (1838–1912) AND THE INTRODUCTION OF MICROSCOPICAL PETROGRAPHY TO NORTH AMERICA**
- 158-11 4:15 PM Brice, William R.\*: **A PHOTOGRAPH OF THE BEGINNING OF THE INDUSTRY THAT CHANGED THE WORLD**
- 158-12 4:30 PM Baker, Victor R.\*: **PATHOLOGICAL GEOLOGY: PERCIVAL LOWELL'S MARTIAN CANALS**

**SESSION NO. 159*****T104. Delivery of Nutrients and Contaminants by Groundwater to Estuaries and Their Watersheds (GSA Hydrogeology Division)***

1:30 PM, Baltimore Convention Center, Room 307

Ward E. Sanford, Holly A. Michael and Claire Welty, Presiding

- 159-1 1:30 PM Phillips, Scott W.\*; Sanford, Ward: **THE INFLUENCE OF GROUNDWATER ON NITROGEN DELIVERY TO THE CHESAPEAKE BAY AND IMPLICATIONS FOR WATER-QUALITY RESPONSE TO MANAGEMENT PRACTICES**
- 159-2 1:50 PM Seck, Alimatou\*; Welty, Claire: **A DISTRIBUTED INTEGRATED HYDROLOGIC MODEL OF THE CHESAPEAKE BAY WATERSHED**
- 159-3 2:05 PM Zell, Wesley O.\*; Sanford, W.E.; Culver, T. B.; Goodall, J.L.: **SIMULATING NITRATE REMOVAL MECHANISMS IN AN AGRICULTURAL CATCHMENT WITH CONTRASTING NITRATE BASE-FLOW CONCENTRATIONS IN SUBCATCHMENT STREAMS**
- 159-4 2:20 PM McKenna, Thomas E.\*: **IDENTIFYING GROUNDWATER DISCHARGE LOCATIONS IN TIDAL WETLANDS USING ENVIRONMENTAL THERMOGRAPHY IN PRIME HOOK NATIONAL WILDLIFE REFUGE, DELAWARE, USA**
- 159-5 2:35 PM Eggleston, Jack\*; Speiran, Gary; Wurster, Fred; Misut, Paul; Finkelstein, Jason: **MODELING GROUNDWATER AND SURFACE WATER DISCHARGE FROM THE GREAT DISMAL SWAMP TO MID-ATLANTIC ESTUARIES**
- 159-6 2:50 PM Speiran, Gary\*; Wurster, Fred; Eggleston, Jack: **THE GROUNDWATER GEOCHEMISTRY OF THE GREAT DISMAL SWAMP, A PEAT WETLAND DISCHARGING TO TWO MID-ATLANTIC ESTUARIES, USA**
- 159-7 3:05 PM Jordan, Thomas E.\*; Brenner, Dana C.; Fisher, Thomas R.; Gardner, John R.; Gustafson, Anne B.; Knee, Karen; Miklas, Joseph J.: **DRAINAGE DITCH WITH A VIEW: DELIVERY OF NITRATE FROM CROPLAND VIA EMERGING GROUNDWATER**
- 3:25 PM **BREAK**
- 159-8 3:40 PM Wilson, Alicia\*: **COASTAL WATERSHEDS AND BEYOND: HEAT TRACER EVIDENCE FOR GROUNDWATER-SEAWATER EXCHANGE FAR FROM SHORE**
- 159-9 4:00 PM McCoy, Kurt J.\*; Nelms, David L.: **GROUNDWATER DISCHARGE TO STREAMS IN MOUNTAINOUS REGIONS OF THE EASTERN US**
- 159-10 4:15 PM Wilusz, Daniel C.\*; Harman, Ciaran J.; Sanford, Ward E.; Ball, William P.: **A STATISTICAL APPROACH TO REGIONALIZING LUMPED PARAMETER TRANSIT TIME MODEL (LPM) PARAMETERS IN THE CHESAPEAKE BAY WATERSHED**
- 159-11 4:30 PM Allen, Joshua M.\*; Price, René M.; Whitman, Dean; Frankovich, Thomas A.; Fourqurean, James W.: **HYDROLOGIC AND NUTRIENT CONDITIONS OF ESTUARINE LAKES IN THE FLORIDA EVERGLADES**
- 159-12 4:45 PM Knights, Deon\*; Sawyer, Audrey H.; Barnes, Rebecca; Musial, Cole; Bray, Sam: **TIDAL CONTROLS ON DENITRIFICATION IN COASTAL STREAMBEDS**
- 159-13 5:00 PM Schnaar, Gregory\*; Dodge, John; Cullen, Stephen J.: **SELENIUM LOADING FROM GROUNDWATER TO NEWPORT BAY, ORANGE COUNTY, CALIFORNIA**

- 159-14 5:15 PM Geng, Xiaolong\*; Boufadel, Michel: **BIOREMEDIATION OF SUBSURFACE OIL IN A TIDALLY-INFLUENCED SAND BEACH: IMPACT OF HYDRAULICS AND INTERACTION WITH PORE WATER CHEMISTRY**

## SESSION NO. 160

**T106. From Green Roofs and Gutters to Urban Streams: Advancing Urban Watershed Hydrology through Innovative Field and Modeling Approaches (GSA Hydrogeology Division; GSA Environmental and Engineering Geology Division)**

1:30 PM, Baltimore Convention Center, Room 342

Rosemary Fanelli, Rose Smith and Karen L. Prestegard, Presiding

- 1:30 PM **INTRODUCTORY REMARKS**
- 160-1 1:35 PM Jefferson, Anne J.\*; Jarden, Kimberly; Grieser, Jenn: **RETROFITTING STORMWATER RETENTION ON HEADWATER STREETS: HYDROLOGIC EFFECTS OF CATCHMENT-SCALE GREEN INFRASTRUCTURE**
- 160-2 1:55 PM Miller, Andrew J.\*; Alt, Brian: **PAIRED-WATERSHED COMPARISONS TO ASSESS EFFECTIVENESS OF TRADITIONAL STORMWATER MANAGEMENT**
- 160-3 2:10 PM Fanelli, Rosemary\*; Prestegard, Karen L.; Palmer, Margaret: **CAN WATERSHED RESTORATION PRACTICES REVERSE THE HYDROLOGICAL EFFECTS OF URBANIZATION?**
- 160-4 2:25 PM Bell, Colin D.\*; McMillan, Sara K.; Jefferson, Anne J.; Clinton, Sandra: **HYDROLOGIC RESPONSE TO WATERSHED METRICS DESCRIBING URBAN DEVELOPMENT AND MITIGATION WITH STORMWATER CONTROL MEASURES**
- 160-5 2:40 PM Prestegard, Karen L.\*; Olsen, Christopher D.; Wood, Kelsey Lynn; Biddle, Matthew; Milne, John: **ARE GOLF COURSES INFILTRATION SITES? SEASONAL DIFFERENCES IN RUNOFF SOURCES AND RATES IN A SMALL SUBURBAN WATERSHED**
- 160-6 2:55 PM Zarella, Paul J.\*; Nyquist, Jonathan E.; Toran, Laura: **EXPLORING INFILTRATION PATTERNS IN URBAN SOILS USING GEOPHYSICS AND MICROTOPOGRAPHY**
- 160-7 3:10 PM Andino-Nolasco, Elvis J.\*; Welty, Claire: **MODELING INFILTRATION BASIN HYDROLOGY USING PARFLOW. CLM**
- 3:25 PM **BREAK**
- 160-8 3:40 PM Noe, Gregory B.\*; Hupp, Cliff R.; McMillan, Sara K.: **WATER QUALITY FUNCTIONS OF NATURAL AND RESTORED FLOODPLAINS IN URBAN WATERSHEDS**
- 160-9 4:00 PM Lindner, Garth\*; Miller, Andrew: **HOW DOES STREAM RESTORATION AFFECT FLOODWAVE PROPAGATION IN URBAN CHANNELS?**
- 160-10 4:15 PM Lundberg, Dorothea June\*; Prestegard, Karen L.: **SEASONAL VARIATION IN SURFACE-GROUNDWATER EXCHANGES IN AN URBAN FLOODPLAIN WITH ACTIVE GRAVEL-BAR FORMATION**
- 160-11 4:30 PM Smith, Rose M.\*; Kaushal, Sujay S.: **CARBON CYCLE OF AN URBAN WATERSHED: EXPORTS, FORMS, AND METABOLISM**
- 160-12 4:45 PM McDowell, Mallori\*; Prestegard, Karen L.: **QUANTIFYING THE EFFECTS OF STREAM CHANNELIZATION ON EVAPOTRANSPIRATION AND SEDIMENT TRANSPORT CAPACITY IN LARGE (~200 KM<sup>2</sup>) URBAN WATERSHEDS**
- 160-13 5:00 PM Cintron, Nicole M.\*; Gellasch, Christopher A.; Fisher, Andmorgan; Lewis, Michael G.; Torres Pagan, Glorimar: **EFFECTS OF ENVIRONMENTAL AND ANTHROPOGENIC FACTORS ON SURFACE WATER QUALITY IN THE ROCK CREEK WATERSHED**
- 160-14 5:15 PM Bell, Joseph M.\*: **BACKSCATTER AS A SURROGATE FOR SUSPENDED SEDIMENT, NUTRIENT, AND BACTERIA CONCENTRATIONS IN AN URBAN STREAM WITHIN ROCK CREEK NATIONAL PARK, WASHINGTON D.C.**

## SESSION NO. 161

**T115. Cave Exploration, Survey, and Science: Historical to Modern Perspectives, Methods, and Techniques (GSA Karst Division; Cave Research Foundation; National Speleological Society; GSA Quaternary Geology and Geomorphology Division)**

1:30 PM, Baltimore Convention Center, Room 345/346

Jason Polk and Patricia N. Kambesis, Presiding

- 161-1 1:30 PM Sasowsky, Ira D.\*; Kambesis, Patricia N.: **SOME THOUGHTS ON THE HISTORY AND FUTURE OF "SEEING" CAVES**
- 161-2 1:45 PM Futrell, Mike\*: **CURRENT ADVANCES AND TRENDS IN CAVE SURVEY METHODOLOGY**
- 161-3 2:00 PM Myre, Joseph\*; Covington, Matthew D.: **3-DIMENSIONAL RECORDING OF KARST MORPHOLOGIES: THE NEXT LEAP FORWARD IN CAVE SURVEY?**
- 161-4 2:15 PM Acosta Colón, Angel A.\*; Candelaria Soberal, Jose F.: **MODERN 3D DIGITAL CARTOGRAPHY: ZEB1 LIDAR AND CAVEGEOMAP**
- 161-5 2:30 PM Evans, B. Alexander\*; Larson, Erik B.: **FURTHER ADVANCES IN CAVE VOLUME CALCULATIONS: CONTINUED REFINEMENT OF THE COMPASS @ SOFTWARE**
- 161-6 2:45 PM Kambesis, Patricia N.\*; Mylroie, John; Larson, Erik B.: **MORPHOMETRIC ANALYSIS OF CAVE PATTERNS USING FRACTAL INDICES**
- 161-7 3:00 PM Jenson, Aubri\*; Schwartz, Benjamin F.: **ESTIMATING CAVE ENTRANCE DENSITY USING GIS ANALYSIS: QUINTANA ROO, MEXICO**
- 161-8 3:15 PM Bailey, Kenneth M.\*: **BIG BAT CAVE LIDAR PROJECT**
- 161-9 3:30 PM Zappitello, Sarah J.\*: **BIGGER MAY NOT BE BETTER: VOID SIZE OF HABITAT FOR TROGLOBITIC KARST INVERTEBRATES**
- 161-10 3:45 PM Polk, Jason\*; Federico, Ric; Ham, Brian C.; Nedvidek, Daniel; McClanahan, Kegan; North, Leslie; Kambesis, Patricia N.; Marasa, Michael: **THE NATIONAL CORVETTE MUSEUM SINKHOLE: A MULTI-DISCIPLINARY INVESTIGATION TO EXPLORE AND REMEDIATE THE COLLAPSED CAVE**
- 161-11 4:00 PM Auler, Augusto S.\*; Parker, Ceth W.; Senko, John; Sasowsky, Ira D.; Barton, Hazel A.: **IRON ORE CAVES IN BRAZIL: LONG TERM SPELEOGENESIS AND MICROBIALLY MEDIATED PROCESSES**
- 161-12 4:15 PM Alexander, Jr., E. Calvin\*: **KARST: FORM-PROCESS-FUNCTION – AN EXPANSION OF THE CONCEPT**
- 161-13 4:30 PM Malaska, Michael J.\*: **EXTREME KARST: DISSOLUTION GEOLOGY ON OTHER PLANETS**
- 161-14 4:45 PM Curtis, Aaron G.\*; Kyle, Philip: **RAPID DEVELOPMENT OF FUMAROLIC ICE CAVES AND ASSOCIATED SUBSIDENCE TOPOGRAPHY ON EREBUS VOLCANO**
- 161-15 5:00 PM Mitchell, Karl Leon\*: **ON THE ORIGIN OF TITAN'S ARCTIC "COOKIE CUTTER" LAKES**

## SESSION NO. 162

**T128. Field and Modeling Approaches to Understanding the Response of Coupled Barrier-Backbarrier Systems to Coastal Change (SEPM (Society for Sedimentary Geology); Coastal Education & Research Foundation; GSA Quaternary Geology and Geomorphology Division)**

1:30 PM, Baltimore Convention Center, Room 309

Christopher J. Hein and Jorge Lorenzo Trueba, Presiding

- 1:30 PM **INTRODUCTORY REMARKS**
- 162-1 1:35 PM Anderson, John B.\*; Lorenzo-Trueba, Jorge; Wallace, Davin J.; Odezulu, Christopher: **VARIABLE RESPONSES OF TEXAS COAST TO SEA-LEVEL RISE**

- 162-2 1:55 PM Jose, Felix\*; Savarese, Michael; Thompson, Glenn T.: **MORPHOLOGICAL EVOLUTION OF A SEDIMENT-STARVED LOW-LYING BARRIER BEACH: FT. MYERS BEACH, SOUTHWEST FLORIDA**
- 162-3 2:10 PM Seminack, Christopher T.\*; McBride, Randolph A.: **LIFE-CYCLE MODELS OF FORMER WAVE-DOMINATED TIDAL INLETS ALONG ASSATEAGUE ISLAND, MARYLAND**
- 162-4 2:25 PM Cooper, J. Andrew G.\*: **BARRIER AND BARRIER ISLAND BEHAVIOR AT THE HISTORICAL TIMESCALE: WHAT CAN WE LEARN FROM THE OUTLIERS?**
- 162-5 2:45 PM Stanek, Mathew\*; Fenster, Michael S.: **NON-LINEAR SHORELINE CHANGE MODELING AND COASTAL STORM IMPACTS ALONG THE VIRGINIA BARRIER ISLANDS**
- 162-6 3:00 PM deVries, Elsemarie\*; Goldstein, Evan B.; Moore, Laura J.: **THE INFLUENCE OF STORM FREQUENCY ON BARRIER ISLAND BISTABILITY: ASSESSING ALONGSHORE DISTRIBUTIONS OF FOREDUNE HEIGHT ALONG THE U.S. ATLANTIC COAST**
- 162-7 3:15 PM Wallace, Davin J.\*; van Hengstum, Peter J.; Smith, Struan R.: **BOULDER TRANSPORT FROM STORMS NEAR SPITAL POND, BERMUDA**
- 162-8 3:30 PM Jaworski, Anna S.\*; Barber, Nicholas; Lacovara, Kenneth J.: **VANISHING ISLANDS: CHANGING FETCH LIMITED BARRIER ISLANDS IN THE DELAWARE BAY**
- 162-9 3:45 PM Oakley, Bryan A.\*; Freedman, Janet; Hollis, Robert J.; Goulet, Dan R.; Boothroyd, Jon C.: **THE MISQUAMICUT STATE BEACH REPLENISHMENT PROJECT: ONE YEAR LATER, MEASURED USING RTK-GPS, DGPS AND BEACH PROFILES**
- 4:00 PM **BREAK**
- 162-10 4:15 PM Moore, Laura J.\*; Duran Vinent, Orencio; Walters, David C.; Lauzon, Rebecca; Murray, A. Brad; Kirwan, Matthew L.: **ECOMORPHODYNAMIC FEEDBACKS AND COUPLINGS BETWEEN BARRIER AND BACK-BARRIER ENVIRONMENTS INFLUENCE HOLISTIC SYSTEM RESPONSE TO CHANGING CLIMATE**
- 162-11 4:35 PM Mallinson, David J.\*; Culver, Stephen J.; Leorri, Eduardo; Mitra, Siddhartha; Mulligan, Ryan; Riggs, Stanley R.: **BARRIER ISLAND AND ESTUARY CO-EVOLUTION IN RESPONSE TO HOLOCENE CLIMATE AND SEA-LEVEL CHANGE: EXAMPLES FROM THE NORTH CAROLINA OUTER BANKS - PAMLICO SOUND COASTAL SYSTEM**
- 162-12 4:50 PM Deaton, Charles D.\*; Hein, Christopher J.; Kirwan, Matthew L.: **BARRIER ISLAND MIGRATION, SALT MARSH LOSS, AND ECOGEOMORPHIC FEEDBACKS ON THE EASTERN SHORE OF VIRGINIA**
- 162-13 5:05 PM Theuerkauf, Ethan J.\*; Rodriguez, Antonio B.; Ridge, Justin T.; White-Nockleby, Caroline: **IMPACTS OF GEOMORPHIC CHANGE ON THE CARBON BUDGETS OF ESTUARINE FRINGING MARSHES AND TRANSGRESSIVE BARRIER ISLANDS: INSIGHTS FROM A SIMPLE BOX MODELLING APPROACH**
- 5:20 PM **CONCLUDING REMARKS**
- 163-3 2:05 PM Taylor, Paul D.\*; Gordon, Dennis P.; Jäger, Manfred; Liow, Lee Hsiang; Waeschenbach, Andrea; Zibrowius, Helmut: **SYMBIOSIS BETWEEN SERPULID POLYCHAETES AND HYDROID CNIDARIANS: 187 MILLION YEARS OF BIOTIC INTERACTION**
- 163-4 2:20 PM Lee, Mirinae\*; Elias, Robert J.; Choh, Suk-Joo; Lee, Dong-Jin: **INSIGHT FROM EARLY CORAL-STROMATOPOROID INTERGROWTHS, LATE ORDOVICIAN OF CHINA**
- 163-5 2:35 PM Tornabene, Chiara\*; Martindale, Rowan C.; Schaller, Morgan F.: **STABLE ISOTOPE EVIDENCE FOR PHOTOSYMBIOSIS IN FOSSIL CORALS**
- 163-6 2:50 PM Fernandes Martins, Maria João\*; Hunt, Gene; Sweeney, Colin; Lockwood, Rowan; Swaddle, John P.: **CORRELATION BETWEEN SOFT AND HARD PARTS IN *CYPRIDEIS* (OSTRACODA): IMPLICATIONS FOR THE ANALYSIS OF SEXUAL SELECTION IN THE FOSSIL RECORD**
- 163-7 3:05 PM Hunt, Gene\*; Puckett, T. Markham; Fernandes Martins, Maria João; Hall, Christine M.S.; Lockwood, Rowan; Swaddle, John P.: **SEXUAL DIMORPHISM AS A PROXY FOR SEXUAL SELECTION IN CRETACEOUS OSTRACODES FROM THE US GULF COASTAL PLAIN**
- 3:20 PM **BREAK**
- 163-8 3:35 PM McCoy, Victoria E.\*; Lamsdell, James C.; Poschmann, Markus; Anderson, Ross P.; Briggs, Derek E.G.: **EYES AND CLAWS REVEAL THE EVOLUTION OF DIVERGENT ECOLOGICAL ROLES IN GIANT PTERYGOTID EURYPTERIDS**
- 163-9 3:50 PM Shih, ChungKun\*; Gao, Taiping; Labandeira, Conrad C.; Li, Longfeng; Wang, Mei; Lin, Xiaodan; Ren, Dong: **BIOTIC INTERACTIONS OF INSECTS WITH PLANTS AND OTHER ASSOCIATES IN TWO MID MESOZOIC ECOSYSTEMS OF NORTHEASTERN CHINA**
- 163-10 4:05 PM Xu, Qingqing\*; Jin, Jianhua; Labandeira, Conrad C.: **PLANT-INSECT ASSOCIATIONS FROM THE EARLIEST PERMIAN WILLIAMSON DRIVE FLORA IN NORTH-CENTRAL TEXAS**
- 163-11 4:20 PM Muratore, Isabella\*; Dos Santos, Thamiris Barbosa; Labandeira, Conrad C.: **INSECT HERBIVORY FROM THE LOWER PERMIAN SANZENBACHER FLORA FROM NORTH-CENTRAL TEXAS**
- 163-12 4:35 PM Mccracken, S. Augusta\*; Labandeira, Conrad C.: **MINIMAL EVIDENCE FOR PLANT-INSECT ASSOCIATIONS IN THE SOUTH ASH PASTURE FLORA, MIDDLE PERMIAN OF NORTH-CENTRAL TEXAS**
- 163-13 4:50 PM Smith, Felisa A.\*; Tomé, Catalina P.; Newsome, Seth D.; Elliott Smith, Emma A.; Lyons, S. Kathleen; Stafford, Jr., Thomas W.: **AFTER THE MAMMOTHS: THE RESPONSE OF A SMALL GRAZER TO THE TERMINAL PLEISTOCENE MEGAFAUNA EXTINCTION**

## SESSION NO. 164

**T148. Cenozoic Evolution of Tropical Biota and Environments I: A Session Honoring the Contributions of Ann F. Budd (SEPM (Society for Sedimentary Geology); Paleontological Society)**

1:30 PM, Baltimore Convention Center, Room 310

James S. Klaus, Kenneth G. Johnson, Francesca R. Bosellini and Thomas Stemann, Presiding

1:30 PM **INTRODUCTORY REMARKS**

- 164-1 1:45 PM Stolarski, Jaroslaw\*: **CHRONICLES OF SCLERACTINIAN CORAL FAMILIES: PHYLOGENETIC SIGNIFICANCE OF THE SKELETAL THICKENING DEPOSITS**
- 164-2 2:00 PM Knowlton, Nancy\*: **FROM COSTAE TO COI AND SPECIES TO TREES: PROGRESS AND CHALLENGES**
- 164-3 2:15 PM Cordie, David R.\*; Budd, Ann F.: **HISTOLOGICAL DATA IN A COMBINED PHYLOGENETIC ANALYSIS OF SCLERACTINIAN REEF CORALS**

## SESSION NO. 163

**T147. Biotic Interactions and Their Influence on Long-Term Evolution II (Paleontological Society)**

1:30 PM, Baltimore Convention Center, Room 314

Paul D. Taylor and Lee Hsiang Liow, Presiding

- 163-1 1:30 PM Donovan, Stephen K.\*; Hammond, Julian; Tenny, Andrew: **PERSISTENT PARABOLIC PITS IN ECHINODERMS FROM THE MISSISSIPPIAN TO THE LATE CRETACEOUS**
- 163-2 1:50 PM Danise, Silvia\*; Higgs, Nicholas D.: **MESOZOIC ORIGIN OF THE BONE-EATING *OSDAX* WORMS AND INSIGHTS ON THE ORIGIN OF THE SIBOGLINIDAE (ANNELIDA)**

MONDAY

PM



SESSION NO. 164

- 164-4 2:30 PM Racicot, Rachel\*; Budd, Ann F.; Huang, Danwei; Smith, Nathan D.: **MORPHOLOGICAL DATA PARTITIONS POSSESS DIFFERENT LEVELS OF PHYLOGENETIC SIGNAL FOR THE EVOLUTIONARY RELATIONSHIPS OF THE REEF CORAL FAMILIES MERULINIDAE, MONTASTRAEIDAE, DIPLOASTRAEIDAE, AND MUSSIDAE (CNIDARIA: ANTHOZOA: SCLERACTINIA)**
- 164-5 2:45 PM Tibbits, Matthew\*: **VARIATION AND PLASTICITY IN SCLERACTINIAN MICROMORPHOLOGY**
- 164-6 3:00 PM Cadena, Edwin\*: **EVOLUTIONARY HISTORY OF CENOZOIC NEOTROPICAL TURTLES AND NEW FOSSILS FROM THE EARLY TO MIDDLE MIOCENE, CASTILLETES FORMATION OF COLOMBIA**
- 164-7 3:15 PM Luque, Javier\*; HENDY, Austin J.W.; ROSENBERG, Michael; PORTELL, Roger W.; PALMER, A. RICHARD: **CENOZOIC INTERTIDAL, SUPRA-TIDAL, AND FRESHWATER CRABS FROM TROPICAL AMERICA**
- 3:30 PM **BREAK**
- 164-8 3:45 PM Grass, Andy\*: **EXAMINING BEHAVIOR AND LEVELS OF ARBOREALITY IN EXTINCT SLOTHS THROUGH SCAPULA MORPHOLOGY**
- 164-9 4:00 PM Todd, Jonathan A.\*: **HYPERDIVERSITY IN MOLLUSCS AND PALAEOBIOTIC ANALYSES: WHAT ARE 'SPECIES' AND ARE THEY USEFUL?**
- 164-10 4:15 PM Anderson, Brendan Matthew\*; Allmon, Warren D.: **MULTIPLE FORMS OF HETEROCHRONY RESULT IN RAPID GROWTH AND VERMIFORM MORPHOLOGY IN VERMICULARIA (TURRITELLIDAE)**
- 164-11 4:30 PM Hendricks, Jonathan R.\*: **ANTECEDENTS OF THE MODERN TROPICAL AMERICAN CONE SNAIL FAUNA: PHYLOGENETIC DIVERSITY AND BIOGEOGRAPHICAL HISTORY OF LATE MIOCENE TO PLIO-PLEISTOCENE CONIDAE IN THE CONTEXT OF MAJOR REGIONAL ENVIRONMENTAL CHANGE**
- 164-12 4:45 PM Carlon, David B.\*; Budd, Ann F.: **IS THE TROPICAL ATLANTIC AN EVOLUTIONARY HOTSPOT FOR CORAL EVOLUTION? TIMING AND DIVERSIFICATION OF THE CORAL SUBFAMILIES MUSSINAE AND FAVIINAE IN THE TROPICAL ATLANTIC**
- 164-13 5:00 PM Budd, Ann F.\*; Stemann, Thomas: **REVISITING THE GATUNCILLO FORMATION: EOCENE BRAIN CORALS AND THE ORIGIN OF THE RECENT CARIBBEAN CLADE MUSSIDAE**

SESSION NO. 165

**T156. Earth Underfoot: New Frontiers in Ichnology and Zoogeomorphology (SEPM (Society for Sedimentary Geology); Paleontological Society)**

1:30 PM, Baltimore Convention Center, Room 316

Ilya V. Buynevich, Stephen T. Hasiotis and Brian F. Platt, Presiding

- 1:30 PM **INTRODUCTORY REMARKS**
- 165-1 1:40 PM Butler, David R.\*: **ZOOGEOMORPHOLOGY IN THE ANTHROPOCENE**
- 165-2 2:00 PM Hembree, Daniel I.\*; Smith, Jon J.; Buynevich, Ilya V.; Platt, Brian F.: **NEOICHOLOGY OF SEMIARID ENVIRONMENTS: SOILS AND BURROWING ORGANISMS OF THE SONORAN DESERT**
- 165-3 2:20 PM Pemberton, S. George\*: **LOW PERMEABILITY GAS CHARGED BIOTURBATED RESERVOIRS**
- 165-4 2:40 PM Platt, Brian F.\*: **COMPARISON OF DIGITIZATION TECHNIQUES FOR ICNOLOGICAL APPLICATIONS**
- 165-5 2:55 PM Hasiotis, Stephen T.\*; Parrish, Judith Totman; Chan, Marjorie A.: **HIDDEN DIVERSITY OF A WET DESERT ECOSYSTEM—PRELIMINARY REPORT ON THE ICNOLOGY OF THE NAVAJO SANDSTONE, SOUTHEASTERN UTAH**

- 165-6 3:10 PM Smith, Jon Jay\*; Hembree, Daniel I.; Buynevich, Ilya V.; Platt, Brian F.: **NEOICHOLOGY AND PEDOLOGY OF MONTANE SOILS IN THE SANTA CATALINA MOUNTAINS, SOUTHERN ARIZONA**
- 3:25 PM **BREAK**
- 165-7 3:40 PM Stankye, Timothy P.\*; Cuomo, Carmela: **DETERMINING THE CHARACTERISTICS OF PALEOLIMULIDS FROM PRESERVED TRACKWAYS**
- 165-8 3:55 PM Curran, H. Allen\*; Seike, Koji: **NEOICHOLOGY OF CALLIANASSID SHRIMP SPECIES IN THE BAHAMAS: ENVIRONMENTAL PREFERENCES, BURROW CHARACTERISTICS, AND RELATED TRACE FOSSILS**
- 165-9 4:10 PM Kopcanski, Karen\*; Buynevich, Ilya V.; Curran, H. Allen; Gnivecki, Perry L.; Brake, Marie; Lloyd, Gwen; Rothfus, Thomas A.; Seike, Koji: **MESOSCALE BIOTURBATION PATTERNS IN CARBONATE AND SILICICLASTIC COASTAL SEQUENCES: INSIGHTS FROM GEORADAR IMAGING**
- 165-10 4:25 PM Maza, Zach A.\*; Buynevich, Ilya V.: **X-RAY FLUORESCENCE TRENDS ACROSS THE K-PG BOUNDARY, RANCOCAS CREEK, NEW JERSEY: IMPLICATIONS FOR EVENT STRATIGRAPHY AND ICNOLOGY**
- 165-11 4:40 PM Szajna, Michael J.\*; Hartline, Brian W.; Fillmore, David L.; Simpson, Edward L.; Jasinski, Steven: **A REPORT ON FIVE NEW ICNOFOSSIL LOCALITIES IN THE LATE TRIASSIC NEWARK BASIN, PENNSYLVANIA**
- 165-12 4:55 PM Buynevich, Ilya V.\*: **MEGAVERTEBRATE ACTIVITY ALONG OCEANIC COASTS: SPANNING THE ICNOLOGICAL-ZOOGEOMORPHIC CONTINUUM**
- 165-13 5:10 PM Leyton-Nolan, Gabriela P.\*; Buynevich, Ilya V.: **PATTERNS OF SHOREBIRD PREDATION TRACES ON ATLANTIC SURF CLAM VALVES**
- 5:25 PM **CONCLUDING REMARKS**

SESSION NO. 166

**T160. Topics in Paleoecology: Modern Analogues and Ancient Systems I (Paleontological Society)**

1:30 PM, Baltimore Convention Center, Room 315

Darrin J. Molinaro, Carolyn M. Furlong, Amelinda E. Webb and Gary J. Motz, Presiding

- 1:30 PM **INTRODUCTORY REMARKS**
- 166-1 1:40 PM Das, Shiladri S.\*; Goswami, Pritha; Bardhan, Subhendu; Mallick, Sumanta; Paul, Shubhabrata: **DRILLING GASTROPOD PREDATION ON THE LOWER MIOCENE GASTROPOD ASSEMBLAGES FROM KUTCH, WESTERN INDIA: SPATIOTEMPORAL IMPLICATIONS**
- 166-2 1:55 PM Johnson, Erynn H.\*; Anderson, Brendan Matthew; Allmon, Warren D.: **CAN WE LEARN ANYTHING FROM ALL THOSE PIECES? OBTAINING DATA ON DRILLING PREDATION FROM FRAGMENTED HIGH-SPIRED GASTROPOD SHELLS**
- 166-3 2:10 PM Furlong, Carolyn M.\*; Gegolick, Aimee; Molinaro, Darrin J.; Leighton, Lindsey R.; Zonneveld, John-Paul: **STEREOTYPICALLY BORING: AN ANALYSIS OF PREDATORY DRILL HOLE STEREOTYPY IN LITTORINA SAXATILIS FROM THE BAY OF FUNDY, NOVA SCOTIA**
- 166-4 2:25 PM Montoya, Leslie Marie\*; Forcino, Frank L.; Stafford, Emily S.: **TEMPORAL AND SPATIAL VARIATION OF DRILLHOLE FREQUENCY WITHIN THE MIOCENE ST. MARY'S FORMATION, MARYLAND**
- 166-5 2:40 PM Dieltl, Gregory P.\*: **EVALUATING THE STRENGTH OF ESCALATION AS A RESEARCH PROGRAM**
- 166-6 3:00 PM Molinaro, Darrin J.\*; Tyler, Carrie L.; Mendonca, Steven E.; Leighton, Lindsey R.: **PEELING OUT PREDATION INTENSITY: DOES REPAIR SCAR FREQUENCY SHIFT DURING MODERN ECOLOGICAL DISTURBANCE?**



- 166-7 3:15 PM Grun, Tobias B.\*: **FROM THE CRADLE TO THE TOMB – ACCOMPANYING A CARIBBEAN SAND DOLLAR THROUGH ITS LIFE**
- 3:30 PM **BREAK**
- 166-8 3:45 PM Schneider, Chris L.\*: **WATERWAYS FORMATION: THE DEGREE OF BIOTIC INFLUENCE ON SEDIMENT PROPERTIES AND ITS IMPORTANCE IN OIL SANDS MINING**
- 166-9 4:00 PM Mendonca, Steven E.\*; Webb, Amelinda E.; Barclay, Kristina M.; Rocca, Alexandra N.; Molinaro, Darrin J.; Schneider, Chris L.; Forcino, Frank L.; Leighton, Lindsey R.: **WATERWAYS FORMATION: ANALYZING TRENDS IN TROPICAL DEVONIAN BRACHIOPOD COMMUNITIES THROUGH ENVIRONMENTAL CHANGE**
- 166-10 4:15 PM Webb, Amelinda E.\*; Molinaro, Darrin J.; Schneider, Chris L.; Leighton, Lindsey R.: **WATERWAYS FORMATION: BRACHIOPOD COMMUNITIES AND CHANGING MORPHOLOGY ACROSS DIFFERENT ENVIRONMENTS**
- 166-11 4:30 PM Rocca, Alexandra N.\*; Mendonca, Steven E.; Webb, Amelinda E.; Schneider, Chris L.; Leighton, Lindsey R.: **WATERWAYS FORMATION: EXPLORING THE RELATIONSHIP BETWEEN SCLEROBIONT, BRACHIOPOD HOST, AND ENVIRONMENT**
- 166-12 4:45 PM Leighton, Lindsey R.\*: **WATERWAYS FORMATION: THE INFLUENCE OF PREDATION ON TURNOVER IN DEVONIAN CONCAVO-CONVEX BRACHIOPODS**
- 166-13 5:00 PM Forcino, Frank L.\*; Stafford, Emily S.; Leighton, Lindsey R.: **A COMPARISON OF BRACHIOPOD ATTACHMENT STRATEGIES THROUGH THE PALEOZOIC**
- 166-14 5:15 PM Manojlovic, Marko\*; Clapham, Matthew E.: **THE ROLE OF SUBSTRATE PREFERENCE IN MID-MESOZOIC BRACHIOPOD DECLINE**
- 167-6 2:45 PM Foster, Jr., C.T.\*: **LOCAL CONTROL OF REACTION AFFINITY IN ROCKS WITH PORPHYROBLASTS**
- 167-7 3:00 PM Pattison, David R.M.\*: **CHALLENGES IN PHASE DIAGRAM MODELING, FOCUSING ON METAPELITES**
- 3:15 PM **BREAK**
- 167-8 3:30 PM Spear, Frank S.\*; Pattison, David R.M.; Cheney, John T.: **IT'S A MAD, MAD, MMAD WORLD**
- 167-9 3:45 PM Kelly, Eric D.\*; Ketcham, Richard A.: **ENHANCED NUMERICAL SIMULATION OF CRYSTALLIZATION USING NEW CONSTRAINTS FROM GARNET CHEMICAL ZONING**
- 167-10 4:00 PM Kohn, Matthew J.\*; Penniston-Dorland, Sarah; Ketcham, Richard A.: **PUTTING THE BRAKES ON GEOSPEEDOMETRY – WHY SIMPLE DIFFUSION PROFILES YIELD MAXIMUM COOLING RATES**
- 167-11 4:15 PM Moulas, Evangelos\*; Tajcmanova, Lucie; Vrijmoed, Johannes: **GRAIN-SCALE PRESSURE VARIATIONS: FEASIBILITY, THEORY AND APPLICATIONS**
- 167-12 4:30 PM Bollen, Elizabeth M.\*; Stowell, Harold H.; McKay, Matthew P.: **GARNET GROWTH, RESORPTION, AND COMPOSITIONAL ZONING AS RECORDS OF COLLISIONAL EVENTS: SALMON RIVER SUTURE ZONE, IDAHO**
- 167-13 4:45 PM Hoiland, Carl W.\*; Miller, Elizabeth L.; Coble, Matthew A.; Williams, Quentin: **METAMORPHIC PETROLOGY AND THE “NEVADAPLANO”**
- 167-14 5:00 PM Allaz, Julien M.\*; Pritekel, Cameron; Condit, Cailey B.; Rattanasith, Diana; Mahan, Kevin H.; Kelly, Nigel M.; Baird, Graham B.: **PRESSURE-TEMPERATURE AND TEMPORAL CONSTRAINTS ON REGIONAL METAMORPHISM NEAR BIG THOMPSON CANYON, COLORADO, USA**
- 167-15 5:15 PM Yakymchuk, Chris\*; Brown, Michael; Korhonen, Fawna J.; Siddoway, Christine S.: **DECODING MULTIPLE HIGH-TEMPERATURE METAMORPHIC EVENTS USING PHASE EQUILIBRIA MODELLING, LU-HF GARNET GEOCHRONOLOGY AND IN SITU U-PB MONAZITE GEOCHRONOLOGY**

**SESSION NO. 167**

*T166. Metamorphic Petrology: New Approaches and Outcomes (GSA Mineralogy, Geochemistry, Petrology, and Volcanology Division; Mineralogical Society of America; Mineralogical Association of Canada)*

1:30 PM, Baltimore Convention Center, Room 317

David R.M. Pattison, Matthew J. Kohn, Frank S. Spear and Bernardo Cesare, Presiding

- 167-1 1:30 PM Robyr, Martin\*; Goswami-Banerjee, Sriparna: **STABILITY FIELD OF ALLANITE AND MONAZITE IN THE BARROVIAN-TYPE METAPELITES OF THE MIYAR VALLEY (SE ZANSKAR): IMPLICATIONS FOR PETROCHRONOLOGY**
- 167-2 1:45 PM Siron, Guillaume\*; Baumgartner, Lukas; Bodner, Robert: **CHLORINE CONTENT IN BIOTITE OF THE TORRES DEL PAINE AND WESTERN ADAMELLO CONTACT AUREOLES: A PROGRADE OR RETROGRADE SIGNAL?**
- 167-3 2:00 PM Baumgartner, Lukas\*; Siron, Guillaume; Bouvier, Anne-Sophie; Putlitz, Benita; Vennemann, Torsten; Begue, Florence: **MECHANISM OF STABLE ISOTOPE EXCHANGE IN HYDROTHERMAL OLIVINE-CALCITE VEINS, BERGELL, ITALY: PERSPECTIVES BASED ON OXYGEN ISOTOPE SIMS ANALYSIS**
- 167-4 2:15 PM Lamadrid, Hector M.\*; Bodnar, R.J.; Rilmstidt, J. Donald; Schwarzenbach, Esther M.; Sublett, D. Matthew; Dolocan, Andrei: **REAL-TIME MONITORING OF REACTION RATE AND CHEMISTRY OF INCIPIENT SERPENTINIZATION OF OCEANIC LITHOSPHERE**
- 167-5 2:30 PM Cesare, Bernardo\*; Schmidt, Max W.; Remusat, Laurent; Viti, Cecilia; Mugnaioli, Enrico; Acosta-Vigil, Antonio; Barich, Amel; Bartoli, Omar; Poli, Stefano: **PROGRESSIVE DEPROTONATION OF STAUROLITE DURING METAMORPHISM AND ANATEXIS: NANOSIMS, TEM AND EXPERIMENTAL CONSTRAINTS**

**SESSION NO. 168**

*T168. Subduction, Fluids, Accessory Minerals, and Trace Elements: A Celebration of Sorena Sorensen's Career (Mineralogical Society of America; GSA Mineralogy, Geochemistry, Petrology, and Volcanology Division; Geochemical Society)*

1:30 PM, Baltimore Convention Center, Room 341

Barbara L. Dutrow, Sarah Penniston-Dorland and Virginia Sisson, Presiding

- 1:30 PM **INTRODUCTORY REMARKS**
- 168-1 1:45 PM Peacock, Simon M.\*: **METAMORPHISM AND FLUID-MEDIATED MASS TRANSFER IN SUBDUCTION ZONES AS RECORDED BY SORENA SORENSEN'S COOL MINERALS**
- 168-2 2:00 PM Catlos, Elizabeth J.\*; Shin, Timothy A.: **TIMING SUBDUCTION PROCESSES VIA IN SITU (IN THIN SECTION) ZIRCON AND BADDELEYITE GEOCHRONOLOGY: EXAMPLES FROM NORTHERN TURKEY**
- 168-3 2:15 PM Jacobson, Carl E.\*; Hourigan, Jeremy; Haxel, Gordon B.; Grove, Marty J.; Hoyt, John J.: **OROCOPIA SCHIST AT CEMETERY RIDGE, ARIZONA: A TYPE EXPOSURE OF SUBDUCTED ROCKS ACCRETED DURING LARAMIDE FLAT SUBDUCTION, THEN INCORPORATED INTO A MIOCENE CORDILLERAN CORE COMPLEX**
- 168-4 2:30 PM Cloos, Mark\*; Ukar, Estibalitz: **BLUESCHIST BLOCKS IN THE SHALE-MATRIX MELANGE AT SAN SIMEON, CALIFORNIA: METAMORPHISM, DEFORMATION, AGE**

SESSION NO. 168

- 168-5 2:45 PM Page, F. Zeb\*; Storey, Craig; Lasalle, Stephanie: **A SUBDUCTION FLUID RECORD FROM CORRELATED OXYGEN ISOTOPE AND TRACE ELEMENT ANALYSIS OF RUTILE AND SPHENE FROM GARNET-BEARING TECTONIC BLOCKS IN THE FRANCISCAN COMPLEX, CALIFORNIA, USA**
- 168-6 3:00 PM Ayers, John C.\*; Peters, Timothy: **ZIRCON/FLUID TRACE ELEMENT PARTITION COEFFICIENTS MEASURED BY RECRYSTALLIZATION OF MUD TANK ZIRCON AT 1.5 GPA AND 800-1000°C**
- 168-7 3:15 PM Dragovic, Besim\*; Caddick, Mark J.: **A (VERY) BRIEF HISTORY OF SUBDUCTION: INSIGHTS FROM THERMODYNAMIC AND GEODYNAMIC MODELS**
- 168-8 3:30 PM Dutrow, Barbara L.\*; Henry, Darrell J.: **CHAROITE, CHAROITITES AND ASSOCIATED MINERALS: THE PRODUCTS OF INTENSE METASOMATIC ACTIVITY**
- 168-9 3:45 PM Harlow, George E.\*: **SUBDUCTION ZONE FLUID CRYSTALLIZATION PRODUCTS—THE PERSPECTIVE FROM JADEITITE RESEARCH**
- 168-10 4:00 PM Beard, James\*; Schwarzenbach, Esther M.; Bodnar, R.J.; Caddick, M.J.: **VARIATIONS IN BRUCITE COMPOSITION AND ABUNDANCE IN COMPOSITIONAL DOMAINS IN A SERPENTINIZED HARZBURGITE**
- 168-11 4:15 PM Sisson, Virginia\*; Burton, Daniel D.; Brandon, Alan; Nelson, Wendy; Harlow, George E.; Brueckner, Hannes K.: **OS-ISOTOPE AND HIGHLY SIDEROPHILE ELEMENT EVIDENCE FOR THE ORIGIN OF SERPENTINITES FROM THE MOTAGUA (GUATEMALA) SUTURE ZONE**
- 168-12 4:30 PM Martin, Celine\*; Flores, Kennet E.; Harlow, George E.: **BORON ISOTOPES DISCRIMINATION FOR SUBDUCTION-RELATED SERPENTINITES: EXAMPLE OF THE GUATEMALA SUTURE ZONE**
- 168-13 4:45 PM Henry, Darrell J.\*; Daigle, Nicholas M.; Mueller, Paul A.; Mogk, David W.: **CHLORINE IN HIGH-GRADE IRON FORMATION “HYDROUS” MINERALS – INTERPLAY AMONG TEMPERATURE, PRESSURE, CRYSTAL CHEMISTRY AND METAMORPHIC FLUID**
- 168-14 5:00 PM Gentes, Zoe\*: **NEAR-PRIMARY MANTLE MELTS AND THEIR IMPLICATIONS FOR THE MECHANISM OF ISLAND ARC BASALT OXIDATION**
- 168-15 5:15 PM Ernst, W.G.\*; Sleep, Norman H.; Tsujimori, Tatsuki: **PRECAMBRIAN PLATE-TECTONIC EVOLUTION: BOTTOM-UP AND TOP-DOWN MANTLE CIRCULATION**
- 169-6 2:50 PM Richardson, Christopher\*; Davatzes, Alexandra K.; Korman, Katrina: **TOTAL ORGANIC CARBON AND GEOCHEMICAL ANALYSIS OF A PALEOARCHEAN SPHERULE LAYER**
- 169-7 3:05 PM Cavosie, Aaron J.\*; Erickson, Timmons M.; Timms, Nick; Reddy, Steven; Talavera, Cristina; Montalvo, Stephanie D.; Pincus, Maya R.; Gibbon, Ryan; Moser, Desmond E.: **REVISITING THE IMPACT CHRONOLOGY OF THE MOON: A TERRESTRIAL PERSPECTIVE ON USING *EX SITU* SHOCKED ZIRCONS TO DATE METEORITE IMPACTS**
- 3:20 PM **DISCUSSION**
- 169-8 3:30 PM Figueroa, Maria C.\*; Miranda Berrocales, Viridis M.; Rivera-Banuchi, Victoria B.; Cavosie, Aaron J.; Moser, Desmond E.: **ORIGIN OF VESICULAR RIMS ON DETRITAL ZIRCONS FROM THE CHELMSFORD FORMATION, SUDBURY IMPACT STRUCTURE, CANADA**
- 169-9 3:45 PM Reddy, Steven\*; Johnson, Tim; Rickard, Will; van Riessen, Arie; Fischer, Sebastian; Taylor, Rich; Prosa, Ty; Reinhard, Dave; Rice, Katie; Chen, Yimeng: **PRECAMBRIAN REIDITE UNEARTHED**
- 169-10 4:05 PM Harper, Charlie T.\*; Eriks, R. Sierd; Gunning, Michael: **MEGA FALLBACK BRECCIA AND IMPACT MELT BODIES DISCOVERED AT THE DEEPLY ERODED CARSWELL IMPACT STRUCTURE, NORTHWESTERN SASKATCHEWAN, CANADA**
- 169-11 4:20 PM Miranda Berrocales, Viridis M.\*: **THE ORIGIN OF DETRITAL SHOCKED QUARTZ GRAINS FROM THE CENTRAL UPLIFT OF THE ROCK ELM IMPACT STRUCTURE, WISCONSIN, USA**
- 169-12 4:35 PM Rivera-Banuchi, Victoria B.\*; Cavosie, Aaron J.: **ORIGIN OF PLANAR MICROSTRUCTURES IN DETRITAL MONAZITES FROM HEAVY MINERAL CONCENTRATES FROM THE NAMAKWA SANDS MINE, ATLANTIC COAST OF SOUTH AFRICA**
- 169-13 4:50 PM Macris, Catherine A.\*; Asimow, Paul D.; Zhang, Youxue; Badro, James; Stolper, Edward M.; Eiler, John M.: **ESTIMATING THERMAL HISTORIES OF TEKTITES USING LECHATIELIERITE INCLUSIONS**
- 169-14 5:05 PM Henkes, Gregory A.\*; Yancey, Thomas E.; Grossman, Ethan L.; Passey, Benjamin H.; Schrag, Daniel P.: **TEMPERATURES OF CHICXULUB CARBONATE ACCRETIONARY LAPILLI FORMATION FROM CLUMPED ISOTOPES**
- 5:20 PM **CONCLUDING REMARKS**

SESSION NO. 169

**T174. Microscopic Impact Records (GSA Mineralogy, Geochemistry, Petrology, and Volcanology Division; Geochemical Society)**

1:30 PM, Baltimore Convention Center, Room 344

Aaron J. Cavosie, Presiding

- 169-1 1:30 PM Tretiakova, Lioudmila\*: **IMPACT-COSMIC-METASOMATIC ORIGIN OF MICRO-DIAMONDS FROM KUMDYKOL DEPOSIT, KOKCHETAV MASSIV, N. KAZAKHSTAN**
- 169-2 1:45 PM Sikder, Arif M.\*; Frančišković-Bilinski, Stanislav; Bilinski, Halka; Castano, Carlos E.; Clifford, Dustin M.; Turner, Joseph B. McGee; Garman, Gregory C.: **PETROGRAPHIC ANALYSIS OF THE MAGNETIC SPHERULES FROM THE SEDIMENTS OF KARSTIC DOBRA RIVER, CROATIA**
- 169-3 2:00 PM Chen, Yang\*; Liu, Yang: **IMPACT MELT POCKETS IN MARTIAN METEORITES AS RECORDERS OF IMPACT PROCESSES ON MARS**
- 169-4 2:15 PM Wolf, Terrence Rowan\*: **CLASSIFICATION OF ORDINARY CHONDRITES**
- 169-5 2:30 PM Moser, Desmond E.\*; Reinhard, David A.; Larson, David J.; Prosa, Tyler J.; Olson, David; Rice, Katherine; Chen, Y.M.; Barker, Ivan; Gault, Baptiste; Irving, Anthony: **ATOM PROBE TOMOGRAPHY OF ZIRCONIAN MINERALS**

SESSION NO. 170

**T178. 70 Years of Geoscience at UNESCO: Past, Present, and Future**

1:30 PM, Baltimore Convention Center, Room 331/332

P. Patrick Leahy and John W. Hess, Presiding

- 1:30 PM **INTRODUCTORY REMARKS**
- 170-1 1:35 PM Kimball, Suzette M.\*; Labson, Victor F.: **THE USGS - UNESCO PARTNERSHIP**
- 170-2 1:55 PM Bailey, K.E.\*: **U.S. CONTRIBUTIONS TO UNESCO'S SCIENCE PROGRAMS**
- 170-3 2:10 PM Morris, Stephen\*: **UPDATE ON THE US WORLD HERITAGE PROGRAM**
- 170-4 2:30 PM Burkins, Melody Brown\*: **THE USNC-IUGS: EMERGING OPPORTUNITIES FOR INTERNATIONAL GEOSCIENCE ENGAGEMENT**
- 170-5 2:45 PM Casadevall, Thomas\*; Hill, Wesley M.; Nowlan, Godfrey S.: **GEOLOGIC HERITAGE IN NORTH AMERICA – THE ROLE FOR GEOPARKS**
- 170-6 3:00 PM Moores, Eldridge M.\*: **REFLECTIONS ON IGCP AND THE FUTURE**

- 170-7 3:20 PM Groves, Chris\*; Yuan, Daoxian: **GLOBAL EFFORTS TO UNDERSTAND THE NATURE OF KARST LANDSCAPE/AQUIFER SYSTEMS: TWENTY-FIVE YEARS WITH IGCP AND PROJECTS 299, 379, 448, 513, AND 598**
- 170-8 3:35 PM Cramer, Bradley D.\*: **IGCP 591 AND THE LEGACY OF TWO DECADES OF IGCP PROJECTS ON OUR UNDERSTANDING OF THE EARLY TO MIDDLE PALEOZOIC WORLD**
- 170-9 3:50 PM Bales, Jerad D.\*: **THE UNESCO IHP WATER ADVENTURE**
- 170-10 4:05 PM Nickless, Edmund\*: **RESOURCING FUTURE GENERATIONS**
- 170-11 4:20 PM Keane, Christopher M.\*; Gaines, Sarah M.: **HUMAN CAPACITY BUILDING - UNESCO'S INSPIRATION, GEOSCIENCES' GLOBAL FOOTPRINT**
- 4:35 PM **DISCUSSION**

**SESSION NO. 171**

**T195. Paleoenvironmental Reconstruction of Hominin Sites: New Methods, New Data, and New Insights II (SEPM (Society for Sedimentary Geology); GSA Limnogeology Division; GSA Sedimentary Geology Division; GSA Quaternary Geology and Geomorphology Division; GSA Archaeological Geology Division)**

1:30 PM, Baltimore Convention Center, Room 324

Cynthia M. Liutkus-Pierce, Gail M. Ashley and Andrew S. Cohen, Presiding

- 1:30 PM **INTRODUCTORY REMARKS**
- 171-1 1:35 PM Freeman, Katherine H.\*; Doman, Christine; Colcord, Devon; Brassell, Simon C.; Njau, Jackson; Stanistreet, Ian G.; Schick, Kathy; Toth, Nick: **BIOMARKER SIGNATURES OF FIRE AND GRASSLAND-FOREST TRANSITIONS ASSOCIATED WITH HOMININS AT OLDVUAI GORGE, TANZANIA**
- 171-2 1:55 PM Ashley, Gail M.\*: **THE RECORD OF SPRINGS AT DK ARCHEOLOGICAL SITE, OLDVUAI GORGE, TANZANIA**
- 171-3 2:10 PM Driese, Steven G.\*; Ashley, Gail M.: **PALEOENVIRONMENTAL RECONSTRUCTION OF A PALEOSOL CATENA, THE ZINJ ARCHAEOLOGICAL LEVEL, OLDVUAI GORGE, TANZANIA**
- 171-4 2:25 PM McHenry, Lindsay J.\*; Njau, Jackson K.; de la Torre, Ignacio; Pante, Michael C.: **DETAILED STRATIGRAPHIC CORRELATIONS ACROSS THE PLEISTOCENE OLDVUAI BASIN, NORTHERN TANZANIA, AT THE OLDOWAN-ACHEULEAN TECHNOLOGICAL TRANSITION**
- 171-5 2:40 PM Garrett, Kevin R.\*: **PALEOENVIRONMENTAL RECONSTRUCTION OF A LARGE WETLAND, A FRESHWATER RESOURCE FOR HOMININS IN THE EARS AT -1.3 MA**
- 171-6 2:55 PM Johnson, Claudia C.\*; Njau, Jackson K.; Van Damme, Dirk; Schick, Kathy; Toth, Nick: **PALEOECOLOGY OF FOSSIL MOLLUSCAN BIVALVES, BED III, OLDVUAI GORGE, TANZANIA**
- 171-7 3:10 PM Njau, Jackson K.\*; Stanistreet, Ian G.; McHenry, Lindsay J.; Stollhofen, Harald; Toth, Nick; Schick, Kathy: **NEW INVESTIGATIONS ON HOMININ PALEOLANDSCAPES, PALEOENVIRONMENTS AND PALEOCLIMATES THROUGH SCIENTIFIC CORING AT OLDVUAI GORGE, TANZANIA**
- 3:25 PM **BREAK**
- 171-8 3:40 PM Patterson, David\*; Lehmann, Sophie B.; Matthews, Thalassa; Levin, Naomi E.; Stynder, Deano; Forrest, Frances; Bishop, Laura; Pickering, Robyn; Roberts, Dave; Braun, David R.: **NEW INVESTIGATIONS INTO THE STABLE ISOTOPE ECOLOGY OF THE MAMMAL COMMUNITY FROM ELANDSFONTEIN, SOUTH AFRICA: IMPLICATIONS FOR C4 PLANT DISTRIBUTIONS AND HOMININ PALEOBIOLOGY IN THE CAPE FLORAL REGION DURING THE QUATERNARY**

- 171-9 3:55 PM Rabideaux, Nathan\*; Deocampo, Daniel M.; Lowenstein, Tim K.; Renaut, Robin W.; Owen, R. Bernhart; Muiruri, Veronica M.; Cohen, Andrew S.: **AUTHIGENIC MINERALS AS PALEOSALINITY INDICATOR FROM LAKE MAGADI, KENYA: BASED ON XRD ANALYSIS OF HSPDP-MAG CORE MATERIAL**
- 171-10 4:10 PM Zanazzi, Alessandro\*; Fletcher, Andrew; Thun Hohenstein, Ursula; Berto, Claudio; Sala, Benedetto; Lembo, Giuseppe; Peretto, Carlo: **PALEOCLIMATE AND PALEOENVIRONMENT OF ISERNIA LA PINETA (MOLISE, ITALY)**
- 171-11 4:25 PM Raub, Timothy D.\*; Biazen, Mequanent; De Kiewiet, Catherine H.; HSPDP Science Team, Chow Bahir: **STROMATOLITES SUGGEST TIMING, DURATION, AND CLIMATE DYNAMICS OF THE TERMINAL AFRICAN HUMID PERIOD AT CHOW BAHIR, ETHIOPIA**
- 171-12 4:40 PM Beck, Catherine C.\*; Feibel, Craig S.; Beyin, Amanuel: **LIVING IN A SWAMPY PARADISE: ASSOCIATIONS BETWEEN ARCHAEOLOGY AND MARSHES FROM THE AFRICAN HUMID PERIOD, WEST TURKANA, KENYA**
- 4:55 PM **CONCLUDING REMARKS**

**SESSION NO. 172**

**T204. The Reactive Soil: Processes at the Bio-Geo Interface in the Rhizosphere**

1:30 PM, Baltimore Convention Center, Room 343

Zsuzsanna Balogh-Brunstad, Marjorie Schulz and Megan Andrews, Presiding

- 1:30 PM **INTRODUCTORY REMARKS**
- 172-1 1:35 PM Schulz, Marjorie\*; Lawrence, Corey; Stonestrom, David; Mnich, Meagan: **ROOT AND MYCORRHIZA IMPACTS ON DEEP SOIL: SOIL PRESERVATION OF RHIZOSPHERE PROCESSES**
- 172-2 1:50 PM Neumann, Rebecca B.\*; Espeleta, Javier F.; Cardon, Zoe G.; Mayer, K. Ulrich; Rastetter, Edward B.: **NUTRIENT HOTSPOTS AND HOT MOMENTS IN THE RHIZOSPHERE GENERATED BY OSCILLATORY WATER FLOW AND SOIL CATION EXCHANGE**
- 172-3 2:10 PM Schaeztl, Randall\*; Rothstein, David; Samonil, Pavel: **TEMPORAL AND SPATIAL PATTERNS OF DEEP PERCOLATION AND PEDOGENESIS IN SANDY SOILS OF THE NORTHERN GREAT LAKES REGION**
- 172-4 2:25 PM Herndon, Elizabeth\*: **IMPORTANCE OF VEGETATION FOR MANGANESE CYCLING IN FORESTED WATERSHEDS**
- 172-5 2:40 PM Daly, George Edward\*; Widom, Elisabeth: **RADIOGENIC ISOTOPE COMPOSITIONS OF WINE AND PROVENANCE SOIL AS POTENTIAL FINGERPRINTS OF GEOGRAPHIC ORIGIN**
- 172-6 2:55 PM Dontsova, Katerina\*; Zaharescu, Dragos; Burghilea, Carmen; Maier, Raina M.; Huxman, Travis; Chorover, Jon: **GRASS AND MICROBIOTA EFFECT ON LITHOGENIC ELEMENT MOBILIZATION DURING WEATHERING OF BASALT, GRANITE, RHYOLITE, AND SCHIST**
- 172-7 3:15 PM Olsen, Amanda Albright\*; Hausrath, Elisabeth M.; Taylor, Agnes R.; Olsen, Brian J.; Cardace, Dawn; Baumeister, Julie L.; Negrich, Kimberly: **BIOLOGICAL IMPACTS ON SERPENTINITE WEATHERING**
- 3:35 PM **BREAK**
- 172-8 3:50 PM Ghezzehei, Teamrat\*; Bogie, Nathaniel; Albalasmeh, Ammar: **ROLE OF MUCILAGE ON UPTAKE AND RELEASE OF WATER BY PLANT ROOTS**
- 172-9 4:05 PM Andrews, Megan\*; Duckworth, Owen: **DETECTION OF SIDEROPHORES IN NATURAL ENVIRONMENTS**
- 172-10 4:20 PM Balogh-Brunstad, Zsuzsanna\*; Keller, C. Kent; Shi, Z.: **MINERAL TRANSFORMATION THROUGH FUNGAL WEATHERING IN THE RHIZOSPHERE OF CONIFERS**

MONDAY

PM

## SESSION NO. 172

- 172-11 4:35 PM Wrage, Jackie\*; Hopkins, David; DeSutter, Thomas:  
**MICROMORPHOLOGY OF A SALT AFFECTED SOIL NEAR FARGO, NORTH DAKOTA**
- 172-12 4:50 PM Zhi, Wei\*: **ROOT-PROMOTED MINERAL WEATHERING: A REACTIVE TRANSPORT MODELING STUDY**
- 5:05 PM **DISCUSSION**
- 5:25 PM **CONCLUDING REMARKS**

## SESSION NO. 173

*T210. Strike Slip Fault Systems Transfer Stress Inboard from the Subduction Zone Margin Leading to Basin Subsidence and Orogenesis, Are Conduits for Magmatism, and Are Responsible for Far-Traveled Terrane Translation (GSA Structural Geology and Tectonics Division; GSA Mineralogy, Geochemistry, Petrology, and Volcanology Division)*

1:30 PM, Baltimore Convention Center, Room 308

Jeff Benowitz, John I. Garver and Michele Cooke, Presiding

- 173-1 1:30 PM Bemis, Sean P.\*; Benowitz, Jeff; Fendick, Anne M.; Terhune, Patrick; Carlson, J. Kade; Burkett, Corey: **ADVECTION AND MIGRATION IN THE MOUNT MCKINLEY RESTRAINING BEND OF THE DENALI FAULT, DENALI NATIONAL PARK & PRESERVE, ALASKA**
- 173-2 1:45 PM Enkelmann, Eva\*; Koons, Peter O.; Pavlis, Terry L.; Hallet, Bernard; Barker, Adam; Elliott, Julie; Garver, John I.; Pavlis, Gary; Ruppert, Natalia: **COOPERATION AMONG TECTONIC AND SURFACE PROCESSES IN THE ST. ELIAS RANGE; EARTH'S HIGHEST COASTAL MOUNTAINS**
- 173-3 2:00 PM Umhoefer, Paul J.\*; Skinner, Lisa A.; Miller, Robert B.; Eddy, Michael P.; Bowering, Samuel A.: **EOCENE PALEO GEOGRAPHY OF THE WASHINGTON – VANCOUVER ISLAND REGION DURING STRIKE-SLIP FAULTING BEFORE AND AFTER A MAJOR 50 MA TRANSITION**
- 173-4 2:15 PM Leever, Karen Agneta\*: **STRIKE-SLIP AND OBLIQUE-SLIP FAULTING ASSOCIATED WITH OBLIQUE COLLISION: EXPERIMENTAL INSIGHTS ON STRAIN LOCALIZATION AND SLIP PARTITIONING**
- 173-5 2:30 PM Ingersoll, Raymond V.\*; Coffey, Kevin T.: **TRANSROTATION INDUCED BY CRUSTAL BLOCKS MOVING INTO AND OUT OF RESTRAINING BENDS**
- 173-6 2:45 PM Duvall, Alison\*; Tucker, Gregory E.; Harbert, Sarah: **TRANSIENT LANDSCAPES IN STRIKE-SLIP SETTINGS**
- 173-7 3:00 PM Ma, Chong\*; Foster, David A.; Mueller, Paul A.; Dutrow, Barbara L.: **MAGMA-FACILITATED TRANSPRESSIONAL DEFORMATION WITHIN THE IDAHO BATHOLITH (SAWTOOTH METAMORPHIC COMPLEX, IDAHO): A ZONE ACCOMMODATING CRETACEOUS OROGEN-PARALLEL TRANSLATION**
- 173-8 3:15 PM McClelland, William C.\*; Strauss, Justin V.; Ward, William P.; Malone, Shawn J.; Colpron, Maurice; Piepjohn, Karsten; von Gosen, Werner; Macdonald, Francis A.; Gehrels, George; Gilotti, Jane A.: **EVIDENCE FOR A PALEOZOIC STRIKE-SLIP OROGEN ON THE NORTH AMERICAN ARCTIC MARGIN**
- 3:30 PM **BREAK**
- 173-9 3:45 PM Jacobi, Robert D.\*; Starr, Joel; Eckert, Craig; Schweigel, Talyer; Hrywnak, Anna; Mitchell, Charles E.; O'Hara, Alex: **RELAY RAMPS AND RHOMBOCHASMS: EXTENSION, STRIKE SLIP MOTION, AND THE NATURE OF THE PENNSYLVANIA SALIENT/OROCLINE IN THE MARCELLUS AND UTICA OF THE NORTHERN APPALACHIAN BASIN**
- 173-10 4:00 PM Hughes, Cameron A.\*; Jessup, Micah J.; Shaw, Colin A.; Newell, Dennis L.: **DEFORMATION DURING SYN-CONVERGENT EXTENSION ALONG THE CORDILLERA BLANCA SHEAR ZONE, PERU**

- 173-11 4:15 PM Alvarez Naranjo, Angelica\*; Hogan, John P.: **FAULT GROWTH DURING NASCENT STAGES OF CONTINENTAL RIFTING**
- 173-12 4:30 PM Williams, Randolph T.\*; Goodwin, Laurel B; Mozley, Peter S.; Sharp, Warren D.: **DIAGENETIC CONTROLS ON FAULT-ZONE ARCHITECTURE AND PERMEABILITY STRUCTURE IN NORMAL FAULTS: TEMPORAL CONSTRAINTS ON THE DISTRIBUTION, RECURRENCE, AND DURATION OF FAULT-ZONE FLUID MIGRATION**
- 173-13 4:45 PM Niemeijer, André R.\*; Plümper, Oliver: **LOW FRICTIONAL STRENGTH OF PHYLLOSILICATE-BEARING MIXTURES: MECHANICAL DATA AND MICROSTRUCTURAL OBSERVATIONS**
- 173-14 5:00 PM Platt, John D.\*; Meade, Brendan J.; Savage, Heather M.; Rowe, Christie D.: **RAPID DUCTILE AFTERSLIP FROM COSEISMIC HEATING**
- 173-15 5:15 PM Wersan, Louis S.\*: **REINVESTIGATING THE MISSION CREEK FAULT: HOLOCENE SLIP RATES IN THE NORTHERN COACHELLA VALLEY AND IMPLICATIONS FOR SOUTHERN CALIFORNIA EARTHQUAKE HAZARD ASSESSMENT**

## SESSION NO. 174

*T8. Bridging Two Continents: Supercontinents In Earth's History: New Perspectives from Precambrian Geology of Asia and North America*

3:00 PM, Baltimore Convention Center, Room 347/348

Mingguo Zhai, J. Brendan Murphy and Joseph G. Meert, Presiding

- 174-1 3:00 PM Wang, Xiaoxia\*; Wang, Tao; Castro, Antonio; Hu, Nenggao: **RECOGNITION OF PROTEROZOIC RAPAOKI GRANITES FROM THE PALEOZOIC NORTH QIDAM OROGEN, CENTRAL CHINA AND ITS IMPLICATIONS**
- 174-2 3:15 PM Zhou, Qi\*; DU, Yuansheng; Yuan, Liangjun; Yu, Wenchao; LIU, Yu: **MANGANESE ORE RIFT BASIN METALLOGENIC SYSTEM AND MASSIVE METALLOGENESIS**
- 174-3 3:30 PM Zhang, Shao-Bing\*; Zheng, Yong-Fei; Zhao, Zi-Fu: **EXTREMELY ENRICHED MANTLE BENEATH THE YANGTZE CRATON IN THE NEOPROTEROZOIC: CONSTRAINTS FROM THE QICHUN MAFIC-ULTRAMAFIC ROCKS**
- 174-4 3:45 PM Windley, Brian\*; Wan, Bo; Xiao, Wenjiao: **NEW CONFIGURATION OF NUNA: A NORTH CHINA CRATON-SIBERIA CONNECTION BASED ON SIMILAR HP GARNET WEBSTERITE COMPLEXES**
- 174-5 4:00 PM Isozaki, Yukio\*; Nakahata, Hiroki; Zakharov, Yuri D.; Poppov, Alexander; Sakata, Shuhei; Hirata, Takafumi: **DETRITAL ZIRCON CHRONOLOGY OF MIDDLE-UPPER PALEOZOIC SANDSTONES AROUND THE KHANKA BLOCK (FAR EAST RUSSIA): A NEW CONSTRAINT TO GREATER SOUTH CHINA**
- 174-6 4:15 PM Chamberlain, Kevin R.\*; Kilian, Taylor; Evans, David A.D.; Bleeker, Wouter: **LATE ARCHEAN TO PROTEROZOIC RECONSTRUCTIONS OF WYOMING AND SUPERIOR CRATONS**
- 174-7 4:30 PM Johnson, Thomas A.\*; Ramsey, Molly J.; Vervoort, Jeffrey D.; Mulcahy, Sean R.; Southworth, Scott; Aleinikoff, John N.: **SLOW COOLING: THE TIMING AND DURATION OF METAMORPHISM IN THE BLUE RIDGE PROVINCE, VIRGINIA AND NORTH CAROLINA**
- 174-8 4:45 PM Daniel, Christopher G.\*; Jones, III, James V.; Doe, Michael F.: **TECTONIC AND SEDIMENTARY LINKAGES BETWEEN THE BELT-PURCELL BASIN AND SOUTHWESTERN LAURENTIA AND IMPLICATIONS FOR SUPERCONTINENT CONFIGURATIONS DURING THE MESOPROTEROZOIC, CA. 1.60–1.40 GA**
- 174-9 5:00 PM Zhao, Yue\*; Hu, Bin; Gao, Jianfei; Luo, Xurong: **ATTEMPTS ON CONSTRAINING THE OCEANIC AND ATMOSPHERIC CHANGES DURING THE**

**PROTEROZOIC: INSIGHTS FROM LITHIUM ISOTOPES IN JIXIAN SECTION, NORTH CHINA**

- 174-10 5:15 PM Han, Xin\*; Liu, Junlai; Chen, Xiaoyu: **ZIRCON U-PB AGES AND GEOCHEMISTRY OF QIAN'AN CHARNOKITES IN EASTERN HEBEI, NORTH CHINA CRATON: IMPLICATIONS FOR PETROGENESIS AND TECTONIC SETTING**

**SESSION NO. 175****GSA Hydrogeology Division: Henry Darcy Distinguished Lecture**

5:30 PM, Baltimore Convention Center, Ballroom IV

Madeline E. Schreiber, Presiding

- 175-1 5:30 PM Helmig, Rainer\*: **EVALUATING THE COMPETITIVE USE OF THE SUBSURFACE: THE INFLUENCE OF ENERGY STORAGE AND PRODUCTION IN GROUNDWATER**

**TUESDAY, 3 NOVEMBER 2015****MORNING ORAL TECHNICAL SESSIONS****SESSION NO. 176****Paleontology: Evolutionary Patterns in the Fossil Record**

8:00 AM, Baltimore Convention Center, Room 316

Sarah Tweedt and Rachel Racicot, Presiding

- 176-1 8:00 AM Congreve, Curtis R.\*; Lamsdell, James C.: **IMPLIED WEIGHTING AND ITS UTILITY IN PHYLOGENETIC PALEONTOLOGICAL DATASETS: A STUDY USING MODELLED PHYLOGENETIC MATRICES**
- 176-2 8:15 AM Hopkins, Melanie\*: **THE INTERACTION OF RATE, MAGNITUDE, AND DIRECTION OF CHANGE IN DETERMINING LONG-TERM PATTERNS OF MORPHOLOGICAL EVOLUTION**
- 176-3 8:30 AM Voje, Kjetil Lysne\*: **MODE DOES NOT CORRELATE WITH TEMPO IN EVOLUTION**
- 176-4 8:45 AM Gingerich, Philip D.\*: **TIME SPAN OF PHYLOGENY'S INFLUENCE ON PHENOTYPES**
- 176-5 9:00 AM Tweedt, Sarah\*: **PRINCIPLES OF DEVELOPMENT UNDERLIE A MODEL FOR MORPHOLOGY**
- 176-6 9:15 AM Wagner, Peter J.\*; Warnock, Rachel: **PRIOR PROBABILITIES OF STRATIGRAPHIC GAPS IMPLIED BY PHYLOGENIES**
- 176-7 9:30 AM Green, Walton A.\*: **HOW DENSE CAN YOU BE? MEASURES OF VEIN DENSITY IN ANGIOSPERM LEAVES**
- 176-8 9:45 AM Larson-Johnson, Kathryn\*; Boyce, C. Kevin: **A FUNCTIONAL DESIGN SPACE FOR AERODYNAMIC DISPERSAL BEHAVIOR BASED ON WING MORPHOLOGY FOR ALL LIVING AND FOSSIL PLANT PROPAGULES**
- 176-9 10:00 AM Carlson, Sandra J.\*; Bapst, David W.; Schreiber, Holly A.: **COMBINED ANALYSIS OF EXTANT RHYNCHONELLIDA (BRACHIOPODA) USING MORPHOLOGICAL AND MOLECULAR DATA**
- 176-10 10:15 AM Swisher, Robert E.\*; Webster, Mark: **UNRAVELING EVOLUTIONARY PATTERNS IN THE EARLY CAMBRIAN; A PHYLOGENETIC ANALYSIS OF THE TRILOBITE FAMILY EDELSTEINASPIDIDAE AND THE PALEOBIOGEOGRAPHIC IMPLICATIONS**
- 176-11 10:30 AM Witte, Matthew\*; Yacobucci, Margaret M.: **MORPHOMETRIC ANALYSIS OF THE TRILOBITE *ELDREDGEOPS RANA* TO ASSESS GEOGRAPHIC PATTERNS OF VARIATION**

**IN THE MICHIGAN AND APPALACHIAN BASINS DURING THE MIDDLE DEVONIAN PERIOD**

- 176-12 10:45 AM Heins, Liam E.\*; Holder, Mark T.; Lieberman, Bruce S.: **MAXIMUM LIKELIHOOD AND TRILOBITES: A NEW APPROACH TO PHYLOGENETIC ANALYSES OF FOSSIL TAXA**
- 176-13 11:00 AM Vinther, Jakob\*; Briggs, Derek E. G.; Van Roy, Peter: **A HALKIERIID-LIKE ACULIFERAN MOLLUSC FROM THE EARLY ORDOVICIAN FEZOUATA BIOTA, ANTI ATLAS REGION, MOROCCO**
- 176-14 11:15 AM Andreev, Plamen Stanislavov\*; Coates, Michael I.; Sansom, Sr., Ivan J.: **SCALE-BASED PHYLOGENY OF PALEOZOIC CHONDRICHTHYANS**
- 176-15 11:30 AM Lively, Joshua\*: **IMPLICATIONS OF THE MORPHOLOGY OF THE BONY LABYRINTH FOR THE PALEOECOLOGY AND SYSTEMATICS OF TURTLES**
- 176-16 11:45 AM Chang, Lucy\*; Finnegan, Seth; Marshall, Charles R.: **MORPHOLOGICAL PREDICTORS OF BACKGROUND EXTINCTION RISK FOR AMMONITES THROUGH THE CRETACEOUS**

**SESSION NO. 177****P3. Earth-Life Systems at the Dawn of Animals (Paleontological Society; GSA Geobiology & Geomicrobiology Division)**

8:00 AM, Baltimore Convention Center, Room 327/328/329

James D. Schiffbauer, Marc Laflamme and Simon A.F. Darroch, Presiding

- 177-1 8:00 AM Evans, David A.D.\*; Mitchell, Ross N.: **EDIACARAN CONTINENTAL MOTIONS: THE CONUNDRUM PERSISTS**
- 177-2 8:15 AM Kaufman, Alan J.\*; Kriesfeld, Les; Cui, Huan; Narbonne, Guy M.; Vickers-Rich, Patricia; Zhou, Chuanming; Xiao, Shuhai: **AN AUTHIGENIC ORIGIN FOR THE MIDDLE EDIACARAN SHURAM EXCURSION: THE VIEW FROM NAMIBIA AND SOUTH CHINA**
- 177-3 8:30 AM Jiang, Gangqing\*: **EDIACARAN-EARLY CAMBRIAN CARBON CYCLES AND OCEAN OXYGENATION EVENTS**
- 177-4 8:45 AM Sperling, Erik A.\*: **THE ECOLOGICAL PHYSIOLOGY OF EARTH'S SECOND OXYGEN REVOLUTION**
- 177-5 9:00 AM Wood, Rachel\*: **DID DYNAMIC REDOX CONDITIONS CONTROL LATE EDIACARAN METAZOAN ECOSYSTEMS?**
- 177-6 9:15 AM Love, Gordon D.\*; Lee, Carina; Pehr, Kelden; Zumbege, J. Alex: **TRACKING THE NEOPROTEROZOIC RISE OF EUKARYOTES AND EMERGENCE OF METAZOA USING LIPID BIOMARKERS**
- 177-7 9:30 AM Pisani, Davide\*: **MOLECULAR EVIDENCE OF EARLY ANIMAL EVOLUTION: ARE WE MAKING ANY PROGRESS?**
- 177-8 9:45 AM Budd, Graham E.\*; Jensen, Sören: **ACROSS THE SAVANNAH: A NEW PERSPECTIVE ON EDIACARAN EVOLUTION**
- 177-9 10:00 AM Buatois, Luis A.\*; Mangano, Maria Gabriela: **EDIACARAN ICHNOLOGY AND THE DAWN OF ANIMALS**
- 177-10 10:15 AM Xiao, Shuhai\*; Liu, Yunhuan; Zhang, Huaqiao; Shao, Tiequan; Muscente, A. D.: **SCALIDOPHORAN ANIMALS AT THE EDIACARAN-CAMBRIAN TRANSITION**
- 177-11 10:30 AM Peters, Shanan E.\*; Husson, Jon; Gaines, Robert R.: **A GREAT DIVIDE: THE PHYSICAL STRATIGRAPHIC RECORD OF EARTH SYSTEMS CHANGES AT THE DAWN OF ANIMALS**
- 177-12 10:45 AM Knoll, Andrew H.\*: **CAMBRIAN SKELETAL BIOMINERALIZATION AND ITS BIOGEOCHEMICAL CONSEQUENCES**
- 177-13 11:00 AM Caron, Jean-Bernard\*; Gaines, Robert R.: **SYSTEMATIC PALEONTOLOGICAL INVESTIGATIONS OF THE MARBLE CANYON BURGESS SHALE DEPOSIT AND**

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TUESDAY

- SURROUNDING AREAS (MIDDLE CAMBRIAN), BRITISH COLUMBIA**
- 177-14 11:30 AM Erwin, Douglas H.\*: **BIOLOGICAL DRIVERS AND GEOLOGICAL CONTROLS ON THE EDIACARAN-CAMBRIAN DIVERSIFICATION OF ANIMALS**

## SESSION NO. 178

**T13. Geologic Energy Research II (GSA Energy Geology Division; GSA Environmental and Engineering Geology Division)**

8:00 AM, Baltimore Convention Center, Room 321

Brett J. Valentine, J. Fred McLaughlin and Marc L. Buursink, Presiding

- 178-1 8:00 AM Richard, Stephen M.\*; Allison, M. Lee: **OPEN ACCESS TO GEOSCIENCE DATA FOR GEOTHERMAL ENERGY EXPLORATION AND ASSESSMENT**
- 178-2 8:15 AM Camp, Erin R.\*; Jordan, Teresa E.; Hornbach, Matthew J.; Richards, Maria; Whealton, Calvin; Smith, Jared; Frone, Zachary; Stedinger, Jery; Welcker, Kelydra; He, Xiaoning: **GEOTHERMAL PLAY FAIRWAY ANALYSIS OF THE APPALACHIAN BASIN: LESSONS LEARNED IN RESERVOIR MAPPING AND CHARACTERIZATION**
- 178-3 8:30 AM Sylvester, Paul J.\*: **PETROGRAPHY AND GEOCHEMISTRY OF HEAVY MINERALS IN USA SHALE PLAYS**
- 178-4 8:45 AM Lauer, Nancy E.\*; Harkness, Jennifer S.; Vengosh, Avner: **GEOCHEMICAL CHARACTERIZATION OF THE BAKKEN OIL AND GAS PRODUCED WATERS AND ASSOCIATED SURFACE WATER SPILLS IN NORTH DAKOTA**
- 178-5 9:00 AM Hooks, Christopher H.\*; Hills, Denise J.; McIntyre-Redden, Marcella R.: **REASSESSING THE OIL SANDS OF ALABAMA**
- 178-6 9:15 AM Harrington, Jacob\*; Muehlenbachs, Karlis; Poreda, Robert J.; Whyte, Colin; Moore, Myles T.; Darrah, Thomas H.: **THE NOBLE GAS AND HYDROCARBON GEOCHEMISTRY OF THE EAGLE FORD SHALE OF TEXAS, USA**
- 178-7 9:30 AM Valentine, Brett J.\*; Hackley, Paul C.; Enomoto, Catherine B.; Scholl, Owen D.; Lohr, Celeste D.: **PRELIMINARY THERMAL MATURITY AND ORGANIC PETROLOGY OF THE UPPER CRETACEOUS TUSCALOOSA MARINE SHALE, MISSISSIPPI, USA**
- 9:45 AM **BREAK**
- 178-8 10:00 AM Hackley, Paul C.\*; Burruss, Robert C.: **FLUORESCENCE SPECTROSCOPY OF TASMANITES MICROFOSSILS IN RELATION TO THERMAL MATURITY AND CHEMICAL COMPOSITION: APPLICATION OF CONFOCAL LASER SCANNING MICROSCOPY**
- 178-9 10:15 AM Ge, Xiang\*; Shen, Chuanbo; Deng, Daifei; Selby, David; Ji, Hongguo; Liu, Zhaoqian; Mei, Lianfu: **TIMING CONSTRAINTS OF TECTONIC UPLIFT AND DRY GAS GENERATION: INSIGHTS FROM RE-OS PYROBITUMEN AND APATITE FISSION TRACK GEOCHRONOLOGY OF THE XUEFENG UPLIFT, SOUTH CHINA**
- 178-10 10:30 AM Epstein, Samuel\*: **SUBSIDENCE AND SALT TECTONICS DEAD SEA -IMPLICATIONS TO HYDROCARBON BASIN MODELLING**
- 178-11 10:45 AM Liu, Junjie\*; Selby, David; Obermajer, Mark; Mort, Andy: **RHENIUM-OSMIUM SYSTEMATICS OF THE DUVERNAY PETROLEUM SYSTEM, ALBERTA, CANADA: IMPLICATIONS FOR RHENIUM-OSMIUM SYSTEMATICS OF PETROLEUM**
- 178-12 11:00 AM Montefusco, Jacob Charles\*; Husinec, Antun: **INTEGRATION OF LITHOFACIES AND PETROPHYSICAL PROPERTIES FOR BETTER UNDERSTANDING OF THE RESERVOIR ARCHITECTURE, RED RIVER B INTERVAL, WILLISTON BASIN, NORTH DAKOTA**
- 178-13 11:15 AM Lawal, Lateef\*: **SIMPLE MIXING THEORY FOR KEROGEN CHARACTERIZATION IN HYDROCARBON BEARING SHALE**

- 178-14 11:30 AM Kibria, MD Golam\*; QinHong, Hu; Yuxiang, Zhang; Madden, Andrew Elwood: **FLUID IMBIBITION, CLAY MINERALOGY, AND PORE STRUCTURE OF VARIOUS SHALES**
- 178-15 11:45 AM Chopping, Curtis G.\*; Jones, Nick; Yin, Peigui: **QUANTIFICATION OF A CLAY-RICH CRETACEOUS OIL RESERVOIR FOR AN EOR PILOT PROJECT**

## SESSION NO. 179

**T35. Honoring the Diverse Career of Dr. W. Berry Lyons: Geochemistry from Polar Deserts to Tropical Watersheds (GSA Mineralogy, Geochemistry, Petrology, and Volcanology Division; GSA Hydrogeology Division; GSA Limnogeology Division; International Association of GeoChemistry; Geochemical Society)**

8:00 AM, Baltimore Convention Center, Room 342

Sarah K. Fortner, Carolyn B. Dowling, Karen Johannesson, Klaus Neumann and Carmen A. Nezat, Presiding

- 179-1 8:00 AM Fortner, Sarah K.\*; Dowling, Carolyn B.; Goldsmith, Steven T.; Johannesson, Karen; Leslie, Deborah; Neumann, Klaus; Nezat, Carmen A.; Welch, Kathleen A.; Welch, Susan A.: **KEY CONTRIBUTIONS OF W. BERRY LYONS TO TRANSDISCIPLINARY GEOCHEMICAL EXPLORATION**
- 179-2 8:15 AM Fitzgerald, William F.\*; Hammerschmidt, Chad R.; Engstrom, Daniel R.; Lamborg, Carl H.; Balcom, Prentiss H.; Reddy, Christopher M.: **HIGH-RESOLUTION CHRONOLOGY OF MERCURY AND ITS ASSOCIATION WITH POLYCYCLIC AROMATIC HYDROCARBONS (PAHS) AND LEAD ACCUMULATION IN A VARVED ESTUARINE SEDIMENT CORE**
- 179-3 8:35 AM Wall, Diana H.\*: **THE MCMURDO DRY VALLEYS AND CLIMATE CHANGE: INTERDISCIPLINARY SCIENCE FORGES NEW UNDERSTANDING**
- 179-4 8:55 AM Castendyk, Devin\*; Niebuhr, Spencer; Haby, Paul; Lyons, W. Berry: **SIMULATED RESPONSE OF A PERENNIALY ICE-COVERED LAKE IN ANTARCTICA TO A LARGE-SCALE FLOOD EVENT USING CE-QUAL-W2**
- 179-5 9:10 AM Levy, Joseph\*; Fountain, Andrew G.: **SHALLOW GROUNDWATER AND BRINE PROCESSES IN ANTARCTICA: UNCOVERING THE ROLE OF WATER TRACKS IN THE MCMURDO DRY VALLEYS**
- 179-6 9:25 AM Tyler, Scott W.\*: **FLUID DYNAMICS AND GEOCHEMISTRY: TWENTY-FIVE YEARS OF COLLABORATION PROVING THAT OIL AND WATER CAN MIX!**
- 179-7 9:40 AM Poreda, Robert\*: **EVALUATING THE IMPORTANCE OF SUB-SURFACE INPUTS OF SOLUTES TO THE COASTAL OCEAN**
- 179-8 9:55 AM Green, Adrian C.\*; Kroeger, K.D.; Ganju, N.K.; Pohlman, J.; Brooks, T.W.; Brosnahan, S.; Wang, Z.; Gonnee, M.; Tang, J.; Moseman-Valtierra, S.: **NEW APPROACHES IN QUANTIFYING LATERAL CARBON FLUXES IN SALT MARSH ENVIRONMENTS**
- 179-9 10:10 AM Orem, William\*; Eganhouse, Robert P.; Edwards, Brian; Lerch, Harry; Jarboe, Palma J.; Bates, Anne; Pontolillo, James; Reinhard, Martin: **ENVIRONMENTAL CONDITIONS OF DDT DECHLORINATION IN SEDIMENTS OF THE PALOS VERDES SHELF, CALIFORNIA**
- 179-10 10:25 AM Goldsmith, Steven T.\*; Harmon, Brendan; Harmon, Russell S.; Lyons, W. Berry; Long, David T.; Gardner, Christopher B.; Welch, Kathleen A.; Welch, Susan A.: **SILICATE WEATHERING AND CO<sub>2</sub> CONSUMPTION IN A MOUNTAINOUS TROPICAL SETTING: INSIGHTS FROM THE ISTHMUS OF PANAMA**
- 179-11 10:40 AM Gardner, Christopher B.\*; Litt, Guy F.; Lyons, W. Berry; Ogden, Fred L.: **GERMANIUM AND SILICON AS INDICATORS OF PREFERENTIAL HYDROLOGIC FLOWPATH ACTIVATION IN SMALL TROPICAL PANAMANIAN WATERSHEDS**



- 179-12 10:55 AM Carey, Anne E.\*; Dailey, Kelsey R.; Welch, Susan A.; Welch, Kathleen A.; Lyons, W. Berry: **THE GEOCHEMISTRY OF SMALL MOUNTAINOUS RIVERS IN SOUTHERN ITALY**
- 179-13 11:10 AM Meyer, Kevin J.\*; You, Chen-Feng; Carey, Anne E.; Chen, Yen-Hsin: **TYPHOON IMPACTS ON THE CHEMICAL WEATHERING REGIME OF A HIGH MOUNTAINOUS RIVER, TAIWAN**
- 179-14 11:25 AM Long, David T.\*; Voice, Thomas C.; Chen, Ao; Lee, Eungsang; Huiyun, Wu; Xing, Fangli; Oun, Amira; Xagorarakis, Irene: **EXPLORING TEMPORAL PATTERNS OF SELECTED SOLUTES DURING HYDROLOGIC EVENTS IN AN URBAN SETTING TO UNDERSTAND PATHWAYS**
- 179-15 11:40 AM Benson, Larry V.\*: **DATING NORTH AMERICA'S OLDEST PETROGLYPHS**

## SESSION NO. 180

**T49. Mechanistic Insights into the Biogeochemical Processes Controlling Phosphorus Transport and Cycling (GSA Geobiology & Geomicrobiology Division; GSA Mineralogy, Geochemistry, Petrology, and Volcanology Division; Geochemical Society)**

8:00 AM, Baltimore Convention Center, Room 343

Yuanzhi Tang, Nadine Kabengi and Rixiang Huang, Presiding

- 8:00 AM **INTRODUCTORY REMARKS**
- 180-1 8:15 AM Benitez-Nelson, Claudia\*; McParland, Erin; Taylor, Gordon; Thunell, Robert C.: **INSIGHTS INTO PHOSPHORUS CYCLING ACROSS OXIC-ANOXIC BOUNDARIES IN MARINE SYSTEMS**
- 180-2 8:35 AM Blake, Ruth E.\*; Surkov, Alex V.; Stout, Lisa M.; Li, Hui; Jaisi, Deb P.; Chang, Sae Jung: **DNA THERMOMETRY AND O-ISOTOPIC COMPOSITION OF ORGANOPHOSPHORUS SOURCE MATERIALS: NEW TOOLS IN THE STUDY OF BIOGEOCHEMICAL CYCLING AND TRANSPORT OF P**
- 180-3 8:55 AM Rouff, Ashaki A.\*: **TRACE ELEMENT ASSOCIATION WITH STRUVITE DURING RECOVERY OF PHOSPHORUS FROM CONTAMINATED WATER**
- 180-4 9:15 AM Huang, Rixiang\*; Tang, Yuanzhi: **SURFACE ADSORPTION AND ENZYMIC HYDROLYSIS OF POLYPHOSPHATES – IMPLICATIONS FOR UNDERSTANDING THE BIOGEOCHEMICAL CYCLING POLYPHOSPHATE**
- 180-5 9:30 AM Sun, Mingjing\*; Wu, Jiangqi; Jaisi, Deb P.: **KINETICS AND PATHWAYS OF PHYTATE DEGRADATION: LINKING ENZYMIC DEGRADATION TO INCREASED ORTHOPHOSPHATE IN THE ENVIRONMENT**
- 180-6 9:45 AM Keenan, Sarah W.\*; Engel, Annette Summers: **THERMODYNAMIC PREDICTIONS OF BIOAPATITE STABILITY IN ENVIRONMENTAL SYSTEMS**
- 180-7 10:00 AM Li, Jiying\*; Reardon, Patrick N.; Joshi, Sunendra; Bai, Yuge; Bear, Kristi; Washon, Nancy; Jaisi, Deb P.: **REMINEALIZATION OF ORGANIC PHOSPHORUS AND PRECIPITATION OF AUTHIGENIC PHOSPHATE IN THE WATER COLUMN IN THE MID-CHESAPEAKE BAY**
- 10:15 AM **BREAK**
- 180-8 10:30 AM Joshi, Sunendra R.\*; Risal, Saswot; Li, Jiying; Li, Wei; Jaisi, Deb P.: **COUPLED FE-P OR C-P PATHWAYS OF P CYCLING IN THE CHESAPEAKE BAY SEDIMENTS: COMPARISON OF THREE SITES WITH CONTRASTING BOTTOM WATER HYPOXIA**
- 180-9 10:45 AM Zhao, Shiliang\*; Tang, Yuanzhi: **EFFECTS OF ZN PRESENCE ON THE STRUCTURE AND REACTIVITY OF MN OXIDES TOWARDS PHOSPHATE SORPTION**
- 180-10 11:00 AM Druschel, Gregory\*; Schroth, Andrew; Giles, Courtney D.; Isles, Peter; Xu, Yaoyang: **IRON-MANGANESE-PHOSPHORUS CYCLING IN SHALLOW FRESHWATER SYSTEMS UNDER ICE: THE CASE FOR PRIMING THE P PUMP**

- 180-11 11:15 AM Simon, Nancy S.\*; Conko, Kathryn M.; Ingle, Sarah; Fischer, Kris; Abdul Ali, Ahmad: **THE PHOSPHORUS CYCLE IN A VOLCANIC BASIN LAKE IS AFFECTED BY ELEVATED SILICA CONCENTRATIONS: UPPER KLAMATH LAKE, OREGON**
- 180-12 11:30 AM Tidwell, Chris\*; Waters, Matthew; Deocampo, Daniel M.; Kabengi, Nadine: **A PALEOLIMNOLOGICAL STUDY OF THE STRANGE CASE OF LONG POND (GA, USA): HIGH PHOSPHORUS INPUTS WITH A LACK OF EUTROPHICATION**
- 11:45 AM **DISCUSSION**

## SESSION NO. 181

**T59. Advances in Crustal Geophysics and Tectonics I: In Honor of G.R. Keller (GSA Geophysics Division; GSA Structural Geology and Tectonics Division; GSA Mineralogy, Geochemistry, Petrology, and Volcanology Division; GSA Geoinformatics Division)**

8:00 AM, Baltimore Convention Center, Room 347/348

Kevin L. Mickus, Catherine M. Snelson and Dennis L. Harry, Presiding

- 8:00 AM **INTRODUCTORY REMARKS**
- 181-1 8:05 AM Andronicos, Christopher L.\*; Dummond, Gregory: **BULK COMPOSITION OF CONTINENTAL CRUST IN THE RIO GRANDE RIFT BASED ON RIFT FLANK UPLIFTS AND CRUSTAL XENOLITHS**
- 181-2 8:20 AM Grauch, V.J.S.\*; Connell, Sean D.: **INTEGRATED GEOPHYSICAL MODELING OF THE ALBUQUERQUE BASIN RAISES QUESTIONS ABOUT THE MIOCENE DEVELOPMENT OF THE CENTRAL RIO GRANDE RIFT, NEW MEXICO**
- 181-3 8:35 AM Pulliam, Jay\*; Gurrola, Harold; Grand, Stephen P.: **BROADBAND SEISMIC STUDIES OF SOUTHERN LAURENTIA: LITHOSPHERIC STRUCTURE FROM THE RIO GRANDE RIFT TO TEXAS' GULF COAST**
- 181-4 8:50 AM Doser, Diane I.\*; Avila, Victor; Dena, Oscar; Budhathoki, Pawan; Thapalia, Anita; Moncada, Manuel; Montana, Carlos; Kaip, Galen M.: **DETERMINING BASIN STRUCTURE OF THE HUECO AND SOUTHERN MESILLA BOLSONS, WEST TEXAS, SOUTHERN NEW MEXICO AND NORTHERN CHIHUAHUA: GEOPHYSICAL CHALLENGES IN AN URBAN SETTING**
- 181-5 9:05 AM Jones, Craig H.\*; Levandowski, Will; Bernardino, Melissa; Roecker, Steven: **RESOLVING THE CHARACTER OF THE CRYPTIC CRUST OF THE WESTERN SIERRA NEVADA, CALIFORNIA**
- 181-6 9:20 AM Miller, Kate C.\*; Worthington, Lindsay Lowe; Chamberlain, Kevin R.; Erslev, Eric; Sheehan, Anne; Anderson, Megan; Harder, Steven; Siddoway, Christine S.: **BUILDING ON THE LEGACY OF DEEP PROBE AND CD-ROM: CRUSTAL STRUCTURE OF THE BIGHORN MOUNTAINS, WYOMING AND ITS RELATIONSHIP TO PRECAMBRIAN AND LARAMIDE TECTONICS**
- 181-7 9:35 AM Levander, Alan\*; Kiser, Eric; Palomeras, Immaculada; Zelt, Colin A.; Schmandt, Brandon; Hansen, Steven; Harder, Steven; Creager, Kenneth; Vidale, John E.: **IMUSH: MAGMA RESERVOIRS FROM THE UPPER CRUST TO THE MOHO INFERRED FROM HIGH-RESOLUTION VP AND VS TOMOGRAPHY BENEATH MOUNT ST. HELENS**
- 9:50 AM **BREAK**
- 181-8 10:05 AM Drenth, Benjamin J.\*; Grauch, V.J.S.; Schenk, Judith: **AIRBORNE GRAVITY GRADIENT MAPPING OF CONCEALED RANGE FRONT STRUCTURE, GREAT SAND DUNES NATIONAL PARK, RIO GRANDE RIFT, COLORADO**
- 181-9 10:20 AM Parker, Don F.\*; White, John C.: **BASEMENT CONTROL OF ALKALIC FLOOD RHYOLITE MAGMATISM OF THE DAVIS MOUNTAINS VOLCANIC FIELD, TRANS-PECOS TEXAS**

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TUESDAY

SESSION NO. 181

- 181-10** 10:35 AM Cipar, John J.\*; Ebel, John E.; Schuh, John: **USING SEISMIC RECEIVER FUNCTIONS TO STUDY THE DEEP CRUST BENEATH NORTHERN APPALACHIAN TERRANES**
- 181-11** 10:50 AM Hatcher, Jr., Robert D.\*; Horton, Jr., J. Wright; Daniels, David L.; Snyder, Stephen L.: **GRAVITY LOW-HIGH PAIRS IN OROGENS: THICKENED-THINNED CRUST, SUTURES, OR HYBRID MECHANISMS?**
- 181-12** 11:05 AM Stein, Carol A.\*; Stein, Seth; Kley, Jonas; Keller, G.R.; Bollman, Trevor; Wolin, Emily; Zhang, Hao; Frederiksen, Andrew; Ola, Kunle; Wysession, Michael E.: **NORTH AMERICA'S MIDCONTINENT RIFT: WHEN RIFT MET LIP**
- 181-13** 11:20 AM Keller, G. Randy\*: **REFLECTIONS ON THE COMPLEX STRUCTURE AND TECTONIC EVOLUTION OF THE MID-CONTINENT REGION, USA**

- 182-11** 11:00 AM Glasbrenner, Jacob C.\*; Hatcher, Jr., Robert D.; Li, Yingkui: **COSMOGENIC 26AL-10BE BURIAL DATING OF LITTLE TENNESSEE RIVER TERRACE DEPOSITS: AN APPLICATION TO THE EAST TENNESSEE SEISMIC ZONE**
- 182-12** 11:15 AM Olgun, C. Guney\*; Barham, Thomas A.; Eddy, Morgan A.; Tilshalski, Mark; Chapman, Martin C.; Rodriguez-Marek, Adrian: **SEISMIC HAZARD MAPPING OF THE NATIONAL CAPITAL REGION USING RANDOM FIELD MODELS**
- 182-13** 11:30 AM Free, James C.\*; Currie, Brian S.; Brudzinski, Michael; Skoumal, Robert: **RELATIONSHIPS BETWEEN PRE-EXISTING STRUCTURE, REGIONAL STRESS ORIENTATION, AND SEISMICITY INDUCED BY WASTEWATER INJECTION, NORTHERN APPALACHIAN BASIN, USA**
- 182-14** 11:45 AM Horowitz, Franklin G.\*: **IDENTIFYING SEISMIC RISK IN THE APPALACHIAN BASIN GEOTHERMAL PLAY FAIRWAY ANALYSIS PROJECT USING POTENTIAL FIELDS, SEISMICITY, AND THE WORLD STRESS MAP**

SESSION NO. 182

**T63. Intraplate Earthquakes, Seismotectonics, and Geodynamics in Eastern and Central North America (GSA Structural Geology and Tectonics Division; GSA Geophysics Division; GSA Environmental and Engineering Geology Division; GSA Quaternary Geology and Geomorphology Division; EarthScope; U.S. Geological Survey)**

8:00 AM, Baltimore Convention Center, Room 322/323

J. Wright Horton Jr., Christine A. Powell and Robert A. Williams, Presiding

- 182-1** 8:00 AM Thomas, William A.\*: **TECTONIC FABRIC OF EASTERN NORTH AMERICA**
- 182-2** 8:20 AM Soto-Cordero, Lillian\*; Meltzer, Anne S.; Stachnik, Josh: **CRUSTAL STRUCTURE OF THE MID-ATLANTIC, EASTERN UNITED STATES**
- 182-3** 8:35 AM Chen, Chen\*; Gilbert, Hersh; Pavlis, Gary L.; Hamburger, Michael W.; Marshak, Stephen; Larson, Timothy; Yang, Xiaotao: **THE LITHOSPHERIC SIGNATURE OF THE REELFOOT RIFT AS REVEALED IN THE SHEAR VELOCITY STRUCTURE BENEATH THE CENTRAL UNITED STATES**
- 182-4** 8:50 AM DeLucia, Michael S.\*; Marshak, Stephen; Guenther, William R.; Abert, Curtis; Larson, Timothy; Yang, Xiaotao; Pavlis, Gary L.; Hamburger, Michael W.; Chen, Chen; Gilbert, Hersh: **TECTONIC ACTIVITY AT THE BOUNDARY BETWEEN BORDERING BASINS AND THE MIDCONTINENT BLOCK IN THE USA CRATONIC PLATFORM: HINTS FROM ANALYSIS OF THE OZARK DOME - ILLINOIS BASIN BOUNDARY**
- 182-5** 9:05 AM Thomas, William A.\*; Powell, Christine A.: **DAMAGED CRUST AND MODERN INTRAPLATE SEISMICITY**
- 182-6** 9:20 AM Stein, Seth\*; Merino, Miguel; Adams, John; Vanneste, Kris; Vleminckx, Bart; Camelbeeck, Thierry: **HAVE WE SEEN THE LARGEST EARTHQUAKES IN EASTERN NORTH AMERICA?**
- 182-7** 9:35 AM Holt, William E.\*; Ghosh, Attreyee: **A MODEL FOR THE INTRAPLATE DYNAMICS OF CENTRAL AND EASTERN NORTH AMERICA**
- 9:55 AM **BREAK**
- 182-8** 10:10 AM Horton, Jr., J. Wright\*; Chapman, Martin C.; Green, Russell A.: **THE 2011 MINERAL, VIRGINIA, EARTHQUAKE AS A STIMULUS FOR RESEARCH ON INTRAPLATE SEISMIC HAZARDS IN EASTERN NORTH AMERICA**
- 182-9** 10:25 AM Pazzaglia, Frank J.\*; Malenda, Helen Fitzgerald: **GEOMORPHIC PALEOGEODESY AND INTRAPLATE DEFORMATION ASSOCIATED WITH THE MINERAL, VA EARTHQUAKE AND SURROUNDING CENTRAL VIRGINIA SEISMIC ZONE (CVSZ)**
- 182-10** 10:45 AM Carter, Mark W.\*; Tuttle, Martitia; Dunahue, James: **PALEOLIQUEFACTION STUDY OF THE EARTHQUAKE POTENTIAL OF THE CENTRAL VIRGINIA SEISMIC ZONE (CVSZ)**

SESSION NO. 183

**T68. Climate Literacy: Formal and Informal Education and Outreach Activities and Research and Evaluation Measures of Success (GSA Geoscience Education Division; CLEAN Network; GSA Geology and Society Division; National Association of Geoscience Teachers; GSA Quaternary Geology and Geomorphology Division)**

8:00 AM, Baltimore Convention Center, Room 324

Tamara Shapiro Ledley, Monica H. Barnes and Bonnie Murray, Presiding

- 183-1** 8:00 AM Ledley, Tamara Shapiro\*; Gold, Anne; Niepold, Frank; Grogan, Marian; Buhr Sullivan, Susan; Fox, Sean P.; Manduca, Cathryn A.: **THE CLIMATE LITERACY AND ENERGY AWARENESS NETWORK (CLEAN) PROJECT**
- 183-2** 8:15 AM Bloch, Leonard\*: **HOW TO HELP TEACHERS TEACH ABOUT CLIMATE CHANGE**
- 183-3** 8:30 AM Wysession, Michael E.\*: **THE INTENDED ROLE OF CLIMATE AND CLIMATE CHANGE IN THE NEXT GENERATION SCIENCE STANDARDS**
- 183-4** 8:50 AM Ledley, Tamara\*; Ellins, Katherine K.; McNeal, Karen S.; Haddad, Nick; Libarkin, Julie C.; Bardar, Erin; Youngman, Betsy; Dunlap, Candace; Lockwood, Jeff; Mote, Alison: **SUPPORTING STUDENTS UNDERSTANDING OF CHANGE OVER TIME AND SPACE: THE EARTHLABS CLIMATE SERIES**
- 183-5** 9:05 AM Kauffman, Chad\*; Brey, James A.; Nuges, Kira A.; Geer, Ira W.; Weinbeck, Robert S.: **LIVING WITH OUR CHANGING CLIMATE: PEDAGOGICAL TECHNIQUES AT THE UNDERGRADUATE LEVEL**
- 183-6** 9:20 AM Doner, Lisa A.\*; Davis, P. Thompson; McGarry, Mary Ann; Turski, Mark: **MIND THE GAP - AN INTERDISCIPLINARY CLIMATE LITERACY MODULE FOR SCIENCE MAJORS**
- 183-7** 9:35 AM Millham, Rosemary A.\*: **INTERDISCIPLINARY APPROACH TO UNIVERSITY COURSE ON CLIMATE CHANGE, POLITICS AND POLICY**
- 183-8** 9:50 AM Bentley, Andrew Phillip Keller\*; Cassidy, David P.; Petcovic, Heather L.: **ANTHROPOGENIC CLIMATE CHANGE DISSENTER INVENTORY: DEMOGRAPHIC BUY-INS**
- 183-9** 10:05 AM Atkins, Rachel\*; McNeal, Karen S.; Luginbuhl, Sarah: **AN EYE-TRACKING STUDY ON EXPERT-NOVICE DIFFERENCES DURING CLIMATE CHANGE GRAPH READING TASKS**
- 183-10** 10:20 AM McNeal, Karen S.\*; Sherman-Morris, Kathy; Warkentin, Merrill; Strawderman, Lesley; Menard, Phillip: **CLIMATE RISK PERCEPTIONS AND BEHAVIORAL INTENT RELATED TO CLIMATE CHANGE AND ECONOMIC COST**

- 183-11** 10:35 AM Rooney-Varga, Juliette\*; Jones, Andrew P.; Johnston, Ellie; Haskell, Jennifer; Sterman, John; Rath, Kenneth: **AN INVITATION TO THE WORLD CLIMATE PROJECT**
- 183-12** 10:55 AM Turrin, Margaret J.\*; Porter, David: **EXPLORING SEA LEVEL RISE: A GUIDED TOUR THROUGH OUR CHANGING EARTH SYSTEMS**
- 183-13** 11:10 AM Moravchik, Bruce\*; Steffen, Peggy; Harrison, Molly; Davis, Hilarie; Davey, Bradford: **NOAA CLIMATE STEWARDS: AFFECTING CHANGE THROUGH EDUCATION, COLLABORATION, AND ACTION**
- 183-14** 11:25 AM Leidner, Allison\*: **NASA'S CONTRIBUTIONS TO THE NATIONAL CLIMATE ASSESSMENT AND CLIMATE LITERACY**

**SESSION NO. 184**

***T76. Geocorps™ America and Mosaics in Science Programs: Successful Partnerships Promoting Individual Professional Development and Application of Geoscience and Related Fields to Management of America's Public Lands (GSA Geology and Society Division)***

8:00 AM, Baltimore Convention Center, Room 338

Matthew Dawson and Elizabeth Norby, Presiding

- 8:00 AM **INTRODUCTORY REMARKS**
- 184-1** 8:05 AM Norby, Elizabeth\*: **ENGAGING THE NEXT GENERATION IN SCIENCE INTERNSHIPS IN THE NATIONAL PARK SERVICE**
- 184-2** 8:20 AM Boodhoo, Thea\*; Jimenez, Marie; Stirling, Trinity; Smith, Elliott: **BUILDING A DIGITAL QUARRY FOR DINOSAUR NATIONAL MONUMENT**
- 184-3** 8:35 AM Harmon, William Miles\*; Henthorne, Aryana Renee; Hobart, Justin L.; Griffeth, Bradley J.: **COLLECTION AND MONITORING OF PHYSICAL AND CHEMICAL WATER QUALITY PARAMETERS IN THERMAL AND COLD WATER SPRINGS, HOT SPRINGS NATIONAL PARK, ARKANSAS**
- 184-4** 8:50 AM Haupt, Ryan J.\*; Meyer, Herbert W.; O'Connor, Conni J.; Desai, Dipa; Hattori, Kelly E.: **DEVELOPING AND DELIVERING DIGITAL CONTENT THROUGH MULTIPLE MEDIA AVENUES AND EXHIBITS AT FLORISSANT FOSSIL BEDS NATIONAL MONUMENT, COLORADO**
- 184-5** 9:05 AM Roberti, Gina M.\*; Roth, John; Ledford, Audrey Jane: **FROM NEOPROTEROZOIC 'PRE-CURSOR' CLAMS TO THE KLAMATHS: DOCUMENTING THE PALEOGEOGRAPHIC EVOLUTION OF THE EASTERN KLAMATH TERRANES, AN EDUCATION OUTREACH MODEL**
- 184-6** 9:20 AM Connolly, Andrew M.\*: **MARRIAGE BETWEEN FOSSIL-LAGERSTÄTTEN AND ENVIRONMENT: INTERPRETING FOSSIL BUTTE NATIONAL MONUMENT TO INQUISITIVE VISITORS**
- 9:35 AM **BREAK**
- 184-7** 9:50 AM Singler, Caroline\*; McDermaid, Stevie; Davis, Larry E.; Pollock, Gayle L.: **INTERPRETATION OF A PALUSTRINE DEPOSITIONAL ENVIRONMENT FOR THE PINK MEMBER OF THE CLARON FORMATION: BRYCE CANYON NATIONAL PARK, UTAH**
- 184-8** 10:05 AM Thomas, Mikayla M.\*; Valdez, Andrew D.: **COMPARING DUNE HEIGHT MEASUREMENT METHODOLOGIES TOTAL STATION VERSUS DGPS**
- 184-9** 10:20 AM Collins, Andrew L.\*; Rosenberg, Russell H.; Capps, Denny M.: **MASS MOVEMENTS IN THE PARKS: GEOCORPS AND GEOHAZARDS AT THE TOP OF NORTH AMERICA**
- 184-10** 10:35 AM Rowinski, Kyle William\*; Sadorski, Joseph Frank; Haessig, Polly; Beyerhelm, Carl: **LIDAR GUIDED FIELD RECONNAISSANCE OF KARST FEATURES ON THE MOGOLLON RIM, COCONINO NATIONAL FOREST, SOUTHERN COLORADO PLATEAU**

- 184-11** 10:50 AM Aldred, Jennifer L.\*; Soulliere, Katie; Schnackenberg, Liz; Frick, Betsy: **HYDROLOGIC RESOURCE MANAGEMENT IN THE MEDICINE BOW-ROUTT NATIONAL FOREST, COLORADO, USA**
- 184-12** 11:05 AM Spuller, Kerri E.\*: **RESTORING THE HEADWATERS OF THE ARKANSAS RIVER**
- 11:20 AM **DISCUSSION**

**SESSION NO. 185**

***T77. Geology and Hydrology in the National Parks: Research, Mapping, and Resource Management I (GSA Hydrogeology Division; GSA Geology and Society Division)***

8:00 AM, Baltimore Convention Center, Room 309

Bruce A. Heise, F. Edwin Harvey and Jason P. Kenworthy, Presiding

- 8:00 AM **INTRODUCTORY REMARKS**
- 185-1** 8:15 AM Springer, Abraham E.\*; Aldridge, Vaden J.; Schindel, Graham M.; Tobin, Benjamin W.: **INNOVATIVE SPATIAL AND TEMPORAL MEASUREMENTS OF RECHARGE TO THE DEEP AQUIFERS OF THE GRAND CANYON REGION**
- 185-2** 8:30 AM Childres, Hampton\*; Valle, Cynthia M.; Tobin, Benjamin W.; Hoffman, Claire; Gandee, Michele N.; Schenk, Edward R.: **AN ASSESSMENT ON THE IMPACT OF FLOW AND THERMAL REGIME CHANGES ON HYDROLOGIC AND AQUATIC RESOURCES USING PHABSIM AND TEMPERATURE MODELING - BRIGHT ANGEL CREEK AND INDIAN GARDEN CREEK, GRAND CANYON NATIONAL PARK**
- 185-3** 8:45 AM Price, Jason R.\*; Marshall, Wesley; Szymanski, David W.; Campbell, Ryan: **PHOSPHORUS DYNAMICS OF THE LOCH VALE WATERSHED, ROCKY MOUNTAIN NATIONAL PARK, FROM THE LAST GLACIAL MAXIMUM TO PRESENT: GEOCHEMICAL MASS BALANCE, POTENTIAL ECOLOGICAL IMPACTS, AND PALEOCLIMATIC INFLUENCES**
- 185-4** 9:00 AM Alexander, Jr., E. Calvin\*; Kasahara, Sophie M.: **COLDWATER SPRING, MISSISSIPPI NATIONAL RIVER AND RECREATION AREA: A WINDOW INTO A HUMAN IMPACTED SHALLOW URBAN AQUIFER**
- 185-5** 9:15 AM Bruecher, Taylor\*: **HYDROLOGIC AND GEOCHEMICAL INVESTIGATION OF SPRINGS ON THE DEVILS RIVER, VAL VERDE COUNTY, TEXAS, USA**
- 185-6** 9:30 AM Jastram, John D.\*; Rice, Karen C.; Schaberl, James P.; Wofford, John E.B.: **SYNTHESIS OF THIRTY YEARS OF SURFACE-WATER QUALITY AND AQUATIC-BIOTA DATA IN SHENANDOAH NATIONAL PARK: COLLABORATION BETWEEN THE U.S. GEOLOGICAL SURVEY AND THE NATIONAL PARK SERVICE**
- 185-7** 9:45 AM Lowry, Christopher S.\*; Vialpando, Marcelino; Visser, Ate; Esser, Bradley K.; Moran, Jean E.: **USING CALIFORNIA'S DROUGHT TO QUANTIFY CONTRIBUTIONS TO GROUNDWATER STORAGE IN HIGH ELEVATION MEADOWS, YOSEMITE NATIONAL PARK**
- 10:00 AM **BREAK**
- 185-8** 10:15 AM Senior, Lisa A.\*: **BASELINE WATER QUALITY IN TRIBUTARIES TO THE UPPER DELAWARE SCENIC AND RECREATIONAL RIVER PRIOR TO POTENTIAL SHALE-GAS DEVELOPMENT**
- 185-9** 10:30 AM Hausner, Mark B.\*; Friese, Richard; Wilson, Kevin P.; Hoines, Josh; Fuhrmann, K. Kelly N.: **THE RESTORATION OF TRAVERTINE SPRINGS: AN ONGOING ECOHYDROLOGY LABORATORY IN DEATH VALLEY NATIONAL PARK**
- 185-10** 10:45 AM Cutillo, Paula A.\*; Oki, Delwyn S.: **UNEXPECTED PHASE ADVANCE IN SALINITY RELATIVE TO WATER LEVELS IN A TIDALLY INFLUENCED COASTAL AQUIFER, HAWAII**

AM

TUESDAY

SESSION NO. 185

- 185-11** 11:00 AM Psuty, Norbert P.\*; Schmelz, William J.; Greenberg, Joshua; Beal, Irina; Spahn, Andrea: **GEOMORPHOLOGICAL MAPS AS A TOOL TO TRACK CHANGE: METRICS OF IMPACTS OF HURRICANE SANDY AT FIRE ISLAND NATIONAL SEASHORE**
- 185-12** 11:20 AM Williams, Christopher P.\*; Cichon, James R.; Hartman, Lee M.; Apolinar, Brianna: **GEOMORPHIC AND GEOLOGIC MAPPING IN NATIONAL PARK SERVICE LANDS OF NORTHEASTERN FLORIDA AND ITS ROLE IN CONTINUED REGIONAL AND STATEWIDE MAPPING IN FLORIDA**
- 185-13** 11:35 AM Schmitz, Darrel W.\*: **UNFINISHED BUSINESS – COMPLETING A MENTOR’S SURFICIAL GEOLOGIC MAPS**

**SESSION NO. 186**

***T81. Intentional Integration of Research into the Curriculum: Undergraduate Research as a Teaching Practice (Council on Undergraduate Research Geosciences Division)***

8:00 AM, Baltimore Convention Center, Room 339

Patricia Manley, Robert D. Shuster and Elizabeth A. Johnson, Presiding

- 8:00 AM **INTRODUCTORY REMARKS**
- 186-1** 8:10 AM Phillips, Preston Lee\*: **UNDERGRADUATE RESEARCH FOR ALL: INTEGRATION OF RESEARCH INTO THE CURRICULUM**
- 186-2** 8:25 AM Hayes, Sarah M.\*; Guerard, Jennifer: **ENGAGING STUDENTS WITH RESEARCH THROUGHOUT THE UNDERGRADUATE CURRICULUM USING A TIERED MENTORING MODEL**
- 186-3** 8:40 AM Fortner, Sarah K.\*; Ritter, John B.; Burgett, Amber A.; Finster, David C.; Hoff, Ruth J.; Phillips, Richard S.: **INTEGRATE MODULES AND AUTHENTIC COMMUNITY-BASED RESEARCH AS SUSTAINABILITY PROGRAM OPPORTUNITIES**
- 186-4** 8:55 AM Manley, Patricia\*; Manley, T. O.: **INTEGRATING RESEARCH PRACTICES INTO THE MARINE GEOSCIENCES CURRICULUM**
- 186-5** 9:10 AM Dripps, Weston R.\*; Ranson, William A.; Andersen, C. Brannon; Muthukrishnan, Suresh: **TEACHING THROUGH RESEARCH**
- 186-6** 9:25 AM Lord, Mark\*; Kinner, David; Mountjoy, Bryant; Cato, Michael: **THE ROLE OF UNDERGRADUATE RESEARCH FELLOWS TO FACILITATE COURSE-BASED UNDERGRADUATE RESEARCH**
- 186-7** 9:40 AM Guertin, Laura A.\*: **BRINGING THE GOOGLE 80/20 MODEL TO AN INTRODUCTORY-LEVEL ENVIRONMENTAL COURSE: A STUDENT OPPORTUNITY FOR CREATIVITY, INNOVATION, AND INVESTIGATION**
- 186-8** 9:55 AM Clements, Nina\*; Guertin, Laura A.: **LAYING THE FOUNDATION FOR INFORMATION LITERACY IN INTRODUCTORY-LEVEL EARTH SCIENCE COURSES**
- 10:10 AM **BREAK**
- 186-9** 10:25 AM MacLean, John S.\*: **COURSE OBJECTIVE: COMPLETE AND PUBLISH RESEARCH**
- 186-10** 10:40 AM Maclachlan, John C.\*; Lee, Rebecca E: **CREATING UNDERGRADUATE STUDENT COLLABORATIVE WRITING GROUPS AS A METHOD TO PUBLISH UNDERGRADUATE RESEARCH**
- 186-11** 10:55 AM Fox, Lydia K.\*: **PUTTING RESEARCH IN CONTEXT: AN ENVIRONMENTAL POLICY PROJECT IN A WRITING-INTENSIVE CAPSTONE COURSE**
- 186-12** 11:10 AM Thomas, Christopher W.\*; Shoemaker, Sarah; Boltz, Robin: **DESIGN OF A PRE-CURRICULUM AND RESEARCH INTEREST EXPLORATION, PRIOR TO THE RESEARCH EXPERIENCE, TO BETTER PREPARE STUDENT RESEARCHERS**

- 186-13** 11:25 AM Shuster, Robert D.\*; Grandgenett, Nealy; Cutucache, Christine; Tappich, William; Rodie, Steve: **USING AUTHENTIC RESEARCH EXPERIENCES TO IMPROVE STEM EDUCATION IN THE K-12 ENVIRONMENT**

**SESSION NO. 187**

***T87. Supporting Geoscience Student Transfer: Collaborations, Partnerships, and Practices for Success (GSA Geoscience Education Division; National Association of Geoscience Teachers; Geo2YC Division of the National Association of Geoscience Teachers)***

8:00 AM, Baltimore Convention Center, Room 337

Benjamin A. Wolfe and Eric M.D. Baer, Presiding

- 187-1** 8:00 AM Wolfe, Benjamin A.\*; van der Hoeven Kraft, Katrien J.; Wilson, Carolyn: **SMOOTHING THE ROUGH ROAD: CHALLENGES FACED ON THE 2YC GEOSCIENCE STUDENT TRANSFER PATHWAY AND IMPLICATIONS FOR RECEIVING FOUR-YEAR GEOSCIENCE DEPARTMENTS**
- 187-2** 8:15 AM Wilson, Carolyn\*; van der Hoeven Kraft, Katrien J.; Wolfe, Benjamin A.: **DO TWO-YEAR COLLEGE TRANSFERS FACE DIFFERENT CHALLENGES WORKING ON THE BACHELOR’S DEGREE THAN STUDENTS WHO ONLY ATTENDED A FOUR-YEAR INSTITUTION?**
- 187-3** 8:30 AM Stokes, Philip J.\*; Flessa, Karl W.; Fay, Noah P.; Schmidt, Nancy: **TRANSFER SHOCK, COMMUNITY PARTNERSHIPS, AND RETENTION RESOURCES: PATHWAYS INTO GEOSCIENCES AT THE UNIVERSITY OF ARIZONA**
- 187-4** 8:45 AM Richardson, Randall M.\*; Lee, Sylvia M.; Kapp, Jessica L.; Fay, Noah P.; Waldrip, William Ross; Lezzar, Kiram E.; Ruiz, Joaquin: **REFLECTIONS ON A SHARED INSTRUCTOR PROGRAM BETWEEN PIMA COMMUNITY COLLEGE AND THE UNIVERSITY OF ARIZONA**
- 187-5** 9:00 AM Gray, Brian E.\*: **AN EXAMPLE OF COMMUNITY COLLEGE - UNIVERSITY COOPERATION BY CREATION OF AN ASSOCIATE IN SCIENCE - GEOLOGY DEGREE AT THE 2YC LEVEL**
- 187-6** 9:15 AM Colosimo, Amanda\*; Barone, Jessica L.: **THE STUDENT BECOMES THE TEACHER: UTILIZING TEACHING ASSISTANTS IN A 2YC CLASSROOM TO IMPROVE UNDERSTANDING AND INCREASE RETENTION PRIOR TO TRANSFER**
- 187-7** 9:30 AM Miller, Gretchen L.\*; Leinbach, Adrienne A.; Rollins, Stephanie L.: **SUCCESSFUL STRATEGIES FOR RECRUITING AND SUPPORTING GEOSCIENCE MAJORS THROUGH A 2YC-4YC PARTNERSHIP IN NORTH CAROLINA**
- 187-8** 9:45 AM Rollins, Stephanie L.\*; Leinbach, Adrienne A.; Miller, Gretchen L.: **SUPPORTING 2YC GEOSCIENCE STUDENTS AND FACULTY IN THE CLASSROOM AND BEYOND**
- 10:00 AM **BREAK**
- 187-9** 10:15 AM Cardace, Dawn\*; Kortz, Karen M.; Savage, Brian; Rieger, Duayne: **IMPROVING GEOSCIENCE EDUCATION PATHWAYS THROUGH ENGAGING SCIENTIFIC AND CAREER EXPERIENCES**
- 187-10** 10:30 AM Gates, Alexander E.\*; Lee, Jeffrey; Stein, Jill: **COMMUNITY COLLEGE LINK IN THE GEOSCIENCE PATHWAY FOR URBAN YOUTH IN NEWARK, NJ**
- 187-11** 10:45 AM Shomo, Susie\*: **ASSISTING THE COMMUNITY COLLEGE GEOSCIENCE TRANSFER STUDENT**
- 187-12** 11:00 AM Macdonald, R. Heather\*; Layou, Karen M.; McDaris, John R.; Baer, Eric M.D.; Blodgett, Robert H.; Hodder, Jan: **RESOURCES FOR SUPPORTING THE TRANSFER OF COMMUNITY COLLEGE STUDENTS TO FOUR-YEAR COLLEGES AND UNIVERSITIES**

- 187-13** 11:15 AM Voorhees, David H.\*; Phillips, Michael A.; Resnick, Cheryl  
Emerson: **A WORKSHOP ON TRANSFERRING FROM 2YC TO 4YC IN ILLINOIS**
- 187-14** 11:30 AM Walker, Becca\*; Nagy-Shadman, Elizabeth A.; Douglass, David N.: **FACULTY AS AGENTS OF CURRICULAR AND TRANSFER ALIGNMENT BETWEEN 2-YEAR AND 4-YEAR INSTITUTIONS: THE ROAD MAPS TO COMPLETION WORKSHOP FOR LOS ANGELES AREA GEOSCIENCE FACULTY**
- 187-15** 11:45 AM Layou, Karen M.\*; Berquist, Peter J.; LeMay, Lynsey E.: **OPENING CHANNELS OF COMMUNICATION: RESULTS FROM THREE YEARS OF SAGE2YC WORKSHOPS**

## SESSION NO. 188

**T97. Specimen-Based Research and the Reality of Paleontological Resource, Specimen and Data Management: Strengthening Partnerships among Federal Land Managers, Repositories, and Researchers (Society for the Preservation of Natural History Collections; Paleontological Society; STEPPE; Society of Vertebrate Paleontology)**

8:00 AM, Baltimore Convention Center, Room 318

Kathy A. Hollis, Brian T. Huber, Hans-Dieter Sues, Julia F. Brunner, Vincent L. Santucci and Scott E. Foss, Presiding

- 8:00 AM **INTRODUCTORY REMARKS**
- 188-1** 8:15 AM Santucci, Vincent L.\*: **NATIONAL PARK SERVICE PALEONTOLOGICAL RESOURCES MANAGEMENT, RESEARCH AND COLLECTIONS: HISTORICAL PERSPECTIVES**
- 188-2** 8:30 AM Hopkins, Samantha S.B.\*; Weldon, II, Ray J.; Samuels, Joshua X.; Zancanella, John: **THE CROOKED RIVER PROJECT: FEDERAL-UNIVERSITY COLLABORATION IN PURSUIT OF AN INTEGRATED UNDERSTANDING OF PALEOECOLOGY, TECTONIC HISTORY, AND CRITICAL PALEONTOLOGICAL RESOURCES**
- 188-3** 8:45 AM Clites, Erica C.\*; Marshall, Charles R.; Goodwin, Mark B.; Santucci, Vincent L.: **DATA PRESERVATION FOR NATIONAL PARK SERVICE FOSSIL COLLECTIONS AT THE UNIVERSITY OF CALIFORNIA MUSEUM OF PALEONTOLOGY**
- 188-4** 9:00 AM Eaton, Carrie\*; Hearst, J.M.: **TURNING MOUNTAINS INTO MOLEHILLS: AN INTERAGENCY PARTNERSHIP IN THE BACKLOG CATALOGING OF FEDERAL COLLECTIONS**
- 188-5** 9:15 AM Smith, Dena M.\*; Meyer, Herbert W.: **A PALEONTOLOGICAL MATCH MADE IN HEAVEN: THE UNIVERSITY OF COLORADO MUSEUM OF NATURAL HISTORY AND THE FLORISSANT FOSSIL BEDS NATIONAL MONUMENT**
- 188-6** 9:30 AM Little, Holly\*; Strotman, Jennifer; Hollis, Kathy: **INCREASING THE DISCOVERABILITY OF USGS PALEONTOLOGICAL COLLECTIONS DATA AT THE THE NATIONAL MUSEUM OF NATURAL HISTORY**
- 9:45 AM **BREAK**
- 188-7** 10:00 AM Liston, Jeff\*: **PROTECTING AND PRESERVING FOSSILS FROM STATE-OWNED LANDS: GLOBAL SOLUTIONS TO UNIVERSAL PROBLEMS**
- 188-8** 10:15 AM Leiggi, Patrick\*; Vlamis, Ted J.: **THE PALEONTOLOGICAL RESOURCES PRESERVATION ACT: A HISTORICAL LOOK, AND A BRIEF EXAMINATION OF PRESENT DAY ISSUES**
- 188-9** 10:30 AM Dattilo, Benjamin\*; Brett, Carlton E.; Meyer, David L.; Freeman, Rebecca L.; Hunda, Brenda R.; Holland, Steven M.; Stigall, Alycia L.; Deline, Bradley; Sumrall, Colin D.; Wilson, Mark A.: **NON-ACADEMIC PALEONTOLOGISTS ARE ESSENTIAL TO THE SURVIVAL OF PALEONTOLOGY: LESSONS FROM THE CINCINNATI SCHOOL**
- 188-10** 10:45 AM Brunner, Julia F.: **THE PALEONTOLOGICAL RESOURCES PRESERVATION ACT OF 2009:**

**STRENGTHENING STEWARDSHIP AND PARTNERSHIPS THROUGH COLLABORATION, CONSISTENCY, AND ACCOUNTABILITY**

- 188-11** 11:00 AM Breithaupt, Brent H.\*; Matthews, Neffra A.; Armstrong, Harley J.; Gensler, Philip A.; Liggett, Gregory; Hunt-Foster, ReBecca; Foss, Scott E.: **BONES, SHELLS, LEAVES, AND TRACKS: FACILITATING PARTNERSHIPS FOR HOLISTIC PALEONTOLOGICAL RESOURCES MANAGEMENT, PRESERVATION, AND INTERPRETATION OF FOSSILS ON BLM'S PUBLIC LAND**
- 188-12** 11:15 AM Shelton, Sally Y.\*; Knauss, Georgia; Scott, Eric; Terry, Jr., Dennis O.: **REPOSITORIES, PARTNERSHIPS, AND THE CREATION OF THE PALEONTOLOGY ON PUBLIC LANDS ASSOCIATION**
- 188-13** 11:30 AM Norris, Christopher A.\*: **THE SOCIETY FOR THE PRESERVATION OF NATURAL HISTORY COLLECTIONS (SPNHC): PROMOTING PARTNERSHIP IN THE MANAGEMENT OF FEDERAL COLLECTIONS**
- 188-14** 11:45 AM Tapanila, Leif\*: **BIG DATA FROM A BIG COUNTRY: HOW FEDERAL OVERSIGHT COULD TRANSFORM THE UTILITY OF FOSSIL RESOURCES IN AMERICA**

## SESSION NO. 189

**T98. The Great Images in Geology II, Additional Contributions in the History and Philosophy of Geology (GSA History and Philosophy of Geology Division; History of Earth Sciences Society)**

8:00 AM, Baltimore Convention Center, Room 325/326

Renee M. Clary and Joanne Bourgeois, Presiding

- 189-1** 8:00 AM Dolphin, Glenn\*: **IMAGES IN THE DARK: THE CHANGING PERCEPTION OF RADIATION IN THE SOCIAL REALM**
- 189-2** 8:15 AM Jordan, Benjamin R.\*: **THE WORLD WE LIVE IN: LIFE MAGAZINE'S GEOLOGIC ART JUST BEFORE THE DAWN OF PLATE TECTONICS**
- 189-3** 8:30 AM Şengör, A.M. Celâl\*: **THE EARLIEST SUBDUCTION ZONE DEPICTED: A TRIUMPH OF COMPARATIVE GEOLOGY**
- 189-4** 8:45 AM Greene, Mott T.\*: **WEGENER'S MAPS OF CONTINENTAL DRIFT**
- 189-5** 9:00 AM Moores, Eldridge M.\*: **HARRY HESS'S 1962 SEA FLOOR SPREADING IMAGE: INITIATOR OF THE PLATE TECTONIC REVOLUTION**
- 189-6** 9:15 AM Frankel, Henry\*: **DAN MCKENZIE AND ROBERT PARKER'S 1968 GREAT FIGURE CONFIRMING PLATE TECTONCS**
- 9:30 AM **BREAK**
- 189-7** 9:45 AM Newcomb, Sally\*: **SCIENCE IN THE REVOLUTION: BENJAMIN FRANKLIN (1706-1790) AND FRIENDS**
- 189-8** 10:00 AM Larsen, Kristine\*: **POPULAR-LEVEL MINERALOGY TEXTS AND THE FAMILIAR FORMAT IN THE EARLY 19<sup>TH</sup> CENTURY**
- 189-9** 10:15 AM Rueger, Bruce F.\*: **GEOLOGY AND TOPOGRAPHY OF THE SOUTHERN BERKSHIRES: IMPACT AND IMPLICATIONS ON THE TRANSPORT OF CANNON FROM FORT TICONDEROGA, NY TO BOSTON, MA, 1775-1776**
- 189-10** 10:30 AM Schimmrich, Steven H.\*: **"CORKING THE BOTTLE" AT STARK'S KNOB, SARATOGA COUNTY, NEW YORK**
- 189-11** 10:45 AM Good, Greg\*: **JOHN HERSHEL'S ALPINE GEOLOGY: MOUNTAIN LANDSCAPES 20 YEARS BEFORE PHOTOGRAPHY**
- 189-12** 11:00 AM Donovan, Stephen K.\*: **"HOW'S THAT FOR HEIDELBERG?" CHARLES DAWSON AND A PILTDOWN MAN CENTENARY**
- 189-13** 11:15 AM Sack, Dorothy\*: **A WOMAN'S PLACE IN TWENTIETH CENTURY GEOMORPHOLOGY**

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TUESDAY



## SESSION NO. 190

**T110. Satellite Remote Sensing Applications in Hydrology and Geology (GSA Hydrogeology Division; GSA Geoinformatics Division; GSA Geology and Society Division)**

8:00 AM, Baltimore Convention Center, Room 341

Richard Becker and Adam M. Milewski, Presiding

- 8:00 AM **INTRODUCTORY REMARKS**
- 190-1** 8:05 AM Lakshmi, Venkat\*: **SATELLITE REMOTE SENSING OF THE TERRESTRIAL WATER CYCLE**
- 190-2** 8:25 AM Scanlon, Bridget R.\*; Zhang, Zizhan; Save, Himanshu; Reedy, Robert C.; Pool, Don; Long, Di; Nowak, Ken; Wolock, David: **ASSESSING DROUGHT IMPACTS ON THE COLORADO RIVER BASIN USING GRACE SATELLITES AND GROUND-BASED DATA**
- 190-3** 8:45 AM Seyoum, Wondwosen M.\*; Milewski, Adam M.: **USING SATELLITE EARTH OBSERVATIONS TO UNDERSTAND THE FACTORS CONTROLLING THE TERRESTRIAL WATER CYCLE IN THE NORTHERN HIGH PLAINS, USA**
- 190-4** 9:00 AM Thomas, Brian F.\*: **IDENTIFYING EPISODIC GROUNDWATER RECHARGE IN ARID REGIONS**
- 190-5** 9:15 AM Becker, R.H.\*; Cline, Michael: **ASSESSING WATER FLUXES IN REGIONAL WETLANDS WITH MODIS AND GRACE**
- 190-6** 9:30 AM Huffman, George J.\*; Bolvin, David T.; Braithwaite, Dan; Hsu, Kuolin; Joyce, Robert; Kidd, Christopher; Sorooshian, Soroosh; Xie, Pingping: **INTRODUCTION TO THE INTEGRATED MULTI-SATELLITE RETRIEVALS FOR GPM (IMERG) PRECIPITATION DATASETS**
- 190-7** 9:50 AM Milewski, Adam M.\*; El Kadiri, Racha; Seyoum, Wondwosen M.; Durham, Michael C.; Fay, Veronica; Lezzaik, Khalil; Rotz, Rachel R.; Fisher, Audrey; Cahalan, Matthew: **AN ANALYSIS OF GPM IMERG AND TRMM TMPA PRECIPITATION ESTIMATES IN VARYING ENVIRONMENTS**
- 10:05 AM **BREAK**
- 190-8** 10:20 AM Reitz, Meredith D.\*; Sanford, Ward E.; Senay, Gabriel; Cazenave, Jeffrey: **ANNUAL ESTIMATES OF EVAPOTRANSPIRATION, RUNOFF, AND RECHARGE FROM REMOTE SENSING, CLIMATE, AND STREAMFLOW DATA FOR THE CONTIGUOUS US**
- 190-9** 10:35 AM Jacobsen, Robert E.\*; Burr, Devon M.: **REMOTE ESTIMATES OF BANKFULL DISCHARGE FOR A MARTIAN-TERRESTRIAL ANALOG CHANNEL SUGGEST THE NEED FOR NEW METHODS OF ESTIMATING PALEODISCHARGE**
- 190-10** 10:50 AM Le, Alyssa\*; Pricope, Narcisa: **INCREASING THE SPATIAL RESOLUTION AND ACCURACY OF PRECIPITATION DATA WITHIN THE SWAT MODEL THROUGH THE INCORPORATION OF CHIRPS DATA**
- 190-11** 11:05 AM Schwindaman, Jeffrey\*; Pochatila, Joy; Clemens, Drew; Dorgan, Tracy; Haskell, Casey: **CHARACTERIZING BEDROCK FRACTURE ORIENTATION AND DENSITY USING FRACTURE TRACE ANALYSIS, OUTCROP FIELD MAPPING, AND GEOPHYSICAL BOREHOLE METHODS IN FOSTER, RHODE ISLAND**
- 190-12** 11:20 AM Shields, Nathaniel\*: **USING GEOPHYSICAL METHODS TO IDENTIFY SUBSURFACE WATER STORAGE AND DRAINAGE PATTERNS IN KARST TERRAIN**

## SESSION NO. 191

**T112. Understanding Saline Fluid Flow Systems: From Saltwater Intrusion to Geologic-Scale Brine Migration (GSA Hydrogeology Division; International Association of Hydrogeologists; Society of Economic Geologists)**

8:00 AM, Baltimore Convention Center, Room 345/346

Fabien Magri, Andrew H. Manning and Alicia M. Wilson, Presiding

- 191-1** 8:00 AM Bense, Victor F.\*; Post, Vincent E.A.; Kooi, Henk: **TRANSIENT DYNAMICS OF SALINISATION IN OFF SHORE AQUIFER SYSTEMS AFTER SEA-LEVEL RISE**
- 191-2** 8:20 AM Borrok, David M.\*; Broussard, III, Whitney P.; Jennings, John E.; Barth, Tiffani Cravens: **EVOLUTION OF SALINITY IN THE COASTAL CHICOT AQUIFER SYSTEM, LOUISIANA, USA**
- 191-3** 8:35 AM Eissa, Mustafa\*; Parker, Beth; Shouakar-Stash, Orfan; Mahmoud, Hussein Hosni; El-Shiekh, Abdelfattah: **ELECTRICAL RESISTIVITY TOMOGRAPHY, GEOCHEMISTRY AND ISOTOPE TRACERS FOR SALT WATER INTRUSION CHARACTERIZATION ALONG THE NORTHWESTERN COAST, EGYPT**
- 191-4** 8:50 AM Florea, Lee J.\*; Rust, Dan L.; Unger, Devyn: **TIME LAPSE ELECTRICAL RESISTIVITY TOMOGRAPHY OF TIDAL PUMPING OF NEARSHORE GROUNDWATER FROM GRAHAMS HARBOR, SAN SALVADOR ISLAND, BAHAMAS**
- 191-5** 9:05 AM Du, Yao\*; Ma, Teng; Chen, Liuzhu; Xiao, Cong; Liu, Cunfu: **CONTRAST ON CHLORINE STABLE ISOTOPE GEOCHEMISTRY OF COASTAL AND INLAND SHALLOW BRINE**
- 191-6** 9:20 AM Sanford, Ward E.\*: **EVIDENCE FOR HYPERSALINE NORTH-ATLANTIC SEAWATER TRAPPED IN THE US ATLANTIC COASTAL PLAIN SINCE EARLY CRETACEOUS TIME**
- 9:40 AM **BREAK**
- 191-7** 9:55 AM Garven, Grant\*; Boles, James R.: **LEAKAGE OF MANTLE HELIUM ALONG THE NEWPORT-INGLEWOOD FAULT, LOS ANGELES BASIN**
- 191-8** 10:15 AM Engle, Mark A.\*; Reyes, Francisco R.: **USING BRACKISH GROUNDWATERS AS INDICATORS FOR POTENTIAL IMPACTS FROM DEEPER OIL AND GAS ACTIVITIES**
- 191-9** 10:30 AM Yager, Richard M.\*; McCoy, Kurt J.; Voss, Clifford I.; Sanford, Ward E.: **THE PERSISTENCE OF SALINE WATER IN LATE PALEOZOIC ROCKS OF THE APPALACHIAN PLATEAU**
- 191-10** 10:45 AM Manning, Andrew H.\*; Emsbo, Poul: **NUMERICAL SIMULATION OF BRINE REFLUX SYSTEMS AND THEIR POTENTIAL ROLE IN MINERAL DEPOSIT FORMATION**
- 191-11** 11:00 AM Lopez, Teodolina\*; Antoine, Raphaël; Kerr, Yann; Darrozes, José; Rabinowicz, Michel; Ramillien, Guillaume; Cazenave, Anny; Genthon, Pierre: **LARGE-SCALE CONVECTIVE CIRCULATION IN THE LAKE CHAD BASIN**
- 191-12** 11:15 AM Weyer, K. Udo\*; Ellis, James C.: **DYNAMICS OF SUBSURFACE FLOW OF SALT WATER AND BRINES**
- 11:30 AM **DISCUSSION**

## SESSION NO. 192

**T136. Decadal to Century-Scale Proxy Climate Records in High-Altitude and High-Latitude Landscapes (GSA Quaternary Geology and Geomorphology Division)**

8:00 AM, Baltimore Convention Center, Room 340

Michael O'Neal and Brian Hanson, Presiding

- 8:00 AM **INTRODUCTORY REMARKS**
- 192-1** 8:15 AM McGlannan, Austin James\*; Bart, Philip; Sjunneskog, Charlotte: **WEST ANTARCTIC ICE SHEET GROUNDING EVENTS ON THE MIDDLE SHELF OF THE WHALES DEEP PALEO-ICE-STREAM TROUGH IN EASTERN ROSS SEA, ANTARCTICA**



- 192-2 8:30 AM Curtin, Lorelei\*; Moy, Christopher; Nichols, Jonathan; Hageman, Kimberly; Aebig, Christopher; Wilson, Gary: **A 550-YEAR MULTI-PROXY RECORD FROM LAKE SEDIMENT CORES REVEALS RECENT SOUTHERN HEMISPHERE WESTERLY WIND VARIABILITY IN THE AUCKLAND ISLANDS (51°S), NEW ZEALAND SUB-ANTARCTIC**
- 192-3 8:45 AM Denton, George\*: **GSA QUATERNARY GEOLOGY AND GEOMORPHOLOGY DIVISION DISTINGUISHED CAREER AWARD: A REMARKABLE CLIMATE CHANGE IN THE SOUTHERN HEMISPHERE**
- 192-4 9:15 AM Wiles, Gregory\*; D'Arrigo, Rosanne D.; Wilson, Rob; Barclay, David J.: **COASTAL NORTHEAST PACIFIC PROXY RECORDS AND THEIR ROLE IN UNDERSTANDING REGIONAL CLIMATE FORCING**
- 192-5 9:35 AM Fountain, Andrew G.\*: **A CENTURY OF GLACIER CHANGE IN THE AMERICAN WEST, USA**
- 192-6 9:55 AM Clark, Douglas H.\*; Hidy, Alan J.; Zimmerman, Susan H.; Finkel, Robert C.; Stock, Greg M.; Schaefer, Joerg M.: **WIDE SPAN OF EXPOSURE AGES ON HOLOCENE MORAINES IN THE SIERRA NEVADA: PROCESS OR CLIMATIC CONTROLS?**
- 192-7 10:10 AM Rupper, Summer\*; Schaefer, Joerg M.; Cook, Edward R.; Maurer, Josh; Putnam, Aaron E.; Krusic, Paul: **CLIMATE CHANGE AND GLACIER RESPONSE IN THE HIMALAYAS - PAST AND PRESENT**
- 192-8 10:30 AM Baranwal, Soma\*; Knies, Jochen Manfred; Grosfeld, Kari: **REVISITING ARCTIC PLEISTOCENE-HOLOCENE (□2 MA TO PRESENT) FROM ODP 912A: A NEW RECORD FROM THE ARCTIC-ATLANTIC GATEWAY**
- 192-9 10:45 AM Hansen, Melissa\*; Passchier, Sandra: **VENTILATION OF THE SOUTHERN OCEAN DURING THE PLIOCENE CLIMATIC OPTIMUM**
- 11:00 AM **DISCUSSION**
- 193-7 9:45 AM Perez, Victor J.\*; Pimiento, Catalina; Hendy, Austin J.W.; MacFadden, Bruce J.; Gonzalez-Barba, Gerardo; Hubbell, Gordon: **LATE MIOCENE CHONDRICHTHYANS FROM LAGO BAYANO, PANAMA WITH IMPLICATIONS FOR A MARINE CONNECTION BETWEEN THE CARIBBEAN AND PACIFIC**
- 193-8 10:00 AM Leonard-Pingel, Jill S.\*; Todd, Jonathan A.; Stefanic, Candice M.: **FUNCTIONAL SHIFT IN GASTROPOD ASSEMBLAGES REFLECTS CHANGING HABITATS IN THE CARIBBEAN NEOGENE**
- 193-9 10:15 AM Wallace, Carden C.\*: **ACROPORA AND ISOPORA: THE LONG PAST AND UNCERTAIN FUTURE**
- 193-10 10:30 AM Pandolfi, John M.\*; Gomez Cabrera, Maria del Carmen; Young, Jennifer; Roff, George; Cooper, Alan: **THE FIGHT FOR DOMINANCE ON THE GREAT BARRIER REEF: A MARRIAGE OF FOSSILS AND MOLECULES**
- 193-11 10:45 AM Wanless, Harold R.\*: **THRIVING ACROPORA IN CAICOS – A CLIMATE CHANGE REFUGIA?**
- 193-12 11:00 AM Jackson, Jeremy B.C.\*: **THE FUTURE OF CARIBBEAN CORAL REEFS**

## SESSION NO. 194

**T160. Topics in Paleoecology: Modern Analogues and Ancient Systems II (Paleontological Society)**

8:00 AM, Baltimore Convention Center, Room 315

Darrin J. Molinaro, Carolyn M. Furlong, Amelinda E. Webb and Gary J. Motz, Presiding

## SESSION NO. 193

**T148. Cenozoic Evolution of Tropical Biota and Environments II: A Session Honoring the Contributions of Ann F. Budd (SEPM (Society for Sedimentary Geology); Paleontological Society)**

8:00 AM, Baltimore Convention Center, Room 310

James S. Klaus, Kenneth G. Johnson, Francesca R. Bosellini and Thomas Stemann, Presiding

- 193-1 8:00 AM Johnson, Kenneth G.\*; Santodomingo, Nadiyah: **LATE CENOZOIC HISTORY OF CORAL REEF ECOSYSTEMS: NEW DATA FROM THE CARIBBEAN AND CORAL TRIANGLE**
- 193-2 8:15 AM Bosellini, Francesca R.\*; Budd, Ann F.; Johnson, Kenneth: **MEDITERRANEAN VS CARIBBEAN OLIGOCENE REEF CORALS: A NEW PALEOBIOGEOGRAPHIC SCENARIO UNRAVELED BY PROGRESS IN CORAL SYSTEMATICS**
- 193-3 8:30 AM Piller, Werner E.\*; Reuter, Markus; Wiedl, Thomas: **PARASCOLYMIA (SCLERACTINIA: LOBOPHYLLIIDAE) IN THE CENTRAL PARATETHYS SEA (AUSTRIA) AND ITS BIOGEOGRAPHIC IMPLICATIONS**
- 193-4 8:45 AM Cotton, Laura J.\*; Renema, Willem: **OUT OF AFRICA: COMPLEX EVOLUTION OF RETICULATE NUMMULITES**
- 193-5 9:00 AM Allmon, Warren\*: **"TEMPO AND MODE" OF EVOLUTION RECONSIDERED, AGAIN: WHAT IS THE RELATIVE FREQUENCY OF DIFFERENT MACROEVOLUTIONARY DYNAMICS IN THE FOSSIL RECORD?**
- 193-6 9:15 AM Wood, Aaron R.\*; Rincon, Aldo F.; Morgan, Gary S.; Bloch, Jonathan I.; MacFadden, Bruce J.: **STUCK IN THE NEW WORLD TROPICS? EARLY MIOCENE BIOGEOGRAPHY AND DIVERSITY OF CENTRAL AND NORTH AMERICAN MAMMALS**
- 9:30 AM **BREAK**
- 194-1 8:00 AM Feser, Kelsey M.\*; Miller, Arnold I.: **THE DIAGNOSIS AND SIGNIFICANCE OF STRATIGRAPHY IN SUBFOSSIL MOLLUSCAN ASSEMBLAGES PRESERVED IN SEAGRASS BEDS: ST CROIX, US VIRGIN ISLANDS**
- 194-2 8:15 AM Hart, Malcolm Barrie\*; Smart, Christopher W.; Jagt, John W.M.: **CO-EVOLUTION OF FORAMINIFERA AND SEA GRASS COMMUNITIES SINCE THE LATE CRETACEOUS**
- 194-3 8:30 AM Cronin, Kelly\*; Dieltl, Gregory P.; Kelley, Patricia H.: **EXAMINING LIFESPAN BIAS IN DEATH ASSEMBLAGES USING TWO BIVALVE SPECIES IN SEAGRASS BEDS IN NORTH CAROLINA**
- 194-4 8:45 AM Clapham, Matthew E.\*; Beard, J. Andrew; Ivany, Linda C.; Runnegar, Bruce N.: **PALEOPHYSIOLOGY, THERMAL TOLERANCE, AND EXTINCTION OF THE PERMIAN GLACIAL BIVALVE EURYDESMA**
- 194-5 9:00 AM Casebolt, Sahale N.\*; Kowalewski, Michal: **PATCHINESS AND SPATIAL RESOLUTION IN MOLLUSK DEATH ASSEMBLAGES IN SAN SALVADOR, BAHAMAS**
- 194-6 9:15 AM Smith, Jansen A.\*; Goodwin, David H.; Dieltl, Gregory P.: **COMPLIMENTARY PROCESSES STRUCTURING THE COLORADO RIVER DELTA MOLLUSCAN FAUNA AS REVEALED BY SPECIES ABUNDANCE DISTRIBUTIONS**
- 9:30 AM **BREAK**
- 194-7 9:45 AM Lockwood, Rowan\*: **A PALEONTOLOGICAL PERSPECTIVE ON THE CONSERVATION OF CHESAPEAKE BAY OYSTERS**
- 194-8 10:05 AM Savarese, Michael\*; Stingu, Shanna C.; Walker, Karen Jo; Marquardt, William; Thompson, Victor D.: **EMPLOYING PRINCIPLES FROM CONSERVATION PALEOBIOLOGY TO INVESTIGATE THE EFFECTS OF SHELLFISH HARVESTING BY ABORIGINAL INHABITANTS OF SOUTHWEST FLORIDA**
- 194-9 10:20 AM Albano, Paolo G.\*; Tomasovych, Adam; Kaufman, Darrell S.; Stachowitsch, Michael; Zuschin, Martin: **ASSESSING THE MAGNITUDE OF RECENT COMPOSITIONAL CHANGES IN MARINE ECOSYSTEMS: APPLYING THE CONSERVATION PALEOBIOLOGY APPROACH TO THE PERSIAN GULF**

AM

TUESDAY

## SESSION NO. 194

- 194-10 10:35 AM Nawrot, Rafal\*; Zuschin, Martin; Chattopadhyay, Devapriya: **PLIO-PLEISTOCENE EXTINCTIONS, LESSEPSIAN INVASION AND THE FUTURE OF THE MEDITERRANEAN BIVALVE FAUNA**
- 194-11 10:50 AM Zuschin, Martin\*; Gallmetzer, Ivo; Haselmair, Alexandra; Stachowitsch, Michael; Tomasovych, Adam: **HISTORICAL ECOLOGY OF THE NORTHERN ADRIATIC SEA – A REGIONAL APPROACH USING MOLLUSCAN DEATH ASSEMBLAGES FROM SEDIMENT CORES**
- 194-12 11:05 AM DeVore, Melanie L.\*; Freile, Deborah: **CAN TAPHONOMY AND ICHNOLOGY OF THE PAST BE USED TO MANAGE THE FUTURE? WHY THE DECLINE OF THE WEST INDIAN TOP-SHELL (*CITTARIUM PICA*) WILL AFFECT LAND HERMIT CRAB (*COENOBITA CLYPEATUS*) POPULATIONS**
- 194-13 11:20 AM Sheward, Rosie M.\*; Poulton, Alex; Gibbs, Samantha; Daniels, Chris J.: **THE LIVING AND THE DEAD: FROM CELLULAR ARCHITECTURE TO GROWTH RATES, ENVIRONMENTAL CHANGE AND ECOLOGY IN MODERN AND FOSSIL COCCOLITHOPHORES**

## SESSION NO. 195

**T162. A Lower Crustal Perspective on Magmatic Arc Processes (GSA Mineralogy, Geochemistry, Petrology, and Volcanology Division)**

8:00 AM, Baltimore Convention Center, Room 331/332

Harold H. Stowell, Keith Klepeis and Joshua J. Schwartz, Presiding

- 8:00 AM **INTRODUCTORY REMARKS**
- 195-1 8:05 AM Williams, Michael L.\*; Seaman, Sheila J.; Mahan, Kevin H.; Dumond, Gregory; Koteas, G. Christopher; Regan, Sean P.: **STRUCTURAL AND PETROLOGIC IMPLICATIONS OF MAGMATIC UNDERPLATING IN A CONTINENTAL ARC: OBSERVATIONS FROM THE ATHABASCA GRANULITE TERRANE**
- 195-2 8:25 AM Norton, Rebecca A.\*; Stowell, Harold H.; Schwartz, Joshua J.: **USING PSEUDOSECTIONS TO EVALUATE CHANGING EFFECTIVE BULK COMPOSITION DURING GARNET GROWTH AND PARTIAL MELTING, EXAMPLES FROM FIORDLAND, NZ**
- 195-3 8:40 AM Ahmad, Ijaz\*; Richards, Jeremy P.; Shah, Mohammad Tahir; Pearson, D. Graham; DuFrane, S. Andrew; Liu, Jingao; Jagoutz, Oliver: **PLATINUM GROUP ELEMENT CONCENTRATIONS OF CHILAS COMPLEX GABBROS, KOHISTAN ARC LOWER CRUST, PAKISTAN**
- 195-4 8:55 AM Kruckenberg, Seth C.\*; Tikoff, Basil: **SPATIAL AND TEMPORAL PATTERNS OF MELT MIGRATION AND STRAIN LOCALIZATION IN THE TWIN SISTERS ULTRAMAFIC MASSIF, WASHINGTON STATE**
- 195-5 9:10 AM Yokelson, Intan N.\*; Gehrels, George; Cecil, M. Robinson; Rusmore, Margaret E.: **U-PB GEOCHRONOLOGY AND HF ISOTOPE GEOCHEMISTRY OF THE SOUTHERN COAST MOUNTAINS BATHOLITH, BRITISH COLUMBIA**
- 195-6 9:25 AM Samperton, Kyle M.\*; Schoene, Blair; Annen, Catherine: **PORTRAIT OF A PLUTON: AN INTEGRATED OBSERVATIONAL, ANALYTICAL AND MODELING STUDY OF THE MID-CRUSTAL BERGELL INTRUSION, CENTRAL ALPS**
- 195-7 9:40 AM Gebauer, Samantha K.\*; Schwartz, Joshua J.; Klepeis, Keith A.; Stowell, Harold H.; Coble, Matthew A.; Kylander-Clark, Andrew; Hacker, Bradley R.: **SPATIO-TEMPORAL PATTERNS OF LOWER ARC COOLING AND METAMORPHISM, NORTHERN FIORDLAND, NEW ZEALAND**
- 195-8 9:55 AM Decker, Meghann F.I.\*; Schwartz, Joshua J.; Stowell, Harold H.; Klepeis, Keith; Kitajima, Kouki; Valley, John; Kylander-Clark, Andrew; Tulloch, Andrew; Kimbrough, David L.: **TRIGGERING MECHANISMS FOR A MAGMATIC**

**FLARE-UP IN THE LOWER CRUST OF A CONTINENTAL ARC, FIORDLAND, NEW ZEALAND**

- 195-9 10:10 AM Miller, Robert B.\*; Gordon, Stacia M.; Sauer, Kirsten: **FLOW AND DEFORMATION IN DEEP-ARC CRUST**
- 10:30 AM **BREAK**
- 195-10 10:45 AM Webb, Laura E.\*; Klepeis, Keith: **PUNCTUATED MELT-ENHANCED DEFORMATION AND TECTONIC REACTIVATION ABOVE A LONG-LIVED SUBDUCTION ZONE, COASTAL ANDES, CENTRAL CHILE**
- 195-11 11:00 AM Nadin, Elisabeth S.\*; Saleeby, Jason B.: **PRESERVING VARYING DEFORMATION HISTORIES IN ACTIVE ARCS: A CASE STUDY OF THE SIERRA NEVADA BATHOLITH, CALIFORNIA**
- 195-12 11:15 AM Garapic, Gordana\*; Faul, Ulrich; Kruckenberg, Seth C.; Wiejaczka, Joshua; Newton, John: **OLIVINE-RICH TROCTOLITES: GEOCHEMICAL AND MICROSTRUCTURAL EVIDENCE OF THEIR MANTLE ORIGIN**
- 195-13 11:30 AM Lambart, Sarah\*: **MELT-ROCK INTERACTIONS: INFINITE SOURCE OF NEW MANTLE LITHOLOGIES**
- 11:45 AM **DISCUSSION**

## SESSION NO. 196

**T165. Zen and Now: Honoring the Legacy of E-an Zen's Contributions to Geology (GSA Mineralogy, Geochemistry, Petrology, and Volcanology Division; Mineralogical Society of America; Geochemical Society)**

8:00 AM, Baltimore Convention Center, Room 317

Philip M. Piccoli, Jane M. Hammarstrom, H. Catherine Skinner and Guy L. Hovis, Presiding

- 8:00 AM **INTRODUCTORY REMARKS**
- 196-1 8:05 AM Presteggaard, Karen L.\*: **ZEN OF SMALL THINGS; HOW SMALL OBSERVATIONS LEAD TO BIG IDEAS**
- 196-2 8:25 AM Haugerud, Ralph A.\*: **THE ZEN OF GEOLOGIC MAPPING**
- 196-3 8:40 AM Karabinos, Paul\*; Macdonald, Francis A.; Crowley, J.L.: **THE ENDURING IMPACT OF E-AN ZEN ON TACONIC GEOLOGY**
- 196-4 8:55 AM Hovis, Guy L.\*: **WELL-CONSTRAINED ENTHALPIES OF K-NA MIXING IN AL-SI ORDERED AND DISORDERED ALKALI FELDSPAR SERIES FROM NEW HF SOLUTION CALORIMETRIC MEASUREMENTS ON FORTY-ONE SAMPLES**
- 196-5 9:10 AM Morse, Stearns A.\*; Brady, John B.: **THE HOT DRY STORY OF THE TERNARY FELDSPARS**
- 9:25 AM **BREAK**
- 196-6 9:40 AM Grew, Edward S.\*; Cempírek, Jan; Kampf, Anthony R.; Ma, Chi; Novák, Milan; Gadas, Petr; Škoda, Radek; Vašinová-Galiová, Michaela; Pezzotta, Federico; Groat, Lee A.: **A POTENTIALLY NEW BOROSILICATE MINERAL,  $Ca_{16}B_4Si_4O_{38}$ , RELATED TO BORALSILITE FROM THE MANJAKA PEGMATITE, SAHATANY VALLEY, MADAGASCAR**
- 196-7 9:55 AM Caudle, Dana J.\*; Groat, Lee A.; Cempírek, Jan; Millonig, Leo J.: **MINERALOGY OF REE-BEARING NYF-TYPE PEGMATITES FROM THE KIN PROPERTY, NEAR REVELSTOKE, BC, CANADA**
- 196-8 10:10 AM Belkin, Harvey E.\*: **PERALKALINE GRANITES AND VOLCANICS OF THE NEOPROTEROZOIC RIFT-RELATED ROBERTSON RIVER IGNEOUS SUITE, NORTHERN VIRGINIA, USA: ZR, NB, Y, AND REE MINERALOGY**
- 196-9 10:30 AM Kimbrough, David L.\*; Mahoney, J. Brian; Mescua, José; Giambiagi, Laura B.; Buelow, Ellen K.: **NEW ZIRCON U-PB AGES DEFINE A STRONGLY EPISODIC HISTORY OF MAGMATISM FOR THE PERMO-TRIASSIC CHOYOI SILICIC LARGE IGNEOUS PROVINCE OF CHILE AND ARGENTINA**

- 196-10 10:45 AM Piccoli, Philip M.\*; Knighton, Steven; Kayser, Sean; Ash, Richard; Candela, Philip A.: **INDIUM IN MAGMATIC-HYDROTHERMAL SYSTEMS: UNDERSTANDING ITS BEHAVIOR TODAY TO MEET TOMORROW'S DEMAND**
- 196-11 11:00 AM Hammarstrom, Jane M.\*: **PLUTONS, PRESSURE, AND PORPHYRY SYSTEMS—GEOBAROMETRY AS A TOOL FOR ECONOMIC GEOLOGY**
- 196-12 11:15 AM Skinner, Brian\*; Skinner, Catherine: **THE LIFE AND TIMES OF E-AN ZEN**

**SESSION NO. 197****T185. Coastal Hazards from Minutes to Millennia (GSA Quaternary Geology and Geomorphology Division; GSA Geology and Society Division)**

8:00 AM, Baltimore Convention Center, Room 307

Simon E. Engelhart, Andrew C. Kemp and Benjamin P. Horton, Presiding

- 8:00 AM **INTRODUCTORY REMARKS**
- 197-1 8:05 AM Hay, Carling C.\*; Morrow, Eric; Kopp, Robert E.; Mitrovića, Jerry X.: **A NEW PROBABILISTIC ESTIMATE OF GLOBAL AND LOCAL SEA LEVELS OVER THE 20<sup>TH</sup> CENTURY**
- 197-2 8:25 AM Gornitz, Vivien\*; Horton, Radley; Bader, D.A.; Rosenzweig, Cynthia; Orton, Philip: **FACING HIGHER SEA LEVELS AND INCREASED COASTAL FLOODING IN NEW YORK CITY**
- 197-3 8:40 AM García-Artola, A.\*; Horton, B.P.; Engelhart, S.E.; Nikitina, D.; Pilarczyk, J.E.; Khan, N.S.; Walker, J.; Shaw, T.: **SEA-LEVEL RISE IN THE DELAWARE BAY (U.S. ATLANTIC COAST) DURING THE COMMON ERA**
- 197-4 8:55 AM Hearty, Paul J.\*; Hansen, James; Tselioudis, George: **EEMIAN MIS 5E: A FLASH FROM THE PAST...AND A GLIMPSE INTO THE FUTURE!**
- 197-5 9:10 AM Jonathan, M.P.\*; Francisco, Reyes Hernandez; Venkata Chari, Shruti; Muthusankar, G.: **A VIEW ON THE INUNDATION LIMITS IN COASTAL CITIES FROM MEXICO AND SELECTED PACIFIC CITIES: RECENT SEA SWELL IMPACT (2015)**
- 197-6 9:25 AM Johnson, Christopher S.\*; Miller, Kenneth G.; Browning, James V.; Kopp, Robert E.; Khan, Nicole S.; Stanford, Scott D.: **WHY DOES SANDY HOOK HAVE THAT SINKING FEELING?**
- 197-7 9:40 AM Wallace, Davin J.\*; Donnelly, Jeffrey P.; Woodruff, Jonathan D.; van Hengstum, Peter J.; Rosenheim, Brad; Horgan, Meghan C.: **PALEOTEMPESTOLOGICAL RECONSTRUCTION OF WESTERN ATLANTIC HOLOCENE HURRICANE IMPACTS FROM MANGROVE LAKE, BERMUDA**
- 197-8 10:00 AM Nikitina, Daria\*; Horton, Benjamin P.; Khan, Nicole; Shaw, Timothy; Enache, Mihaela; Frizzera, Dorina; Procopio, Nick; Potapova, Marina: **GEOLOGIC RECORD OF HURRICANE IMPACTS ON THE NEW JERSEY COAST**
- 197-9 10:15 AM van Hengstum, Peter J.\*; Donnelly, Jeffrey P.; Reinhardt, Eduard G.; Wallace, Davin J.; Horgan, Meghan C.: **A LATE HOLOCENE LOW-FREQUENCY STORMINESS SIGNAL FROM AN INLAND SUBMARINE CAVE IN BERMUDA**
- 197-10 10:30 AM Osterman, Lisa E.\*; Smith, Christopher G.; Adams, C. Scott: **USING RECENT HURRICANE EVENT LAYERS TO EVALUATE REGIONAL STORM IMPACTS ON ESTUARINE AND WETLAND SYSTEMS**
- 197-11 10:45 AM Tamura, Toru\*; Nicholas, William A.; Oliver, Thom SN; Brooke, Brendan: **DEPOSITIONAL ARCHITECTURE OF COARSE SAND BEACH RIDGES AT COWLEY BEACH, NORTHEASTERN QUEENSLAND, AUSTRALIA**
- 197-12 11:00 AM Engelhart, Simon E.\*; Witter, Robert C.; Briggs, Richard W.; Vane, Christopher H.; Dura, Tina; Corbett, D. Reide; Nelson, Alan R.; Haeussler, Peter J.; Koehler, Rich D.; Gelfenbaum, Guy: **REPEATED TSUNAMIS DURING THE LAST 4000 YEARS AT SANAK ISLAND, ALASKA**

- 197-13 11:15 AM Cox, Rónadh\*; Watkins, Oona G.: **STORM-WAVE MOVEMENT OF MEGAGRAVEL IN WESTERN IRELAND: IMPLICATIONS FOR UNDERSTANDING BOTH STORMS AND TSUNAMI**
- 197-14 11:30 AM Butler, Robert F.\*; Pratt-Sitaula, Beth; Lillie, Robert J.; Hunter, Nancee C.; Magura, Bonnie; Groom, Roger; Hedeon, Chris; Johnson, Jenda; Coe, Michael: **LEVERAGING RESEARCH ON EARTHQUAKES AND TSUNAMI TO INCREASE PREPAREDNESS EDUCATION IN COASTAL CASCADIA COMMUNITIES**
- 197-15 11:45 AM Tehranirad, Babak\*; Kirby, James T.; Shi, Fengyan; Grilli, Stephan T.; Grilli, Annette R.: **IS CONTINENTAL SHELF BATHYMETRY THE MAIN CONTROL FOR TSUNAMI INUNDATION PATTERNS ON THE US EAST COAST?**

**SESSION NO. 198****T190. Paleoecological Patterns, Ecological Processes, Modeled Scenarios: Crossing Temporal Scales to Understand an Uncertain Future (GSA Quaternary Geology and Geomorphology Division; AASP - The Palynological Society; Canadian Association of Palynology; GSA Limnogeology Division; Paleoceanography/ Paleoclimatology Discipline; SEPM (Society for Sedimentary Geology); Paleontological Society)**

8:00 AM, Baltimore Convention Center, Room 314

Miriam C. Jones, Simon Goring and Debra A. Willard, Presiding

- 8:00 AM **INTRODUCTORY REMARKS**
- 198-1 8:05 AM Booth, Robert K.\*: **MULTIDECADAL-TO-CENTENNIAL SCALE ECOLOGICAL DYNAMICS DURING TIMES OF ABRUPT HOLOCENE VEGETATION CHANGE**
- 198-2 8:25 AM Morris, III, Jesse L.\*: **RECONSTRUCTING THE BIOGEOCHEMICAL OUTCOMES OF LANDSCAPE DISTURBANCES USING LAKE SEDIMENT RECORDS**
- 198-3 8:45 AM Stelling, Jonathan M.\*; Yu, Zicheng; Beilman, David W.; Loisel, Julie: **LATE HOLOCENE ECOLOGICAL AND CLIMATE CHANGE FROM PEAT RECORDS IN THE WESTERN ANTARCTIC PENINSULA**
- 198-4 9:00 AM Goring, Simon\*; Williams, John W.; Salonen, J Sakari; Luoto, Miska: **HOW MUCH OF THE PALEOECOLOGICAL RECORD HAS NO ANALOGUE AND WHAT DOES THIS MEAN FOR ENVIRONMENTAL RECONSTRUCTION?**
- 198-5 9:15 AM Boyle, James T.\*; Sheets, H. David; Goldman, Daniel; Mitchell, Charles, E.: **A BAYESIAN METHOD FOR IDENTIFYING GRAPTOLITE BIOTOPES**
- 198-6 9:30 AM Yasuhara, Moriaki\*; Tittensor, Derek P.; Hillebrand, Helmut; Worm, Boris: **COMBINING MARINE MACROECOLOGY AND PALEOECOLOGY IN BIODIVERSITY ANALYSES: MICROFOSSILS AS A MODEL**
- 9:45 AM **BREAK**
- 198-7 10:00 AM Ivory, Sarah\*; Early, Regan; Sax, Dov; Russell, James M.: **THE PAST AND FUTURE OF AFRICAN FORESTS: INFERENCES FROM MODELS AND LAKE MUDS**
- 198-8 10:20 AM Adojoh, Onema\*; Fabienne, Marret; Duller, Robert; Osterloff, Peter: **EVOLUTION OF THE NIGER DELTA MARGIN DURING THE LATE PLEISTOCENE-HOLOCENE: NEW PALYNOLOGICAL EVIDENCE**
- 198-9 10:35 AM West, Abagael R.\*: **ANCIENT DNA FROM ALASKA'S EXTINCT PLEISTOCENE MUSK OXEN: PHYLOGENETICS AND POPULATION DYNAMICS REVEAL A UNIQUE PALEOENVIRONMENTAL HISTORY**
- 198-10 10:50 AM Drewicz, Amanda E.\*; Kohn, Matthew J.; Fremd, Ted: **STABLE ISOTOPES IN LARGE HERBIVORE TOOTH ENAMEL SHOW MID-MIOCENE SOAKING OF CENTRAL OREGON**
- 198-11 11:05 AM Durham, Stephen R.\*; Dietl, Gregory P.: **TESTING CLIMATE'S EFFECT ON OYSTER LIFE HISTORY USING GEOHISTORICAL RECORDS**

AM

TUESDAY

SESSION NO. 198

198-12 11:20 AM Wingard, G. Lynn\*; Hudley, Joel W.; Stackhouse, Bethany L.; Marshall, Frank E.; Pitts, Patrick A.: **APPLICATION OF HOLOCENE PALEO-SALINITY ESTIMATES TO EVERGLADES RESTORATION PERFORMANCE MEASURES**

SESSION NO. 199

**T192. Lawrence A. Hardie Commemorative Session I (GSA Mineralogy, Geochemistry, Petrology, and Volcanology Division)**

8:00 AM, Baltimore Convention Center, Room 319/320

Tim K. Lowenstein, Robert V. Demicco and Linda Hinnov, Presiding

- 8:00 AM **INTRODUCTORY REMARKS**
- 199-1 8:15 AM Chou, I-Ming\*: **VAPOR PRESSURE, CHEMICAL EQUILIBRIUM, THERMODYNAMICS, AND EARTH AND PLANETARY SCIENCES - A TRIBUTE TO LAWRENCE A. HARDIE**
- 199-2 8:30 AM Rosen, Michael R.\*: **A REVIEW OF AND GEOCHEMICAL EVOLUTION OF THE BRINES IN THE BRISTOL TROUGH, CALIFORNIA**
- 199-3 8:45 AM Benison, Kathleen C.\*; Bowen, Brenda B.; Lowenstein, Tim K.: **EXPANSION OF THE HARDIE-EUGSTER BRINE EVOLUTION MODEL INTO THE LOW PH REALM**
- 199-4 9:00 AM Lowenstein, Tim K.\*; Dolginko, Lauren A.C.; Garcia Veigas, Javier: **THE INFLUENCE OF MAGMATIC-HYDROTHERMAL ACTIVITY ON BRINE EVOLUTION IN CLOSED BASINS: SEARLES LAKE, CALIFORNIA**
- 199-5 9:15 AM Luczaj, John\*: **MODERN AQUIFER CHEMISTRY AS A FUNCTION OF WATER-ROCK INTERACTION: A CASE EXAMPLE FROM EASTERN WISCONSIN**
- 199-6 9:30 AM Janick, Joseph J.\*; Demicco, Robert V.: **MODELING CHEMICAL SEDIMENTATION IN CLOSED BASINS**
- 9:45 AM **BREAK**
- 199-7 10:00 AM Xu, Huifang\*; Shen, Zhizhang: **THE ROLES OF MICROBIAL EXTRACELLULAR POLYMERIC SUBSTANCES IN CATALYZING DOLOMITE CRYSTALLIZATION AT LOW-TEMPERATURE**
- 199-8 10:15 AM Spencer, Ron\*; Weedmark, Tom: **THE HORN RIVER - DUVERNAY SHALE SYSTEM, WESTERN CANADA: HYDROTHERMAL PETROLEUM RESERVOIRS**
- 199-9 10:30 AM Fang, Yihang\*; Xu, Huifang: **STUDY ON AN OSCILLATORY MICRO-LAMINATED DOLOMITE/LIMESTONE ROCK AND ITS IMPLICATION ON SEDIMENTARY DOLOMITE FORMATION**
- 199-10 10:45 AM Smoot, Joseph P.\*: **ADVANCES IN THE SEDIMENTOLOGY OF DESERT BASIN MUDFLATS**
- 199-11 11:00 AM Knapp, Jonathan P.\*; Benison, Kathleen C.; Andeskie, Anna Sofia: **TESTING IF THIN CARBONATE UNITS ARE MARINE OR NON-MARINE: APPLYING THE HARDIE APPROACH TO THE TRIASSIC ALCOVA LIMESTONE OF WYOMING**
- 199-12 11:15 AM Lugli, Stefano\*; Manzi, Vinicio; Roveri, Marco; Schreiber, B. Charlotte: **RECOGNIZING THE CLASTIC EVAPORITE REALM, THE EXAMPLE OF THE MESSINIAN FROM THE MEDITERRANEAN BASIN**

SESSION NO. 200

**T197. Sedimentary Basins I**

8:00 AM, Baltimore Convention Center, Room 349/350

D. Jeffrey Over and Diane L. Kamola, Presiding

- 8:00 AM **INTRODUCTORY REMARKS**
- 200-1 8:05 AM Zelt, Frederick B.\*; Heizler, Matthew T.: **EVIDENCE FOR VERY SLOW ACCUMULATION OF CRETACEOUS (MIDDLE CAMPANIAN) ARDMORE BENTONITES AND LOWER SHARON SPRINGS FORMATION, PIERRE SHALE, EASTERN WYOMING**

- 200-2 8:20 AM Ejembi, John Idoko\*; Johnson, Matthew; Potter-McIntyre, Sally L.: **DETRITAL ZIRCON STUDIES IN RELATION TO PROVENANCE OF THE JURASSIC WANAKAH FORMATION AND ADJACENT ROCK UNITS IN WESTERN COLORADO**
- 200-3 8:35 AM Madhavaraju, Jayagopal\*; Ramirez-Montoyo, Erik; González-León, Carlos M.; Solari, Luigi; Monreal, Rogelio: **PROVENANCE OF THE CLASTIC ROCKS OF THE MORITA FORMATION, NORTHERN SONORA, MEXICO: EVIDENCES FROM GEOCHEMISTRY AND DETRITAL ZIRCON U-PB AGES**
- 200-4 8:50 AM Ibrahim, Diar Mohammed\*; McClelland, William C.; Pope, Michael C.; Witzke, Brian J.; Finzel, Emily S.; Miller, Brent V.: **U/PB DETRITAL ZIRCON GEOCHRONOLOGY AND PROVENANCE OF THE MIDDLE-ORDOVICIAN ST. PETER SANDSTONE AND STARVED ROCK FORMATION, IOWA**
- 200-5 9:05 AM Wissink, Gregory K.\*; Hoke, Gregory D.: **NO CENOZOIC CONNECTIVITY BETWEEN UPPER YANGTZE RIVER AND RED RIVER**
- 200-6 9:20 AM Miaomiao, Meng\*: **SEDIMENTARY CHARACTERISTICS OF CARBONATE INTRA-PLATFORM SHOALS AND THEIR FORMATION IN ORDOVICIAN TARIM BASIN, WEST CHINA**
- 9:35 AM **BREAK**
- 200-7 9:50 AM Gibling, Martin R.\*; DiMichele, William; Tobey, Dawn; Chaney, Dan S.; Cecil, Blaine: **HOW ABUNDANT WAS VEGETATION ON THE WESTERN MARGIN OF PANGEA? ABUNDANCE, DIVERSITY AND TAPHONOMY FOR THE LOWER PERMIAN HALGAITO FORMATION OF THE PARADOX BASIN, UTAH**
- 200-8 10:05 AM Tobey, Dawn\*; Gibling, Martin R.; DiMichele, William; Chaney, Dan S.: **RIVERS, LOESS, AND VEGETATION; THE EARLY PERMIAN HALGAITO FORMATION IN THE VALLEY OF THE GODS, SOUTHEAST UTAH**
- 200-9 10:20 AM Deptuck, Mark E.\*; Kendell, Kris L.: **UNTANGLING THE PRE-, SYN-, AND POST-RIFT DEVELOPMENT OF THE SCOTIAN MARGIN: NEW RESULTS AND ENDURING QUESTIONS**
- 200-10 10:35 AM Barber, Douglas E.\*; Stockli, Daniel F.; Koshnaw, Renas I.: **CENOZOIC PERIPHERAL FORELAND BASIN DEVELOPMENT IN THE BITLIS-ZARGOS OROGEN, DUHOK, IRAQI KURDISTAN**
- 200-11 10:50 AM Stillings, Lisa L.\*; Mack, Thomas J.; Chornack, Michael P.; Kalaly, Siddiq S.: **LITHIUM BRINE EXPLORATION AT DASHT-E-NAWAR BASIN, AFGHANISTAN**
- 200-12 11:05 AM Wickard, Alyssa K.\*; Heij, Gerhard; Elmore, R. Douglas; Roberts, Jennifer M.: **A DIAGENETIC STUDY OF THE LOWER WOLFCAMP SHALE, MIDLAND BASIN, TEXAS: WHAT CAN DETAILED PETROGRAPHIC AND MAGNETIC STUDIES TELL US ABOUT PARAGENESIS IN THIS COMPLEX SYSTEM?**

SESSION NO. 201

**T200. Landscape Dynamics: Integrating Soils, Hydrology, and Climatic Processes to Understand Weathering, Sediment Transport and Biospheric Processes**

8:00 AM, Baltimore Convention Center, Room 336

Eric V. McDonald, J. Bruce J. Harrison, Michael Young and Todd G. Caldwell, Presiding

- 201-1 8:00 AM Cosh, Michael\*; Jackson, Thomas; Bindlish, Rajat; Colliander, Andreas; Chan, Steven; Das, Narendra; Yueh, Simon; Bosch, David; Goodrich, David; Prueger, John H.: **METHODS OF VALIDATING THE SOIL MOISTURE ACTIVE PASSIVE(SMAP) MISSION USING USDA-ARS EXPERIMENTAL WATERSHEDS**
- 201-2 8:15 AM Rodell, Matthew\*; Li, Bailing; Beaudoin, Hiroko K.; Getirana, Augusto; Zaitchik, Benjamin F.; Famiglietti, James:

- MONITORING TERRESTRIAL WATER VARIATIONS FROM SPACE USING GRACE**
- 201-3 8:30 AM Gary, Marcus\*; Hunt, Brian B.; Johnson, Steve: **HYDROGEOLOGIC RESPONSE TO MAJOR FLOODS ON THE BLANCO RIVER AND EDWARDS - TRINITY AQUIFERS, CENTRAL TEXAS, U.S.A**
- 201-4 8:45 AM Pachepsky, Yakov A.\*; Martinez Garcia, Gonzalo; Vereecken, Harry: **SOIL WATER CONTENTS: VARIABILITY, VARIATION, AND VARIETY**
- 201-5 9:00 AM Lin, Henry\*: **SOIL ARCHITECTURE AND PREFERENTIAL FLOW ACROSS SCALES**
- 201-6 9:15 AM Young, Michael\*; Fenstermaker, Lynn; Belnap, Jayne: **COMPARING TECHNOLOGIES FOR POINT-SCALE MEASUREMENT OF NEAR-SURFACE SOIL WATER CONTENT**
- 201-7 9:30 AM Paltineanu, Ioan Caton\*: **ON THE IMPORTANCE OF INTERNATIONAL STANDARDIZATION OF METHODOLOGIES AND TECHNIQUES FOR LABORATORY AND FIELD CALIBRATION OF SOIL WATER MEASUREMENT SENSORS BASED ON CAPACITANCE, IMPEDANCE, AND TDT**
- 9:45 AM **BREAK**
- 201-8 10:00 AM Harrison, Emma Jayne\*; Willenbring, Jane K.; Kovalovich, Aria: **DO WORMHOLES PREVENT LANDSLIDES? THE LINK BETWEEN BIOLOGICAL RESTRUCTURING OF SOIL AND HILLSLOPE PROCESSES**
- 201-9 10:15 AM Heimsath, Arjun M.\*: **EVOLVING HILLSLOPES: QUANTIFYING SEDIMENT PRODUCTION AND TRANSPORT ACROSS GRADIENTS**
- 201-10 10:30 AM Harrison, J. Bruce J.\*: **CONTROLS ON SOIL VARIABILITY ON HILLSLOPES**
- 201-11 10:45 AM Enzel, Yehouda\*; Boroda, Ronen; Amit, Rivka; Matmon, Ari; Porat, Naomi; Haviv, Itai; Eyal, Yehuda: **CLIFF-TALUS CO-EVOLUTION UNDER LONG-TERM NE NEGEV HYPERARIDITY**
- 201-12 11:00 AM Bouch, Kaitlyn Marie\*; Schettler, Shelby Lynn; Burkhart, Patrick; Cook, Katherine T.; Kennedy, Zachary R.; Nenno, Jessica M.; Restelli, Blake J.; Sherriff, Elena V.: **EROSION RATES AND TIMING OF LATE HOLOCENE PEDIMENT DISSECTION IN THE WHITE RIVER BADLANDS, SD**
- 201-13 11:15 AM McDonald, Eric V.\*; Harrison, J.B.J.; Baldwin, John; Page, William; Rood, Dylan H.; Gray, Brian; Bloszies, Christopher; Givler, Robert W.; Williams, Patrick: **USE OF SOIL STRATIGRAPHY TO DECIPHER THE 30 KA HISTORY OF HILLSLOPE COLLUVIUM DERIVED FROM WEATHERED BASALT IN NORTHERN CALIFORNIA**
- 201-14 11:30 AM Baldauf, Paul\*; Burkhart, Patrick A.; Hanson, Paul R.: **AEOLIAN RESPONSE TO LATE QUATERNARY DROUGHT, WHITE RIVER BADLANDS, SOUTH DAKOTA, NORTHERN GREAT PLAINS**
- 202-3 8:30 AM Robinson, Delores M.\*; Weislogel, Amy L.: **STRUCTURAL CONTROLS ON SEDIMENT TRANSPORT PATHWAYS IN THE JURASSIC EASTERN GULF OF MEXICO**
- 202-4 8:45 AM Gu, Sr., Zhidong\*; Yin, Sr., Jifeng; Jiang, Hua; Yuan, Miao: **TECTONIC EVOLUTION FROM LATE SINIAN TO EARLY PALEOZOIC AND NATURAL GAS EXPLORATION IN THE NORTHWESTERN SICHUAN BASIN, SW CHINA**
- 202-5 9:00 AM Crooke, Levi A.\*; Yezerski, Donald; Çemen, Ibrahim: **KINEMATIC DEFORMATION MODEL OF THE FRONTAL OUACHITA/ARKOMA BASIN TRANSITION ZONE IN WESTERN ARKANSAS**
- 202-6 9:15 AM Liu, Yiduo A.\*; Andrea, Ross A.; Murphy, Michael A.: **USING TOPOLOGY TO CHARACTERIZE FRACTURE NETWORK IN A NORMAL FAULT SPLAY ZONE IN THE RIO GRANDE RIFT, NEW MEXICO**
- 9:30 AM **BREAK**
- 202-7 9:45 AM Wuyep, Elizabeth Olive\*; Oluyemi, Gbenga; Yates, Kyari: **GEOMECHANICAL EFFECTS OF OILFIELD CHEMICALS ON SAND FAILURE IN RESERVOIR ROCKS**
- 202-8 10:00 AM French, Melodie E.\*; Chester, Frederick M.; Chester, Judith S.: **THE STRESS-DEPENDENT STRUCTURE AND PERMEABILITY OF FRACTURED ARKOSIC SANDSTONE**
- 202-9 10:15 AM Eichelberger, Nathan W.\*; Nunns, Alan G.; Groshong, Jr., Richard H.; Hughes, Amanda N.: **PREDICTING THE DIP AND LOCATION OF MASTER FAULTS BENEATH FORCED FOLDS**
- 202-10 10:30 AM Ace, Ashley\*; McQuarrie, Nadine; Sak, Peter B.; Grundy, Bob; Lavergne, Barrett: **EVALUATING THE STRUCTURE ACROSS A TRANSITIONAL DECOLLEMENT: THE ALLEGHENY FRONT, LYCOMING COUNTY, PENNSYLVANIA**
- 202-11 10:45 AM Eckert, Andreas\*; Tindall, Sarah E.: **THE ROLE OF ORIENTATION AND MECHANICAL STIFFNESS CONTRAST IN JOINTING OF CATACLASTIC DEFORMATION BANDS**

## SESSION NO. 203

*T218. Comparative Approaches to Studying Impact Ejecta Deposits and Volcanic Flows (GSA Planetary Geology Division; NASA Solar System Exploration Research Virtual Institute; GSA Mineralogy, Geochemistry, Petrology, and Volcanology Division)*

8:00 AM, Baltimore Convention Center, Room 344

Jacob E. Bleacher and Kelsey Young, Presiding

8:00 AM **INTRODUCTORY REMARKS**

- 203-1 8:10 AM Squyres, Steven W.\*: **GSA PRESIDENT'S MEDAL LECTURE: ROBOTIC FIELD GEOLOGY**
- 203-2 8:30 AM Osinski, Gordon R.\*: **HOW CAN WE DISTINGUISH BETWEEN IMPACT EJECTA DEPOSITS AND VOLCANIC FLOWS IN PLANETARY DATASETS AND SAMPLES?**
- 203-3 8:50 AM Hamilton, Christopher W.\*; Neish, Catherine D.; Lev, Einat: **TERRESTRIAL ANALOGS FOR LAVA FLOWS AND IMPACT MELT FLOWS ON THE MOON AND MARS**
- 203-4 9:10 AM Squyres, Steven W.\*; Young, Kelsey E.: **DISTINGUISHING IMPACT AND VOLCANIC DEPOSITS ON MARS WITH DATA FROM SPIRIT AND OPPORTUNITY**
- 203-5 9:30 AM DiFrancesco, Nicholas\*: **FUMARoles ON MARS: UNDERSTANDING THE POTENTIAL EFFECTS OF MAGMA DEGASSING ON SURROUNDING ROCK AND MELT CHEMISTRY**
- 203-6 9:45 AM Young, Kelsey\*; Bleacher, Jacob E.; Rogers, A. Deanne; Evans, Cynthia A.; McAdam, Amy; Osinski, Gordon R.; Garry, W. Brent; Carter, Lynn M.; Glotch, Timothy: **THE USE OF FIELD PORTABLE INSTRUMENTATION IN THE EXPLORATION OF VOLCANIC AND IMPACT TERRAINS**
- 203-7 10:00 AM Graettinger, Alison\*; Sonder, Ingo; Valentine, Greg: **BURIED EXPLOSION EXPERIMENTS PROVIDE INSIGHT INTO**

## SESSION NO. 202

*T211. Structural Geology and Geomechanics in the Petroleum Industry (GSA Structural Geology and Tectonics Division; American Association of Petroleum Geologists Petroleum—Structure and Geomechanics Division; GSA Energy Geology Division)*

8:00 AM, Baltimore Convention Center, Room 308

J. Steve Davis and Peter Hennings, Presiding

- 202-1 8:00 AM Davis, J. Steve\*: **THE IMPACT OF STRUCTURAL AND STRATIGRAPHIC UNCERTAINTY IN FAULT SEAL ANALYSIS**
- 202-2 8:15 AM Kiven, Charles\*: **INTEGRATED TRAP ANALYSIS OF A GULF OF MEXICO PROSPECT; A METHOD TO REDUCE UNCERTAINTY**



- EJECTA FACIES DISTRIBUTIONS AND MORPHOLOGY OF SINGLE AND MULTIPLE EXPLOSION SYSTEMS**
- 203-8 10:15 AM Bleacher, Jacob E.\*; Orr, Tim R.: **VOLCANIC SHATTER RINGS: A TYPE OF RAISED RIM DEPRESSION THAT FORMS OVER LAVA TUBES**
- 203-9 10:30 AM Barber, Michael E.\*; Deardorff, Nick: **MAPPING MOKST BUTTE LAVA FLOW IN CENTRAL OREGON USING LIDAR REFLECTION INTENSITY DATA AND FIELD OBSERVATIONS**
- 203-10 10:45 AM Whelley, Patrick\*; Petro, Noah: **SURFACE ROUGHNESS PATTERNS IN LUNAR SOUTH POLE-AKIN BASIN**
- 203-11 11:00 AM Anderson, Robert C.\*; Dohm, James M.; Maruyama, Shigenori; Miyamoto, Hirdy: **GEOLOGIC HISTORY OF THE TERRA CIMMERIA PROVINCE OF MARS: COULD THESE ANCIENT DEPOSITS BE RECORDED IN THE PEACE VALLIS FAN DEPOSITS OF GALE CRATER?**
- 203-12 11:15 AM Dohm, James M.\*; Miyamoto, Hirdy; Anderson, Robert C.; Komatsu, Goro; Baker, Victor R.; Maruyama, Shigenori: **GEOLOGIC RECORD OF AN ANCIENT MOBILE MARTIAN LITHOSPHERE**

## POSTER TECHNICAL SESSIONS

### SESSION NO. 204

**T9. Developing Proxies for Human Impact on Soil and Sediment Mass Transfer throughout the Holocene (Posters) (GSA Quaternary Geology and Geomorphology Division; Past Global Changes (PAGES)—GLoSS Working Group; GSA Geology and Society Division; GSA Soils and Soil Processes Interdisciplinary Interest Group; GSA Archaeological Geology Division)**

9:00 AM, Baltimore Convention Center, Exhibit Hall

Authors will be present from 4:30 to 6:30 PM

Booth #

- 204-1 1 Kielhofer, Jennifer R.\*: **EXPANDING THE RADIOCARBON CHRONOLOGY FOR EARLY ARCHAEOLOGICAL SITES IN INTERIOR ALASKA**
- 204-2 2 Haussner, Elizabeth\*; Huff, Warren D.: **EVIDENCE OF SOUTHWESTERN QUATERNARY VOLCANISM AT CHACO CULTURE NATIONAL HISTORIC PARK, NEW MEXICO**
- 204-3 3 Schott, Amy M.\*: **MODELS OF LANDFORM CLASSIFICATION TO UNDERSTAND ARCHAEOLOGICAL SITE DISTRIBUTION IN DUNE LANDSCAPES OF NORTHERN ARIZONA**
- 204-4 4 Benthem, Adam\*; Schenk, Edward R.; Skalak, Katherine; Hupp, Cliff R.; Mittelman, Melissa: **LARGE WOOD AS A PROXY FOR IDENTIFYING CHANGES IN CHANNEL MORPHOLOGY IN MANAGED, MULTI-DAM RIVERS**
- 204-5 5 Wells, Greta H.\*; Beach, Timothy; Aebersold, Luisa; Smyth, Michael P.: **PRELIMINARY SOIL EROSION AND SEDIMENT BUDGETS IN THE VALLEY OF LEYVA, BOYACA, COLOMBIA**
- 204-6 6 Ulmer, Austin Michael\*: **TROPICAL FOREST SOIL CATENAS OF NORTHWESTERN BELIZE**
- 204-7 7 Aebersold, Luisa\*; Beach, Timothy P.; Luzzadder-Beach, Sheryl; Guderjan, Thomas H.: **RETURN TO THE REJOLLADA: INVESTIGATING BURIED PALEOSOLS AND SOIL EROSION IN NORTHWESTERN BELIZE**
- 204-8 8 Krause, Samantha M.\*; Beach, Timothy P.; Luzzadder-Beach, Sheryl; Guderjan, Thomas; Cherry, Charlotte: **HOLOCENE SEDIMENTATION ON ALLUVIAL FANS AND WETLAND FIELDS AT THE NUENDORF WETLAND FIELDS, BELIZE**
- 204-9 9 Greene, Emily Sophie\*; Bierman, Paul; Perdrial, Nicolas: **COMPARING METEORIC <sup>10</sup>BE, IN SITU <sup>10</sup>BE AND NATIVE <sup>9</sup>BE ACROSS THREE WATERSHEDS**

- 204-10 10 Campbell, Mary K.\*; Bower, Jennifer A.; Schmidt, Amanda H.; Neilson, Thomas B.; Sosa-Gonzalez, Veronica; Bierman, Paul R.: **FALLOUT RADIONUCLIDES IN SOIL PROFILES AND HISTORY OF LAND USE IN YUNNAN PROVINCE, CHINA**
- 204-11 11 Martin, Joe\*; Lawrence, David; Schmidt, Amanda H.; Bierman, Paul; Sosa-Gonzalez, Veronica; Singleton, Adrian; Qiu, Yue: **EXAMINING LAND USE AND EROSION IN SOUTHWEST CHINA**

### SESSION NO. 205

**T10. Frontiers in Geoarchaeology (Posters) (GSA Archaeological Geology Division; GSA Quaternary Geology and Geomorphology Division)**

9:00 AM, Baltimore Convention Center, Exhibit Hall

Authors will be present from 4:30 to 6:30 PM

Booth #

- 205-1 12 Sivitskis, Alexander J.\*; Harrower, Michael J.; Dumitru, Ioana A.: **SATELLITE IMAGERY DETECTION OF ARCHAEOLOGICAL DEPOSITS: EXPERIMENTS WITH FIELD MEASURED SPECTRAL SIGNATURES OF AGRICULTURAL SEDIMENTS AND ANCIENT COPPER MINING IN OMAN**
- 205-2 13 Abell, Jordan\*; Quade, Jay; Stiner, Mary; Mentzer, Susan M.; Ozbasaran, Mihriban: **EVIDENCE OF URINE IN A NEOLITHIC TELL IN RELATION TO ANIMAL DOMESTICATION**
- 205-3 14 Day, Stephanie S.\*; Quintus, Seth; Clark, Jeffery T.; Schwert, Donald P.: **USING TERRESTRIAL LASER SCANNING FOR MODELING HYDROLOGY: A CASE STUDY ON OFU ISLAND, AMERICAN SAMOA**
- 205-4 15 Burkhart, Mackenze Sintay\*; Key, Marcus M.; Ward, Ingrid; O'Leary, Mick: **SOURCING ABORIGINAL LITHIC ARTIFACTS FROM WESTERN AUSTRALIA USING EOCENE BRYOZOANS**
- 205-5 16 Cajigas, Rachel\*: **ADVANCES IN SHALLOW GEOPHYSICAL PROSPECTION ON A FLOODPLAIN SITE IN SONORA, MEXICO: IDENTIFYING IRRIGATION CANALS USING MAGNETIC GRADIOMETRY**
- 205-6 17 Benowitz, Jeff\*; Rasic, Jeff; Coffman, Sam; Layer, Paul W.; Wypych, Alicja: **GEOCHEMICAL AND GEOCHRONOLOGICAL OBSIDIAN AND RHYOLITE SOURCE AND ARTIFACT FINGERPRINTING: CONSTRAINTS ON PREHISTORIC ALASKA TRADE ROUTES AND RAW MATERIAL ACCESS**
- 205-7 18 East, Amy E.\*; Collins, Brian D.; Sankey, Joel B.; Corbett, Skye C.; Fairley, Helen C.; Caster, Joshua: **A LANDSCAPE-SCALE ASSESSMENT OF ARCHAEOLOGICAL-SITE CONDITION AND PRESERVATION IN THE COLORADO RIVER CORRIDOR, GRAND CANYON, ARIZONA**
- 205-8 19 Henderek, Robyn L.\*; Tobin, Benjamin W.; Wood, John R.; Schenk, Edward R.: **USING PHOTOGRAMMETRY TO DOCUMENT AND MONITOR CAVE PALEONTOLOGICAL AND ARCHAEOLOGICAL SITES IN GRAND CANYON NATIONAL PARK**
- 205-9 20 Hill, Christopher L.\*: **ACCURACY AND PRECISION OF RADIOCARBON DATES: GEOCHEMISTRY AND CHRONOLOGIC INTERPRETATION OF MEASUREMENTS ON PLEISTOCENE VERTEBRATES**
- 205-10 21 Rouillard, Elliott\*: **CERAMICS: THE KEY TO UNDERSTANDING THE VINCENNES PHASE IN SOUTHERN INDIANA**
- 205-11 22 Harrington, Lucy\*: **CHOOSING A PLACE TO LIVE 10,000 YEARS AGO OR MORE: UNDERSTANDING PALEOINDIAN SETTLEMENT PATTERNS BASED ON THE MODERN DISTRIBUTION OF NATURAL RESOURCES**
- 205-12 23 Harrington, Lucy\*; Farley, Michelle: **GEOCHEMICAL DIFFERENCES BETWEEN CHERTS: PXRF ANALYSIS OF CHERT FROM DIFFERENT FORMATIONS TO UNDERSTAND PREHISTORIC HUMAN MOBILITY**



## SESSION NO. 206

*Economic Geology (Posters)*

9:00 AM, Baltimore Convention Center, Exhibit Hall

Authors will be present from 4:30 to 6:30 PM

Booth #

- 206-1 24 Freire-Lista, Jr., David Martín\*; Fort, Sr., Rafael: **SAN PEDRO (A CORUÑA-SPAIN), ITS CANDIDACY FOR GLOBAL HERITAGE STONE RESOURCE NOMINATION**
- 206-2 25 Liao, Sr., LiPing\*: **THE MINERAL RESOURCE REPLACING AREAS SELECTION OF GUIZHOU PROVINCE AND COMPREHENSIVE INVESTIGATION**
- 206-3 26 Mauk, Jeffrey L.\*; Strmic Palinkas, Sabina; Simpson, Mark P.; Bodnar, Robert J.: **MINERALIZING FLUIDS IN THE EPITHERMAL ADULARIA-SERICITE AU-AG DEPOSITS OF THE SOUTHERN HAURAKI GOLDFIELD, NEW ZEALAND**
- 206-4 27 Cartier, Laurent E.\*: **HERITAGE GEMSTONES OR CONSERVATION GEMSTONES? FINDING WAYS OF PRESERVING THE HERITAGE OF GEMSTONE REGIONS AND RESOURCES WORLDWIDE**
- 206-5 28 Khoury, Hani Nicola\*; Clark, Ian D.: **UNUSUAL URANIUM MINERALS OF COMBUSTED PHOSPHORUS-RICH BITUMINOUS MARL, CENTRAL JORDAN**
- 206-6 29 Ikehata, Kei\*; Chida, Kohsuke; Bornhorst, Theodore J.; Ishibashi, Junichiro; Hirata, Takafumi: **USING COPPER ISOTOPIC COMPOSITION TO DISTINGUISH NATIVE COPPER FORMATION MECHANISMS**
- 206-7 30 Chaumba, Jeff B.\*; Musa, Caston T.: **FORMATION OF PLATINUM-GROUP ELEMENT-ENRICHED HORIZONS AT UNKI MINE, SHURUGWI SUBCHAMBER OF THE GREAT DYKE, ZIMBABWE: DID CHROMITE PLAY ANY ROLE?**
- 206-8 31 Burke, Michelle\*; Krekeler, Mark P.S.: **AN ELECTRON MICROSCOPY INVESTIGATION OF GOLD AND ASSOCIATED MINERALS FROM ROUND MOUNTAIN, NEVADA**
- 206-9 32 Chaumba, Jeff B.\*; Mundalamo, Humbulani R.; Ogola, Jason S.: **PETROGRAPHIC, SULFIDE MINERAL CHEMISTRY, AND SULFUR ISOTOPE EVIDENCE FOR A HYDROTHERMAL IMPRINT ON MUSINA COPPER DEPOSITS, LIMPOPO PROVINCE, SOUTH AFRICA**
- 206-10 33 Maynard, Anastacia L.\*; Brueseke, Matthew E.; Mathur, Ryan: **COPPER ISOTOPE COMPOSITIONS OF CENOZOIC MAFIC ROCKS FROM THE NORTHERN GREAT BASIN AND SNAKE RIVER PLAIN (USA)**
- 206-11 34 Hammarstrom, Jane M.\*; Mars, John C.; Robinson, Jr., Gilpin R.; Ludington, Steve; Zurcher, Lukas; Folger, Helen; Gettings, Mark; Solano, Federico; Kress, Thomas: **COPPER IN THE SOUTHERN BASIN AND RANGE OF THE UNITED STATES—IS ANYTHING LEFT?**
- 206-12 35 Li, Yang\*; Li, Xian-Hua; Selby, David; Li, Jianwei: **A METEORIC WATER COMPONENT TO ORE FORMING FLUIDS IN PORPHYRY COPPER SYSTEMS: EVIDENCE FROM SIMS OXYGEN ISOTOPE ANALYSIS**
- 206-13 36 Carranco L., Andrés\*; Ruiz M., Grace: **GEOLOGICAL AND GEOCHEMICAL PROSPECTING OF ZAMORA TOPOGRAPHIC SHEET (1: 50 000), ECUADOR**
- 206-14 37 Haroldson, Erik\*; Brown, Philip: **MAGMATIC FLUIDS ARE A PRIMARY SOURCE OF ARCHEAN GOLD AT MAGINO; FLUID INCLUSION AND STABLE ISOTOPE EVIDENCE**
- 206-15 38 Utterback, Hannah M.\*: **INTEGRATING GEOPHYSICAL AND GEOCHEMICAL METHODS FOR MINERAL EXPLORATION**
- 206-16 39 Smith, Michael S.\*; Hines, Elizabeth: **"THE STREETS ARE PAVED WITH GOLD." SPECULATION, GREED, AND DISAPPOINTMENT IN THE NORTH CAROLINA GOLD FIELDS, 1849 TO 1940**
- 206-17 40 Bern, Carleton R.\*; Shah, Anjana K.; Benzel, William M.; Lowers, Heather A.: **THE DISTRIBUTION AND COMPOSITION OF REE-PHOSPHATES IN THE ATLANTIC AND GULF COASTAL PLAINS, USA**

- 206-18 41 Choi, Jinbeom\*; Kwak, Jiyoung: **OCCURRENCES AND GENESIS OF ILMENITE DEPOSITS IN ANORTHOSITE COMPLEX IN HADONG AREA, KOREA**
- 206-19 42 Abdelnasser, Amr\*; Kumral, Mustafa: **DEFORMATIONAL QUARTZ TEXTURES AND MINERALOGY OF HYDROTHERMAL ALTERATION ASSOCIATED WITH INTRUSION-RELATED GOLD DEPOSITS: A CASE STUDY FROM THE ATUD AREA, CENTRAL EASTERN DESERT, EGYPT**
- 206-20 43 Kumral, Mustafa\*; Hanihci, Nurullah; Yalcin, Cihan; Kaya, Mustafa; Budakoglu, Murat: **STRUCTURAL CONTROLS ON VOLCANIC-HOSTED CU-MINERALIZATION: A CASE STUDY FROM YERGEN AND DEDENINYURDU, ÇORUM, TURKEY**
- 206-21 44 Taylor, Bruce E.\*; Peter, Jan M.; Wing, Boswell A.: **MULTI-SULFUR ISOTOPE RECONNAISSANCE STUDIES OF SLAVE PROVINCE VMS DEPOSITS**
- 206-22 45 Shavers, Ethan\*; Ghulam, Abduwasit; Encarnacion, John: **TRACE ELEMENT REFLECTANCE FEATURES IN MELILITITE-CARBONATITE COMPLEXES**

## SESSION NO. 207

*T21. Environmental and Engineering Geology Student Research Competition (Posters) (GSA Environmental and Engineering Geology Division)*

9:00 AM, Baltimore Convention Center, Exhibit Hall

Authors will be present from 4:30 to 6:30 PM

Booth #

- 207-1 46 Dennett, Abby M.\*; Hixon, Amy E.: **EXPLORATION OF PRE- AND POST-DETONATION NUCLEAR FORENSICS**
- 207-2 47 Voss, Josh\*; Dogwiler, Toby: **COMPARING THE EFFECT OF DEM RESOLUTION ON THE ACCURACY OF DIGITAL TERRAIN ANALYSIS-BASED SEDIMENT EROSION PREDICTION**
- 207-3 48 Garcia Blanco, Zulema\*; Flores, Victor; Paltseva, Anna; Cheng, Zhongqi; Maddaloni, Mark; Shaw, Richard K.: **PHOSPHATE-ENHANCED REMEDIATION OF LEAD AND ARSENIC CONTAMINATED SOIL: A GREENHOUSE EXPERIMENT**
- 207-4 49 Telder, Hope\*; Mutiti, Samuel; Mutiti, Christine: **TRACKING WATER QUALITY IMPROVEMENT IN URBAN RUNOFF ALONG A WETLAND SYSTEM**
- 207-5 50 Schwarz, Zachary\*; Hall, Cynthia: **LEAD POLLUTION IN URBAN SOILS: A COMPARATIVE STUDY BETWEEN RESIDENTIAL AND RECREATIONAL SITES IN PHILADELPHIA, PA**
- 207-6 51 Rotz, Rachel R.\*; Milewski, Adam M.: **INVESTIGATING THE EFFECTS OF PRECIPITATION DYNAMICS ON INLAND FRESHWATER LENS FORMATION USING A PHYSICAL MODEL**
- 207-7 52 Lezzaik, Khalil\*; Milewski, Adam: **A QUANTITATIVE ASSESSMENT OF GROUNDWATER RESOURCES IN THE MIDDLE EAST AND NORTH AFRICA REGION**
- 207-8 53 Raulerson, Scott\*; Mutiti, Samuel; Mutiti, Christine: **ESTIMATING AND COMPARING THE CARBON SEQUESTRATION POTENTIAL OF WETLANDS AND THE OCMULGEE RIVER FLOODPLAIN**
- 207-9 54 Manley, Josh\*; Loring, John S.; DeAngelis, Michael T.; Qafoku, Odeta; Schaef, Herbert T.; Ilton, Eugene: **IN SITU INFRARED SPECTROSCOPIC STUDY OF NANOCRYSTALLINE FAYALITE CARBONATION IN WET SUPERCRITICAL CO<sub>2</sub>**
- 207-10 55 Jeffries, Il, William\*; Nezat, Carmen A.: **ENVIRONMENTAL FACTORS THAT AFFECT THE RELEASE OF METALS FROM MINING-CONTAMINATED SEDIMENTS**
- 207-11 56 Kakuturu, Sruthi\*; Silko, Jennifer L.; Clark, Shirley: **EFFECT ON WATER QUALITY DUE TO DAM RESTORATION**
- 207-12 57 Butterfield, Nicholas J.F.\*; Bunds, Michael P.; Zanazzi, Alessandro; Toke, Nathan A.: **A PRELIMINARY LOOK AT GEOMORPHIC IMPACTS AND TIMING OF TWO LARGE, DRAINAGE-DAMMING LANDSLIDES IN THE CENTRAL WASATCH**

SESSION NO. 207

- 207-13 58 Habel, Shellie L.\*; Fletcher, Charles H.; Barbee, Matthew M.; Anderson, Tiffany: **PERFORMANCE OF THE 2012 WAIKIKI BEACH NOURISHMENT, OAHU, HAWAII**
- 207-14 59 Panja, Saumik\*; Punamiya, Pravin; Das, Padmini; Mendoza, Katherin; Tripathii, Uttkarshni; Sarkar, Dibyendu: **SHORT-TERM AND LONG-TERM EFFECTS OF HYDRO-RAKING ON THE TROPIC LEVEL OF LAKE WAPALANNE AND POTENTIAL OF VETIVER GRASS FOR PHOSPHORUS REMOVAL**
- 207-15 60 RoyChowdhury, Abhishek\*; Sarkar, Dibyendu; Datta, Rupali: **A FIELD-SCALE FILTER DEVELOPMENT FOR "GREEN" REMEDIATION OF AMD-IMPACTED WATER**
- 207-16 61 Pourquoi, Allison A.\*; Mutiti, Samuel: **ASSESSMENT OF DRINKING WATER PURIFICATION METHODS AND MATERIALS**
- 207-17 62 Garcia, Cesar A.\*; Kostro, Patricia; Kilibarda, Zoran: **ANTHROPOGENIC MACRODEBRIS AND MICROPLASTICS FROM BEACHES OF SOUTHERN LAKE MICHIGAN**
- 207-18 63 Alsulaimani, Ghassan\*: **COMPARISON OF CORE CONTROL AND GEOPHYSICAL INVESTIGATIONS, SILICA SAND DEPOSITS, DAWMAT AL JANDAL, AL JAWF AT SAUDI ARABIA BY GHASSAN SALEM ALSULAIMANI**
- 207-19 64 Abegunde, Oluseyi A.\*; Siad, A.M.; Wu, Iris; Petrik, Leslie: **APPLICATION OF GEOCHEMICAL CHARACTERIZATION, GEOSTATISTICS AND GEOLOGICAL MODELLING IN ASSESSMENT AND PREDICTION STUDIES ON SELECTED COAL AND GOLD MINE WASTE IN SOUTH AFRICA**
- 208-9 73 Brown, Leroy\*; Bhaskaran, Sunil; Dhar, Ratan: **AUTOMATED FEATURE EXTRACTION ALGORITHMS FROM MULTISPECTRAL SPACE BORNE DATASETS**
- 208-10 74 Yaqoob, Humza\*; Hinnov, Linda A.; Meyer, Michael: **CT RECONSTRUCTION OF EDIACARAN TRACE FOSSILS**
- 208-11 75 Heralall, Sasha\*; Dhar, Ratan: **OPTIMIZATION OF A SPECTROPHOTOMETRIC METHOD TO DETERMINE AMMONIA IN GROUNDWATER TO UNDERSTAND ARSENIC OCCURRENCE IN SHALLOW AQUIFERS OF CHITTAGONG, A RAPIDLY EXPANDING COASTAL CITY OF BANGLADESH**
- 208-12 76 Dixon, Noah\*; Sanchez, Carlos; Fryar, Alan E.; Bandy, Ashley M.: **WATER QUALITY IN THE WOLF RUN BASIN, LEXINGTON, KENTUCKY**
- 208-13 77 Downs, Dana L.\*; Whiteaker, Jessica A.; Crosby, Christopher J.; Okal, Marianne; Williams, Keith: **RANGE PRECISION AND ACCURACY OF TERRESTRIAL LASER SCANNERS**
- 208-14 78 Clark, William B.\*; Clark, M. W.: **NEOGENE BIOSTRATIGRAPHY AND SEDIMENTATION RATE ANALYSIS OF DEEP OIL WELL SAMPLES, BLOCK 555 MISSISSIPPI CANYON, GULF OF MEXICO**
- 208-15 79 Davis, Austin\*; Heydari, Ezat: **SEDIMENTOLOGY AND PETROGRAPHY OF MARIANNA AND GLENDON LIMESTONES OF THE VICKSBURG GROUP IN SMITH COUNTY, MISSISSIPPI**
- 208-16 80 Gooden, Precious\*; Khandaker, Nazrul I.; Schleifer, Stanley; Somai, Omadevi; Taveras, Zaynab; Kim, Grace; Diprajsingh, Shamera; Menjivar, Erik; Chowdhury, Ivan; Hooks, Regina: **A COMPARATIVE SEDIMENTOLOGICAL INVESTIGATION INVOLVING BEACH SAND DEPOSITS: FAR ROCKAWAY (QUEENS) AND MONTAUK POINT (LONG ISLAND), NEW YORK**
- 208-17 81 Kincaid, Sam\*; Archer, Richard; Vigil, Sara; Maher Sobhani, Barbra: **COMPREHENSIVE QUANTIFICATION OF DIAGENETIC ALTERATION, TESTING ROBUSTNESS POTENTIAL OF ROSICKYTE AS POTENTIAL MARS ANALOG AT THE MINERAL-MICROBIAL INTERFACE**
- 208-18 82 Seyferman, Lev\*; Boes, Jeff; Archer, Richard; Vigil, Sara; Kincaid, Sam; Seyferman, Peer; Maher Sobhani, Barbra: **DETERMINATION OF PROKARYOTIC PERCENT SURVIVABILITY; EXAMINATION OF OXIDATIVE DAMAGE AS MECHANISM FOR VIABILITY OF MICROBIAL MAT TRANSITING MARS ANALOGOUS CONDITIONS**
- 208-19 83 Strong, Thomas\*; Bala, Sarah A.; Holm-Denoma, Christopher S.; Romeijn, Eva; Parvaz, Daniel; Roberts, Jason E.: **MECHANICAL AND CHEMICAL DISSOLUTION METHODS VERSUS SELECTIVE FRAGMENTATION FOR MINERAL AND FOSSIL SEPARATION AND CONCENTRATES FROM SELECT GEOLOGIC MATERIALS**
- 208-20 84 Basham, Trevor S.\*; Van Horn, Stephen R.: **LOGISTIC REGRESSION MODELING OF LANDSLIDE SUSCEPTIBILITY IN A REGION OF MUSKINGUM COUNTY, OHIO, USING GIS AND SPSS**

SESSION NO. 208

**T25. An Early Involvement of Undergraduates and K-12 Students in Geological Research Brings a Strong Sense of Ownership and Achievement for Young Researchers (Posters) (GSA Geoscience Education Division; GSA Environmental and Engineering Geology Division; GSA Geology and Society Division; GSA Sedimentary Geology Division; Council on Undergraduate Research Geosciences Division; National Earth Science Teachers Association; GSA Quaternary Geology and Geomorphology Division)**

9:00 AM, Baltimore Convention Center, Exhibit Hall

Authors will be present from 4:30 to 6:30 PM

Booth #

- 208-1 65 Khandaker, Nazrul I.\*; Schleifer, Stanley; Gooden, Precious; Mahabir, Krishna; Persaud, Jay; Barnett, Barbara; Chavez, Miguel; Uro, Chidinma; Rivadeneira, Boris: **HOW CAN WE ENGAGE K9-16 STUDENTS TO CHOOSE THE GEOSCIENCES AS A CAREER OPTION?**
- 208-2 66 Tokman, Tamar Leah\*; Palaric, Karina D.; Filippone, Nicolette Victoria; Wang, Emily; Sivo, Joseph; Elizabeth Ramirez; Marton, Fred: **WHAT'S SHAKING? MANUFACTURING & ASSEMBLING AN AS-1 EDUCATIONAL SEISMOMETER FOR UNDERGRADUATE STEM RESEARCH**
- 208-3 67 Palaric, Karina D.\*; Filippone, Nicolette Victoria; Tokman, Tamar Leah; Wang, Emily; Elizabeth Ramirez; Marton, Fred; Sivo, Joseph: **CONSTRUCTING A SOLAR-POWERED SEISMIC STATION FOR EDUCATIONAL SEISMOMETERS**
- 208-4 68 Nunez, Brian E.\*; Lukes, Laura A.; Rushing, Madeleine B.: **TYPE, FREQUENCY, AND TIMING OF STUDENT STUDY STRATEGIES WITHIN AN INTRODUCTORY HISTORICAL GEOLOGY COURSE IN AN ACTIVE LEARNING TECHNOLOGY (ALT) CLASSROOM**
- 208-5 69 Schleifer, Stanley\*; Khandaker, Nazrul I.; Narine, Keshaw; Haque, Ezazul; Dhar, Ratan: **A COLLEGE LEVEL GEOLOGY FIELD TRIP IN WESTERN CONNECTICUT AND VICINITY**
- 208-6 70 Spangle, Chynna Jean\*: **KARST HYDROGEOLOGY IN TEXAS: AN INTERNSHIP AT THE TEXAS COMMISSION ON ENVIRONMENTAL QUALITY**
- 208-7 71 Soreghan, Anastasia M.\*; Joo, Young Ji; Elwood Madden, Megan E.; Soreghan, Gerilyn S.: **QUANTIFYING PARTICLE SHAPE BY IMAGE ANALYSIS: APPLICATION TO NATURAL SEDIMENT SAMPLES IN VARIOUS CLIMATE SYSTEMS**
- 209-1 85 Eriksson, Susan C.\*; Braunwart, Eric: **ROMANCING THE STONE: IS IT REALLY ALL THAT ROMANTIC?**
- 209-2 86 Rhodes, K.\*; Knappett, P. S. K.; Dimova, N. T.; Miller, G.; Rowley, T.; van Plantinga, A.; Shuai, P.: **QUANTIFYING WATER EXCHANGE BETWEEN THE BRAZOS RIVER AND THE BRAZOS RIVER**

SESSION NO. 209

**T27. Intersections of Sustainability and Geosciences (Posters) (GSA Environmental and Engineering Geology Division; GSA Geology and Society Division)**

9:00 AM, Baltimore Convention Center, Exhibit Hall

Authors will be present from 4:30 to 6:30 PM

Booth #

- ALLUVIAL AQUIFER USING HIGH TEMPORAL AND SPATIAL RESOLUTION MEASUREMENTS**
- 209-3 87 Kiiskila, Jeffrey D.\*; Frederick, Sarah L.; Sarkar, Dibyendu; Datta, Rupali: **PHYTOTOXICITY OF AMD ON HYDROPONIC VETIVER GRASS (*CHRYSOPOGON ZIZANIOIDES* L.)**
- 209-4 88 RoyChowdhury, Abhishek\*; Sarkar, Dibyendu; Datta, Rupali: **GREEN REMEDIATION OF AMD- IMPACTED SOIL USING AN INDUSTRIAL BYPRODUCT AND VETIVER GRASS: INCUBATION AND GREENHOUSE STUDIES**
- 209-5 89 Maher Sobhani, Barbra\*: **INTERDISCIPLINARY SCIENCE FOCUS: REACHING A BROAD CROSS-SECTION OF STUDENTS THROUGH THE DEVELOPMENT OF INTRODUCTORY COURSES INCORPORATING SUSTAINABILITY AND THE GEOSCIENCES**
- 209-6 90 Rotz, Rachel R.\*: **REVEALING LINKS BETWEEN SPACE EXPLORATION AND UNDERSTANDING OUR EARTH AT MARSHALL SPACE FLIGHT CENTER: PIONEERING SPACE, PRESERVING EARTH**
- 209-7 91 Shelley, Adam\*; North, Leslie; Polk, Jason; Powell, Matt; Oglesby, Jonathan; McClanahan, Kegan; Nedvidek, Daniel: **IMPROVING KARST GROUNDWATER AWARENESS THROUGH A COLLABORATIVE EDUCATIONAL CAMPAIGN**

## SESSION NO. 210

**T38. Sigma Gamma Epsilon—Undergraduate Research (Posters) (Sigma Gamma Epsilon)**

9:00 AM, Baltimore Convention Center, Exhibit Hall

Authors will be present from 4:30 to 6:30 PM

Booth #

- 210-1 92 Ford, Richard L.\*; Walters, James C.: **THE VIEW FROM 2015: SIGMA GAMMA EPSILON CELEBRATES ITS CENTENNIAL (1915-2015)**
- 210-2 93 Edgin, Matthew G.\*; Cole, David R.; Sheets, Julia M.; Welch, Susan A.; Olesik, John; Chipera, Steve: **TRACE ELEMENT GEOCHEMISTRY OF THE UTICA-POINT PLEASANT FORMATIONS**
- 210-3 94 Merson, Matthew Q.\*; Allen, Joseph L.; Shaw, Colin A.: **METAMORPHOSED AND MYLONITIC PSEUDOTACHYLITES FROM THE HOMESTAKE AND SLIDE LAKE SHEAR ZONES, COLORADO, USA**
- 210-4 95 Goss, Brandi\*; Shaw, Darrius; Gresehover, Sarie; LeMay, Joseph; Walck, Jeffrey; Howard, R. Stephen: **VARIANCE IN SOIL DEPTH AND ITS INFLUENCE ON SPECIES RICHNESS WITHIN AND AMONG CEDAR GLADES IN MIDDLE TENNESSEE**
- 210-5 96 Trautman, Marshall\*; Cecil, M. Robinson; Rusmore, Margaret E.; Woodsworth, Glenn J.: **NEW U-PB AGES FROM PLUTONS IN THE SOUTHERN COAST MOUNTAINS BATHOLITH, BRITISH COLUMBIA**
- 210-6 97 Gavel, Michelle\*; Beane, Rachel; Gravley, Darren: **CONTROLS ON STRAIN PARTITIONING IN THE WHITE HORSE CREEK MYLONITES, WEST COAST, NEW ZEALAND**
- 210-7 98 Smart, Kyle E.\*; Smits, Mark M.; Wallander, Håkan; Krám, Pavel; Curik, Jan; Balogh-Brunstad, Zsuzsanna: **SILICATE MINERAL ALTERATION IN THE RHIZOSPHERE OF NORWAY SPRUCE IN THREE CATCHMENTS OF THE SLAVKOV FOREST, CZECH REPUBLIC**
- 210-8 99 Thompson, Glenn T.\*; Maruszczak, Alex D.; MacDonald, Jr., James H.; Stingu, Shanna C.: **GEOCHEMISTRY AND GEOTHERMOBAROMETRY OF PLAGIOCLASE AND AMPHIBOLE FROM THE HICKS BUTTE COMPLEX, CENTRAL CASCADES, WASHINGTON**
- 210-9 100 Stingu, Shanna C.\*; MacDonald, Jr., James H.; Pecha, Mark: **GEOCHEMISTRY OF THE HICKS BUTTE COMPLEX, CENTRAL CASCADES, WASHINGTON: REMNANTS OF A LATE JURASSIC VOLCANIC ISLAND ARC WITH INTRUDING EARLY CRETACEOUS ADAKITES**
- 210-10 101 Gates, Christopher\*; McTaggart, Elizabeth R.; Lyle, Airlie; Williams, Dustin R.; Johnson, Elizabeth A.: **SKARN FLUID HISTORY RECORDED IN OH AND TRACE ELEMENT ZONING IN A RASPBERRY GARNET FROM SIERRA DE CRUCES, MEXICO**
- 210-11 102 Swick, Melanie\*; Stewart, Alexander K.: **DENDROARCHAEOLOGY IN THE NORTHWESTERN ADIRONDACKS: A BEGINNING TO REGIONAL PALAEOCLIMATE RECONSTRUCTIONS**
- 210-12 103 Farrell, Thomas\*; Johnson, Elizabeth A.: **ERUPTIONS TRIGGERED BY MAGMA MIXING AT MOUNT JEFFERSON, CASCADE RANGE, OREGON**
- 210-13 104 Burrell, Sara A.\*; Wahwassuck, David C.; Murowachick, James; Niemi, Tina M.: **STRATIGRAPHY, PROVENANCE, AND DEPOSITION OF THE UPPER MIOCENE BOLEO FORMATION, SANTA ROSALÍA BASIN, BAJA CALIFORNIA SUR, MEXICO**
- 210-14 105 Chapman, Taylor Wade\*; Eliopoulos, Alyssa; McGlue, Michael M.; Eble, Cortland F.; Waite, Lowell: **AN ORGANIC PROVENANCE ANALYSIS OF LATE PENNSYLVANIAN BLACK SHALES FROM THE MIDLAND BASIN**
- 210-15 106 Rice, Jonathan J.\*; Ojeda, Judith; Lodes, Emma; Andrews, Claire; Medynski, Sarah; Busby, Cathy: **USING MAJOR AND TRACE ELEMENTS TO TRACK THE TRANSITION FROM SUBDUCTION TO RIFTING IN THE SANTA ROSALIA BASIN, GULF OF CALIFORNIA, BAJA CALIFORNIA SUR, MEXICO**
- 210-16 107 Wells, Arden A.\*; Murowachick, James B.; Reynolds, Samantha M.: **GEOCHEMICAL EVOLUTION OF ORE FLUIDS, BOLEO CU-MN-ZN-CO DISTRICT, BCS, MEXICO**
- 210-17 108 Henderson, Kate M.\*; Goldsmith, Steven T.; Welch, Susan A.; Sheets, Julia M.; Dowling, Carolyn B.; Welch, Kathleen A.; Hall, Cynthia; Lyons, W. Berry: **EVALUATING THE QUANTITY AND COMPOSITION OF SUSPENDED SEDIMENTS IN THE EPHEMERAL STREAMS OF TAYLOR VALLEY, ANTARCTICA**
- 210-18 109 Jones, Eleanor F.\*; Arujo, Luis H.A.; Stewart, Alexander K.: **CLIFF-EDGE HEMLOCKS (*TSUGA CANADENSIS*) IN THE NORTHWESTERN ADIRONDACKS: SENSITIVE INDICATORS FOR PALAEOCLIMATE RECONSTRUCTIONS?**
- 210-19 110 Somers, Hannah\*; Odhiambo, Ben K.; Coxon, Taylor M.: **PHOSPHOROUS AND SEDIMENT FLUXES ANALYSIS IN AQUIA CREEK BASIN, VIRGINIA, USA**
- 210-20 111 Coxon, Taylor M.\*; Odhiambo, Ben K.; Giancarlo, Leanna: **THE TEMPORAL AND SPATIAL DISTRIBUTION OF TRACE METALS IN THE FLUVIAL AND LACUSTRINE SEDIMENTS OF THE SOUTHERN CHESAPEAKE BAY BASIN**
- 210-21 112 Nickelson, Shane\*; Lindsey, Cary R.; Price, Adam; Fairley, Jerry P.: **USING SHALLOW SEISMIC REFRACTION AND GROUND TEMPERATURES TO EXAMINE SUBSURFACE FLOWPATHS AT BURGDORF HOT SPRINGS, IDAHO**
- 210-22 113 Lopez, Alexis R.\*; Burmeister, Kurtis C.; Avalos, René M.; Stokes, Maya F.; Nittrouer, Jeffrey A.; Carter, Matthew J.; Giorgis, Scott D.; Corsetti, Frank A.: **PETROFABRIC ANALYSIS OF SAMPLES FROM THE CYCLOTHEM SEQUENCES OF THE WESTERN IRISH NAMURIAN BASIN (WINB) DEFORMED WITHIN THE VARISCAN FORELAND FOLD THRUST BELT**
- 210-23 114 Harrison, Dorelle M.\*; Henry, Matthew; Niemi, Tina M.; Murowachick, James B.: **PETROGRAPHIC CHARACTERIZATION AND INTERPRETATION OF THE CINTA COLORADA MARKER BED, BOLEO DISTRICT, SANTA ROSALIA, BCS, MEXICO**
- 210-24 115 Scheland, Cullen L.\*; Perry, Sarah E.; Miller, Calvin F.; Claiborne, Lily L.; Cribb, J. Warner; Varga, Robert J.; Carley, Tamara L.: **INVESTIGATING THE EXTENT OF THE EARLY MIOCENE COOK CANYON TUFF, A MAJOR PRE-PEACH SPRING TUFF IGNIMBRITE, SW USA, USING GEOCHEMISTRY AND PETROGRAPHY**
- 210-25 116 Mehr, Nicole K.\*; Balnis, Joseph M.; Redder, Brian W.; Balogh-Brunstad, Zsuzsanna: **THE EFFECTS OF THE HEMLOCK WOOLLY ADELGID ON SOIL WATER CHEMISTRY**

- 210-26 117 Bartell, Catherine\*; Fortner, Sarah K.: **SOIL ORGANIC CARBON AND NITRATE PROFILES ASSOCIATED WITH LAND MANAGEMENT HISTORY: THE ANTIOCH FARM, YELLOW SPRINGS, OHIO**
- 210-27 118 Sotelo, Claire Louise\*; Laufer, Mikayla Erin; Riggs, Nancy: **UNDERSTANDING THE ERUPTION HISTORY OF SP CRATER, NORTHERN ARIZONA, THROUGH TEPHRA MAPPING**
- 210-28 119 Perry, Sarah E.\*; Scheland, Cullen L.; Claiborne, Lily L.; Miller, Calvin F.; McDowell, Susanne M.; Covey, Aaron K.: **MINERALOGICAL AND GEOCHEMICAL CHARACTERIZATION OF COOK CANYON TUFF NEAR KINGMAN, AZ WITH IMPLICATIONS FOR MAGMATIC PROCESSES**
- 210-29 120 Abbuhl, Brittany\*; Peppe, Daniel J.; Flynn, Andrew: **LATERAL FLORAL VARIABILITY IN THE EARLY PALEOCENE NACIMIENTO FORMATION, SAN JUAN BASIN, NM**
- 210-30 121 Regula, Andrew J.\*; Ferguson, Charles A.; Hess, Zakkary; Miller, C.F.; Claiborne, Lily L.; McDowell, Susanne M.; Cribb, Warner; Flood, Tim P.; Covey, Aaron K.: **TUFF OF BONELLI HOUSE, PART 1: PETROLOGIC CHARACTERIZATION IN TYPE AREA AT KINGMAN, REGIONAL CORRELATION AND CONSTRAINTS ON EXTENT**
- 210-31 122 Cosgrove, Martha\*; Pacini, Astrid; Auerbach, David; Brandon, Mark T.; Hren, Michael T.: **A PALEOELEVATION HISTORY OF THE PATAGONIAN ANDES FROM HYDRATED VOLCANIC GLASS**
- 210-32 123 Glaser, Jayde K.\*; Fortner, Sarah K.: **SODIUM AND CHLORIDE CONCENTRATIONS AND SEASONAL BEHAVIOR IN THE OHIO RIVER AND ITS SUBWATERSHED, THE GREAT MIAMI RIVER**
- 210-33 124 Bandy, Terryl L.\*; Cramer, Bradley D.; Devera, Joseph: **PORTABLE X-RAY FLUORESCENCE (PXRF) AS A FIELD TOOL FOR HIGH-RESOLUTION GLOBAL BIOGEOCHEMICAL STUDIES**
- 210-34 125 Sanks, Kelly M.\*; Peterson, Eric W.; Taye, Tamru; O'Reilly, Catherine; Kisfalusi, Zachary David; Rothschild, Tyler James; Twait, Richard: **UNDERSTANDING THE AMOUNT OF NITRATE IN RELATION TO PERCENT OF ORGANIC MATTER IN RIPARIAN BUFFER ZONE SOILS AT STREAM T3 IN HUDSON, ILLINOIS**
- 210-35 126 Beard, Emily M.\*; Miller, C.F.; Cribb, J. Warner; Lang, N.P.; McCosby, Joseph Bodie; Ferguson, Charles A.: **SUBAQUEOUS TUFFS IN THE EARLY MIOCENE VOLCANIC SEQUENCE, BLACK MOUNTAINS, AZ, AND SACRAMENTO MOUNTAINS, CA**
- 210-36 127 Peterson, William A.\*; Arndt, Diana S.; McGuire, Molly M.: **ATOMIC FORCE MICROSCOPY INVESTIGATION OF HETEROGENEITY IN SMECTITE SWELLING**
- 210-37 128 Coppola, Sean\*; Johnson, Eric L.: **SOIL CREEP RATES UNDER PORTIONS OF THE HARTWICK COLLEGE CAMPUS: ONEONTA, NEW YORK**
- 210-38 129 Murphy, C. Claire\*; Grondin, Francis D.; Vincent, Houston A.; Clark, Stacey C.; Wolak, Jeannette M.; Harrison, Michael: **DISTRIBUTION OF SULFIDE MINERALS IN METASEDIMENTARY DEPOSITS OF THE APPLE CREEK FORMATION, SALMON RIVER MOUNTAINS, IDAHO**
- 210-39 130 Parks, Molly Louisa\*; Bedaso, Zelalem K.: **SEASONAL VARIATIONS OF STABLE ISOTOPE RATIOS OF PRECIPITATION IN DAYTON AREA AND SUSTAINABLE WATER RESOURCES**
- 210-40 131 Nagurney, Alexandra Bobiak\*; Treiman, Allan H.; Spudis, Paul D.: **PETROLOGY, BULK COMPOSITION, AND PROVENANCE OF METEORITE NWA5000**
- 210-41 132 Spivey, Whitney E.\*; Robinson, Marci M.: **THE RESPONSE OF AGGLUTINATED BENTHIC FORAMINIFERA TO DISSOLUTION EVENTS IN THE LATEST PALEOCENE**
- 210-42 133 Funkhouser, Paige\*; Rogatz, Eli; Alfano, Alexander P.; Parsons-Hubbard, Karla: **DIGITIZING A PALEONTOLOGICAL COLLECTION: LEARNING AND LABOR**
- 210-43 134 Freeman, MacKenzie R.\*; Fortner, Sarah K.: **SULFATE CONCENTRATIONS AND DYNAMICS IN THE MAUMEE AND GREAT MIAMI RIVER**
- 210-44 135 Vidal, Briana D.\*; Perry, Sarah E.; Scheland, Cullen L.; Lang, N.P.: **MAPPING THE EXTENT OF THE COOK CANYON TUFF IN THE SOUTHERN BLACK MOUNTAINS AND CERBAT MOUNTAINS OF ARIZONA VIA ADVANCED SPACEBORNE THERMAL EMISSION AND REFLECTION RADIOMETER (ASTER) IMAGERY**
- 210-45 136 Feldstein, Jeremiah J.\*; Gebrehiwet, Tsigabu A.: **CHARACTERIZATION AND QUANTIFICATION OF THE INTERACTION BETWEEN HEAVY METALS AND MICRO-BEADS IN PERSONAL CARE PRODUCTS: POTENTIAL IMPACTS OF PLASTIC PRODUCTS AT THE BALTIMORE HARBOR, MD**
- 210-46 137 Christensen, Peter Daniel\*; MacLean, John S.: **INTEGRATING TECTONIC PROCESSES WITH STRUCTURAL GEOLOGY, SEDIMENTOLOGY, AND ENVIRONMENTAL GEOLOGY USING A DEFORMATION SANDBOX MODEL**
- 210-47 138 Hess, Zakkary\*; Regula, Andrew J.; Miller, Calvin F.; Claiborne, Lily L.; McDowell, Susanne M.; Cribb, Warner; Covey, Aaron K.: **MIOCENE TUFF OF BONELLI HOUSE, NW ARIZONA: PETROCHEMICAL CONSTRAINTS ON MAGMATIC PROCESSES AND COMPARISON TO UNDERLYING PEACH SPRING TUFF**
- 210-48 139 Frias, Miguel\*; Hilley, George E.; Johnstone, Sam: **ASSESSING HOW ROCK TYPE AND RELATIVE EROSION RATE CONTROL THE CONCENTRATION OF BEDROCK-INCISING GULLIES; GABILAN MESA, CENTRAL COAST RANGES, CALIFORNIA**
- 210-49 140 Roop-Eckart, Kenneth J.\*; Barineau, Clinton I.: **STRAIN ANALYSIS ACROSS THE MARGINS OF THE ELKAHATCHEE AND COLEY CREEK PLUTONS, ALABAMA EASTERN BLUE RIDGE: IMPLICATIONS FOR THE ALEXANDER CITY FAULT**
- 210-50 141 Grisi, Kate C.\*; Rygel, Michael C.: **CARBON AND SULFUR GEOCHEMISTRY OF POSSIBLE MARINE ZONES WITHIN THE PENNSYLVANIAN JOGGINS FORMATION, NOVA SCOTIA, CANADA**
- 210-51 142 Johnson, Jessica M.\*; Zolensky, Michael; Chan, Queenie; Kring, David A.: **STRIKING GRAPHITE BEARING CLASTS FOUND IN TWO ORDINARY CHONDRITE SAMPLES; NWA6169 AND NWA8330**
- 210-52 143 Haas, Brett\*; Hofmeister, Andrew; Becker, Mona L.; Scullion, Jason: **BIOMASS DETERMINATION OF FOREST ECOSYSTEMS**
- 210-53 144 Harvey, Kayleigh M.\*; Menold, Carrie A.: **USING PSEUDOSECTIONS TO HELP CONSTRAIN THE METAMORPHIC EVOLUTION OF UHP ECLOGITE IN THE NORTH Qaidam METAMORPHIC BELT, WESTERN CHINA**
- 210-54 145 Pritchard, Ashley\*; Becker, Mona L.: **HOW DOES A FOREST ECOSYSTEM SOIL COMPARE TO A NO-TILL SOIL?**
- 210-55 146 Patrick, Wenonah J.\*; Barineau, Clinton I.: **HEAVY MINERAL SEPARATION VIA SPIRAL PANNER: AN INEXPENSIVE, BUT EFFECTIVE ALTERNATIVE TO A TRADITIONAL SHAKE TABLE**
- 210-56 147 Kushner, Baylee\*; Schiappa, Tamra A.: **SHIFTING SANDS: PROVENANCE CHANGES IN THE NORTHERN APPALACHIAN FORELAND BASIN**
- 210-57 148 Barry, Erin E.\*; Winslow, Heather B.; Miller, Calvin F.; Claiborne, Lily L.; Ferguson, Charles A.; Gómez, Carlos D.; Varga, Robert J.; Lackey, Jade Star: **MAGMA CHAMBER ZONATION AND ERUPTIVE INVERSION IN THE PEACH SPRINGS TUFF: GEOCHEMICAL AND PALEOMAGNETIC EVIDENCE**
- 210-58 149 Wood, Kayla\*; Wright, Eric; Shen, Zhixiong: **GPR ARCHITECTURE OF PALEO-STRAND PLAIN DEPOSITS IN NORTHEASTERN SOUTH CAROLINA**

- 210-59 150 McCosby, Joseph Bodie\*; Lang, Nick P.; Beard, Emily M.; Miller, Calvin F.; Ferguson, Charles A.: **STRATIGRAPHIC RELATIONS BETWEEN TWO VOLCANIC UNITS AND THE POSSIBLE LACUSTRINE SEDIMENTS BETWEEN THEM: IMPLICATIONS FOR THE PALEOENVIRONMENT IN TIMES GULCH, NW ARIZONA**
- 210-60 151 O'Reilly, Bryan E.\*: **LUNAR EXPLORATION FOR HE-3**
- 210-61 152 Ohen, Colynn\*; Rouff, Ashaki A.: **SIMULATION OF STRUVITE PRECIPITATION FROM SWINE WASTE IN THE PRESENCE OF NICKEL AND ZINC**
- 210-62 153 Saelens, Elsa Dorothea\*; Leslie, Deborah; Liston, Marcus; Carey, Anne E.; Lyons, W. Berry: **STABLE ISOTOPIC COMPOSITION OF METEORIC WATER WITHIN CENTRAL OHIO**
- 210-63 154 Gómez, Carlos D.\*; Varga, Robert J.; Ferguson, Charles A.; Lang, Nick P.; Miller, Calvin F.; Barry, Erin E.; Vidal, Briana D.; Regula, Andrew J.; Schwartz, Joshua J.; Hess, Zakkary: **REMOTE SENSING AND PALEOMAGNETISM OF THE TUFF OF BONELLI HOUSE, NW ARIZONA AND SE CALIFORNIA**
- 210-64 155 Winslow, Heather B.\*; Barry, Erin E.; Miller, Calvin F.; Claiborne, Lily L.; Cribb, J. Warner: **PETROGRAPHY AND GEOCHEMISTRY OF INTRACALDERA IGNIMBRITE MATRIX AND TUFF BLOCKS: IMPLICATIONS FOR ERUPTION OF PEACH SPRING TUFF AND CALDERA COLLAPSE**
- 210-65 156 Yates, Hayden R.\*; Falls, Emily; Greer, Lisa; DeCorte, Ilian; Wirth, Karl R.; Curran, H. Allen; Leonard-Pingel, Jill; Greenstein, Benjamin J.: **HIGH RESOLUTION ISOTOPE SCLEROCRONOLOGY REFLECTS CHANGES IN THE SEASONAL CYCLE AT ROCKY POINT, BELIZE BETWEEN THE LAST INTERGLACIAL AND PRESENT**
- 210-66 157 Shingler, Jeb\*; Becker, Mona L.: **MODELING BACTERIA CONTAMINATION OF STREAMS IN MCDOWELL COUNTY, WV**
- 210-67 158 Swift Bird, Kenneth R.\*; VanEyl-Godin, Kelsey; Fuller, Jennifer L.; Bodenbender, Brian E.: **INVESTIGATION OF BIOCHAR FOR AMENDMENT OF A DISTURBED URBAN SOIL**
- 210-68 159 Ashworth, Alan W.\*; Berg, Christopher A.; Ashley, Aaron Wolfgang: **ASSESSMENT OF GARNET-GRADE METAMORPHISM AT GARNET HILL, PAULDING COUNTY, GEORGIA**
- 210-69 160 Miller, Laura A.\*; Welch, Susan A.; Carey, Anne E.: **WHAT'S WEATHERING IN LA SIERRA DE LAS MINAS?**
- 210-70 161 Popyack, Katherine\*; Griffing, David H.; Morvan, Kaitlyn; Stouffer, Jason: **FINDING THE ELUSIVE CATSKILL DELTA. THREE UNDERGRADUATE RESEARCH PROJECTS IDENTIFY DEVONIAN MARGINAL MARINE STRATA ON OYARON HILL, EAST-CENTRAL NEW YORK**
- 210-71 162 Vazquez, Aldwin S.\*; Vanacore, Elizabeth: **HUNTING FOR ULTRA-LOW VELOCITY ZONES USING SKS AND SKKS DIFFERENTIAL TRAVEL TIME RESIDUALS**
- 210-72 163 Martin, Victoria\*; Self-trail, Jean M.; Seefelt, Ellen L.; Shepherd, Clair L.: **BIOSTRATIGRAPHIC AND MORPHOMETRIC ANALYSIS OF THE CALCAREOUS NANNOFOSSIL *TRIBRACHIATUS ORTHOSTYLUS* AND TWO NEW SPECIES/ MORPHOTYPES OF *TRIBRACHIATUS* IN LOWER EOCENE SEDIMENTS**
- 210-73 164 Henry, Matthew\*; Harrison, Dorelle M.; Martínez-Gutierrez, Genaro; Murowchick, James B.; Lee, Jejung; Niemi, Tina M.: **DISTRIBUTION AND DEPOSITIONAL MODEL OF THE CINTA COLORADA MARKER BED OF THE COPPER-RICH BOLEO FORMATION, SANTA ROSALÍA BASIN, BAJA CALIFORNIA SUR, MÉXICO**
- 210-74 165 West, Kristen T.\*; Gosnell, William T.: **MINERALOGY AND FELDSPAR VARIATIONS OF SENTINEL ROCK PEGMATITE, PIKES PEAK BATHOLITH, COLORADO SPRINGS, COLORADO, USA**
- 210-75 166 Preston, Abigail C.\*; Johnson, Bradley G.: **THE EFFECTS OF SEASONAL VARIABILITY, IMPERVIOUS SURFACES, AND SOIL PERMEABILITY ON THE FLASHINESS OF HEADWATER STREAMS IN THE PIEDMONT OF NORTH CAROLINA**
- 210-76 167 Robinson, Caroline\*; McKinley, Kelsea; St. John, Kristen: **XRF AND SMEAR SLIDE ANALYSIS OF COLOR BANDS IN HOLOCENE-PLEISTOCENE CALCAREOUS OOZE, IODP SITE U1330 WESTERN EQUATORIAL PACIFIC**
- 210-77 168 VanGoor, Sarah A.\*; Lebkuecher, Michelle B.; Lobegeier, Melissa K.: **ASSESSMENT OF WATER QUALITY THROUGH THE STUDY OF THECAMOEBIAN POPULATIONS IN TODDS LAKE, RUTHERFORD COUNTY, TN**
- 210-78 169 Thomas, Kaylee A.\*; Haskin, Jesse; Niemi, Tina M.; Murowchick, James B.; Raab, L. Mark: **AN INVESTIGATION OF THE YOUNGER DRYAS IMPACT HYPOTHESIS THROUGH ANALYSES OF LATE QUATERNARY LAKE SEDIMENT, LAGUNA SECA CHAPALA, BAJA CALIFORNIA, MEXICO**
- 210-79 170 Csanda, Dakota Scott\*; Tranel, Lisa M.: **EVALUATION OF APATITE AGE DISTRIBUTIONS BETWEEN GRAVEL AND SAND SEDIMENTS IN GLACIAL AND FLUVIAL DEPOSITS**
- 210-80 171 Minnock, I.F.\*; Aschoff, J.L.: **CONTROLS ON ASTEROID POROSITY: REVIEW AND NEW DATA FOR S-COMPLEX ASTEROIDS**
- 210-81 172 Greene, James M.\*; Urbanczyk, Kevin M.: **A TOPOGRAPHIC MODEL OF UPPER TERLINGUA CREEK IN WESTERN TEXAS, USA DEVELOPED USING PHOTOGRAMMETRIC TECHNIQUES**
- 210-82 173 Stoller, Alivia Renae\*; Legg, Mark R.: **CONFIGURATION OF MIOCENE BASINS ALONG THE SANTA CRUZ-CATALINA RIDGE, CALIFORNIA CONTINENTAL BORDERLAND**
- 210-83 174 Barney, Grant\*; Noll, Mark R.: **LONG-TERM TRENDS IN STREAM DISCHARGE IN THE NORTHEAST UNITED STATES: EVIDENCE FOR CHANGING CLIMATE**
- 210-84 175 Aguilar-Cabrera, Bruno R.\*; Flores, Hector; Miranda-Aviles, Raul; Niemi, Tina M.; Martínez-Gutiérrez, Genaro; Murowchick, James B.: **ANALYSIS OF FOSSILIFEROUS, VOLCANICLASTIC LIMESTONE FROM THE BASE OF THE UPPER MIOCENE BOLEO FORMATION OF SANTA ROSALIA BASIN, BAJA CALIFORNIA SUR, MEXICO**
- 210-85 176 Albashaireh, Amineh B.\*; Singer, David M.; Herndon, Elizabeth: **GEOCHEMICAL ANALYSIS OF IRON AND PHOSPHOROUS IN ARCTIC TUNDRA SOILS**
- 210-86 177 Curtis, Daniel\*; Burns, Diane M.; Viertel, David C.: **USING REMOTE SENSING TO DELINEATE AU-PLACER DEPOSITS IN THE EAGLE A-2 QUADRANT, FORTYMILE RIVER DISTRICT, ALASKA**
- 210-87 178 Lynn, Jessika A.\*; Riemersma, Peter E.: **MONITORING OF ROAD SALT IMPACT DURING SNOW MELTOFF AND RAINFALL EVENTS AT ALLENDALE MIDDLE SCHOOL, MICHIGAN**
- 210-88 179 Lynch, Samantha N.\*; Parton, Michael S.: **CHEMICAL ZONING OF FLUORITE AND QUARTZ IN HYDROTHERMAL VEINS FROM THE LAKE GEORGE PLUTON OF THE PIKES PEAK BATHOLITH, COLORADO**
- 210-89 180 Parton, Michael S.\*; Lynch, Samantha N.: **THE EXAMINATION OF HYDROTHERMAL VEIN GROWTH SEQUENCES AND THEIR CHARACTERISTIC DISTRIBUTION OF RARE EARTH ELEMENTS IN CHEMICALLY ZONED FLUORITE AND QUARTZ IN LAKE GEORGE, COLORADO**
- 210-90 181 Wood, Daniel\*; Ahrendt, Gabriel; Gude, Zachary; Noto, Matthew; Ryan, Jeffrey: **ORIGINS AND EVOLUTION OF AMPHIBOLITES FROM THE GLADE GAP EXPOSURES OF THE CHUNKY GAL/BUCK CREEK MAFIC-ULTRAMAFIC COMPLEX, WESTERN NORTH CAROLINA**
- 210-91 182 Battistella, Claire\*; Shimabukuro, David H.: **GEOLOGIC MAPPING OF A TETHYAN OCEAN-CONTINENT TRANSITION DETACHMENT FAULT EXPOSED IN THE LIGURIDE COMPLEX OF SOUTHERN ITALY**
- 210-92 183 Kreppel, Elizabeth\*; Noll, Mark R.: **IN-FIELD RAPID ANALYSIS OF P: EXTENSION TO A BROAD ARRAY OF SOIL TYPES**
- 210-93 184 Phillip, Ryan\*: **HEAVY INDICATOR MINERALS COLLECTED FROM ANTHILLS IN THE LEUCITE HILLS, WYOMING FROM ZIRKEL MESA, BLACK ROCK, NORTH TABLE MOUNTAIN,**

- SOUTH TABLETOP MOUNTAIN, STEAMBOAT MOUNTAIN, AND SPRING BUTTE**
- 210-94 185 Brown, Elise\*; Rizzo, Branden R.; McClellan, Elizabeth: **INVESTIGATING THE ORIGIN OF GRANITE CLASTS IN CONGLOMERATES OF THE MOUNT ROGERS FORMATION, SW VA**
- 210-95 186 Smith, Jeremiah\*; Burnley, Pamela; Haber, Daniel; Malchow, Russell: **EVALUATING VARIATIONS IN URANIUM, THORIUM, AND POTASSIUM CONTENT IN THE PIERRE SHALE USING NATIONAL URANIUM RESOURCE EVALUATION AERIAL GAMMA-RAY SURVEY DATA**
- 210-96 187 Simpson, John\*; Hollabaugh, Curtis L.: **TURBIDITY, TOTAL SUSPENDED SOLIDS, AND E. COLI CORRELATION ON THE LITTLE TALLAPOOSA RIVER, CARROLL COUNTY, GEORGIA**
- 210-97 188 Hernandez Montenegro, Juan David\*; Andronicos, Christopher L.; Aronoff, Ruth; Zuluaga Castrillon, Carlos Augusto: **GEOCHEMICAL AND PETROLOGICAL CHARACTERIZATION OF MIGMATITE AND RESTITE IN THE WET MOUNTAINS, COLORADO**
- 210-98 189 Cleveland, Ryan\*; Haynes, John T.; Herrmann, Achim D.: **U-PB AGES OF DETRITAL ZIRCONS IN QUARTZ ARENITES OF THE ORDOVICIAN BLOUNT MOLASSE, SOUTHERN APPALACHIANS, USA**
- 210-99 190 Hairston, Jalen A.\*; Badgley, Grayson; Field, Christopher B.: **THE CARBON BALANCE BEHAVIOR OF CALIFORNIA GRASSLANDS AS REPRESENTED BY JASPER RIDGE**
- 210-100 191 Benefield, Jacqueline\*; Singleton, John S.; Vomocil, Terence; Wong, Martin S.: **DISTINGUISHING MIOCENE MYLONITIZATION FROM LATE CRETACEOUS-EARLY TERTIARY MYLONITIZATION IN THE HARCUIVAR MOUNTAINS METAMORPHIC CORE COMPLEX, WEST-CENTRAL ARIZONA**
- 210-101 192 Vomocil, Terence\*; Singleton, John S.; Reynolds, Stephen J.; Benefield, Jacqueline: **BRITTLE FAULTING IN THE SOUTH MOUNTAINS METAMORPHIC CORE COMPLEX, PHOENIX, ARIZONA: EVIDENCE FOR DISTRIBUTED DEXTRAL SHEAR ASSOCIATED WITH THE PACIFIC – NORTH AMERICAN PLATE BOUNDARY**

## SESSION NO. 211

**T54. Geomorphology and Hydrology of Wildland Fires (Posters) (GSA Quaternary Geology and Geomorphology Division; GSA Environmental and Engineering Geology Division)**

9:00 AM, Baltimore Convention Center, Exhibit Hall

Authors will be present from 4:30 to 6:30 PM

Booth #

- 211-1 193 Rengers, Francis K.\*; McGuire, Luke A.; Kean, Jason W.; Staley, Dennis M.: **MODEL PREDICTIONS OF WATER RUNOFF IN STEEP WATERSHEDS AFTER WILDFIRE**
- 211-2 194 Hyde, Kevin D.\*; Jencso, Kelsey G.: **PREDICTING GULLY HEAD LOCATION FOLLOWING POST-FIRE GULLY REJUVENATION**
- 211-3 195 Chin, Anne\*; Solverson, Anna P.; Kinoshita, Alicia M.; Nourbakhshaidokhti, Samira; Florsheim, Joan L.; O'Dowd, Alison P.: **RESPONSE OF STEP-POOL STREAMS THREE YEARS AFTER THE WALDO CANYON FIRE IN COLORADO**
- 211-4 196 Andres, Madison Evans\*; MacGregor, Kelly; Leonard, Eric M.; Myrbo, Amy: **FIRE FREQUENCY DURING THE LAST MILLENNIUM IN THE GRINNELL GLACIER AND SWIFTCURRENT VALLEY DRAINAGE BASINS, GLACIER NATIONAL PARK, MONTANA**
- 211-5 197 Gible, Katherine T.\*; Pierce, Jennifer L.; Lindquist, Eric; Rotell, Sawyer; Pellant, Mike: **MODELS AND MECHANISMS OF POST-FIRE EROSIONAL RESPONSE IN RANGELANDS: A CASE STUDY FROM THE BOISE FOOTHILLS**
- 211-6 198 Harris, Gregory\*: **INVESTIGATING THE USE OF POLYCYCLIC AROMATIC HYDROCARBONS (PAHS) AS A PROXY FOR HOLOCENE FOREST FIRES ON THE COLORADO FRONT RANGE**

- 211-7 199 Cadol, Daniel\*; Galanter, Amy; Nicholls, Phoebe: **REDISTRIBUTION OF PYROGENIC DEBRIS FOLLOWING POST-FIRE MONSOONS: IMPLICATIONS FOR CARBON BUDGETS AND CONTAMINANT SEQUESTRATION**

## SESSION NO. 212

**T55. Investigating Coastal Environments: A Tribute to Derald G. Smith (Posters) (GSA Quaternary Geology and Geomorphology Division; GSA Limnogeology Division; Marine/Coastal Science Discipline)**

9:00 AM, Baltimore Convention Center, Exhibit Hall

Authors will be present from 4:30 to 6:30 PM

Booth #

- 212-1 200 DeLong, Nicole C.\*; Michalowski, Casey L.; Cooper, Adam T.; Oakley, Adrienne J.; Cornell, Sean; Bochicchio, Christopher: **INVESTIGATING OVERWASH AND HISTORIC BARRIER ISLAND INLET FORMATION THROUGH STRATIGRAPHIC ANALYSIS OF VIBRACORES FROM CHINCOTEAGUE BAY, VA**
- 212-2 201 Cooper, Adam T.\*; Michalowski, Casey L.; DeLong, Nicole C.; Oakley, Adrienne J.; Bochicchio, Christopher; Cornell, Sean: **SEDIMENTOLOGICAL EVIDENCE FOR FORMATION OF A CHINCOTEAGUE BAY PROMONTORY SALT MARSH IN GREENBACKVILLE, VA LINKED TO LOCAL SEA LEVEL FLUCTUATIONS WITHIN THE LAST 3000 YEARS**
- 212-3 202 O'Hara, Beatrice\*; Nikitina, Daria; Serzega, Matthew D.: **ASSESSMENT OF BLUE CARBON STOCK IN DELAWARE BAY SALT MARSH**
- 212-4 203 Browning, Trevor\*: **LINKING SOURCE AND SINK: WATERSHED EVALUATION AND MINERALOGICAL DISTRIBUTION OF SEDIMENTS IN EASTERN ST. JOHN, US VIRGIN ISLANDS**
- 212-5 204 Nitschke, Jasmine\*; Lepper, Kenneth; Johnston, John W.; Thompson, Todd A.; Loope, Henry M.: **OSL DATING OF A STRANDPLAIN SEQUENCE IN THE PINE RIVER EMBAYMENT OF LAKE SUPERIOR ALONG THE UPPER PENINSULA OF MICHIGAN**
- 212-6 205 Tamura, Toru\*; Saito, Yoshiki; Nguyen, Van Lap; Ta, Thi Kim Oanh: **CONSTANT GROWTH RATE OF MEKONG DELTA SHORELINES REVEALED BY OSL DATING OF MULTIPLE DELTA PLAINS**
- 212-7 206 Bidorn, Butsawan\*; Kish, Stephen; Burnett, William; Donoghue, Joseph F.: **EFFECT OF LARGE DAMS ON SHORELINE RECESSION IN THE UPPER GULF OF THAILAND**
- 212-8 207 Jol, Harry M.\*; Nobes, David C.; Topper, Nicholas D.; Charlton, Brittany G.; Jaeger, Nicholas H.: **GROUND PENETRATING RADAR IMAGING OF A TECTONICALLY ACTIVE, WAVE-INFLUENCED SHORELINE: HAASST, SOUTH WESTLAND, NEW ZEALAND**
- 212-9 208 Pile, Jeremy\*; Yu, Fengling; Jol, Harry M.; Switzer, Adam D.; Zheng, Zhou: **THE 12-LAKES OF LU FENG, SOUTHERN CHINA: WHERE ARE THE MISSING LAKES? GROUND-PENETRATING RADAR INVESTIGATION OF A COASTAL PLAIN**

## SESSION NO. 213

**T56. Landslide Inventories and Time Series: Data Collection, Statistics, Geospatial Analysis, and Relationships to Other Geohazards (Posters) (GSA Environmental and Engineering Geology Division; GSA Quaternary Geology and Geomorphology Division; GSA Geoinformatics Division)**

9:00 AM, Baltimore Convention Center, Exhibit Hall

Authors will be present from 4:30 to 6:30 PM

Booth #

- 213-1 209 Youberg, Ann M.\*; Cook, Joseph P.; Bookman, Laura M.; Gootee, Brian F.; Pearthree, Philip A.; Allison, M. Lee: **BUILDING A STATEWIDE INVENTORY OF LANDSLIDES IN ARIZONA**
- 213-2 210 Stark, Benjamin M.\*; Mirus, Benjamin B.; Baum, R.L.; Smith, Joel B.; Michel, Abigail: **ASSESSING THE LANDSLIDE**



- PROBABILITY ON COASTAL BLUFFS NEAR MUKILTEO, WASHINGTON THROUGH HYDROLOGIC MONITORING**
- 213-3 211 Smith, Stephen G.\*; Lane, Robert W.; Metevier, Deanna W.; Opalka, Catherine E.; Roberts, Sharese L.; Wegmann, Karl W.: **A COMPARISON OF PRECIPITATION TO LANDSLIDE FREQUENCY AND EXTENT IN THE OLYMPIC MOUNTAINS, WASHINGTON**
- 213-4 212 Luecke, Austin\*; Gomez, Francisco: **GROUND-BASED RADAR INTERFEROMETRY MEASUREMENTS OF THE SLUMGULLION EARTH FLOW (SAN JUAN MOUNTAINS, COLORADO)**
- 213-5 213 Hervás, Javier\*; Günther, Andreas; Wilde, Martina; Malet, Jean-Philippe; Reichenbach, Paola: **IMPROVEMENTS IN PAN-EUROPEAN LANDSLIDE SUSCEPTIBILITY ASSESSMENT: THE ELSUS VERSION 2 MAP**
- 213-6 214 Tomaszczyk, Marta\*; Sikora, Rafal: **STRUCTURAL CONTEXT OF LANDSLIDE DEVELOPMENT IN POLISH OUTER CARPATHIANS. CASE STUDY FROM UPPER VISTULA AND OCHOTNICA VALLEYS**

## SESSION NO. 214

**T57. Soil to Sediment and Channels—From Geologic to Modern Time Scales: A Session to Honor the Work of Milan Pavich (Posters) (GSA Quaternary Geology and Geomorphology Division; GSA Soils and Soil Processes Interdisciplinary Interest Group)**

9:00 AM, Baltimore Convention Center, Exhibit Hall

Authors will be present from 4:30 to 6:30 PM

Booth #

- 214-1 215 Davias, Michael\*: **LIDAR ELEVATION DATA PROVIDES NEW INSIGHT INTO THE BON AIR GRAVEL AND ATTENDANT CAROLINA BAYS**
- 214-2 216 Denn, Alison R.\*; Bierman, Paul R.; Kirby, Eric: **INVESTIGATION OF A RELICT PERIGLACIAL FEATURE: HICKORY RUN BOULDER FIELD, HICKORY RUN STATE PARK, PENNSYLVANIA**
- 214-3 217 Riley, Kerry\*; Rittenour, Tammy: **EROSION RATES INFLUENCE ARROYO CUT-FILL DYNAMICS IN SEMI-ARID CATCHMENTS DRAINING THE GRAND STAIRCASE REGION OF COLORADO PLATEAU**
- 214-4 218 Jungers, Matthew Cross\*; Bladen, Andrew: **POST-GLACIAL DRAINAGE DEVELOPMENT AND FLUVIAL GEOMORPHOLOGY OF THE TUG HILL PLATEAU, NEW YORK**
- 214-5 219 Reinhardt, Kenneth Tyler\*: **PHYSICAL AND CHEMICAL ANALYSIS OF SOIL MONOLITHS FROM FROSTBURG STATE UNIVERSITY PRACTICE FIELDS**
- 214-6 220 Plank, Carolyn\*; Prestegard, Karen L.: **GEOMORPHIC AND HYDROCLIMATIC INFLUENCES ON THE SPATIAL SCALING OF FLOODS AND CHANNEL CHARACTERISTICS, ATLANTIC SLOPE WATERSHEDS**
- 214-7 221 Taylor, Stephen B.\*: **GRAIN-SIZE ANALYSIS OF CHANNEL GRAVELS IN HACK AND GOODLETT'S LITTLE RIVER BASIN: A BENCHMARK FOR COMPARISON IN CENTRAL APPALACHIAN WATERSHEDS UNDERLAIN BY THE ACADIAN CLASTIC WEDGE**
- 214-8 222 Repasch, Marisa N.\*; Karlstrom, Karl E.; Heizler, Matthew T.: **NEOTECTONIC INFLUENCES ON THE EVOLUTION OF THE RIO GRANDE FLUVIAL SYSTEM OVER THE LAST 5 MA**
- 214-9 223 Garber, Kacey\*; Tranel, Lisa M.; Rothschild, Tyler James: **USING ROCK STRENGTH ANALYSIS TO DETERMINE THE SPATIAL DISTRIBUTION OF EROSION AND EVOLUTION OF KNICKPOINTS IN A STREAM CHANNEL WITHIN THE SACRAMENTO MOUNTAINS, NM**
- 214-10 224 Shobe, Charles M.\*; Hancock, Gregory S.; Eppes, Martha C.; Small, Eric E.: **EVALUATING THE INFLUENCE OF FEEDBACKS BETWEEN EROSION RATE AND WEATHERING ON THE DISTRIBUTION OF ERODIBILITY IN BEDROCK RIVER CHANNELS**

- 214-11 225 Ackerson, Michael R.\*; Tailby, Nicholas D.; Watson, E. Bruce: **DIVERSE APPLICATIONS OF TRACE ELEMENTS IN QUARTZ FOR UNDERSTANDING SEDIMENT PROVENANCE**
- 214-12 226 Fame, Michelle L.\*; Spotila, James A.; Shuster, David L.; Owen, Lewis A.: **CONSTRAINING THE CENOZOIC TOPOGRAPHIC EVOLUTION OF A PASSIVE MARGIN BY COMBINING THERMAL MODELING OF APATITE (U-TH)/HE AGES AND APATITE <sup>4</sup>HE/<sup>3</sup>HE THERMOCHRONOMETRY, NW SCOTLAND**
- 214-13 227 Brocard, Gilles Y.\*; Willenbring, Jane K.; Miller, Thomas E.: **EFFECT OF RAINFOREST DEVELOPMENT ON THE PACE OF KNICKPOINT RETREAT DURING THE GROWTH OF A TROPICAL MOUNTAIN. INSIGHTS FROM THE LUQUILLO CZO, PUERTO RICO**
- 214-14 228 Wang, Chaoran\*; Hren, Michael T.: **STABLE ISOTOPIC AND MOLECULAR ALTERATION OF ORGANIC BIOMARKERS IN SOIL DURING SIMULATED DIAGENESIS: IMPACT OF VARYING MOISTURE, TEMPERATURE, ATMOSPHERE OXYGEN AND LIGHT**
- 214-15 229 Xu, Chi\*; Merritts, Dorothy J.; Walter, Robert C.; Blair, Aaron; Larsen, Laurel; Sylvester, Steve; Gerhart, Jim; Okal, Marianna; Williams, Keith; Hodge, Brendan: **GROUND-BASED LIDAR DERIVED VEGETATION CHANGES, SEDIMENT DEPOSITION, AND SOIL ORGANIC CARBON RETENTION AT THE BIG SPRING RUN, PENNSYLVANIA, WETLAND RESTORATION SITE**

## SESSION NO. 215

**T81. Intentional Integration of Research into the Curriculum: Undergraduate Research as a Teaching Practice (Posters) (Council on Undergraduate Research Geosciences Division)**

9:00 AM, Baltimore Convention Center, Exhibit Hall

Authors will be present from 4:30 to 6:30 PM

Booth #

- 215-1 230 Ryan, Jeffrey\*: **SUPPORTING THE LONG-TERM INVESTIGATION OF SOUTHERN BLUE RIDGE META-IGNEOUS ROCKS THROUGH CLASSROOM RESEARCH ON COLLECTED SAMPLES, FACILITATED BY REMOTELY OPERABLE EPMA ANALYSES: SCIENTIFIC AND HUMAN RESOURCE OUTCOMES**
- 215-2 231 Jaye, Shelley\*: **UNDERGRADUATE RESEARCH IN MINERALOGY AT NORTHERN VIRGINIA COMMUNITY COLLEGE: CHARACTERIZATION OF THE CRYSTALLINE BASEMENT ROCK FROM THE BAYSIDE CORE, CHESAPEAKE BAY IMPACT STRUCTURE**
- 215-3 232 Johnson, Elizabeth A.\*: **BLENDED LEARNING MODULES FOR LABORATORY METHODS: IMPROVING STUDENT LEARNING OF PROCESS AND SCIENTIFIC INQUIRY**
- 215-4 233 Carrigan, Charles W.\*: **EMBEDDING A SEMESTER-LONG ANALYTICAL RESEARCH PROJECT IN WATER CHEMISTRY INTO AN UNDERGRADUATE GEOCHEMISTRY LAB COURSE**
- 215-5 234 Baedke, Steve J.\*: **INTEGRATING RESEARCH INTO AN UNDERGRADUATE AQUEOUS GEOCHEMISTRY LABORATORY COURSE AT JAMES MADISON UNIVERSITY**
- 215-6 235 Weiss, Tarin Harrar\*; Christensen, David; Butler, Samuel J.: **A MODEL FOR ENGAGING UNDERGRADUATES IN AUTHENTIC LONG-TERM MULTIDISCIPLINARY STREAM RESEARCH**
- 215-7 236 Adrain, Jonathan M.\*; Adrain, Tiffany S.; Sims, Hallie J.; Budd, Ann F.; Wilkins, Alyson E.; Puglisi, Paul D.; Becker, Haley K.; Grissel, Hanna D.: **ENGAGING UNDERGRADUATE STUDENTS IN COLLECTION-BASED RESEARCH AT THE UNIVERSITY OF IOWA PALEONTOLOGY REPOSITORY**

## SESSION NO. 216

**T86. Research on Teaching and Student Learning in the K-12 Earth Science Classroom (Posters) (GSA Geoscience Education Division; National Earth Science Teachers Association; National Association of Geoscience Teachers)**

9:00 AM, Baltimore Convention Center, Exhibit Hall

Authors will be present from 4:30 to 6:30 PM

Booth #

- 216-1 237 Rutherford, Sandra\*; Mattox, Stephen; Sobolak, Christina: **IMPACTS OF AND CHALLENGES TO ESTABLISHING A STATE-WIDE CREDIT-BY-EXAM PROGRAM FOR PHYSICAL GEOLOGY IN MICHIGAN**
- 216-2 238 Dulin, Shannon A.\*; Elmore, R. Douglas; Kloesel, Kevin: **NATIVE SCIENCE: AN INTRODUCTORY CLASS COMBINING INDIGENOUS STORIES AND ART WITH WESTERN SCIENCE OBSERVATION TO TEACH EARTH SYSTEMS TO ALL MAJORS**
- 216-3 239 Burrell, Shondricka\*; Lombardi, Doug; Bailey, Janelle; Bickel, Elliot: **IMPLEMENTATION OF THE MODEL-EVIDENCE LINK (MEL) DIAGRAM IN HIGH SCHOOL EARTH SCIENCE CLASSROOMS: AN EDUCATIONAL STRATEGY THAT PROMOTES CRITICAL EVALUATION AND EVIDENCE-BASED REASONING**
- 216-4 240 Holder, Lauren N.\*; Herbert, Bruce E.: **STUDENT PROBLEM SOLVING IN COMPLEX SYSTEMS: HOW DO STUDENTS APPLY SELF-CONSTRUCTED MODELS TO REAL WORLD PROBLEMS?**
- 216-5 241 Spellman, Patricia\*; Mayer, Alex: **A TEACHING UNIT ENGINEERED TO BRING WATER RESOURCE PROBLEMS INTO THE MIDDLE SCHOOL CLASSROOM**
- 216-6 242 Theuerkauf, Ethan J.\*; Ridge, Justin T.; Heenehan, Heather L.; Larkin, Alyse A.; Paxton, Avery B.: **ENHANCING GEOSCIENCE IN THE K-12 CLASSROOM BY BUILDING A NETWORK THAT CONNECTS EDUCATORS WITH LOCAL, CUTTING-EDGE RESEARCH**
- 216-7 243 Sergent, Connie L.\*; Ellins, Katherine K.; Bohls-Graham, C. Elaine: **EARTH SCIENCE EDUCATION INTO THE 21<sup>ST</sup> CENTURY: ONE TEACHER'S EXPERIENCE AS A DIG TEXAS INSTRUCTIONAL BLUEPRINT EDUCATION INTERN**
- 216-8 244 Ross, Robert M.\*; Thanukos, Anastasia; MacDonald, Teresa; Heiser, David Mangold: **THE TREE ROOM: A NEW ONLINE RESOURCE FOR TEACHING EVOLUTIONARY RELATIONSHIPS**

## SESSION NO. 217

**T114. Advances in Island and Coastal Karst Investigations (Posters) (GSA Karst Division; GSA Quaternary Geology and Geomorphology Division)**

9:00 AM, Baltimore Convention Center, Exhibit Hall

Authors will be present from 4:30 to 6:30 PM

Booth #

- 217-1 245 Mylroie, Joan R.\*; Mylroie, John E.: **DEVELOPMENT AND FUTURE FRONTIERS FOR CARBONATE COASTAL AND ISLAND KARST**
- 217-2 246 Martin, Jonathan B.\*; Young, Caitlin; Branyon, Jackie; Valle-Levinson, Arnoldo; Pain, Andrea J.; Marino-Tapia, Ismael; Rebolledo-Vieyra, Mario: **SEA LEVEL RISE IMPACTS ON COASTAL KARST AQUIFERS**
- 217-3 247 Gulley, Jason\*; Brown, Amy L.; Martin, Jonathan B.: **RE-EXAMINING THE ROLE OF MIXING DISSOLUTION ON CONDUIT ENLARGEMENT IN COASTAL CARBONATE AQUIFERS**
- 217-4 248 Hejazian, Mehrdad\*: **A TALE OF TWO ISLANDS: INFLUENCE OF ARTIFICIAL RECHARGE AND CARBON ON THE GEOCHEMISTRY OF ATOLL ISLAND CARBONATE AQUIFERS, ROI-NAMUR, REPUBLIC OF THE MARSHALL ISLANDS**

- 217-5 249 Mylroie, John E.\*; Mylroie, Joan R.; Middleton, Gregory J.: **RODRIGUES ISLAND: CARBONATE DEPOSITION AND KARST PROCESSES AS INDICATORS OF PLATFORM STABILITY**
- 217-6 250 Mylroie, John E.\*; Mylroie, Joan R.; Humphreys, William; Brooks, Darren; Middleton, Gregory J.: **FLANK MARGIN CAVE DEVELOPMENT AND TECTONIC UPLIFT, CAPE RANGE, AUSTRALIA**
- 217-7 251 Mylroie, Joan R.\*; Mylroie, John E.; Lace, Michael: **THE FLANK MARGIN CAVES OF CAYMAN BRAC**
- 217-8 252 Larson, Erik B.\*; Mylroie, John E.: **BLUE HOLES, CONDUIT CAVES, AND WHITINGS OF THE BAHAMAS**
- 217-9 253 Burton, M. Isaac\*; Vega, Jordan; Quiroga, Allison; Ramos, Mallory; Sumrall, Jonathan B.; Larson, Erik B.: **FORMATION OF SURFICIAL KARST FEATURES IN THE HIAWATHA NATIONAL FOREST, UPPER PENINSULA, MICHIGAN**
- 217-10 254 Sumrall, Jonathan B.\*; Larson, Erik B.: **THE STATUS OF ISLAND KARST PROCESSES ON ISLAND CENOZOIC DOLOSTONES**
- 217-11 255 Mount, Gregory J.\*; Comas, Xavier; Wright, William; McClellan, Matthew: **CHARACTERIZATION OF POROSITY IN THE UNSATURATED ZONE OF THE MIAMI LIMESTONE USING GROUND PENETRATING RADAR, MIAMI, FLORIDA**
- 217-12 256 Maale, Gerhard E.\*; van Hengstum, Peter J.; Donnelly, Jeffrey P.; Onac, Bogdan P.; Sullivan, Richard M.; Winkler, Tyler S.: **A 6500-YR PALEOENVIRONMENTAL RECONSTRUCTION OF NO MAN'S LAND SINK, ABACO ISLAND, A LARGE INLAND LAKE IN THE NORTHERN BAHAMAS**

## SESSION NO. 218

**T120. Karst Processes and Speleogenesis: Advances in Monitoring, Modeling, and Measurements (Posters) (GSA Hydrogeology Division; GSA Karst Division; Karst Waters Institute; National Cave and Karst Research Institute; GSA Quaternary Geology and Geomorphology Division)**

9:00 AM, Baltimore Convention Center, Exhibit Hall

Authors will be present from 4:30 to 6:30 PM

Booth #

- 218-1 257 Novello, Sr., Valdir Felipe\*: **MICROCLIMATE AND HYDROLOGICAL MONITORING IN KARST SYSTEM FROM MID-WEST BRAZIL**
- 218-2 258 Li, Yong\*; Zhong, Jianhua; Ni, Liangtian; Mao, Cui; Liu, Shengxin; Sun, Ningliang; Hao, Bing; Liu, Chuang: **PALAEO-TUFA FROM LIUHUANGGOU CAVE 2 IN THE ORDOVIAN CARBONATE, TARUM BASIN, CHINA: FEATURES AND SIGNIFICANCES**
- 218-3 259 Tagne Kamgue, Gilles Valdez\*; Florea, Lee J.: **USING GEOCHEMICAL MODELING TO UNDERSTAND THE SOURCES OF DISSOLVED IONS AND FLOW PATTERNS AT MILL SPRING IN SOUTHEAST KENTUCKY**
- 218-4 260 Myre, Joseph\*; Covington, Matthew D.: **PEELING APART THE CONUNDRUM SURROUNDING THE MORPHOGENESIS OF SCALLOPS USING COMPUTATIONAL FLUID DYNAMICS**
- 218-5 261 Sharpe, Kevin T.\*; Hughes V, Adrian: **USING DYE TRACER STUDIES TO ASSESS MUNITIONS CONSTITUENTS TRANSPORT IN KARST TERRANE**
- 218-6 262 Zhang, Fei\*; Johnson, Verner C.; Kung, Hsiang-te: **ACCURATE ANALYSIS OF MULTI-SPECTRAL BANDS OF LANDSAT TM IMAGES IN MAPPING LAND SURFACE WATER INFORMATION IN EBINUR LAKE, XINJIANG, CHINA**
- 218-7 263 Polk, Jason\*; McClanahan, Kegan; Nedvidek, Daniel; Powell, Matt; Antle, Stacy; North, Leslie; Bolster, Carl H.: **ADVANCED KARST HYDROLOGICAL AND CONTAMINANT MONITORING TECHNIQUES FOR REAL-TIME AND HIGH-RESOLUTION APPLICATIONS**
- 218-8 264 Mallon, Edward K.\*; Beddows, Patricia A.: **THE CAVE PEARL PROJECT - LOW COST OPEN-SOURCE HARDWARE FOR ENVIRONMENTAL MONITORING NETWORKS**

- 218-9 265 Pizzorusso, Ann C.\*: **KARST CAVERNS AS CULT SANCTUARIES**
- 218-10 266 Barna, Joshua\*; Kellermeier, William; Herman, Ellen K.; Toran, Laura: **STORM HYSTERESIS AS IN INDICATOR OF MATRIX FLOW PATHS IN A CONDUIT-DOMINATED SPRING**
- 218-11 267 Watters, Jaclyn\*; Levy, Joseph: **SPATIAL PATTERNS AND DRIVERS OF MELT AND THERMOKARST EROSION IN GARWOOD VALLEY, MCMURDO DRY VALLEYS, ANTARCTICA**
- 218-12 268 Ballard, Chelsea\*; Polk, Jason; McClanahan, Kegan: **TRACING CARBON IN KARST ENVIRONMENTS TO INVESTIGATE THE GEOCHEMICAL EVOLUTION PROCESSES OF KARST AQUIFERS**

**SESSION NO. 219**

**T138. From the Caspian to Mediterranean: Environmental Change and Human Response during the Quaternary (IGCP 610) (Posters) (Paleontological Society; Paleoceanography/Paleoclimatology Discipline; Avalon Institute of Applied Sciences, Canada; GSA Archaeological Geology Division)**

9:00 AM, Baltimore Convention Center, Exhibit Hall

Authors will be present from 4:30 to 6:30 PM

Booth #

- 219-1 269 Esin, Nikolay I.\*; Esin, Nikolay V.; Yanko-Hombach, Valentina: **THE MECHANISM OF THE CASPIAN-MEDITERRANEAN CORRIDOR FORMATION. THE PARATETHYS SEA EVOLUTION**
- 219-2 270 Kurbanov, Redzhep\*: **QUATERNARY STRATIGRAPHY OF WESTERN TURKMENISTAN (SOUTHEASTERN CASPIAN SEA)**
- 219-3 271 Tkach, Nikolai\*; Kurbanov, Redzhep: **MODERN VIEWS OF CASPIAN SEA LEVEL CHANGE IN HOLOCENE**
- 219-4 272 Kurbanov, Redzhep\*: **COASTAL GEOMORPHOLOGY OF CHELEKEN PENINSULA**
- 219-5 273 Silva, Valdielly Larisse\*; Buynevich, Ilya V.; Gnivecki, Perry L.; Berman, Mary Jane; Lloyd, Gwen; Brake, Marie; Savarese, Michael; Curran, H. Allen; Park Boush, Lisa: **SCALE DIFFERENTIATION OF CHANNEL-SHAPED GEORADAR ANOMALIES IN MIXED CLASTIC (BLACK SEA, UKRAINE) AND CARBONATE (THE BAHAMAS) BARRIER LITHOSOMES: GEOARCHAEOLOGICAL IMPLICATIONS**
- 219-6 274 Costelloe, A.R.\*; Wilson, B.; Horton, B.P.: **POPULATION DYNAMICS OF FORAMINIFERA IN MANGAL SWAMPS AND MARSHES**
- 219-7 275 Rohozin, Yevhenii\*: **RECONSTRUCTIONS OF THE MID- AND LATE-HOLOCENE CLIMATIC CHANGES BASED ON POLLEN DATA FROM THE EASTERN BASIN OF LAKE SAKI (CRIMEA)**
- 219-8 276 Dean, Jonathan R.\*; Jones, Matthew; Leng, Melanie; Noble, Stephen R.; Metcalfe, Sarah; Sloane, Hilary; Sahy, Diana; Eastwood, Warren; Roberts, Neil: **NEW OXYGEN ISOTOPE RECORD OF LATE GLACIAL AND HOLOCENE HYDROCLIMATE CHANGE IN THE EASTERN MEDITERRANEAN FROM NAR LAKE IN TURKEY**
- 219-9 277 Martin, Ronald E.\*; Yanko-Hombach, Valentina: **REPEATED FRESHWATER DISCHARGE EVENTS CAUSED RAPID SEA-LEVEL CHANGES IN THE BLACK SEA DURING THE HOLOCENE**
- 219-10 278 Oschepkov, Georgiy V.\*; Yanina, Tamara; Makshaev, Radik R.; Yanko-Hombach, Valentina: **ON PALEOGEOGRAPHY OF THE LOWER VOLGA RIVER AREA DURING THE LAST GLACIAL EPOCH**
- 219-11 279 Pupienis, Donatas\*; Buynevich, Ilya V.: **MINERALOGICAL ANOMALIES AS STORM INDICATORS ALONG NONTIDAL (BLACK AND BALTIC SEA COASTS) AND MICRO-TIDAL (CENTRAL NEW JERSEY, USA) COASTS: RECENT OBSERVATIONS AND GEOLOGICAL EVIDENCE**
- 219-12 280 Oschepkov, Georgiy V.\*; Yanina, Tamara; Svitoch, Alexander: **BIOSTRATIGRAPHY OF THE CASPIAN NEOPLEISTOCENE**
- 219-13 281 Gerasimenko, Natalia P.\*; Ridush, Bogdan T.; Korzun, Yulia L.; Liashyk, Tamara I.; Popelyushko, Anna M.: **NEW DATA ON THE QUATERNARY ENVIRONMENTS OF THE CRIMEAN MOUNTAINS**

**SESSION NO. 220**

**T140. Late Paleocene and Early Eocene Hyperthermal Events in Terrestrial and Marine Systems (Posters)**

9:00 AM, Baltimore Convention Center, Exhibit Hall

Authors will be present from 4:30 to 6:30 PM

Booth #

- 220-1 282 Robinson, Marci M.\*; Self-Trail, Jean M.; Willard, Debra A.; Spivey, Whitney E.; Stassen, Peter: **AN OCEAN ACIDIFICATION PULSE IN THE PRE-ONSET CARBON ISOTOPE EXCURSION PRECEDING THE PALEOCENE-EOCENE THERMAL MAXIMUM?**
- 220-2 283 Kender, Sev\*; Bogus, Kara; Dybkjær, Karen; Leng, Melanie; Pedersen, Gunver; Riding, James B.; Wagner, Thomas: **UNCOVERING ENVIRONMENTAL CHANGES IN NW EUROPE DURING THE PALEOCENE-EOCENE THERMAL MAXIMUM: EVIDENCE FROM THE NORTH SEA**
- 220-3 284 Andrews, Elizabeth M.\*; White, Tim: **PALEOSOL-BASED PALEOCLIMATE RECONSTRUCTION OF THE PALEOCENE EOCENE THERMAL MAXIMUM, NORTHERN ARGENTINA**
- 220-4 285 Breen, Paige\*; Lichtin, Samantha; Super, James; Auerbach, David; Brandon, Mark: **RECONSTRUCTING PALEOCENE-EOCENE PATAGONIAN PALEOCLIMATE: ORGANIC PROXY DATA FROM THE LIGORIO MARQUEZ FORMATION**
- 220-5 286 Penman, Donald\*; Babila, Tali; Kelly, D. Clay; Zachos, James C.; Rosenthal, Yair; Bralower, Tim: **GLOBAL OCEAN ACIDIFICATION DURING THE PETM: EVIDENCE FROM THE SOUTHERN OCEAN AND NEW JERSEY MARGIN**
- 220-6 287 Gibbs, Samantha\*; Bown, Paul; Ridgwell, Andy; O'Dea, Sarah; Young, Jeremy; Poulton, Alex: **MIND THE GAP: TARGETING BIOMINERALISATION IMPACT OF CLIMATE CHANGE ON COCCOLITHOPHORES**

**SESSION NO. 221**

**Paleontology: The Early and Middle Paleozoic: Biodiversity, Biogeography, and Biostratigraphy (Posters)**

9:00 AM, Baltimore Convention Center, Exhibit Hall

Authors will be present from 4:30 to 6:30 PM

Booth #

- 221-1 288 Thomas, Jeremiah W.\*; Taylor, John F.; Hand, Kristen L.: **PALEONTOLOGY AND GEOLOGY OF THE ORE HILL MEMBER OF THE UPPER CAMBRIAN GATESBURG FORMATION IN CENTRE COUNTY, PENNSYLVANIA**
- 221-2 289 Jones, Wade T.\*; Feldmann, Rodney M.; Schweitzer, Carrie E.; Wendruff, Andrew J.: **THE FIRST POST-CAMBRIAN MARRELLMORPH ARTHROPOD FROM NORTH AMERICA**
- 221-3 290 Harrison, IV, George William Mallory\*; Wilson, Mark A.: **PROPOSED SYSTEM FOR CATEGORIZING BIOCLAUSTRATIONS ON ORDOVICIAN BRYOZOANS**
- 221-4 291 Johnson, Claire M.\*; Marenco, Katherine N.; Marenco, Pedro J.: **MACRO- AND MICROFACIES INTERPRETATIONS OF THE MICROBIALITE-SPONGE HINTZE'S REEF IN THE LOWER ORDOVICIAN FILLMORE FORMATION, HOUSE RANGE, WESTERN UTAH**
- 221-5 292 Zamora, Samuel\*; Colmenar, Jorge; Bernárdez, Enrique; Gutiérrez-Marco, Juan Carlos; Rábano, Isabel: **REEVALUATION OF THE HIRNANTIA FAUNA DIVERSITY BASED ON NEW FINDS FROM SPAIN**
- 221-6 293 Hegna, Thomas\*; Martin, Markus: **PYRITIZED *IN SITU* TRILOBITE EGGS FROM THE ORDOVICIAN OF NEW YORK (LORRAINE GROUP): IMPLICATIONS FOR TRILOBITE REPRODUCTIVE BIOLOGY**

- 221-7 294 Hester, Dean A.\*; Adrain, Jonathan M.: **SYSTEMATICS, AFFINITY, AND BIOSTRATIGRAPHIC UTILITY OF THE EARLY ORDOVICIAN TRILOBITE *AMBLYCRANIUM* ROSS, FROM THE GREAT BASIN, WESTERN USA**
- 221-8 295 Busch, Richard M.\*; Schagrin, Zachary C.; Pfahler, Benjamin S.: **TRILOBITE BIOFACIES AND BIOSTRATIGRAPHY OF THE ORDOVICIAN MYERSTOWN FORMATION, LEBANON VALLEY, PENNSYLVANIA**
- 221-9 296 Taylor, John F.\*; Irwin, Savannah J.; Repetski, John E.; Strauss, Justin V.: **BIOSTRATIGRAPHIC REFINEMENTS IN THE LOWER ORDOVICIAN OF EASTERN ALASKA: EMERGING EVIDENCE OF AN EASTERN SUBPROVINCE OF THE LAURENTIAN FAUNAL PROVINCE?**
- 221-10 297 Frieman, Richard A.\*; Mitchell, Charles, E.; Jacobi, Robert D.; Crowley, James L.; Macdonald, Francis A.; Jones, Kyle W.; Roloson, Melissa; Richley, Erin; Baird, Gordon C.: **TRANSTENSIONAL FOUNDERING OF THE LAURENTIAN (NEW ENGLAND) MARGIN AT ~453-451 MA**
- 221-11 298 Booth, Cody\*; Jeffery, David L.: **ALGAE AND MICROPROBLEMATICA OF MUSTOE REEF, SILURIAN KEYSER FORMATION, MUSTOE, VIRGINIA**
- 221-12 299 Mann, Arjan\*; Rudkin, David M.; Evans, David C.; Laflamme, Marc: ***ONYCHODUS SARCOVENATOR* N. SP.: A LARGE SARCOPTERYGIAN APEX PREDATOR FROM THE MIDDLE DEVONIAN OF ONTARIO**
- 221-13 300 Stack, Jack Reza\*; Sallan, Lauren: **AN EXAMINATION OF THE DEVONIAN FISHES OF THE MICHIGAN BASIN**

## SESSION NO. 222

*Paleontology: The Mesozoic World (Posters)*

9:00 AM, Baltimore Convention Center, Exhibit Hall

Authors will be present from 4:30 to 6:30 PM

Booth #

- 222-1 301 Jasinski, Steven\*; Dodson, Peter: **BIOSTRATIGRAPHY, PALEOBIOGEOGRAPHY, AND EVOLUTION OF DROMAEOSAURIDS (DINOSAURIA: DROMAEOSAURIDAE) IN NORTH AMERICA**
- 222-2 302 Marshall, Madeline S.\*; Sertich, Joseph J.W.; Miller, Ian M.; Andrianarivo, Miary: **STRATIGRAPHY AND PALEONTOLOGY OF A NEW NEARSHORE DINOSAUR-BEARING SUCCESSION FROM THE LATE CRETACEOUS OF THE MORONDAVA BASIN, WESTERN MADAGASCAR**
- 222-3 303 Fortner, John David\*: **A SMALL THEROPOD DINOSAUR FROM THE AGUJA FORMATION (UPPER CRETACEOUS) BIG BEND NATIONAL PARK, TEXAS**
- 222-4 304 Weeks, Summer Rose\*; Chadwick, Arthur V.; Brand, Leonard R.: **LARGE DINOSAUR BONEBED DEPOSITED AS DEBRIS FLOW: LANCE FORMATION NIOBRARA COUNTY, WYOMING**
- 222-5 305 Kantrowitz, Conor\*; Kudenov, Jerry; Soto, Matias; Perea, Daniel; Moore, Jason R.: **UNDERSTANDING THE SILICIFICATION OF DINOSAUR BONES IN THE CRETACEOUS OF URUGUAY**
- 222-6 306 Siviero, Bethania T.\*; McLain, Matthew A.; Chadwick, Arthur V.; Brand, Leonard R.: **TELLING TOOTH TRACES FROM FORAMEN: A CASE OF TAPHONOMIC DETECTIVE WORK ON A JUVENILE CERATOPSID SURANGULAR FROM THE LANCE FORMATION (MAASTRICHTIAN), WY**
- 222-7 307 Nicolo, Christopher P.\*; Abney, Cooper; McKenzie, Scott C.: **ALLOSAURUS AND THE DEVELOPMENT OF STEGOSAUR PLATES**
- 222-8 308 McLain, Matthew A.\*; Bakker, Robert T.: **A PROBABLE NEW SPECIES OF PTEROSAUR FROM THE BREAKFAST BENCH INTERVAL OF THE UPPERMOST MORRISON FORMATION AT COMO BLUFF, WYOMING WITH A DISCUSSION OF THE BIOCHRONOLOGICAL STAGE OF THIS UNIT**
- 222-9 309 Hegna, Thomas\*; Harvey, Thomas; Huber, Phillip: **POSSIBLE MINUTE BRANCHIOPOD MANDIBLES (?CLADOCERA) FROM LAKE DEPOSITS (CINIZA LAKE) IN THE UPPER TRIASSIC**

**CHINLE FORMATION (NEW MEXICO) AND THE TEMPORAL RECORD OF SMALL CARBONACEOUS FOSSILS (SCFS)**

- 222-10 310 Sudarsky, Sergio\*; Schweitzer, Carrie E.; Feldmann, Rodney M.: **PHYLOGENETIC ANALYSIS OF THE FOSSIL SHRIMP-LIKE DECAPODS (DENDROBRANCHIATA, STENOPODIDEA AND CARIDEA) FROM THE SOLNHOFEN LAGERSTÄTTE**
- 222-11 311 Thomson, Tracy J.\*; Chure, Daniel J.; Good, Thomas R.; Kirkland, James I.; Milner, Andrew R.C.: **LARGE ARACHNID TRACKS FROM THE EOLIAN TRIASSIC/JURASSIC NUGGET SANDSTONE, NORTHEASTERN UTAH**
- 222-12 312 Harris, Kiana T.\*; McKenzie, Scott C.: **A JURASSIC CUTTLEFISH WITH PRESERVED INK FROM THE SOLNHOFEN LAGERSTÄTTE**
- 222-13 313 Feldman, Howard R.\*; Wilson, Mark A.; Belowich, Alexa J.: **TAXONOMY, PALEOBIOGEOGRAPHY AND PALEOECOLOGY OF JURASSIC ETHIOPIAN BRACHIOPODS: A PROGRESS REPORT**
- 222-14 314 Cuffey, Roger J.\*; Taylor, Paul D.: **CRETACEOUS BRYOZOANS AND THE OLD WEST**
- 222-15 315 Hasiotis, Stephen T.\*; Parrish, Judith Totman; Chan, Marjorie A.: **POTENTIAL RHIZOFACIES CLASSIFICATION FOR EOLIAN DEPOSITS—OBSERVATIONS FROM THE LOWER JURASSIC NAVAJO SANDSTONE, SOUTHEASTERN UTAH**
- 222-16 316 Naujokaityte, Jone\*; Garb, Matthew P.; Landman, Neil H.; Larina, Ekaterina; Rovelli, Remy; Myers, Corinne E.; Danilova, Anastasia; Bayon, Richard; Brophy, Shannon K.; Phillips, George E.: **SIGNIFICANCE OF FOSSIL CONCENTRATIONS IN INTERPRETING PALEOENVIRONMENTAL CHANGES PRECEDING THE END CRETACEOUS MASS EXTINCTION EVENT ALONG THE GULF COASTAL PLAIN**
- 222-17 317 Hodges, Montana S.\*; Stanley, Jr., George D.; Gonzalez-Leon, Carlos: **EARLY JURASSIC CORALS FROM THE EL ANTIMONIO GROUP OF SONORA, MEXICO, AND THE IMPLICATIONS FOR CORAL RECOVERY AFTER THE END-TRIASSIC MASS EXTINCTION**
- 222-18 318 St.Pierre, Brett Donald\*; Arens, Nan Crystal; Boyer, Diana L.: **TURONIAN TO EARLY CONIACIAN AGE FOR THE CLAYS OF MARTHA'S VINEYARD, MASSACHUSETTS: A REVISION**

## SESSION NO. 223

**T144. 200 Years and Going Strong: The Role of Paleontology in Geologic Mapping (Posters) (AASP - The Palynological Society; Paleontological Society; SEPM (Society for Sedimentary Geology))**

9:00 AM, Baltimore Convention Center, Exhibit Hall

Authors will be present from 4:30 to 6:30 PM

Booth #

- 223-1 319 Blackmer, Gale C.\*; Ganis, G. Robert: **GRAPTOLITES, CONODONTS, STRATIGRAPHY, AND STRUCTURE: MAPPING THE TACONIC FORELAND IN THE GREAT VALLEY OF PENNSYLVANIA**
- 223-2 320 McDowell, Ronald R.\*; Hunt, Paula J.; Burns, Mary Sue; McClure, Goldie: **USING FOSSILS TO AID IN BEDROCK MAPPING: EXAMPLES FROM WEST VIRGINIA**
- 223-3 321 Cooper, Roger W.\*; Cooper, Dee Ann; Cobban, William A.; Walaszczyk, Irek: **MAPPING LATE CRETACEOUS STAGE BOUNDARIES IN THE BOQUILLAS FORMATION, BIG BEND NATIONAL PARK (BBNP), TEXAS: CENOMANIAN-TURONIAN (CE-T); TURONIAN-CONIACIAN (T-CO); AND CONIACIAN-SANTONIAN (CO-S)**
- 223-4 322 Cooper, Dee Ann\*; Cooper, Roger W.: **A THIN GREEN LINE ON THE GEOLOGIC MAP OF BIG BEND NATIONAL PARK**
- 223-5 323 Powars, David S.\*; Edwards, Lucy E.; DeJong, Benjamin D.: **GEOLOGIC MAPPING OF MIOCENE TO PLEISTOCENE PALEOCHANNELS ACROSS THE MID-ATLANTIC COASTAL PLAIN REGION: RECORD OF SEA LEVEL, PALEOCLIMATE, AND STRUCTURAL INFLUENCES**

- 223-6 324 Dodge, Joshua\*; Brandt, Danita S.; Smrecak, Trisha A.: **SECULAR VARIATION IN THE DISTRIBUTION OF ENCRUSTING ORGANISMS THROUGH THE PHANEROZOIC**

## SESSION NO. 224

**T150. Early and Middle Triassic Restructuring Following the End-Permian Mass Extinction (Posters) (Paleontological Society)**

9:00 AM, Baltimore Convention Center, Exhibit Hall

Authors will be present from 4:30 to 6:30 PM

Booth #

- 224-1 325 Lipshultz, Kathleen R.\*; Gastaldo, Robert A.; Kamo, Sandra L.; Neveling, Johann; Geissman, J.W.: **STRATIGRAPHIC CONTEXTUALIZATION OF VOLCANIC ASH DEPOSITED NEAR THE PERMIAN-TRIASSIC BOUNDARY IN THE KAROO BASIN, SOUTH AFRICA**
- 224-2 326 Sasajima, Takuto\*; Gastaldo, Robert A.; Neveling, Johann: **USING DRONE TECHNOLOGY TO CHARACTERIZE THE KATBERG SANDSTONE ABOVE THE PERMIAN-TRIASSIC BOUNDARY AT OLD WAPADSBURG PASS, KAROO BASIN, SOUTH AFRICA**
- 224-3 327 Battifarano, Oriana K.\*; Churchill, Alyson N.; Gastaldo, Robert A.; Neveling, Johann; Geissman, John W.: **LITHOSTRATIGRAPHY AND LATERAL VARIATION IN VERTEBRATE BIOSTRATIGRAPHY NEAR THE PERMIAN-TRIASSIC BOUNDARY AT BETHULIE, SOUTH AFRICA**
- 224-4 328 Li, Jiawen\*; Gastaldo, Robert A.; Neveling, Johann: **IRON, CLIMATE, AND MASS EXTINCTION: GEOCHEMISTRY OF GREEN-GRAY AND RED-GRAY SILTSTONES STRADDLING THE VERTEBRATE-DEFINED, PERMIAN-TRIASSIC MASS EXTINCTION IN SOUTH AFRICA**
- 224-5 329 Godbold, Amanda Lynn\*; Henderson, Charles M.; Schoepfer, Shane D.; Shen, Shuzhong: **EARLIEST TRIASSIC REFUGE AT SHANGSI CHINA: A POTENTIAL ANALOG FOR MODERN MARINE CRISIS**
- 224-6 330 Foster, William J.\*; Twitchett, Richard J.: **THE FIRST FULLY SILICIFIED ASSEMBLAGE FROM THE EARLIEST TRIASSIC**
- 224-7 331 Li, Mingsong\*; Huang, Chunju; Hinnov, Linda A.; Ogg, James G.; Zhang, Yang; Chen, Zhong Qiang; Zou, Zhuoyan: **AN ASTRONOMICAL TIME SCALE FOR TRIASSIC ECOSYSTEM RECOVERY IN SOUTH CHINA**
- 224-8 332 Hagen, Cedric J.\*; Roberts, Eric M.; Liu, Jun; Sullivan, Corwin; Wang, Yanyin; Xu, Xing: **NEW PERSPECTIVES ON THE TAPHONOMY AND GEOLOGICAL CONTEXT OF *LOTOSAURUS ADENTUS* (ARCHOSAURIA:POPOSAUROIDEA): RE-EXAMINATION OF THE TYPE LOCALITY FROM THE MIDDLE TRIASSIC BADONG FORMATION, HUNAN, CHINA**
- 224-9 333 Feldmann, Rodney M.\*; Schweitzer, Carrie E.; Hu, Shixue; Huang, Jinyuan; Zhang, Qiyue; Wen, Wen; Zhou, Changyong; Xie, Tao: **REMARKABLE SPATIAL DISTRIBUTION OF ORGANISMS IN THE LUOPING BIOTA (MIDDLE TRIASSIC), YUNNAN PROVINCE, CHINA**

## SESSION NO. 225

**T152. Geobiology of Critical Transitions: Integrating Fossils, Proxies, and Models (Posters) (GSA Geobiology & Geomicrobiology Division; Paleontological Society; Geochemical Society)**

9:00 AM, Baltimore Convention Center, Exhibit Hall

Authors will be present from 4:30 to 6:30 PM

Booth #

- 225-1 334 Wang, Vicky W.\*; Junium, Christopher K.; Lu, Zunli; Pr at, Alain R.Y.: **AFTER THE GREAT OXIDATION EVENT:  $\delta^{13}\text{C}$ ,  $\delta^{15}\text{N}$ ,  $\delta^{34}\text{S}$ , AND I/CA RECORDS FROM THE FRANCEVILLE BASIN, GABON**
- 225-2 335 Pehr, Kelden\*; Love, Gordon D.; Kuznetsov, Anton; Bekker, Andrey; Podkovyrov, Victor: **EDIACARAN TO CAMBRIAN**

**BIOMARKERS IN OLIGOTROPHIC BASINS OF THE EAST EUROPEAN PLATFORM**

- 225-3 336 Strange, Michael A.\*; Rowland, Stephen M.: **FIRST REPORT OF THE EDIACARAN CLOUDINID FOSSIL *CONOTUBUS* IN NORTH AMERICA AND ITS APPARENT PRESERVATION BY DIRECT PRECIPITATION OF IRON OXIDES AND IRON-RICH ALUMINOSILICATES**
- 225-4 337 Parry, Luke\*; Condon, Daniel; Boggiani, Paulo Cesar; Liu, Alexander G.; Garwood, Russell; McIlroy, Duncan: **AN EXCEPTIONALLY PRESERVED ICHNOFAUNA FROM THE EDIACARAN-CAMBRIAN TRANSITION OF THE CORUMBA GROUP OF MATO GROSSO DO SUL, BRAZIL**
- 225-5 338 McGann, Tessa\*; Smith, Emily F.; Faggetter, Luke E.; Wignall, Paul B.; Pruss, Sara B.: **NEW ARCHAEOCYATHAN REEFS AND CHEMOSTRATIGRAPHY OF THE LOWER CAMBRIAN WOOD CANYON FORMATION, DEATH VALLEY, USA**
- 225-6 339 McMenamin, Mark A.S.\*; Hussey, Meghan C.: **RETILAMINA FROM NEW JERSEY: TROPHIC STRATEGY IN A BIZARRE ARCHAEOCYATH**
- 225-7 340 LeRoy, Matthew\*; Gill, Benjamin C.: **ASSESSING THE ROLE OF ANOXIA IN THE END-MARJUMAN EXTINCTION AND SPICE EVENTS**
- 225-8 341 Ritzler, Samantha R.\*; Gill, Benjamin C.: **GEOCHEMICAL AND SEDIMENTOLOGICAL INVESTIGATION OF A LACUSTRINE TRIASSIC LAGERST TTE IN THE COW BRANCH FORMATION OF THE DANVILLE-DAN RIVER BASIN**
- 225-9 342 Miller, Austin J.\*; Strauss, Justin V.; Myrow, Paul M.; Johnston, David T.; Sperling, Erik A.: **A GEOCHEMICAL INVESTIGATION OF OXYGENATION IN THE EARLY EDIACARAN OCEANS AT THE TYPE SECTION OF THE SHEEPED FORMATION, MACKENZIE MOUNTAINS, NORTHWEST TERRITORIES, CANADA**
- 225-10 343 Yang, Xianfeng\*; Johan, Fredrik Bockelie; Tian, Xinglei; Hou, Xianguang: **THE FIRST OBSERVATION OF COMPLETE MACROCYSTELLA FROM THE UPPER CAMBRIAN (FURONGIAN, SANDU FORMATION) OF GUANGXI PROVINCE, SOUTH CHINA**
- 225-11 344 Lee, Jeong-Hyun\*; Chen, Jitao; Woo, Jusun: **THE EARLIEST PHANEROZOIC CARBONATE HARDGROUND (CAMBRIAN STAGE 5, SHANDONG PROVINCE, CHINA): IMPLICATIONS TO THE PALEOSEAWATER CHEMISTRY AND EARLY ADAPTATION OF HARDGROUND FAUNA**
- 225-12 345 Snoeck, Christophe\*; de Winter, Niels J.; Stein, Koen HW; Claeys, Philippe: **MULTI-DISCIPLINARY STUDY OF FOSSIL AND ARCHAEOLOGICAL BONE AND TEETH – THE QUESTION OF DIAGENESIS**
- 225-13 346 Danilova, Anastasia\*; Garb, Matthew P.; Landman, Neil H.; Hopkins, Melanie; Larina, Ekaterina; Rovelli, Remy; Naujokaityte, Jone; Myers, Corinne E.: **MORPHOMETRIC SHELL ANALYSIS OF ONE OF THE LAST AMMONITE SPECIES BEFORE THE K/PG MASS EXTINCTION EVENT**
- 225-14 347 Feranec, Robert S.\*; Pagnac, Darrin; Crowley, Brooke E.; Maguire, Kaitlin Clare; DeSantis, Larisa R.G.: **STABLE ISOTOPE VALUES FROM UNGULATE TOOTH ENAMEL SHED LIGHT ON THE MIOCENE BIOGEOGRAPHY OF  $\text{C}_4$  PLANTS IN THE UNITED STATES**
- 225-15 348 Ullmann, Paul Victor\*; Pandya, Suraj H.; Lacovara, Kenneth J.: **CANCELLOUS BONE IS A VIABLE SOURCE OF FOSSIL SOFT TISSUES: EVIDENCE FROM AN *EDMONTOSAURUS* BONEBED IN THE CRETACEOUS HELL CREEK FORMATION**
- 225-16 349 John, Douglas L.\*; Walker, Sally E.; Babcock-Adams, Lydia C.; Medeiros, Patricia M.: **ANTHROPOCENE OVERPRINTS IN TRILOBITE BIOMARKERS FROM THE CAMBRIAN**

## SESSION NO. 226

**T158. Perspectives on Multi-Element Skeleton Taphonomy: Case Studies, Approaches, and Advances (Posters) (Paleontological Society)**

9:00 AM, Baltimore Convention Center, Exhibit Hall

Authors will be present from 4:30 to 6:30 PM

Booth #

- 226-1 350 Korn, Alysia Sarah\*; Pagnac, Darrin: **ANATOMICALLY LINKED OCCURRENCE OF CONCRETIONARY PRESERVATION OF MOSASAURS FROM THE PIERRE SHALE OF SOUTH DAKOTA**
- 226-2 351 Ulrich, Robert N.\*; Mergelsberg, Sebastian T.; Dove, Patricia M.: **MORPHOLOGICAL DEPENDENCE OF ELEMENT DISTRIBUTIONS IN THE ORGANIC AND MINERAL FRACTIONS OF THE *H. AMERICANUS* EXOSKELETON**
- 226-3 352 Klompmaker, Adiël A.\*; Portell, Roger W.; Hyžný, Matúš; Fussell, Shane S.; Klier, Aaron T.; Tejera, Raymond: **EXCEPTIONAL THREE-DIMENSIONAL PRESERVATION OF MUSCLES IN A FOSSIL GHOST SHRIMP**
- 226-4 353 Kolenko, Rachel L.\*; Hughes, Nigel C.: **UNDERSTANDING THE BIOLOGY AND PRESERVATION POTENTIAL OF TRILOBITE; *AULACOPLEURA KONINCKII* BASED ON MODELING ITS SIZE FREQUENCY DISTRIBUTION**
- 226-5 354 Nebelsick, James H.\*; Grun, Tobias B.; Stoll, Nicolas; Schaich, Carina: **STABILIZING INSTABLE SKELETONS: MAPPING PLATE CONNECTIONS AND INTERNAL SUPPORTS OF CLYPEASTEROID ECHINODS AND THEIR IMPLICATION FOR PRESERVATION POTENTIALS IN THE ROCK RECORD**
- 226-6 355 Gorzelak, Przemyslaw\*: **DIAGENESIS IN ECHINODERM SKELETONS AND THEIR APPLICATION TO THE RECONSTRUCTION OF PALEOCEAN MG/CA**
- 226-7 356 Padgett, Abbey E.\*; Zachos, Louis G.; Phillips, George E.: **TAPHONOMY OF BROKEN HEART URCHINS IN THE CLAYTON FORMATION (PALEOCENE) OF ALABAMA**
- 226-8 357 Grun, Tobias B.\*; Nebelsick, James H.: **TAPHONOMY OF *CLYPEASTER ROSACEUS* AS MODEL FOR THE PRESERVATION POTENTIALS OF 3-DIMENSIONAL MULTI-ELEMENT SKELETONS**
- 226-9 358 Christensen, Hilary\*; Bartley, Julie K.; Delmont, Dominic; Rosenberg, Brooke C.: **A THOUSAND YEARS OF HUMAN-ANIMAL INTERACTIONS: VERTEBRATE TAPHONOMY IN THE DES MOINES RIVER, SOUTHERN MINNESOTA**

## SESSION NO. 227

**T163. A Matter of Perspective: Integrating Macro- and Micro-Scale Evidence in Investigations of Magmatic Origins and Histories (Posters) (GSA Mineralogy, Geochemistry, Petrology, and Volcanology Division; Mineralogical Society of America; Geochemical Society; GSA Planetary Geology Division)**

9:00 AM, Baltimore Convention Center, Exhibit Hall

Authors will be present from 4:30 to 6:30 PM

Booth #

- 227-1 359 Willis, Kyle V.\*; Srogi, LeeAnn; Lutz, Tim; Martinson, Peter J.; Pollock, Meagen: **CALIBRATING BACKSCATTERED ELECTRON IMAGE GRAYSCALE VALUES WITH MINERAL COMPOSITIONS TO GENERATE PHASE COMPOSITION MAPS AT THE THIN SECTION SCALE**
- 227-2 360 Srogi, LeeAnn\*; Willis, Kyle V.; Lutz, Tim; Martinson, Peter J.; Pollock, Meagen: **GAINING INSIGHT INTO MAGMA CRYSTALLIZATION PROCESSES BY IMAGING SPATIAL DISTRIBUTIONS OF MINERALS AND MINERAL COMPOSITIONS USING COMPOSITION-CALIBRATED, GRAYSCALE-THRESHOLDED BACKSCATTERED ELECTRON IMAGES OF THIN SECTIONS**
- 227-3 361 Saalfeld, Megan A.\*: **MAGMATIC PROCESSES REVEALED BY CRYSTAL TEXTURES, ELDEN MOUNTAIN LAVA DOME, NORTHERN ARIZONA**

- 227-4 362 Leflar, Emma\*; Noone, Michael; Olsen, Danielle; Srogi, LeeAnn; Lutz, Tim; Pollock, Meagen: **NEW DATA FOR THE 201-MA JACKSONWALD LAVA FLOW, NEWARK BASIN, PENNSYLVANIA: FLOW CHARACTERISTICS, PETROGRAPHY, AND MINERAL CHEMISTRY**
- 227-5 363 Anderson, Samantha J.\*; Wenner, Jennifer M.; Teasdale, Rachel: **COMPLEX CRUSTAL PROCESSES RECORDED IN PLAGIOCLASE PHENOCRYSTS IN A SINGLE FLOW IN THE POISON LAKE CHAIN, LASSEN REGION, SOUTHERN CASCADES**
- 227-6 364 Mcleod, Jennifer R.\*; Wenner, Jennifer M.; Teasdale, Rachel: **CRUSTAL PROCESSING RECORDED BY PLAGIOCLASE IN EVOLVED BASALTS OF BOGARD BUTTES IN THE POISON LAKE CHAIN, LASSEN REGION, CALIFORNIA**
- 227-7 365 Salings, Emily E.\*; Michelfelder, Gary S.; Sikes, Eric: **TRACE ELEMENT VARIATION IN PLAGIOCLASE PHENOCRYSTS FROM IGNIMBRITES FROM THE MOGOLLON-DATIL VOLCANIC FIELD, SOUTHERN NEW MEXICO, USA: INSIGHTS INTO THE PROCESSES AND TIMESCALES OF MAGMATISM**
- 227-8 366 Rentz, Shannon P.\*; Michelfelder, Gary S.; Salings, Emily E.; Sikes, Eric: **EXAMINING ASH FALL SEQUENCES IN CALK-ALKALINE SUBDUCTION RELATED VOLCANISM, SOUTHERN NEW MEXICO**
- 227-9 367 Magalhaes, Nivea\*; Penniston-Dorland, Sarah; Farquhar, James; Mathez, Edmond A.: **STRATIGRAPHIC UNIFORMITY OF THE MULTIPLE SULFUR ISOTOPE COMPOSITION OF THE BUSHVELD COMPLEX**
- 227-10 368 Draper, Cody\*; Rensch, Jefferson; Magalhaes, Nivea; Penniston-Dorland, Sarah; Bybee, Grant; Feineman, Maureen: **MULTIPLE SULFUR ISOTOPE STUDY SUGGESTS CRUSTAL CONTAMINATION IN THE MOLOPO FARMS COMPLEX, SOUTH AFRICA**
- 227-11 369 Trutner, Sarah\*; Horst, Andrew J.: **MAGNETIC FABRIC AND PROPERTY CHARACTERIZATION OF UPPERMOST FOLIATED GABBROS FROM THE OMAN OPHIOLITE**
- 227-12 370 Robertson, Clay Henry\*; Kempton, Pamela; Brueseke, Matthew E.; Allaz, Julien M.; Spencer, Trevor: **PETROGRAPHY, GEOCHEMISTRY, AND GEOTHERMOMETRY OF XENOLITHS AND XENOCRYSTS FROM THE FANCY CREEK KIMBERLITE, RILEY COUNTY, KANSAS**
- 227-13 371 Trim, Charelle\*; Perfit, Michael; Mueller, Paul A.: **ALEUTIAN ISLAND ARC MAGMAGENESIS REVISITED: GEOCHEMICAL EVIDENCE FROM UNALASKA VOLCANIC AND PLUTONIC ROCKS**
- 227-14 372 DiPadova, Emily A.\*; Beane, Rachel; Gravley, Darren M.; Hampton, Samuel J.: **LINKING LITHICS TO LAVAS: INSIGHTS FROM PLUTONIC LITHICS AT THE AKAROA VOLCANIC COMPLEX, BANKS PENINSULA, NZ**
- 227-15 373 Beckham, Emily Christine\*; Hampton, Samuel; Gravley, Darren; Noblett, Jeff; Deering, Chad D.; Gualda, Guilherme: **SHALLOW MAGMATIC RECHARGE IN AN INTRAPLATE VOLCANIC COMPLEX, AKAROA, BANKS PENINSULA, NEW ZEALAND**
- 227-16 374 Ardill, Katie E.\*; Paterson, Scott R.: **A CRETACEOUS VOLCANIC FEEDER SYSTEM AT TIOGA PASS: INSIGHTS INTO VOLCANIC-PLUTONIC LINKS IN THE CENTRAL SIERRA NEVADA**
- 227-17 375 Barth, A.P.\*; Wooden, J.L.; Riggs, N.R.; Walker, J.D.; Jacobson, C.E.: **MARINE VOLCANICLASTIC RECORD OF SUBDUCTION INCEPTION AND EARLY SIERRAN ARC EVOLUTION, RITTER RANGE PENDANT, CALIFORNIA**
- 227-18 376 Stearns, Michael A.\*; Bowman, John R.; Bartley, John M.; Fernandez, Diego P.: **TEN MILLION YEARS OF FLUID FLOW THROUGH THE ALTA STOCK DRIVEN BY INCREMENTAL EMPLACEMENT OF THE LITTLE COTTONWOOD STOCK, WASATCH, UTAH**
- 227-19 377 Horsman, Eric\*; Giorgis, Scott D.; Morgan, Sven S.; de Saint Blanquat, Michel: **TESTING GEOCHEMICAL**



- HOMOGENEITY OF INCREMENTALLY EMPLACED SILLS AND LACCOLITHS, HENRY MOUNTAINS, UTAH**
- 227-20 378 Braunagel, Michael\*; Giorgis, Scott; Horsman, Eric: **USING PRESERVED SECULAR VARIATION TO CONSTRAIN EMPLACEMENT DURATION IN LARGE SCALE SILLS, COPPER RIDGE INTRUSION, MT ELLEN, HENRY MOUNTAINS, UT**
- 227-21 379 Rost, Rebecca\*; Giorgis, Scott; Horsman, Eric: **PALEOMAGNETIC CONSTRAINTS ON THE DURATION OF LACCOLITH GROWTH, TRACHYTE MESA INTRUSION, HENRY MOUNTAINS, UT**
- 227-22 380 Hacker, David B.\*; Dasgupta, Tathagata: **RAPID EMPLACEMENT AND GROWTH OF A RHYOLITIC INTRUSION: THE WOODVILLE HILL LACCOLITH, BLACK HILLS IGNEOUS PROVINCE, SOUTH DAKOTA**
- 227-23 381 Dsgupta, Tathagata\*; Hacker, David B.: **ALMANDINE GARNET BEARING RHYOLITE OF THE WOODVILLE HILL LACCOLITH, NORTHERN BLACK HILLS IGNEOUS PROVINCE, SOUTH DAKOTA: RAPID ASCENT OF MAGMA FROM LOWER CRUSTAL LEVEL**
- 227-24 382 Brown, Kenneth\*; Hart, William K.: **CRETACEOUS GRANITIC MAGMATISM IN NORTHWESTERN NEVADA: PETROGENETIC INSIGHTS INTO REGIONAL CORDILLERAN ARC FLARE-UP**
- 227-25 383 Barnes, Calvin G.\*; Ernst, W.G.; Berry, Ryan; Tsujimori, Tatsuki: **MULTI-STAGE EVOLUTION OF THE LATE JURASSIC ENGLISH PEAK PLUTON, KLAMATH MOUNTAINS, CA**
- 227-26 384 Martinez, Ana Maria\*; Clausen, Benjamin L.; Memeti, Vali; Paterson, Scott R.: **MAGMATIC RECYCLING DURING CONSTRUCTION OF A BATHOLITH**
- 227-27 385 Domino, Jessica Rose\*; Johnson, Eric L.: **FORMATION OF HYBRID MELTS VIA MAGMA MIXING IN THE CAPE ANN PLUTONIC COMPLEX, MASSACHUSETTS USA**
- 227-28 386 McDowell, Susanne M.\*; Brueckner, Alex C.; Miller, Calvin F.: **USING ZIRCON TRACE ELEMENT GEOCHEMISTRY TO ELUCIDATE PALEOTECTONIC SETTINGS OF THE LATE ORDOVICIAN MILLBRIG AND DEICKE K-BENTONITES, CENTRAL TENNESSEE, USA**
- 227-29 387 Carley, Tamara L.\*; Miller, Calvin F.; Coble, Matthew A.; Banik, Tenley J.; Fisher, Christopher M.; Schmitt, Axel K.; Jordan, Brennan T.; Hanchar, John M.; Economos, Rita C.; Padilla, Abraham De Jesus: **HISTORY OF SILICIC MAGMATISM IN ICELAND ILLUMINATED BY ISOTOPES (U-PB, U-TH, O, HF) IN THE ZIRCON RECORD**
- 227-30 388 Banik, Tenley J.\*; Miller, Calvin F.; Carley, Tamara L.; Coble, Matthew A.; Fisher, Christopher M.: **GENERATION OF COEVAL THOLEIITIC AND CALC-ALKALINE MAGMAS IN ICELAND: INSIGHTS FROM *IN SITU* ZIRCON ANALYSES**
- 227-31 389 Keller, C. Brenhin\*; McCulloch, Callum; Schoene, Blair: **NEW CONSTRAINTS FROM FIELD MAPPING AND U-PB TIMS GEOCHRONOLOGY ON THE MAGMATIC HISTORY OF THE NEEDLE MOUNTAINS PROTEROZOIC COMPLEX, SOUTHWESTERN COLORADO**
- EXAMPLE FROM THE PERMIAN PHOSPHORIA AND PARK CITY FORMATIONS**
- 228-4 393 Smith, Molly Elizabeth\*; Selch, Donna E.; Oleinik, Anton; Zhang, Caiyun: **ASSESSMENT OF CARBONATE ABUNDANCE IN SANDS USING HYPERSPECTRAL INDICES**
- 228-5 394 Straw, Amanda M.\*; Dattilo, Benjamin; Freeman, Rebecca L.; Brett, Carlton E.; Argast, Anne: **PHOSPHORITES AS UBER SHELL BEDS: THE RELATIONSHIP BETWEEN PHOSPHATE CONTENT AND SEDIMENT MATURITY IN CINCINNATIAN (ORDOVICIAN, KATIAN) LIMESTONES**
- 228-6 395 Moynihan, William C.\*; Husinec, Antun; Prtoljan, Bozo: **COATED-GRAIN DOMINATED FACIES OF JURASSIC UPPER TOARCIAN-EARLY AALENIAN CARBONATES, SOUTHERN ADRIATIC CARBONATE PLATFORM, CROATIA**
- 228-7 396 Lugli, Stefano\*; Tang, Ya; Reghizzi, Matteo; Qiao, Xue; Schreiber, B. Charlotte; Deng, Guiping: **GEOLOGY OF THE FLUVIAL TRAVERTINE FROM THE JIUZHAIGOU NATIONAL NATURE RESERVE, SICHUAN PROVINCE, SOUTHWESTERN CHINA**
- 228-8 397 Jones, David S.\*; Plon, Hannah L.; Pessoa, Cecilia K.; Higgins, John A.; Ku, Tim C.; Martini, Anna M.; Tor, Jason M.: **GEOCHEMISTRY AND GEOBIOLOGY OF A DOLOMITIC ALKALINE PLAYA LAKE**
- 228-9 398 Giddens, Emma Lyn\*; Pigott, John D.; Pigott, Kulwadee: **PLEISTOCENE CORAL REEF DESTRUCTION IN THE FLORIDA KEYS: PALEOTEMPESTITE EVIDENCE FROM A HIGH RESOLUTION LIDAR XRF ANALYSIS OF WINDLEY KEY QUARRY**
- 228-10 399 Zuccarelli, Claudio\*; Oleinik, Anton: **THE CHARACTERIZATION AND SEDIMENTATION DYNAMICS OF THE PELAGIC SEDIMENT SUPPLY TO THE DEEP SEA CORAL ECOSYSTEM (DSCE) OF THE EAST FLORIDA LOPELIEA REEF**
- 228-11 400 Dyer, Blake\*; Higgins, John A.; Maloof, Adam C.: **HOW MUCH TIME IS MISSING AT PARASEQUENCE BOUNDARIES? SUBAERIAL EXPOSURE AND METEORIC DIAGENESIS OF CYCLIC CARBONATES**
- 228-12 401 Garrett, Kathryn N.\*; Pigott, John D.; Pigott, Kulwadee L.: **HIGH RESOLUTION BASIN MODELING OF THE PERMIAN CAPITAN REEF, NEW MEXICO: NEW INSIGHT FROM INTEGRATED OUTCROP LIDAR-XRF-SGR ANALYSIS INTO REEF ARCHITECTURE**
- 228-13 402 Hendrix, Christopher K.\*; Rowe, Harry; Loucks, Bob: **LITHOFACIES AND CHEMOSTRATIGRAPHY OF THE UPPER CRETACEOUS BUDA FORMATION AND AUSTIN CHALK GROUP, SOUTH TEXAS, USA**
- 228-14 403 Das, Oindrila\*; Robinson, Delores; Andrus, C. Fred T.; Mandal, Subhadip; Sen, Kallol; Khanal, Subodha: **STABLE ISOTOPIC VARIATION OF THE GANGOLIHAT AND DEOBAN FORMATIONS IN GARHWAL-KUMAUN, NORTHWESTERN INDIA: IMPLICATIONS FOR THE CORRELATION OF THE LOWER LESSER HIMALAYAN STRATIGRAPHY**

## SESSION NO. 229

*Sediments, Clastic (Posters)*

9:00 AM, Baltimore Convention Center, Exhibit Hall

Authors will be present from 4:30 to 6:30 PM

Booth #

## SESSION NO. 228

*Sediments, Carbonates (Posters)*

9:00 AM, Baltimore Convention Center, Exhibit Hall

Authors will be present from 4:30 to 6:30 PM

Booth #

- 228-1 390 Park, Jino\*; Choh, Suk-Joo; Lee, Dong-Jin: **EARLY PALEOZOIC SPONGE-BEARING INTRASKELETAL CAVITIES: IMPLICATION FOR METAZOAN INVASION INTO CRYPTS**
- 228-2 391 Coulson, Ken P.\*; Brand, Leonard R.; Chadwick, Arthur V.: **MICROBIALITE ELONGATION BY MEANS OF COALESCENCE: AN EXAMPLE FROM THE UPPER CAMBRIAN NOTCH PEAK FORMATION**
- 228-3 392 Poe, Piper L.\*; Hiatt, Eric E.; Choquette, Philip W.: **THE COMPLEXITY OF DOLOMITE AND IMPLICATIONS FOR INTERPRETING STABLE ISOTOPIC SECULAR VARIATION: AN**
- 229-1 404 Anderson, Calvin J.\*; Whitmore, John H.: **REINTERPRETATION OF MT NEBO POINTE SAND INJECTITE COMPLEX, PITTSBURGH, PA**
- 229-2 405 Leier, Andrew\*; Chesley, John; White, Scott: **CAPTURING AND CHARACTERIZING SEDIMENTARY OUTCROPS IN 3-D: A WORKFLOW UTILIZING UAVS AND STRUCTURE-FROM-MOTION PHOTOGRAMMETRY**
- 229-3 406 Chesley, John\*; Leier, Andrew: **REFINING FLUVIAL MODELS USING UNMANNED AERIAL VEHICLES AND STRUCTURE-FROM-MOTION PHOTOGRAMMETRY: THE SALT WASH DFS OF THE MORRISON FORMATION, EAST-CENTRAL UTAH**

- 229-4 407 Langford, Richard P.\*: **COVERING A DIAPIR. DEPOSITION OF A THIN, PRESERVED SEDIMENTARY COVER ON A DIAPIR: THE MIDDLE JURASSIC SAN RAFAEL GROUP. GYPSUM VALLEY SALT WALL, COLORADO**
- 229-5 408 Hu, Ningjie\*; Loucks, Robert G.; Frebourg, Gregory: **STRATIGRAPHY AND SEDIMENTARY DYNAMICS OF THE DESMOINESIAN CHEROKEE GROUP, DEEP ANADARKO BASIN, TEXAS PANHANDLE**
- 229-6 409 Brophy, Shannon K.\*; Garb, Matthew P.; Naujokaityte, Jone; Rovelli, Remy; Bayon, Richard; Larina, Ekaterina; Landman, Neil H.: **COMPARATIVE ANALYSIS OF SEDIMENTOLOGICAL CHARACTERISTICS OF CHANNEL DEPOSITS AT K/PG BOUNDARY WITHIN THE GULF COASTAL PLAIN IN WEST-CENTRAL ALABAMA**
- 229-7 410 Joeckel, R.M.\*; Tucker, S.T.; McMullin, J.D.: **MORPHOSEDIMENTARY EFFECTS OF EXCEPTIONAL DISCHARGE IN AN ENTRENCHED, LOW-SINUOSITY, SANDY TO GRAVELLY RIVER IN SOUTHEASTERN NEBRASKA, USA**
- 229-8 411 Bhattacharyya, Proma\*; Bhattacharya, Janok P.; Khan, Shuhab D.: **SHALLOW SUBSURFACE ARCHITECTURE STUDY OF CHANNEL BELT DEPOSITS INTEGRATING FIELD DATA WITH GROUND PENETRATING RADAR (GPR) IN THE FERRON SANDSTONE, HANKSVILLE, UTAH**
- 229-9 412 Zaleha, Michael J.\*: **MIGRATION, ELECTRICAL RESISTIVITY GROUND IMAGING (ERGI), AND TEXTURAL CHARACTERISTICS OF GRAVEL BARS, MAD RIVER, OHIO, USA**
- 229-10 413 Dong, Shunli\*; Li, Zhong: **THE EARLY PALEOZOIC TECTONIC EVOLUTION OF THE NORTHEASTERN MARGIN OF TARIM BLOCK, NW CHINA: CONSTRAINTS FROM INTEGRATED DEPOSITIONAL AND GEOCHRONOLOGICAL RECORDS**
- 229-11 414 Trabucho-Alexandre, João P.\*; Young, Tom; Gröcke, Darren R.; Jarvis, Ian; Negri, Alessandra: **UNUSUAL MARGINAL MARINE RECORD OF OCEANIC ANOXIC EVENT 2**
- 229-12 415 Strange, Bobbi G.\*; Anderson Fohnagy, Heidi; Rocha-Campos, A.C.; Cotter, James F.P.: **GEOCHEMICAL ANALYSIS AND GLACIAL DEPOSITIONAL ENVIRONMENTS OF TWO UNIQUE LATE PALEOZOIC UNITS LOCATED IN WITMARSUM, PARANÁ STATE, BRAZIL**
- 229-13 416 Ni, Liangtian\*; Zhong, Jianhua; Sun, Ningliang; Li, Yong; Hao, Bing; Liu, Chuang; Mao, Cui; Shao, Zhufu: **LARGE-SCALE DISH STRUCTURES DEVELOPED IN THICK CONGLOMERATES FOUND IN K1 STRATUM IN NORTHERN ERDÖS BASIN, INNER MONGULIA, CHINA**
- 229-14 417 Stubbs, Dreadnaught G.\*; Nadon, Gregory C.; Thomas, William A.: **THE CONTINUITY OF THE SHARON CONGLOMERATE, EASTERN OHIO**
- 229-15 418 Bailey, Richard H.\*; Galli, Kenneth G.: **REANALYSIS OF DEPOSITIONAL MECHANISMS, MICROFACIES SEQUENCES, AND EVENT STRATIGRAPHY OF SQUANTUM DIAMICTITES AND ASSOCIATED STRATA IN THE EDIACARAN BOSTON BAY GROUP**
- 229-16 419 Williams, Kristal Ann\*; Anderson Fohnagy, Heidi; Rocha-Campos, A.C.; Cotter, James F.P.: **COMPARISON OF SEDIMENTARY CHARACTERISTICS OF ITARARÉ SUBGROUP DIAMICTITES, CARBONIFEROUS AGE, WITMARSUM, PARANÁ STATE, BRAZIL**
- 229-17 420 Pease, Emily Camille\*; Anderson Fohnagy, Heidi; Jennings, Carrie E.; Rocha-Campos, A.C.; Cotter, James F.P.: **DEPOSITIONAL ENVIRONMENT AND PROVENANCE OF A BOULDER-RICH DIAMICTITE, WITMARSUM, PARANÁ STATE, BRAZIL**
- 229-18 421 LaGarde, Michelle J.\*; Anderson Fohnagy, Heidi; Bacci, D.C.; Rocha-Campos, A.C.; Jennings, Carrie E.; Cotter, James F.P.: **DEPOSITIONAL ANALYSIS OF A BOULDER-RICH DIAMICTITE, WITMARSUM, PARANÁ STATE, BRAZIL**
- 229-19 422 Spry, Erin Kathryn\*; Anderson Fohnagy, Heidi; Bacci, D.C.; Rocha-Campos, A.C.; Jennings, Carrie E.; Cotter, James F.P.: **ANALYSIS OF A DIAMICTITE IN THE CARBONIFEROUS ITARARÉ SUBGROUP CONTAINING MULTIPLE-FACIES NEAR WITMARSUM, PARANÁ STATE, BRAZIL**
- 229-20 423 Haque, Ziaul\*; Uddin, Ashraf; Hames, Willis E.; Pashin, Jack C.: **COARSE CLAST PETROGRAPHY AND GEOCHRONOLOGY OF THE UPPER POTTSVILLE CONGLOMERATE MEASURES, CAHABA SYNCLINORIUM, SOUTHERN APPALACHIAN THRUST BELT, ALABAMA**
- 229-21 424 Shumway, Jesse Dean Scott\*; Britt, Brooks B.: **FACIES ANALYSIS, DEPOSITIONAL ENVIRONMENTS, AND MICRO SEQUENCE STRATIGRAPHY OF SAINTS AND SINNERS DINOSAUR QUARRY STRATA, NUGGET SANDSTONE, NORTHEASTERN UTAH**
- 229-22 425 Kollar, Albert D.\*; Brezinski, David K.: **ORIGIN OF THE CARNEGIE QUARRY SANDSTONE, MORRISON FORMATION (JURASSIC), AT DINOSAUR NATIONAL MONUMENT, UTAH**
- 229-23 426 Kimmerle, Stephanie\*; Bhattacharya, Janok P.: **FACIES ANALYSIS AND PALEODISCHARGE OF RIVERS WITHIN A COMPOUND INCISED VALLEY, CRETACEOUS FERRON SANDSTONE, UTAH**
- 229-24 427 Davis, Adam J.\*; Atchley, Stacy; Peppe, Daniel J.; Flynn, Andrew; Williamson, Thomas E.: **GIVING CONTEXT TO EARLY PALEOCENE MAMMAL EVOLUTION: CLIMATE AND LANDSCAPE RECONSTRUCTION OF THE ARROYO CHIJUILLITA MEMBER OF THE NACIMIENTO FORMATION, SAN JUAN BASIN, NEW MEXICO**
- 229-25 428 Miller, Kaley\*; Sherrod, Laura A.; Bogner, Emily; Higgins, Ryan; Livingston, Kelsey; Malenda, Margariete; Morgano, Kelly; Simpson, Edward; Simpson, Wendy S.; Snyder, Emily; Vales, David: **GEOMETRY OF SMALL-SCALE FLUID/GAS CONDUITS: LAKE POWELL, HITE UTAH**
- 229-26 429 Livingston, Kelsey M.\*; Bogner, Emily; Simpson, Edward L.; Malenda, Margariete; Sherrod, Laura A.; Betts, Tomas A.; Laub, Eric: **THE PROPOSED EVOLUTION OF SHALLOW-SOURCED METHANE MUD VOLCANO GEOMORPHOLOGY: LAKE POWELL, HITE UTAH**
- 229-27 430 Evans, James E.\*: **IMPLICATIONS OF MASS TRANSPORT DEPOSITS (MTDS) IN THE DEVONIAN DARTMOUTH GROUP (SOUTHWESTERN U.K.): A RECORD OF SYNDEPOSITIONAL TECTONISM?**
- 229-28 431 Simpson, Edward\*; Hilbert-Wolf, Hannah; Bogner, Emily; Fillmore, David L.; Szajna, Michael J.; Hartline, Brian W.: **SOFT-SEDIMENT DEFORMATION STRUCTURES IN THE LATE TRIASSIC LOCKATONG FORMATION OF THE NEWARK BASIN IN EASTERN PENNSYLVANIA: EVIDENCE FOR SEISMIC ACTIVITY ON NEWARK BASIN BORDER FAULTS**
- 229-29 432 Bogner, Emily\*; Simpson, Edward L.; Fillmore, David L.; Szajna, Michael J.; Hartline, Brian W.: **MICROBIALY INDUCED SEDIMENTARY STRUCTURES IN THE TRIASSIC LOCKATONG FORMATION NEWARK BASIN, PENNSYLVANIA, USA**
- 229-30 433 Souza, Pricilla C.M. de\*; Georgiou, Ioannis; Hughes, Zoe J.; Howes, Nick; Gani, M. Royhan; FitzGerald, Duncan M.: **ARCHITECTURE AND EVOLUTION OF TIDAL POINT BARS: INFLUENCE OF THE HYDRODYNAMIC PROCESSES ON THE SEDIMENTARY RECORD**
- 229-31 434 Maithel, Sarah A.\*; Brand, Leonard R.; Whitmore, John H.: **MORPHOLOGICAL ANALYSIS OF "GRAINFLOW" CROSS-STRATA IN THE COCONINO SANDSTONE (PERMIAN), ARIZONA**
- 229-32 435 Miller, Zachary W.\*; Finzel, Emily S.; Trop, Jeffrey M.: **PROVENANCE OF PENNSYLVANIAN-AGED STRATA FROM THE APPALACHIAN FORELAND BASIN IN EASTERN PENNSYLVANIA AND WESTERN MARYLAND**
- 229-33 436 Kissock, John Kyle\*; Finzel, Emily S.: **PROVENANCE OF EARLY-MIDDLE PENNSYLVANIAN SANDSTONES OF THE MIDCONTINENT: DETRITAL ZIRCON EVIDENCE FOR THE UNROOFING OF APPALACHIAN OROGENIES IN IOWA**

- 229-34 437 Meehan, Daniel N.\*: **DETRITAL ZIRCON GEOCHRONOLOGY OF PENNSYLVANIAN CHANNEL SANDS AND "PENNSYLVANIAN" SINK FILL DEPOSITS IN MISSOURI**
- 229-35 438 Hedeon, Tyler\*; Finzel, Emily S.; Enkelmann, Eva: **PROVENANCE RESPONSE TO FLAT-SLAB SUBDUCTION AS RECORDED IN DETRITAL ZIRCON SIGNATURES FROM THE SOUTHERN ALASKAN FOREARC BASIN**
- 229-36 439 Wizevich, Michael C.\*; Meyer, Christian A.; Linnemann, Ulf; Gärtner, Andreas; Sonntag, Benita-Lisette; Hofmann, Mandy: **SEDIMENT PROVENANCE OF THE TRIASSIC VIEUX EMOSSON FORMATION, SOUTHWEST SWITZERLAND: INSIGHTS FROM U-PB DETRITAL ZIRCONS GEOCHRONOLOGY**
- 229-37 440 Choi, Taejin\*; Lee, Yong Il; Lim, Hyoun Soo; Orihashi, Yuji: **DETRITAL ZIRCON GEOCHRONOLOGY OF RIVER SEDIMENTS IN SOUTH KOREA AND ITS IMPLICATIONS FOR EAST ASIAN TECTONICS**
- 229-38 441 Pollen, Audrianna F.\*; Bhattacharya, Atrayee; Leithold, Elana L.: **HOLOCENE DUST DEPOSITION IN ALPINE LAKES OF THE WESTERN U.S.-- RESOLVING REGIONAL AND REMOTE SOURCES IN SEDIMENTARY ARCHIVES**
- 229-39 442 Tran, Jacky\*: **EXPLORING GEOCHEMICAL MARKERS OF THE ANTHROPOCENE IN RIVER SEDIMENTS: SOUTHERN NEW ENGLAND**

## SESSION NO. 230

**T194. New Horizons in Paleogeography: Principles, Innovative Methods, and Application to Resource Exploration (Posters) (Paleontological Society; Journal of Paleogeography)**

9:00 AM, Baltimore Convention Center, Exhibit Hall

Authors will be present from 4:30 to 6:30 PM

Booth #

- 230-1 443 Wang, Yuan\*: **GEOLOGIC-SEISMIC MODELS AND PREDICTION OF SANDS BASED ON HIGH-FREQUENCY SEQUENCE STRATIGRAPHY AS APPLIED TO THE LATE MIOCENE, BLOCK BZ34, HUANGHEKOU SAG, BOHAI BAY BASIN, CHINA**
- 230-2 444 Liu, Sr., Hao\*: **PALAEO WATER DEPTH RECONSTRUCTION OF THE NEOGENE DEPRESSIONAL LACUSTRINE BASIN IN HUANGHEKOU AREA OF BOHAI BAY BASIN, NORTHERN CHINA**
- 230-3 445 Zhong, Jianhua\*; Hao, Bing; Li, Yong; Ni, Liangtian; Sun, Ningliang; Liu, Chuang: **LARGE-SCALE TABULAR CROSS-BEDDINGS IN LOWER CRETACEOUS AEOLIAN SEDIMENTS, NORTHERN ERDOS BASIN, CHINA: FEATURES AND SIGNIFICANCES**
- 230-4 446 Hollingsworth, Elizabeth R.\*; Ressel, Michael W.: **SIGNIFICANCE OF EOCENE UNCONFORMITIES IN CARLIN-TYPE GOLD DEPOSITS OF THE SOUTHERN CARLIN TREND, NEVADA**
- 230-5 447 Jiao, Xin\*; Liu, Yiqun; Yang, Wan; Zhou, Dingwu: **HYDROTHERMAL AND MICROBIAL ORIGIN OF MICROCRYSTALLINE AND MEGA-QUARTZ AGGREGATE GRAINS IN PERMIAN LACUSTRINE SHALE, SANTANGHU BASIN, NW CHINA**
- 230-6 448 Obrist-Farner, Jonathan\*; Yang, Wan: **SEDIMENTOLOGICAL CHARACTERISTICS OF FLUVIAL CONGLOMERATES AND SANDSTONES AS INDICATORS OF PALEO GEOGRAPHIC AND PALEOCLIMATIC CONDITIONS, MID-PERMIAN QUANZIJIE LOW-ORDER CYCLES, BOGDA MOUNTAINS, NW CHINA**
- 231-2 450 Hausner, Mark B.\*; Koonce, Jeremy; Berli, Markus; Young, Michael: **EVAPORATION FROM BARE ARID SOILS: WEIGHING LYSIMETER MEASUREMENTS AND SIMULATIONS**
- 231-3 451 Leonard, James E.\*; Nauman, Travis W.; Benison, Kathleen C.; Knapp, Jonathan P.; Thompson, James A.: **CAN TRACE FOSSILS OF ROCK-EATING FUNGI BE USED TO GUIDE FOREST RESTORATION IN CENTRAL APPALACHIA?**
- 231-4 452 Norris, Tyler\*; Coughenour, Christopher; Shanley, Rachel: **SOILS ON THE EDGE: EXPLORING THE LINKS BETWEEN INVASIVE PLANT COMMUNITY STRUCTURE AND EDAPHIC PROPERTIES AT FOREST EDGES IN WESTERN PENNSYLVANIA**
- 231-5 453 Kovalovich, Aria\*; Harrison, Emma Jayne; Willenbring, Jane K.: **LIFE IMPACTS ON LANDSCAPE: WORMS DISPERSE PARTICLES AND AERATE TROPICAL SOILS**
- 231-6 454 Nezat, Carmen A.\*; McNeely, Camille; Gebauer, Adam D.: **IDENTIFYING PLANT WATER SOURCES IN AN ARID GRASSLAND WITH HYDROGEN AND OXYGEN ISOTOPES**
- 231-7 455 McNichol, Bailey Holland\*: **ERODIBILITY PARAMETERS DERIVED FROM JET EROSION TESTS ON ROOT-PERMEATED SOILS**
- 231-8 456 Aldred, Jennifer L.\*; Eppes, Missy; Kayser, Brandt; Diemer, John A.: **POST GLACIAL LANDSCAPE EVOLUTION IN THE UPPER CONEJOS RIVER BASIN, SE SAN JUAN MOUNTAINS, CO, USA**
- 231-9 457 Jordan, Teresa E.\*; Riquelme, Rodrigo; González, Gabriel; Tapia, Lorenzo; Centella, Karen; Ramos, Hector; Herrera, Christian; Colucci, Steve; Godfrey, Linda; Gironás, Jorge: **LAND SURFACE IMPACTS OF MARCH 24-26, 2015, ATACAMA DESERT PRECIPITATION EVENT**
- 231-10 458 Lea, Blake Steven\*; Dogwiler, Toby: **AN ASSESSMENT OF LONG-TERM CHANGES IN THE OBSERVED MAGNITUDE, DURATION, AND INTENSITY OF PRECIPITATION IN THE ROOT RIVER BASIN OF SOUTHEASTERN MINNESOTA**
- 231-11 459 Savage, Austin\*; Luecke, Austin; Gomez, Francisco: **MULTI-TEMPORAL ASSESSMENT OF ROCK GLACIER MASS TRANSPORT IN THE SPANISH PEAKS REGION, COLORADO**
- 231-12 460 Prieto Estrada, Andres E.\*; Price, René M.; Scinto, Leonard J.; Dreschel, Thomas W.; Sklar, Fred H.; Cline, Eric A.: **EFFECTS OF PLANT EVAPOTRANSPIRATION ON GROUNDWATER CARBONATE ACCUMULATION IN RECREATED TREE ISLANDS OF THE EVERGLADES**
- 231-13 461 Beroff, Sara Estrella\*; Rempe, Daniella M.; Banfield, Jillian F.; Dietrich, William E.: **MINERALOGICAL CHARACTERIZATION OF AN ARGILLITE WEATHERING PROFILE, EEL RIVER CRITICAL ZONE OBSERVATORY, NORTHERN CALIFORNIA**
- 231-14 462 Steffen, Alexis J.\*; Adelsberger, Katherine A.; Allison, Stuart K.: **PHOSPHOROUS CHARACTERIZATION IN A RESTORED AND MANAGED TALLGRASS PRAIRIE USING 31 P NMR**
- 231-15 463 Neumann, Rebecca B.\*; Seyfferth, Angelia L.; Teshera-levy, Jennifer; Ellingson, Joseph: **ELEVATED SOIL TEMPERATURE INCREASES ARSENIC UPTAKE BY RICE AND ARSENIC CONCENTRATION IN RICE TISSUES: A POT EXPERIMENT**

## SESSION NO. 232

**T202. Paleosol Case Studies: Resurrecting Ancient Critical Zones through Space and Time (Posters)**

9:00 AM, Baltimore Convention Center, Exhibit Hall

Authors will be present from 4:30 to 6:30 PM

Booth #

## SESSION NO. 231

**Soils (Posters)**

9:00 AM, Baltimore Convention Center, Exhibit Hall

Authors will be present from 4:30 to 6:30 PM

Booth #

- 231-1 449 Alsaaran, Nasser\*: **VALIDATION OF ROSETTA PEDOTRANSFER FUNCTION FOR ESTIMATING SOIL**
- 232-1 464 McGuire, Caitlin\*; Turner, Alison; Hobbs, Kevin M.; Soto, Matias; Perea, Daniel; Moore, Jason R.: **RECONSTRUCTING THE PALEOENVIRONMENT OF THE UPPERMOST ASENSIO FORMATION, WESTERN URUGUAY**

- 232-2 465 Catena, Angeline M.\*; Saylor, Beverly; Croft, Darin A.: **RECONSTRUCTING THE MIDDLE MIOCENE PALEOENVIRONMENT OF QUEBRADA HONDA, BOLIVIA, USING ICHNOLOGY AND PALEOPEDOLOGY**
- 232-3 466 Homsey-Messer, Lara\*; Martin, Jennifer: **LATE PLIOCENE FLUVIAL SEDIMENTATION, SOIL DEVELOPMENT AND PALEOENVIRONMENTAL CHANGE AT THE TIGRE DORADO FOSSIL LOCALITY, SOUTHWESTERN KANSAS**
- 232-4 467 Hallman, Jason A.\*; Möller, Andreas; McLean, Noah; Ludvigson, Greg A.; Smith, Jon Jay; Sitek, Brian C.: **PALEOSOLS AND VOLCANIC ASHES AS MARKER BEDS IN THE OGALLALA FORMATION, WESTERN KANSAS**
- 232-5 468 Field, Holly L.\*; Ludvigson, Greg A.; Möller, Andreas; Joeckel, R.M.; Stotler, Randy L.: **CHRONOSTRATIGRAPHIC INTERPRETATIONS OF CENOZOIC PALEOSOLS IN NEBRASKA USING INTEGRATED U-PB DATING AND CARBON ISOTOPE CHEMOSTRATIGRAPHY**
- 232-6 469 Layzell, Anthony L.\*; Harlow, R. Hunter; Ludvigson, Greg A.; Mandel, Rolfe D.; Smith, Jon J.: **MAJOR ELEMENT AND ISOTOPE GEOCHEMISTRY FROM LATE QUATERNARY PALEOSOLS IN SOUTHWESTERN KANSAS: ASSESSING CLIMATE AND PARENT MATERIAL CHANGE**
- 232-7 470 Hobbs, Kevin M.\*; Fawcett, Peter J.; Weissmann, Gary S.: **USING PALEOSOLS AS TOOLS FOR UNDERSTANDING CLIMATE, STRATIGRAPHY, AND BASIN EVOLUTION IN SYNTECTONIC FLUVIAL SEDIMENTS IN THE SAN JUAN BASIN, NEW MEXICO, USA**
- 232-8 471 Gallagher, Timothy M.\*; Sheldon, Nathan D.: **LATE SANTONIAN-CAMPANIAN PALEOSOLS FROM SOUTHWEST UTAH: IMPLICATIONS FOR WEATHERING AND PALEOCLIMATE**
- 232-9 472 Fischer, Sean J.\*; Hasiotis, Stephen T.: **ICHNOPEDOLOGIC ASSOCIATIONS IN THE UPPER TRIASSIC CHINLE FORMATION, STEVENS CANYON, SOUTHEASTERN UTAH: IMPLICATIONS FOR PALEOHYDROLOGY AND PALEOCLIMATE**
- 232-10 473 Huth, Tyler E.\*; Cerling, Thure; Bowling, David R.; Marchetti, David W.; Passey, Benjamin H.: **SOIL CARBONATE PENDANTS FROM SOUTHERN UTAH AS A NEW PALEORECORD: DEMONSTRATING PENDANT FORMATION DURING SUMMER**
- 232-11 474 Hendrix, Brittany\*; Moeller, Andreas; Ludvigson, Greg A.; Joeckel, R.M.; Kirkland, James I.: **A NEW APPROACH TO DATE PALEOSOLS IN TERRESTRIAL STRATA: A CASE STUDY USING U-PB ZIRCON AGES FOR THE YELLOW CAT MEMBER OF THE CEDAR MOUNTAIN FORMATION OF EASTERN UTAH**
- 232-12 475 Schuurmans, Elysia D.\*; Dale, Janis E.; Salad Hersi, Osman: **PRELIMINARY STUDY OF THE PALEOSOLS OF THE MANNVILLE GROUP, LOWER CRETACEOUS, SASKATCHEWAN, CANADA**
- 232-13 476 Letourmy, Yohan\*; Driese, Steven G.: **CAN ALLUVIAL STRATIGRAPHY BE USED AS A TOOL TO DIFFERENTIATE CLIMATIC FROM TECTONIC CONTROL ON SOIL DRAINAGE FLUCTUATIONS? APPLICATION TO THE PENNSYLVANIAN JOGGINS FOSSIL CLIFFS OF NOVA SCOTIA, CANADA**
- 232-14 477 McCarthy, Paul J.\*; Fiorillo, Anthony R.; Tomsich, Carla S.; Flaig, Peter P.; Salazar Jaramillo, Susana; Wright, T. Colby; Kobayashi, Yoshitsugu; Fowell, Sarah J.; Benowitz, Jeff: **REGIONAL VARIABILITY ACROSS A LATE CRETACEOUS (MAASTRICHTIAN) ARCTIC GREENHOUSE CRITICAL ZONE: A COMPARATIVE ASSESSMENT OF THE PRINCE CREEK AND LOWER CANTWELL FORMATIONS, ALASKA, USA**
- 232-15 478 Ringham, Mallory C.\*; Hoke, Gregory D.; Huntington, Katharine W.: **TIMING OF PEDOGENIC CARBONATE FORMATION IN ARID SOILS IN RELATION TO CLUMPED ISOTOPE TEMPERATURE RECORDS**
- 232-16 479 Thornburg, Jesse D.\*; Miller, Kenneth G.; McLaughlin, Jr., Peter P.: **RECONSTRUCTING LANDSCAPES ACROSS THE EARLY TO LATE CRETACEOUS TRANSITION USING PALEOSOL AND SPHAEROSIDERITE PROXIES**

- 232-17 480 Martino, Ronald L.\*: **A SEQUENCE STRATIGRAPHIC MODEL FOR NONMARINE STRATA OF THE MID-LATE PENNSYLVANIAN CONEMAUGH FORMATION, CENTRAL APPALACHIAN BASIN**
- 232-18 481 DiPietro, Lyndsay\*; Driese, Steven G.: **INTERPRETING CRYOGENIC FEATURES IN SOILS AND PALEOSOLS: QUANTITATIVE PALEOCLIMATE RECONSTRUCTION FROM LATE PLEISTOCENE TO HOLOCENE FROST-AFFECTED SOILS AND SEDIMENTS**
- 232-19 482 Casselberry, Ashley\*; Stinchcomb, Gary: **BURIED SOILS AS AN IMPORTANT CONTROL ON C STORAGE ALONG HUMAN-IMPACTED LANDSCAPES IN KENTUCKY, USA**

## AFTERNOON ORAL TECHNICAL SESSIONS

### SESSION NO. 233

#### *Archaeological Geology*

1:30 PM, Baltimore Convention Center, Room 318

Cynthia M. Fadem and Richard K. Dunn, Presiding

- 233-1 1:30 PM Henderson, Stephen W.\*: **AMERICAN COASTAL DEFENSE THIRD SYSTEM FORTS: HOW GEOMORPHOLOGY DICTATED PLACEMENT AND INFLUENCED HISTORY**
- 233-2 1:45 PM Jennings, Trevor W.\*; Williams, Kevin K.: **USING GROUND PENETRATING RADAR TO ANALYZE BURIED HISTORY AT OLD FORT NIAGARA**
- 233-3 2:00 PM Williams, Kevin K.\*; Jennings, Trevor W.: **REVEALING LOST BURIALS USING GROUND PENETRATING RADAR**
- 233-4 2:15 PM Schneider, Blair Benson\*: **BACK TO THE BASICS: EVALUATING THE APPLICABILITY OF GROUND-PENETRATING RADAR FOR DETECTING PREHISTORIC ANIMAL REMAINS**
- 233-5 2:30 PM Thacker, Paul T.\*: **DISCERNING PREHISTORIC ACTIVITY AREAS IN FLOODPLAIN SETTINGS: THE MINERALOGY BEHIND THE MAGNETICS**
- 233-6 2:45 PM de Winter, Niels J.\*; Snoeck, Christophe; Stein, Koen H.W.; Claeys, Philippe: **ISOTOPIC AND ELEMENTAL PROFILES IN MODERN MAMMAL TEETH AND WHAT WE CAN LEARN FROM THEIR PALEO-COUNTERPARTS**
- 233-7 3:00 PM Lowery, Darrin L.\*: **DELMARVA'S UPLAND LATE PLEISTOCENE GEOARCHAEOLOGICAL RECORD: UNDERSTANDING COASTAL PLAIN TERRESTRIAL CONDITIONS SOUTH OF THE LAURENTIDE ICE SHEET**
- 3:15 PM **BREAK**
- 233-8 3:30 PM Smith, Eugene\*; Ciravolo, Amber; Ren, Minghua; Johnsen, Racheal; Karkanas, Panagiotis; Marean, Curtis W.; Fisher, Erich C.; Lane, Christine: **YOUNGEST TOBA TUFF (~74 KA) CRYPTOTEPHRA IDENTIFIED IN AN ARCHAEOLOGICAL SITE AT PINNACLE POINT, SOUTH AFRICA**
- 233-9 3:45 PM Yanes, Yurena\*; Hutterer, Rainer; Linstädter, Jörg: **HOLOCENE ENVIRONMENTAL AND CULTURAL TRANSITION IN IFRI OUDADANE, NE MOROCCO, INFERRED FROM OXYGEN STABLE ISOTOPES OF THE TOPSHELL *PHORCUS TURBINATUS***
- 233-10 4:00 PM Finley, Judson Byrd\*; Rowe, Matthew J.: **ROCKSHELTER GEOARCHAEOLOGY, PALEOENVIRONMENTAL RECONSTRUCTION, AND HUMAN EVOLUTIONARY ECOLOGY: AN EXAMPLE FROM THE BIGHORN BASIN, WYOMING**
- 233-11 4:15 PM Dunn, Richard K.\*; Van Tilburg, Jo Anne: **RECORD OF MULTIPLE AND INTEGRATED LAND USE ACTIVITIES, AND IMPACT ON THE LANDSCAPE OF EASTER ISLAND STATUE QUARRY**

- 233-12** 4:30 PM Nicolaysen, Kirsten P.\*; West, Dixie L.; Hatfield, Virginia L.; Izbekov, Pavel; Persico, Lyman P.; Sheffer, Helen B.; Lanman, Henry R.; Okuno, Mitsuru; Bruner, Kale M.; Savinetsky, Arkady: **INTERDISCIPLINARY PERSPECTIVES OF TANA VOLCANO, HUMAN-ENVIRONMENT INTERACTIONS AND PREHISTORIC RESOURCE ACQUISITION THROUGHOUT THE HOLOCENE, ALEUTIAN ISLANDS, AK**
- 233-13** 4:45 PM Flood, Jonathan M.\*: **GROUNDWATER GEOCHEMISTRY AND WATER RITUAL AT THE TEMPLES OF APOLLO AT DELPHI, DIDYMA, AND CLAROS**
- 233-14** 5:00 PM Henderek, Robyn L.\*; Emslie, Steven D.; Tobin, Benjamin W.; Schenk, Edward R.: **GRAND CANYON SPLIT TWIG FIGURINE COMPLEX AND THE ROLE OF FOSSIL REMAINS AT ARCHAEOLOGICAL SITES**

**SESSION NO. 234*****Planetary Geology: Understanding Mars Geology from Orbiter to Rover-Based Exploration: The G.K. Gilbert Award Session***

1:30 PM, Baltimore Convention Center, Room 344

Debra Buczkowski and Devon M. Burr, Presiding

- 1:30 PM **INTRODUCTORY REMARKS**
- 234-1** 1:35 PM Golombek, M.P.\*: **THE SELECTION OF LANDING SITES ON MARS**
- 234-2** 1:55 PM Ruff, Steven W.\*: **GUSEV CRATER POSTMORTEM: ONGOING EXPLORATION FIVE YEARS AFTER SPIRIT**
- 234-3** 2:15 PM Ashley, James W.\*; Golombek, M.P.; Schroeder, Christian: **PHYSICAL WEATHERING FEATURES OF BARBERTON GROUP COBBLES AT MERIDIANI PLANUM, MARS: IMPLICATIONS FOR SURFACE RESIDENCE TIMES**
- 234-4** 2:30 PM Arvidson, Raymond E.\*; Squyres, Steven W.; Gellert, Ralf; Herkenhoff, Kenneth E.; Mittlefehldt, David W.; Crumpler, Larry S.; McLennan, Scott M.; Farrand, William H.; Jolliff, Bradley L.; Morris, Richard V.: **KEY RECENT SCIENTIFIC RESULTS FROM THE OPPORTUNITY ROVER'S EXPLORATION OF ENDEAVOUR CRATER, MARS**
- 234-5** 2:45 PM Grant, John\*; Parker, Timothy; Crumpler, L.S.; Wilson, S.; Golombek, M.P.; Mittlefehldt, David W.; Jolliff, B.: **THE DEGRADATIONAL HISTORY OF ENDEAVOUR CRATER, MARS**
- 234-6** 3:05 PM Farrand, William H.\*; Bell, III, James F.; Johnson, Jeffrey R.; Mittlefehldt, David W.: **MULTISPECTRAL EVIDENCE OF ALTERATION FROM MURRAY RIDGE TO MARATHON VALLEY OBSERVED BY THE OPPORTUNITY PANCAM ON THE RIM OF ENDEAVOUR CRATER, MARS**
- 234-7** 3:20 PM Parker, Timothy\*; Anderson, Robert C.: **POSSIBLE ICE PUSH STRUCTURES AND GEOMORPHOLOGY AT ENDEAVOUR CRATER, MARS**
- 234-8** 3:35 PM Mittlefehldt, David W.\*; Gellert, Ralf; Yen, Albert S.; Ming, Douglas W.; Van Bommel, Scott; Farrand, William H.; Arvidson, Raymond E.; Rice, Jr., James W.: **COMPOSITIONS OF DIVERSE NOACHIAN LITHOLOGIES AT MARATHON VALLEY, ENDEAVOUR CRATER RIM, MARS**
- 234-9** 3:50 PM Fox, Valerie K.\*; Arvidson, Raymond E.; Guinness, Edward A.; Murchie, Scott L.; Powell, Kathryn E.: **SMECTITE CLAY DEPOSITS IN MARATHON VALLEY, ENDEAVOUR CRATER, MARS**
- 234-10** 4:05 PM Cousin, Agnes\*; Wiens, R.C.; Maurice, Sylvestre; Gasnault, Olivier; Clegg, Sam M.; Forni, Olivier; Anderson, Ryan B.; Lasue, Jérémie; Frydenvang, Jens; Payré, Valérie: **OVERVIEW OF 3 YEARS OF CHEMCAM CHEMICAL COMPOSITIONS ALONG THE CURIOSITY'S TRAVERSE AT GALE CRATER, MARS**
- 234-11** 4:20 PM Williams, Amy J.\*; Eigenbrode, Jennifer L.; Floyd, Melissa M.; Wilhelm, Mary Beth; Freissinet, Caroline; Sumner, Dawn Y.; Mahaffy, Paul R.: **CHEMICAL**

**BIOSIGNATURE PRESERVATION IN THE IRON MOUNTAIN MASSIVE SULFIDE DEPOSIT: IMPLICATIONS FOR BIOSIGNATURE DETECTION ON MARS WITH THE CURIOSITY ROVER**

- 234-12** 4:35 PM Sweeney, Julianne\*; Warner, N.H.; Golombek, M.P.; Kirk, Randolph; Fergason, Robin L; Pivarunas, Anthony; Schwartz, C.H.; Hernandez, Deborah J.: **CRATER DEGRADATION AND SURFACE EROSION RATES AT THE INSIGHT LANDING SITE, WESTERN ELYSIUM PLANITIA, MARS**
- 234-13** 4:50 PM Beaty, David W.\*; Levy, Joseph; Rice, Melissa S.; Niles, Paul B.; Rice, Jr., James W.; Bell, Mary Sue; Bleacher, Jacob E.; Eppler, Dean B.; Hays, Lindsay; Bass, Deborah S.: **GEOLOGY-RELATED SCIENCE OBJECTIVES AND SITE SELECTION CRITERIA FOR A HUMAN MISSION TO MARS**

**SESSION NO. 235*****P4. Similar Information, Different Results: Fracking from State to State (GSA Geology and Society Division; GSA Energy Geology Division; GSA Geoinformatics Division)***

1:30 PM, Baltimore Convention Center, Room 327/328/329

R. Laurence Davis and Christopher P. Carlson, Presiding

- 1:30 PM **INTRODUCTORY REMARKS**
- 235-1** 1:40 PM Nicot, Jean-Philippe\*; Scanlon, Bridget R.; Mullican, III, William F.; Young, Michael: **HYDRAULIC FRACTURING AND REGULATIONS IN TEXAS**
- 235-2** 1:55 PM Buchanan, Rex C.\*: **ENERGY PRODUCTION AND INDUCED SEISMICITY IN THE MIDCONTINENT: THE KANSAS RESPONSE**
- 235-3** 2:10 PM Bauer, Robert\*: **THE ILLINOIS STATE GEOLOGICAL SURVEY'S INVOLVEMENT WITH ILLINOIS'S HYDRAULIC FRACTURING LEGISLATION**
- 235-4** 2:25 PM Perry, Scott\*: **PENNSYLVANIA: AN INTERNATIONAL LEADER IN ENVIRONMENTAL PROTECTION AND SHALE GAS DEVELOPMENT**
- 235-5** 2:40 PM Kenney, Brigid E.\*: **MARYLAND'S APPROACH TO HIGH VOLUME HYDRAULIC FRACTURING**
- 2:55 PM **BREAK**
- 3:10 PM **DISCUSSION**
- 235-6** 3:30 PM Vengosh, Avner\*: **AN OVERVIEW OF THE RISKS TO WATER RESOURCES FROM HYDRAULIC FRACTURING IN THE UNITED STATES**
- 3:50 PM **PANEL DISCUSSION**
- 4:05 PM **GENERAL DISCUSSION**
- 4:50 PM **CONCLUDING REMARKS**

**SESSION NO. 236*****T12. From Peat to Coke: Honoring the Legacy of William Spackman (GSA Energy Geology Division; AASP - The Palynological Society; Paleontological Society)***

1:30 PM, Baltimore Convention Center, Room 321

Jen O'Keefe, Frederick Rich, Anne Raymond and John C. Crelling, Presiding

- 1:30 PM **INTRODUCTORY REMARKS**
- 236-1** 1:35 PM Rich, Frederick J.\*: **WILLIAM SPACKMAN - LEADER IN COAL SCIENCE**
- 236-2** 1:55 PM Cohen, Arthur D.\*; Marsh, Pamela E.: **TRACKING CHANGES IN SEA LEVEL ALONG THE ATLANTIC AND GULF COASTAL PLAINS OF NORTH AMERICA USING *ATROTORQUATA LINEATA*, A FUNGAL PROXY, TO LOCATE PAST POSITIONS OF HIGH LEVEL SALT MARSHES**
- 236-3** 2:10 PM Schultz, Emily\*; Raymond, Anne; Chapkin, Elissa R.: **CHARACTERIZING THE TAPHONOMICALLY ACTIVE ZONE IN SUBTROPICAL PEAT FROM BARNES SOUND,**

- KEY LARGO, FLORIDA: IMPLICATIONS FOR USING TAPHONOMIC FACTORS TO IDENTIFY ANCIENT MANGROVE MIRES**
- 236-4 2:25 PM O'Keefe, Jen\*; Brooke, Sharon; Black, Morgan; Mason, Charles E.: **FUNGI IN WETLAND ENVIRONMENTS: OCCURRENCE ON AND ALTERATION OF LEAVES AND WOOD FROM THE 'BOUDREAUX BEND' BED**
- 236-5 2:40 PM Argyilan, Erin P.\*; Krekeler, Mark P.S.; Avis, Peter G.; Morris, Charles C.: **INVESTIGATING THE ORIGIN OF HOLES APPEARING IN THE MOUNT BALDY DUNE AT THE INDIANA DUNES NATIONAL LAKESHORE**
- 236-6 2:55 PM Mastalerz, Maria\*; O'Keefe, Jen; Monaghan, G. William; Thompson, Todd A.; Argyilan, Erin P.: **TRANSFORMATION OF MODERN WOOD IN THE DUNE ENVIRONMENT**
- 236-7 3:10 PM Hower, James C.\*; O'Keefe, Jennifer; Eble, Cortland; Dai, Shifeng: **COPROLITIC MACRINITE: EXAMPLES FROM THE CRETACEOUS NO. 6 COAL OF THE SHENGLI COALFIELD, INNER MONGOLIA**
- 3:25 PM **BREAK**
- 236-8 3:40 PM Scott, Andrew C.\*: **THOUGHTS ON THE PROBLEMS OF COAL PETROGRAPHIC NOMENCLATURE IN RELATION TO THE INTERPRETATION OF PEAT (COAL) FORMING ENVIRONMENTS**
- 236-9 4:00 PM Davis, Alan\*: **THE ENDOWMENT OF WILLIAM SPACKMAN TO THE FIELD OF COAL PETROLOGY**
- 236-10 4:15 PM Crelling, John C.\*: **APPLICATION OF MACERAL ANALYSIS TO CARBONIZATION**
- 236-11 4:30 PM Mitchell, Gareth D.\*; Davis, Alan; Gold, David P.; Cassidy, Patrick: **COKED COAL MARGINAL TO KIMBERLITE INTRUSIONS IN THE TANOMA MINE, INDIANA COUNTY, PENNSYLVANIA**
- 236-12 4:45 PM Greb, Stephen F.\*; Eble, Cortland F.: **PALYNOLOGY OF LOWER AND MIDDLE PENNSYLVANIAN COAL BEDS IN THE CENTRAL APPALACHIAN BASIN: PALEOBOTANIC AND BIOSTRATIGRAPHIC IMPLICATIONS**
- 236-13 5:00 PM Raymond, Anne\*; Costanza, Suzanne H.; Guillemette, Renald N.: **EARLY DIAGENETIC HIGH MAGNESIUM CALCITE AND PRIMARY DOLOMITE SUGGEST THAT COAL-BALL PLANTS GREW IN MARINE MIRES**
- 236-14 5:15 PM Siewers, Fredrick D.\*; Phillips, Tom L.: **PETROGRAPHY AND MICROANALYSIS OF PENNSYLVANIAN COAL-BALL CONCRETIONS (HERRIN COAL, ILLINOIS BASIN, USA): BEARING ON FOSSIL PLANT PRESERVATION AND COAL-BALL ORIGINS**
- 237-4 2:15 PM Deyi, Yang\*; Hui, Wang; Zhiyong, Cao: **GEOLOGICAL AND SEISMIC WAVE FIELD CHARACTERS OF COAL-FIELD COLLAPSE PILLAR**
- 237-5 2:30 PM Bellugi, Dino\*; Perron, J. Taylor; O'Gorman, Paul A.; Milledge, David G.: **SHALLOW LANDSLIDES HAZARDS IN A CHANGING CLIMATE**
- 237-6 2:50 PM Santi, Paul\*; Brunkal, Holly: **EXPECTED INCREASE IN POST-WILDFIRE DEBRIS FLOWS WITH CLIMATE CHANGE**
- 237-7 3:05 PM Collins, Brian D.\*; Jibson, Randall W.: **GROUND-SHAKING IN THE STEEPEST TERRAIN ON EARTH: LANDSLIDES FROM THE 2015 GORKHA, NEPAL EARTHQUAKE SEQUENCE**
- 3:25 PM **BREAK**
- 237-8 3:35 PM Karim, Mir F.\*; Kamal, ASM Maksud; Rahman, Md Zillur; Hassan, M. Qumrul; Khadiza, Umme; Serajee, Feroja; Siddiqua, Sumi: **GEOLOGICAL ENGINEERING EVALUATION OF LANDSLIDES IN THE SOUTHEASTERN BANGLADESH**
- 237-9 3:50 PM Gunnink, Jan L.\*; Stafleu, Jan; de Lange, Ger; Kruiver, Pauline: **SHEAR WAVE VELOCITY FOR THE UPPER 30 M: COMBINING A 3D Voxel MODEL AND SEISMIC CPTS FOR THE GRONINGEN GAS FIELD, THE NETHERLANDS**
- 237-10 4:05 PM Schulz, William H.\*; Wang, Gonghui; Jiang, Yao; Collins, Brian D.; Reid, Mark E.: **PRELIMINARY ASSESSMENT OF POST-FAILURE BEHAVIOR OF GLACIOLACUSTRINE SILTY CLAY FROM THE 2014, SR530 (OSO), WASHINGTON LANDSLIDE**
- 237-11 4:20 PM Tebo, Daniel\*; Everett, Mark E.: **GEOPHYSICAL SURVEYS OF DEBRIS-FLOW-SUSCEPTIBLE AREAS IN BOULDER COUNTY; IMPLICATIONS FOR RISK ASSESSMENT**
- 237-12 4:35 PM Bobrowsky, Peter\*: **PROMOTING AND ADOPTING GUIDELINES OF PRACTICE IN CANADIAN LANDSLIDE STUDIES**
- 237-13 4:55 PM Gath, Eldon M.\*: **GSA ENGINEERING GEOLOGY DIVISION'S RICHARD H. JAHNS DISTINGUISHED LECTURER: THE ENGINEERING GEOLOGICAL ASSESSMENT OF A LANDSLIDE EVENT**

## SESSION NO. 238

**T36. Mercury Biogeochemistry: Sizing up Element 80 in the Earth System (Geochemical Society)**

1:30 PM, Baltimore Convention Center, Room 322/323

Nathan Yee and John Reinfelder, Presiding

## SESSION NO. 237

**T23. Landslide, Subsidence, and Debris Flow-Hazards: Integrating Engineering Geology Research and Communication Solutions (GSA Environmental and Engineering Geology Division; GSA Geology and Society Division; GSA Quaternary Geology and Geomorphology Division; Association of Environmental and Engineering Geologists; U.S. Geological Survey, Landslide Hazards Program; GSA Karst Division)**

1:30 PM, Baltimore Convention Center, Room 339

Matthew M. Crawford, William J. Burns, Lynn M. Highland and Francis K. Rengers, Presiding

- 237-1 1:30 PM Wang, Fawu\*: **EXPERIMENTAL STUDY ON IMPACT FORCES OF SUBMARINE LANDSLIDES ON PIPE LINES**
- 237-2 1:45 PM Burns, Scott F.\*: **A MODEL FOR PREDICTING EMBANKMENT SLOPE FAILURES IN CLAY RICH SOILS: A LOUISIANA EXAMPLE**
- 237-3 2:00 PM Jennings, Carrie\*; Feinberg, Joshua M.; Kurak, Ethan; Meier, Rachel; Palazzolo, Jessica; Schmidt, Craig C.; Waage, Eric: **HISTORICAL LANDSLIDES WITHIN THE METROPOLITAN MINNEAPOLIS-ST. PAUL AREA**
- 238-1 1:30 PM Gilmour, Cynthia C.\*; Santillan, Eugenio F.U.; Elias, Dwayne; Christensen, Geoffrey A.; King, Andrew J.; Podar, Mircea; Wymore, Ann; Soren, Ally; McBurney, Alyssa: **METHOD DEVELOPMENT AND EARLY TESTING OF MOLECULAR PROBES FOR THE MICROBIAL MERCURY METHYLATION GENE PAIR HGCAB**
- 238-2 1:50 PM Barkay, Tamar\*; Poulain, Alexandre; Yee, Nathan: **REDOX TRANSFORMATIONS OF MERCURY BY COMETABOLIC MICROBIAL PROCESSES**
- 238-3 2:05 PM Yee, Nathan\*; Wang, Yuwei; Wang, Thomas; Schaefer, Jeffra K.; Mishra, Bhoopesh: **INTRACELLULAR MERCURY OXIDATION AND COMPLEXATION IN ANAEROBIC BACTERIA**
- 238-4 2:20 PM Schaefer, Jeffra K.\*; Janssen, Sarah E.; Gwiszcz, Ewelina; Szczuka, Aleksandra; Morel, Francois M.M.: **COMPARISON OF HG(II) UPTAKE AND METHYLATION ACROSS DIVERSE ANAEROBIC MICROORGANISMS**
- 238-5 2:35 PM Janssen, Sarah E.\*; Schaefer, Jeffra K.; Barkay, Tamar; Reinfelder, John: **FRACTIONATION OF MERCURY STABLE ISOTOPES DURING MICROBIAL METHYLMERCURY PRODUCTION IN PURE CULTURES**
- 238-6 2:50 PM Hsu-Kim, Heileen\*; Johnson, Carol; Deshusses, Marc; Elias, Dwayne: **QUANTIFICATION OF MERCURY**



- BIOAVAILABILITY AND METHYLATION POTENTIAL IN CONTAMINATED AQUATIC ECOSYSTEMS**
- 238-7 3:10 PM Johnson, Carol\*; Hung, Elaine; Elias, Dwayne; Deshusses, Marc; Hsu-Kim, Heileen: **TRACKING THE METHYLATION OF STABLE-ISOTOPE-LABELED INORGANIC FORMS OF MERCURY AND THE EFFECT OF ACTIVATED CARBON ON THEIR BIOAVAILABILITIES**
- 238-8 3:25 PM Jonsson, Sofi\*; Mason, Robert P.; Mazrui, Nashaat: **ABIOTIC DEMETHYLATION OF METHYLMERCURY IN SEDIMENTS**
- 238-9 3:40 PM Nordstrom, D. Kirk\*; Geesey, Gill; Barkay, Tamar; King, Susan; McCleskey, R. Blaine; Roth, David A.; Krabbenhoft, David P.: **GEOHERMAL MERCURY AND MICROBIOLOGY IN WESTERN NORTH AMERICA**
- 238-10 3:55 PM Seelen, Emily A.\*; Mason, Robert P.; Cartwright, Grace M.: **EVALUATING THE IMPORTANCE OF SEDIMENT RESUSPENSION AS A SOURCE OF PARTICULATE METHYLMERCURY TO COASTAL ECOSYSTEMS**
- 238-11 4:10 PM Poulain, Alexandre\*: **MICROBIAL TIME MACHINES: TOOLS TO INVESTIGATE THE PAST AND PRESENT OF MERCURY BIOGEOCHEMISTRY**
- 238-12 4:30 PM Mazrui, Nashaat\*; Jonsson, Sofi; Mason, Robert P.: **METHYLATION AND DEMETHYLATION OF SOLID AND ADSORBED MERCURY SPECIES IN CONTRASTING MARINE ENVIRONMENTS**
- 238-13 4:45 PM Jeremiason, Jeff\*; Sebestyen, Stephen D.; Seelen, Emily A.; Agather, Alison: **MERCURY AND LEAD FLUXES FROM A PEATLAND EXPERIENCING INCREASED DISSOLVED ORGANIC CARBON EXPORT**
- 238-14 5:00 PM Weinman, Beth\*; Sharma, Rohit: **SIZING UP MERCURY IN NEW IDRIA – USING CONCEPTS FROM THE CRITICAL ZONE TO UNDERSTAND THE FATE OF MERCURY IN CONTAMINATED SETTINGS**
- 238-15 5:15 PM Valdes, Carla A.\*; Tingey, Christopher; Frederick, Logan; Johnson, William P.: **TOTAL- AND METHYL-MERCURY RESPONSE TO CAUSEWAY CLOSURE IN THE GREAT SALT LAKE, UTAH**
- 239-7 3:00 PM Lubkin, Sara H.\*: **BISON, GBIF AND FOSSIL INSECTS: RECONSTRUCTING PLEISTOCENE CLIMATE WITH DIGITIZED DATA**
- 3:15 PM **BREAK**
- 239-8 3:30 PM Uhen, Mark\*: **PALEOBIOLOGY DATABASE: USING DATA FROM THE PAST TO EXPAND RESEARCH AND EDUCATIONAL OPPORTUNITIES FOR THE FUTURE**
- 239-9 3:45 PM Peters, Shanan E.\*; Zhang, Ce; Ross, Ian; Livny, Miron: **PALEODEEPDIVE: TOWARDS AN AUTOMATED SYSTEM FOR PALEONTOLOGICAL DATA DISCOVERY AND RETRIEVAL FROM THE PUBLISHED LITERATURE**
- 239-10 4:00 PM Lieberman, Bruce S.\*; Hendricks, Jonathan R.; Stigall, Alycia L.; Farrell, Una C.; Beach, James H.: **DIGITAL FOSSILS: THERE'S AN APP FOR THAT**
- 239-11 4:15 PM Smith, Dena M.\*; Butts, Susan H.; Gall, Lawrence; Karim, Talia S.; Landman, Neil H.; Nelson, Gil; Norris, Christopher A.; Sessa, Jocelyn A.; Uhen, Mark: **THE EPANDDA PROJECT: INCREASING ACCESSIBILITY TO DIGITIZED DATA FROM THE PALEONTOLOGICAL AND NEONTOLOGICAL COMMUNITIES**
- 239-12 4:30 PM Myers, Corinne\*; Saupe, Erin E.; Stigall, Alycia L.: **THE USE OF DIGITIZED DATA IN PALEOBIOGEOGRAPHICAL INVESTIGATIONS OF MACROEVOLUTION**
- 239-13 4:45 PM Casey, Michelle M.\*; Saupe, Erin E.; Lieberman, Bruce S.: **THE BIOGEOGRAPHY OF 'SLUGGISH' EVOLUTION: THE IMPACT OF GEOGRAPHIC RANGE SIZE ON EXTINCTION SELECTIVITY IN PENNSYLVANIAN BRACHIOPODS OF THE NORTH AMERICAN MIDCONTINENT**
- 239-14 5:00 PM Hendy, Austin J.W.\*: **PALEOECOLOGY OF MARINE MOLLUSC ASSEMBLAGES IN LOS ANGELES BASIN DURING THE QUATERNARY: DARK DATA SEE THE LIGHT**

## SESSION NO. 240

*T57. Soil to Sediment—From Geologic to Modern Time Scales: A Session to Honor the Work of Milan Pavich (GSA Quaternary Geology and Geomorphology Division; GSA Soils and Soil Processes Interdisciplinary Interest Group)*

1:30 PM, Baltimore Convention Center, Room 331/332

Allen C. Gellis, Dorothy Merritts and Robert C. Walter, Presiding

1:30 PM **INTRODUCTORY REMARKS**

## SESSION NO. 239

*T46. Using Digitized Data in Geological and Paleontological Research I (Paleontological Society; Society for the Preservation of Natural History Collections; GSA Geoinformatics Division; EarthCube C4P; iSamples)*

1:30 PM, Baltimore Convention Center, Room 314

Talia S. Karim and Gil Nelson, Presiding

- 239-1 1:30 PM MacFadden, Bruce J.\*: **THE FOSSIL PROJECT: ENGAGING AMATEUR FOSSIL CLUBS AND SOCIETIES AS DOWNSTREAM USERS OF DIGITIZED DATA**
- 239-2 1:45 PM Clary, Renee M.\*: **ARE PRINTED FOSSIL REPLICAS AN EFFECTIVE EDUCATIONAL USE OF 3D DATA SETS? EDUCATORS' PERCEPTIONS OF FOSSIL REPLICAS IN THE CLASSROOM**
- 239-3 2:00 PM Grant, Claudia\*; Phillips, Molly: **PALEOTEACH: USE OF PALEONTOLOGICAL 3D DATA FOR K-12 EDUCATION**
- 239-4 2:15 PM Jimenez, Marie\*; Boodhoo, Thea; Stirling, Trinity; Smith, Elliott; Chure, Daniel J.: **THE DIGITAL QUARRY AT DINOSAUR NATIONAL MONUMENT: AN ONLINE RESOURCE FOR RESEARCHERS AND INTERPRETERS**
- 239-5 2:30 PM Demouthe, Jean F.\*: **INTERDISCIPLINARY SHARING & USE OF DIGITAL FOSSIL DATA**
- 239-6 2:45 PM Meyer, Herbert W.\*; Smith, Dena M.; Karim, Talia S.: **REDESIGNING THE WEBSITE DATABASE OF FLORISSANT FOSSIL SPECIMENS FROM MULTIPLE MUSEUMS: SHARING INFORMATION BETWEEN REPOSITORIES, RESEARCHERS, AND FEDERAL AGENCIES**
- 240-1 1:35 PM Brantley, Susan L.\*: **LOOKING AT THE VIRGINIA PIEDMONT WITH MILAN**
- 240-2 1:55 PM Bierman, Paul R.\*: **USING <sup>10</sup>BE TO DECIPHER THE INCISION HISTORY OF THE POTOMAC RIVER NEAR GREAT FALLS**
- 240-3 2:15 PM Gosse, John\*; Hidy, Alan J.; Froese, Duane; Bond, Jeffrey D.: **REGOLITH-STRIPPING AT THE PLIO-PLEISTOCENE TRANSITION: EVOLUTION OF THE KLONDIKE PLACER**
- 240-4 2:30 PM Merritts, Dorothy J.\*; Walter, Robert C.; Grand Pre, Candace A.; Rahnis, Michael; Hilgartner, William B.; Blair, Aaron; Markey, Erin; Feibel, Samuel; Maryland DNR, Chesapeake and Coastal Service: **POST-GLACIAL HOLOCENE WETLANDS DEVELOPED ON PERMAFROST-THAW SEDIMENTS ALONG VALLEY BOTTOMS IN UNGLACIATED PENNSYLVANIA AND MARYLAND**
- 240-5 2:45 PM Daniels, Melinda\*; Marshall, Anna; Chatterjee, Sarmistha: **LONGITUDINAL VARIATION IN THICKNESS AND COMPOSITION OF LEGACY SEDIMENTS AND BURIED ORGANIC SOILS IN HEADWATERS OF THE CHRISTINA RIVER BASIN, USA**
- 240-6 3:00 PM Donovan, Mitchell R.\*; Miller, Andrew; Baker, Matthew E.: **REASSESSING THE ROLE OF MILLDAMS IN PIEDMONT FLOODPLAIN**
- 3:15 PM **BREAK**

SESSION NO. 240

- 240-7 3:30 PM Reheis, Marith C.\*: **GSA QUATERNARY GEOLOGY AND GEOMORPHOLOGY DIVISION FAROUK EL-BAZ AWARD FOR DESERT RESEARCH: MODERN DUST IN THE SOUTHWESTERN U.S.: COMPARISON TO SOILS AND DESERT LOESS**
- 240-8 4:00 PM Dethier, David P.\*; Ouimet, William B.; Shea, Neil: **FROM ROCK TO DUST: DENSITY CHANGES DURING THE TRANSFORMATION OF FRONT RANGE GRANITE TO SAPROLITE AND SOIL**
- 240-9 4:15 PM Griffin, Eleanor R.\*: **DESTABILIZATION OF A SAND/SILT-BED CHANNEL BY VEGETATION CONTROL, RIO PUERCO ARROYO, NEW MEXICO**
- 240-10 4:30 PM Kaste, James M.\*; Elmore, Andrew J.; Vest, Kimberly R.; Okin, Gregory S.: **GROUNDWATER AND VEGETATION CONTROLS ON EPISODIC SOIL EROSION IN A DESERT ECOSYSTEM**
- 240-11 4:45 PM Gellis, Allen C.\*; Elliott, John G.; Pavich, M.J.: **GEOMORPHIC PROCESSES RESPONSIBLE FOR DECADAL SCALE ARROYO CHANGES, RIO PUERCO, NEW MEXICO**
- 240-12 5:00 PM Jacobson, Robert B.\*: **GEOMORPHIC ADJUSTMENTS TO ALTERED SEDIMENT FLUX AND CONSEQUENCES FOR RIVERINE HABITATS**
- 5:20 PM **CLOSING REMARKS: MILAN PAVICH**

SESSION NO. 241

**T59. Advances in Crustal Geophysics and Tectonics II: In Honor of G.R. Keller (GSA Geophysics Division; GSA Structural Geology and Tectonics Division; GSA Mineralogy, Geochemistry, Petrology, and Volcanology Division; GSA Geoinformatics Division)**

1:30 PM, Baltimore Convention Center, Room 347/348

Kevin L. Mickus, Catherine M. Snelson and Dennis L. Harry, Presiding

- 1:30 PM **INTRODUCTORY REMARKS**
- 1:35 PM Schmandt, Brandon\*: **Donath Medal: MULTI-SCALE MAPPING OF THE NORTH AMERICA MANTLE AND CRUST WITH SEISMOLOGY**
- 241-1 1:55 PM Snelson, Catherine M.\*; Coblentz, David: **TECTONIC CONTROLS ON THE STATE OF STRESS FROM THE PLATE- TO RESERVOIR-SCALE**
- 241-2 2:10 PM Geissman, John W.\*; Aiken, Carlos L.V.: **CONTINENTAL CRUSTAL MAGNETIZATION—FROM THE PRESERVATION OF GEOLOGICALLY ANCIENT MAGNETIZATIONS AT FINE CRUSTAL SCALE TO THE RECORDING OF MIDDLE AND DEEP CRUSTAL PROCESSES THROUGH GRADIENTS IN MAGNETIC PROPERTIES**
- 241-3 2:25 PM Dumond, Gregory\*; Andronicos, Christopher L.; Goncalves, Philippe; Williams, Michael L.: **FIELD ANALOG FOR THE NORTH AMERICAN 7.XX KM/S LAYER IN THE CANADIAN SHIELD**
- 241-4 2:40 PM Sutton, Daniel\*; Gottardi, Raphael: **STRUCTURAL AND GEOPHYSICAL ANALYSIS ON ROATAN ISLAND, HONDURAS, WESTERN CARIBBEAN**
- 241-5 2:55 PM Thybo, Hans\*; Artemieva, Irina M.; Cherepanova, Yulia: **CRUSTAL STRUCTURE IN EURASIA**
- 241-6 3:10 PM Krzywiec, Piotr\*; Mazur, Stanislaw; Malinowski, Michal; Buffenmyer, Vinton; Kufra, Mateusz; Gagala, Lukasz; Lewandowski, Marek: **ADVANCEMENTS IN RECOGNITION OF THE STRUCTURE AND PHANEROZOIC TECTONO-SEDIMENTARY EVOLUTION OF THE EAST EUROPEAN CRATON IN POLAND REVEALED BY RECENT REGIONAL SEISMIC DATA**
- 3:25 PM **BREAK**
- 241-7 3:40 PM Stern, Robert\*: **NEW INSIGHTS INTO THE AGE OF BURIED CONTINENTAL LITHOSPHERE OF ARABIA**
- 241-8 3:55 PM Artemieva, Irina M.\*; Vinnik, Lev: **WHAT CAUSES A HIGH TOPOGRAPHY OF THE KALAHARI CRATON?**

- 241-9 4:10 PM Atekwana, Eliot\*; Atekwana, Estella A.; Abdelsalam, Mohamed; Niles, Mary C.: **THE GEOCHEMISTRY OF HOT SPRINGS OF THE LUANGWA RIFT VALLEY, ZAMBIA SHOW NO EVIDENCE OF MANTLE PROCESSES**
- 241-10 4:25 PM Atekwana, Estella A.\*; Njinju, Emmanuel A.; Abdelsalam, Mohamed; Mickus, Kevin L.; Atekwana, Eliot A.; Lao Davila, Daniel: **POSSIBLE CRUSTAL AND SUB-CONTINENTAL LITHOSPHERIC MANTLE DECOUPLING BENEATH THE MALAWI RIFT**
- 241-11 4:40 PM Goussi Ngalamo, J.F.\*; Abdelsalam, Mohamed G.; Bisso, D.; Atekwana, Estella A.; Ekodeck, G. E.: **GEOPHYSICAL EVIDENCE FOR METACRATONIZATION OF THE NORTHERN EDGE OF THE CONGO CRATON IN CAMEROON**
- 241-12 4:55 PM Mickus, Kevin L.\*; Yu, Youqiang; Liu, Kelley; Reed, Cory A.; Gao, Stephen; Atekwana, Estella: **CRUSTAL STRUCTURE BENEATH THE INCIPIENT OKAVANGO RIFT, BOTSWANA**

SESSION NO. 242

**T86. Research on Teaching and Student Learning in the K-12 Earth Science Classroom (GSA Geoscience Education Division; National Earth Science Teachers Association; National Association of Geoscience Teachers)**

1:30 PM, Baltimore Convention Center, Room 324

Laura A. Guertin and Tanya Furman, Presiding

- 242-1 1:30 PM Ballotti, Dean M.\*; Roemmele, Christopher Marc: **WHY THE WORLD NEEDS EARTH SCIENCE**
- 242-2 1:45 PM McGraw, Lauren E.\*; Roberts, Jennifer M.; Van Deventer, Sarah C.; Carnine, Christine R.; Khawaja, Sama; Elmore, R. Douglas: **STUDENT-LED OUTREACH AT THE UNIVERSITY OF OKLAHOMA**
- 242-3 2:00 PM Metlay, Suzanne T.\*; Hudon-Miller, Sarah E.; Duncan, Robert; Randle, David: **WGU-AMNH PARTNERSHIP PILOT PROGRAM: YEAR 1 RESULTS**
- 242-4 2:15 PM Kohrs, Russell H.\*: **THE PEDAGOGICAL DIAGENESIS OF GEOLOGY INSTRUCTION IN THE SECONDARY CLASSROOM: THE EXPERIENCES AND SUCCESSSES OF ONE RURAL VIRGINIA EDUCATOR**
- 242-5 2:30 PM Fleisher, P. Jay\*; Tweed, Fiona; Franz, David A.: **DYNAMIC ICELAND GEOVENTURE 2015: AN INTERACTIVE FIELD EXPERIENCE IN SUPPORT OF TEACHER PREPARATION AND CURRICULUM DEVELOPMENT**
- 242-6 2:45 PM Salter, Rachel L.\*; Forcino, Frank L.: **THE GREAT DIVIDE: EFFECT OF INSTRUCTIONAL PRACTICE ON EVOLUTION UNDERSTANDING IN HIGH SCHOOL AND COLLEGE**
- 242-7 3:00 PM Duggan-Haas, Don\*; White, Tim; Ross, Robert M.; Derry, Louis A.: **CRITICAL ZONE OBSERVATORIES, VIRTUAL FIELDWORK EXPERIENCES, THE NEXT GENERATION SCIENCE STANDARDS, AND TEACHING IN AND ABOUT COMPLEX SYSTEMS**
- 242-8 3:15 PM Bean, Jessica R.\*; White, Lisa D.: **EARTH SYSTEMS AS THE FOUNDATION FOR TEACHING GLOBAL CHANGE PROCESSES: ILLUSTRATING COMPLEXITY USING INFOGRAPHICS AND CONCEPTUAL MODELS**
- 3:30 PM **BREAK**
- 242-9 3:45 PM Robeck, Ed\*: **INDICATORS OF THE STATUS OF GEOSCIENCE EDUCATION**
- 242-10 4:00 PM Egger, Anne E.\*; Awad, Aida; Sullivan, Susan; Orr, Cailin Huyck; Mara, Valentina: **BUILDING A SUSTAINABLE FUTURE: THE IMPERATIVE AND OPPORTUNITIES TO ENGAGE ALL FUTURE TEACHERS IN EARTH SCIENCE**
- 242-11 4:15 PM Abolins, Mark\*: **RELATIONSHIP BETWEEN AN INTENSIVE NINE-WEEK UNDERGRADUATE PRE-SERVICE TEACHER SCIENCE RESEARCH EXPERIENCE AND LESSON PLANS AND CAREER PLANS**

- 242-12** 4:30 PM McDonald, Scott\*; Bateman, Kathryn M.; Tanis Ozcelik, Arzu; Gall, Helen Deborah; Webb, Aubree; Furman, Tanya: **UNDERSTANDING STUDENTS' IDEAS ABOUT PLATE TECTONICS: A LEARNING PROGRESSIONS APPROACH**
- 242-13** 4:50 PM Webb, Aubree\*; McDonald, Scott; Furman, Tanya; Gall, Helen; Bateman, Kathryn M.; Tanis Ozcelik, Arzu: **PLATE TECTONICS MULTIPLE CHOICE ASSESSMENT: A PILOT**
- 242-14** 5:10 PM Bateman, Kathryn M.\*; McDonald, Scott; Furman, Tanya: **THE CHALLENGE OF ASSUMPTIONS: A COMPARISON OF CURRICULAR MATERIALS AND EMPIRICAL LEARNING PROGRESSIONS IN MIDDLE GRADES PLATE TECTONICS**

**SESSION NO. 243****T90. Undergraduate Geoscience Education and Research Opportunities Supported by NSF Funding Programs**

1:30 PM, Baltimore Convention Center, Room 336

Jill Singer and Jeffrey Ryan, Presiding

- 1:30 PM **INTRODUCTORY REMARKS**
- 243-1** 1:35 PM Bursztyn, Natalie\*; Walker, Andrew; Shelton, Brett; Pederson, Joel: **STIMULATING STUDENT INTEREST WITH SMARTPHONES: INCREASING UNDERGRADUATE MOTIVATION TO LEARN GEOSCIENCE WITH VIRTUAL GRAND CANYON FIELD TRIP**
- 243-2** 1:50 PM Freile, Deborah\*; Duzgoren-Aydin, Nurdan S.: **BENEFITS AND PITFALLS OF THE MODERN LABORATORY: THE CHALLENGES OF IMPLEMENTING HIGH-END INSTRUMENTATION IN GEOSCIENCE COURSES AND RESEARCH AT A MINORITY SERVING INSTITUTION**
- 243-3** 2:05 PM Dyar, M. Darby\*; Watts, Erica; Brady, John B.; McGowan, Eileen M.: **USING FTIR SPECTROSCOPY OF GEMSTONES TO IMPROVE ANALYTICAL COMPETENCE IN INTRODUCTORY GEOSCIENCE CURRICULA**
- 243-4** 2:20 PM Ryan, Jeffrey\*; Hoblik, Sven; Ricchezza, Vic; MacDonald, Jr., James H.; Beck, Mary A.; Hickey-Vargas, Rosemary: **LOWERING BARRIERS TO PILOTING THE CLASSROOM PRACTICE OF SEM OR ELECTRON MICROPROBE USAGE: CONNECTING WITH NEW FACULTY PARTICIPANTS THROUGH THEIR STUDENTS**
- 243-5** 2:35 PM Stern, Robert\*; Lieu, Warren; Mantey, Asya; Ward, Andrew; Fechter, Todd; Farrar, Eric; McComber, Sean; Windler, Jeffrey: **A NEW ANIMATION OF SUBDUCTION ZONE PROCESSES DEVELOPED FOR THE UNDERGRADUATE AND COMMUNITY COLLEGE AUDIENCE**
- 243-6** 2:50 PM Holbik, Sven\*; Ryan, Jeffrey; Hickey-Vargas, Rosemary; MacDonald, Jr., James H.; Beck, Mary A.: **ENABLING AND FACILITATING UNDERGRADUATE RESEARCH THROUGH THE USE OF REMOTELY OPERABLE EPMA AND SEM INSTRUMENTATION IN INTRODUCTORY AND UPPER-LEVEL GEOSCIENCE CURRICULUM: EARLY SUCCESS AND CHALLENGES**
- 3:05 PM **BREAK**
- 243-7** 3:20 PM Drostin, Michele Ann\*: **INCREASING DIVERSITY AND ENHANCING ACADEMIA IN THE GEOSCIENCES**
- 243-8** 3:35 PM Johnson, Ashanti\*; Detrick, Liv; Ricciardi, Lois; Siegfried, David; Braxton, LaTanya: **THE INSTITUTE FOR BROADENING PARTICIPATION'S DIVERSITY RESOURCES FOR FACULTY: TOOLS FOR ACTUALIZING BROADER IMPACTS OF NSF FUNDED UNDERGRADUATE GEOSCIENCE EDUCATION AND RESEARCH OPPORTUNITIES**
- 243-9** 3:50 PM Allen, Joseph L.\*; Kuehn, Stephen C.: **DOES LONGER ENGAGEMENT IN UNDERGRADUATE RESEARCH LEAD TO A MORE SOPHISTICATED UNDERSTANDING OF THE NATURE OF SCIENCE? FRAMEWORK FOR STUDY OF A MULTI-YEAR, COURSE-BASED RESEARCH EXPERIENCE**

- 243-10** 4:05 PM Wirth, Karl R.\*; Greer, Lisa; Garver, John I.; Varga, Robert J.; Frey, Holli M.; Peck, William H.; Wobus, Reinhard A.: **KECK GEOLOGY CONSORTIUM RESEARCH EXPERIENCES: A MODEL FOR MENTORING STUDENT RESEARCHERS AND EARLY CAREER FACULTY**
- 243-11** 4:20 PM Antonuccio, Kelly M.S.\*; Hyde, Amanda: **RESEARCH EXPERIENCE FOR TEACHERS: BRIDGING THE GAP BETWEEN SCIENTISTS AND SCIENCE TEACHERS THROUGH THE CRYOSPHERE**
- 243-12** 4:35 PM Lang, Nicholas P.\*; Claiborne, Lily L.; Miller, Calvin F.; Heerboth, Melissa: **SECOND YEAR ASSESSMENT OF AN INTEGRATED FIELD- AND LAB-BASED NSF RESEARCH EXPERIENCE FOR UNDERGRADUATES IN THE BLACK MOUNTAINS OF NW ARIZONA**
- 243-13** 4:50 PM Singer, Jill\*; Ambos, Elizabeth; Fox, Sean P.; Hewlett, James; Miller, Jason; Weiler, Daniel; Zimmerman, Bridget: **IMPROVING UNDERGRADUATE EDUCATION THROUGH COMMUNITY BUILDING AND ADOPTION OF AN EVIDENCE-BASED PRACTICE TO EVALUATE UNDERGRADUATE RESEARCH**
- 5:05 PM **CONCLUDING REMARKS**

**SESSION NO. 244****T95. Evolution of the Data Life Cycle (Geoscience Information Society)**

1:30 PM, Baltimore Convention Center, Room 338

Hannah Winkler, Presiding

- 244-1** 1:30 PM Huffine, Richard\*: **OVERVIEW OF EMERGING REQUIREMENTS FOR DATA MANAGEMENT OF FEDERALLY FUNDED RESEARCH IN THE GEOSCIENCES**
- 244-2** 1:45 PM Tschirhart, Lori\*: **EVOLUTION OF THE DATA LIBRARIAN: CASE STUDIES DOCUMENTING THE EVOLVING ROLE OF DATA LIBRARIANS AT ONE ARL INSTITUTION**
- 244-3** 2:00 PM Faundeen, John\*; Burley, Tom; Govoni, David; Henkel, Heather S.; Martin, Elizabeth; Montgomery, Ellyn; Zolly, Lisa; Hutchison, Viv; Tessler, Steve; Ladino, Cassandra: **THE EVOLUTION, APPROVAL, AND IMPLEMENTATION OF THE U.S. GEOLOGICAL SURVEY SCIENCE DATA LIFECYCLE MODEL**
- 244-4** 2:15 PM Deering, Carol A.\*: **WHO IS USING OUR DATASETS AND DATA PRODUCTS?**
- 244-5** 2:30 PM Davis, Angela R.\*: **NATIONAL TECHNICAL REPORTS LIBRARY (NTRL): NOT JUST ANOTHER DATABASE**
- 244-6** 2:45 PM Bennett, Stacie L. Doman\*: **NASA LP DAAC PRODUCT LIFECYCLE PLAN IN ACTION**
- 3:00 PM **BREAK**
- 244-7** 3:15 PM Stall, Shelley\*: **THE CHALLENGES OF IMPLEMENTING AND SUSTAINING BEST PRACTICES IN THE DATA LIFECYCLE FOR RESEARCHERS AND REPOSITORIES**
- 244-8** 3:30 PM Badurek, Christopher A.\*: **ASSESSMENT OF GREENHOUSE GAS DATA SETS ACROSS THE DATA LIFE CYCLE**
- 244-9** 3:45 PM Tahirkheli, Sharon\*: **PREVENTING THE EXTINCTION OF THE ANTARCTIC JOURNAL OF THE UNITED STATES AND ITS PREDECESSORS: MAKING IT ACCESSIBLE INTO THE FUTURE**
- 244-10** 4:00 PM Joseph, Lura E.\*: **GUIDEBOOKS ASSOCIATED WITH INTERNATIONAL GEOLOGICAL CONFERENCE FIELD TRIPS; ENDANGERED?**
- 244-11** 4:15 PM Zellmer, Linda R.\*: **WHY IN THE WORLD? COMPARING "EXPERT" SEARCH RESULTS IN GEOREF ON MULTIPLE DATABASE PLATFORMS**
- 244-12** 4:30 PM Musser, Linda R.\*: **MANAGING YOUR SCHOLARLY/ RESEARCH PROFILE**

## SESSION NO. 245

**T117. Enhancing the Toolkit for Karst Investigations (GSA Karst Division; GSA Hydrogeology Division)**

1:30 PM, Baltimore Convention Center, Room 340

Douglas Gouzie, Toby Dogwiler and Joseph Myre, Presiding

- 245-1** 1:30 PM Smith, Matthew D.\*; Gouzie, Douglas R.: **BUILDING A TRACE METALS DATABASE OF CAVE SEDIMENTS OF THE MIDCONTINENT U.S.A**
- 245-2** 1:45 PM Blackstock, Joshua M.\*; Turner, Noel L.; Knierim, Katherine; Brahana, J. Van; Kresse, Tim M.; Hays, Phillip: **USING PUBLIC DATASETS AND GEOSPATIAL ANALYSES TO INVESTIGATE TECTONIC CONTROLS ON SPRING DISCHARGE LOCATIONS ALONG THE SOUTHERN OZARK DOME, NORTHERN ARKANSAS, USA**
- 245-3** 2:00 PM Valle, Cynthia M.\*; Tobin, Benjamin W.; Schenk, Edward R.: **A GIS STUDY OF SINKHOLE MORPHOLOGY AND DISTRIBUTION IN RELATION TO STRUCTURAL FEATURES OF THE KAIBAB PLATEAU AS A MEANS OF UNDERSTANDING RECHARGE TO THE REDWALL-MUAV AQUIFER OF GRAND CANYON NATIONAL PARK, ARIZONA, USA**
- 245-4** 2:15 PM Pierskalla, Jr., William P.\*; Zhu, Junfeng: **INCORPORATING HUMAN IMPACTS AND NATURAL PROCESSES TO ASSESS SINKHOLE RISK**
- 245-5** 2:30 PM Peterson, Eric W.\*; Schroeder, Kathryn E.; Dogwiler, Toby: **THE USE OF GIS IN EVALUATING LONGITUDINAL PROFILES OF KARST STREAMS**
- 245-6** 2:45 PM Dogwiler, Toby\*: **CHARACTERIZING KARST HAZARDS AND DEPTH-TO-BEDROCK IN DRIFTLESS AREA AGRICULTURE SETTINGS IN SOUTHEASTERN MINNESOTA**
- 245-7** 3:00 PM Davies, Gareth J.\*: **HYDROGEOLOGY IN KARST AND FRACTURED ROCKS: AN OLD PROBLEM REQUIRING THE HELP OF DEEP THOUGHT**
- 3:15 PM **BREAK**
- 245-8** 3:30 PM McClanahan, Kegan\*; Polk, Jason; Miller, Benjamin V.; Schaefer, III, Robert; Bolster, Carl H.: **ISOTOPIC EVOLUTION OF GROUNDWATER IN A TEOGENETIC KARST AQUIFER: A METHOD TO STUDY RECHARGE AND CONTAMINANT TRANSPORT**
- 245-9** 3:45 PM Halihan, Todd\*; Galvao, Paulo; Hirata, Ricardo: **THE KARST PERMEABILITY SCALE EFFECT OF SETE LAGOAS, MG, BRAZIL**
- 245-10** 4:00 PM Marquez, Maria E.\*; Sukop, Michael C.: **REEXAMINING SLUG TESTS FOR HIGHLY PERMEABLE AQUIFER CHARACTERIZATION WITH END-MEMBER LABORATORY TESTS AND WELL TESTS**
- 245-11** 4:15 PM Zappitello, Sarah J.\*; Schwartz, Benjamin F.; Wierman, Douglas A.; Miller, Meredith: **GROUNDWATER – SURFACE WATER INTERACTIONS IN THE PEDERNALES RIVER BASIN, TEXAS**
- 245-12** 4:30 PM Schwartz, Benjamin F.\*; Covington, Matthew D.; Myre, Joseph; Kotic, Katarina; Thaler, Evan; Perne, Matija: **DESIGNING, BUILDING, AND OPERATING A LONG-TERM INSTRUMENTATION NETWORK IN THE OMEGA CAVE SYSTEM, VA, USA: RESULTS AFTER THE FIRST YEAR**
- 245-13** 4:45 PM Cresswell, Jacque N.\*; van Hengstum, Peter J.; Illiffe, Thomas M.: **THE RECOVERY OF BENTHIC FORAMINIFERA IN A SUBMARINE CAVE FOLLOWING AN ANTHROPOGENIC DISTURBANCE IN 1941 CE**

## SESSION NO. 246

**T129. Forecasting the Coastal Response to Sea-Level Rise: Integrating the Past and Present to Inform the Future (GSA Quaternary Geology and Geomorphology Division; Marine/Coastal Science Discipline)**

1:30 PM, Baltimore Convention Center, Room 345/346

Erika E. Lentz, Benjamin T. Gutierrez and Simon E. Engelhart, Presiding

- 1:30 PM **INTRODUCTORY REMARKS**
- 246-1** 1:35 PM Muhs, Daniel R.\*; Simmons, Kathleen R.; Groves, Lindsey T.; Schumann, R. Randall; Mitrovica, Jerry X.; Laurel, DeAnna J.: **GSA QUATERNARY GEOLOGY AND GEOMORPHOLOGY DIVISION KIRK BRYAN AWARD: QUATERNARY SEA-LEVEL HISTORY ON THE PACIFIC COAST OF NORTH AMERICA: EFFECTS OF LOW UPLIFT RATE AND GLACIAL ISOSTATIC ADJUSTMENT PROCESSES ON THE MARINE TERRACE RECORD**
- 246-2** 2:05 PM Fletcher, Charles H.\*; Anderson, Tiffany; Barbee, Matthew; Habel, Shellie L.: **MODELING COASTAL EROSION, GROUNDWATER INUNDATION, PASSIVE INUNDATION, AND WAVE INUNDATION UNDER HIGHER SEA LEVEL IN HAWAII**
- 246-3** 2:20 PM Lorenzo Trueba, Jorge\*; Jin, Di; Hoagland, Porter; Ashton, Andrew D.: **THE ROLE OF SHOREFACE DYNAMICS IN BEACH NOURISHMENT DECISIONS: INSIGHTS FROM A SIMPLE MODEL**
- 246-4** 2:40 PM Lentz, Erika E.\*; Thieler, E. Robert; Plant, Nathaniel; Stippa, Saywer; Horton, Radley; Gesch, Dean: **ASSESSMENT OF COASTAL LANDSCAPE ADAPTABILITY TO SEA LEVEL RISE THROUGH A DECISION SUPPORT LENS**
- 246-5** 2:55 PM Masterson, John P.\*; Walter, Donald A.; Langevin, Christian: **EFFECTS OF SEA-LEVEL RISE ON COASTAL AQUIFER SYSTEMS – POTENTIAL ECONOMIC AND ECOLOGICAL IMPACTS, EASTERN U.S**
- 3:15 PM **BREAK**
- 3:30 PM **INTRODUCTORY REMARKS**
- 3:35 PM Mitrovica, Jerry\*: **Arthur L. Day Medal: SEA LEVEL CHANGE FROM THE PALEOZOIC TO THE 21ST CENTURY: A RECORD OF CONTROVERSY**
- 246-6** 3:55 PM Davis, R. Laurence\*; Gibson, III, Solomon Ashton: **USING MANGROVE SUCCESSION TO MEASURE CHANGES IN THE RATE OF SEA LEVEL RISE ON SAN SALVADOR ISLAND, BAHAMAS: 1929-1994 AND 1994-2014**
- 246-7** 4:10 PM Hurst, Martin D.\*; Rood, Dylan H.; Anderson, Robert S.; Ellis, Michael A.; Dornbusch, Uwe: **MILLENNIAL HISTORY OF SEA CLIFF RETREAT DERIVED USING COSMOGENIC <sup>10</sup>BE REVEALS A RECENT ACCELERATION IN EROSION**
- 246-8** 4:25 PM Tornqvist, Torbjörn E.\*; Jankowski, Krista L.: **FORECASTING THE FATE OF LOUISIANA'S COASTAL WETLANDS USING PAST AND PRESENT MARSH RECORDS**
- 246-9** 4:45 PM Palinkas, Cindy\*; Engelhardt, Katharina: **RESPONSE OF TIDAL FRESHWATER MARSHES IN CHESAPEAKE BAY TRIBUTARIES TO SHORT-TERM VARIABILITY IN SEA LEVEL AND SUSPENDED SEDIMENT CONCENTRATIONS**
- 246-10** 5:00 PM Doyle, Thomas\*: **MODELING APPLICATIONS TO FORECAST SEA-LEVEL RISE AND COASTAL HABITAT MIGRATION UNDER CLIMATE CHANGE**
- 246-11** 5:15 PM Ridge, Justin T.\*; Rodriguez, Antonio B.: **COUPLING OYSTER REEF WITH SALT MARSH ENHANCES CARBON STORAGE IN THE FACE OF SEA-LEVEL RISE**

**SESSION NO. 247****T140. Late Paleocene and Early Eocene Hyperthermal Events in Terrestrial and Marine Systems**

1:30 PM, Baltimore Convention Center, Room 342

Jean M. Self-Trail and Marci M. Robinson, Presiding

- 247-1 1:30 PM Kirtland Turner, Sandra\*; Ridgwell, Andy: **DEVELOPMENT OF A NOVEL EMPIRICAL FRAMEWORK FOR INTERPRETING GEOLOGICAL CARBON ISOTOPE EXCURSIONS, WITH IMPLICATIONS FOR THE RATE OF CARBON INJECTION ACROSS THE PETM**
- 247-2 1:45 PM Wing, Scott L.\*: **TERRESTRIAL FLORAL CHANGE DURING THE PALEOCENE-EOCENE THERMAL MAXIMUM**
- 247-3 2:00 PM Barclay, Richard S.\*; Wing, Scott L.: **ESTIMATES OF ATMOSPHERIC CO<sub>2</sub> ACROSS THE PETM HYPERTHERMAL USING STOMATAL INDEX VALUES FROM GINKGO ADIANTOIDES AND PLATANITES RAYNOLDSII**
- 247-4 2:15 PM Conde, Giselle D.\*; Retallack, Gregory J.: **IMPROVING THE RECORD OF CENOZOIC ATMOSPHERIC CO<sub>2</sub> WITH STOMATAL INDEX OF FOSSIL GINKGO LEAVES FROM NORTH AMERICA**
- 247-5 2:30 PM Graham, Heather V.\*; Wing, Scott L.; Freeman, Katherine H.: **BUILDING A FOREST FROM THE LEAVES: ISOTOPIC METHODS FOR RECONSTRUCTING FOREST STRUCTURE OF THE PAST**
- 247-6 2:45 PM Chew, Amy E.\*: **MAMMAL BODY SIZE CHANGE IN THE ZONE OF THE EARLY EOCENE HYPERTHERMALS ETM2 AND H2**
- 247-7 3:00 PM Hyland, Ethan G.\*; Huntington, Katharine W.; Sheldon, Nathan D.: **TEMPERATURE SEASONALITY IN CONTINENTAL NORTH AMERICA DURING THE EARLY EOCENE CLIMATIC OPTIMUM**
- 3:15 PM **BREAK**
- 247-8 3:30 PM Bralower, Timothy J.\*; Self-Trail, Jean M.; Kump, Lee R.: **MALFORMATION IN NANNOPLANKTON SPECIES FROM THE PALEOCENE-EOCENE THERMAL MAXIMUM: A STUDY OF EXPANDED RECORDS FROM SHELF SECTIONS IN MARYLAND AND NEW JERSEY**
- 247-9 3:45 PM Sessa, Jocelyn A.\*; Self-Trail, Jean M.; Robinson, Marci M.; Spivey, Whitney E.; Bralower, Timothy J.; Thomas, Ellen: **UTILIZING THE MOLLUSK FAUNA OF THE ATLANTIC COASTAL PLAIN TO RECONSTRUCT ENVIRONMENTAL CONDITIONS ACROSS THE PALEOCENE-EOCENE THERMAL MAXIMUM (PETM)**
- 247-10 4:00 PM Powars, David S.\*; Edwards, Lucy E.: **PALEOCENE-EOCENE THERMAL MAXIMUM LITHOFACIES ACROSS THE MID-ATLANTIC COASTAL PLAIN: SEDIMENTOLOGICAL ANALYSIS OF 100'S OF STACKED TURBIDITE PACKAGES**
- 247-11 4:15 PM Peplau, Regina L.\*: **FLORAL RESPONSE TO THE PALEOCENE EOCENE THERMAL MAXIMUM IN THE WESTERN U.S. GULF COAST**
- 247-12 4:30 PM Giraldo Gómez, Victor Manuel\*; Linnert, Christian; Mutterlose, Jörg: **CALCAREOUS NANNOFOSSILS FROM THE PETM INTERVAL OF A SHELF SECTION IN JORDAN**
- 247-13 4:45 PM D'haenens, Simon\*; Bornemann, André; Speijer, Robert P.: **THE ROLE OF POPULATION PATCHINESS AND ENVIRONMENTAL VARIABILITY IN THE BENTHIC FORAMINIFERAL EXTINCTION DURING THE PALEOCENE-EOCENE THERMAL MAXIMUM**
- 247-14 5:00 PM Thomas, Ellen\*; Balestra, Barbara; Monechi, Simonetta; Roehl, Ursula: **BIOTIC RESPONSE TO EARLY EOCENE THERMAL MAXIMUM 3 AT WALVIS RIDGE, SE ATLANTIC OCEAN**

- 247-15 5:15 PM Newsam, Cherry\*; Bown, Paul: **CALCAREOUS NANNOPLANKTON POPULATION DYNAMICS AND EVOLUTION AT THE MIDDLE EOCENE CLIMATIC OPTIMUM IN THE NORTH ATLANTIC (IODP SITE U1408)**

**SESSION NO. 248****T142. The Middle Paleozoic World (SEPM (Society for Sedimentary Geology); GSA Sedimentary Geology Division; Paleontological Society)**

1:30 PM, Baltimore Convention Center, Room 337

Adam David Sproson, David Selby and James R. Ebert, Presiding

- 248-1 1:30 PM Brett, Carlton E.\*; McLaughlin, Patrick I.; Baird, Gordon C.; Emsbo, Poul; Thomka, James R.; Zambito, James: **SILURIAN-DEVONIAN ENVIRONMENTAL AND BIOTIC CHANGE RECAST IN A NEW TIME SCALE: EVIDENCE OF CHANGING VOLATILITY FROM THE APPALACHIAN BASIN**
- 248-2 1:50 PM Sproson, Adam David\*; Selby, David; Hladil, Jindrich; John, Cedric M.; Slavik, Ladislav; Ebert, James R.; Zhao, Wenjin: **EVIDENCE FOR GLACIATION ACROSS THE SILURIAN-DEVONIAN BOUNDARY: INSIGHTS FROM OSMIUM AND CLUMPED ISOTOPES**
- 248-3 2:05 PM Ebert, James R.\*: **RISING, FALLING, HIGHSTAND OR LOWSTAND: EUSTASY AT THE SILURIAN-DEVONIAN BOUNDARY**
- 248-4 2:20 PM Young, Seth A.\*; Eriksson, Mats E.; Owens, Jeremy D.: **PAIRED SULFUR AND CARBON ISOTOPE STRATIGRAPHY FOR THE LATE LUDFORDIAN (SILURIAN) OF GOTLAND, SWEDEN: IMPLICATIONS FOR ENVIRONMENTAL, OCEANOGRAPHIC, AND BIOTIC CHANGE**
- 248-5 2:35 PM Soja, Constance M.\*; White, Brian; Antoshkina, Anna I.: **THE INFLUENCE OF CALEDONIDE OROGENESIS ON SILURIAN-DEVONIAN EVOLUTIONARY ECOLOGY IN ALASKA'S ALEXANDER TERRANE**
- 248-6 2:50 PM Mitchell, Ria L.\*; Kenrick, Paul: **CRYPTOGAMIC GROUND COVERS AS MODERN ANALOGUES OF EARLY TERRESTRIAL ECOSYSTEMS: STRUCTURE, ORGANIC-MINERAL INTERACTIONS, AND BIOTIC WEATHERING AS CLUES TO THE DEVELOPMENT OF EARLY BIOTICALLY-INDUCED SOILS**
- 248-7 3:05 PM Sallan, Lauren\*; Friedman, Matt; Sansom, Robert; Sansom, Sr., Ivan J.: **THE SILURIAN NEKTON REVOLUTION: PALEOZOIC JAWLESS FISHES EXHIBITED MODERN FORM-DEPENDENT MODES OF HABITAT USE**
- 248-8 3:20 PM Sadler, Peter\*: **INTEGRATED AND FINELY-RESOLVED TIMELINES OF MID-PALEOZOIC BIOTIC AND ENVIRONMENTAL CHANGE IN THE PELAGIC REALM: OPPORTUNITIES AND OBSTACLES**
- 248-9 3:40 PM Whalen, Christopher D.\*; Briggs, Derek E. G.: **DIVERSIFICATION OF AMMONOIDS AND VERTEBRATES DURING THE DEVONIAN NEKTON REVOLUTION**
- 248-10 3:55 PM Tierney, Peter W.\*: **FROM SIMPLE MOUNDS TO COMPLEX REEFS: REGIONAL TRENDS IN REEF FACIES DEVELOPMENT FROM THE ORDOVICIAN THROUGH DEVONIAN**
- 248-11 4:10 PM Wilson, Jonathan P.\*; Meyer-Berthaud, Brigitte: **WATER TRANSPORT AND BIOGEOGRAPHY OF THE LATE DEVONIAN TREE, *ARCHAEOPTERIS (CALLIXYLON)***
- 248-12 4:25 PM Uveges, Benjamin Thornton Iglar\*; Junium, Christopher K.; Cohen, Phoebe; Boyer, Diana L.: **ENVIRONMENTAL CONDITIONS AMIDST THE FRASNIAN-FAMMIAN BIOTIC CRISIS: CLUES FROM NITROGEN ISOTOPES AND CHLOROPHYLL DERIVATIVES**
- 248-13 4:40 PM Day, Jed\*; Witzke, Brian J.; Preslicka, James: **KELLWASSER EXTINCTION RECORDS FROM DEEP**

TUESDAY

PM

- CARBONATE RAMP AND SHALLOW PLATFORM SETTINGS IN CENTRAL NORTH AMERICA**
- 248-14** 4:55 PM Roller, Goetz\*: <sup>187</sup>RE - <sup>187</sup>OS NUCLEAR GEOCHRONOMETRY: DATING RADIOACTIVE DEVONIAN BLACK GAS SHALES (USGS SDO-1)
- 248-15** 5:10 PM Cramer, Bradley D.\*: WHAT'S A FEW CM'S BETWEEN FRIENDS? PALEOBIOGEOGRAPHIC DIACHRONEITY AND THE GSSP CONCEPT AT THE DEVONIAN-CARBONIFEROUS BOUNDARY

**SESSION NO. 249****T148. Cenozoic Evolution of Tropical Biota and Environments III: A Session Honoring the Contributions of Ann F. Budd (SEPM (Society for Sedimentary Geology); Paleontological Society)**

1:30 PM, Baltimore Convention Center, Room 310

James S. Klaus, Kenneth G. Johnson, Francesca R. Bosellini and Thomas Stemann, Presiding

- 249-1** 1:30 PM Grossman, Ethan L.\*; Robbins, John A.; Tao, Kai; Rachello-Dolmen, Paola G.; Saxena, Divya; O'Dea, Aaron: **STABLE ISOTOPE EVIDENCE FOR DECLINING FRESHWATER INPUT TIED TO PLIO-PLEISTOCENE FAUNAL OVERTURN IN THE CARIBBEAN**
- 249-2** 1:45 PM Rachello-Dolmen, Paola G.\*; O'Dea, Aaron; Grossman, Ethan L.; Jackson, Jeremy B.C.: **TROPICAL AMERICA PALEOBIOLOGY DATABASE: INTEGRATING BIOTIC AND GEOCHEMICAL DATA TO EXPLORE DRIVERS OF EVOLUTION AND ECOLOGICAL CHANGE**
- 249-3** 2:00 PM Khameiss, Belkasim\*; Hoyt, William H.; El Ebaidi, Saad K.; Muftah, Ahmed M.; Klaus, James S.; Budd, Ann F.: **A PRELIMINARY DOCUMENTATION OF THE CORAL REEFS FROM LIBYA**
- 249-4** 2:15 PM Parsons-Hubbard, Karla\*; McGuire, Casey; Kay, Cria; Herrmann, Megan: **DIFFICULTIES WITH THE DEATH ASSEMBLAGE AS A RECORD OF RECENT ENVIRONMENTAL CHANGE IN A REEF LAGOON SYSTEM**
- 249-5** 2:30 PM Locatelli, Emma Rose\*; Briggs, Derek; Stemann, Thomas; Portell, Roger W.; Means, Harley; Donovan, Stephen K.: **LEAVES FROM THE SEA: A FLORA FROM THE PLIOCENE BOWDEN FORMATION OF JAMAICA**
- 249-6** 2:45 PM Santodomingo, Nadiezhda\*; Johnson, Kenneth: **UNDERSTANDING THE MURKY HISTORY OF THE CORAL TRIANGLE: MIOCENE CORALS AND REEF HABITATS OF INDONESIA**
- 249-7** 3:00 PM Nebelsick, James H.\*; Mancosu, Andrea: **SEA URCHIN ASSEMBLAGES FROM THE MIOCENE OF SARDINIA AND THEIR RELEVANCE TO RECONSTRUCTING OCEANOGRAPHIC AND CLIMATE CONDITIONS OF THE MEDITERRANEAN TETHYS**
- 3:15 PM **BREAK**
- 249-8** 3:30 PM Johns, Griffin Stephen\*; Leonard-Pingel, Jill: **PALEOECOLOGICAL SHIFTS IDENTIFIED THROUGH BIVALVE ASSEMBLAGES FROM THE BOWDEN AND PORT MORANT FORMATIONS IN THE PLIOCENE AND PLEISTOCENE**
- 249-9** 3:45 PM Klaus, James S.\*; Meeder, John; McNeill, Donald F.; Woodhead, Jon: **MIDDLE PLIOCENE CORAL REEFS OF THE FLORIDA PLATFORM**
- 249-10** 4:00 PM Stemann, Thomas\*: **PLIO-PLEISTOCENE TURNOVER ON SILICLASTIC DOMINATED REEFS FROM JAMAICA**
- 249-11** 4:15 PM McNeill, Donald F.\*; Diaz, Viviana; Klaus, James S.; Swart, Peter K.; Pourmand, Ali; Woodhead, Jon; da Gama, Rui; Medina, Daniel: **THE MIDDLE PLEISTOCENE REEF TRANSITION: CHANGES IN CORALS AND REEF ARCHITECTURE AS RECORDED IN THE DOMINICAN REPUBLIC CORE TRANSECT**

- 249-12** 4:30 PM Hubbard, Dennis\*: **FACIES ARCHITECTURE AND COMMUNITY STRUCTURE IN HOLOCENE CORAL REEFS OF THE WESTERN DOMINICAN REPUBLIC**
- 249-13** 4:45 PM Stanley, Steven M.\*: **HABITATS, MARINE LIFE, AND HISTORY OF A TRANSGRESSIVE BARRIER-ISLAND (OR SPIT)-LAGOON SYSTEM: PALEOECOLOGY AND FATE OF THE INCREDIBLY DIVERSE TROPICAL BIVALVE FAUNA OF THE PLIOCENE PINECREST FORMATION OF FLORIDA**
- 5:00 PM **CONCLUDING REMARKS**

**SESSION NO. 250****T152. Geobiology of Critical Transitions: Integrating Fossils, Proxies, and Models I (GSA Geobiology & Geomicrobiology Division; Paleontological Society; Geochemical Society)**

1:30 PM, Baltimore Convention Center, Room 325/326

A. D. Muscente, Natalia Bykova, Jesse S. Broce and James D. Schiffbauer, Presiding

- 1:30 PM **INTRODUCTORY REMARKS**
- 250-1** 1:35 PM Liu, Alexander G.\*: **THE ROLE OF FRAMBOIDAL PYRITE AND SULFUR CYCLING IN EDIACARAN TAPHONOMY**
- 250-2** 1:50 PM Cui, Huan\*; Kaufman, Alan J.; Xiao, Shuhai; Cao, Hansheng; Peek, Sara; Liu, Xiao-Ming; Min, Xiao; Cai, Yaoping; Peng, Yongbo; Schiffbauer, James D.: **ENVIRONMENTAL CONTEXT FOR ANIMAL BIOMINERALIZATION AND FOSSIL PYRITIZATION IN THE TERMINAL EDIACARAN PERIOD**
- 250-3** 2:05 PM Muscente, A.D.\*; Xiao, Shuhai: **A MODEL FOR THE PRESERVATION OF SHELLS AS CARBONACEOUS FOSSILS BASED ON TAPHONOMIC OBSERVATIONS AND EXPERIMENTS**
- 250-4** 2:20 PM Pruss, Sara B.\*; Dwyer, Camille H.; Smith, Emily F.; Macdonald, Francis A.; Tosca, Nicholas; Faggetter, Luke; Zhang, Ziqiu: **PHOSPHATIC AND GLAUCONITIC FOSSIL PRESERVATION LINKED TO REDOX OSCILLATIONS IN CAMBRIAN OCEANS**
- 250-5** 2:35 PM Marroquín, Selva M.\*; Martindale, Rowan C.; Fuchs, Dirk; Gill, Benjamin C.; Them, Il, Theodore R.: **EXCEPTIONALLY PRESERVED OCTOBRACHIA COLEOIDS FROM THE FIRST EARLY JURASSIC LAGERSTÄTTE IN NORTH AMERICA**
- 250-6** 2:50 PM Manning-Berg, A.R.\*; Kah, L.C.: **GEOCHEMICAL CONSTRAINTS ON THE DEPOSITION OF MICROFOSSIL-BEARING EARLY DIAGENETIC CHERT IN THE PROTEROZOIC**
- 250-7** 3:05 PM Gannon, Michelle E.\*; Aharon, Paul; Pérez-Huerta, Alberto: **MICROSTRUCTURAL CHANGES IN FOSSIL GIANT CLAM SHELLS THROUGH 200 KA: INITIAL RESULTS**
- 3:20 PM **BREAK**
- 250-8** 3:35 PM Hood, Ashleigh\*; Planavsky, Noah; Wallace, Malcolm W.; Gueguen, Bleuenn; Wang, Xiangli: **CRYOGENIAN REEF COMPLEXES AS PROXIES FOR PALEOCEANOGRAPHIC CONDITIONS AT THE DAWN OF ANIMAL LIFE**
- 250-9** 3:50 PM Bykova, Natalia\*; Gill, Benjamin C.; Grazhdankin, Dmitriy; Xiao, Shuhai: **USING GEOCHEMICAL TOOLS TO STUDY EDIACARAN MACROORGANISMS FROM THE KHATYSPYT FORMATION, OLENEK UPLIFT, SIBERIA**
- 250-10** 4:05 PM Webster, Mark\*; Caron, Jean-Bernard; Gaines, Robert; Mángano, Gabriela: **CONTENT, NATURE, AND SIGNIFICANCE OF THE RIFLE RANGE LAGERSTÄTTE (EAGER FORMATION, EARLY CAMBRIAN), CRANBROOK, BRITISH COLUMBIA**
- 250-11** 4:20 PM Dornbos, Stephen Q.\*; Oji, Tatsuo; Kanayama, Akihiro; Gonchigdorj, Sersmaa: **A NEW BURGESS SHALE-TYPE DEPOSIT FROM THE EDIACARAN OF WESTERN MONGOLIA**



- 250-12 4:35 PM Gaines, Robert R.\*; Paterson, John; Jago, Jim; Gehling, James; Garcia-Bellido, Diego: **PALEOENVIRONMENTAL AND DEPOSITIONAL SETTING OF THE EMU BAY SHALE, A UNIQUE EARLY CAMBRIAN LAGERSTÄTTE**
- 250-13 4:50 PM LoDuca, Steven T.\*; Wu, Mengyin; Zhao, Yuanlong; Xiao, Shuhai; Schiffbauer, James D.; LeRoy, Matthew; O'Neil, Ellen: **SEAWEED THROUGH TIME: THE EARLY PALEOZOIC**
- 250-14 5:05 PM Bottjer, David J.\*: **GEOBIOLOGY AND PALEOGENOMICS**

**SESSION NO. 251****T154. Phanerozoic Evolution in the Oceans: Effects of Warming and Chemical Changes (Cushman Foundation; Paleontological Society; Paleontological Research Institute)**

1:30 PM, Baltimore Convention Center, Room 316

Jere H. Lipps and Malcolm Barrie Hart, Presiding

- 1:30 PM **INTRODUCTORY REMARKS**
- 251-1 1:35 PM Langer, Martin R.\*: **PHANEROZOIC CHANGES IN THE OCEANS: THE FORAMINIFERAL RECORD**
- 251-2 1:55 PM Hart, Malcolm Barrie\*; Hall-Spencer, Jason M.; Hampton, Matthew; Leighton, Andrew D.; Pettit, Laura; Smart, Christopher W.: **THE IMPACT OF OCEAN ACIDIFICATION ON FORAMINIFERA IN MODERN SEAS AND ITS RECOGNITION IN THE GEOLOGICAL RECORD**
- 251-3 2:15 PM Spalding, Christopher\*; Fischer, Woodward W.; Finnegan, Seth: **THE SENSITIVITY OF CALCIFICATION ENERGETICS TO OCEAN ACIDIFICATION**
- 251-4 2:30 PM Hallock, Pamela\*; Mateu Vicens, Guillem; Pomar, Luis: **CENOZOIC TRENDS IN SHALLOW-WATER CARBONATE PRODUCTION: INSIGHTS FROM CHEMISTRY, CLIMATE AND BIOLOGY**
- 251-5 2:45 PM Hoenisch, Baerbel\*; Haynes, Laura L.; Penman, Donald; Eggins, Stephen M.; Rosenthal, Yair; Zachos, James C.: **QUANTIFYING PALEOCEAN ACIDIFICATION AT THE PETM FROM BORON PROXY RECORDS**
- 251-6 3:05 PM Dameron, Serena\*; Leckie, R. Mark; Clark, Kendra R.; MacLeod, Kenneth G.; Thomas, Deborah J.: **BIOTIC EXTINCTIONS, DISSOLUTION, AND OCEAN ACIDIFICATION PRIOR TO THE CRETACEOUS/PALEOGENE (K/PG) BOUNDARY IN THE TROPICAL PACIFIC**
- 3:20 PM **BREAK**
- 251-7 3:35 PM Huber, Brian T.\*; Petrizzo, Maria Rose; Watkins, David K.: **STASIS AND SPECIES TURNOVER OF CALCAREOUS PLANKTON DURING THE LATE CRETACEOUS (TURONIAN) ULTRATHERMAL**
- 251-8 3:50 PM Zhou, Xiaoli\*; Thomas, Ellen; Winguth, Arne M.E.; Ridgwell, Andy; Scher, Howie D.; Rickaby, Rosalind E.M.; Lu, Zunli: **BENTHIC FORAMINIFERAL I/CA RECORDING BOTTOM WATER OXYGENATION CONDITIONS IN THE LATE PALEOCENE-EARLY EOCENE OCEANS**
- 251-9 4:05 PM Stanley, Jr., George D.\*; Lipps, Jere H.: **OCEAN CHANGE: IMPACT ON PHOTOSYMBIOTIC REEF ECOSYSTEMS OF THE PAST**
- 251-10 4:20 PM Henderson, Miles A.\*; Kah, Linda C.: **PAIRED ISOTOPE RECORDS OF CARBONATE AND ORGANIC MATTER, MIDDLE ORDOVICIAN (DARRIWILIAN) OF ARGENTINA: IMPLICATIONS FOR GLOBAL CLIMATE CHANGE**
- 251-11 4:35 PM Richardson, Susan L.\*: **A PHYLOGENETIC PERSPECTIVE ON THE EVOLUTION OF GIGANTISM IN FUSULINACEA (FORAMINIFERA)**
- 251-12 4:50 PM Wang, Yang\*; Ciner, Burcu; Parker, William: **OXYGEN ISOTOPIC VARIATIONS IN MODERN CETACEAN TEETH AND BONES: IMPLICATIONS FOR PALEOECOLOGICAL, PALEOCLIMATIC AND PALEOCEANOGRAPHIC STUDIES**
- 5:05 PM **DISCUSSION**

**SESSION NO. 252****T160. Topics in Paleoecology: Modern Analogues and Ancient Systems III (Paleontological Society)**

1:30 PM, Baltimore Convention Center, Room 315

Darrin J. Molinaro, Carolyn M. Furlong, Amelinda E. Webb and Gary J. Motz, Presiding

- 252-1 1:30 PM Simpson, Andrew G.\*; Wing, S.L.; Fenster, Charles: **USING ANCESTRAL STATE RECONSTRUCTION FROM MODERN TO RECONSTRUCT PALEOECOLOGY: WHEN DOES IT WORK (AND WHEN DOES IT NOT)?**
- 252-2 1:45 PM Lee, Jeong-Hyun\*; Woo, Jusun; Hong, Jongsun; Lee, Dong-Jin; Choh, Suk-Joo: **EARLY RECOVERY OF METAZOAN FRAMEWORK REEFS IN THE AFTERMATH OF THE ARCHAEOCYATH EXTINCTION: MIDDLE CAMBRIAN (LATE STAGE 5) ZHANGXIA FORMATION, SHANDONG PROVINCE, CHINA**
- 252-3 2:00 PM Tackett, Lydia S.\*: **PROLIFERATION OF AVOIDANCE STRATEGIES IN THE LATE NORIAN (LATE TRIASSIC): NEW OBSERVATIONS OF A MAJOR PALEOECOLOGICAL TRANSITION IN LEVEL-BOTTOM BENTHOS FROM NEW ZEALAND**
- 252-4 2:15 PM Nanglu, Karma\*; Caron, Jean-Bernard; Cameron, Christopher B.; Conway Morris, Simon: **REDESCRIPTION OF OESIA DISJUNCTA AS A CAMBRIAN ENTEROPNEUST (HEMICHORDATA) AND MARGARETIA DORUS AS ITS ASSOCIATED TUBE**
- 252-5 2:30 PM Waggoner, Tanner\*; Greer, Lisa; Guilderson, Thomas P.; Clark, Tara; Busch, James; Biegel, Jenna; Lustig III, Harry; Curran, H. Allen; Lescinsky, Halard L.; Wirth, Karl: **CHRONOLOGICAL PERSISTENCE OF ACROPORA CERVICORNIS AT CORAL GARDENS, BELIZE**
- 252-6 2:45 PM Wall, Alexander F.\*: **TAPHONOMIC LAG ON LAND: SNAIL DEATH ASSEMBLAGES SHOW RAPID INCORPORATION OF SYNANTHROPIC LIVING COMMUNITIES ON SAN SALVADOR ISLAND, THE BAHAMAS**
- 252-7 3:00 PM Gibson, Brandt M.\*; Darroch, Simon A.F.: **AN EXPERIMENTAL STUDY OF PRESERVATION POTENTIALS OF SOFT-BODIED ORGANISMS ON SAN SALVADOR, BAHAMAS**
- 252-8 3:15 PM Rasmussen, Bo Wilhelm\*; Wall, Alex F.: **A QUANTITATIVE STUDY OF BIVALVES BIOERODED BY CLIONAIDAE SPONGES, FROM SAN SALVADOR, BAHAMAS**
- 252-9 3:30 PM Killam, Daniel\*; Clapham, Matthew E.: **ENVIRONMENTAL CONTROLS ON BIVALVE SKELETAL GROWTH**
- 3:45 PM **BREAK**
- 252-10 4:00 PM Hoffman, Jonathan\*; Samuels, Joshua X.: **TOOTH WEAR ANALYSES AS PROXIES FOR HABITAT OPENNESS AND AN ASSESSMENT OF DRIVERS FOR CHANGES IN BIODIVERSITY IN THE JOHN DAY BASIN DURING THE EARLY OLIGOCENE**
- 252-11 4:15 PM Haveles, Andrew W.\*; Fox, David L.; Fox-Dobbs, Kena: **FIVE MILLION YEARS OF RODENT PALEODIETS IN THE MEADE BASIN, GREAT PLAINS, USA**
- 252-12 4:30 PM Fox, David L.\*; Haveles, Andrew W.; Keller, Jonathan Stanford; McNulty, Kieran P.: **USING ISOTOPIC, ECOMORPHOMETRIC, AND BIOGEOGRAPHIC ANALYSES OF MODERN RODENTS AS ANALOGUES FOR FOSSIL RODENT PALEOECOLOGY**
- 252-13 4:50 PM Vitkus, Allison R.\*; Chin, Karen; Kirkland, James I.; Milner, Andrew R.C.; Simpson, Edward L.: **UNUSUAL, FOSSILIFEROUS CONCRETIONS FROM THE LOWER JURASSIC MOENAVE FORMATION OF ST. GEORGE, UTAH, USA: IMPLICATIONS FOR ANCIENT FISH MASS MORTALITIES**
- 252-14 5:05 PM Chin, Karen\*: **DINOSAUR COPROLITES FROM THE UPPER CRETACEOUS KAIPAROWITS FORMATION IN SOUTHERN UTAH SUPPORT AN UPDATED**

INTERPRETATION OF HERBIVOROUS DINOSAUR  
FEEDING HABITS

## SESSION NO. 253

**T180. Geoscience in the Public Square: Meeting the Challenges and Seizing the Opportunities (GSA Geology and Society Division)**

1:30 PM, Baltimore Convention Center, Room 307

Frank Fletcher and Ivor van Heerden, Presiding

- 1:30 PM **INTRODUCTORY REMARKS**
- 253-1 1:35 PM Boland, Maeve A.\*; Seadler, Abigail; Gilley, Meg; Wood, Charlotte: **CRAFTING A SHARED MESSAGE: GEOSCIENCE FOR AMERICA'S CRITICAL NEEDS 2016: INVITATION TO A NATIONAL POLICY DIALOGUE**
- 253-2 1:50 PM Akerlof, Karen L.\*: **PUBLIC PERCEPTIONS OF SEA-LEVEL RISE AND COASTAL ADAPTATION POLICIES**
- 253-3 2:05 PM Rubin, Jeffrey\*: **THE INTERSECTION OF CLIMATE CHANGE, GEOSCIENCE, AND EMERGENCY MANAGEMENT**
- 253-4 2:20 PM Stone, George T.\*: **ON THE RESPONSIBILITY OF SCIENCE AND SCIENTISTS TO SOCIETY AND PUBLIC POLICY: THE HAZARDS OF MOUNT ST. HELENS AND ANTHROPOGENIC CLIMATE CHANGE**
- 253-5 2:35 PM Jones, Glenn\*; Warner, Kevin: **POPULATION AND ENERGY DEMAND GROWTH WILL DRIVE THE 2°C CLIMATE GOAL TOWARDS ADAPTATION**
- 253-6 2:50 PM Fletcher, Frank W.\*: **AN AX TO GRIND: HOW SPECIAL-INTEREST ADVOCATES PROMOTE PSEUDOSCIENCE AND DECEIVE THE PUBLIC**
- 253-7 3:05 PM Doss, Paul K.\*: **GET UP—STAND UP!...PROACTIVE OUTREACH AS NECESSARY AND INFORMATIVE RESPONSES TO “CRISIS” AND “CHRONIC” GEOLOGICAL EVENTS**
- 3:20 PM **BREAK**
- 253-8 3:35 PM van Heerden, Ivor\*: **TRANSFORMING AN ACADEMIC CLIMATE FROM POLITICAL CORRECTNESS TO TRUTH SEEKING: THE ROCKY ROAD FACED BY WHISTLEBLOWERS**
- 253-9 3:50 PM Bridger, Kristina\*: **BRIDGING THE GAP AMONG SPRING BASIN STAKEHOLDERS: HOW TECHNICAL WORKING GROUPS HELP!**
- 253-10 4:05 PM Zamzow, Kendra\*: **TRIBAL VOICES, MINING, AND THE ROLE OF GEOSCIENCE COMMUNICATION**
- 253-11 4:20 PM Oleniacz, Brittney A.\*: **WILLY WONKA AND THE NATURAL HISTORY MUSEUM**
- 253-12 4:35 PM Parizek, Katarin A.\*: **EDUCATION AND TRANSLATION THROUGH IMAGES FIELDTRIPS AND REPORTS GUIDE THE NEED TO INTEGRATE SCIENCE, ENGINEERS AND POLICY- AN EGYPTIAN CASE STUDY**
- 253-13 4:50 PM Horner, Timothy\*; Thorpe, Whitney; Cardenas, Charles: **GRAVEL RESTORATION ON THE AMERICAN RIVER, CALIFORNIA- SUCCESS AND LONGEVITY OF ARTIFICIALLY CREATED SALMONID SPAWNING SITES AND IMPLICATIONS FOR MANAGEMENT DECISIONS**
- 253-14 5:05 PM Missimer, Thomas M.\*; Amy, Gary L.: **GREEN STRATEGIES FOR DESALINATION TO MEET FUTURE POTABLE WATER SUPPLY NEEDS WHILE MINIMIZING GREENHOUSE GAS EMISSIONS: COOPERATIVE GEOLOGICAL AND ENGINEERING SOLUTIONS**
- 5:20 PM **CONCLUDING REMARKS**

## SESSION NO. 254

**T187. Geology, Geomorphology, and Biogeography of the Amazon: Integrating Approaches and Disciplines to Understand the Evolution of a Unique Ecosystem (GSA Quaternary Geology and Geomorphology Division)**

1:30 PM, Baltimore Convention Center, Room 341

Carlos Henrique Grohmann and John M. Bates, Presiding

- 1:30 PM **INTRODUCTORY REMARKS**
- 254-1 1:45 PM Campbell, Kenneth\*: **GEOLOGICAL MYSTERIES OF AMAZONIA: COINCIDENCE OR CORRELATION**
- 254-2 2:00 PM Bates, John M.\*; Capurucho, Joao: **EVIDENCE FOR AN ANCIENT AREA OF ENDEMISM? THE POTENTIAL INFLUENCE OF LAGO AMAZONAS ON MODERN AMAZONIAN BIRD DIVERSITY**
- 254-3 2:15 PM Cracraft, Joel\*: **USING BIOTIC HISTORY TO INFER ENVIRONMENTAL HISTORY IN AMAZONIA**
- 254-4 2:35 PM Mori, Scott A.\*: **BIOGEOGRAPHY OF THE BRAZIL NUT FAMILY**
- 254-5 2:50 PM McDonald, Kyle C.\*; Campbell, Kenneth; Islam, Rehnuma; Azarderakhsh, Marzi; Cracraft, Joel: **EXPLORING THE GEOMORPHOLOGY OF THE AMAZON'S PLANALTO WITH NASA UAVSAR DATASETS**
- 254-6 3:05 PM Grohmann, Carlos Henrique\*: **NEW HIGH-RESOLUTION DSM/DTM DATA FOR THE AMAZON - PRELIMINARY ANALYSIS WITH SRTM, ASTER GDEM**
- 3:20 PM **BREAK**
- 254-7 3:35 PM Hoorn, Carina\*; Bogota-Angel, Giovanni; Romero-Baez, Millerlandy; Chemale Junior, Farid; Dino, Rodolfo: **MOUNTAIN UPLIFT, CLIMATE, DRAINAGES AND BIODIVERSITY IN THE ANDES-AMAZONIAN SYSTEM**
- 254-8 3:55 PM Wong, Corinne I.\*; Wortham, Barbara E.; McGee, David; Cruz, Jr., Francisco W.: **RECONSTRUCTING LAST MILLENNIUM VARIABILITY IN THE SOUTH AMERICAN MONSOON USING SPELEOTHEM  $\delta^{18}O$  VALUES FROM THE AMAZON BASIN**
- 254-9 4:10 PM Novello, Sr., Valdir Felipe\*: **PALEOCLIMATE RECONSTRUCTION FROM SOUTH AMAZONIA BASED ON SPELEOTHEMS**
- 254-10 4:25 PM Baker, Paul A.\*; Fritz, Sheryllyn C.; Dick, Chris W.; Rigsby, Catherine A.: **THE GEOLOGICAL EVOLUTION OF THE ANDES AND AMAZON: CONSTRAINING PHYLOGENETIC ANALYSES**
- 254-11 4:45 PM Wheatley, Alexander A.\*; Rigsby, Catherine A.; Baker, Paul A.: **UTILITY OR FUTILITY? ASSESSING THE VALIDITY OF PALEOCURRENT ANALYSIS IN THE AMAZONIAN ROCK RECORD**
- 254-12 5:00 PM Salenbien, Wout\*; Wheatley, Alexander A.; Gonzales, Lauren; Valdivia, Luis Angel; Ortega, Miguel; Martinez, Jean-Noel; Kay, Richard F.; Rigsby, Catherine A.; Baker, Paul A.: **PRELIMINARY SEDIMENTOLOGICAL, PALEONTOLOGICAL, AND GEOCHEMICAL ANALYSES OF THE CENOZOIC SUB-ANDEAN ZONE, MADRE DE DIOS, PERU**
- 254-13 5:15 PM Pupim, Fabiano N.\*; Sawakuchi, André O.; Mineli, Thays D.; Nogueira, Luciana: **LUMINESCENCE AGES OF FLUVIAL TERRACES IN EASTERN AMAZONIA**

## SESSION NO. 255

**T192. Lawrence A. Hardie Commemorative Session II (GSA Mineralogy, Geochemistry, Petrology, and Volcanology Division)**

1:30 PM, Baltimore Convention Center, Room 319/320

Tim K. Lowenstein, Robert V. Demicco and Linda Hinnov, Presiding

- 1:30 PM **INTRODUCTORY REMARKS**

- 255-1 1:45 PM Stanley, Steven M.\*: **SIMILAR EFFECTS OF CHANGES IN THE MAGNESIUM/CALCIUM RATIO OF SEAWATER OVER GEOLOGICAL TIME ON THE CALCIFICATION OF AN ARAGONITIC BENTHIC ALGA (*HALIMEDA*) AND CALCITIC PLANKTONIC ALGAE (*COCCOLITHOPHORES*): A TRIBUTE TO LAWRIE HARDIE**
- 255-2 2:05 PM Hasiuk, Franciszek\*; Jennings, Deserae: **FORAM FARMING: CALIBRATING BENTHIC FORAM MG/CA FOR SECULAR VARIATION IN SEAWATER MG/CA THROUGH CULTURE EXPERIMENTS**
- 255-3 2:20 PM Dela Pierre, Francesco\*; Natalicchio, Marcello; Ferrando, Simona; Giustetto, Roberto; Birgel, Daniel; Carnevale, Giorgio; Gier, Susanne; Lozar, Francesca; Peckmann, Jörn: **ARE THE MESSINIAN SPAGHETTI-LIKE STRUCTURES FOSSIL COLORLESS SULFUR-OXIDIZING BACTERIA? IMPLICATIONS FOR GYPSUM DEPOSITION**
- 255-4 2:35 PM Noffke, Nora\*: **POSSIBLE (OR NOT) MICROBIAL STRUCTURES IN THE < 3.7GA GILLESPIE LAKE MEMBER, MARS**
- 2:50 PM **BREAK**
- 255-5 3:05 PM Demicco, Robert V.\*: **ONE SEA LEVEL RISE - TWO CYCLES: IMPLICATIONS FOR ANALYSIS OF ANCIENT STACKED CARBONATE TIDAL FLAT CYCLES**
- 255-6 3:20 PM Hinnov, Linda A.\*; Mei, Mingxiang; Wu, Huaichun; Zhang, Shihong: **THE PRECAMBRIAN WUMISHAN CYCLOTHEMS OF CHINA: A 60+ MILLION YEAR LONG PERITIDAL CARBONATE RECORD OF MULTIPLE-SCALE SEA LEVEL OSCILLATIONS, STROMATOLITE EVOLUTION AND AN ARAGONITE-CALCITE SEA TRANSITION**
- 255-7 3:35 PM Cozzi, Andrea\*; Hardie, Lawrence A.: **PERITIDAL M-SCALE CYCLES OF THE DACHSTEIN LIMESTONE IN THE JULIAN ALPS (NE ITALY): NEW INSIGHTS ON THE LOFER CYCLOTHEM CONTROVERSY**
- 255-8 3:50 PM Drzewiecki, Peter\*; Markley, Laura: **DEPOSITIONAL CONTROLS ON FACIES DISTRIBUTION AND CYCLICITY OF THE UPPER CRETACEOUS COLLADES DE BASTURS RUDIST PLATFORM, SOUTH-CENTRAL PYRENEES, SPAIN**
- 255-9 4:05 PM Bold, Uyanga\*; Macdonald, Francis A.; Higgins, John A.; Schrag, Daniel P.: **C, CA, AND MG ISOTOPE STUDY OF CO-EXISTING LIMESTONE AND DOLOMITE OF THE CRYOGENIAN TO EARLY EDIACARAN TSAGAAN-OLOM GROUP, ZAVKHAN TERRANE, MONGOLIA**
- 255-10 4:20 PM Bellefroid, Eric J.\*; Planavsky, Noah J.; Halverson, Galen P.; Spokas, Kasperas; Aseal, Dan: **TOWARDS A COMPREHENSIVE GLOBAL MID-PROTEROZOIC CHEMOSTRATIGRAPHIC FRAMEWORK: CONTRIBUTIONS FROM NORTHERN BRITISH COLUMBIA**
- 255-11 4:35 PM Yao, Xu\*; Zhou, Yaoqi: **EARLY PERMIAN CHERT RECORDED HYDROTHERMAL EVENT ON A CARBONATE PLATFORM IN NORTH CHINA**
- 255-12 4:50 PM Wilson, Edith Newton\*: **CONVENTIONAL WISDOM PREVAILS IN UNCONVENTIONALLY EXPLOITED OIL PLAYS: AN EXAMPLE FROM THE GIANT MISSISSIPPIAN LIME CARBONATE SYSTEM IN OKLAHOMA**
- 256-2 1:50 PM Chamberlin, Ellen\*; Hajek, Elizabeth: **EVALUATING CONTROLS ON ABRUPT VERTICAL CHANGES IN THE SANDINESS OF FLUVIAL STRATIGRAPHY: EXAMPLES FROM UPPER CRETACEOUS FLUVIAL DEPOSITS IN UTAH AND COLORADO, USA**
- 256-3 2:05 PM Chan, Marjorie A.\*; Parrish, Judith Totman; Hasiotis, Stephen T.: **DYNAMIC SOFT-SEDIMENT DEFORMATION IN THE JURASSIC NAVAJO SANDSTONE EOLIANITE, MOAB, UTAH**
- 256-4 2:20 PM Parrish, Judith Totman\*; Chan, Marjorie A.; Hasiotis, Stephen T.: **MESO-SCALE JURASSIC PALEOTOPOGRAPHY AT THE J-2 UNCONFORMITY NEAR MOAB, UT**
- 256-5 2:35 PM Currie, Brian S.\*: **DEPOSITIONAL ARCHITECTURE AND SEQUENCE STRATIGRAPHY OF THE LOWER CRETACEOUS DAKOTA FORMATION, NORTHERN UTAH BASIN, UTAH AND COLORADO**
- 256-6 2:50 PM Miller, Kenneth G.\*; Kominz, Michelle A.; Browning, James V.; Wright, James D.; Kopp, Robert E.: **THE ROLE OF MANTLE DYNAMIC TOPOGRAPHY AND SEA LEVEL ON THE U.S. ATLANTIC PASSIVE-AGGRESSIVE CONTINENTAL MARGIN ARCHITECTURE**
- 256-7 3:05 PM Thompson, Todd A.\*; Johnston, John W.; Loope, Henry M.; Jol, Harry M.: **HOLOCENE SHORELINE BEHAVIOR AND SEQUENCE DEVELOPMENT IN THE UPPER GREAT LAKES BASIN**
- 3:20 PM **BREAK**
- 256-8 3:35 PM Over, D. Jeffrey\*; Tuskes, Katherine; Danielsen, Erika; Kohn, Jennifer; Leskovec, Jenna; Schmitz, Mark: **ASTROCHRONOLOGY AND DEPOSITIONAL RATES IN UPPER DEVONIAN SEDIMENTARY BASINS – TEPHRAS, CYCLES, MAGNETIC SUSCEPTIBILITY, AND WHAT UNDERGRADUATE RESEARCH CAN ACCOMPLISH – AN INSPIRATIONAL TRIBUTE TO ROBERT K. SCHWARTZ**
- 256-9 3:50 PM Oborny, Stephan C.\*; Ludvigson, Greg A.; Henthorne, Robert; Heckel, Philip H.; Cramer, Bradley D.: **DEPOSITIONAL BUILD-AND-FILL WITHIN THE ZARAH SUBGROUP (UPPER PENNSYLVANIAN, MISSOURIAN STAGE) OF MIAMI COUNTY, KANSAS: INTEGRATED LITHOSTRATIGRAPHY, BIOSTRATIGRAPHY,  $\Delta^{13}\text{C}_{\text{CARB}}$  CHEMOSTRATIGRAPHY, AND GEOPHYSICAL WELL-LOG DATA**
- 256-10 4:05 PM Kamola, Diane L.\*; Myers, Matt; Thompson, Jesse: **EFFECTS OF SEA LEVEL CHANGE ON DEPOSITION IN THE SEVIER FORELAND BASIN**
- 256-11 4:20 PM Schwartz, Theresa M.\*; Schwartz, Robert K.: **INTERMONTANE VALLEY AND BASIN DEVELOPMENT LINKED TO THE TECTONIC, CLIMATIC, AND TOPOGRAPHIC EVOLUTION OF THE SEVIER-LARAMIDE OVERLAP ZONE IN SOUTHWESTERN MONTANA**
- 256-12 4:35 PM Weislogel, Amy L.\*; Schwartz, Robert K.; Schwartz, Theresa M.; Barber, Douglas Edward; Rothfuss, Jennifer L.: **ANCESTRY OF THE MISSOURI RIVER HEADWATERS: INSIGHTS FROM ZIRCON PROVENANCE ANALYSIS OF LATE PALEOGENE PALEOVALLEY DEPOSITS**
- 256-13 4:50 PM O'Brien, Rachel\*: **THE LIBERAL ARTS AND UNDERGRADUATE RESEARCH: HOW RIPPLES FROM ONE PEBBLE IN A SMALL POND CREATED A LEGACY**
- 5:05 PM **CONCLUDING REMARKS**

## SESSION NO. 256

T197. *Sedimentary Basins II*

1:30 PM, Baltimore Convention Center, Room 343

D. Jeffrey Over and Diane L. Kamola, Presiding

1:30 PM **INTRODUCTORY REMARKS**

- 256-1 1:35 PM Anthony, Robin V.\*; Dunst, Brian J.; Carter, Kristin: **SEDIMENTOLOGY AND RESERVOIR CHARACTERISTICS OF PENNSYLVANIA'S LOWER SILURIAN MEDINA GROUP**

## SESSION NO. 257

**T205. Integration of Microfossils and Sedimentology in Stratigraphic Analysis (AASP - The Palynological Society; SEPM (Society for Sedimentary Geology); Cushman Foundation for Foraminiferal Research; GSA Quaternary Geology and Geomorphology Division)**

1:30 PM, Baltimore Convention Center, Room 349/350

Peter P. McLaughlin Jr. and David T. Pocknall, Presiding

- 257-1 1:30 PM Miller, Kenneth G.\*; Mountain, Gregory S.; Browning, James V.; Katz, Miriam: **SEQUENCE STRATIGRAPHY BACK TO BASICS: SEA-LEVEL AND CLIMATE INFLUENCES ON SEQUENCE ARCHITECTURE**
- 257-2 1:45 PM Browning, James V.\*; Miller, Kenneth G.; Hodgson, David M.; Katz, Miriam E.; Mountain, Gregory S.: **CONSTRAINING CLINOTHEMS FROM TOP TO BOTTOM: GROUND TRUTHING MODELS WITH SEISMIC, LOGS, AND CORES FROM NEW JERSEY EXPEDITION 313**
- 257-3 2:00 PM Gallegos, Gabriel E.\*; Miller, Kenneth G.; Browning, James V.; Iscimen, Turan; Monteverde, Donald H.; Sugarman, Peter J.: **CORRELATION AND IMPLICATIONS OF EARLY MIOCENE ONSHORE AND OFFSHORE SEQUENCES, NEW JERSEY COASTAL PLAIN (LEGS 150X AND 174AX) AND SHELF (EXPEDITION 313)**
- 257-4 2:15 PM Altiner, Demir\*; Özkan-Altiner, Sevinç; Yilmaz, Ismail Omer; Atakul-Özdemir, Ayşe: **FORAMINIFERAL BIOSTRATIGRAPHY IN THE BASHKIRIAN-MOSCOVIAN BOUNDARY BEDS (TAURIDES, TURKEY): EVIDENCE FOR GLACIO-EUSTATIC SEA-LEVEL CHANGE IN THE EARLY PENNSYLVANIAN**
- 257-5 2:30 PM Lopes, Gilda Maria R.\*; Mangerud, Gunn; Clayton, Geoff; Mørk, Atle: **NEW INSIGHTS ON EAST FINNMARK PLATFORM PALYNOSTRATIGRAPHY – TOWARDS A MISSISSIPPIAN (EARLY CARBONIFEROUS) PALYNOZONATION OF THE BARENTS SEA AREA**
- 257-6 2:45 PM Pocknall, David T.\*; Hohman, John: **PALYNOLOGY AND SEDIMENTOLOGY/STRATIGRAPHY OF THE BAKKEN FORMATION, NORTH DAKOTA**
- 257-7 3:00 PM Munsterman, Dirk K.\*; Verreussel, Roel; Houben, Sander; Kerstholt-Boegehold, Susan: **THE VALUE OF QUANTITATIVE PALYNOLOGY AND GEOCHEMISTRY IN PROVIDING NEW INSIGHTS INTO REGIONAL TECTONO-STRATIGRAPHIC DEVELOPMENT AND CLIMATIC EVOLUTION OF THE LATE JURASSIC OF THE NETHERLANDS**
- 257-8 3:15 PM McLaughlin, Jr., Peter P.\*; Thornburg, Jesse D.; Quinn, Heather; Miller, Kenneth G.; Brenner, Gilbert J.: **SYNTHESIS OF THE PALYNOSTRATIGRAPHY OF THE POTOMAC FORMATION IN THE MIDDLE ATLANTIC REGION OF THE UNITED STATES AND IMPLICATIONS FOR AQUIFER CORRELATION**
- 3:30 PM **BREAK**
- 257-9 3:45 PM Sugarman, Peter J.\*; Miller, Kenneth G.; Browning, James V.; McLaughlin, Jr., Peter P.: **DECIPHERING COMPLEX DELTAIC AND NEARSHORE FACIES USING INTEGRATIVE SEQUENCE STRATIGRAPHY, MAGOTHY FORMATION (UPPER TURONIAN-CAMPANIAN), NEW JERSEY AND DELAWARE**
- 257-10 4:00 PM Ketani, Raphael\*: **THE SEDIMENTOLOGY AND STRATIGRAPHY OF THE UPPER CRETACEOUS STRATA UNDER THE FRESH KILLS AND BROOKFIELD AVENUE LANDFILLS STATEN ISLAND, NEW YORK**
- 257-11 4:15 PM Denison, Christopher N.\*: **RE-EVALUATION OF THE WILCOX AND CLAIBORNE OF CENTRAL TEXAS AS A MESOTIDAL COASTAL DEPOSITIONAL SYSTEM: SEDIMENTOLOGY, ICHNOLOGY AND PALYNOLOGY**
- 257-12 4:30 PM Fisher, Keri A.\*; McLaughlin, Jr., Peter P.: **STRATIGRAPHY AND PALYNOFORM ASSEMBLAGES OF MIOCENE**

**MARINE SEDIMENTS AT THE MARSHY HOPE BOREHOLE SITE IN SOUTHERN DELAWARE**

- 257-13 4:45 PM Belanger, Christina\*; Gurocak-Orhun, Ozlem: **BENTHIC FORAMINIFERAL FAUNAS REVEAL TRANSPORT DYNAMICS AND NO-ANALOG ENVIRONMENTS ON A GLACIATED MARGIN (GULF OF ALASKA)**
- 257-14 5:00 PM Thomas, Marie Louise\*; Warny, Sophie; Bentley, Samuel J.; Jarzen, David M.; Droxler, André W.; Howell, Ashley L.; Harper, Brandon B.; Nittrouer, Charles; Xu, Kehui: **CLIMATIC AND OCEANOGRAPHIC CONDITIONS IN THE GULF OF PAPUA, PAPUA NEW GUINEA, DURING THE BÖLLING-ALLERØD, YOUNGER DRYAS, AND MELT-WATER PULSE-1B: A PALYNOLOGICAL ANALYSIS**
- 257-15 5:15 PM Christie, Margaret\*; Martin, Ronald E.; McLaughlin, Jr., Peter P.; Pizzuto, James: **PALEOENVIRONMENTAL RECONSTRUCTION OF THE CHANGING WATER QUALITY OF THE TIDAL CHRISTINA RIVER, DELAWARE FROM 1600 YBP TO PRESENT**

## SESSION NO. 258

**Mineralogical Society of America (MSA) Awards Lectures, Presidential Address, and Annual Business Meeting**

3:00 PM, Baltimore Convention Center, Room 317

Rebecca A. Lange, Presiding

- 258-1 3:00 PM Ewing, Rodney C.\*: **MSA ROEBLING MEDAL LECTURE - THE SCIENCE-POLICY INTERFACE**
- 258-2 3:30 PM Tosca, Nicholas\*: **MSA AWARD LECTURE: MINERALOGY AS A BRIDGE BETWEEN GEOCHEMISTRY AND EARTH HISTORY**
- 258-3 4:00 PM Shirey, Steven B.\*: **MSA PRESIDENTIAL ADDRESS: DIAMOND — PREMIER MINERAL FOR UNDERSTANDING THE GEOLOGY OF THE DEEP EARTH**
- 4:30 PM **ANNUAL MSA BUSINESS MEETING**

## SESSION NO. 259

**T77. Geology and Hydrology in the National Parks: Research, Mapping, and Resource Management II (GSA Hydrogeology Division; GSA Geology and Society Division)**

3:30 PM, Baltimore Convention Center, Room 309

Bruce A. Heise, F. Edwin Harvey and Jason P. Kenworthy, Presiding

- 3:30 PM **INTRODUCTORY REMARKS**
- 259-1 3:45 PM Springer, Kathleen B.\*; Manker, Craig R.; Scott, Eric; Pigati, Jeffrey S.; Mahan, Shannon A.: **THE GEOLOGY, PALEOHYDROLOGY AND FOSSILS OF TULE SPRINGS FOSSIL BEDS NATIONAL MONUMENT, NEVADA: A LATE PLEISTOCENE TREASURE TROVE**
- 259-2 4:05 PM Hardy, Fabian\*; Bonde, Aubrey: **OLD BONES AND NEON SIGNS: A CENTURY OF RESEARCH AT TULE SPRINGS FOSSIL BEDS NATIONAL MONUMENT**
- 259-3 4:20 PM Davis, Larry E.\*; Singler, Caroline; McDermaid, Stevie; Pollock, Gayle L.; Eves, Robert L.: **HYMENOPTERA TRACE FOSSILS FROM THE COPRINISPHAERA ICHNOFACIES IN THE PINK MEMBER OF THE CLARON FORMATION, PANS AUGUNT PLATEAU, BRYCE CANYON NATIONAL PARK, UTAH**
- 259-4 4:35 PM Pigati, Jeffrey S.\*; Muhs, Daniel R.; McGeehin, John P.: **ON THE IMPORTANCE OF STRATIGRAPHIC CONTROL FOR VERTEBRATE FOSSIL SITES IN CHANNEL ISLANDS NATIONAL PARK, CALIFORNIA USA: AN EXAMPLE FROM A LAST-GLACIAL-AGE MAMMOTH SITE**
- 259-5 4:50 PM Smith, Elliott\*; Stirling, Trinity; Boodhoo, Thea; Jimenez, Marie; Chure, Daniel J.: **THE IN-SITU EXHIBIT OF CARNEGIE QUARRY, DINOSAUR NATIONAL MONUMENT: THE DEVELOPMENT OF AN IDEA**
- 259-6 5:05 PM Molnia, Bruce F.\*; Deaton, Laura E.; Angeli, Kim M.: **DYNAMICS OF BERING AND MALASPINA GLACIERS, WRANGELL ST. ELIAS NATIONAL PARK, ALASKA**

**SESSION NO. 260****GSA Hydrogeology Division: Birdsall-Dreiss Distinguished Lecture**

4:30 PM, Baltimore Convention Center, Ballroom IV

Madeline E. Schreiber, Presiding

- 260-1** 4:30 PM Voss, Clifford I.\*: **HIGHLIGHTS OF 2015 BIRDSALL-DREISS LECTURES: SIMPLE MODELING OF LARGE AQUIFERS, VARIABLE-DENSITY GROUNDWATER-FLOW, AND PERMAFROST INTERACTION WITH GROUNDWATER**

**WEDNESDAY, 4 NOVEMBER 2015****MORNING ORAL TECHNICAL SESSIONS****SESSION NO. 261****Environmental Geoscience**

8:00 AM, Baltimore Convention Center, Room 339

Matthew M. Crawford, Presiding

- 261-1** 8:00 AM Peyraube, Nicolas\*; Lastennet, Roland; Denis, Alain; Malaurent, Philippe; Villanueva, Jessica, Denila: **NATURAL VENTILATION OF A CAVE, IMPACTS OF SEASONAL AND DIURNAL TEMPERATURES VARIATIONS ON AIR EXCHANGES**
- 261-2** 8:15 AM Fink, Sam P.\*; Ali, K. Adem: **CLASSIFICATION AND CHANGE DETECTION OF LAND COVER TYPES IN ST. THOMAS, U.S VIRGIN ISLANDS USING LANDSAT MSS,TM, ETM+ AND OLI DATA**
- 261-3** 8:30 AM Fiore, Alex R.\*; Reilly, Timothy J.: **VERIFICATION OF HYDRAULIC AND GEOPHYSICAL TESTING USING SEDIMENT CORES TO IDENTIFY HYDROGEOLOGIC LIMITATIONS OF WASTEWATER INFILTRATION LAND APPLICATION FACILITIES PRIOR TO CONSTRUCTION: LESSONS LEARNED WITHIN THE NEW JERSEY COASTAL PLAIN**
- 261-4** 8:45 AM McLennan, David A.\*; Smith, Erika; Latimer, Jennifer C.; Stone, Jeffery R.: **MONITORING BIOGEOCHEMICAL CYCLES IN A LAKE IMPACTED BY INCREASING PHOSPHORUS AND HEAVY METALS**
- 261-5** 9:00 AM Gosnold, William D.\*: **CLIMATE CHANGE: RATE VARIATIONS DURING THE PAST 90 YEARS AND QUANTIFICATION OF INTERNAL FORCING**
- 261-6** 9:15 AM Bower, Dorine Reed\*: **CARBON SEQUESTRATION IN A TERRESTRIAL/BIOLOGICAL CONTEXT AND INCREASING CO2 EMISSIONS**
- 261-7** 9:30 AM Corcoran, Patricia L.\*; Ballent, Anika; Jazvac, Kelly: **PLASTIC DEBRIS: A GLOBALLY PERSISTENT ANTHROPOGENIC MARKER HORIZON IN THE SEDIMENTARY RECORD**
- 261-8** 9:45 AM Hasan, Syed E.\*; Gbomina, Jr., Harris: **EVALUATION OF ENVIRONMENTAL AND HEALTH IMPACTS OF LAND APPLICATION OF BIOSOLIDS**
- 261-9** 10:00 AM Zhang, Qian\*; Olyphant, Greg; Branam, Tracy; Ghanem, Hind: **GEOCHEMICAL CHARACTERIZATION OF COAL-COMBUSTION BYPRODUCTS UTILIZED AS CAPPING MATERIALS IN MINE RECLAMATION AND IMPLICATIONS FOR LONG-TERM WEATHERING IN THE AMBIENT ENVIRONMENT**
- 261-10** 10:15 AM Maj, Sarah K.\*; Lopez, Dina L.; Kruse, Natalie A.; Bowman, Jennifer R.: **NUTRIENT CONCENTRATIONS IN STREAMS AFFECTED BY ACID MINE DRAINAGE IN SOUTHEASTERN OHIO**

- 261-11** 10:30 AM Johnson, Aaron W.\*; Gouzie, Douglas R.; Gutierrez, Melida; McAliley, L. Rex: **CURRENT STATE OF METAL TOXICITY AND REMEDIATION IN THE TRI-STATE MINING DISTRICT, USA**
- 261-12** 10:45 AM Chew, Edward S. Schuyler\*; Chief, Karletta; Serrat-Capdevila, Aleix; Smith, Jr., William; Busch, David; Morgan, Kameron: **A COLLABORATIVE APPROACH TO CLIMATE ADAPTATION AND WATER RESOURCES MANAGEMENT FOR THE PYRAMID LAKE PAIUTE TRIBE**
- 261-13** 11:00 AM Hayes, Emily Blythe\*; Nicholson, Kirsten N.; Neumann, Klaus; Dowling, Carolyn B.: **EXAMINATION AND ANALYSIS OF BACTERIAL CONTAMINATION AND GENERALIZED WATER QUALITY ALONG MT. EVEREST BASE CAMP HIGHWAY, SAGARMATHA NATIONAL PARK, NEPAL**
- 261-14** 11:15 AM Egendorf, Sara Perl\*; Cheng, Zhongqi; Sutton, Norma Lenora: **HEALTHY URBAN GARDENING AND SOIL CONTAMINANT MITIGATION: THE NEW YORK CITY CLEAN SOIL BANK PROGRAM**
- 261-15** 11:30 AM Parizek, Richard R.\*; Parizek, Katarin A.; El Gohary, Amr; Gold, David; Walters, Elizabeth J.; Alexander, Shelton S.: **PASSIVE METHODS FOR CONTROLLING RISING WATER LEVELS FOR HIERAKONPOLIS-TEMPLETOWN, OTHER ANTIQUITIES, HOMES AND FARMLAND**

**SESSION NO. 262****Geoscience Education**

8:00 AM, Baltimore Convention Center, Room 338

Eric J. Pyle, Carol J. Ormand and Don Duggan-Haas, Presiding

- 8:00 AM **INTRODUCTORY REMARKS**
- 262-1** 8:15 AM Coldsmith, Jordan\*; Sliko, Jennifer L.: **CAN ONLINE LABS REPLACE TRADITIONAL LABS?**
- 262-2** 8:30 AM Mora, German\*: **THE PACE AT WHICH STUDENTS MASTER SCIENTIFIC ABILITIES IN SCAFFOLDED LABORATORY ASSIGNMENTS OF AN INTRODUCTORY ENVIRONMENTAL SCIENCE COURSE**
- 262-3** 8:45 AM Pizzorusso, Ann C.\*: **A NEW WAY OF TEACHING GEOLOGY: A MULTIDISCIPLINARY APPROACH**
- 262-4** 9:00 AM Burkhart, Patrick\*: **FRUSTRATIONS OF A CAREER SPENT WATCHING THE BASELINES SLIDE**
- 262-5** 9:15 AM Marton, Fred\*: **REFLECTIONS ON POST-EXAM REFLECTIONS: USING EXAM WRAPPERS AT A TWO-YEAR COLLEGE**
- 262-6** 9:30 AM Harder, Vicki M.\*: **USING ACTIVE KINDNESS TO QUELL INCIVILITY IN ONLINE CLASSES**
- 262-7** 9:45 AM Smith, D. Duncan\*; Maher Sobhani, Barbra: **GO WITH WHAT YOU GOT: FACEBOOK IS FINE FOR SOME; STUDENT LEADERS GET WITH LUMINIS GROUP STUDIO**
- 10:00 AM **BREAK**
- 262-8** 10:15 AM Flansburg, Leah B.A.\*: **INTEGRATING A CROSS-CURRICULAR APPROACH TO AN EARTH SCIENCE CURRICULUM**
- 262-9** 10:30 AM Fichter, Lynn S.\*: **IT'S THE SYSTEM! YES. BUT, WHAT KIND OF SYSTEM?**
- 262-10** 10:45 AM Deike, Ruth\*: **THE QUESTION, 'THE EARTH SYSTEM-- DOES IT INCLUDE US?' ENGAGES BOTH STUDENTS AND TEACHERS IN A COMBINED EFFORT TO EXPLORE WHERE HUMANKIND FITS IN THE EARTH SYSTEM**
- 262-11** 11:00 AM Black, Alice\*: **WHY THE U.S. BIOLOGY, CHEMISTRY, PHYSICS SECONDARY COURSE PROGRESSION (BUT NOT GEOSCIENCES)? PERCEPTIONS OF TEACHERS, FUTURE TEACHERS, AND UNIVERSITY STUDENTS**
- 262-12** 11:15 AM Miller, Patricia\*: **MAGFORMER® MINERAL MATH**

AM

WEDNESDAY

**SESSION NO. 263****Karst: Visualizing Karst through Multiple Disciplines: Geochemistry, Geophysics, Remote Sensing, and More**

8:00 AM, Baltimore Convention Center, Room 341

Daniel H. Doctor, Ellen K. Herman and Lewis Land, Presiding

- 263-1** 8:00 AM Decker, David D.\*; Polyak, Victor J.; Asmerom, Yemane: **SUPERCRITICAL CO<sub>2</sub> HYPOGENE SPELEOGENESIS: A NEW MODEL**
- 263-2** 8:15 AM Land, Lewis\*: **CROSSING BOUNDARIES ON PUBLIC LANDS: AN UPDATE ON GEOPHYSICAL SURVEYS OF A POTENTIALLY EXTENSIVE CAVE SYSTEM UNDERLYING BLM AND NATIONAL PARK SERVICE UNITS**
- 263-3** 8:30 AM Elkhazmi, Abdulbaset Taher\*: **TECTONIC FRACTURES AND DRAINAGE PATTERNS AND THEIR IMPACTS IN THE EVOLUTION OF KARST AT (AL JABEL AL AKHDER) NE OF LIBYA CASE STUDY: WADI ZAZA AREA REMOTE SENSING AND GIS INVESTIGATION**
- 263-4** 8:45 AM Tinsley, Margaret A.\*: **ISOTOPIC ANALYSIS OF MARGARET WHITE SPRING ON THE BUFFALO NATIONAL RIVER**
- 263-5** 9:00 AM Green, Ronald T.\*; Toll, Nathaniel; Bertetti, F. Paul: **RAPID CONVEYANCE OF WATER THROUGH A KARST CARBONATE AQUIFER IN A SEMI-ARID ENVIRONMENT**
- 263-6** 9:15 AM Morozov, Vitaliy A.\*; Carpenter, Philip J.: **GEOPHYSICAL CHARACTERIZATION OF KARST FEATURES ABOVE AN UNDERGROUND MINE NEAR QUINCY, ILLINOIS**
- 263-7** 9:30 AM Ebersole, Sandy\*; Ritchey, Sophia: **COMPARISON OF NED, SRTM, AND LIDAR DATA IN KARST GIS FOR NORTHERN ALABAMA**
- 263-8** 9:45 AM Potter-McIntyre, Sally L.\*; Williams, Jason; Phillips-Lander, Charity; O'Connell, Laura G.: **IDENTIFICATION AND PRESERVATION OVER GEOLOGIC TIME OF BIOSIGNATURES IN COLD SPRING CARBONATES**
- 10:00 AM **BREAK**
- 263-9** 10:15 AM Maynard, Joel\*; Waters, Brent: **BOREHOLE GEOPHYSICAL CHARACTERIZATION OF A FAULTED KARST AQUIFER SYSTEM IN ROCKINGHAM COUNTY, VIRGINIA**
- 263-10** 10:30 AM Sumrall, Jeanne Lambert\*; Sumrall, Jonathan B.: **KARST-BASED LEARNING: USING ISLAND KARST AS A PLATFORM FOR UNDERGRADUATE PROJECT-BASED LEARNING**
- 263-11** 10:45 AM DeVivero, Alison E.\*; Stalker, Jeremy C.: **ISOTOPIC ANALYSIS OF SOURCE WATERS CONTRIBUTING TO A SUBMARINE SPRING IN SAN SALVADOR, BAHAMAS**
- 263-12** 11:00 AM Miller, Martha\*; Tomascak, Paul B.; Hemming, Sidney R.; LeRoy, Sverre L.; Stine, Scott; Zimmerman, Susan H.: **GEOCHEMICAL CLIMATE PROXY DEVELOPMENT IN TUSA FROM THE MONO BASIN, CALIFORNIA**
- 263-13** 11:15 AM Kochanov, William E.\*: **REPORT OF ATYPICAL KARST IN THE DEVONIAN CATSKILL FORMATION, NORTHEASTERN PENNSYLVANIA**
- 263-14** 11:30 AM Houillon, Nicolas\*; Lastennet, Roland; Malaurent, Philippe; Peyraube, Nicolas; Denis, Alain: **THE DYNAMICS OF CARBON DIOXIDE IN THE INFILTRATION AREA OF A KARST SYSTEM: APPLICATION TO THE LASCAUX CAVE SITE (FRANCE)**
- 263-15** 11:45 AM Chiu, Wing Tung Ruby\*; Yasuhara, Moriaki; Iwatani, Hokuto; Kitamura, Akihisa; Fujita, Kazuhiko: **THE PALEOECOLOGY OF A SUBMARINE CAVE IN OKINAWA, JAPAN FOR THE PAST 7000 YEARS**

**SESSION NO. 264****Paleoclimatology/Paleoceanography**

8:00 AM, Baltimore Convention Center, Room 331/332

Hamada S. Badr and Peter D. Clift, Presiding

- 264-1** 8:00 AM Badr, Hamada S.\*; DeLuca, Nicole M.; Levin, Naomi E.; Zaitchik, Benjamin F.: **ON THE REGIONALIZATION OF AFRICAN PRECIPITATION FOR PALEOCLIMATE STUDIES**
- 264-2** 8:15 AM Michel, Lauren A.\*; Tabor, Neil J.; Myers, Timothy S.; Driese, Steven G.; Peppe, Daniel J.: **COMPARATIVE STUDY OF PRECIPITATION PROXIES FROM MODERN NORTH AMERICAN SOILS AND PALEOSOLS FROM RUSINGA AND MFANGANO ISLANDS, LAKE VICTORIA, KENYA**
- 264-3** 8:30 AM Liu, Chang\*; Clift, Peter D.; Murray, Richard W; Blusztajn, Jerzy S: **CHEMICAL WEATHERING, EROSION AND PROVENANCE RECORD OF SOUTHWESTERN OF THE SOUTH CHINA SEA SINCE MIDDLE MIOCENE**
- 264-4** 8:45 AM Bang, Sunhwa\*; Lee, Yong Il: **THE OCCURRENCE OF THE MIDDLE DARRIWILIAN CARBON ISOTOPE EXCURSION IN KOREAN LOWER PALEOZOIC SUCCESSION AND ITS PALEOCEANOGRAPHICS IMPLICATIONS**
- 264-5** 9:00 AM Euker, Brandon C.\*: **A COMPARISON OF THE EFFECTIVENESS OF CMIP5 MODELS AT SIMULATING LAKE LEVEL CHANGES IN THE WESTERN U.S. DURING THE MID-HOLOCENE**
- 264-6** 9:15 AM Hasegawa, Takashi\*; Kobiyama, Yosuke; Yonezawa, Shunsuke; Suzuki, Takaaki; Mori, Takami: **SYNDEPOSITIONAL FORMATION OF CALCAREOUS NODULES ON CRETACEOUS MUDDY SEA FLOOR: POTENTIAL MUDDY NODULE PALEOTHERMOMETRY**
- 264-7** 9:30 AM Li, Yingkui\*; Li, Yanan; Liu, Gengnian; Chen, Yixin; Zhang, Mei: **COSMOGENIC NUCLIDE CONSTRAINTS ON THE TIMING OF LITTLE ICE AGE GLACIAL ADVANCES IN THE EASTERN TIAN SHAN, CHINA**
- 9:45 AM **BREAK**
- 264-8** 10:00 AM Makarova, Maria\*; Wright, James D.; Miller, Kenneth G.: **DIFFERENTIAL STABLE ISOTOPIC RESPONSE IN PLANKTONIC FORAMINIFERA FROM THE PALEOCENE-EOCENE THERMAL MAXIMUM, NEW JERSEY COASTAL PLAIN**
- 264-9** 10:15 AM Milligan, Joseph N.\*; Royer, Dana L.: **EXPERIMENTAL CONSTRAINTS ON A NEW LEAF GAS-EXCHANGE METHOD FOR PALEO-CO<sub>2</sub> RECONSTRUCTION**
- 264-10** 10:30 AM Abotalib, Abotalib Z.\*; Sultan, Mohamed; ElKadiri, Racha; Heggy, Essam; Saad, Ahmed M: **ORIGIN OF THEATER-HEADED VALLEYS IN THE SAHARA: IMPLICATION FOR OUTFLOW CHANNELS ON MARS**
- 264-11** 10:45 AM Sultan, Mohamed\*; Emil, Mustafa; Abotalib, Abotalib Z.; Abouelmagd, Abdou; Alzaharani, Abdullah; Refai, Alaa; Alqthamy, Khaled; Alaamri, Mohamed; Bahamil, Alaa: **NATURE AND TIMING OF THE QUATERNARY WET CLIMATIC PERIODS IN NORTH AFRICA AND ARABIA: ISOTOPIC, CHRONOLOGIC, AND REMOTE SENSING CONSTRAINTS**
- 264-12** 11:00 AM Wang, Lixin\*; Brook, George A.; Marais, Eugene: **SAND RAMP EVIDENCE FROM SOUTHERN NAMIBIA OF LATE QUATERNARY EPISODES OF GREATER ARIDITY AND STRONGER WINDS**



**SESSION NO. 265*****Paleontology: Go Big or Go Home: Fossil Range Sizes and Body Sizes***

8:00 AM, Baltimore Convention Center, Room 310

Alexis Rojas and Arjan Mann, Presiding

- 265-1** 8:00 AM Moss, David K.\*; Ivany, Linda C.; Judd, Emily J.; Bearden, Claire E.; Kim, Woo -J.; Cummings, Patrick W.; Artruc, Emily G.; Driscoll, Jeremy R.: **LATITUDINAL PATTERNS IN LIFESPAN AND GROWTH RATE ACROSS MODERN MARINE BIVALVES**
- 265-2** 8:15 AM Ritterbush, Kathleen A.\*; Foote, Michael: **INITIAL SURVIVAL OF MESOZOIC MARINE GENERA: A ROLE FOR GEOGRAPHIC RANGE BEYOND TEMPORAL AND TAXONOMIC HETEROGENEITY**
- 265-3** 8:30 AM Zaffos, Andrew\*; Peters, Shanan E.; McMullen, Sharon K.: **EMPIRICAL PATTERNS OF GEOGRAPHIC RANGE SIZE EXPANSION AND CONTRACTION IN MARINE INVERTEBRATES AND TERRESTRIAL MAMMALS ARE WELL PREDICTED BY A RANDOM WALK**
- 265-4** 8:45 AM Wang, Steve C.\*; Everson, Philip J.; Zhou, Heather J.; Park, Dasol; Chudzicki, David J.: **ADAPTIVE CREDIBLE INTERVALS ON STRATIGRAPHIC RANGES WHEN RECOVERY POTENTIAL IS UNKNOWN**
- 265-5** 9:00 AM Villarosa Garcia, Marites\*: **MORPHOLOGICAL DISPARITY LACKS CLEAR BIOGEOGRAPHIC STRUCTURE: A CASE STUDY USING MODERN COCCOLITHOPHORES (PRYMNESIOPHYCEAE)**
- 265-6** 9:15 AM Tomasovych, Adam\*; Nawrot, Rafal; Zuschin, Martin; Harzhauser, Mathias; Mandic, Oleg: **EFFECTS OF NUMERICAL AND TAXONOMIC RESOLUTION ON COMPOSITIONAL VARIATION REVEAL THE NATURE OF ENVIRONMENTAL GRADIENTS AND LINEAGE-LEVEL ECOLOGICAL CONSERVATISM**
- 265-7** 9:30 AM Hannisdal, Bjarte\*; Liow, Lee Hsiang: **THE POSEIDON ADVENTURE: RICHNESS VERSUS COMMONNESS**
- 9:45 AM **BREAK**
- 265-8** 10:00 AM Rosbach, Stephanie\*; Cuomo, Carmela; Bartholomew, Paul R.: **CHARACTERIZATION OF "SQUARE OBJECTS" FROM THE BEAR GULCH LIMESTONE (UPPER MISSISSIPPIAN, MONTANA)**
- 265-9** 10:15 AM Cantalapedra, Juan L.\*; Hernández Fernández, Manuel; Azanza, Beatriz; Morales, Jorge: **CONGRUENT PHYLOGENETIC AND FOSSIL SIGNATURES OF MAMMALIAN DIVERSIFICATION DYNAMICS**
- 265-10** 10:30 AM Starrfelt, Jostein\*; Liow, Lee Hsiang: **INFERRING TRUE NUMBER OF DINOSAUR SPECIES BY ESTIMATING FOSSIL SAMPLING PROBABILITIES**
- 265-11** 10:45 AM Griffin, Christopher T.\*; Nesbitt, Sterling: **DOES THE MAXIMUM BODY SIZE OF THEROPOD DINOSAURS INCREASE ACROSS THE TRIASSIC-JURASSIC BOUNDARY? USING ONTOGENY AND PHYLOGENY TO UNDERSTAND TRANSITIONS IN EARTH HISTORY**
- 265-12** 11:00 AM Lyons, S. Kathleen\*; Heim, Noel A.; Smith, Felisa A.; Balk, Meghan; Finnegan, Seth; Kowalewski, Michał; McClain, Craig R.; McShea, Dan; Novack-Gottshall, Philip M.; Payne, Jonathan L.: **BODY-SIZE EVOLUTION AND ECOLOGICAL REPLACEMENT IN TERRESTRIAL VERTEBRATES**
- 265-13** 11:15 AM Finnegan, Seth\*; O'Dea, Aaron; Rodriguez, Felix; Delvalle, Yadixa: **HOW DO PRODUCTIVITY GRADIENTS INFLUENCE MOLLUSCAN SIZE-FREQUENCY DISTRIBUTIONS? PRELIMINARY RESULTS FROM A PILOT STUDY ON THE PACIFIC AND CARIBBEAN COASTS OF PANAMA**
- 265-14** 11:30 AM Shoemaker, Lauren G.\*; Clausen, Aaron: **UNIVERSAL PROCESSES GOVERN BODY MASS EVOLUTION IN MARINE AND TERRESTRIAL ENVIRONMENTS**

- 265-15** 11:45 AM Heim, Noel A.\*; Payne, Jonathan L.; Balk, Meghan; Finnegan, Seth; Kowalewski, Michał; Lyons, S. Kathleen; McShea, Dan; Novack-Gottshall, Philip M.; Smith, Felisa A.; Spaeth, Paula A.: **HIERARCHICAL COMPLEXITY AND THE LIMITS OF ORGANISM SIZE**

**SESSION NO. 266*****Sediments, Clastic***

8:00 AM, Baltimore Convention Center, Room 340

Peter P. Flaig and Arif M. Sikder, Presiding

- 266-1** 8:00 AM Martin, Kylara Margaret\*; Wood, Warren T: **A NEW MODEL OF MARINE SEDIMENT COMPACTION**
- 266-2** 8:15 AM Flaig, Peter P.\*; Hasiotis, Stephen T.; Prather, Timothy; Jackson, Adam: **A TALE OF TWO DELTAS: COMPARATIVE ANALYSIS OF ANCIENT, "RIVER-DOMINATED" DELTAIC SYSTEMS FROM OUTCROPS OF THE PERMIAN IN ANTARCTICA AND THE CRETACEOUS OF COLORADO**
- 266-3** 8:30 AM Wadia, Adil Minoo\*: **GEOCHEMICAL & PETROGRAPHIC ANALYSES OF VOLCANIC ASH IN THE FORMATION OF CHERT**
- 266-4** 8:45 AM Reed, Robert M.\*; Loucks, Robert G.; Milliken, Kitty: **CEMENTATION AND GRAIN REPLACEMENT IN AN ORGANIC-MATTER-RICH MUDROCK: EXAMPLES FROM THE MISSISSIPPIAN BARNETT SHALE, FORT WORTH BASIN, TEXAS**
- 266-5** 9:00 AM Sikder, Arif M.\*; Horton, Jr., J. Wright: **MICROCHEMISTRY OF ALTERATION RINDS ON CLASTS IN GRAVEL OF THE CRETACEOUS POTOMAC FORMATION, PRINCE GEORGE, VIRGINIA**
- 266-6** 9:15 AM Alasadi, Fatimah T.\*: **STORM DEPOSITS ON A MUDDY, OUTER SHELF, BRENTWOOD LIMESTONE MEMBER, BLOYD FORMATION MORROWAN (PENNSYLVANIAN) NORTHWEST ARKANSAS**
- 266-7** 9:30 AM Sanders, Shelby Catherine\*; Zonneveld, J.P.; Moslow, Thomas F.; Haverslew, Beth: **BOTTOM CURRENT DERIVED BIOCLASTIC HORIZONS IN THE LOWER TRIASSIC MONTNEY FORMATION OF BRITISH COLUMBIA, CANADA**
- 266-8** 9:45 AM Chambers, Mariah\*; Britt, Brooks B.; Chambers, Eric B.; Warren, Audrey: **A COMPARISON OF THE FLUVIAL SYSTEMS OF THE SALT WASH AND BRUSHY BASIN MEMBERS OF THE LATE JURASSIC MORRISON FORMATION**
- 266-9** 10:00 AM O'Connell, Brennan E.\*; Dorsey, Rebecca J.; House, P. Kyle; Gootee, Brian: **PROCESS SEDIMENTOLOGY OF THE SOUTHERN BOUSE FORMATION**
- 266-10** 10:15 AM Schmidt, David\*; Stupiansky, Jillian; Steffen, Brian: **DEPOSITIONAL INTERPRETATION OF A FOSSIL-BEARING STRATUM USING INTEGRATED SEDIMENTOLOGICAL AND PALEONTOLOGICAL DATA**
- 10:30 AM **BREAK**
- 266-11** 10:45 AM Moecher, Dave\*; Hietpas, Jack; Samson, Scott; Kelly, Evan: **DETRITAL MONAZITE GEOCHRONOLOGY AND TEXTURES PROVE SEDIMENT RECYCLING IN APPALACHIAN CLASTIC SYSTEMS**
- 266-12** 11:00 AM Kim, MunGi\*; Choi, Taejin; Lee, Yong Il: **DETRITAL ZIRCON U-PB GEOCHRONOLOGY OF THE LATE PALEOZOIC PYEONGAN SUPERGROUP IN SOUTHERN KOREA AND ITS TECTONIC AND PALEOGEOGRAPHICAL IMPLICATIONS**
- 266-13** 11:15 AM Banjade, Bharat\*; Kerr, Dennis R.; Moeller, Andreas: **CARBONIFEROUS PROVENANCE FOR THE SOUTHERN MARGIN OF LAURENTIA USING DETRITAL ZIRCON U-PB AGES FROM THE MID-PENNSYLVANIAN ATOKA SANDSTONE, OUACHITA MOUNTAINS, OK**

- 266-14 11:30 AM Wahl, Preston James\*; Yancey, Thomas E.; Pope, Michael C.; Miller, Brent V.; Ayers, Walter B.: **U-PB DETRITAL ZIRCON GEOCHRONOLOGY OF THE LATE PALEOCENE EARLY EOCENE WILCOX GROUP, EAST-CENTRAL TEXAS**
- 266-15 11:45 AM Omotoye, S.J.\*; Fadiya, S.L.; Adesiyani, T.A.; Akinsanpe, O.T.: **SEDIMENTOLOGICAL STUDY AND HEAVY MINERAL ANALYSIS OF SEDIMENT SAMPLES FROM WELL-S, NIGER DELTA, NIGERIA**

## SESSION NO. 267

**Tectonics: Exhumation, Erosion, Subsidence, and Rotation**

8:00 AM, Baltimore Convention Center, Room 347/348

Paul Myrow and Liane M. Stevens, Presiding

- 267-1 8:00 AM Myrow, Paul M.\*; Hughes, Nigel C.; McKenzie, N. Ryan; Thompson, Tracy J.; Haddad, Emily E.; Fanning, C. Mark: **THE RECORD OF CAMBRIAN AND ORDOVICIAN OROGENESIS IN NORTHERN INDIA AND BHUTAN**
- 267-2 8:15 AM Uddin, Ashraf\*; Chowdhury, Nur Uddin Md. Khaled; Alam, Md.I.; Sitaula, Raju P.; Hames, Willis E.: **DETRITAL HISTORY OF PERMO-CARBONIFEROUS GONDWANAN SEQUENCES OF EASTERN SOUTH ASIA**
- 267-3 8:30 AM Schultz, Mary\*; Hodges, Kip V.; van Soest, Matthijs; Wartho, Jo-Anne: **EXPLORING THE VARIABILITY OF LATE CENOZOIC EXHUMATION RATES ACROSS THE HIMALAYAN RAIN SHADOW**
- 267-4 8:45 AM Armstrong, Taylor F.\*; Feng, Lian; Bartholomew, Mervin J.; Rittenour, Tammy M.; Li, Dewei: **THE M<sub>w</sub> 6.9 14 APRIL 2010 YUSHU EARTHQUAKE AND A RECORD OF HOLOCENE-LATE PLEISTOCENE PALEOSEISMICITY AT THE RED CLIFF ALONG THE ZUOERLA SEGMENT OF THE YUSHU FAULT, QINGHAI PROVINCE, CHINA**
- 267-5 9:00 AM Wang, Qi\*: **SLIP BEHAVIOR OF THE 2015 NEPAL MW7.9 EARTHQUAKE CONSTRAINED BY TELESEISMIC, STATIC AND HIGH-RATE GPS DATA**
- 267-6 9:15 AM Gumprecht, Sasha W.\*: **TECTONO-STRATIGRAPHIC EVOLUTION OF THE CENTAUR 3D SURVEY, EXMOUTH PLATEAU, NORTH WEST SHELF, AUSTRALIA**
- 9:30 AM **BREAK**
- 267-7 9:45 AM Anderson, Thomas H.\*; Didenko, Alexei; Johnson, Cari; Khanchuk, Alexander; MacDonald, Jr., James H.: **THE MIDDLE JURASSIC MARGIN OF LAURASIA—A RECORD OF FAULTING ACCOMMODATING PLATE ROTATION**
- 267-8 10:00 AM Stevens, Liane M.\*; Bendick, Rebecca; Baldwin, Julia A.: **SYNCONVERGENT EXHUMATION OF CONTINENTAL METAMORPHIC CORE COMPLEXES IN THE NORTHERN NORTH AMERICAN CORDILLERA**
- 267-9 10:15 AM Restrepo-Moreno, Sergio A.\*; Vinasco, Cesar; Foster, David A.; Min, Kyoungwon; Noriega, Santiago; Bernet, Matthias; Marin-Ceron, Maria Isabel; Bermudez, Mauricio; Botero, Manuela: **CENOZOIC ACCRETION AND MORPHO-TECTONIC RESPONSE IN THE NORTHERN ANDES (COLOMBIA) THROUGH LOW-TEMPERATURE THERMOCHRONOLOGY ANALYSES/MODELING**
- 267-10 10:30 AM Marin-Ceron, Maria Isabel\*; Restrepo-Moreno, Sergio A.; Bernet, Matthias; Foster, David A.; Min, Kyoungwon; Pardo-Trujillo, Andres; Barbosa-Espitia, Ángel Antonio; Kamenov, George D.: **THE AMAGA FORMATION (EOCENE?-MIOCENE) IN THE CAUCAPATIA DEPRESSION: A RECORDER OF MAJOR MORPHOTECTONIC AND PALEOGEOGRAPHIC EVENTS BETWEEN THE WESTERN AND CENTRAL CORDILLERAS**
- 267-11 10:45 AM Rueda-Gaxiola, Jaime\*; Vite DEL Angel, Alberto Osmar; Osorio-Nicolás, Manuel Ángel; De Anda-Garcia, Miguel Alejandro: **PROVENANCE OF METAMORPHIC QUARTZ FROM THE TLAXIACO ANTICLINORIUM PROVED THE EROSION OF AN ANCIENT CRATON BEFORE THE**

**HISPANIC CORRIDOR WAS FORMED AT THE EARLIER GULF OF MEXICO**

- 267-12 11:00 AM Marple, Ronald\*; Altamura, Robert J.: **DISCOVERY OF SUBMERGED RING STRUCTURES AND BATHYMETRIC LINEAMENTS IN THE WESTERN GULF OF MAINE: FURTHER EVIDENCE FOR THE GREAT METEOR HOTSPOT TRACK AND A POSSIBLE ASSOCIATION WITH THE 1755 CAPE ANN, MA, EARTHQUAKE**

## SESSION NO. 268

**P5. Appalachian Geomorphology I (GSA Quaternary Geology and Geomorphology Division)**

8:00 AM, Baltimore Convention Center, Room 327/328/329

Frank J. Pazzaglia, Gregory S. Hancock and Sean F. Gallen, Presiding

- 8:00 AM **INTRODUCTORY REMARKS**
- 268-1 8:15 AM Moucha, Robert\*; Ruetenik, Gregory A.: **INTERPLAY BETWEEN DYNAMIC TOPOGRAPHY AND FLEXURE ALONG THE U.S. ATLANTIC PASSIVE MARGIN: INSIGHTS FROM LANDSCAPE EVOLUTION MODELING**
- 268-2 8:45 AM McKeon, Ryan E.\*: **LONG-TERM LANDSCAPE EVOLUTION IN THE APPALACHIANS REVISITED: CUTTING THE CORD WITH THE PALEOZOIC OROGEN**
- 268-3 9:15 AM Perron, J. Taylor\*; Willett, Sean D.; McCoy, Scott W.; Goren, Liran; Chen, Chia-Yu: **THE OLD AND THE RESTLESS: ACTIVE RIVER BASINS ON A PASSIVE MARGIN**
- 268-4 9:45 AM Prince, Philip S.\*: **SURFICIAL AND TOPOGRAPHIC SIGNATURE OF DRAINAGE DIVIDE MIGRATION, SOUTHERN APPALACHIAN MOUNTAINS**
- 10:15 AM **BREAK**
- 268-5 10:30 AM Miller, Scott R.\*; Kirby, Eric; Long, Maureen D.; Benoit, Margaret H.; King, Scott D.; Bierman, Paul R.; Sak, Peter B.: **LATE CENOZOIC TOPOGRAPHIC REJUVENATION IN THE CENTRAL APPALACHIANS: GEOMORPHIC CONSTRAINTS AND GEOPHYSICAL RELATIONSHIPS FROM THE MAGIC PROJECT**
- 268-6 11:00 AM Willenbring, Jane K.\*; Brocard, Gilles Y.; Gasparini, Nicole M.; Crosby, Benjamin T.: **PERSISTENT LANDSCAPE TRANSIENCE RECORDED BY *IN SITU*-PRODUCED <sup>10</sup>BE AND NUMERICAL MODELING**
- 268-7 11:30 AM Bierman, Paul R.\*; Portenga, Eric W.; Kirby, Eric: **MAPPING EROSION OF THE APPALACHIAN MOUNTAINS USING COSMOGENIC <sup>10</sup>BE**

## SESSION NO. 269

**T17. Metallic Mineral Deposits in the Midcontinent Region of North America: Origin and Exploration (Society of Economic Geologists; GSA Mineralogy, Geochemistry, Petrology, and Volcanology Division; Geochemical Society)**

8:00 AM, Baltimore Convention Center, Room 343

Joyashish Thakurta and Edward M. Ripley, Presiding

- 8:00 AM **INTRODUCTORY REMARKS**
- 269-1 8:15 AM Ripley, Edward M.\*; Dong, Shofei; Li, Chusi; Wasylenki, Laura E.: **CU ISOTOPE VARIATIONS BETWEEN CONDUIT AND SHEET-STYLE NI-CU-PGE SULFIDE MINERALIZATION IN THE MIDCONTINENT RIFT SYSTEM, NORTH AMERICA**
- 269-2 8:30 AM Rossell, Dean\*: **TAMARACK MAGMATIC NI-CU-PGE DEPOSIT, MIDCONTINENT RIFT LARGE IGNEOUS PROVINCE, MINNESOTA, USA**
- 269-3 8:45 AM Williams, William C.\*; Bornhorst, Theodore J.; Mauk, Jeffrey L.: **THE ECONOMIC GEOLOGY OF THE WESTERN SYNCLINE COPPER DEPOSIT, UPPER PENINSULA, MICHIGAN**
- 269-4 9:00 AM Mauk, Jeffrey L.\*; Emsbo, Poul; Theodorakos, Peter M.: **EVAPORATED SEAWATER FORMED SEDIMENT-**

- HOSTED STRATABOUND COPPER ORE IN THE MIDCONTINENT RIFT**
- 269-5** 9:15 AM Thakurta, Joyashish\*; Haynes, Jonathan M.; Boxleiter, Anthony R.: **THE STURGEON FALLS GABBROIC INTRUSION AND ITS RELATION WITH THE METALLIFEROUS SULFIDE ROCKS OF THE PENOKEAN VOLCANIC BELT**
- 269-6** 9:30 AM Perry, Laura Elizabeth\*; Shelton, Kevin L.; Cavender, B. Danielle; Gregg, Jay M.: **VARIATIONS IN CL MICROSTRATIGRAPHY AND ISOTOPE COMPOSITIONS OF DOLOMITE CEMENTS IN THE WORLD-CLASS SOUTHEAST MISSOURI MVT PB-ZN-CU DISTRICT: EARLY FAULT-RELATED SYSTEMS VERSUS REGIONAL FLUID FLOW**
- 269-7** 9:45 AM Garmon, William Travis\*; Wulff, Andrew H.; Potra, Adriana; Moyers, Austin: **SOURCING DIAGENETIC AND MINERALIZING FLUIDS OF MISSISSIPPI VALLEY-TYPE ORES ALONG THE CINCINNATI ARCH**
- 10:00 AM **BREAK**
- 269-8** 10:15 AM Field, Joshua\*; Appold, Martin; Coveney, Jr., Raymond M.: **GEOCHEMICAL AND ISOTOPIC DIFFERENCES BETWEEN TRACE OCCURRENCES AND ORE DEPOSITS OF MISSISSIPPI VALLEY-TYPE MINERALIZATION IN THE U.S. MID-CONTINENT**
- 269-9** 10:30 AM Finley, Daniel S.\*; Burns, D.M.: **FLUID DRIVE MECHANISMS OF MISSISSIPPI VALLEY-TYPE PB-ZN DEPOSITS, PARTICULARLY THE VIBURNUM TREND, MODELED WITH THE AID OF 3-D PRINTING, SOUTHEAST MISSOURI, USA**
- 269-10** 10:45 AM Shelton, Kevin L.\*; Schiffbauer, James D.; Cavender, B. Danielle; Perry, Laura Elizabeth; Fike, David A.: **ZN-CU-NI-CO-RICH ORES AT THE BONNETERRE DOLOMITE-LAMOTTE SANDSTONE CONTACT, VIBURNUM TREND MVT DISTRICT, MISSOURI: PRODUCTS OF MULTIPLE SULFUR SOURCES AND METAL-SPECIFIC FLUIDS**
- 269-11** 11:00 AM Tedesco, Steven\*: **PETROLEUM PRODUCTIVE MISSISSIPPI VALLEY TYPE DEPOSITS, A RARELY IDENTIFIED RESERVOIR**
- 269-12** 11:15 AM Woods, Paul E.\*; Paterson, Colin J.; Lisenbee, Alvis L.; McCormick, Kelli A.; Ray, John T.: **CHARACTERIZATION AND DISTRIBUTION OF BRECCIA, WHITETAIL RIDGE, BEAR LODGE, WY: IMPLICATIONS FOR EMPLACEMENT OF CARBONATITE AND REE MINERALIZATION**
- 269-13** 11:30 AM Matt, Peter\*; Powell, Wayne; Mathur, Ryan; deLorraine, William: **ZINC ISOTOPIC CHARACTER OF ORE BODIES AT BALMAT, NY: PRELIMINARY RESULTS**
- 11:45 AM **CONCLUDING REMARKS**

**SESSION NO. 270**

**T46. Using Digitized Data in Geological and Paleontological Research II (Paleontological Society; Society for the Preservation of Natural History Collections; GSA Geoinformatics Division; EarthCube C4P; iSamples)**

8:00 AM, Baltimore Convention Center, Room 314

Talia S. Karim and Gil Nelson, Presiding

- 270-1** 8:00 AM Selden, Paul A.\*: **MORPHOLOGICAL IMAGING AND INTEGRATION INTO PHYLOGENETIC RESEARCH IN FOSSIL SPIDERS**
- 270-2** 8:15 AM Walker, Lindsay J.\*; Smith, Dena M.; Karim, Talia S.; Nufio, César R.: **USING DIGITIZED SPECIMENS TO UNDERSTAND THE DIVERSITY OF FOSSIL COLEOPTERA (BEETLES) FROM THE GREEN RIVER FORMATION, USA**
- 270-3** 8:30 AM Soriano, Carmen\*: **PALEONTOLOGICAL PROJECTS AT THE ADVANCED PHOTON SOURCE (APS)**
- 270-4** 8:45 AM Adrain, Jonathan M.\*; Karim, Talia S.: **DIGITIZED SYSTEMATICS: NEW PARADIGMS IN IMAGING,**

**DATA SEARCHING, AND PUBLICATION TRANSFORM PALEONTOLOGICAL TAXONOMY**

- 270-5** 9:00 AM Mayer, Paul S.\*; McComas, Katie M.; Coorrough Burke, Patricia: **USING THE SILURIAN REEF ONLINE DATABASE TO COMPARE BIODIVERSITY BETWEEN FOSSIL REEF LOCALITIES IN ILLINOIS**
- 270-6** 9:15 AM Elder, Leanne E.\*; Hull, Pincelli M.; Hsiang, Allison Y.; Kahanamoku, Sara: **HIGH-THROUGHPUT IMAGING OF RECENT MICROFOSSILS FROM THE ATLANTIC OCEAN**
- 270-7** 9:30 AM Hsiang, Allison Y.\*; Elder, Leanne E.; Hull, Pincelli M.: **AUTOMATIC EXTRACTION OF 2D AND 3D MORPHOLOGICAL DATA FROM HIGH-THROUGHPUT DARK-FIELD MICROSCOPY IMAGES OF FORAMINIFERA AND TEETH**
- 270-8** 9:45 AM Schreiber, Holly A.\*; Lopez-Carranza, Natalia; Carlson, Sandra J.: **PUTTING 3D MODELS TO THE TEST: QUANTIFYING THE VARIABILITY OF MINERALIZED LOPHOPHORE SUPPORT STRUCTURES IN EXTANT BRACHIOPODA (NEOARTICULATA)**
- 10:00 AM **BREAK**
- 270-9** 10:15 AM Matthews, Neffra\*; Breithaupt, Brent H.; Noble, Tommy; Hunt-Foster, Rebecca; Lockley, Martin; McCrea, Richard: **COMPUTERIZED CARTOGRAPHY CHARTS CRETACEOUS CREATURES: PHOTOGRAMMETRIC ICHNOLOGY AND INTERPRETATION AT TRACKSITES IN THE WESTERN US**
- 270-10** 10:30 AM Breithaupt, Brent H.\*; Matthews, Neffra A.; Connely, Melissa V.; Meyers, Vicki L.: **PTEROSAUR TRACKS, PHOTOGRAMMETRIC ICHNOLOGY, AND MANAGING ICHNOLOGICAL RESOURCES ON FEDERAL PUBLIC LANDS**
- 270-11** 10:45 AM Woods, Justin A.\*; Turner, Lawrence; Chadwick, Arthur V.: **DIGITIZATION OF TAPHONOMIC DATA IN A LARGE ACTIVE UPPER CRETACEOUS DINOSAUR SITE IN NORTHEASTERN WYOMING**
- 270-12** 11:00 AM Smith, Gregory J.\*; Graham, Russell W.: **TAXONOMIC IMPLICATIONS OF MAMMOTH MOLAR MORPHOLOGY AS MEASURED VIA COMPUTED TOMOGRAPHY (CT)**
- 270-13** 11:15 AM Burk, Daniel A.\*: **A FOSSIL LOCALITY PREDICTIVE MODEL FOR THE EARLY CRETACEOUS CEDAR MOUNTAIN FORMATION, UTAH, USA**
- 270-14** 11:30 AM Belvedere, Matteo\*; Mallison, Heinrich: **IT IS TIME FOR AN ICHNOLOGICAL DATA BASE: THEORETICAL CONSIDERATIONS, BENEFITS AND TESTING SAMPLE WITH EASYDB**

**SESSION NO. 271**

**T50. Microbial Hydrocarbon Formation and Biodegradation: Organisms, Pathways, Environmental Limitations, and Isotope Signatures (GSA Energy Geology Division; GSA Hydrogeology Division; Geochemical Society)**

8:00 AM, Baltimore Convention Center, Room 349/350

Denise Akob, Tracy M. Quan and David S. Vinson, Presiding

- 8:00 AM **INTRODUCTORY REMARKS**
- 271-1** 8:05 AM Mukhopadhyay, Biswarup\*: **THIOREDOXIN BASED REDOX CONTROL OF METABOLISM IN METHANE FORMING ARCHAEA: EVOLUTIONARY AND METABOLIC IMPLICATIONS**
- 271-2** 8:25 AM Martini, Anna\*: **UNTANGLING MICROBIAL CONTRIBUTIONS TO NATURAL GAS RESERVOIRS**
- 271-3** 8:40 AM Wang, David T.\*; Gruen, Danielle S.; Ono, Shuhei: **APPLICATION OF METHANE CLUMPED ISOTOPOLOGUE MEASUREMENTS FOR TRACING THE SUBSURFACE HISTORY OF HYDROCARBON GASES**
- 271-4** 8:55 AM Mouser, Paula J.\*; Daly, Rebecca A.; Wolfe, Richard; Wrighton, Kelly C.: **MICROBES LIVING IN UNCONVENTIONAL SHALE DURING ENERGY**

- EXTRACTION HAVE DIVERSE HYDROCARBON DEGRADATION PATHWAY**
- 271-5** 9:10 AM Gieg, Lisa M.\*; Toth, Courtney R.A.; Oberding, Lisa K.; Montoya, Oscar: **LOSING WEIGHT: UNDERSTANDING THE METHANOGENIC METABOLISM OF HEAVY HYDROCARBONS IN FOSSIL ENERGY RESERVOIRS**
- 271-6** 9:30 AM Shelton, Jenna L.\*; McIntosh, Jennifer C.; Akob, Denise; Warwick, Peter D.; McCray, John E.: **LINKING MICROBIAL COMMUNITY PRESENCE AND DIVERSITY TO FORMATION WATER GEOCHEMISTRY, CRUDE OIL BIODEGRADATION, AND METHANOGENESIS**
- 9:45 AM **BREAK**
- 271-7** 10:05 AM Dearing, Andrea Michele\*; Sumrall, Jeanne Lambert; Sumrall, Jonathan B.; Hyde, Embriette R.; Lynne, Aaron; Machel, Hans G.: **GEOCHEMISTRY AND MICROBIAL DIVERSITY COMPARISON OF TWO NATURAL HYDROCARBON SEEPS ON THE ISLAND OF BARBADOS**
- 271-8** 10:20 AM Vilcaez, Javier\*: **MICROBIAL METHANOGENESIS IN OIL RESERVOIRS SUBJECTED TO THE INJECTION OF CO<sub>2</sub>**
- 271-9** 10:40 AM Moore, Myles T.\*; Vinson, David S.; Whyte, Colin; Darrah, Thomas H.: **NOBLE GAS AND HYDROCARBON GEOCHEMISTRY OF COAL BED METHANE FIELDS FROM THE ILLINOIS BASIN**
- 271-10** 10:55 AM Vinson, David S.\*; Quan, Tracy M.; McIntyre-Redden, Marcella R.; Darrah, Thomas H.; Blair, Neal E.; Pashin, Jack C.: **CONNECTION OF DISSOLVED INORGANIC CARBON TO BIOGENIC COALBED METHANE: ISOTOPE EVIDENCE FROM BLACK WARRIOR BASIN, ALABAMA (USA)**
- 271-11** 11:10 AM Barnhart, Elliott P.\*; Weeks, Edwin P.; Jones, Elizabeth J.P.; Ritter, Daniel J.; McIntosh, Jennifer C.; Clark, Arthur C.; Fields, Matthew W.; Ruppert, Leslie F.; Orem, William: **CHARACTERIZATION OF HYDROGEOCHEMISTRY AND COAL-ASSOCIATED BACTERIAL POPULATIONS FROM A METHANOGENIC COAL BED: IDENTIFICATION OF POTENTIAL BIOSURFACTANT PRODUCTION**
- 271-12** 11:25 AM Marquart, Kyle A.\*; Wilson, Brien; Zeglin, Lydia H.; Vinson, David S.; Flynn, Theodore M.; Kirk, Matthew F.: **PATHWAY OF MICROBIAL METHANOGENESIS VARIES WITH FORMATION WATER SALINITY IN A COALBED METHANE RESERVOIR**
- 272-6** 9:15 AM Morris, Aisha R.\*; Charlevoix, Donna; Shabram, Patrick L.; Gross, M. Benjamin: **PAVING THE WAY: CAREER EXPLORATION INTERNSHIPS FOR STUDENTS AT THE NSF GEODETIC FACILITY**
- 272-7** 9:30 AM Callahan, Caitlin N.\*; Libarkin, Julie; McCallum, Carmen; Atchison, Christopher L.: **THE RELATIONSHIP BETWEEN TRUST IN MENTOR AND CAREER SATISFACTION IN THE EARTH SYSTEM SCIENCES**
- 272-8** 9:45 AM McMillan, Margaret E.\*; DeAngelis, Michael T.; Ruhl, Laura; Shroat-Lewis, René A.; Connelly, Jeffrey B.: **PREPARING STUDENTS FOR THE SUCCESSFUL TRANSITION BETWEEN THE UNDERGRADUATE EXPERIENCE AND THE WORKFORCE**
- 272-9** 10:00 AM Houlton, Heather R.\*; Keane, Christopher M.: **AGI WORKFORCE PROGRAM: CAREER RESOURCES FOR ALL GEOSCIENTISTS**
- 272-10** 10:15 AM Beane, Rachel J.\*; Hill, Tessa M.; Macdonald, Heather; Tewksbury, Barbara J.; Allen-King, R.M.; Yuretich, Richard F.: **WORKSHOP FOR EARLY CAREER GEOSCIENCE FACULTY: STRATEGIC PLANNING AND SUPPORT AT THE BEGINNING OF ACADEMIC CAREERS**
- 272-11** 10:30 AM McKay, Larry D.\*; Hazen, Terry C.: **EVALUATING THE EFFECTIVENESS OF A "FOR-CREDIT" COURSE IN ACADEMIC CAREER PREPARATION**
- 272-12** 10:45 AM Chapman, LeeAnna Young\*; McConnell, David: **WHAT EXPERIENCES INFLUENCE THE DEVELOPMENT OF REFORMED TEACHING BELIEFS AMONG FUTURE GEOSCIENCE PROFESSORS?**
- 272-13** 11:00 AM Taylor, Zachary P.\*: **BALANCING TEACHING AND RESEARCH AT A LIBERAL ARTS COLLEGE**
- 272-14** 11:15 AM Yacobucci, Margaret M.\*; Hanasono, Lisa K.; Broido, Ellen; Peña, Susana; Roberts, Sheila J.; Root, Karen V.: **THE SPIRAL PROJECT: SUPPORTING PROGRESS IN REBALANCING ACADEMIC LIFE**
- 272-15** 11:30 AM Moosavi, Sadredin C.\*: **ACADEMIC SOCIETIES: AN OPPORTUNITY TO BROADEN PARTICIPATION IN GEOSCIENCE RESEARCH DESPITE AN ACADEMIC CULTURE OF APARTHEID**
- 272-16** 11:45 AM Bruno, Barbara C.\*; Sherman, Sarah Bean; Harris, Sara E.: **CHANGING THE ACADEMIC CLIMATE AT THE UNIVERSITY OF HAWAII'S SCHOOL OF OCEAN AND EARTH SCIENCE AND TECHNOLOGY (SOEST)**

## SESSION NO. 272

**T79. Geoscience Career Planning in the Classroom and Beyond**

8:00 AM, Baltimore Convention Center, Room 324

Larry McKay and Heather Macdonald, Presiding

- 272-1** 8:00 AM Mosher, Sharon\*: **PREPARING GEOSCIENCE STUDENTS FOR SUCCESSFUL CAREERS**
- 272-2** 8:15 AM Maher Sobhani, Barbra\*; Cox, Liz: **WIDENING AND MAINTAINING STEM PATHWAYS FOR COMMUNITY COLLEGE STUDENTS: A MULTI-FACETED APPROACH FOR FACULTY AND STUDENT DEVELOPMENT**
- 272-3** 8:30 AM Ludman, Allan\*; Porter-Morgan, Holly; Trujillo, Monica: **FRESHMAN YEAR TO GEOSCIENCE CAREER: GEOPATHS STRATEGIES TO NURTURE URBAN UNDERGRADUATES FOR GEOSCIENCE CAREERS AND GRADUATE SCHOOL**
- 272-4** 8:45 AM Bayles, Andrew\*; Morris, Aisha R.; Bartel, Beth; Charlevoix, Donna; MacPherson-Krutzky, Carson: **EXPOSING UNDERGRADUATES TO MULTIPLE GEOSCIENCE CAREER OPTIONS THROUGH SHORT VIDEOS FOR THE CLASSROOM**
- 272-5** 9:00 AM Peláez, Jess\*; Peláez, Carlos: **COME AS YOU ARE: THE RALLYING CRY FOR THE NEXT GENERATION OF GEOSCIENTISTS**

## SESSION NO. 273

**T89. Trans-Disciplinary Pedagogical Strategies—Enhancing STEM Instruction through Real-Time Problem Solving Facilitated by Interdisciplinary, Project-Based Learning (GSA Geoscience Education Division)**

8:00 AM, Baltimore Convention Center, Room 321

Adam J. Kuban and Lee J. Florea, Presiding

- 8:00 AM **INTRODUCTORY REMARKS**
- 273-1** 8:15 AM Kuban, Adam J.\*; Florea, Lee J.: **WATER QUALITY INDIANA (WQI): HOW TO EXPAND A TRANS-DISCIPLINARY, PROJECT-BASED INITIATIVE TO OTHER STEM-STRAPPED INSTITUTIONS**
- 273-2** 8:30 AM Fadem, Cynthia M.\*: **THE BEST AND MOST BEAUTIFUL: GEOSCIENCE EDUCATION AND GENERATION Z**
- 273-3** 8:50 AM Szymanski, David W.\*; Oches, Eric A.; Fletcher, Donna; Sipe, Timothy W.; Nesteruk, Jeffrey; Turner, Sheldon P.; Mooney, Christine H.; Iverson, Ellen: **FUSING STEM, LIBERAL ARTS AND BUSINESS IN TRANSDISCIPLINARY UNDERGRADUATE SUSTAINABILITY CURRICULA**
- 273-4** 9:10 AM Brooks, Edward M.\*; Diggory, Molly; Gomez, Enrique; Salaree, Amir; Schmid, Mark; Saloor, Nooshin; Stein, Seth: **SHOULD FERMI HAVE SECURED HIS WATER HEATER AGAINST EARTHQUAKES?**

- 273-5 9:25 AM DiMizio, Jessica J.\*; Nagy-Shadman, Elizabeth A.: **RESEARCH EXPERIENCE FOR EARLY CAREER GEOSCIENCE TEACHER: CREATING A PLANETARY GEOLOGY SEMINAR FOR JPL ENGINEERS WORKING ON MARS 2020 MISSION**
- 273-6 9:40 AM Villalobos, Joshua\*; Perez, Adriana; Doser, Diane I.: **A TRANS-DISCIPLINARY APPROACH IN TEACHING EARTH SCIENCE: INTEGRATING ENVIRONMENTAL JUSTICE INTO EARTH SCIENCE CURRICULUM UTILIZING AN INTEGRATE TEACHING MODULE**
- 9:55 AM **BREAK**
- 273-7 10:10 AM Manduca, Cathryn A.\*; Bralower, Timothy J.; Egger, Anne E.; McConnell, David A.; Gosselin, David C.; Taber, John; Steer, David: **DEVELOPING CAPACITY TO ADDRESS SOCIETAL ISSUES: PRINCIPLES AND EXAMPLES FROM INTEGRATE**
- 273-8 10:30 AM Eyles, Carolyn H.\*; Symons, Sarah L.; Harvey, Chad T.: **INTERDISCIPLINARY RESEARCH-BASED LEARNING OF SCIENCE: THE HONOURS INTEGRATED SCIENCE PROGRAM AT MCMASTER UNIVERSITY**
- 273-9 10:45 AM Phillips, Michael A.\*; Phillips, Lisa; Darby, Kate: **MAPPING THE ENVIRONMENT WITH SENSORY PERCEPTION: AN INTERDISCIPLINARY MODULE FOR EXAMINING ENVIRONMENTAL CONTAMINATION AND IMPACT**
- 11:00 AM **DISCUSSION**
- 274-9 10:20 AM Guo, Huaming\*; Zhou, Yinzhou; Zheng, Hao; Zhao, Weiguang; Zhang, Di; Norra, Stefan: **BIOGEOCHEMICAL PROCESSES OF ARSENIC MOBILIZATION IN THE WESTERN HETAO BASIN, CHINA: EVIDENCES FROM MULTIPLE ISOTOPE APPROACHES**
- 274-10 10:40 AM Jean, Jiin-Shuh\*; Liu, Chia-Chuan; Das, Suvendu; Wang, Pei-Ling; Wang, Chung-Ho; Yang, Hui-Jen: **HYDROGEOCHEMICAL AND MULTIPLE ISOTOPIC INVESTIGATION OF ARSENIC MOBILIZATION RELATED TO OXIDATION OF IRON SULFIDES UNDER THE REDUCING ENVIRONMENT IN AS-RICH GROUNDWATER OF BLACKFOOT DISEASE AREA**
- 274-11 10:55 AM Bhattacharya, Prosun\*; Mtaló, Felix; Mato, Rubhera RAM; Annaduzzaman, M.: **GEOGENIC CONTAMINANTS IN THE GROUNDWATER IN THE RIFT VALLEY OF TANZANIA- THE CASE OF ARSENIC AND FLUORIDE**
- 274-12 11:10 AM Punamiya, Pravin\*; Pal, Rusha; Deng, Yang; Sarkar, Dibyendu: **FERRATE [Fe(VI)]-DRIVEN REMEDIATION OF ARSENIC-CONTAMINATED GROUNDWATER: A SCALED-UP REACTOR STUDY WITH CONTAMINATED GROUNDWATER AND AQUIFER MATERIALS**
- 274-13 11:25 AM Herath, Indika\*; Vithanage, Meththika; Bhattacharya, Prosun; van Genuchten, C.M.: **FIELD-SCALE ARSENIC REMEDIATION STRATEGIES FOR SUSTAINABLE SAFE DRINKING WATER SUPPLIES**
- 11:40 AM **DISCUSSION**

**SESSION NO. 274**

*T101. Arsenic: Source to Sustainability I (GSA Hydrogeology Division; GSA Geobiology & Geomicrobiology Division; GSA Geology and Society Division; GSA Environmental and Engineering Geology Division; International Society of Groundwater for Sustainable Development)*

8:00 AM, Baltimore Convention Center, Room 337

Prosun Bhattacharya, Abhijit Mukherjee, Alan E. Fryar, Saugata Datta and Mohammad Alauddin, Presiding

- 8:00 AM **INTRODUCTORY REMARKS**
- 274-1 8:05 AM Thomas, Andrew\*; Root, Robert A.; Chorover, Jon: **SURFACE-CONTROLLED FERRIHYDRITE DISSOLUTION KINETICS AND ASSOCIATED FE AND AS RELEASE**
- 274-2 8:20 AM Gillispie, Elizabeth\*; Duckworth, Owen; Polizzotto, Matthew; Phen, Nuon: **QUANTIFYING THE CONTROLS OF MANGANESE OXIDES ON GEOGENIC ARSENIC RELEASE IN GROUNDWATER**
- 274-3 8:35 AM Kim, Angela\*; Weinstein, Allison; Costa, Matthew A.; Oyewumi, Oluyinka: **EVALUATION OF ARSENIC CONCENTRATION IN SOIL AND ROCK UNITS ACROSS LEBANON, CT**
- 274-4 8:50 AM Winston, Richard B.\*; Ayotte, Joseph D.: **SIMULATIONS OF A NOVEL WELL DESIGN FOR REDUCING THE RISK OF ARSENIC CONTAMINATION**
- 274-5 9:05 AM Jebson, Tiffany Eve\*; Schreiber, Madeline; Zhang, Lin: **PREDICTING OCCURRENCES OF ARSENIC IN GROUNDWATER IN VIRGINIA AS A TOOL FOR EXPOSURE ASSESSMENT**
- 274-6 9:20 AM Yu, Xuan\*; LeMonte, Joshua J.; Sparks, Donald L.; Cargill, John G.; Michael, Holly A.: **POTENTIAL IMPACTS OF SEA-LEVEL RISE ON CONTAMINANT MOBILITY AND GROUNDWATER POLLUTION**
- 274-7 9:35 AM Matteson, Audrey\*; Polizzotto, Matthew: **ARSENIC ACCUMULATION FROM HERBICIDES IN POND WATER AND SEDIMENTS NEAR SOD FARMS AND GOLF COURSES IN NORTH CAROLINA**
- 9:50 AM **BREAK**
- 274-8 10:05 AM Yelderman, Jr., Joe C.\*; Kirby, Joshua; Atchley, Stacy: **APPLIED FORENSIC INVESTIGATION OF ELEVATED ARSENIC LEVELS IN A DEEP CONFINED AQUIFER**

**SESSION NO. 275**

*T109. Water and Fluid Migration During Energy Development: Implications for Hydraulic Fracturing, CO<sub>2</sub> Storage, Enhanced Oil Recovery, In Situ Uranium Recovery, and Waste Water Injection (GSA Hydrogeology Division; GSA Energy Geology Division)*

8:00 AM, Baltimore Convention Center, Room 309

Madalyn S. Blondes, Mark A. Engle, Carleton R. Bern and Tanya J. Gallegos, Presiding

- 275-1 8:00 AM Nicot, Jean-Philippe\*; Scanlon, Bridget R.: **WATER DEMAND OF THE ENERGY INDUSTRY IN TEXAS AND IMPACT ON AQUIFERS**
- 275-2 8:20 AM Reimus, Paul W.\*: **TESTING OF DOWNGRADIENT URANIUM MOBILITY AT AN IN-SITU RECOVERY MINING SITE**
- 275-3 8:40 AM Scanlon, Bridget R.\*; Reedy, Robert C.; Ikonnikova, Svetlana; Nicot, Jean-Philippe: **IS WATER SCARCITY AN ISSUE FOR HYDRAULIC FRACTURING IN SEMIARID REGIONS?**
- 275-4 8:55 AM Bolton, David W.\*: **BASELINE DISSOLVED-METHANE CONCENTRATIONS IN WATER-SUPPLY WELLS IN THE APPALACHIAN PLATEAU PHYSIOGRAPHIC PROVINCE OF MARYLAND**
- 275-5 9:10 AM Siegel, Donald I.\*; Smith, Bert: **THE NATURAL CONTROLS OVER THE NATURAL WATER QUALITY OF POTABLE GROUND WATER IN THE APPALACHIAN BASIN OVERLYING DEEP MARCELLUS AND UTICA SHALE GAS DEVELOPMENT: A REVIEW OF THE CHESAPEAKE ENERGY CORPORATION WATER QUALITY DATASET**
- 275-6 9:25 AM Szykiewicz, Anna\*; LeDoux, St. Thomas Majeau; Mayes, Melanie; Falia, Anthony M.; McKinney, Michael L.; Dean, W. Gray: **IMPACTS OF HYDRAULIC FRACTURING AND SURFACE MINING ON CHEMICAL AND ISOTOPE COMPOSITIONS OF SHALLOW GROUNDWATER IN THE CENTRAL APPALACHIAN BASIN, EASTERN UNITED STATES**
- 9:40 AM **BREAK**
- 275-7 9:55 AM Hammack, Richard W.\*: **AN EVALUATION OF FRACTURE GROWTH AND GAS/FLUID MIGRATION AS HORIZONTAL MARCELLUS SHALE GAS WELLS ARE HYDRAULICALLY FRACTURED IN GREENE COUNTY, PENNSYLVANIA**



SESSION NO. 275

- 275-8 10:10 AM Stewart, Brian W.\*; Capo, Rosemary C.: **THE ORIGIN AND MOBILIZATION OF LATE-STAGE PRODUCED WATERS FROM UNCONVENTIONAL SHALE RESERVOIRS**
- 275-9 10:25 AM Blondes, Madalyn S.\*; Rowan, Elisabeth L.; Geboy, Nicholas J.; Doolan, Colin A.; Engle, Mark A.: **PRODUCED WATER GEOCHEMISTRY OF THE ORDOVICIAN UTICA SHALE AND ADJACENT FORMATIONS IN THE APPALACHIAN BASIN**
- 275-10 10:40 AM Ash, Jeanine L.\*; Bryndzia, L. Taras: **SOURCE AND COMPOSITION OF POTENTIAL END-MEMBER BRINES ASSOCIATED WITH SHALE GAS PRODUCTION IN THE APPALACHIAN BASIN OF CENTRAL PA**
- 275-11 11:00 AM Brownlow, Joshua W.\*; James, Scott C.; Yelderman, Jr., Joe C.: **INFLUENCE OF HYDRAULIC FRACTURING ON LEAKY ABANDONED WELLS**
- 275-12 11:15 AM Weingarten, Matthew\*; Bekins, Barbara A.; Hsieh, Paul A.; Rubinstein, Justin L.; Godt, Jonathan W.; Ge, Shemin: **FLUID-PRESSURE MODELING OF INJECTION IN THE RATON BASIN, COLORADO-NEW MEXICO: A CASE STUDY OF INDUCED SEISMICITY**
- 275-13 11:30 AM Bekins, Barbara A.\*; Weingarten, Matthew; Ge, Shemin; Keranen, Katie; Llenos, Andrea: **THE RELATIONSHIP OF WASTEWATER INJECTION TO THE INCREASE IN CENTRAL AND EASTERN U. S. SEISMICITY**

SESSION NO. 276

**T111. Sustainability and Resilience in Major Urban Areas: The Need for Earth and Environmental Science Information in Formulating Plans, Policies, and Programs (GSA Hydrogeology Division; GSA Geology and Society Division; GSA Environmental and Engineering Geology Division)**

8:00 AM, Baltimore Convention Center, Room 342

Robert J. Shedlock and Claire Welty, Presiding

- 8:00 AM **INTRODUCTORY REMARKS**
- 276-1 8:05 AM Band, Lawrence E.\*: **ECOHYDROLOGICAL PROCESSES AT THE WATERSHED SCALE: GREY TO GREEN EVOLUTION OF URBAN SYSTEMS**
- 276-2 8:25 AM Kaushal, Sujay S.\*; McDowell, William H.; Wollheim, Wilfred M.; Johnson, Tamara Newcomer; Mayer, Paul M.; Belt, Kenneth T.; Pennino, Michael J.: **URBAN EVOLUTION: THE ROLE OF WATER AND ADAPTATION**
- 276-3 8:40 AM Doheny, Edward J.\*; Howells, Clark; Shedlock, Robert J.: **THE RELEVANCE OF STREAMFLOW INFORMATION TO URBAN PLANNERS AND POLICY MAKERS**
- 276-4 8:55 AM Groffman, Peter\*: **LONG-TERM WATERSHED STUDIES IN THE BALTIMORE METROPOLITAN AREA**
- 276-5 9:10 AM Luke, Barbara\*; Keaton, Jeffrey R.: **CIVIL ENGINEERING RENAISSANCE: AMERICAN SOCIETY OF CIVIL ENGINEERS' STRATEGIC INITIATIVE ON SUSTAINABILITY NEEDS GEOLOGY**
- 276-6 9:30 AM Hopkins, Kristina G.\*; Grimm, Nancy B.; York, Abigail M.: **WHAT PLANNING DOCUMENTS INDICATE ABOUT SHIFTING APPROACHES TO WATER MANAGEMENT IN U.S. CITIES**
- 276-7 9:45 AM Miles, Brian C.\*; Band, Lawrence E.: **UNDERSTANDING THE ROLE OF RESIDENTIAL STORMWATER MANAGEMENT IN REDUCING RUNOFF: AN URBAN VARIABLE SOURCE AREA APPROACH**
- 10:00 AM **BREAK**
- 276-8 10:15 AM Dvarskas, Anthony\*; Finisdore, John: **ENVIRONMENTAL DATA, ECOSYSTEM VALUATION, AND URBAN PLANNING**
- 276-9 10:30 AM Herrmann, Dustin\*; Shuster, William D.; Garmestani, Ahjond; Haefner, Ralph: **MANAGEMENT OF URBAN GREEN INFRASTRUCTURE FOR ECOSYSTEM SERVICES PRODUCTION AND THE IMPERATIVE FOR FIELD DATA SUPPORT**

- 276-10 10:45 AM Summers, Robert M.\*: **WATER FOR MARYLAND'S FUTURE: WHAT WE MUST DO TODAY**
- 276-11 11:00 AM Barlow, Roger A.\*: **APPLICATIONS OF LIDAR DATA FOR PLANNING, PROGRAM MANAGEMENT, AND POLICY-MAKERS IN MID-ATLANTIC STATES**
- 276-12 11:15 AM Meyers, Erik J.\*: **PLANNING FOR INCREASED CLIMATE RESILIENCY IN THE GREATER BALTIMORE WILDERNESS**
- 276-13 11:30 AM Jones, Daniel K.\*; Reilly, Timothy J.; Focazio, Michael J.; Aquino, Kimberly C.; Carbo, Chelsea L.; Kaufhold, Erika E.; Zinecker, Elizabeth K.; Benzel, William M.; Fisher, Shawn C.; Griffin, Dale W.: **THE U.S. GEOLOGICAL SURVEY'S SEDIMENT-BOUND CONTAMINANT RESILIENCY AND RESPONSE STRATEGY: A TIERED MULTI-METRIC APPROACH TO ENVIRONMENTAL HEALTH AND HAZARDS IN THE NORTHEASTERN USA**
- 11:45 AM **DISCUSSION**

SESSION NO. 277

**T137. Fresh Perspectives on Critical Transitions in Earth History: Insights from Novel Tools or New Successions (GSA Geobiology & Geomicrobiology Division; GSA Sedimentary Geology Division; GSA Mineralogy, Geochemistry, Petrology, and Volcanology Division; Geochemical Society)**

8:00 AM, Baltimore Convention Center, Room 319/320

Victoria A. Petryshyn and Aradhna Tripathi, Presiding

- 8:00 AM **INTRODUCTORY REMARKS**
- 277-1 8:05 AM Husson, Jon\*; Peters, Shanan E.: **MACROSTRATIGRAPHIC CONSTRAINTS ON THE GLOBAL CARBON CYCLE**
- 277-2 8:20 AM Li, Su\*; Rudnick, Roberta L.; Gaschnig, Richard M.: **INSIGHTS INTO CHEMICAL WEATHERING OF THE UPPER CONTINENTAL CRUST FROM THE GEOCHEMISTRY OF ANCIENT GLACIAL DIAMICTITES**
- 277-3 8:35 AM Planavsky, Noah J.\*; Kalderon-Asael, Boriana; Bellefroid, Eric J.; Asael, Dan: **A SEDIMENTARY LI ISOTOPE RECORD THROUGH EARTH'S HISTORY**
- 277-4 8:50 AM Ahm, Anne-Sofie C.\*; Bjerrum, Christian J.; Hoffman, Paul; Macdonald, Francis A.; Maloof, Adam; Rose, Catherine V.; Higgins, John A.: **CA AND MG ISOTOPE RECORD OF THE DESCENT AND ESCAPE OF THE END-CRYOGENIAN GLACIATION**
- 277-5 9:05 AM Chou, Luoth\*; van Maldegeem, Lennart; Buongiorno, Joy; Zinke, Laura A; Petryshyn, Victoria A.; Shapiro, Russell; Loyd, Sean; Piazza, Olivia; Corsetti, Frank A.; International Geobiology Course, 2015: **COUPLED STRATIGRAPHY, PETROGRAPHY, AND  $\Delta_{47}$  OF ANCIENT WALKER LAKE, NEVADA REVEALS UNIQUE ANALOG FOR STUDYING PROTEROZOIC STROMATOLITE FORMATION AND CLIMATIC FORCINGS**
- 277-6 9:20 AM Mitsunaga, Bryce A.\*; Castro, Jorge A.; Burford, Sean; Bellefroid, Eric J.; Tripathi, Aradhna; Planavsky, Noah J.; Blake, Ruth E.: **A COMPARISON OF PALEOCLIMATE DATA DERIVED FROM PHOSPHATE OXYGEN ISOTOPES IN PROTEROZOIC AND PHANEROZOIC IRON FORMATIONS**
- 9:35 AM **BREAK**
- 277-7 9:50 AM McKenzie, N. Ryan\*; Planavsky, Noah J.; Penman, Donald; Horton, Brian K.; Stockli, Daniel F.; Mackaman-Lofland, Chelsea: **THE INFLUENCE OF VOLCANICALLY DRIVEN CLIMATE CHANGE ON PHANEROZOIC BIODIVERSITY**
- 277-8 10:05 AM Hren, Michael T.\*: **CENOZOIC ORGANIC MOLECULAR ISOSCAPES: PLANT WAX HYDROGEN ISOTOPE RECORDS OF CHANGING PRECIPITATION ISOTOPES AND CLIMATE ACROSS NORTH AMERICA**
- 277-9 10:20 AM Li, Mingsong\*; Huang, Chunju; Hinnov, Linda A.: **INTERMITTENT OBLIQUITY-FORCED CLIMATE DURING THE EARLY TRIASSIC**



- 277-10 10:35 AM Jones, David S.\*; Santiago Ramos, Danielle; Beaty, Brian J.: **DIAGENETIC  $\delta^{34}\text{S}_{\text{CAS}}$  VARIABILITY IN METEORICALLY ALTERED DOLOSTONES: A CASE STUDY FROM THE UPPER ORDOVICIAN OF THE GREAT BASIN**
- 277-11 10:50 AM Lu, Xinze\*; Kendall, Brian; Li, Chao; Stein, Holly J.; Hannah, Judith L.; Gordon, Gwyneth W.; Ebbestad, Jan Ove R.: **RECONSTRUCTION OF LOCAL AND GLOBAL MARINE REDOX CONDITIONS DURING DEPOSITION OF LATE ORDOVICIAN AND EARLY SILURIAN ORGANIC-RICH MUDROCKS IN THE SILJAN RING DISTRICT, CENTRAL SWEDEN**
- 277-12 11:05 AM Newsam, Cherry\*; Bown, Paul; Dunkley Jones, Tom: **CALCAREOUS NANNOPLANKTON RESPONSE AND POPULATION RESTRUCTURING ACROSS THE EOCENE-OLIGOCENE TRANSITION**
- 277-13 11:20 AM Fraass, Andrew Jeffrey\*; Leckie, Mark: **OCEANOGRAPHIC CHANGES ACROSS THE OLIGOCENE/MIOCENE BOUNDARY (M1 EVENT): ODP SITE 744, SOUTHERN KERGUELEN PLATEAU**

**SESSION NO. 278****T150. Early and Middle Triassic Restructuring Following the End-Permian Mass Extinction (Paleontological Society)**

8:00 AM, Baltimore Convention Center, Room 316

Carlie Pietsch and Margaret L. Fraiser, Presiding

- 278-1 8:00 AM Bercovici, Antoine\*; Cui, Ying; Forel, Marie-Béatrice; Yu, Jianxin; Vajda, Vivi: **A PALEOENVIRONMENTAL RE-INVESTIGATION OF THE TERRESTRIAL PERMIAN-TRIASSIC TRANSITION IN SOUTH CHINA**
- 278-2 8:15 AM Korngreen, Dorit\*: **ATTEMPTS OF CARBONATE FACTORY TO RECOVER AS AN INDICATION TO HINTERLAND ARIDIZATION EVENTS IN THE EARLY AND EARLY MIDDLE TRIASSIC, IN MIXED CARBONATE/SILICICLASTIC SEDIMENTARY SYSTEM, SOUTHERN MARGINS OF THE TROPICAL TETHYAN SEAWAY**
- 278-3 8:30 AM Saito, Ryosuke\*; Kaiho, Kunio; Oba, Masahiro; Takahashi, Satoshi; Chen, Zhong Qiang; Tian, Li; Chen, Jing; Tong, Jinnan: **BIOTIC AND OCEAN-REDOX CHANGES DURING THE EARLY-MIDDLE TRIASSIC**
- 278-4 8:45 AM Zhang, Feifei\*; Algeo, Thomas J.; Romaniello, Stephen; Herrmann, Achim D.; Richoz, Sylvain; Anbar, A.D.: **PROTRACTED GLOBAL OCEAN ANOXIA DELAYED BIOTIC RECOVERY FOLLOWING THE END-PERMIAN MASS EXTINCTION**
- 278-5 9:00 AM Tarailo, David A.\*; Sahney, Sarda; Benton, Michael: **WAS THE P-T RECOVERY DELAYED ON LAND? A COMPARISON WITH THE K-PG RECORD**
- 278-6 9:15 AM Gastaldo, Robert A.\*; Kamo, Sandra L.; Neveling, Johann; Geissman, John W.; Looy, Cindy V.; Bamford, Marion K.: **IS THE *LYSTROSAURUS* ASSEMBLAGE ZONE OF THE KAROO BASIN, SOUTH AFRICA, THE EXPRESSION OF THE POST PERMIAN EXTINCTION ON LAND?**
- 9:30 AM **BREAK**
- 278-7 9:45 AM Fraiser, Margaret L.\*; Gulbranson, Erik L.: **GEOCHEMICAL EVIDENCE DOES NOT SUPPORT PROLONGED MARINE ENVIRONMENTAL STRESS IN EARLIEST GRIESBACHIAN MARINE ENVIRONMENTS OF MID-LATITUDINAL EASTERN PANTHALASSA**
- 278-8 10:00 AM Foster, William J.\*; Danise, Silvia; Price, Gregory D.; Twitchett, Richard J.: **SUBSEQUENT BENTHIC BIOTIC CRISES IN THE WAKE OF THE LATE PERMIAN MASS EXTINCTION EVENT**
- 278-9 10:20 AM Pietsch, Carlie\*; Bottjer, David J.: **EVOLUTION OF ALTERNATIVE ECOLOGICAL STATES IN THE EARLY TRIASSIC**
- 278-10 10:35 AM Petsios, Elizabeth\*; Bottjer, David: **TRACKING RECOVERY AND GEOCHEMICAL CORRELATION FROM THE LOWER**

**TRIASSIC DINWOODY FORMATION AT BLACKTAIL CREEK, MONTANA**

- 278-11 10:50 AM Fu, Wanlu\*; Jiang, Da-yong; Montanez, Isabel; Meyers, Stephen R.; Motani, Ryosuke: **TIMING OF OLENEKIAN CARBON CYCLE EVENTS AND THE RECOVERY OF OCEANIC ECOSYSTEM FOLLOWING THE END-PERMIAN EXTINCTION**
- 278-12 11:05 AM Thomson, Tracy J.\*: **THE "HIDDEN" BIODIVERSITY AND ECOLOGY OF EARLY TRIASSIC ORGANISMS REVEALED BY TRACE FOSSILS FROM THE MOENKOPI FORMATION OF CENTRAL UTAH**
- 278-13 11:20 AM Roopnarine, Peter D.\*; Angielczyk, Kenneth D.: **ECOLOGICAL DYNAMICS AS INDICATORS OF RECOVERY FROM THE PERMIAN-TRIASSIC MASS EXTINCTION**

**SESSION NO. 279****T151. Foraminiferal Responses and Recovery from Environmental Stressors (Paleontological Society; SEPM (Society for Sedimentary Geology); GSA Quaternary Geology and Geomorphology Division)**

8:00 AM, Baltimore Convention Center, Room 315

Michael Martínez-Colón, Benjamin J. Ross and Natasha Méndez-Ferrer, Presiding

- 8:00 AM **INTRODUCTORY REMARKS**
- 279-1 8:10 AM Schwing, Patrick\*; Martínez-Colon, Michael; Machain-Castillo, Maria Luisa; Romero, Isabel; Brooks, Gregg R.; Hastings, David W.; Larson, Rebekka; Chanton, Jeffrey P.; O'Malley, Bryan; Hollander, David: **DOCUMENTING THE SPATIAL AND TEMPORAL RESPONSE OF BENTHIC FORAMINIFERA FOLLOWING SUBSURFACE OIL RELEASES IN THE GULF OF MEXICO**
- 279-2 8:30 AM Hawkes, Andrea D.\*; Peth, Joanna; Lane, Chad; Donnelly, Jeffrey P.; Pratalongo, Paula; Gomez, Eduardo: **INVESTIGATING THE UTILITY OF FORAMINIFERAL ISOTOPE PROXIES FOR SEA-LEVEL VARIABILITY IN THE BUENOS AIRES PROVINCE, ARGENTINA**
- 279-3 8:45 AM Martínez-Colon, Michael\*; Hallock, Pamela: **BIOAVAILABILITY AND BULK HEAVY METAL CONCENTRATIONS IN TORRECILLA LAGOON-PUERTO RICO**
- 279-4 9:00 AM Emrich, Kristen\*; Martínez-Colon, Michael; Alegria, Henry: **UNTREATED SEWAGE AND THE FORAM INDEX: AN ASSESSMENT**
- 279-5 9:15 AM Frederick, Daniel L.\*; Dreher, Brittany E.; Martin, Ruth A.; Nesbitt, Elizabeth A.: **ENVIRONMENTAL IMPLICATIONS OF CHANGES IN BENTHIC FORAMINIFERAL ASSEMBLAGES IN SOUTHERN PUGET SOUND, WASHINGTON STATE, USA**
- 9:30 AM **BREAK**
- 279-6 9:45 AM Di Bella, Letizia\*; Frezza, Virgilio; Ingrassia, Michela; Chiocci, Francesco Latino; Martorelli, Eleonora: **THE RESPONSE OF LIVING FORAMINIFERAL ASSEMBLAGES TO HYDROTHERMAL VENT INFLUENCE: AN EXAMPLE FROM THE PONTINE ARCHIPELAGO (TYRRHENIAN SEA, ITALY)**
- 279-7 10:00 AM Stuhr, Marleen\*; Reymond, Claire; Kucera, Michal; Westphal, Hildegard: **ACCLIMATIZATION POTENTIAL OF AMPHISTEGINA SPP. AND THEIR SYMBIONTS TO LONG- AND SHORT-TERM THERMAL STRESS**
- 279-8 10:15 AM Keating-Bitonti, Caitlin R.\*; Payne, Jonathan L.: **COMPLEX MORPHOLOGICAL RESPONSES OF BENTHIC FORAMINIFERAL SPECIES TO A GRADIENT IN OXYGEN AVAILABILITY IN THE SANTA MONICA BASIN, SOUTHERN CALIFORNIA**
- 279-9 10:30 AM Holt, Brittany Ann\*; Reid, Catherine M.: **TIDAL DISTRIBUTION OF FORAMINIFERA IN BROOKLANDS LAGOON, CANTERBURY, NEW ZEALAND**

- 279-10 10:45 AM Ross, Benjamin J.\*; Hallock, Pamela: **DORMANCY IN THE FORAMINIFERA: IMPLICATIONS FOR THE PAST, PRESENT AND FUTURE**
- 279-11 11:00 AM Bernhard, Joan M.\*; Wit, Jos C.; McCorkle, Daniel C.: **TRIPLE STRESS: RESULTS OF A LONG-TERM EXPERIMENT TO ASSESS IMPACT OF OCEAN ACIDIFICATION, DEOXYGENATION, AND WARMING ON BENTHIC FORAMINIFERAL COMMUNITY COMPOSITION AND GROWTH**
- 279-12 11:15 AM Knorr, Paul O.\*; Robbins, Lisa L.; Wynn, Jonathan G.; Hallock, Pamela; Harries, Peter J.: **EFFECTS OF OCEAN ACIDIFICATION ON LARGE BENTHIC FORAMINIFERAL STABLE ISOTOPE COMPOSITION**
- 279-13 11:30 AM Yan, Sr., Shiyong\*: **FUSULINID DIVERSITY PATTERN AND THE CONTEMPORANEOUS SEA LEVEL CHANGE OF THE YUNNAN-GUIZHOU-GUANGXI BASIN DURING EARLY AND MIDDLE PERMIAN, SOUTH CHINA**

## SESSION NO. 280

***T152. Geobiology of Critical Transitions: Integrating Fossils, Proxies, and Models II (GSA Geobiology & Geomicrobiology Division; Paleontological Society; Geochemical Society)***

8:00 AM, Baltimore Convention Center, Room 325/326

A. D. Muscente, Natalia Bykova, Jesse S. Broce and James D. Schiffbauer, Presiding

- 280-1 8:00 AM Kearsley, Timothy\*; Bennett, Carys; Millward, David; Davies, Sarah J.; Smithson, Tim; Leng, Melanie; Marshall, John E.A.; Brown, Michael A.E.; Clack, Jennifer A.: **THE TERRESTRIAL LANDSCAPES OF TETRAPOD EVOLUTION IN EARLIEST CARBONIFEROUS SEASONAL WETLANDS OF THE BALLAGAN FORMATION IN S.E. SCOTLAND, UK**
- 280-2 8:15 AM Lozar, Francesca\*; Dela Pierre, Francesco; Natalicchio, Marcello; Violanti, Donata; Gennari, Rocco; Turco, Elena: **CALCAREOUS NANNOFOSSILS SURVIVORSHIP AT THE ONSET OF THE MESSINIAN SALINITY CRISIS**
- 280-3 8:30 AM Plaza-Torres, Stephanie Marie\*; Wagner, Peter J.; Darroch, Simon A.F.: **A PHYLOGENETIC ANALYSIS OF THE BRACHIOPOD GENUS *LEPTAENA***
- 280-4 8:45 AM Choh, Suk-Joo\*; Lee, Jeong-Hyun; Lee, Dong-Jin: **"BORED" INTRACLASTS REVISITED: MACROBORINGS IN THE LATE CAMBRIAN (FURONGIAN) FLAT-PEBBLE CONGLOMERATES REVEAL THEIR PALEOECOLOGICAL IMPLICATIONS**
- 280-5 9:00 AM Tosti, Fabio\*; Riding, Robert: **SINUSOIDAL COLUMNAR STROMATOLITES FROM THE MESOPROTEROZOIC OF NORTHERN CHINA: ORIGIN AND SIGNIFICANCE**
- 280-6 9:15 AM Wolfe, Joanna M.\*; Fournier, Gregory P.: **TUNNELING THROUGH TIME: HORIZONTAL GENE TRANSFER STRATIGRAPHY DATES THE RADIATION OF PROKARYOTE GROUPS, THE ORIGIN OF METHANOGENESIS, AND THE MICROBIOME**
- 280-7 9:30 AM Czaja, Andrew D.\*; Osterhout, Jeffrey T.; Beukes, Nicolas J.: **EXCEPTIONALLY LARGE NEOARCHEAN SPHEROIDAL MICROFOSSILS FROM SOUTH AFRICA: POSSIBLE CONTRIBUTORS TO THE GOE**
- 9:45 AM **BREAK**
- 280-8 10:00 AM Schiffbauer, James D.\*; Shelton, Kevin L.; Huntley, John Warren; Fike, David A.; Gregg, Jay M.: **RECOGNITION OF SPICE AND OTHER CARBON ISOTOPE EXCURSIONS IN THE UPPER CAMBRIAN OF SOUTHERN MISSOURI: INTERACTION OF LOCAL AND GLOBAL CARBON FACTORIES**
- 280-9 10:15 AM Montanez, Isabel P.\*; McElwain, Jennifer C.; Poulsen, Christopher J.; White, Joseph D.; Wilson, Jonathan P.; DiMichele, William; Griggs, Galen; Hren, Michael T.: **DYNAMIC SHIFTS IN GLACIAL-INTERGLACIAL**

**ATMOSPHERIC CO<sub>2</sub> AND TROPICAL VEGETATION DURING EARTH'S LAST ICEHOUSE**

- 280-10 10:30 AM Liu, Xiao-Ming\*; Kah, Linda C.; Knoll, Andrew H.; Cui, Huan; Kaufman, Alan J.; Shahar, Anat; Hazen, Robert M.: **TRACING EARTH'S O<sub>2</sub> EVOLUTION USING ZN/FE SYSTEMATICS IN MARINE CARBONATES**
- 280-11 10:45 AM Osterhout, Jeffrey T.\*; Czaja, Andrew D.; Beukes, Nicolas J.: **CARBON ISOTOPIC EVIDENCE OF PHOTOAUTOTROPHY IN AN OPEN MARINE ECOSYSTEM PRECEDING THE GREAT OXYGENATION EVENT**
- 280-12 11:00 AM Zhang, Feifei\*; Kendall, Brian; Cui, Huan; Anbar, A.D.; Xiao, Shuhai; Kaufman, Alan J.: **AN EPISODE OF WIDESPREAD OCEAN ANOXIA DURING THE LATEST EDIACARAN PERIOD REVEALED BY LIGHT U ISOTOPE COMPOSITIONS IN CARBONATES**
- 280-13 11:15 AM Bowyer, Fred\*; Wood, Rachel A.; Penny, Amelia; Poulton, Simon W.; Hoffmann, Karl-Heinz; Guilbaud, Romain; Tostevin, Rosalie; Kasemann, Simone A.; Curtis, Andrew: **REDOX STABILIZATION IN THE TERMINAL EDIACARAN: THE RECORD OF THE NAMA GROUP, NAMIBIA**
- 280-14 11:30 AM Johnston, David T.\*; Cowie, Ben; Antler, Gilad; Turchyn, Alexandra; Berelson, William M.: **THE TRIPLE OXYGEN ISOTOPE COMPOSITION OF MARINE SULFATE: A METRIC FOR ATMOSPHERIC OXYGEN**
- 11:50 AM **CONCLUDING REMARKS**

## SESSION NO. 281

***T167. Metamorphic, Metasomatic, and Igneous Processes in the Mid- and Deep Continental Crust: Mechanisms and Processes That Impact Mass Transport and Rheology (GSA Mineralogy, Geochemistry, Petrology, and Volcanology Division; GSA Structural Geology and Tectonics Division; Mineralogical Society of America)***

8:00 AM, Baltimore Convention Center, Room 317

G. Christopher Koteas and Callum J. Hetherington, Presiding

- 8:00 AM **INTRODUCTORY REMARKS**
- 281-1 8:15 AM Gibson, Roger L.\*; Oglivie, Paula; Horvath, Peter: **PUSHING THE LIMITS OF ULTRAMETAMORPHISM – IMPACT-INDUCED UHT-LP METAMORPHISM IN EXHUMED LOWER CRUST IN THE VREDEFORT DOME (SOUTH AFRICA)**
- 281-2 8:30 AM Gordon, Stacia M.\*; DesOrmeau, Joel W.; Little, Tim; Bowring, Samuel A.; Hacker, Bradley R.; Schoene, Blair; Samperton, Kyle M.: **RAPID EXHUMATION HISTORY OF THE (U)HP PAPUA NEW GUINEA TERRANE: INSIGHT FROM ZIRCON AND PSEUDOSECTION ANALYSIS**
- 281-3 8:45 AM Ague, Jay J.\*; Axler, Jennifer A.: **ORIENTED RUTILE NEEDLES IN GARNET AND THEIR IMPLICATIONS FOR EXTREME METAMORPHIC CONDITIONS**
- 281-4 9:00 AM Behr, Whitney M.\*; Smith, Douglas: **OLIVINE FABRIC TRANSITIONS ASSOCIATED WITH HYDRATION, DEHYDRATION AND SHEAR ABOVE THE FARALLON FLAT SLAB**
- 281-5 9:20 AM Larsen, R.B.\*; Grant, Thomas B.; Sorensen, Bjorn Eske: **PORTRAIT OF A GIANT MAGMATIC CONDUIT SYSTEM AT THE ROOTS OF THE CRUST: THE SEILAND IGNEOUS PROVINCE, NORTHERN NORWAY**
- 281-6 9:35 AM Sorensen, Bjorn Eske\*; Grant, Thomas B.; Larsen, R.B.; Raanes, Morten Peder: **COUPLED REACTION DRIVEN DEFORMATION, STRAIN SOFTENING AND CO<sub>2</sub> METASOMATISM IN PERIDOTITES FROM THE REINFJORD ULTRAMAFIC COMPLEX, NORTHERN NORWAY**
- 281-7 9:50 AM Brown, Michael\*; Clark, Chris; Korhonen, Fawna J.: **THE TECTONICS OF SLOW-COOLED OROGENS CHARACTERIZED BY COUNTER-CLOCKWISE P–T–T PATHS AND UHT METAMORPHISM**

- 10:05 AM **BREAK**
- 281-8** 10:20 AM Marsh, Jeff\*: **TEMPORAL RELATIONS AMONG THICKENING, HEATING, MELTING, AND EXHUMATION IN A LARGE, HOT OROGEN: INSIGHTS FROM HP MAFIC ROCKS IN THE CANADIAN GRENVILLE PROVINCE**
- 281-9** 10:40 AM Clark, Chris\*; Taylor, Richard; Kylander-Clark, Andrew; Hacker, Brad: **DECONVOLVING ULTRAHIGH TEMPERATURE METAMORPHISM USING LARGE ZIRCON GEOCHEMICAL DATASETS, AN EXAMPLE FROM THE NAPIER COMPLEX, EAST ANTARCTICA**
- 281-10** 10:55 AM Whitney, Donna L.\*; Teysier, Christian; Rey, Patrice F.: **MASS AND HEAT TRANSPORT PROCESSES IN MIGMATITE DOMES**
- 281-11** 11:10 AM Webber, Jeffrey R.\*; Brown, Laurie L.; Williams, Michael L.; Jercinovic, Michael J.; Mahan, Kevin H.: **METAMORPHIC AND STRUCTURAL CONTEXT OF MAGNETISM WITHIN THE LOWER CONTINENTAL CRUST, OBSERVATIONS AND IMPLICATIONS FROM THE CANADIAN SHIELD**
- 281-12** 11:25 AM Regan, Sean P.\*; Williams, Michael L.; Jercinovic, Michael J.; Mahan, Kevin H.; Chiarenzelli, Jeffrey R.; Dumond, Gregory; Walsh, Greg J.; Geer, Phillip S.; Webber, Jeffrey R.; Orlandini, Omero F.: **INTERACTION BETWEEN IGNEOUS, METAMORPHIC, AND STRUCTURAL PROCESSES FROM THE LOWER TO MIDDLE CONTINENTAL CRUST: INSIGHTS FROM TWO ISOBARIC TERRANES**
- 281-13** 11:45 AM Guevara, Victor\*; Dragovic, Besim; Caddick, Mark J.: **P-T PATH OF SHORT-LIVED NEOARCHEAN GRANULITE FACIES METAMORPHISM OF THE WYOMING CRATON**

**SESSION NO. 282****T172. Geology of Dwarf Planets: First Results from NASA's Dawn Mission to Ceres (GSA Planetary Geology Division)**

8:00 AM, Baltimore Convention Center, Room 344

David A. Williams and Debra L. Buczkowski, Presiding

- 282-1** 8:00 AM Rivkin, Andrew S.\*: **CERES: THE ASTRONOMERS' VIEW**
- 282-2** 8:20 AM Jaumann, R.\*; Russell, C.T.; Raymond, C.; McSween, H.Y.; Williams, D.; Buczkowski, D. L.; Hiesinger, H.; De Sanctis, M.C.; Nathues, A.: **GEOMORPHOLOGICAL SURFACE PROCESSES ON CERES**
- 282-3** 8:35 AM McFadden, Lucy A.\*; De Sanctis, Maria Cristina; Ammannito, E.; Raponi, A.; Ciarniello, M.; Carozzo, Giacomo; Tosi, Federico; Raymond, Carol A.; Russell, Christopher T.: **SURFACE MINERALOGY OF CERES BY VIR ON DAWN: IMPLICATION ON ORIGIN AND EVOLUTION**
- 282-4** 8:50 AM Formisano, Michelangelo\*; Federico, Costanzo; De Sanctis, Maria Cristina; De Angelis, Simone: **CERES IN THE STAGNANT-LID REGIME: GEOPHYSICAL EVOLUTION OF THE CRUST**
- 282-5** 9:05 AM Schenk, Paul\*; Marchi, Simone; O'Brien, David P.; Ruesch, Ottaviano; Bland, Michael; Castillo-Rogez, Julie C.; Hiesinger, Harald; Hughson, Kynan H. G.; Le Corre, Lucille; Li, Jian-Yang: **AN ICE-RICH MANTLE ON CERES FROM DAWN MAPPING OF CENTRAL PIT AND PEAK CRATER MORPHOLOGIES**
- 282-6** 9:20 AM Hughson, Kynan H. G.\*; Russell, Christopher T.; Schmidt, Britney Elyce; Chilton, Heather; Scully, Jennifer E. C.; Byrne, Shane; Platz, Thomas; Ammannito, E.; Schenk, Paul M.; Williams, David A.: **SCALLOPED AND DEGRADED CRATERS AS GEOMORPHOLOGICAL EVIDENCE FOR PERVASIVE GROUND ICE ON CERES AS SEEN BY THE DAWN SPACECRAFT**
- 282-7** 9:35 AM Otto, Katharina A.\*; Jaumann, Ralf; Krohn, Katrin; Buczkowski, Debra L.; von der Gathen, Isabel; Mest, Scott C.; Schulzeck, Franziska; Scully, Jennifer E. C.; Williams, David A.: **PRELIMINARY INVESTIGATION OF POLYGONAL CRATERS ON (1) CERES**

- 282-8** 9:50 AM Buczkowski, Debra L.\*; Williams, David A.; Mest, Scott C.; Schenk, Paul M.; Scully, Jennifer E.C.; Jaumann, Ralf; Nathues, Andreas; Preusker, Frank; Park, Ryan; Russell, Christopher T.: **PRELIMINARY INVESTIGATION OF LINEAR STRUCTURES ON CERES**
- 282-9** 10:05 AM von der Gathen, Isabel\*; Jaumann, Ralf; Krohn, Katrin; Williams, David A.; Buczkowski, Debra L.; Raymond, Carol A.; Russell, Christopher T.; Preusker, Frank; Roatsch, Thomas; Schenk, Paul M.: **CERES: TECTONIC FEATURES JUXTAPOSED WITH ANALOGIES ON OTHER PLANETARY BODIES**
- 282-10** 10:20 AM Ruesch, Ottaviano\*; Platz, Thomas; McFadden, Lucy; Hiesinger, Harald; Reddy, Vishnu; Schenk, Paul M.; Schmidt, Britney E.; Buczkowski, Debra L.; Sykes, Mark; Thangjam, Guneshwar Singh: **EXPLORING FORMATION MODELS FOR CERES THOLI AND MONTES**
- 282-11** 10:35 AM Wagner, Roland\*; Jaumann, Ralf; Schmedemann, Nico; Kneissl, Thomas; Stephan, Katrin; Williams, David A.; Yingst, R. Aileen; Mest, Scott C.; Raymond, Carol A.; Russell, Christopher T.: **GLOBAL AND REGIONAL STRATIGRAPHY OF CERES FROM GEOLOGIC MAPPING AND CRATER COUNTING IN IMAGING DATA OF THE DAWN FC2 FRAMING CAMERA**
- 282-12** 10:50 AM Williams, David A.\*; Mest, Scott C.; Buczkowski, Debra L.; Scully, Jennifer E.C.; Jaumann, Ralf; Russell, Christopher T.; Raymond, Carol A.: **THE GEOLOGIC MAPPING OF CERES USING DAWN SPACECRAFT DATA**
- 282-13** 11:05 AM Lunning, Nicole G.\*; Beck, Andrew W.; Hahn, Timothy M.; McSween, Harry Y.: **QUANTITATIVE MODAL ANALYSES OF METEORITE BRECCIAS**
- 282-14** 11:20 AM Beck, Andrew W.\*; Peplowski, Patrick N.; Lawrence, David J.: **IMPLICATIONS FOR A COMPLEX GEOLOGIC HISTORY OF ASTEROID 4 VESTA: PRIMARY VESTAN LITHOLOGIES MAPPED USING GAMMA RAY AND NEUTRON SPECTROSCOPY**

**SESSION NO. 283****T191. Reconstructing Arctic Glaciers and Ice Sheets: Chronology, Geomorphology, and Climate Records (GSA Quaternary Geology and Geomorphology Division)**

8:00 AM, Baltimore Convention Center, Room 307

Sarah M. Principato, Jason P. Briner and Nicolás E. Young, Presiding

- 8:00 AM **INTRODUCTORY REMARKS**
- 283-1** 8:05 AM Schomacker, Anders\*; Brynjolfsson, Skafti; Ingólfsson, Ólafur; Keiding, Jakob K.: **LATE WEICHSELIAN-EARLY HOLOCENE GLACIAL HISTORY OF NORTHWEST ICELAND, CONSTRAINED BY <sup>36</sup>CL COSMOGENIC EXPOSURE AGES**
- 283-2** 8:25 AM Brynjolfsson, Skafti\*; Schomacker, Anders; Korsgaard, Niels J.; Ingólfsson, Ólafur: **DRANGAJOKULL SURGES DURING THE LAST 300 YEARS, UNIQUE SURGE CHARACTERISTICS IN TERMS OF ICELANDIC SURGE-TYPE GLACIERS**
- 283-3** 8:40 AM Ingólfsson, Ólafur\*; Benediktsson, Ivar Orn; Schomacker, Anders; Kjaer, Kurt H.; Brynjolfsson, Skafti; Jonsson, Sverrir A.; Korsgaard, Niels J.; Johnson, Mark D.: **SURGING GLACIERS IN ICELAND – RESEARCH STATUS AND FUTURE CHALLENGES**
- 283-4** 8:55 AM Harning, David\*; Geirsdóttir, Áslaug; Miller, Gifford H.; Belart, Joaquín M.C.: **AN ABRUPT AND SEA-ICE DRIVEN LIA EXPANSION OF DRANGAJÖKULL, VESTFIRÐIR, ICELAND**
- 283-5** 9:10 AM Werner, Al\*; Retelle, Michael J.; Roof, Steven R.: **MAKING SENSE OF THE VARVE STRATIGRAPHY OF GLACIER-FED LAKE LINNÉ, SVALBARD, NORWAY**
- 283-6** 9:25 AM Carlson, Anders E.\*: **RESOLVING THE PEAK LAST INTERGLACIAL SEA-LEVEL BUDGET**

9:45 AM **BREAK**

SESSION NO. 283

- 283-7 10:00 AM Jennings, Anne E.\*; Andrews, John T.; Oliver, Brett; Bailey, Ethan: **RETREAT OF THE GREENLAND AND INNUITIAN ICE SHEETS FROM THE SOUTHERN AND NORTHERN ENDS OF NARES STRAIT**
- 283-8 10:15 AM Corbett, Lee B.\*; Bierman, Paul R.; Rood, Dylan H.: **CONSTRAINING MULTI-STAGE EXPOSURE-BURIAL SCENARIOS FOR BOULDERS PRESERVED BENEATH COLD-BASED ICE IN THULE, NORTHWEST GREENLAND**
- 283-9 10:35 AM Lifton, Nathaniel A.\*; Beel, Casey R.; Briner, Jason P.; Goehring, Brent M.: **COSMOGENIC NUCLIDE INSIGHTS INTO QUATERNARY LANDSCAPE EVOLUTION AND ICE SHEET HISTORY OF CENTRAL-WEST AND SOUTHWEST GREENLAND**
- 283-10 10:50 AM Farnsworth, Lauren\*; Kelly, Meredith A.; Axford, Yarrow; Bromley, Gordon; Osterberg, Erich C.; Howley, Jennifer A.; Zimmerman, Susan H.; Jackson, Margaret S.; Lasher, G. Everett; McFarlin, Jamie: **LATE GLACIAL AND HOLOCENE HISTORY OF THE GREENLAND ICE SHEET MARGIN, NUNATARSSUAQ, NORTHWESTERN GREENLAND**
- 283-11 11:05 AM Young, Nicolás E.\*; Schweinsberg, Avriël; Briner, Jason; Schaefer, Joerg M.: **GLACIER MAXIMA IN BAFFIN BAY DURING THE MEDIEVAL WARM PERIOD**
- 283-12 11:20 AM Rayburn, John A.\*; De Simone, David J.; Staley, Amie E.; Mahan, Shannon A.; Stone, Byron D.: **AGE OF AN ICE DAMMED LAKE ON THE LEE SIDE OF THE CATSKILL MOUNTAINS, NEW YORK, AND ROUGH ESTIMATES FOR THE RATE OF ICE ADVANCE TO THE LAST GLACIAL MAXIMUM**

SESSION NO. 284

**T194. New Horizons in Paleogeography: Principles, Innovative Methods, and Application to Resource Exploration (Paleontological Society; Journal of Palaeogeography)**

8:00 AM, Baltimore Convention Center, Room 336

Adam D. Woods and Wan Yang, Presiding

- 8:00 AM **INTRODUCTORY REMARKS**
- 284-1 8:15 AM Banerjee, Santanu\*; Mondal, Saikat; Chakraborty, Partha Pratim: **DISTINCTIVE GEOCHEMICAL CHARACTERISTICS AND PALAEOGEOGRAPHIC IMPLICATIONS OF PRECAMBRIAN GLAUCONY: EXAMPLES FROM PURANA BASINS IN INDIA**
- 284-2 8:30 AM Woods, Adam D.\*; Pilesky, William: **THE PALAEOGEOGRAPHIC DISTRIBUTION OF COLD WATER CARBONATES IN LATE ORDOVICIAN SEDIMENTARY ROCKS OF THE SOUTHWESTERN UNITED STATES**
- 284-3 8:45 AM Zhan, Xin\*; Yang, Wan; Feng, Qiao: **BIOMARKER ANALYSIS IN PALEOENVIRONMENTAL AND PALAEOGEOGRAPHIC RECONSTRUCTION OF LACUSTRINE SHALES, LOWER PERMIAN LUCAOGOU LOW-ORDER CYCLE, SOUTHERN BOGDA MOUNTAINS, NW CHINA**
- 284-4 9:00 AM Jiao, Xin\*; Liu, Yiqun; Yang, Wan; Zhou, Dingwu: **MICROBIAL DOLOSTONES RELATED TO HYDROTHERMAL-VOLCANIC ACTIVITIES IN PERMIAN LACUSTRINE ENVIRONMENT, SANTANGHU BASIN, NW CHINA**
- 284-5 9:15 AM Obrist-Farner, Jonathan\*; Yang, Wan; Martinez, Edgar: **SEDIMENTARY CHARACTERISTICS OF LOESSITE IN NE PANGAEA AND ITS IMPLICATION ON PALEOCLIMATE AND PALAEOGEOGRAPHY – CAPITANIAN UPPER QUANZIJIE LOW-ORDER CYCLE, BOGDA MOUNTAINS, NW CHINA**
- 284-6 9:30 AM Fang, Yuheng\*: **PERMIAN-TRIASSIC BOUNDARY MICROBIALITES AT YUDONGZI SECTION, SICHUAN PROVINCE, SOUTH CHINA: GEOBIOLOGY AND PALAEOCEANOGRAPHIC IMPLICATIONS**
- 9:45 AM **BREAK**

- 284-7 10:00 AM Yu, Qiuwan\*; Yang, Wan; Luo, Xiaorong; Lei, Yuhong: **LACUSTRINE AND FLUVIAL PALAEOGEOGRAPHIC AND PALEOENVIRONMENTAL EVOLUTION OF UPPER-TRIASSIC ZHANGJIATAN SHALE IN ORDOS FORELAND BASIN, CHINA**
- 284-8 10:15 AM Sun, Bin\*; Yang, Wan; Luo, Xiaorong; Lei, Yuhong: **MICRO-STRATIGRAPHY AND PALAEOGEOGRAPHIC RECONSTRUCTION OF UPPER TRIASSIC LACUSTRINE ZHANGJIATAN SHALE BED, ORDOS BASIN, CENTRAL CHINA**
- 284-9 10:30 AM Li, Zhixin\*; Yang, Wan; Zhang, Liqiang; Luo, Xiaorong; Liu, Shuhui: **THICK TRANSGRESSIVE FAN SYSTEMS AT STEEP MARGIN, DONGYING DEPRESSION, EASTERN CHINA – CONTRADICTION TO THE “NORM”**
- 284-10 10:45 AM Luo, Xiaorong\*; Li, Zhixin; Yang, Wan; Zhang, Liqiang; Liu, Shuhui: **TOPOGRAPHIC CONTROLS ON SEDIMENTATION DURING EARLY LAKE EXPANSION AT THE STEEP MARGIN OF DONGYING DEPRESSION, EASTERN CHINA**
- 284-11 11:00 AM Yang, Wan\*; Li, Zhixin; Yu, Qiuwan: **THICK COARSE-GRAINED TRANSGRESSIVE SILICICLASTIC DEPOSITS IN LACUSTRINE SEQUENCES**
- 284-12 11:15 AM Jiao, Xin\*; Liu, Yiqun; Yang, Wan; Zhou, Dingwu; Li, Hong: **EXPLOSITE: A TYPE OF MANTLE-DERIVED MAGMATIC-HYDROTHERMAL LACUSTRINE LAMINATED SEDIMENTARY ROCKS**
- 11:30 AM **CONCLUDING REMARKS**

SESSION NO. 285

**T202. Paleosol Case Studies: Resurrecting Ancient Critical Zones through Space and Time**

8:00 AM, Baltimore Convention Center, Room 345/346

Emily J. Beverly, R. Hunter Harlow and William E. Lukens, Presiding

- 8:00 AM **INTRODUCTORY REMARKS**
- 285-1 8:05 AM Riber, Lars\*; Dypvik, Henning; Sørli, Ronald; Oberhardt, Nikolas; Tan, Pingchuan; Stangvik, Kristian; Naqvi, Syed A. A.; Schroeder, Paul A.; Ferrell, Ray E.: **PALAEOWEATHERING PROFILES FROM THE NORWEGIAN NORTH SEA, AND THEIR ONSHORE ANALOGUES**
- 285-2 8:20 AM Grimley, David A.\*; Nash, Jr., T. Andrew; Conroy, Jessica L.; Wang, Hong; Miao, Xiaodong; Curry, Brandon: **REVISITING THE JULES GEOSOL AND GASTROPOD PALEOECOLOGY IN LAST GLACIAL MAXIMUM LOESS, WESTERN ILLINOIS**
- 285-3 8:35 AM Uno, Kevin T.\*; Polissar, Pratigya J.; Snell, Kathryn E.; Lukens, William E.; Fox-Dobbs, Kena; Haveles, Andrew W.; Martin, Robert A.; Fox, David L.: **PLANT WAX BIOMARKERS IN LATE NEOGENE PALEOSOLS AS ARCHIVES OF GREAT PLAINS VEGETATION**
- 285-4 8:50 AM Stinchcomb, Gary\*; Nordt, Lee C.; Driese, Steven G.; Lukens, William E.; Williamson, Forrest C.; Tubbs, Jack D.: **A DATA-DRIVEN EMPIRICAL MODEL THAT PREDICTS PALEOCLIMATE FOR A DIVERSE RANGE OF CONDITIONS FOR PALEOSOLS**
- 285-5 9:05 AM Lukens, William E.\*; Stinchcomb, Gary E.; Nordt, Lee C.; Driese, Steven G.: **A NEW PEDOTRANSFER FUNCTION FOR ESTIMATING SOIL PH IN PALEOSOLS**
- 285-6 9:20 AM Terry, Jr., Dennis O.\*: **WHEN AND WHERE IS MY CRITICAL ZONE, AND WHAT IS THE ROCK RECORD REALLY RECORDING?**
- 9:40 AM **BREAK/DISCUSSION**
- 285-7 9:55 AM Suarez, Celina\*: **RECONSTRUCTING ANCIENT TERRESTRIAL ECOSYSTEMS USING ISOTOPIC PROXIES FROM PALEOSOL MINERALS, ORGANICS, AND FOSSILS**

- 285-8** 10:15 AM Burgess, Crystal S\*; Snell, Kathryn E.; Budd, David A.; Fox, David L.: **DETECTION OF DIAGENESIS IN PALEOSOL CARBONATE NODULES USING OPTICAL AND CATHODOLUMINESCENCE MICROSCOPY**
- 285-9** 10:30 AM Hofmann, Florian\*; Farley, Kenneth A.: **EVIDENCE FOR >5 MA PALEO-EXPOSURE OF A PALEOSOL IN THE BOHNERZ FORMATION, SWITZERLAND**
- 285-10** 10:45 AM Harlow, R. Hunter\*; Teasdale, Caleb; Atchley, Stacy: **POSSIBLE CLIMATIC INFLUENCE ON DENSITY OF COMPLEX, LARGE-DIAMETER BURROW NETWORKS IN UPPERMOST LATE TRIASSIC CHINLE FORMATION STRATA FROM WARD'S TERRACE, ARIZONA**
- 285-11** 11:00 AM Catena, Angeline M.\*; Hembree, Daniel I.; Saylor, Beverly; Croft, Darin A.: **RECONSTRUCTING MIOCENE NEOTROPICAL PALEOENVIRONMENTS: A CASE STUDY FROM THE PALEOSOLS AND ICHNOFOSSILS OF CERDAS, BOLIVIA**
- 285-12** 11:15 AM Ross, Jeffrey B.\*; Ludvigson, Greg; Möller, Andreas; Walker, J. Douglas: **STABLE ISOTOPE PALEOHYDROLOGY OF PEDOGENIC CARBONATES IN THE WAYAN AND BLACKLEAF FORMATIONS (MID-CRETACEOUS) OF IDAHO AND MONTANA**
- 285-13** 11:30 AM Bowen, Gabriel J.\*: **CRITICAL ZONE MEDIATION OF CARBON CYCLE RESPONSE THROUGH THE PALEOCENE-EOCENE THERMAL MAXIMUM**
- 11:50 AM **CONCLUDING REMARKS**

**SESSION NO. 286****T207. Folds and Folding: Earth's Surface to Depth (GSA Structural Geology and Tectonics Division)**

8:00 AM, Baltimore Convention Center, Room 322/323

Juliet G. Crider and Mary Beth Gray, Presiding

- 8:00 AM **INTRODUCTORY REMARKS**
- 286-1** 8:05 AM Groshong, Jr., Richard H.\*: **RECOGNITION AND MECHANICAL SIGNIFICANCE OF BUCKLE-FOLD VS. CLASSIC DETACHMENT-FOLD STYLES**
- 286-2** 8:20 AM Boyer, Steven E.\*: **RETHINKING THRUST PROPAGATION IN CARBONATE ROCKS**
- 286-3** 8:35 AM Davis, George H.\*: **INTENSIVE FOLD FLATTENING DURING QUASI-FLEXURAL FOLDING OF LIMESTONE PSEUDO-BEDS**
- 286-4** 8:50 AM VanderLeest, Rebecca\*; Oakley, David O.S.; Fisher, Donald M.; Gardner, Thomas W.: **INVESTIGATION OF FOLD GROWTH IN NORTH CANTERBURY, SOUTH ISLAND, NEW ZEALAND**
- 286-5** 9:05 AM Oakley, David O.S.\*; Gardner, Thomas W.; Fisher, Donald M.: **UPLIFT RATES OF MARINE TERRACES AS CONSTRAINTS ON FAULT-PROPAGATION FOLD KINEMATICS: EXAMPLES FROM TWO ANTICLINES IN NORTH CANTERBURY, NEW ZEALAND**
- 286-6** 9:20 AM Carrigan, James H.\*; Anastasio, David J.; Pares, Josep M.; Kodama, Kenneth P.: **FAULT PROPAGATION FOLD KINEMATICS RECOVERED FROM TERRESTRIAL GROWTH STRATA WITH 20 KYR TIME RESOLUTION, SANT LLORENÇ DE MORUNYS, PYRENEES, SPAIN**
- 286-7** 9:35 AM Fitz-Diaz, Elisa\*; van der Pluijm, Ben: **ISOTOPIC DATING OF FOLDS FROM THE UPPER CRUST**
- 9:55 AM **DISCUSSION**
- 10:00 AM **BREAK**
- 286-8** 10:15 AM Fossen, Haakon\*; Zuluaga, Luisa; Rotevatn, Atle: **FORCED FOLDING OF HIGHLY POROUS SANDSTONE: STRAIN, FOLD GEOMETRY, DEFORMATION BANDS AND FLUID FLOW**
- 286-9** 10:30 AM Surpless, Benjamin\*; Dunn, Connor: **THE LOCALIZATION OF SHEAR STRAIN WITHIN A CONTRACTIONAL FAULT-**

**PROPAGATION FOLD SYSTEM: A CASE STUDY FROM THE STILLWELL ANTICLINE, WEST TEXAS**

- 286-10** 10:45 AM Titus, Sarah\*; Newman, Alice C.; Yourd, Amanda R.: **FOLD DEVELOPMENT AT KETTLEMAN HILLS, CENTRAL CA: IMPLICATIONS FOR OFF-FAULT DEFORMATION IN THE SAN ANDREAS FAULT SYSTEM**
- 286-11** 11:00 AM Seyum, Solomon\*; Pollard, David D.: **ECHELON VEINS AND PRESSURE SOLUTION SEAMS RELATED TO FOLDING AT RAPLEE RIDGE, UTAH**
- 286-12** 11:15 AM Liu, Xiaolong\*; Eckert, Andreas; Connolly, Peter: **EVOLUTION OF PORE PRESSURE AND FLUID FLOW REGIMES DURING VISCO-ELASTIC SINGLE-LAYER BUCKLE FOLDING**
- 286-13** 11:30 AM Hudleston, Peter\*; McEvoy, Molly E.; Watkins, W. David; Porter, Matthew: **RHEOLOGICAL INFORMATION INFERRED FROM SMALL-SCALE FOLDS, NORTHERN SNAKE RANGE, NEVADA**
- 11:45 AM **DISCUSSION**

**SESSION NO. 287****T213. Integrating Perspectives on the Formation, Evolution, and Destruction of Continental Crust: From 0 to 4600 Ma (Geochemical Society; GSA Geophysics Division; GSA Mineralogy, Geochemistry, Petrology, and Volcanology Division; Mineralogical Society of America; Geological Association of Canada; Mineralogical Association of Canada; GSA Planetary Geology Division)**

8:00 AM, Baltimore Convention Center, Room 308

Paul A. Mueller, Robert Stern, David Snyder, M.B. Magnani and M.E. Bickford, Presiding

- 8:00 AM **INTRODUCTORY REMARKS**
- 287-1** 8:05 AM Condie, Kent C.\*: **WHEN DID PLATE TECTONICS BEGIN? TEN YEARS AFTER THE LANDER PENROSE CONFERENCE**
- 287-2** 8:25 AM Drabon, Nadja\*; Lowe, Donald R.: **DETRITAL ZIRCON GEOCHRONOLOGY AND PETROLOGY OF SEDIMENTS FROM THE BARBERTON GREENSTONE BELT: IMPLICATIONS FOR PROVENANCE AND TECTONIC RECONSTRUCTIONS**
- 287-3** 8:40 AM Zirakparvar, N. Alex\*; Choe, Saeyul; Mathez, Edmond A.: **WEAKENING OF KAAPVAAL SCLM BY PLUME RELATED METASOMATISM AT ~2.06 GA: HF ISOTOPE EVIDENCE FROM THE BUSHVELD LARGE IGNEOUS PROVINCE**
- 287-4** 8:55 AM Frost, Carol D.\*; Frost, B. Ronald; McLaughlin, J. Fred; Swapp, Susan M.; Fanning, C. Mark: **FORMATION OF PALEOARCHEAN CONTINENTAL CRUST IN THE CENTRAL WYOMING PROVINCE**
- 287-5** 9:10 AM Debata, Manisha\*; Anand, R.: **PALEO - MESOARCHEAN CRUSTAL EVOLUTION IN SOUTHERN INDIA – EVIDENCE FROM TRACE ELEMENT GEOCHEMISTRY OF SARGUR ULTRAMAFIC ROCKS**
- 287-6** 9:25 AM Basu, Asish R.\*; Ghosh, Nilotpal; Gregory, Robert T.; Richards, Ian; Ghatak, Arundhuti; Georg, R. Bastian; Ebinger, Cynthia; Quade, Jay; Zou, Haibo: **FORMATION OF BASALTIC - SILICIC CRUST ABOVE THE AFAR PLUME**
- 287-7** 9:40 AM Funderburg, Rebecca\*; Arevalo, Ricardo; Locmelis, Marek; Piccoli, Philip; Reno, Barry L.; Adachi, Tomoko: **METHOD DEVELOPMENT FOR LINKING PLATE TECTONICS AND MANTLE OXIDATION USING CE AND EU OXIDATION STATES ZIRCONS**
- 9:55 AM **BREAK**
- 287-8** 10:10 AM Jagoutz, Oliver\*: **CONTINENTAL CRUST FORMATION AS CONSTRAINED BY MODERN ARC PROCESSES**
- 287-9** 10:30 AM Holland, Mark Edward\*; Karlstrom, Karl E.; Doe, Michael F.; Grambling, Tyler A.; Gehrels, George E.; Pecha, Mark; Griffin, William L.; Belousova, Elena; Begg, Graham C.;



- Mako, Calvin A.: **GROWTH OF CONTINENTAL LITHOSPHERE BY ACCRETION OF ARC TERRANES ALONG THE LAURENTIAN MARGIN THROUGHOUT THE PROTEROZOIC: EVIDENCE FROM HF ISOTOPES**
- 287-10 10:45 AM Mueller, Paul A.\*; Mogk, D.W.; Henry, D.J.; Foster, David A.; Dutrow, Barbara L.; Gifford, Jennifer: **ONTOGENY AND OROGENY: HADEAN TO HOLOCENE EVOLUTION IN WESTERN LAURENTIA**
- 287-11 11:00 AM Aleinikoff, John N.\*; Walsh, Gregory J.: **A NEW INTERPRETATION FOR THE AGES OF ADIRONDACK PLUTONISM: IMPLICATIONS FOR THE NATURE AND TIMING OF MESOPROTEROZOIC DEFORMATION AND METAMORPHISM**
- 287-12 11:15 AM El-Shazly, Aley K.\*; Khalil, Khalil I.: **PROTEROZOIC TO EARLY PALEOZOIC TECTONIC EVOLUTION OF THE CENTRAL EASTERN DESERT OF EGYPT: STRUCTURAL, PETROLOGICAL, AND GEOCHRONOLOGICAL CONSTRAINTS**
- 11:30 AM **CONCLUDING REMARKS**
- 288-13 13 Walker, Ryan Kyle\*: **INTERWEAVING OF GEOCHEMICAL AND GEOSPATIAL DATA TO LOCATE NONPOINT SOURCE ZINC CONTAMINATION OF UTOY CREEK, ATLANTA, GA**
- 288-14 14 Schaefer, III, Robert\*; Polk, Jason; McClanahan, Kegan: **ANALYZING POSSIBLE INFLUENCES IN KARST REGIONS CONTRIBUTING TO HARMFUL ALGAL BLOOM OCCURENCES IN FRESHWATER LAKES**
- 288-15 15 Bartle, Sarah\*; Feeney, Thomas P.; Hurd, Todd M.: **AN ASSESSMENT OF USING AQUATIC SUBTERRANEAN ORGANISMS AND FLUORESCENT PROTEINS AS BASIC TRACERS IN THE CUMBERLAND VALLEY KARST REGION OF SOUTH CENTRAL PENNSYLVANIA**
- 288-16 16 Fajvan, Mary Ann\*; Morin, Randall S.; Lister, Tonya: **AN ASSESSMENT OF THE ECOHYDROLOGICAL ROLE OF EASTERN HEMLOCK (*TSUGA CANADENSIS*) AND ITS PENDING DECLINE IN CHESAPEAKE BAY WATERSHEDS**
- 288-17 17 Frus, Rebecca Jane\*; Crossey, Laura J.; Scuderi, Louis A.: **HYDROGEOCHEMICAL AND GEOSPATIAL ANALYSIS OF ARID LAND SPRING WATERS TO DETERMINE CHANGES TO WATER AVAILABILITY DUE TO DROUGHT AND CLIMATE CHANGE CONDITIONS; ZUNI MOUNTAINS, NEW MEXICO**
- 288-18 18 Leung, Tania\*; Comas, Xavier; Root, Tara L.: **SPATIAL VARIABILITY IN SOIL PHYSICAL CHARACTERISTICS IN BOCA RATON, FL. REVEALED BY GROUND PENETRATING RADAR (GPR)**
- 288-19 19 Gutierrez, Melida\*: **VARIABILITY OF METAL CONTENT IN SEDIMENTS IN AND AROUND AURORA, MISSOURI, A HISTORICAL MINING TOWN**
- 288-20 20 Mumford, Adam C.\*; Maloney, Kelly; Akob, Denise M.; Cozzarelli, Isabelle M.: **A COMPREHENSIVE ASSESSMENT OF THREE HIGH-QUALITY HEADWATER STREAMS IN THE CHESAPEAKE BAY WATERSHED**
- 288-21 21 Fuentes, Javier A\*; Stern, Jennifer C; Rosales-Lagarde, Laura; Boston, Penelope J.; Gomez-Cruz, Rodolfo:  **$\delta^{15}\text{N}$  OF BIOVERMICULATIONS IN A SULFIDIC CAVE SYSTEM AT CUEVA DE VILLA LUZ, TABASCO, MEXICO**
- 288-22 22 Foote, Jeremy K.\*: **CHANGES IN THE HYDROLOGICAL ENVIRONMENT OF CHOCTAW COUNTY MISSISSIPPI SINCE 1995**
- 288-23 23 Hippensteel, Scott P.\*; Small, Aiken: **RESPONSE OF AGGLUTINATED FORAMINIFERA TO A REVERSE-OSMOSIS BRINY DISCHARGE: ALBEMARLE SOUND, NORTH CAROLINA**
- 288-24 24 Lewis, Jamal J.\*; Mason, Henry: **EXPLORING EXPOSURE PATHWAYS OF CHILDHOOD LEAD POISONING IN LANCASTER CITY, PENNSYLVANIA**
- 288-25 25 Raharimahefa, Tsilavo\*: **HOW DOES MINERAL EXTRACTION SHAPE LANDSCAPE: CASE STUDY IN MADAGASCAR**
- 288-26 26 Valeruz, Hannah\*; Hersh, Michelle; Friedlander, Issa; Bernstein, Cassidy; Kahn, Beryl; Feldman, Howard R.: **ENDOPHYTE GROWTH ON TWO SPECIES OF CONIFERS ON THE SHAWANGUNK RIDGE, MID-HUDSON VALLEY, NEW YORK**
- 288-27 27 Lahiri, Chayan\*: **A COMBINED REMOTE SENSING/MULTIVARIATE MODEL OF BALD CYPRESS HABITAT IN THE YAZOO BASIN, LOWER MISSISSIPPI RIVER ALLUVIAL VALLEY**
- 288-28 28 Price, Amy E.\*; Giardino, Rick: **A QUANTIFICATION OF THE EFFECTS OF ELEVATION AND ASPECT ON DEPOSITION OF AIRBORNE CONSTITUENTS AND WATER QUALITY IN AN ALPINE CRITICAL ZONE: SAN JUAN MOUNTAINS, COLORADO**
- 288-29 29 Fricke, James Neil\*; Khalequzzaman, Md.; Shaffer, Bethany Renee: **ANALYSES OF WATER, SOIL, AND SEDIMENT SAMPLES IN LITTLE TROUT RUN WATERSHED, CLEARFIELD**

## POSTER TECHNICAL SESSIONS

### SESSION NO. 288

#### *Environmental Geoscience (Posters)*

9:00 AM, Baltimore Convention Center, Exhibit Hall

Authors will be present from 4:30 to 6:30 PM

Booth #

- 288-1 1 Brooks, William E.\*; Sierra, Julio; Palacios, Francisco: **GREEN GOLD-DIRTY GOLD, TADO, DEPT. CHOCO, COLOMBIA**
- 288-2 2 Stewart, Alexander K.\*; Shroder, John F.: **RESOURCE DEVELOPMENT AND THE U.S. ARMY: EFFORTS AT IMPROVING COUNTERINSURGENCY OPERATIONS**
- 288-3 3 Cauley, Christina N.\*; Jedlovec, Gary J.: **GAP ANALYSIS OF LAND TOPOGRAPHY DATA DERIVED FROM SATELLITE IMAGERY FOR PROJECT GOOD EARTH**
- 288-4 4 Landis, Joshua D.\*; Renshaw, Carl E.; Kaste, James M.: **BERYLLIUM-7 AND LEAD-210 CHRONOMETRY OF MODERN SOIL PROCESSES**
- 288-5 5 Haber, Daniel\*; Burnley, Pamela; Adcock, Christopher T.; Malchow, Russell; Hausrath, Elisabeth M.: **PREDICTIVE MODELING OF TERRESTRIAL RADIATION EXPOSURE FROM GEOLOGIC MATERIALS**
- 288-6 6 Purkiss, Christine\*: **CLIMATE LITERACY: AN INNOVATIVE APPROACH TO ELEMENTARY TEACHER PROFESSIONAL DEVELOPMENT**
- 288-7 7 Geiger, Emily M.\*; Bensen, Ryan; Sidhu, Virinder; Sarkar, Dibyendu; Datta, Rupali: **UTILIZATION OF COPPER CONTAMINATED MARGINAL LAND: VETIVER PERFORMS PHYTOSTABILIZATION AND CAN BE HARVESTED AS A SECOND-GENERATION BIOETHANOL FEEDSTOCK**
- 288-8 8 Yactayo, Guido Andres\*: **CHESAPEAKE BAY WATERSHED MODEL SENSITIVITY TO OBSERVED CLIMATE CHANGE**
- 288-9 9 Napieralski, Amanda M.\*; Barber, Alexa; Noll, Mark R.: **EFFECTS OF SOIL DRYING METHODS ON PHOSPHORUS FRACTIONATION IN AN AGRICULTURAL SOIL**
- 288-10 10 Jovanelly, Tamie J.\*: **PIONEERING WATER QUALITY DATA ON THE LAKE VICTORIA WATERSHED: IMPACTS TO HUMAN HEALTH**
- 288-11 11 Rice, Karen C.\*; Jastram, John D.: **RISING AIR AND STREAM-WATER TEMPERATURES IN CHESAPEAKE BAY REGION, USA**
- 288-12 12 Shaffer, Bethany Renee\*; Khalequzzaman, Md.; Fricke, James Neil: **MODELING OF HYDROLOGICAL DRAINAGE**



- COUNTY, PA TO EVALUATE THE IMPACT OF MARCELLUS SHALE GAS-WELL DRILLING ON THE ENVIRONMENT**
- 288-30 30 Carter, Caitlin\*; Fedotova, Anastasia; Giardino, John R.; Price, Amy E.: **PHYSICAL AND WATER CHEMISTRY CHARACTERISTICS OF MOUNTIAN STREAM STEP POOLS; SAN JUAN MOUNTAINS, CO**
- 288-31 31 Sidhu, Virinder\*; Sarkar, Dibyendu; Datta, Rupali: **EFFECTS OF COMPOST ADDITION AND PLANT COVER ON THE FATE AND DISTRIBUTION OF COPPER IN CONTAMINATED STAMP SANDS OF TORCH LAKE, MICHIGAN**
- 288-32 32 Rosenthal, Emma F.: **ESTABLISHING A PRE-FRACKING DATABASE IN THE DEEP RIVER TRIASSIC BASIN, NC**
- 288-33 33 Rolf, Julianne Naomi\*; Jordan, Thomas E.; Ruehrmund, Max; Pelc, Carey: **STREAM RESTORATION BY REGENERATIVE STORMWATER CONVEYANCE TO IMPROVE WATER QUALITY IN THE CHESAPEAKE BAY**
- 288-34 34 McDaniel, Caleb\*; McDaniel, Kyle; Brake, Sandra; Latimer, Jennifer C.: **GEOCHEMICAL ANALYSIS OF TRACE ELEMENTS IN SEDIMENT CORES OBTAINED FROM A STREAM IMPACTED BY ACID MINE DRAINAGE IN INDIANA, USA**
- 288-35 35 Mitchell, Audra I.\*; Venn, Cynthia; Hallen, Christopher P.; Napkora, Frank Z.: **ANOXIC LIMESTONE DRAIN - REMEDIATION OF PINE FOREST MINE IN ST. CLAIR, PENNSYLVANIA**
- 288-36 36 McDaniel, Kyle\*; McDaniel, Caleb; Brake, Sandra; Latimer, Jennifer C.: **BIOGEOCHEMICAL ANALYSIS OF ELEMENTAL UPTAKE IN BLACKBERRY PLANTS (*RUBUS ARGUTUS*) GROWING IN AN ACID MINE DRAINAGE CHANNEL**
- 288-37 37 Humphrey, Jr., Charles\*; Pradhan, Sushama; Bean, Eban Z.; O'Driscoll, Michael A.; Iverson, Guy J.: **REMEDICATION OF GROUNDWATER NITRATE FROM A LARGE ONSITE WASTEWATER SYSTEM USING A PERMEABLE REACTIVE BARRIER**
- 288-38 38 Allin, Nicholas C.\*; Song, S. M.; Kopera, Kristin; Chen, D.D.; Guo, Kunyi; Mathur, Ryan: **IDENTIFICATION OF TWO METAL CONTAMINANTS IN SOLUTION WITH CU ISOTOPES IN FIRST, SECOND AND THIRD ORDER STREAMS NEAR DEXING MINE, CHINA**
- 288-39 39 Bly, Matthew\*; Burkett, Ashley; Rathburn, Anthony: **SEAFLOOR ENVIRONMENTAL CHANGES OFF THE COSTA RICAN MARGIN BETWEEN 90,000 AND 290,000 YEARS AGO INFERRED FROM BENTHIC FORAMINIFERAL ECOLOGY**
- 288-40 40 Beebe, D. Alex\*; Leach, Dane J.; Allison, David T.: **SUBMARINE GROUNDWATER DISCHARGE AND NUTRIENT DYNAMICS IN THE VICINITY OF COASTAL RESIDENCES WITH ONSITE WASTEWATER TREATMENT**
- 288-41 41 Sammel, Richard\*; Sewall, Jacob O.: **THE RELATIVE INFLUENCES OF WATER SOURCE AND ANTHROPOGENIC IMPACTS ON WATER QUALITY IN THE MOSELEM CREEK, BERKS COUNTY, PENNSYLVANIA**
- 288-42 42 Napkora, Frank Z.\*; Venn, Cynthia; Hallen, Christopher P.; Mitchell, Audra I.: **A SEDIMENTOLOGICAL ASSESSMENT OF THE EFFECTIVENESS OF THE PINE FOREST ACID MINE DRAINAGE TREATMENT SYSTEM, ST. CLAIR, SCHUYLKILL COUNTY, PA**
- 288-43 43 Woerndle, Glenn E.\*; Tsui, Martin; Sebestyen, Stephen D.; Eggert, Sue; Blum, Joel D.: **USING STABLE MERCURY ISOTOPES TO EXAMINE MERCURY CYCLING IN A PEATLAND-UPLAND WATERSHED IN NORTHERN MINNESOTA (U.S.A.)**
- 288-44 44 Holmes, Ryan R.\*; Hart, Megan L.; Kevern, John: **PERMEABLE REACTIVE CONCRETE: NOVEL REMOVAL OF HEAVY METALS USING DRINKING WATER TREATMENT WASTE**
- 288-45 45 Tompkins, Daniel\*: **ANTHROPOGENIC EFFECTS ON SOIL AND WATER CHEMISTRY IN THE MIDDLE SCHUYLKILL RIVER WATERSHED, MONTGOMERY CO, PA**
- 288-46 46 Zobel, Alexandra\*; Farthing, Dori J.: **THE IMPACT OF IRON SMELTING ON OCTOBER CADDISFLY CASES FROM KNOB BROOK, IRONVILLE, NY**
- 288-47 47 Bittner, Angela Kathleen\*; Krekeler, Mark P.S.; Barrett, Heather: **A COMPARATIVE STUDY OF MANGANESE OXIDE COATINGS IN A DISTURBED LANDSCAPE IN RURAL KENTUCKY**
- 288-48 48 Milke, Kyle\*; Knight, Nicole A.; Hayes, Sarah: **TRANSPORT MECHANISMS OF METAL-BEARING HISTORIC MINE TAILINGS IN A SEMI-ARID ENVIRONMENT**
- 288-49 49 Parra, Elizabeth A.\*; Barron-Gafford, Greg; Minor, Rebecca L.; McFarland, Erik; Heard, Maggie M.: **EFFECTS OF ISOPRENE PRODUCTION ON THE PHOTOSYNTHETIC PERFORMANCE OF POPLARS (*POPULUS SP.*) UNDER THERMAL AND MOISTURE STRESS**
- 288-50 50 Serozi, Brent Davis\*: **ONSITE WASTEWATER SYSTEM PHOSPHATE CONTRIBUTIONS TO WATER RESOURCES IN PIEDMONT WATERSHEDS**
- 288-51 51 Iverson, Guy J.\*; Humphrey, Jr., Charles; O'Driscoll, Michael A.; Pradhan, Sushama: **QUANTIFYING NUTRIENT TRANSPORT FROM WATERSHEDS SERVED BY ONSITE WASTEWATER SYSTEMS, CENTRALIZED SEWER, AND A FORESTED AREA IN THE PIEDMONT OF NORTH CAROLINA**
- 288-52 52 Brown, Justin Conrad\*: **MOLYBDENUM IN THE WATER; DEVELOPING A HYDROSTRATIGRAPHIC FRAMEWORK FOR PARTS OF RACINE AND KENOSHA COUNTIES, WISCONSIN**
- 288-53 53 Haroon, Areej\*; Peteet, Dorothy M.; Bedjean, Atsu; Carrasquillo, Ivan; Templo, Christian Avery; Newton, Robert; Vincent, Susan; Corbett, J. Elizabeth; Shumer, Melissa: **PROBING PIERMONT MARSH DEPTHS FOR CARBON STORAGE, LOWER HUDSON ESTUARY**
- 288-54 54 Johnson, Anjelica\*: **MEASURING SULFIDE AND IRON IN SEDIMENT PORE WATER**
- 288-55 55 Shashvatt, Utsav\*; Blaney, Lee: **PREVENTING NUTRIENT INFLUX INTO COASTAL WATERSHEDS BY RECOVERING NUTRIENTS FROM POULTRY LITTER**
- 288-56 56 Heath, Victoria E\*: **INVESTIGATING HOW TO SUSTAIN BOTH FARM AND WATERSHED BY TRACKING NUTRIENT LOSS FROM TILE-DRAINED AGRICULTURE**

## SESSION NO. 289

**T31. Unmanned Aerial Vehicles and Their Use in Geologic Reconnaissance (Posters) (GSA Environmental and Engineering Geology Division; GSA Geology and Society Division; GSA Quaternary Geology and Geomorphology Division)**

9:00 AM, Baltimore Convention Center, Exhibit Hall

Authors will be present from 4:30 to 6:30 PM

Booth #

- 289-1 57 Jordan, Benjamin R.\*: **AN AERIAL GEOARCHAEOLOGICAL SURVEY OF THE LAIE PIER, OAHU, HAWAII, U.S.A. USING UAVS**
- 289-2 58 Oliver, Amber R.\*; Goldstein, Evan B.; deVries, Elsemarie; Moore, Laura J.; Jass, Theo: **LET'S GO FLY A KITE: KITE-BASED STRUCTURE FROM MOTION IN COASTAL SETTINGS**
- 289-3 59 Hamilton, Christopher W.\*; Moersch, Jeffrey E.; Scheidt, Stephen P.: **APPLICATIONS OF UNMANNED AERIAL VEHICLES TO THE STUDY OF VOLCANIC LANDFORMS**
- 289-4 60 Kendra, Brett M\*; Rice, Thomas L: **USE OF UAVS TO ESTABLISH A VISUAL BASELINE OF FLOW CONDITIONS AT USGS STREAM MONITORING SITES**
- 289-5 61 Couser, Victoria L\*; McKeivitt, Dylan J.; Jackson, Emily R: **SO YOU WANT TO 3D PRINT YOUR LANDSCAPE IMAGE?**
- 289-6 62 O'Donnell, Sean B.\*; Smith, Connor J.: **THE EFFICACY OF UNMANNED AERIAL VEHICLES FOR IMAGERY AND REMOTE SENSING**
- 289-7 63 Rice, Thomas L\*; Strom, Raymond: **UAV REGULATION - FALLBACK OR FALLOUT?**
- 289-8 64 Gomez, Francisco\*; Beem, Jordan: **APPLICATIONS OF LOW ALTITUDE PHOTOGRAMMETRY FOR MORPHOMETRY, DISPLACEMENTS AND SURFACE CHANGE**

- 289-9 65 Winkler, Tyler S.\*; van Hengstum, Peter J.; Donnelly, Jeffrey P.; Sullivan, Richard M.; Albury, Nancy A.: **THE GEOMORPHOLOGIC VALUE OF DRONE-BASED AERIAL PHOTOGRAPHY DURING RECONNAISSANCE OF REMOTE BAHAMIAN BLUEHOLES**
- 289-10 66 Bunds, Michael P.\*; Toke, Nathan A.; DuRoss, Christopher B.; Gold, Ryan D.; Briggs, Richard W.; Reitman, Nadine; Johnson, Kendra; Lajoie, Lia; Personius, Stephen F.; Fletcher, Andrew: **HIGH-RESOLUTION TOPOGRAPHIC MAPPING FOR GEOLOGIC HAZARD STUDIES USING LOW-ALTITUDE AERIAL PHOTOGRAPHS AND STRUCTURE FROM MOTION SOFTWARE: METHODS, ACCURACY, AND EXAMPLES**
- 289-11 67 Huber, Robert\*; Karki, Nirjung; Morris, Joshua; Stokes, Derek; Truman, Ethan; Weidlich, Kent; Zulfiqar, Abdullah; Gammarino, Ian; Philippart, Dylan: **3D GEOLOGIC MAPPING USING UNMANNED AERIAL VEHICLES AND STRUCTURE-FROM-MOTION SOFTWARE**

## SESSION NO. 290

**T46. Using Digitized Data in Geological and Paleontological Research (Posters) (Paleontological Society; Society for the Preservation of Natural History Collections; GSA Geoinformatics Division; EarthCube C4P; iSamples)**

9:00 AM, Baltimore Convention Center, Exhibit Hall

Authors will be present from 4:30 to 6:30 PM

Booth #

- 290-1 68 Estes-Smargiassi, Kathryn\*; Portell, Roger W.; Brown, Warren H.; Kowalewski, Michał: **IMPLEMENTING SPECIFY 6 IN THE INVERTEBRATE PALEONTOLOGY COLLECTION AT THE FLORIDA MUSEUM OF NATURAL HISTORY**
- 290-2 69 Kahanamoku, Sara\*; Hull, Pincelli; Lindberg, David R.; Finnegan, Seth: **HIGH-THROUGHPUT SEMI-3D IMAGING OF MACROINVERTEBRATES: A TEST CASE USING NORTHEASTERN PACIFIC PATELLOGASTROPODS**
- 290-3 70 Graham, Eileen S.\*; Schindel, David E.: **A GLOBAL REGISTRY FOR SCIENTIFIC COLLECTIONS: STRIKING A BALANCE BETWEEN DISCIPLINARY DETAIL AND INTERDISCIPLINARY DISCOVERABILITY**
- 290-4 71 Chang, Lucy\*: **WEB-BASED TOOLS PROVIDE AN EFFECTIVE ALTERNATIVE TO TRADITIONAL METHODS FOR MAKING SPECIMEN MEASUREMENTS**
- 290-5 72 Hollis, Kathy\*; Huber, Brian T.: **INCREASING ACCESSIBILITY AND ACCOUNTABILITY OF FOSSILS FROM PUBLIC LANDS AT THE SMITHSONIAN NATIONAL MUSEUM OF NATURAL HISTORY: LAYING THE GROUNDWORK FOR DATA SHARING AMONG STAKEHOLDERS IN FOSSIL RESOURCES**
- 290-6 73 Swartz, Sarah M.\*; Njau, Jackson K.: **3D MODELING OFF-GRID: PHOTOGRAMMETRY AS A FIELD RESOURCE FOR CREATING POLYGONAL MODELS OF FOSSIL MATERIAL AT OLDUVAI GORGE**

## SESSION NO. 291

**Geomorphology and Quaternary Geology (Posters)**

9:00 AM, Baltimore Convention Center, Exhibit Hall

Authors will be present from 4:30 to 6:30 PM

Booth #

- 291-1 74 Nebel, Angela\*: **THE ANATOMY OF A ROCK SLIDE**
- 291-2 75 Stamp, Laura K.\*; Hampton, Samuel; Borella, Josh: **DIFFERENTIATION OF ROCKFALL EVENTS: SPATIAL ANALYSIS OF MODERN AND PALEO ROCKFALL, BANKS PENINSULA, NEW ZEALAND**
- 291-3 76 Seeger, Christina\*; Hampton, Samuel J.: **INFLUENCES ON ROCKFALL RUNOUT, A CANTERBURY EARTHQUAKE CASE STUDY**
- 291-4 77 Siegel, Helen\*: **PARAMETER CALIBRATION OF MINI-LEO HILL SLOPE MODEL**
- 291-5 78 Hoover, Brittany K.E.\*; Larson, Phillip; Mooers, Howard D.: **SLOPE MORPHOLOGY OF ICELANDIC FUGLAPÚFUR**

- 291-6 79 Reed, John C.\*; Giardino, John R.: **DENDROGEOMORPHIC ASSESSMENT OF THE OURAY, COLORADO AMPHITHEATER LANDSLIDE**
- 291-7 80 Fiallo, Dominic\*; Schmidt, Amanda H.; Simonson, Bruce M.: **USING GRAIN SIZE AND CARBONATE PRECIPITATION IN LOESS TERRACES TO RECONSTRUCT MASS WASTING EVENTS AND TRACE GROUNDWATER MOVEMENT**
- 291-8 81 Quigley, Mark\*; Bastin, Sarah; Grace, Kieran; Bassett, Kari N.; van Ballegooy, Sjoerd; Borella, Josh; Bradley, Brendon A.: **GEOLOGIC EXPRESSIONS OF CONTEMPORARY AND PALEO-LIQUEFACTION: INSIGHTS INTO STRONG GROUND MOTION AND SITE CHARACTERISTICS**
- 291-9 82 Kokkalas, Sotirios\*; Zamos, Miltiadis: **QUANTITATIVE ANALYSIS OF THE ARKITSAS FAULT ZONE (NORTH EVIA GULF, CENTRAL GREECE): IMPLICATIONS FOR KINEMATICS, PALEOSEISMIC ACTIVITY AND FLUID FLOW**
- 291-10 83 Salinas, Christine Marie\*; Tranel, Lisa M.: **INVESTIGATING RECENTLY ACTIVE FAULTS USING GEOMORPHIC ANALYSES OF EPHEMERAL CHANNELS IN THE GUADALUPE MOUNTAINS, WEST TEXAS AND NEW MEXICO**
- 291-11 84 El-Shourbagi, Hadi M.\*; Mostafa, Mohamed S.; Zaki, Khairy S.; Kamel, Omar A.: **MORPHOTECTONIC INVESTIGATIONS USING LANDSAT 8 AND ASTER GDEM DATA IN THE GEBEL EL-ZEIT AREA, GULF OF SUEZ, EGYPT**
- 291-12 85 Schiff, Nicholas\*; Persico, Lyman P.: **ANALYSIS OF F4 AND F5 TORNADO DISTRIBUTION IN THE UNITED STATES FROM 1900-2014**
- 291-13 86 Psuty, Norbert P.\*; Schmelz, William J.; Greenberg, Joshua; Beal, Irina; Spahn, Andrea; Ames, Katherine: **GEOMORPHOLOGICAL MAPS INCORPORATING IMPACTS OF HURRICANE SANDY AT FIRE ISLAND NATIONAL SEASHORE, GATEWAY NATIONAL RECREATION AREA, AND ASSATEAGUE ISLAND NATIONAL SEASHORE: RESEARCH AND MANAGEMENT APPLICATIONS**
- 291-14 87 Sankar, Ravi Darwin\*; Donoghue, Joseph; Kish, Stephen: **COASTAL DUNE RECOVERY AND SHORELINE EVOLUTION IN RESPONSE TO STORMS ALONG EASTERN PERDIDO KEY, NW FLORIDA**
- 291-15 88 Hough, Micha J.\*; Lang, N.P.; Persico, Lyman P.: **DENDROCHRONOLOGICAL CONSTRAINTS ON COASTAL EROSION RATES AT ERIE BLUFFS STATE PARK, NW PA**
- 291-16 89 Sweeney, Mark R.\*; McDonald, Eric V.; Hanson, Paul; Chabela, Lucas P.: **SAND DUNES EXERT CONTROL ON ALLUVIAL BASE LEVEL AND SOIL FORMATION, EASTERN MOJAVE DESERT, USA**
- 291-17 90 Monaghan, G. William\*; Argyilan, Erin P.; Thompson, Todd A.; Russell, Kevin P.: **SEDIMENTOLOGICAL AND GEOMORPHOLOGICAL INVESTIGATION OF VOIDS IN THE MT. BALDY DUNE OF THE INDIANA DUNES NATIONAL LAKESHORE**
- 291-18 91 Neale, Shannon\*; Ginter, Benjamin M.; Graham, Jenna; Reis, Alex; Lees, Mike E.; Maynard, J. Barry; Huff, Warren: **ANALYSIS OF A MILL CREEK VALLEY, OHIO CORE UTILIZING XRF AND XRD TECHNOLOGY**
- 291-19 92 Persico, Lyman P.\*; Mizia, Francis; Landowski, Jeremy; Platz, Elizabeth; Ruhm, Catherine: **ANTHROPOGENIC ALTERATIONS TO SEDIMENT DYNAMICS AND CHANNEL MORPHOLOGY ALONG MILL CREEK, ERIE PA**
- 291-20 93 Ruhm, Catherine\*; Persico, Lyman P.: **THE EFFECTS OF URBANIZATION ON RUNOFF AND DISCHARGE IN THE MILL CREEK WATERSHED, ERIE, PENNSYLVANIA**
- 291-21 94 Burns, Diane M.\*; Viertel, David C.: **IMPACT OF A MEANDERING RIVER ON PROPERTY SIZE AND OWNERSHIP, LITTLE WABASH RIVER, SOUTH CENTRAL ILLINOIS, USA**
- 291-22 95 Huffaker, Bret\*; Toke, Nathan A.; Bunds, Michael P.; Stallings, Alison; Walther, Suzanne: **QUANTIFYING GEOMORPHIC CHANGE OVER MULTIPLE TIME SCALES ALONG PLEASANT CREEK, CAPITOL REEF NATIONAL PARK, UTAH**

- 291-23 96 Rowley, Taylor\*; Giardino, John R.: **CHANNEL DYNAMICS AND FLOODPLAIN ALTERATION: BLANCO RIVER FLOOD MAY 23-24**
- 291-24 97 Galster, Joshua C.\*; Kowalski, Joseph K.; Barry, Beth Styler: **THE INFLUENCE OF IMPOUNDMENT RELEASES ON RIVER WATER TEMPERATURE AND THE IMPLICATIONS FOR AQUATIC HABITATS**
- 291-25 98 Smith, Preston H.\*; Scuderi, Louis A.; Weissmann, Gary S.: **CORRELATING PARAMETERS OF CATCHMENTS AND DISTRIBUTIVE FLUVIAL SYSTEMS AS PREDICTORS OF FAN SHAPE**
- 291-26 99 Laurel, DeAnna J.\*; Wohl, Ellen: **IN THE ABSENCE OF BEAVER: CHARACTERIZING CHANGES IN WATER, SEDIMENT AND ORGANIC CARBON STORAGE IN ACTIVE AND ABANDONED BEAVER MEADOWS**
- 291-27 100 Roberts, John H.\*; Giardino, John R.: **LITHOLOGICAL IMPACTS ON STEP POOLS IN ALPINE STREAMS IN THE SAN JUAN MOUNTAINS, COLORADO: A PRELIMINARY STUDY**
- 291-28 101 Lewis, Sarah L.\*; Grant, Gordon E.; Nolin, Anne W.; Hempel, Laura A.; Jefferson, Anne J.; Selker, John S.: **HOW LOW WILL THEY GO? THE RESPONSE OF HEADWATER STREAMS IN THE OREGON CASCADES TO THE 2015 DROUGHT**
- 291-29 102 Wilkinson, Clare\*; Helgans, Elliott; Harbor, David J.; Kuehner, Joel P.: **FLUME INVESTIGATION OF CHANNEL BEDROCK EROSION BY PLUCKING**
- 291-30 103 Barefoot, Eric A.\*; Hampton, Samuel J.; Gravely, Darren: **STRATIGRAPHIC CHANGES IN BULK ROCK CHEMISTRY MAY EXERCISE CONTROL ON LANDSCAPE EVOLUTION IN AKAROA VOLCANO, NEW ZEALAND**
- 291-31 104 Leslie, David E.\*; McBrearty, Sally; Hartman, Gideon: **BIOMASS PRODUCTIVITY, STABLE ISOTOPE PROXIES, AND LANDSCAPE RECONSTRUCTIONS FROM THE KAPTHURIN FORMATION, KENYA**
- 291-32 105 Aguiar, Adriano\*; Deocampo, Daniel M.; Rabideaux, Nathan M.; Campisano, Christopher J.: **MINERALOGICAL ANALYSIS OF THE ETHIOPIAN RIFT: EXAMPLES FROM THE HSPDP HADAR FORMATION**
- 291-33 106 Runyon, Kirby D.\*; Barnouin, Olivier S.: **INVESTIGATING CRATER EJECTA EMPLACEMENT IN THE LABORATORY: PRELIMINARY SCALING RESULTS**
- 292-7 113 Eni, Vanessa\*: **MAGNETIC AND GRAVITY IMAGING ON KOPJESKRAAL FARM WITHIN THE VREDEFORT IMPACT STRUCTURE, SOUTH AFRICA**
- 292-8 114 Karabulut, S.\*; Thomas, Michael; Lamontagne, Maurice; Hisarli, Mumtaz: **GRAVITY MODELLING DIRECTED AT STRUCTURAL-TECTONIC EVALUATION OF THE DIKILI DEPRESSION (IZMIR-TURKEY)**
- 292-9 115 Georgen, Jennifer\*; Ames, Katherine; Dordevic, Mladen: **MANTLE GEODYNAMICS AND LITHOSPHERIC PROCESSES AT THE EASTER AND JUAN FERNANDEZ MICROPLATES: CONSTRAINTS FROM GRAVITY ANALYSIS AND NUMERICAL MODELING**
- 292-10 116 Yadav, Shilpi\*; Vijaya Rao, V; Porwal, Alok: **2D GRAVITY MODELLING OF ARAVALLI-DELHI FOLD BELT, WESTERN INDIA**
- 292-11 117 Ben Mansour, Walid\*; England, Richard W.; Moorkamp, Max; Fishwick, Stewart; Kohler, Andreas; Ebbing, Jorg: **CHARACTERISTICS OF THE CRUST IN THE CONTINUM FROM OROGENIC BELT TO CRATON : EXAMPLE OF THE SCANDINAVIAN MOUNTAINS AND THE BALTIC SHIELD**
- 292-12 118 Martinetti, Luis Bernardo\*: **MODELING CRUSTAL STRUCTURE OF THE BUSHVELD COMPLEX USING RECEIVER FUNCTIONS**
- 292-13 119 Albora, M.\*: **MODELLING OF GEOLOGICAL STRUCTURES IN CENTRAL ANATOLIA-TURKISH LAKES REGION BY USING CELLULAR NEURAL NETWORK APPROACH**
- 292-14 120 Harris, Thomas H. S.\*: **SUBORBITAL IMPRINT MATCHING**
- 292-15 121 Munzenrieder, Cali N.\*; Comas, Xavier: **USING CAPACITANCE MOISTURE PROBES TO INVESTIGATE THE EFFECT OF CHANGES IN WATER TABLE ELEVATION ON BIOGENIC GAS DYNAMICS IN PEAT SOILS FROM THE FLORIDA EVERGLADES**
- 292-16 122 Garcia, Alexander D.\*; Comas, Xavier: **TEMPORAL VARIABILITY OF BIOGENIC GASES IN PEAT SOILS FROM WATER CONSERVATION AREA 3 IN THE EVERGLADES USING CAPACITANCE MOISTURE PROBES**
- 292-17 123 Job, Mario Juan\*: **VARIABILITY OF BIOGENIC GASES EMISSIONS DUE TO TEMPERATURE VARIATIONS IN PEAT SOILS FROM THE EVERGLADES**
- 292-18 124 Collins, Mitchell Philip\*: **TEMPORAL VARIABILITY OF BIOGENIC GASES IN PEAT SOILS FROM THE EVERGLADES TO SIMULATED CHANGES IN ATMOSPHERIC PRESSURE**
- 292-19 125 Hendricks, Stacy R.\*; Singha, Kamini; Bandler, Aaron: **ASSESSING ASPECT CONTROL ON ADJACENT WEATHERING HILLSLOPES USING SEISMIC ANISOTROPY VELOCITY MODELS WITHIN THE BOULDER CREEK CRITICAL ZONE OBSERVATORY, COLORADO**
- 292-20 126 Karabulut, S.\*: **INVESTIGATIONS WITH GEOPHYSICAL METHODS OF SOIL ENGINEERING PROBLEMS**
- 292-21 127 Ramirez-Guzman, Leonardo\*; Rabade Garcia, Santiago; Juarez, Alan; Aguirre, Jorge: **CENTRAL MEXICO VELOCITY MODEL: GEOPHYSICAL, GEOTECHNICAL, AND GEOLOGICAL CONSTRAINTS AND VALIDATION THROUGH GROUND MOTION SIMULATIONS**
- 292-22 128 Soto, David R.\*; Velasco, Aaron; Patlan, Ezer: **DYNAMIC EARTHQUAKE TRIGGERING OF LONG PERIOD EVENTS IN THE SAN MIGUEL VOLCANO**
- 292-23 129 Maxwell, Abigail A.\*; Lorenzo, Juan; Watkins, Trudy: **UNDERSTANDING HYDRAULIC FRACTURE PROPAGATION: MAPPING THE SOURCE MECHANISMS AND SPECTRAL CHARACTERISTICS OF MICROSEISMIC EVENTS DURING FRACTURE GROWTH**
- 292-24 130 Alibrahim, Mohammed Hussain\*; Kaka, SanLinn I.; Al-Mulla, Ali Ahmed; Al-Bahrani, Mohammad Shukri: **SHALE GAS CHALLENGES IN SAUDI ARABIA**

## SESSION NO. 292

**T61. Geophysical Solutions to Geological Problems: Current Research Results and the Annual George P. Woollard Award Presentation (Posters) (GSA Geophysics Division)**

9:00 AM, Baltimore Convention Center, Exhibit Hall

Authors will be present from 4:30 to 6:30 PM

Booth #

- 292-1 107 Frifita, Nesrine\*; Mickus, Kevin L.: **GRAVITY ANALYSIS OF THE KEF BASIN AND SURROUNDING REGIONS, NORTHEAST TUNISIA**
- 292-2 108 Benton, Nathan William\*: **SEISMIC ANISOTROPY ACROSS THE TRANSITION FROM THE RIO GRANDE RIFT TO THE GREAT PLAINS**
- 292-3 109 Brawner, Erik V.\*; Aly, Mohamed H.: **GEOTHERMAL AND SEISMIC ACTIVITY IMPACTS ON GROUND DEFORMATION AT THE COSO GEOTHERMAL SITE, CALIFORNIA**
- 292-4 110 Mickus, Kevin L.\*; Al-Rahim, Ali M.; Mousa, Ahmed: **THE USE OF GRAVITY AND MAGNETIC DATA TO DETERMINE THE STRUCTURAL MAKEUP OF BASINS WITHIN THE WESTERN DESERT, IRAQ**
- 292-5 111 Drenth, Benjamin J.\*; Grauch, V.J.S.; Thompson, Ren A.; Bauer, Paul W.: **3D GRAVITY MODELING OF THE SAN LUIS BASIN, NORTHERN RIO GRANDE RIFT, COLORADO AND NEW MEXICO**
- 292-6 112 Altintas, Ali Can\*; Farris, David W.: **GRAVITY CONSTRAINTS ON THE GEOMETRY OF THE BIG BEND OF THE SAN ANDREAS**

WEDNESDAY

POSTERS

SESSION NO. 292

- 292-25 131 Tezel, Okan\*: **APPLICATION OF GEOELECTRICAL METHODS IN THE CENTRAL BLACK SEA REGION FOR MINING EXPLORATION**
- 292-26 132 Wabo, Herve\*; Mare, Leonie; Beukes, Nicolas J.; Humbert, Fabien; de Kock, Michiel O.: **TEMPERATURE DEPENDENT MAGNETIC PROPERTIES OF MAGNETITE-RICH BANDS OF THE 3.25 GA FIG TREE GROUP FROM BARB4 DRILL CORE**
- 292-27 133 Lom, Nalan\*; Ülgen, Semih Can; Isseven, Turgay; Şengör, A.M. Celâl: **PRELIMINARY PALEOMAGNETIC RESULTS FROM THE ISTANBUL ZONE: EASTERN EXTENT OF THE HERCYNIAN OROGENIC BELT?**
- 292-28 134 Ma, Hongbo\*; Naito, Kensuke; Nittrouer, Jeffrey A.; Zhang, Yuanfeng; Fu, Xudong; Parker, Gary: **SEDIMENT TRANSPORT IN THE LOWER HUANGHE (YELLOW RIVER), CHINA: ASSESSING THE PHYSICAL CONDITIONS THAT PRODUCE HYPERPYCNAL FLOW EVENTS**

SESSION NO. 293

**T63. Intraplate Earthquakes, Seismotectonics, and Geodynamics in Eastern and Central North America (Posters) (GSA Structural Geology and Tectonics Division; GSA Geophysics Division; GSA Environmental and Engineering Geology Division; GSA Quaternary Geology and Geomorphology Division; EarthScope; U.S. Geological Survey)**

9:00 AM, Baltimore Convention Center, Exhibit Hall

Authors will be present from 4:30 to 6:30 PM

Booth #

- 293-1 135 Parent, Michel\*; Nastev, Miroslav; Ross, Martin A.; Howlett, Danielle; Benoit, Nicolas; Carrier, Marc-André: **USING A 3D SURFICIAL GEOLOGY MODEL TO MAP SHEAR-WAVE VELOCITY AND FUNDAMENTAL SITE PERIOD FOR SEISMIC SITE RESPONSE IN THE OTTAWA AND ST. LAWRENCE VALLEYS**
- 293-2 136 Marple, Ronald\*; Altamura, Robert J.: **MASSACHUSETTS BAY LINEAMENT: A SUBMERGED, 100-KM-LONG, NORTHWEST-TRENDING BRITTLE FAULT ZONE EAST OF BOSTON, MA?**
- 293-3 137 Aubin, Parker W.\*; Ebel, John E.; Thomas, Margaret A.: **GEOPHYSICAL DATA PROCESSING OF THE 2015 MICROEARTHQUAKE SWARM AT PLAINFIELD, CONNECTICUT**
- 293-4 138 Pratt, Thomas\*; Horton, Jr., J. Wright; Hough, Susan; Munoz, Jessica; Chapman, Martin C.; Olgun, C. Guney; Beale, Jacob N.: **DC SHAKE: LOCAL SITE EFFECTS AND VARIATIONS IN EARTHQUAKE GROUND MOTIONS IN WASHINGTON, DC**
- 293-5 139 Witt, Anne C.\*; Kelly, Wendy; Heller, Matthew J.: **PRELIMINARY RESULTS OF FAULT COMPILATION MAPPING IN THE SEISMICALLY ACTIVE AREAS OF VIRGINIA**
- 293-6 140 Rivera-Banuchi, Victoria B.\*; Hughes, K. Stephen: **STREAM PROFILES OF SOUTH ANNA RIVER TRIBUTARIES TO INVESTIGATE POSSIBLE LONG-LIVED SEISMICALLY INDUCED UPLIFT IN THE CENTRAL VIRGINIA SEISMIC ZONE**
- 293-7 141 Carter, Mark W.\*: **OUTCROP-SCALE BRITTLE FAULTING IN THE CENTRAL VIRGINIA SEISMIC ZONE: PALEOZOIC TO MESOZOIC RELICTS, OR EVIDENCE FOR CENOZOIC NEOTECTONISM?**
- 293-8 142 Powell, Christine A.\*; Langston, Charles A.; Thomas, William A.: **A SEISMOTECTONIC MODEL FOR THE EASTERN TENNESSEE SEISMIC ZONE AND CLUSTER ANALYSIS OF RELOCATED HYPOCENTERS**
- 293-9 143 Levandowski, Will\*; Boyd, Oliver S.; Ramirez-Guzman, Leonardo: **BODY FORCES ROTATE AND AUGMENT DIFFERENTIAL STRESS IN THE NEW MADRID SEISMIC ZONE**

SESSION NO. 294

**T91. Using Place-Based and/or Data Driven Approaches in Geoscience Undergraduate Teaching and Research (Posters) (Council on Undergraduate Research Geosciences Division)**

9:00 AM, Baltimore Convention Center, Exhibit Hall

Authors will be present from 4:30 to 6:30 PM

Booth #

- 294-1 144 Walker, Becca\*; Stearns, Leigh A.; Pratt-Sitaula, Beth: **USE OF GEODETIC DATA IN THE INTRODUCTORY GEOSCIENCE CLASSROOM: DESIGN AND ASSESSMENT RESULTS FROM THE GETSI PROJECT'S ICE MASS AND SEA LEVEL CHANGES MODULE**
- 294-2 145 Musser, Linda R.\*: **RECOGNIZING OTHER WAYS OF KNOWING – THE INTERINSTITUTIONAL CONSORTIUM FOR INDIGENOUS KNOWLEDGE**
- 294-3 146 Dalbotten, Diana\*; Geosling, Emily: **PLACE-BASED, DATA-DRIVEN EDUCATION ABOUT WATER**
- 294-4 147 Londono, S. Carolina\*; Semken, Steven; Brandt, Elizabeth; Garzon, Cristina: **ETHNOGEOLOGY IN THE RAIN FOREST: COMBINING MAINSTREAM HYDROLOGY AND UITOTO INDIGENOUS KNOWLEDGE TO COMPREHEND THE WATER OF THE COLOMBIAN AMAZONIA**
- 294-5 148 Cessna, Gretchen A.\*; Byer, Lillian I.J.; Good, Kerinna J.: **STORMWATER STEWARDSHIP: A PLACE-BASED HIGH SCHOOL PROJECT DEVELOPING GEOSPATIAL ANALYSIS AND SCIENTIFIC COMMUNICATION SKILLS**
- 294-6 149 Latendresse, Paige A.\*; Johnson, Michael R.; Smeins, Melissa: **GEOLOGY OF THE GOLD BELT BYWAY: EDUCATIONAL OUTREACH TO YOUNG SCIENTISTS IN SOUTHERN COLORADO**
- 294-7 150 Farley, Martin B.\*: **STUDENT INVESTIGATION OF THE HISTORY OF THE GULF OF MEXICO “DEAD ZONE”**
- 294-8 151 Rueger, Bruce F.\*; Furth, Mary R.; George, Sara E.; Li, Jiawen; Shailer, Mandy: **USING NATURE RESERVES ON BERMUDA AS A PLACE-BASED, FIELD ORIENTED LABORATORY FOR UNDERGRADUATE EDUCATION OF GEOLOGY MAJORS**
- 294-9 152 Castendyk, Devin\*; Bader, Nicholas E.; Soule, Dax C.; Meixner, Thomas; Richardson, David; Carey, Cayelan C.; Gougis, Rebekka; Gibson, Catherine; Klug, Jennifer; O'Reilly, Catherine: **ENVIRONMENTAL DATA-DRIVEN INQUIRY AND EXPLORATION (PROJECT EDDIE): MODULES THAT ENGAGE STUDENTS IN QUANTITATIVE REASONING AND SCIENTIFIC DISCOURSE USING LARGE, HIGH-FREQUENCY AND SENSOR-BASED DATASETS**

SESSION NO. 295

**Geoscience Information/Communication: Past Events Can Guide Communication and Public Policy (Posters)**

9:00 AM, Baltimore Convention Center, Exhibit Hall

Authors will be present from 4:30 to 6:30 PM

Booth #

- 295-1 153 Hippensteel, Scott P.\*: **INFLUENCE OF CARBONATE ROCKS ON THE SUCCESS OR FAILURE OF CRITICAL DEFENSIVE POSITIONS DURING THE AMERICAN CIVIL WAR**
- 295-2 154 Leder, Ronny M.\*: **CLOSING THE GAP – BUILDING A STRONG AND PRODUCTIVE NETWORK BETWEEN AMATEURS AND PROFESSIONALS IN PALEONTOLOGY. HOW THE MYFOSSIL PROJECT CREATES A STRONG PALEO-COMMUNITY AND FRANKING PRIVATE FOSSIL RESOURCES INTO PROFESSIONAL DATABASES WITH BOTH SIDES BEING BENEFICIARY**
- 295-3 155 Tavis, Anthony\*; Ebersole, Sandy; Graves, Sara; Keiser, Ken; McEniry, Michael: **THE EVENT-DRIVEN DATA DELIVERY (ED3) PROJECT: AN AUTOMATED SYSTEM FOR DISASTER-RELATED DATA SHARING**
- 295-4 156 Randall, Ian\*; Abel, Sue M.; Campbell, Kathleen A.: **ALL THE PALAEOLOGY THAT'S FIT TO PRINT**

- 295-5 157 Lassa, Mitchell J.\*; Clark, Scott K.: **EXPERT OPINIONS IN THE MEDIA: ANALYSIS OF CLIMATE SCIENTISTS' EVOLVING STANCES ON CLIMATE CHANGE (1980-2012)**
- 295-6 158 Benimoff, Alan I.\*; Fritz, William J.; Kress, Michael: **FURTHER STUDIES OF HURRICANE VULNERABILITY ON THE SOUTH SHORE OF STATEN ISLAND, NY**

## SESSION NO. 296

*Recent Advances in Hydrogeology (Posters)*

9:00 AM, Baltimore Convention Center, Exhibit Hall

Authors will be present from 4:30 to 6:30 PM

Booth #

- 296-1 159 Mezentseva, Karyna\*; Sasowsky, Ira D.; Mitchell, Randall J.; Senko, John; Quick, Thomas J.; Rizzo, Jeffrey; Loucek, Joseph: **DISTURBED TAMARACK "BOG" IN NORTHERN OHIO REVEALED AS A FEN**
- 296-2 160 Hussien, H.M.\*; Kehew, Alan E.; Aggour, T.A.; Korany, Ezzat A.; Abotalib, Z.A.; Abdelmohsen, H.; Morsy, S.M.; Rabie, M.: **AN INTEGRATED APPROACH (REMOTE SENSING, GEOPHYSICS, STABLE ISOTOPES, FIELD AND HYDROCHEMISTRY) FOR IDENTIFICATION OF POTENTIAL AQUIFER ZONES IN WADI QENA BASIN, EASTERN DESERT, EGYPT**
- 296-3 161 Brubaker, Thomas\*; Krishnamurthy, R.V.: **MYSTERY OF ICICLE FORMATION: AN APPROACH BASED ON STABLE ISOTOPE STUDIES**
- 296-4 162 Huffman, George J.\*: **SORTING OUT THE VARIETY OF PRECIPITATION DATASETS**
- 296-5 163 Ahmed, Nur\*; Uddin, Ashraf; Lee, Ming-Kuo; Saunders, James A.: **FRESHWATER AND SALTWATER MIXING MECHANISMS AND ARSENIC DISTRIBUTION AT COASTAL AQUIFERS OF THE GANGES DELTA**
- 296-6 164 Chung, Sang Yong\*; Rajendran, Rajesh; Senapathi, Venkatramanan; Khakimov, Elyorbek: **ASSESSMENT OF HEAVY METALS IN GROUNDWATER USING CONTAMINATION EVALUATION INDICES, MULTIVARIATE STATISTICAL ANALYSIS AND GEOCHEMICAL MODELLING: A CASE STUDY AT THE NAKDONG RIVER BASIN, KOREA**
- 296-7 165 Saffari Ghandehari, Shahrzad\*; Starnes, Peter; Lee, Ming-Kuo; Saunders, James A.; Uddin, Ashraf: **REACTIVE TRANSPORT AND IMMOBILIZATION OF ARSENIC IN A SHALLOW ALLUVIAL AQUIFER IN FLORIDA**
- 296-8 166 Norwood, Brock S.\*; Macpherson, G.L.; Rawitch, Michael Jess; Stotler, Randy L.: **QUANTIFYING CO<sub>2</sub> DEGASSING AND  $\Delta^{13}C$  USING A FLOATING CHAMBER IN A GAINING HEADWATER STREAM**
- 296-9 167 Neel, Brendan R.\*; Hagedorn, Benjamin K.; Sovich, Timothy J.: **CHARACTERIZATION OF THE SHALLOW AND DEEP AQUIFERS IN THE EAST NEWPORT MESA AREA, ORANGE COUNTY, CA**
- 296-10 168 Beckingham, Barbara A.\*; Vulava, Vijay M.; Callahan, Timothy J.: **STORMWATER POND MANAGEMENT COLLABORATIVE IN COASTAL SOUTH CAROLINA, USA: INTEGRATING CONTAMINANT FATE AND TRANSPORT IN THE STATE OF THE KNOWLEDGE**
- 296-11 169 Edinberg, Sara C.\*; Gammons, Christopher H.: **GEOCHEMICAL ANALYSIS OF ANTHROPOGENIC FERRICRETES AND STREAM GEOCHEMISTRY, JUDITH MOUNTAINS, MT**
- 296-12 170 Harvey, Tara\*; Arnaud, Emmanuelle; Parker, Beth L.; Meyer, Jessica R.; Steelman, Colby M.: **HYDROGEOLOGICAL CHARACTERIZATION OF COMPLEX QUATERNARY ICE MARGINAL SEDIMENTS AT A CONTAMINATED SITE IN SOUTH CENTRAL, WISCONSIN**
- 296-13 171 Markowski, Michael\*; Schwartz, Benjamin F.; Timmins, Gabrielle; Nowlin, Weston: **USING STORMFLOW-HYDROGRAPH SEPARATION TO UNDERSTAND INFILTRATION AND RECHARGE PROCESSES IN THE TRINITY AQUIFER**
- 296-14 172 Witt, Alyssa\*; Simpkins, William W.: **INVESTIGATING GROUNDWATER RECHARGE TO BURIED VALLEY AQUIFERS**

IN MINNESOTA USING PORE WATER GEOCHEMISTRY IN TILL AQUITARDS

- 296-15 173 Holmes, Stuart\*; Lee, Eung Seok: **INVESTIGATION OF SURFACE-GROUNDWATER INTERACTIONS NEAR A MUNICIPAL WELL FIELD IN ZANESVILLE, OHIO**
- 296-16 174 Thibault, Charles H.\*: **STORM SURGE AND GROUNDWATER OF THE GULFPORT FORMATION, HARRISON COUNTY, MS**
- 296-17 175 Pryor, Paula Jane\*: **STREAM ENERGY IMPACTING SEDIMENT TRANSPORT THROUGH LOW-GRADIENT AGRICULTURAL STREAMS**
- 296-18 176 West, Kathryn A.\*; Clark, Gordon S.; Forbes, Micah; Hwang, Daekyoo; Morgan, Scott A.; Butler, (Paul) Brandt: **INNOVATIVE IN-SITU FIELD MEASUREMENT OF HIGH HYDRAULIC K VALUES USING PNEUMATIC SLUG TESTING IN A COARSE GRAVEL AQUIFER (TRENTON GRAVEL) NEAR THE DELAWARE RIVER**
- 296-19 177 Stone, Stephen F.\*; Whittecar, G. Richard: **VARIATION IN ESTIMATES OF ACTUAL EVAPOTRANSPIRATION RATES LEADS TO UNDERSTANDING OF HYDROLOGIC RESPONSE TO WETLAND EXPANSION AT HYBLA VALLEY, VIRGINIA**
- 296-20 178 VanHaitsma, Amanda\*; Burbey, Thomas J.: **EVALUATING AQUIFER-SYSTEM PROPERTIES FROM EXTENSOMETER AND WATER-LEVEL DATA USING PRINCIPLE COMPONENT ANALYSIS**
- 296-21 179 Percy, Madelyn S.\*; Singha, Kamini; Benninger, Larry; Riveros-Iregui, Diego; Mirus, Benjamin B.: **TRENDS IN SOIL MOISTURE REFLECT MORE THAN SLOPE POSITION: SOILS ON SAN CRISTOBAL ISLAND, GALAPAGOS AS A CASE STUDY**
- 296-22 180 Mohammed, Abdelmawgoud\*; Krishnamurthy, R.V.: **INVESTIGATION THE SOURCE OF BOTTLED DRINKING WATER USING STABLE ISOTOPES: CONNECTION BETWEEN HYDROGEOLOGY AND URBAN WATER MANAGEMENT**

## SESSION NO. 297

*Limnogeology (Posters)*

9:00 AM, Baltimore Convention Center, Exhibit Hall

Authors will be present from 4:30 to 6:30 PM

Booth #

- 297-1 181 Monecke, Katrin\*; Janigian, Greta A.; Ebel, John E.; Hubeny, J. Bradford: **EARTHQUAKE-INDUCED DEFORMATION OF ORGANIC-RICH LAKE SEDIMENTS IN THE NORTHEASTERN UNITED STATES – PRELIMINARY RESULTS FROM WALDEN AND SLUICE PONDS**
- 297-2 182 Levin, Emily\*; Byrne, Roger; Looy, Cindy V.; Wahl, David; Noren, Anders; Verosub, Kenneth L.: **CHARACTERISTICS OF THE ENVIRONMENTAL MAGNETIC RECORD OF A ~150 M SEDIMENT CORE: CLEAR LAKE, NORTHERN CALIFORNIA**
- 297-3 183 McGlue, Michael\*; Guerreiro, Renato Lada; Assine, Mario L.: **LATE HOLOCENE HYDROCHEMICAL CHANGES RECORDED IN NHECOLÂNDIA POND STRATIGRAPHY, BRAZILIAN PANTANAL WETLANDS**
- 297-4 184 Brown, Sabrina R.\*; Stone, Jeffery R.; Speer, James H.: **DIATOM STRATIFICATION AND FIRE HISTORY RECONSTRUCTION OF ISLAND LAKE, WYOMING**
- 297-5 185 Simpson, Alexandra, M.\*; Deocampo, Daniel; Rabideaux, Nathan M.; Ashley, Gail M.; Cuadros, Javier: **AUTHIGENIC CLAYS USED AS PROXIES FOR PALEOENVIRONMENTAL IDENTIFICATION**
- 297-6 186 Peterman, Cara L.\*; Baldwin, Patrick W.; Lucas, Joseph S.; McGlue, Michael M.; Yeager, Kevin M.: **DETRITAL PALEO-RECORDS FROM LAKE TANGANYIKA: A PRELIMINARY EXAMINATION OF HORST AND PLATFORM ENVIRONMENTS**
- 297-7 187 Finkelstein, David B.\*; Curtin, Tara M.: **A CHEMO-TOPOGRAPHIC TRANSECT ACROSS THE COAST RANGE AND CASCADES, CENTRAL OREGON: MODERN INSIGHTS INTO THE CONTROL OF LANDSCAPE ON LAKE WATER COMPOSITION IN DEEP TIME**

- 297-8 188 Conti, Alexander A.\*; Gierlowski-Kordesch, Elizabeth: **LAKES OF THE JURASSIC EAST BERLIN FORMATION, HARTFORD BASIN, NEWARK SUPERGROUP: RE-EVALUATING THE SEDIMENTOLOGY, STRATIGRAPHY, AND HYDROCARBON POTENTIAL**

## SESSION NO. 298

**T125. Lakes of the World (Posters) (GSA Limnogeology Division; GSA Quaternary Geology and Geomorphology Division)**

9:00 AM, Baltimore Convention Center, Exhibit Hall

Authors will be present from 4:30 to 6:30 PM

Booth #

- 298-1 189 Soja, Constance M.\*; White, Brian: **COMPARATIVE ANALYSIS OF MID-PALEOZOIC LAKE SYSTEMS IN SCOTLAND AND ALASKA'S ALEXANDER TERRANE**
- 298-2 190 Izzo, Carolyn\*; Coron, Cynthia R.: **JURASSIC LAKE EVOLUTION MODEL INFERRED FROM THE COE LIMESTONE, LOWER SHUTTLE MEADOW FORMATION, HARTFORD BASIN, CONNECTICUT**
- 298-3 191 Kuehn, Stephen C.\*; Deino, Alan L.; Hostetler, Addison Jacob; Ballengee, Savannah JoAnne: **POTENTIAL FOR A THREE-MILLION-YEAR RECORD OF LAKE LEVEL, CLIMATE, AND VOLCANISM FROM SUMMER LAKE, OREGON, USA**
- 298-4 192 Jordan, Leslie Margaret\*; Wan, Elmira; De Masi, Conni; Knott, Jeffrey R.; Starratt, Scott W.; Walkup, Laura C.: **INITIAL GEOCHRONOLOGIC FRAMEWORK, STRATIGRAPHIC CORRELATIONS, AND PALEOENVIRONMENTAL INTERPRETATION OF THE WAUCOBA LAKE BEDS, INYO COUNTY, CALIFORNIA – A MULTIDISCIPLINARY SPOT CHECK USING TEPHROCHRONOSTRATIGRAPHY, <sup>40</sup>AR/<sup>39</sup>AR DATING AND MICROPALAEONTOLOGY**
- 298-5 193 Kowler, Andrew L.\*; Lora, Juan M.; Mitchell, Jonathan L.; Risi, Camille; Lee, Hung-I; Tripathi, Aradhna: **USING CLUMPED ISOTOPES TO INVESTIGATE THE CAUSES OF PLUVIAL CONDITIONS IN THE SOUTHEASTERN BASIN AND RANGE DURING THE LAST DEGLACIATION**
- 298-6 194 Getch, Seth J.\*; Hansen, Kyle G.; Griffiths, Michael L.; Brachfeld, Stefanie A.; Greendyke, Tim; DaSilva, Michael; Sebetich, Michael; Pardi, Richard: **RECONSTRUCTING PAST CLIMATE VARIABILITY AFTER THE LAURENTIDE ICE SHEET RETREAT IN NORTHERN NEW JERSEY USING A LAKE SEDIMENT CORE**
- 298-7 195 Ofstun, Adam\*; Abbott, Mark B.; Larsen, Darren J.; Finkenbinder, Matthew S.; Pompeani, David P.: **A RECONSTRUCTION OF FOREST FIRES FROM JENNY LAKE, GRAND TETON NATIONAL PARK, WYOMING**
- 298-8 196 Finkenbinder, Matthew S.\*; Abbott, Mark B.; Steinman, Byron A.: **NORTH ATLANTIC OCEAN-ATMOSPHERE CONTROLS ON HOLOCENE CLIMATE CHANGE IN NEWFOUNDLAND RECONSTRUCTED USING MULTI-PROXY ANALYSES OF LAKE SEDIMENT CORES**
- 298-9 197 Hasbargen, Leslie\*; Geiss, Christoph; Wells, Britney: **NEEDLES IN THE HAYSTACK: PARTICLE CHARACTERIZATION AND THE HUNT FOR DIATOMS IN HOLOCENE LAKE SEDIMENT FROM UPSTATE NEW YORK**
- 298-10 198 Johnson, Benjamin\*; Ulmer, Miranda; DeVries-Zimmerman, Suzanne J.; Fisher, Timothy G.; Hansen, Edward C.: **WHAT MAKES LAKE MICHIGAN'S COASTAL DUNES MIGRATE? INVESTIGATING THE TRIGGERS OF DUNE MOBILITY IN LAKE MICHIGAN'S DUNES USING A MULTI-PROXY STUDY OF A COASTAL DUNE LAKE**
- 298-11 199 Curtin, Tara M.\*; Crocker, Megan; Wheatley, Gwendolyn: **MAGNETIC FABRICS PRESERVED BY HOLOCENE SEDIMENT IN TWO NEW YORK FINGER LAKES REVEALED EVIDENCE FOR DEFORMATION DURING PISTON CORING AND CHANGES IN PALEOENVIRONMENTAL CONDITIONS**
- 298-12 200 Plascencia, Elizabeth Ann\*; Kochtitzky, William; Strock, Kristin E.; Edwards, Ben; Mariño, Jersey; Manrique, Nelida: **ANALYSIS OF**

**SEDIMENT AND ASH FROM LAGO PALLARCOCHA, NEVADO COROPUNA, PERU**

- 298-13 201 Karaman, Muhittin\*; Budakoglu, Murat; Tasdelen, Suat: **SPECIFIC GRAVITY (RELATIVE DENSITY) EVALUATION OF HYPERSALINE LAKES BY IN SITU HYPERSPECTRAL MEASUREMENTS**
- 298-14 202 Budakoglu, Murat\*; Karaman, Muhittin: **TEMPORARY HYDROGEOCHEMICAL INVESTIGATION ON A HYPERSALINE LAKE: LAKE ACIGÖL, DENİZLİ, TURKEY**
- 298-15 203 Rico, Kathryn\*; Sheldon, Nathan D.: **CARBON BURIAL AND METAL ACCUMULATION IN A LOW-OXYGEN GREAT LAKES ENVIRONMENT**
- 298-16 204 Williams, Tina M.\*; Latimer, Jennifer C.; Hixson, Jase; Stone, Jeffery R.: **ANTHROPOGENIC INFLUENCES ON NUTRIENT FLUXES IN MODERN RECREATIONAL LAKE SYSTEMS: EXAMPLE FROM CHAIN O' LAKES STATE PARK, INDIANA**
- 298-17 205 Caldwell, Samuel\*; Capece, Lena R.; Chung, Angela; Hanschell, Rebecca; Horne, Julia; Upin, Heather E.; Thomas, Ellen; Varekamp, Johan C.: **THE TWIN CRATER LAKES OF NEWBERRY VOLCANO, OR**
- 298-18 206 Tripathi, Aradhna\*: **CLUMPED ISOTOPE SYSTEMATICS IN LACUSTRINE AND FLUVIAL CARBONATES: A TOOL FOR PALEOHYDROLOGY, PALEOCLIMATE, PALEOENVIRONMENT, AND PALEOALTIMETRY**
- 298-19 207 Halfman, John D.\*: **THE CHLORIDE HYDROGEOCHEMISTRY OF SENECA LAKE, NY, USA**
- 298-20 208 Higley, Melinda C.\*; Conroy, J.L.: **A GEOCHEMICAL ARCHIVE OF CLIMATE VARIABILITY IN KIRITIMATI ISLAND LAKE SEDIMENT**

## SESSION NO. 299

**Mineralogy/Crystallography (Posters)**

9:00 AM, Baltimore Convention Center, Exhibit Hall

Authors will be present from 4:30 to 6:30 PM

Booth #

- 299-1 209 Cousins, Jeremiah\*; Sholtis, Michael J.; Michelfelder, Gary S.; Hoover, Donald B.: **THE EFFECTS OF MICRO-INCLUSIONS ON INTERNAL STRUCTURE OF ZONED GARNET: AN EXAMPLE FROM THE TOCANTINS RHODOLITE GARNETS, TOCANTINS STATE, BRAZIL**
- 299-2 210 Oxman, Matthew J.\*; Heaney, Peter J.: **A TIME-RESOLVED SYNCHROTRON X-RAY DIFFRACTION STUDY OF THE *IN SITU*, HYDROTHERMAL SYNTHESIS OF GOETHITE FROM 2-LINE FERRIHYDRITE**
- 299-3 211 Tansman, Gil F.\*; Kindstedt, Paul S.; Hughes, John M.: **MINERALS IN FOOD: IDENTIFICATION OF CRYSTAL PHASES ON THE SURFACE OF WASHED RIND CHEESE**
- 299-4 212 Farthing, Dori J.\*; Pivarunas, Anthony: **INSIGHTS FROM ZIRCON CRYSTALS FOUND IN HISTORICAL TIN SLAGS OF DEVON, UK**
- 299-5 213 Li, Yujing\*: **APPLICATION OF WEIGHTED CHARACTERISTIC ANALYSIS IN TARGET PROSPECTING IN THE WEILASITUO POLYMETALLIC DEPOSIT, INNER MONGOLIA, CHINA**
- 299-6 214 Jin, Shiyun\*; Fredrickson, Rie; Xu, Huifang: **SINGLE CRYSTAL XRD ANALYSES OF INCOMMENSURATELY MODULATED STRUCTURE OF LABRADORITE**
- 299-7 215 Yuditsev, S.V.\*; Livshits, T.S.; Li, W.; Ewing, Rodney C.: **MATRICES FOR ACTINIDE WASTE IMMOBILIZATION IN THE CHEMICAL SYSTEM LN<sub>2</sub>O<sub>3</sub>-ZRO<sub>2</sub>-TiO<sub>2</sub>**
- 299-8 216 McGrath, Monica\*; Long, Li; Sanchez, Matthew S.; Van Orden, Drew R.; Lee, Richard J.: **CHARACTERIZATION OF STRUCTURALLY COHERENT MINERAL INTERGROWTHS IN COSMETIC TALC**
- 299-9 217 Boukdad, Sara\*; Lobeck, Haylie; Burns, Peter C.: **SOLUBILITY OF URANYL PHOSPHATES IN NANOCLUSTER FORMING ENVIRONMENTS**



- 299-10 218 McKenzie, Scott C.\*: **TEKTITE BUBBLES AND THE GENESIS OF SPLASHFORM SHAPES, STARBURSTS AND NAVELS**
- 299-11 219 Willford, Grant\*; Hollabaugh, Curtis L.: **PETROGRAPHIC ANALYSIS OF LAMPROITES FROM ZIRKEL MESA, LEUCITE HILLS DISTRICT IN SWEETWATER COUNTY, WYOMING, USA**
- 299-12 220 Livingston, Richard A.\*; Grissom, Carol A.; Aloiz, Emily; Vicenzi, Edward P.; Little, Nicole; Paul, Rick; Glascock, Michael D.; Macholdt, Dorothea: **MULTI-TECHNIQUE ELEMENTAL ANALYSIS OF THE SMITHSONIAN CASTLE SANDSTONE AND ROCK VARNISH**
- 299-13 221 Bloxson, Julie M.\*; Saylor, Beverly Z.; Ortiz, Joseph D.; Cowen, Jonathan E.: **MINERALOGY OF THE POINT PLEASANT FORMATION WITHIN THE SEBREE TROUGH, SW OHIO, USING VNIR SPECTROSCOPY AND XRD**
- 299-14 222 McConville, Emma G.\*; Candela, Philip A.; Piccoli, Philip M.; Moore, Joseph N.: **USING MINERAL ASSEMBLAGES AND COMPOSITION TO CHARACTERIZE THE KARAHA-TELAGA BODAS GEOTHERMAL SYSTEM**
- 299-15 223 Accorsi, Gina M.\*; Hughes, John M.: **FINGERPRINTING WOLFRAMITE: AN ATOMIC/CRYSTALLOGRAPHIC, ELEMENTAL AND SPECTROSCOPIC STUDY ALONG THE SOLID SOLUTION SERIES**
- 299-16 224 Lima, Ianna F.\*; Furman, Tanya: **ALONG-AXIS VARIATIONS IN GRANITE MINERALOGY: MAGMATIC CONDITIONS ACROSS THE ZAGROS OROGENIC BELT**
- 299-17 225 MacDonald, Jr., James H.\*; Schoonmaker, Adam: **IGNEOUS GARNET GEOCHEMISTRY FROM THE QUARTZ MOUNTAIN STOCK, MANASTASH INLIER, CENTRAL CASCADES, WASHINGTON**
- 299-18 226 Antao, S.M.\*; Salvador, J.J.; Suarez Nieto, N.S.; Cruickshank, L.: **OPTICAL ANISOTROPY, MULTIPHASE INTERGROWTHS, AND ZONING IN GARNETS**
- 299-19 227 Cymes, Brittany A.\*; Krekeler, Mark P.S.; Nicholson, Kirsten N.; Grigsby, Jeffrey D.: **PHASE DIVERSITY AND POTENTIAL CHLORINE-SULFUR SEQUESTRATION IN NICKEL-PHYLOSILICATES FROM NEW CALEDONIA: AN INVESTIGATION USING TRANSMISSION ELECTRON MICROSCOPY (TEM)**
- 299-20 228 Brusentsova, Tatyana\*; Peale, Robert E.; Maukonen, Doug; Figueiredo, Pedro; Harlow, George E.; Ebel, Denton S.; Lisse, Carey M.: **LABORATORY FAR-IR SPECTROSCOPY OF VARIOUS MINERAL GROUPS**
- 299-21 229 Roberts, Josiah M.\*; Hollabaugh, Curtis L.: **MINERALOGY OF TOPAZ MOUNTAIN IN THE THOMAS RANGE OF JUAB COUNTY, UTAH, INCLUDING THE OCCURRENCES OF RED BERYL IS ASSOCIATED WITH TOPAZ, AMAZONITE, AND HEMATITE**
- 299-22 230 Robinson, Max G.\*; Heimann, Adriana; Cameron, Courtney: **RE-EVALUATION OF FE-TI OXIDE RELATIONSHIPS IN THE SKAERGAARD INTRUSION AND IMPLICATIONS FOR THE INTERPRETATION OF BULK-MINERAL AND *IN-SITU* FE ISOTOPE VARIATIONS**
- 299-23 231 Jensen, Ashely Nicole\*; King, Jacob: **ANALYSIS OF THE POROSITY AND FLOW BANDING IN TOPAZ RHYOLITES FROM TWO SEPARATE LOCALITIES IN JUAB COUNTY, UTAH**
- 299-24 232 Miura, Yasunori\*: **FINAL FORMATION OF HIGH-PRESSURE CARBON-MINERALS IN YAMAGUCHI OF JAPAN ISLANDS**
- 300-2 234 Ostrye, Sarah\*; Jonathan, Cathleen; Tozer, Rose; Dirlam, Dona Mary: **THE GIA LIBRARY'S DIGITIZATION PROJECT: PROVIDING ACCESS IN A DIGITAL WORLD**
- 300-3 235 Peck, William H.\*; Dawson, Taylor L.: **CARBON ISOTOPE INVESTIGATION OF CHANNEL CARBON DIOXIDE IN RING SILICATES: CORDIERITE AND BERYL**
- 300-4 236 McManus, Catherine E.\*; Dowe, James; McMillan, Nancy J.: **DETERMINATION OF DIAMOND PROVENANCE IS POSSIBLE WITH MULTIVARIATE ANALYSIS OF LIBS SPECTRA**
- 300-5 237 Moe, Kyaw Soe\*; Yang, Jing-Sui; Johnson, Paul; Xu, Xiangzhen; Wang, Wuyi: **MICRO-DIAMONDS IN CHROMITITE AND PERIDOTITE**
- 300-6 238 Yu, Jinding\*; Lu, Ren: **COLOR SHIFT AND PLEOCHROISM IN TANZANITE**
- 300-7 239 Wang, Wuyi\*: **PREFERENCE IN FORMATION OF H3 OVER H4 AND ITS IMPLICATION IN GEM DIAMOND IDENTIFICATION**
- 300-8 240 Sholtis, Michael J.\*; Cousins, Jeremiah; Michelfelder, Gary S.; Hoover, Donald B.: **STRUCTURE AND TWINNING IN MG- AND MN-RICH ZONED GARNET FROM THE TOCANTINS RHODOLITE GARNETS, TOCANTINS STATE, BRAZIL**
- 300-9 241 Liu, Yimiao\*; Lu, Ren: **RUBY AND SAPPHIRE FROM MULING , NORTHEASTERN CHINA**
- 300-10 242 Ardon, Troy\*; Eaton-Magana, Sally: **EFFECT OF LPHT TREATMENT ON NATURAL TYPE IA DIAMONDS**
- 300-11 243 Lane, Melissa D.\*; Klima, Rachel L.; Glotch, Timothy D.; Dyar, M. Darby: **A STUDY OF SYNTHETIC PYROXENES USING NON-DESTRUCTIVE MID-INFRARED EMISSION SPECTROSCOPY**
- 300-12 244 Johnson, Paul\*; Moe, Kyaw Soe; D'Haenens-Johansson, Ulrika; Rzhetskii, Alexander: **DISCOVERY AND DISTRIBUTION OF THE [SI-V] DEFECT IN HPHT-GROWN GEM-QUALITY DIAMONDS**

## SESSION NO. 301

**T161. Echinoderm Paleobiology: Diversity, Form, and Phylogeny (Posters) (Paleontological Society)**

9:00 AM, Baltimore Convention Center, Exhibit Hall

Authors will be present from 4:30 to 6:30 PM

Booth #

## SESSION NO. 300

**T131. Gemological Research in the 21st Century: Exploration, Geology, and Characterization of Diamonds and other Gem Minerals (Posters)**

9:00 AM, Baltimore Convention Center, Exhibit Hall

Authors will be present from 4:30 to 6:30 PM

Booth #

- 300-1 233 Michelfelder, Gary S.\*; Karfunkel, Joachim; Fernandes, Augusto Fonseca; Sgarbi, Geraldo Norberto Chavez; Hoover, Donald B.; Krambrock, Klaus; Walde, Detlef: **SURFACE SOURCE OF COROMANDEL DIAMONDS (MINAS GERAIS STATE, BRAZIL) AND THEIR POSSIBLE ORIGIN FROM THE SERRA NEGRA/SALITRE SUPERVOLCANO**
- 300-1 233 Michelfelder, Gary S.\*; Karfunkel, Joachim; Fernandes, Augusto Fonseca; Sgarbi, Geraldo Norberto Chavez; Hoover, Donald B.; Krambrock, Klaus; Walde, Detlef: **SURFACE SOURCE**

**RADIATION IN COMATULIDS USING BAYESIAN ANALYSIS OF MACROEVOLUTIONARY MIXTURES**

- 301-9 253 Segessenman, Daniel C\*; Kammer, Thomas: **TESTING FOR DEPRESSED RATES OF ORIGINATION AND EXTINCTION AMONG CRINOIDS DURING THE LATE PALEOZOIC ICE AGE**
- 301-10 254 Salamon, Mariusz A.\*; Gorzelak, Przemyslaw; Hanken, Nils-Martin; Riise, Henrik Erevik; Ferre, Bruno: **UNEXPECTEDLY DIVERSE CRINOID FAUNA FROM SVALBARD IN THE AFTERMATH OF THE END-PERMIAN MASS EXTINCTION**
- 301-11 255 Whitaker, Anna F.\*; Christie, Max; Patzkowsky, Mark E.: **PALEOECOLOGICAL ANALYSIS OF FURNACE GAP, A NEW UPPER ORDOVICIAN OPHUROID LOCALITY IN PENNSYLVANIA**
- 301-12 256 Harris, Ann W.\*; Ettensohn, Frank R.: **A COMPARISON OF ENVIRONMENTAL CONSTRAINTS ON LATE MISSISSIPPIAN (CHESTERIAN) ECHINODERM FAUNULES FROM EAST-CENTRAL KENTUCKY, U.S.A**
- 301-13 257 Shroat-Lewis, René A.\*: **EDRIOASTEROID ENCRUSTATION PATTERNS: IS THERE A CORRELATION BETWEEN THECA SIZE AND SETTLEMENT LOCATION ON BRACHIOPOD SHELLS?**
- 301-14 258 Gahn, Forest J.\*; Jolley, Chelsea A.; Crandall, Bradly S.: **EVOLUTIONARY PALEOECOLOGY OF ORDOVICIAN THROUGH DEVONIAN CRINOIDS**

**SESSION NO. 302****T162. A Lower Crustal Perspective on Magmatic Arc Processes (Posters) (GSA Mineralogy, Geochemistry, Petrology, and Volcanology Division)**

9:00 AM, Baltimore Convention Center, Exhibit Hall

Authors will be present from 4:30 to 6:30 PM

Booth #

- 302-1 259 Sauer, Kirsten\*; Gordon, Stacia M.; Miller, Robert B.; Vervoort, Jeffery D.: **HF CHARACTERIZATION OF DETRITAL ZIRCONS FROM THE METASEDIMENTARY ROCKS OF THE NORTH CASCADES CRYSTALLINE CORE, WA: IMPLICATIONS FOR SEDIMENT INCORPORATION INTO ARC SYSTEMS**
- 302-2 260 Joseph, III, Jeffery\*; Miranda, Elena A.; Klepeis, Keith A.; Schwartz, Joshua J.: **FABRIC TRANSPOSITION IN THE LOWER CRUST DURING EXTENSIONAL COLLAPSE IN WESTERN FIORDLAND, NEW ZEALAND**
- 302-3 261 Davis, Peter\*; Lindmark, Matthew: **EVIDENCE FOR LOWER CRUSTAL SYNTECTONIC FORE-ARC EMPLACEMENT OF THE HICKS BUTTE PLUTON BREAKING THE CORRELATION OF HP-LT ROCKS ACROSS THE CASCADES OF WASHINGTON STATE**
- 302-4 262 Chapman, Thomas E.\*; Coleman, Drew S.: **TRACE ELEMENT VARIABILITY IN MIGMATITES**
- 302-5 263 Said, Meena\*; Birner, Suzanne; Cottrell, Elizabeth: **OXYGEN FUGACITY OF ABYSSAL PERIDOTITES ALONG THE GAKKEL RIDGE**
- 302-6 264 Raub, Timothy D.\*; Reekie, Callum D.J.; Spencer, Christopher J.: **ASSESSING ALTERATION AND RHEOLOGY OF THE OCEANIC LITHOSPHERE IN THE FIELD: MAGNETIC SUSCEPTIBILITY AND SERPENTINIZATION OF CRITICAL MANTLE-CRUSTAL SECTIONS**
- 302-7 265 Blatchford, Hannah J.\*; Gilbert, John B.; Klepeis, Keith; Schwartz, Joshua J.; Turnbull, Rose E.; Jongens, Richard; Stowell, Harold H.: **OBLIQUE INTRA-ARC CONVERGENCE AND TRANSPRESSION ACCOMPANYING HIGH-FLUX MAGMATISM IN THE MID-LOWER CRUST OF A MESOZOIC CONTINENTAL ARC IN FIORDLAND, NEW ZEALAND**

**SESSION NO. 303****Petrology, Metamorphic (Posters)**

9:00 AM, Baltimore Convention Center, Exhibit Hall

Authors will be present from 4:30 to 6:30 PM

Booth #

- 303-1 266 Gao, Xiao-Ying\*; Zheng, Yong-Fei; Chen, Yi-Xiang: **ZIRCON GEOCHEMISTRY RECORDS THE ACTION OF METAMORPHIC FLUID IN ULTRAHIGH-PRESSURE JADEITE QUARTZITE FROM THE DABIE OROGEN**
- 303-2 267 Luther, Brandon D.\*; Swenson, Christina; Solar, Gary S.; Tomascak, Paul B.: **MICROSCOPIC STRUCTURAL AND PETROGRAPHIC VARIATIONS IN A 3-D MEGA-EXPOSURE IN THE MIGMATITE GRANITE COMPLEX, SOUTHERN MAINE**
- 303-3 268 Rodriguez, Luis G.\*; Harms, Tekla A.; Baldwin, Julia A.; Cavosie, Aaron J.: **PETROGRAPHY AND MINERALOGY OF ULTRAMAFIC PODS IN THE RUBY RANGE WITH SPECIAL ATTENTION TO IDENTIFYING ACCESSORY MINERAL PHASES, INCLUDING ZIRCON**
- 303-4 269 Lafay, Romain\*; Baumgartner, Lukas; Schwartz, Stephane; Montes Hernandez, German; Vennemann, Torsten: **PETROLOGY AND STABLE ISOTOPE STUDY OF THE OPHICALCITES OF THE CHENAILLET COMPLEX, WESTERN ALPS, FRANCE**
- 303-5 270 Cubley, Joel F.\*; Israel, Steve A.; LeBlond, Philippe G.: **PETROGENESIS AND METAMORPHISM OF THE BEAR CREEK ASSEMBLAGE, COAST MOUNTAINS, YUKON, CANADA**
- 303-6 271 Nieblas, Andrew\*; Leech, Mary: **P-T-T-D HISTORY OF THE LAHUL VALLEY, NW INDIAN HIMALAYA**
- 303-7 272 Marger, Katharina\*; Baumgartner, Lukas: **METAMORPHISM OF METAPELITES IN THE LITTLE COTTONWOOD CONTACT AUREOLE, UTAH, USA**
- 303-8 273 Mulligan, Suzanne R.\*; Kane, Patrick; Stoesz, Erin; Wintsch, R.P.: **THREE STAGES OF ANDALUSITE GROWTH IN THE RYE COMPLEX, NEW HAMPSHIRE**
- 303-9 274 Miura, Yasunori\*: **PALEOZOIC LIMESTONE BRECCIAS FORMED BY QUENCHED MICRO-GRAINS OF JAPAN AND USA SAMPLES**

**SESSION NO. 304****T166. Metamorphic Petrology: New Approaches and Outcomes (Posters) (GSA Mineralogy, Geochemistry, Petrology, and Volcanology Division; Mineralogical Society of America; Mineralogical Association of Canada)**

9:00 AM, Baltimore Convention Center, Exhibit Hall

Authors will be present from 4:30 to 6:30 PM

Booth #

- 304-1 275 Mojtahedzadeh, Amirhossein\*: **THE STUDY OF MICRODIAMONDS AS AN INDEX MINERAL IN PETROLOGY OF IGNEOUS AND METAMORPHIC ROCKS**
- 304-2 276 Holsing, Nicholas A.\*; Jenkins, David M.: **SI INCORPORATION IN DIAMOND OVERGROWTHS IN THE PRESENCE OF PYROPE: A POSSIBLE GEOTHERMOMETER**
- 304-3 277 Orlandini, Omero F.\*; Mahan, Kevin H.; Allaz, Julien M.; Brenner, Kelly A.; Regan, Sean P.; Williams, Michael L.: **INVESTIGATION INTO THE P/T CONDITIONS OF MULTIPLE FRICTIONAL MELT VEIN GENERATIONS HOSTED BY A DEEP-CRUSTAL SHEAR ZONE**
- 304-4 278 Galster, Federico\*; Müntener, Othmar: **THE EFFECT OF TRAPPED CRYSTALLIZING MELTS ON RUTILE AND CONSEQUENCES FOR ZR-IN-RUTILE THERMOMETRY**
- 304-5 279 Smith, Eleanor W.\*; Dutrow, Barbara L.; Henry, Darrell J.: **PHASE EQUILIBRIUM MODELING OF PERALUMINOUS GNEISSES FROM THE SAWTOOTH METAMORPHIC COMPLEX, ID: IMPLICATIONS FOR THE MIDDLE-LOWER CRUST**

- 304-6 280 Hoffmann, Anna A.\*; Dutrow, Barbara L.; Foster, Jr., C.T.: **PLAGIOCLASE HALOS AROUND GARNETS: IMPLICATIONS FOR PRESSURE-TEMPERATURE PATHS IN METAPELITES**
- 304-7 281 Castro, Adrian E.\*; Spear, Frank S.; Guerette, Michael: **EPIDOTE RAMAN PEAK SHIFT AS A FUNCTION OF PRESSURE AND COMPOSITION: CALIBRATION AND PRELIMINARY APPLICATIONS**
- 304-8 282 Plumhoff, Alexandra M.\*; Spear, Frank S.: **NEW AND CONVENTIONAL APPROACHES: BARROVIAN METAMORPHISM FROM THE TYPE LOCALITY, SCOTLAND**
- 304-9 283 Wolfe, Oliver M.\*; Spear, Frank S.: **CONSTRAINTS ON TECTONIC BURIAL FROM QUIG BAROMETRY, CONNECTICUT VALLEY SYNCLINORIUM, CENTRAL VERMONT**
- 304-10 284 Kosminska, Karolina\*; Spear, Frank S.; Majka, Jaroslaw: **METAMORPHIC EVOLUTION OF THE PINKIE UNIT METAPELITES FROM SVALBARD (HIGH ARCTIC): P-T-T STUDY INCLUDING QUARTZ-IN-GARNET BAROMETRY (QUIG)**
- 304-11 285 Im, Chang-Bock\*; Cheong, Chang-sik; Kim, Namhoon: **ZIRCON U-PB GEOCHRONOLOGY AND HF ISOTOPE GEOCHEMISTRY OF PRECAMBRIAN METAMORPHIC ROCKS FROM NORTHEASTERN YEONGNAM MASSIF, KOREA**
- 304-12 286 Backus, Ethan L.\*; Hetherington, Callum J.: **TEXTURAL ANALYSIS AND EPMA GEOCHRONOLOGY OF MONAZITE IN METAPELITES FROM THE THERMAL AUREOLE OF THE BALLACHULISH IGNEOUS COMPLEX, SCOTLAND**
- 304-13 287 Washburn, Alex M.\*; Hetherington, Callum J.: **TRACE ELEMENT SIGNATURES IN CARBONATES FROM CALC-SILICATE ROCKS IN THE THERMAL AUREOLE OF THE BALLACHULISH IGNEOUS COMPLEX**
- 304-14 288 Beno, Carl\*; Bowman, J. R.; Valley, J.W.; Kitajima, Kouki: **OXYGEN ISOTOPE ZONATION AND TRACE ELEMENT ACTIVATORS OF CATHODOLUMINESCENCE IN FORSTERITE FROM THE ALTA, UTAH CONTACT AUREOLE**
- 304-15 289 Chu, Xu\*; Ague, Jay J.; Tian, Meng; Rumble, III, Douglas; Chamberlain, C. Page: **TESTING FOR RAPID PULSES OF CRUSTAL-SCALE HEAT TRANSFER BY MODELING GARNET GROWTH-DIFFUSION-RESORPTION PROFILES IN METAMORPHIC "HOT SPOTS", NEW HAMPSHIRE, USA**
- 304-16 290 Almeida, Kaleo\*; Jenkins, David M.: **STABILITY FIELD OF THE CL-RICH SCAPOLITE MARIALITE**
- 305-4 294 DesOrmeau, Joel W.\*; Gordon, Stacia M.; Little, Timothy A.; Davies, Hugh Lucius; Chatterjee, Nilanjan: **PHASE DIAGRAM CALCULATIONS OF KYANITE-BEARING ECLOGITES FROM OIATABU DOME, D'ENTRECASTEAUX ISLANDS, PAPUA NEW GUINEA**
- 305-5 295 Koteas, G. Christopher\*; DeFelice, Christopher J.: **MAGMATIC MICROTERTURES IN MID-CRUSTAL, LATE SYNTECTONIC PLUTONS: A TOOL FOR UNDERSTANDING STRAIN LOCALIZATION, CENTRAL VERMONT APPALACHIANS**
- 305-6 296 Olsen, Ellen K.\*; Rusk, Brian: **TRACE ELEMENT GEOCHEMISTRY OF QUARTZ IN THE SKAGIT MIGMATITES**
- 305-7 297 Chu, Xu\*; Ague, Jay J.; Tian, Meng: **ULTRA-FAST HIGH-PRESSURE METAMORPHISM: A POTENTIAL PETROLOGIC TEST FOR DEVIATIONS FROM LITHOSTATIC PRESSURE**
- 305-8 298 Axler, Jennifer A.\*; Ague, Jay J.: **TOO HOT FOR ZIRCONS? U-PB ZIRCON GEOCHRONOLOGY OF THE ULTRAHIGH-TEMPERATURE (UHT) REGION OF THE CENTRAL MAINE TERRANE, CONNECTICUT, USA**

## SESSION NO. 306

**T168. Subduction, Fluids, Accessory Minerals, and Trace Elements: A Celebration of Sorena Sorensen's Career (Posters) (Mineralogical Society of America; GSA Mineralogy, Geochemistry, Petrology, and Volcanology Division; Geochemical Society)**

9:00 AM, Baltimore Convention Center, Exhibit Hall

Authors will be present from 4:30 to 6:30 PM

Booth #

## SESSION NO. 305

**T167. Metamorphic, Metasomatic, and Igneous Processes in the Mid- and Deep Continental Crust: Mechanisms and Processes That Impact Mass Transport and Rheology (Posters) (GSA Mineralogy, Geochemistry, Petrology, and Volcanology Division; GSA Structural Geology and Tectonics Division; Mineralogical Society of America)**

9:00 AM, Baltimore Convention Center, Exhibit Hall

Authors will be present from 4:30 to 6:30 PM

Booth #

- 305-1 291 Maneiro, Kathryn A.\*; Baxter, Ethan F.: **HOW OLD IS THE OLDEST KNOWN GARNET AND WHAT CAN WE LEARN FROM LOOKING AT THE PUBLISHED RECORDS OF GARNET GEOCHRONOLOGY?**
- 305-2 292 Dragovic, Besim\*; Guevara, Victor; Caddick, Mark J.; Baxter, Ethan F.: **LIMITATIONS AND UTILITY OF SM-ND GARNET GEOCHRONOLOGY OF HIGH-TEMPERATURE METAMORPHISM: AN EXAMPLE FROM THE WYOMING CRATON**
- 305-3 293 Hetherington, Callum J.\*; Backus, Ethan L.; Barnes, Calvin G.: **THE ROLE OF FLUIDS IN MOBILIZING THE CRUSTAL COLUMN BENEATH THE RUBY MOUNTAINS-EAST HUMBOLDT RANGE METAMORPHIC CORE COMPLEX**
- 306-1 299 Berg, Christopher A.\*; Ashley, Aaron Wolfgang: **TEXTURAL, ACCESSORY-PHASE, AND MODELLING CONSTRAINTS ON THE METAMORPHIC EVOLUTION OF AMPHIBOLITE GNEISS, SOUTHERN APPALACHIAN INNER PIEDMONT, WEST-CENTRAL GEORGIA**
- 306-2 300 Eldridge, John Graham\*; Yu, Xun; Lee, Cin-Ty A.: **THE ORIGIN OF TRACE ELEMENT ANOMALIES IN ARC MAGMAS USING RUTILE-BEARING SIERRAN PYROXENITES AS A WINDOW INTO THE DEEP ARC CRUST**
- 306-3 301 Moore, Diane E.\*; McLaughlin, Robert J.; Lienkaemper, James J.: **SERPENTINITE IN A CREEPING TRACE OF THE BARTLETT SPRINGS FAULT, NORTHERN CALIFORNIA**
- 306-4 302 Luisier, Cindy\*; Baumgartner, Lukas; Putlitz, Benita; Vennemann, Torsten; Schmalholz, Stefan M.: **THE ORIGIN OF WHITESCHIST IN THE MONTE ROSA NAPPE, WESTERN ALPS**
- 306-5 303 Rougvie, James R.\*; Erickson, Samantha D.; Thompson, William D.; Woodard, Henry H.: **FELDSPAR REPLACEMENT MECHANISMS DURING SODIC-CALCIC ALTERATION**
- 306-6 304 Menold, Carrie A.\*; Grove, Marty: **OXYGEN ISOTOPE EVIDENCE FOR SUBDUCTION ZONE FLUID METASOMATISM DURING UHP METAMORPHISM**
- 306-7 305 Grove, Marty\*; Menold, Carrie A.; Seivers, Natalie E.: **AN EXAMPLE OF HIGHLY MOBILE AQUEOUS FLUID DURING CONTINENTAL UHP METAMORPHISM**
- 306-8 306 Penniston-Dorland, Sarah\*; Roble, Leigh Anne; Bebout, Gray E.; Sorensen, Sorena S.: **LITHIUM ISOTOPES AS A TRACER OF FLUIDS IN REACTION ZONES OF THE CATALINA SCHIST**
- 306-9 307 Martin, Celine\*; Wygel, Candace; Harlow, George E.; Ponzevera, Emmanuel; Penniston-Dorland, Sarah: **LITHIUM ISOTOPE MEASUREMENTS IN SPODUMENE, LITHIOPHILITE, TOURMALINE, PETALITE, AND BERYL BY LA-MC-ICP-MS**
- 306-10 308 Bebout, Gray E.\*; Tsujimori, Tatsuki; Ota, Tsutomu; Shimaki, Yuri; Kunihiro, Tak; Carlson, William D.; Nakamura, Eizo: **LITHIUM IN UHP METASEDIMENTARY GARNETS FROM LAGO DI CIGNANA, ITALY: COUPLED SUBSTITUTIONS AND THE ROLE OF ACCESSORY PHASES**
- 306-11 309 Mulcahy, Sean R.\*; Beaudoin, Grace M.: **THE ECLOGITE TO BLUESCHIST TRANSITION IN FRANCISCAN METABASITE**

WEDNESDAY

POSTERS

SESSION NO. 306

- 306-12** 310 Gorce, Jennifer S.\*; Caddick, M.J.; Baxter, Ethan F.; Ashley, Kyle T.; Kendall, Jamie A.; Dragovic, Besim; Brooks, Hanna L.; Ramos, Evan J.: **P-T PATHS FROM SYROS, GREECE, AND CONSTRAINTS ON SUBDUCTION ZONE FLUID GENERATION**
- 306-13** 311 Ramos, Evan J.\*; Baxter, Ethan F.; Caddick, Mark J.; Kendall, Jamie A.; Gorce, Jennifer S.; Brooks, Hanna L.: **THERMODYNAMIC ANALYSIS OF BLUESCHIST LINKS GARNET GROWTH TO PROGRESSIVE SUBDUCTION ZONE DEHYDRATION IN THE CYCLADIC BLUESCHIST UNIT OF SYROS, GREECE**
- 306-14** 312 Hamelin, Clémentine\*; Brady, John B.; Cheney, John T.; Schumacher, John C.: **PSEUDOMORPHS AFTER LAWSONITE IN BLUESCHISTS FROM SYROS, GREECE REVEAL RELATIVE ELEMENT MOBILITY**
- 306-15** 313 Brooks, Hanna L.\*; Lamadrid, Hector M.; Caddick, Mark J.; Dragovic, Besim; Bodnar, Robert J.; Baxter, Ethan F.: **INSIGHTS INTO SUBDUCTION ZONE FLUID CHEMISTRIES FROM FLUID INCLUSIONS IN BLUESCHIST FROM SIFNOS, GREECE**
- 306-16** 314 Kendall, Jamie A.\*; Baxter, Ethan F.; Caddick, Mark J.; Gorce, Jennifer S.; Ramos, Evan Joseph; Brooks, Hanna: **SAMARIUM/NEODYMIUM GARNET GEOCHRONOLOGY OF ECLOGITES FROM SYROS, GREECE**

SESSION NO. 307

**Planetary Geology (Posters)**

9:00 AM, Baltimore Convention Center, Exhibit Hall

Authors will be present from 4:30 to 6:30 PM

Booth #

- 307-1** 315 Malcuit, Robert J.\*: **THE LATE HEAVY BOMBARDMENT: WHAT IS THE SOURCE OF THE IMPACTORS?**
- 307-2** 316 Malcuit, Robert J.\*: **A GRAVITATIONAL CAPTURE MODEL FOR THE ORIGIN OF THE EARTH-MOON SYSTEM: IS IT COMPATIBLE WITH THE COOL EARLY EARTH MODEL?**
- 307-3** 317 Goosmann, Erik A.\*; Buczkowski, Debra L.; Ernst, Carolyn M.; Denevi, Brett W.; Kinczyk, Mallory J.: **GEOLOGIC MAP OF THE CALORIS BASIN, MERCURY**
- 307-4** 318 Nypaver, C.\*; Lang, N.P.; Thomson, Bradley James; Baker, E.: **RECONNAISSANCE 1:5M SCALE GEOLOGIC MAPPING OF THE MAHUEA THOLUS (V-49) QUADRANGLE, VENUS**
- 307-5** 319 Baker, E.\*; Nypaver, C.; Lang, N.P.: **TESTING CHANNEL ORIGIN HYPOTHESES IN THE MAHUEA THOLUS QUADRANGLE (V-49), VENUS**
- 307-6** 320 Boden, Elizabeth Aylesford Carey\*; Dawers, Nancye H.: **STRUCTURAL MAPPING OF GRABEN SYSTEM EMANATING SW FROM ARSIA MONS, THARSIS, MARS**
- 307-7** 321 Golder, Keenan B.\*; Burr, Devon M.: **NEW AGE ESTIMATES FOR THE CERBERUS CHANNEL FLOOD LAVAS, MARS: IMPLICATIONS FOR MAGMA MIGRATION**
- 307-8** 322 LaFranca, Katlyn C.\*; Rogers, A. Deanne: **PHYSIOCHEMICAL DIFFERENCES BETWEEN LATE NOACHIAN AND EARLY HESPERIAN VOLCANIC TERRAINS IN THE MARTIAN HIGHLANDS: POSSIBLE CAUSES AND IMPLICATIONS**
- 307-9** 323 McBeck, Jessica A.\*; Seelos, Kimberly D.; Seelos, Frank P.; Ackiss, Sheridan E.: **USING CRISM AND THEMIS DATA TO CHARACTERIZE MAFIC MINERALOGY IN TYRRHENA TERRA, MARS**
- 307-10** 324 Seelos, Kimberly D.\*; Buczkowski, Debra L.; Seelos, Frank P.; Viviano-Beck, Christina E.: **PRELIMINARY MAPPING OF Laterally Extensive Phyllosilicates in the West Margaritifer Plateau Region of Mars**
- 307-11** 325 Senarath Dassanayake, Hiruni C.\*; Williams, Kevin K.: **GEOMORPHIC MAPPING OF CRATER FLOOR DEPOSITS IN SOUTHERN MARGARITIFER TERRA, MARS**
- 307-12** 326 Cull-Hearth, Selby\*; van Venrooy, Alexis; Clark, M. Caroline; Cvitkovic, Adriana: **RIO TINTO ACID-SULFATE MIXTURES: SPECTRAL MASKING RELATIONSHIPS AND IMPLICATIONS FOR MARS**

- 307-13** 327 Shover, Katherine\*; Wood, Lesli; Moscardelli, Lorena G.: **COMPILING THE EVIDENCE FOR AN ANCIENT MARTIAN OCEAN: THE SPATIAL DISTRIBUTION OF TERRESTRIAL DEEP-WATER ANALOGS ON MARS**
- 307-14** 328 Wagner, Neil\*; Warner, N.H.; Gupta, Sanjeev: **FLOOD GEOMORPHOLOGY OF THE EASTERN VALLES MARINERIS REGION OF MARS**
- 307-15** 329 Lehnigk, Karin E.\*: **THE FORMATION OF FLUVIAL CHANNELS ON ALBA MONS, MARS**
- 307-16** 330 O'Shea, Michael J.\*; Warner, N.H.; Gupta, Sanjeev; Eckes, Samantha W.; Werynski, Alyssa; Smith, Jessica: **USING THE MORPHOLOGY OF IMPACT CRATERS AS A RELATIVE AGE INDICATOR FOR FLUVIAL ACTIVITY AT XANTHE TERRA, MARS**
- 307-17** 331 Eckes, Samantha W.\*; Warner, N.H.; Gupta, Sanjeev; Smith, Jessica; Werynski, Alyssa: **TIMING OF FLUVIAL ACTIVITY IN THE XANTHE TERRA REGION OF MARS: IMPLICATIONS FOR THE HYPANIS DELTA AND OTHER POTENTIAL LANDING SITES FOR MARS2020 AND EXOMARS**
- 307-18** 332 Johnson, Jeffrey R.\*; Bell, III, James F.; Guinness, Edward A.; Deen, Robert G.: **THE MARS EXPLORATION ROVERS PLANETARY DATA SYSTEM ARCHIVE OF PANCAM PHOTOMETRY QUBS**
- 307-19** 333 Lewis, Evan\*; Williams, Rebecca M.E.; Dewet, Andrew: **MORPHOLOGICAL ATTRIBUTES OF MARTIAN STEPPED FANS**
- 307-20** 334 Heydenreich, J.A.\*; Mickol, R.L.; Dixon, J.C.; Chevrier, V. F.; Kral, T.A.: **RECURRING SLOPE LINEAE FORMATION ON CHANGING SLOPES**
- 307-21** 335 Levy, Joseph\*; Fassett, Caleb I.; Head, James W.: **MARTIAN EROSION RATES DURING AMAZONIAN GLACIATION SUGGEST COLD-BASED FLOW AND ARID CLIMATE DENUDATION RATES**
- 307-22** 336 Phillips-Lander, Charity\*; Jawin, Erica; Kintner, Paul; Kipp, Michael; Külaviir, Marian; LePostollec, Aurelie; Pickersgill, Annemarie; Taubner, Ruth-Sophie; Woolman, Peter; Geppert, Wolf D.: **INVESTIGATING MICROBIAL COLONIZATION OF VOLCANIC TEPHRA DEPOSITED ON GLACIAL SURFACES USING ATP AS A UNIVERSAL BIOMARKER: IMPLICATIONS FOR MARS SAMPLE RETURN**
- 307-23** 337 Funderburg, Rebecca\*; Elwood Madden, Megan E.; Joo, Young Ji; Marra, Kristen R.; Soreghan, G.S.: **ASSESSING THE REACTIVE SURFACE AREA OF SEDIMENTS FROM END-MEMBER CLIMATES: IMPLICATIONS FOR EARTH & MARS**

SESSION NO. 308

**T172. Geology of Dwarf Planets: First Results from NASA's Dawn Mission to Ceres (Posters) (GSA Planetary Geology Division)**

9:00 AM, Baltimore Convention Center, Exhibit Hall

Authors will be present from 4:30 to 6:30 PM

Booth #

- 308-1** 338 Ruesch, Ottaviano\*; McFadden, Lucy A.; Hiesinger, Harald; Scully, Jennifer E. C.; Kneissl, Thomas; Hughson, Kynan H. G.; Williams, David A.; Roatsch, Thomas; Preusker, Frank: **PRELIMINARY GEOLOGICAL MAP OF THE AC-H-1 ASARI QUADRANGLE OF CERES: AN INTEGRATED MAPPING STUDY USING DAWN SPACECRAFT DATA**
- 308-2** 339 Hiesinger, Harald\*; Pasckert, Jan Hendrik; Williams, David A.; Buczkowski, Debra L.; Crown, David A.; Schenk, Paul M.; Scully, Jennifer E.C.; Jaumann, Ralf; Roatsch, Thomas; Raymond, Carol A.: **INITIAL GEOLOGIC MAPPING OF THE AC-H-2 CONIRAYA QUADRANGLE OF CERES USING DAWN SPACECRAFT DATA**
- 308-3** 340 Kneissl, Thomas\*; Schmedemann, Nico; Neesemann, Adrian; Williams, David A.; Crown, David A.; Mest, Scott C.; Buczkowski, Debra L.; Scully, Jennifer E. C.; Frigeri, Alessandro; Ruesch, Ottaviano: **INITIAL GEOLOGIC MAPPING OF THE AC-**

- H-3 DANTU QUADRANGLE OF CERES USING DAWN SPACECRAFT DATA**
- 308-4** 341 Scully, Jennifer E.C.\*; Raymond, Carol A.; Williams, David A.; Buczkowski, Debra L.; Mest, Scott C.; Hughson, Kynan H.G.; Russell, Christopher T.; Kneissl, Thomas; Ruesch, Ottaviano; Frigeri, Alessandro: **INITIAL GEOLOGIC MAPPING OF THE AC-H-4 EZINU QUADRANGLE OF CERES USING DAWN SPACECRAFT DATA**
- 308-5** 342 Hughson, Kynan H.G.\*; Russell, C.T.; Williams, David A.; Buczkowski, Debra L.; Mest, Scott C.; Scully, Jennifer E.C.; Hiesinger, Harald; Platz, Thomas; Ruesch, Ottaviano; Raymond, Carol A.: **INITIAL GEOLOGIC MAPPING OF THE AC-H-5 FEJOKOO QUADRANGLE OF CERES USING DAWN SPACECRAFT DATA**
- 308-6** 343 Krohn, Katrin\*; Williams, David A.; Jaumann, Ralf; Buczkowski, Debra L.; Mest, Scott C.; Scully, Jennifer E. C.; Nass, Andrea; Otto, Katharina A.; Schulzeck, Franziska; von der Gathen, Isabel: **INITIAL GEOLOGIC MAPPING OF THE AC-H-6 HAULANI QUADRANGLE OF DWARF PLANET CERES USING DAWN SPACECRAFT DATA**
- 308-7** 344 Williams, David A.\*; Crown, David A.; Mest, Scott C.; Buczkowski, Debra L.; Schenk, Paul M.; Scully, Jennifer E.C.; Jaumann, Ralf; Roatsch, Thomas; Preusker, Frank; Platz, Thomas: **INITIAL GEOLOGIC MAPPING OF THE AC-H-7 KERWAN QUADRANGLE OF CERES USING DAWN SPACECRAFT DATA**
- 308-8** 345 Frigeri, Alessandro\*; De Sanctis, Maria Cristina; Carrozzo, Giacomo; Williams, David A.; Mest, S.; Buczkowski, Debra; Preusker, Frank; Jaumann, Ralf; Roatsch, Thomas; Scully, Jennifer E.C.: **INITIAL GEOLOGIC MAPPING OF THE AC-H-8 NAWISH QUADRANGLE OF CERES USING DAWN SPACECRAFT DATA**
- 308-9** 346 Buczkowski, Debra L.\*; Yingst, R. Aileen; Williams, David A.; Mest, Scott C.; Schenk, Paul M.; Scully, Jennifer E.C.; Jaumann, Ralf; Roatsch, Thomas; Preusker, Frank; Platz, Thomas: **INITIAL GEOLOGIC MAPPING OF THE AC-H-9 OCCATOR QUADRANGLE OF CERES USING DAWN SPACECRAFT DATA**
- 308-10** 347 Platz, Thomas\*; Nathues, Andreas; Crown, David A.; Mest, Scott C.; Williams, David A.; Hoffmann, Martin; Schaefer, Michael; Sizemore, Hanna G.; Ruesch, Ottaviano; Preusker, Frank: **INITIAL GEOLOGICAL MAPS OF THE AC-H-10 RONGO AND AC-H-15 ZADENI QUADRANGLES OF CERES USING DAWN SPACECRAFT DATA**
- 308-11** 348 Schulzeck, Franziska\*; Jaumann, Ralf; Krohn, Katrin; Williams, David A.; Buczkowski, Debra L.; Mest, Scott C.; Scully, Jennifer E.C.; Preusker, Frank; Roatsch, Thomas: **INITIAL GEOLOGIC MAPPING OF THE AC-H-11 SINTANA QUADRANGLE OF CERES USING DAWN SPACECRAFT DATA**
- 308-12** 349 Mest, Scott C.\*; Williams, David A.; Crown, David A.; Yingst, R. Aileen; Schenk, Paul M.; Jaumann, Ralf; Roatsch, Thomas; Nathues, Andreas; Russell, Christopher T.; Raymond, Carol A.: **INITIAL GEOLOGICAL MAPPING OF THE AC-H-12 TOHARU QUADRANGLE OF CERES USING DAWN SPACECRAFT DATA**
- 308-13** 350 Sizemore, Hanna G.\*; Williams, David A.; Platz, Thomas; O'Brien, David P.; Mest, Scott C.; Crown, David A.; Yingst, R. Aileen; Buczkowski, Debra L.; Schenk, Paul M.; Scully, Jennifer E. C.: **INITIAL GEOLOGIC MAPPING OF THE AC-H-13 URVARA QUADRANGLE OF CERES USING DAWN SPACECRAFT DATA**
- 308-14** 351 Yingst, R. Aileen\*; Crown, David A.; Mest, Scott C.; Jaumann, Ralf; Roatsch, Thomas; Preusker, Frank; Nathues, Andreas; Schaefer, Michael; Russell, Christopher T.; Raymond, Carol A.: **INITIAL GEOLOGIC MAPPING OF THE AC-H-14 YALODE QUADRANGLE OF CERES USING DAWN SPACECRAFT DATA**
- 308-15** 352 Roatsch, Thomas\*; Kersten, Elke; Matz, Klaus-Dieter; Preusker, Frank; Scholten, Frank; Jaumann, Ralf; Raymond, Carol A.; Russell, Christopher T.: **HIGH-RESOLUTION CERES SURVEY ATLAS DERIVED FROM DAWN FC IMAGES**
- 308-16** 353 McFadden, Lucy A.\*; Skillman, David R.; Carsenty, Uri; Schroeder, Stefanus; Hellmich, Stephan; Li, Jian-Yang; Memarsadeghi, Nargess: **SEARCH FOR SATELLITES AT CERES: UPPER LIMITS OF DETECTION FROM DAWN'S FRAMING CAMERA**

## SESSION NO. 309

*Precambrian Geology (Posters)*

9:00 AM, Baltimore Convention Center, Exhibit Hall

Authors will be present from 4:30 to 6:30 PM

Booth #

- 309-1** 354 Wabo, Herve\*; Olsson, Johan; de Kock, Michiel O.; Humbert, Fabien; Soderlund, Ulf: **NEW U-PB BADDELEYITE AGE AND PALEOMAGNETIC CONSTRAINTS FOR THE UITKOMST COMPLEX IN SOUTH AFRICA: CLUES TO THE TIMING OF INTRUSION**
- 309-2** 355 Michael, Daniel C.\*; Cuffey, Roger J.: **EARLY PROTEROZOIC (APHEBIAN) PLAN-VIEW ALGAL MATS IN THE LOWER ALBANEL BLACK SHALE ON LAKE MISTASSINI, CENTRAL QUEBEC**
- 309-3** 356 WU, Yinye\*; Yue, Ting: **THE DEPOSITIONAL FEATURE OF MIXED SYSTEM IN MARINE ROCKS OF CHANGCHENG SYSTEM OF PRE-CAMBRIAN IN NORTHERN CHINA**
- 309-4** 357 Aaltonen, Ismo S.\*; Engström, Jon O.; Front, Kai A.; Gehör, Seppo A.; Kärki, Aulis J.; Kosunen, Paula J.; Mattila, Jussi A.; Paananen, Markku; Paulamäki, Seppo: **GEOLOGY OF OLKILUOTO - THE DISPOSAL SITE FOR SPENT NUCLEAR FUEL IN FINLAND**
- 309-5** 358 Sawada, Hikaru\*; Isozaki, Yukio; Tsutsumi, Yukiyasu; Iizuka, Tsuyoshi: **ISOTOPIC ANALYSIS OF DETRITAL ZIRCON FROM QUARTZITE IN THE PALEOPROTEROZOIC MURMAC BAY GROUP ON THE RAE CRATON**
- 309-6** 359 Holm, Daniel K.\*; Scheiner, Scott W.; Boerboom, Terrence J.: **LATE PALEOPROTEROZOIC ANIMIKE BASIN DEPOSITS, UPPER GREAT LAKES REGION, REINTERPRETED AS BOTH PENOKEAN AND YAVAPAI OROGENIC SEDIMENTATION**
- 309-7** 360 Hallett, Benjamin W.\*; Daniel, Christopher G.; McFarlane, Christopher R.M.; Stotter, Sara V.: **U-PB MONAZITE AGES SUGGEST A COMPLEX MESOPROTEROZOIC METAMORPHIC HISTORY DURING THE PICURIS OROGENY RECORDED BY METAPELITES OF THE RINCON RANGE, NORTH-CENTRAL NEW MEXICO**
- 309-8** 361 Gray, M.B.\*; Toft, M.E.; McFarlane, Christopher R.M.; Daniel, Christopher G.: **STRUCTURAL CONTEXT AND AGE CONSTRAINTS FOR THE SYNOROGENIC MARQUENAS FM. METACONGLOMERATE, PICURIS MTNS, NEW MEXICO**
- 309-9** 362 Stotter, Sara V.\*; Daniel, Christopher G.; McFarlane, Christopher R.M.: **TESTING MODELS OF POLYMETAMORPHISM ACROSS NORTHERN NEW MEXICO: U-PB MONAZITE AGES SUGGEST TWO POSSIBLE MESOPROTEROZOIC METAMORPHIC EVENTS AT 1420 MA AND 1380 MA**
- 309-10** 363 Gifford, Jennifer\*; Malone, Shawn J.; Davis, William J.: **NEW INSIGHTS INTO THE CHARACTER OF THE MEDICINE HAT BLOCK (SOUTHERN ALBERTA, NORTHERN MONTANA) FROM WHOLE ROCK GEOCHEMISTRY, ZIRCON LA-ICPMS U/PB AND HF ISOTOPIC ANALYSIS**
- 309-11** 364 Omori, Soichi\*: **WEATHERING IN HADEAN AND ITS ROLE IN MATERIAL CYCLE**
- 309-12** 365 Brengman, Latisa Ashley\*; Fedo, Christopher M.; Whitehouse, Martin J.: **MICRO-SCALE SILICON ISOTOPE HETEROGENEITY OBSERVED IN HYDROTHERMAL QUARTZ PRECIPITATES FROM THE >3.7 GA ISUA GREENSTONE BELT, SW GREENLAND**

## SESSION NO. 310

**Quaternary Geology: Pleistocene to Holocene Deposits, Landforms and Processes (Posters)**

9:00 AM, Baltimore Convention Center, Exhibit Hall

Authors will be present from 4:30 to 6:30 PM

Booth #

- 310-1 366 Whitney, John W.\*; Memesh, Abdulla M.; Gamdi, Ali .S.; Dini, Saleh M.; Zahrani, Ali N.; Nasser, Abdulaziz H.; Kalaly, Siddiq S.: **NEOGENE DIBDIBBA GRAVELS AND AN EARLY PLEISTOCENE AGE FOR THE ORIGIN OF WADI AL BATIN IN NORTHERN SAUDI ARABIA**
- 310-2 367 Ivester, Andrew H.\*; Ferguson, Terry A.: **FLUVIAL STRATIGRAPHY AND SEDIMENTATION DURING THE HOLOCENE AND LATE PLEISTOCENE AT THE FOXWOOD FARM ARCHAEOLOGICAL SITE (38PN35) ALONG THE OOLENOY RIVER, SOUTH CAROLINA**
- 310-3 368 Taormina, R.\*; Stafford, C. Russell: **IMPROVED INTERPRETATION OF HOLOCENE LANDSCAPE AND CLIMATE CHANGE IN THE BROUILLETTS CREEK VALLEY WITH CARBON DATING**
- 310-4 369 Muus, Jennifer K.\*; Meyer, Grant A.; McFadden, Leslie D.; Huckell, Bruce; Merriman, Christopher; Rowe, Timothy: **GEOMORPHIC PROCESSES PROMOTING MAMMOTH BURIAL AND SKELETAL PRESERVATION IN NORTH CENTRAL NEW MEXICO**
- 310-5 370 Stone, Noah N.\*; Munroe, Jeffrey S.: **SEDIMENTOLOGY AND AGE OF THE SNOW WATER LAKE DUNE FIELD, NORTHEASTERN NEVADA**
- 310-6 371 Ebel, Riley E.\*; Munroe, Jeffrey S.: **ORIGIN AND SIGNIFICANCE OF COLLOIDAL SEDIMENT IN SOILS AND LAKES OF THE UINTA RANGE, UTAH**
- 310-7 372 Gamache, Kevin\*; Giardino, John R.; Allen, Hunter; Rowley, T.: **GLACIAL AND PERIGLACIAL GEOLOGY OF YANKEE BOY BASIN, CO: A MAPPING PILOT PROJECT USING AN UNMANNED AERIAL VEHICLE**
- 310-8 373 Brugger, Keith A.\*: **A PRELIMINARY STUDY OF THE LAST GLACIAL MAXIMUM IN THE MOSQUITO RANGE, COLORADO**
- 310-9 374 Colandrea, Harrison\*: **SPATIAL AND TEMPORAL PATTERNS OF LATE PLEISTOCENE GLACIATION IN THE LEMHI RANGE, EAST-CENTRAL IDAHO**
- 310-10 375 Grube, Rachael E.\*; Principato, Sarah M.: **A QUANTITATIVE ANALYSIS OF CIRQUES ON TROLLASKAGI, NORTHERN ICELAND**
- 310-11 376 Ipsen, Heather A.\*; Principato, Sarah M.: **A MORPHOMETRIC ANALYSIS OF CIRQUES ON EAST ICELAND USING GIS**
- 310-12 377 Starr, Kaitlin\*; Happ, Madeline; Wiles, Gregory; Weisenberg, Nick: **RECONSTRUCTING ICE DYNAMICS FROM FORESTS PRESERVED IN THE WAKE OF THE CATASTROPHIC RETREATING COLUMBIA GLACIER, ALASKA**
- 310-13 378 Hopkins, Nathan R.\*; Evenson, Edward B.; Stachnik, Josh; Berti, Claudio; Lawson, Daniel E.; Larson, Grahame; Kodama, Kenneth P.: **MAGNETIC FABRIC OF STRATIFIED BASAL ICE: MATANUSKA GLACIER, ALASKA**
- 310-14 379 Larson, Phillip\*; Mooers, Howard D.; Berthold, Angela J.: **SEDIMENT TRANSPORT CYCLES OF THE LAURENTIDE ICE SHEET**
- 310-15 380 Rickels, Ellyn\*; Malone, David H.; Stumpf, Andrew J.; Thomason, Jason: **ARCHEAN PROVENANCE OF GRANITE COBBLES IN WOODFORDIAN TILLS IN CENTRAL ILLINOIS**
- 310-16 381 Brohn, Amber L.\*: **FORMATION OF THE BIG STONE MORaine, MINNESOTA: CHANNEL GEOMETRY ANALYSIS AND PALEO-TERRACES OF THE ICE MARGINAL, GLACIAL MUSTINKA RIVER**
- 310-17 382 Tobacco, Joni\*; Wooldridge, Sayge C.; Cotter, James F.P.: **MAPPING LOESS DEPOSITS AND SOIL TYPES ON THE BIG STONE MORaine IN MINNESOTA TO DETERMINE A POSSIBLE CORRELATION**

- 310-18 383 Byers, Logan C.\*; Stearns, Leigh A.; van der Veen, C.J.: **POLYGONAL SURFACE PATTERNS IN THE EAST ANTARCTIC PLATEAU: MORPHOLOGY, GENESIS, STRATIGRAPHIC IMPLICATIONS, AND RELATION TO LARGER-SCALE SURFACE STRUCTURES**
- 310-19 384 Schmidt, Logan\*; Levy, Joseph: **HYDRAULIC AND THERMAL PROPERTIES OF MCMURDO DRY VALLEYS SOILS: WHAT ANTARCTIC LANDSCAPES ARE AT RISK?**
- 310-20 385 Klages, Johann P.\*: **EVIDENCE FOR THE MAXIMUM EXTENT OF THE WEST ANTARCTIC ICE SHEET IN THE EASTERNMOST AMUNDSEN SEA EMBAYMENT (WEST ANTARCTICA) DURING THE LAST GLACIAL MAXIMUM**
- 310-21 386 Prothro, Lindsay O.\*; Simkins, Lauren; Anderson, John B.; Halberstadt, Anna Ruth; Yokoyama, Yusuke; Majewski, Wojciech; Minzoni, Rebecca: **REFINING OUR UNDERSTANDING OF SEDIMENT RETREAT FACIES AND GEOMORPHOLOGY FOR AN ACCURATE DEGLACIAL HISTORY OF THE ROSS SEA**

## SESSION NO. 311

**T188. Inside or Out? Investigations into Driving Forces in Fluvial Systems (Posters) (GSA Quaternary Geology and Geomorphology Division)**

9:00 AM, Baltimore Convention Center, Exhibit Hall

Authors will be present from 4:30 to 6:30 PM

Booth #

- 311-1 387 Meghani, Nooreen A.\*; Kirby, Eric: **SHORTENING RATES ALONG THE NEPALESE HIMALAYA INFERRED FROM GEOMORPHIC ANALYSIS**
- 311-2 388 Val, Pedro F.A.\*; Hoke, Gregory D.: **SURFACE UPLIFT OF THE FRONTAL CORDILLERA AT 30.5°-31°S CONSTRAINED THROUGH RIVER PROFILE ANALYSIS OF THE CASTAÑO AND CALINGASTA CATCHMENTS, SOUTH-CENTRAL ARGENTINA**
- 311-3 389 Moodie, Andrew J.\*; Ma, Hongbo; Nittrouer, Jeffrey A.; Carlson, Brandee N.; Kineke, Gail C.: **SPATIOTEMPORAL CHANNEL-BED EVOLUTION PATTERNS OBSERVED FOR THE HUANGHE (YELLOW RIVER), CHINA: IMPLICATIONS FOR EVALUATING SYSTEM RESPONSE AND COMPLEXITY TO EXTERNAL PERTURBATIONS**
- 311-4 390 Schanz, Sarah A.\*; Montgomery, David R.; Collins, Brian D.; Duvall, Alison: **RIVER INCISION AND STRATH TERRACE FORMATION AS A RESULT OF SHIFTS IN SEDIMENT RETENTION**
- 311-5 391 Zaki, Abdallah S.\*: **MORPHOLOGY OF INVERTED WADIS IN EASTERN SAUDI ARABIA**
- 311-6 392 Bailey, Tim L.\*: **MORPHOLOGIC EFFECTS OF ANTHROPOCENE SEDIMENT PULSES ON THE SOUTH FORK EEL RIVER OF NORTHWESTERN CALIFORNIA**
- 311-7 393 Koné, Salif\*; Mahé, Gil; Bamba, Fatogoma; Soumaré, Oumar; Diallo, Mahamadou; Diarra, Adama Tiémoko; Traoré, Amadou Zanga: **USING GEOSTATISTICS FOR HYDROLOGIC MODELS PARAMETERS ESTIMATION, ON NIGER RIVER WATERSHEDS IN WEST AFRICA**
- 311-8 394 Stachowiak, Robert\*; Blumentritt, Dylan: **RIVER TERRACES INDICATE PALEO GLACIAL LAKE LEVEL CHANGES, COLTON, NY**

## SESSION NO. 312

**T189. New Applications of Geochronologic Techniques to Quaternary and Archaeological Settings (Posters) (GSA Quaternary Geology and Geomorphology Division; GSA Archaeological Geology Division; GSA Karst Division)**

9:00 AM, Baltimore Convention Center, Exhibit Hall

Authors will be present from 4:30 to 6:30 PM

Booth #

- 312-1 395 Persaud, Yasmeen A.\*; Blackwell, Bonnie A.B.; Chaity, Ifath I.C.; Mihailović, Dusan; Roksandic, Mirjana; Dimitrijević, Vesna; Florentin, Jonathan A.; Yang, George Q.; Blickstein, Joel I.B.;



- Skinner, Anne R.: **RECONNING REWORKED TEETH FOUND IN THE MOUSTERIAN LAYERS AT PEŠTURINA, SERBIA**
- 312-2 396 Huot, Sebastien\*; Frouin, Marine; Lamothe, Michel: **EVIDENCE OF SHALLOW TL PEAKS CONTRIBUTING TO THE INFRARED PHOSPHORESCENCE: IMPLICATION FOR DATING**
- 312-3 397 Nelson, Michelle Summa\*; Rittenour, Tammy: **BEST PRACTICES FOR COLLECTION OF LUMINESCENCE SAMPLES AND ESTIMATING WATER CONTENT FOR DOSE-RATE DETERMINATION: WHY SAMPLE SELECTION, COLLECTION TECHNIQUE AND WATER CONTENT MATTERS**
- 312-4 398 Ramsey, Ashley B.\*; Forman, Steven L.; Wang, Hong: **ASSESSING THE RADIOCARBON LANDSCAPE RESERVOIR EFFECT OF GASTROPODS FROM CENTRAL TEXAS TO INCREASE THE ACCURACY AND THE PRECISION OF RADIOCARBON DATING OF PAST RIVER SYSTEMS**
- 312-5 399 Spencer, Joel Q.G.\*; Softa, Mustafa; Emre, Tahir; Sözbilir, Hasan; Turan, Mehmet: **OPTICALLY STIMULATED LUMINESCENCE AND QUATERNARY STRATIGRAPHY OF MARINE TERRACES BETWEEN TRABZON AND RIZE, EASTERN BLACK SEA BASIN, TURKEY: PRELIMINARY RESULTS**
- 312-6 400 Rittenour, Tammy\*; Karlov, Rachel E.; Broadman, Ellie; Lapo, Kristiana; Houts, Amanda N.; Landis, Heidi; Anderson, Kirk C.; Licciardi, Joseph; Riggs, Nancy; Ort, Michael H.: **HOW OLD ARE THE SP AND STRAWBERRY VOLCANIC VENTS AND FLOWS IN THE SAN FRANCISCO VOLCANIC FIELD, ARIZONA? NEW EVIDENCE FROM SOILS, OSL DATED LOESS AND HE-3 EXPOSURE DATING**
- 312-7 401 Wooldridge, Sayge C.\*; Tobacco, Joni; Rittenour, Tammy M.; Cotter, James F.P.: **DISTRIBUTION, THICKNESS, AND AGE OF LOESS DEPOSITS IN WEST CENTRAL MINNESOTA: IMPLICATIONS FOR THE AGE AND ORIGIN OF THE BIG STONE MORAINES**
- 312-8 402 Bolles, Kasey\*; Forman, Steven L.: **RECONSTRUCTING LAND-SURFACE PROCESSES AT THE HEART OF THE "DUST BOWL" DROUGHT, HAMILTON AND KEARNEY COUNTIES, SOUTHWEST KANSAS, USA**
- 312-9 403 Ternes, Sean\*; Lepper, Kenneth: **OPTICAL DATING EQUIVALENT DOSE DISTRIBUTIONS ACROSS GRAIN SIZE FRACTIONS: A DETAILED ANALYSIS OF AN ANTARCTIC FAN SAMPLE**
- 312-10 404 Saha, Sourav\*; Owen, Lewis A.; Dietsch, Craig: **CHRONOSTRATIGRAPHY OF HIMALAYAN GLACIAL FLUCTUATIONS AT THE MILLENNIAL TIMESCALE DURING THE HOLOCENE**
- 312-11 405 Erickson, Ben\*: **USING VARNISH MICROLAMINATIONS TO PROVIDE MINIMUM AGES ON ALLUVIUM ASSOCIATED WITH GROUND WATER DISCHARGE DEPOSITS ON AN ALLUVIAL FAN AT FENNER GAP, CADIZ, CA**
- 312-12 406 Bruhler, Jacob C.\*; Hanson, Paul: **DETERMINING THICKNESSES OF LATE PLEISTOCENE AND HOLOCENE FILLS IN THE PLATTE RIVER VALLEY USING OPTICALLY STIMULATED LUMINESCENCE DATING**

## SESSION NO. 313

*T190. Paleoeological Patterns, Ecological Processes, Modeled Scenarios: Crossing Temporal Scales to Understand an Uncertain Future (Posters) (GSA Quaternary Geology and Geomorphology Division; AASP - The Palynological Society; Canadian Association of Palynology; GSA Limnogeology Division; Paleocyanography/Paleoclimatology Discipline; SEPM (Society for Sedimentary Geology); Paleontological Society)*

9:00 AM, Baltimore Convention Center, Exhibit Hall

Authors will be present from 4:30 to 6:30 PM

Booth #

- 313-1 407 Wingard, G. Lynn\*; Marshall, Frank E.; Pitts, Patrick A.: **LINKING PALEOECOLOGY AND LINEAR REGRESSION MODELS TO ESTIMATE NATURAL HYDROLOGIC CONDITIONS FOR RESOURCE MANAGEMENT**

- 313-2 408 Tanner, Benjamin R.\*; Keever, Michael: **ORGANIC-RICH SEDIMENTS FROM A SOUTHERN APPALACHIAN WETLAND PROVIDE A RECORD OF LATE PLEISTOCENE THROUGH HOLOCENE ENVIRONMENTAL CONDITIONS**
- 313-3 409 Beierlein, Lars\*; Nehrke, Gernot; Schöne, Bernd R.; Bickert, Torsten; Mackensen, Andreas; Brey, Thomas: **FROM ARAGONITE TO CALCITE: IMPACTS OF RECRYSTALLIZATION ON STABLE ISOTOPE ( $\delta^{18}\text{O}$  &  $\delta^{13}\text{C}$ ) COMPOSITION OF THE BIVALVE BIO-ARCHIVE *ARCTICA ISLANDICA***
- 313-4 410 McCarthy, Francine M.G.\*; Drljepan, Matea; Hubeny, J. Bradford; Riddick, Nicholas J.: **REFINING THE LAKE LEVEL HISTORY OF SLUICE POND, MA USING DINOFLAGELLATE CYST TAPHONOMY**
- 313-5 411 Haselwander, Robert\*; Oboh-Ikuenobe, Francisca E.; Grimm, Eric: **PRELIMINARY HOLOCENE PALEOCLIMATIC DATA FROM PALYNOLOGY OF CYPRESS POND, SOUTH CENTRAL MISSOURI**

## SESSION NO. 314

*T196. Revisiting the Atlantic Continental Margin: New Insights on the Geologic Evolution of North American Passive Margin Basins (Posters) (SEPM (Society for Sedimentary Geology); Marine/Coastal Science Discipline)*

9:00 AM, Baltimore Convention Center, Exhibit Hall

Authors will be present from 4:30 to 6:30 PM

Booth #

- 314-1 412 Fichter, Lynn S.\*; Diecchio, Richard J.: **A RIFT-TO-DRIFT SUBSIDENCE-ACCOMMODATION-TIME-SERIES (SATS) MODEL**
- 314-2 413 Swezey, Christopher S.\*; Fitzwater, Bradley A.; Bernhardt, Christopher; Whittecar, G. Richard: **CRETACEOUS STRATIGRAPHY IN THE UPDIP PORTION OF THE U.S. ATLANTIC COASTAL PLAIN, CHESTERFIELD COUNTY, SOUTH CAROLINA**
- 314-3 414 Chaytor, Jason D.\*; Hutchinson, Deborah; ten Brink, Uri S.; Brothers, D.S.; Miller, Nathaniel; Andrews, Brian: **QUATERNARY SEDIMENTARY PROCESSES ALONG THE U.S. ATLANTIC CONTINENTAL MARGIN FROM THE SHELF TO THE ABYSSAL PLAIN**
- 314-4 415 Lombardi, Christopher J.\*; Miller, Kenneth G.; Mountain, Gregory S.; Monteverde, Donald H.; McLaughlin, Jr., Peter P.: **MID-CRETACEOUS SEQUENCES OF THE NEW JERSEY OFFSHORE: IMPLICATIONS FOR CARBON SEQUESTRATION**
- 314-5 416 Trampush, Sheila\*; Hajek, Elizabeth: **DEPOSITIONAL ENVIRONMENTS AND SEDIMENTARY PROCESSES OF THE MID-ATLANTIC SHELF DURING THE PALEOCENE-EOCENE THERMAL MAXIMUM**
- 314-6 417 Boote, Susannah\*; Knapp, James H.: **OFFSHORE SOUTHEASTERN UNITED STATES RE-EVALUATED: NEW INSIGHTS FROM WELL PENETRATIONS AND 2D SEISMIC REFLECTION DATA**
- 314-7 418 Knapp, James H.\*; Boote, Susannah; Holliday, Justin: **THE EXXON 564-1 WELL: CONTINENTAL CRYSTALLINE BASEMENT ON THE FLORIDA SHELF**

## SESSION NO. 315

*T197. Sedimentary Basins (Posters)*

9:00 AM, Baltimore Convention Center, Exhibit Hall

Authors will be present from 4:30 to 6:30 PM

Booth #

- 315-1 419 Umbarger, Keelan F.\*; Snedden, John: **ORIGIN AND DISTRIBUTION OF THE POST KPG CARBONATEDEBRIS FLOW AND CONSEQUENT SLOPE READJUSTMENT IN DESOTO CANYON, GULF OF MEXICO**
- 315-2 420 Opsitnick, Alexandra M.\*; Currie, Brian S.: **RESERVOIR QUALITY OF THE MARCELLUS SHALE PLAY: DETERMINING MINERALOGICAL AND LITHOLOGICAL PROPERTIES**

WEDNESDAY

POSTERS

SESSION NO. 315

- 315-3 421 Johnson, Matthew\*; Potter-McIntyre, Sally L.; Ejembi, John Idoko: **A POROSITY AND PERMEABILITY COMPARISON OF THE MANCOS SHALE AND WANAKAH FORMATION OF WESTERN COLORADO**
- 315-4 422 Zelt, Frederick B.\*: **TROPIC SHALE AND TUNUNK MEMBER OF MANCOS SHALE, SOUTHERN UTAH, USA: A NATURAL LABORATORY FOR SHALE SEDIMENTOLOGY AND STRATIGRAPHY**
- 315-5 423 Lesko, Anna K.\*; Chamberlin, Ellen; Hajek, Elizabeth; Schwartz, Theresa M.: **PROVENANCE AND FACIES CHANGES ACROSS THE UPPER CRETACEOUS BLACKHAWK-CASTLEGATE SEQUENCE BOUNDARY (SOUTHERN WASATCH PLATEAU, SALINA CANYON, UTAH, USA)**
- 315-6 424 Quinn, Garrett M.\*; van Drecht, Reid; Hubbard, Stephen M.; Matthews, William A.: **DRAINAGE EVOLUTION IN AN INCIPIENT FORELAND BASIN FROM U/PB DETRITAL ZIRCON GEOCHRONOLOGY, JURASSIC-CRETACEOUS WESTERN INTERIOR BASIN**
- 315-7 425 Leung, Matthew H.C.\*; Bhattacharya, Janok P.; Li, Zhiyang; Schieber, Juergen: **THIN-BEDDED FACIES ANALYSIS OF FINE-GRAINED PARASEQUENCES: CENOMANIAN-TURONIAN TUNUNK SHALE MEMBER, HENRY MOUNTAIN REGION, UTAH**
- 315-8 426 Mastache Roman, Edgar Agustin\*; Gonzalez Escobar, Mario; Salazar Cardenas, Rosa Margarita; Pacheco Romero, Martin Francisco; Gallardo Mata, Clemente German; Arregui Ojeda, Sergio Manuel: **STRUCTURAL AND SEISMOSTRATIGRAPHIC EVIDENCE IN THE NORTH OF THE MAGDALENA SHELF, WESTERN MARGIN OF BAJA CALIFORNIA BASED ON SEISMIC REFLECTION**
- 315-9 427 Cook, Robert D.\*: **THE TACONIC FORELAND BASIN OF EASTERN PENNSYLVANIA: GEOCHEMICAL CONSTRAINTS ON PROVENANCE FROM MARTINSBURG FORMATION SLATES**
- 315-10 428 Laker, Rachel M.\*; Currie, Brian S.: **ICHTHOLOGY OF THE UPPER JURASSIC CURTIS AND STUMP FORMATIONS, CENTRAL AND NORTHEASTERN UTAH: RELATIONSHIPS BETWEEN PALEOENVIRONMENTAL SETTING AND SEQUENCE STRATIGRAPHIC POSITION**
- 315-11 429 Leslie, Caitlin E.\*; Atchley, Stacy; Peppe, Daniel J.; Nordt, Lee C.; Williamson, Thomas E.; Secord, Ross: **SEDIMENTOLOGIC AND STRATIGRAPHIC INDICATORS OF REGIONAL PALEOGEOGRAPHY WITHIN THE LOWER PALEOCENE NACIMIENTO FORMATION, SAN JUAN BASIN, NEW MEXICO, USA**

SESSION NO. 316

***T198. Shale Gas Basins: Their Stratigraphy, Sedimentary Environments, Tectonics, and Structural Evolution (Posters) (GSA Sedimentary Geology Division; GSA Structural Geology and Tectonics Division; GSA Energy Geology Division)***

9:00 AM, Baltimore Convention Center, Exhibit Hall

Authors will be present from 4:30 to 6:30 PM

Booth #

- 316-1 430 Wang, Fengqin\*; Jiao, Zunsheng: **NEW INSIGHTS INTO FAR EASTERN SHALE PLAYS; THE SHALE GAS ACCUMULATION OF THE TRIASSIC YANCHANG FORMATION IN THE ORDOS BASIN, CHINA**
- 316-2 431 Kharajiany, Soran\*; Lanjawai, Harem: **HEATED HYDROCARBONS AND RELATED TECTONICS OF THE UPPER CRETACEOUS-LOWER TERTIARY SEQUENCE, SHARBAZHER AREA, KURDISTAN REGION OF IRAQ**
- 316-3 432 Bates, Landis\*; Law, Eric; Rataiczak, Ray: **TESTS OF LABORATORY RETORTING ON DEVONIAN BLACK SHALES**
- 316-4 433 Obasi, Christian C.\*; Keating, Kristina; Pashin, Jack C.: **EFFECT OF MAGNETIC MINERALS ON NMR RELAXATION IN SHALE**

- 316-5 434 Agrawal, Vikas\*; Sharma, Shikha; Warriar, Ajaya; Soeder, Daniel J.; Akondi, Rawlings: **USE OF BIOMARKER AND PYROLYSIS PROXIES TO ASSESS ORGANIC MATTER SOURCES, THERMAL MATURITY, AND PALEOREDOX CONDITIONS DURING DEPOSITION OF MARCELLUS SHALE**
- 316-6 435 Mason, John\*; Jordan, Teresa: **HIGH-RESOLUTION FACIES VARIABILITY IN THE UNION SPRINGS FORMATION OF THE NORTHERN APPALACHIAN BASIN**
- 316-7 436 Shorten, Chilisa M.\*; Fitzgerald, Paul G.: **POST-OROGENIC THERMAL HISTORY AND EXHUMATION OF THE NORTHERN APPALACHIAN BASIN CONSTRAINED THROUGH LOW-TEMPERATURE THERMOCHRONOLOGY**
- 316-8 437 Hayman, Nicholas W.\*; Milliken, Kitty; Kelly, Eric D.; Daigle, Hugh: **MUDROCK MICROSTRUCTURE: INSIGHTS INTO SEDIMENTARY HISTORY AND MECHANISMS**
- 316-9 438 Kreuzer, Rebecca\*; Darrah, Thomas H.; Vengosh, Avner; Mitra, Gautam; Poreda, Robert: **A STRUCTURAL FRAMEWORK FOR INTERPRETING THE SPATIAL DISTRIBUTION AND GEOCHEMICAL VARIATION OF NATURAL GAS-AND SALT-RICH GROUNDWATER IN SHALLOW AQUIFERS OF SOUTH-CENTRAL NY**

SESSION NO. 317

***Stratigraphy (Posters)***

9:00 AM, Baltimore Convention Center, Exhibit Hall

Authors will be present from 4:30 to 6:30 PM

Booth #

- 317-1 439 Bartholomew, Alex\*: **UPPERMOST SILURIAN STRATIGRAPHY IN THE TYPE HELDERBERG REGION: NEW INSIGHTS FROM SURFACE OUTCROP AND SUBSURFACE CAVE EXPOSURES**
- 317-2 440 Sandritter, Morgan J.\*; McLaurin, Brett T.; James, Robert N.; Rodemer, Franklin E.; White, Joshua J.: **DEVONIAN TO MISSISSIPPIAN LITHOFACIES AND DEPOSITIONAL ENVIRONMENTS FROM DRILL CORE LYCO081\_0341, LYCOMING COUNTY, PENNSYLVANIA**
- 317-3 441 Rodemer, Franklin E.\*; Sandritter, Morgan J.; McLaurin, Brett T.; James, Robert N.; White, Joshua J.: **XRF ANALYSIS OF DEVONIAN TO MISSISSIPPIAN LITHOFACIES FROM DRILL CORE LYCO081\_0341, LYCOMING COUNTY, PENNSYLVANIA**
- 317-4 442 Ruhlman, James\*; Bertog, Janet L.: **HIGH RESOLUTION ANALYSIS OF DEPOSITIONAL VARIATION WITHIN THE UPPER KOPE FORMATION (CINCINNATIAN, ORDOVICIAN) OF NORTHERN KENTUCKY USING FOSSILS AND RARE EARTH ELEMENT COMPOSITION**
- 317-5 443 Turner, Bryan W.\*; Slatt, Roger M.; Treanton, Jessica A.: **THE USE OF CHEMOSTRATIGRAPHY TO REFINE AMBIGUOUS SEQUENCE STRATIGRAPHIC CORRELATIONS IN MARINE MUDROCKS. AN EXAMPLE FROM THE DEVONIAN WOODFORD SHALE, OKLAHOMA**
- 317-6 444 Kehoe, Kenneth W.\*; Davis, Colter R.; Newell, Dennis L.; Liddell, W. David: **HIGH-RESOLUTION CARBON AND OXYGEN STABLE ISOTOPE SAMPLING OF THE LOWER ORDOVICIAN POGONIP GROUP: IMPLICATIONS FOR CHEMOSTRATIGRAPHIC CORRELATION**
- 317-7 445 Turner, Elijah\*; Smith, Jon Jay; Ludvigson, Greg A.; Layzell, Anthony L.; Möller, Andreas: **MAXIMUM DEPOSITIONAL AGE CONSTRAINTS FROM U-PB DATING OF ZIRCONS IN CENOZOIC DEPOSITS OF THE HIGH PLAINS AQUIFER, SOUTHWESTERN KANSAS**
- 317-8 446 Bellido, Susana E.\*; Maurrasse, Florentin J.-M.R.: **CARBON ISOTOPE ( $\delta^{13}\text{C}_{\text{CARB}}$ ) CHARACTERIZATION OF LES CANEUVES SECTION, SE FRANCE, AND CORRELATION WITH OAE 1A IN THE ALPINE TETHYS**
- 317-9 447 Keller, Allison L.\*; Sadler, P.M.: **PRELIMINARY HIGH-RESOLUTION BIOLOGICAL AND GEOCHEMICAL TIMELINES THROUGH THE CENOMANIAN-TURONIAN (LATE CRETACEOUS) OCEANIC ANOXIC EVENT (OAE2)**

- 317-10 448 Ono, Kenya\*; Plink-Bjorklund, Piret: **NEOGENE CONTINENTAL-MARGIN SLOPE PROGRADATION DOMINATED BY MASS TRANSPORT COMPLEXES, OFFSHORE SURINAME**
- 317-11 449 Brazell, Seth J.\*; Bartek, III, Louis R.: **SEISMIC ATTRIBUTE ANALYSES REVEAL A RECORD OF HIGHER RESOLUTION ANTARCTIC CRYOSPHERE DYNAMICS**
- 317-12 450 West, Kathryn A\*; Morgan, Scott A.; Norcross, Scott; Davis, Kathryn E; Chen, Philip; Lutz, Ed: **HIGH RESOLUTION CORES AND REFINEMENT TO UNCONSOLIDATED SEDIMENT STRATIGRAPHY FROM NEW JERSEY'S EASTERN SHORE OF THE DELAWARE RIVER**
- 317-13 451 Torres Rosa, Christie Eileen\*; Santos Mercado, Hernán: **SEQUENCE STRATIGRAPHY AND FACIES ANALYSIS OF THE MONTEBELLO MEMBER OF THE CIBAO FORMATION, SAN SEBASTIAN, PUERTO RICO**
- 317-14 452 Zhai, Rui\*; Pigott, John D.; Pigott, Kulwadee: **3D SEISMIC CHARACTERIZATION OF DOWNSTEPPING PLEISTOCENE RST (REGRESSIVE SYSTEM TRACT) FLUVIAL DEPOSITION ON A LOW GRADIENT COASTAL FLUVIAL PLAIN, SUNDA SHELF, SE ASIA**
- 317-15 453 Wagner, III, J. Sage\*; Rigsby, Catherine A.; Silva, Cleverson G.; Baker, Paul A.; Arantes, Rodrigo A.; Salenbien, Wout: **SEISMOSTRATIGRAPHIC ARCHITECTURE OF CENTRAL AMAZONIA: MESO-CENOZOIC LANDSCAPE EVOLUTION**
- 317-16 454 Bloom, Jennifer M.\*; Wynn, Thomas C.: **USING ACCOMMODATION PLOTS FOR OUTCROP-TO-SUBSURFACE CORRELATION**
- 317-17 455 Diecchio, Richard J.\*; Fichter, Lynn S.: **A THEORETICAL FORELAND BASIN SUBSIDENCE-ACCOMMODATION-TIME-SERIES (SATS) MODEL WITH APPLICATION TO THE TACONIC SEQUENCE OF NORTHERN VIRGINIA**
- 317-18 456 Buelow, Ellen\*; Suriano, Julieta; Mahoney, J. Brian; Kimbrough, David L.; Giambiagi, Laura B.; Mescua, José F.: **EVOLUTION OF THE NEOGENE CACHEUTA BASIN: A RECORD OF OROGENIC EXHUMATION AND BASIN INVERSION IN THE SOUTH CENTRAL ANDES**
- 317-19 457 Munn, Sarah F.\*; Weissmann, Gary S.; Moore, Jason R.: **COMPARING THE SEDIMENTOLOGY OF THE WHITE RIVER GROUP IN LUSK, WYOMING TO SECTIONS IN TOADSTOOL GEOLOGIC PARK, NEBRASKA AND BADLANDS NATIONAL PARK, SOUTH DAKOTA**
- 317-20 458 Danielsen, Erika M.\*; Over, D. Jeffrey; Baird, Gordon C.; Ver Straeten, Charles A.: **THE MARCELLUS SUBGROUP COMPOSITE TYPE SECTION, IN THE TYPE AREA, CENTRAL NEW YORK STATE**
- 317-21 459 Parra, Luis N.\*; Restrepo-Moreno, Sergio A.; Foster, David A.; Kamenov, George D.; Barbosa-Espitia, Ángel Antonio: **REVISITING STRATIGRAPHY, GEOCHRONOLOGY AND PALEOGEOGRAPHY AT LA VENTA FORMATION, TATACOA DESERT, COLOMBIA**
- 317-22 460 Smith, Jon Jay\*; Platt, Brian F.; Ludvigson, Greg A.; Sawin, Robert S.; Marshall, Craig P.; Marshall, Alison Olcott: **CHRONOSTRATIGRAPHIC ASSESSMENT OF ENIGMATIC REDBEDS AT POINT OF ROCKS, CIMARRON NATIONAL GRASSLAND, KANSAS: U-PB AGE CONSTRAINTS FROM DETRITAL ZIRCONS**
- 317-23 461 Brand, Leonard R.\*; Stanton, Caleb W.; Murphey, Paul C.: **GEOLOGICAL MAPPING OF THE EOCENE BRIDGER FORMATION, SW WYOMING**
- 317-24 462 Daniels, Robyn L.\*; Gentile, Richard J.; Bauer, Julie M.: **GEOLOGIC MAP OF THE BUCKNER, MO 7.5-MINUTE QUADRANGLE, JACKSON, RAY AND CLAY COUNTIES, MISSOURI, WITH SPECIAL EMPHASIS ON BURIED BEDROCK PALEOVALLEYS**

**SESSION NO. 318**

*T210. Strike Slip Fault Systems Transfer Stress Inboard from the Subduction Zone Margin Leading to Basin Subsidence and Orogenesis, Are Conduits for Magmatism, and Are Responsible for Far-Traveled Terrane Translation (Posters) (GSA Structural Geology and Tectonics Division; GSA Mineralogy, Geochemistry, Petrology, and Volcanology Division)*

9:00 AM, Baltimore Convention Center, Exhibit Hall

Authors will be present from 4:30 to 6:30 PM

Booth #

- 318-1 463 Finzel, Emily S.\*; Ridgway, Kenneth D.: **PROVENANCE OF JURASSIC TO MIOCENE STRATA ON THE WESTERN ALASKA PENINSULA**
- 318-2 464 St. Julien, Rene\*; Stanton-Yonge, Ashley; Griffith, W. Ashley; Cembrano, José: **COMPARING FORWARD MODEL TECTONIC BOUNDARY CONDITIONS IN AN OBLIQUELY-CONVERGENT MARGIN: A CASE STUDY FROM THE SOUTHERN ANDES**
- 318-3 465 Stanton-Yonge, Ashley\*; Cembrano, José; Griffith, W. Ashley; St Julien, Rene: **NATURE OF CRUSTAL DEFORMATION ARISING FROM OBLIQUE SUBDUCTION: STRAIN PARTITIONING, STRIKE-SLIP FAULTING AND SLIVER MOTION IN THE SOUTHERN ANDES**
- 318-4 466 Brown, James E.\*; Grimes, Craig B.; John, Barbara E.; Kitajima, Kouki; Valley, John W.: **ION MICROPROBE  $\delta^{18}\text{O}$ -CONSTRAINTS ON FLUID MOBILITY AND THERMAL STRUCTURE DURING EARLY SLIP ON A LOW-ANGLE NORMAL FAULT, CHEMEHUEVI MOUNTAINS, SE CA**
- 318-5 467 McBeck, Jessica A.\*; Cooke, Michele; Madden, Elizabeth H.: **LINKING THE HAYWARD AND RODGERS CREEK FAULTS IN THE SAN PABLO BAY STEPOVER: A WORK OPTIMIZATION APPROACH**
- 318-6 468 Milliner, Christopher W.D.\*; Dolan, James F.; Hollingsworth, James; Leprince, Sebastien; Ayoub, Francois: **FACTORS CONTROLLING NEAR-FIELD COSEISMIC DEFORMATION PATTERNS: A DIRECT COMPARISON OF DISTRIBUTED DEFORMATION BETWEEN THE 1992 LANDERS AND 1999 HECTOR MINE EARTHQUAKES USING CROSS-CORRELATION OF HIGH-RESOLUTION AIR PHOTOS**
- 318-7 469 Toeneboehn, Kevin\*; Cooke, Michele: **EXPLORING THRESHOLD CONDITIONS FOR SLIP PARTITIONING UNDER OBLIQUE CONTRACTION**
- 318-8 470 Shervais, Katherine A.H.\*; Kirkpatrick, James D.: **WEAR AND RE-ROUGHENING PROCESSES IN A SINGLE FAULT ZONE CHARACTERIZED BY STRUCTURE FROM MOTION**
- 318-9 471 Sawyer, William J.\*; Resor, Phillip G.: **CONSTRAINING FAULT ZONE MECHANICS USING MULTIPHYSICS MODELING OF PSEUDOTACHYLITE INJECTION VEIN FORMATION**
- 318-10 472 Ryan, Kerry L.\*; Marone, Chris: **STRESSED AND UNSTRESSED FRICTIONAL AGING: USING MICROSTRUCTURES AND GOUGE PARTICLE SIZE DISTRIBUTION TO UNDERSTAND THE ROLE OF SHEAR STRESS IN FAULT HEALING**
- 318-11 473 Behr, Whitney M.\*; Gentry, Emilie; Wafforn, Stephanie: **DIVERSE PSEUDOTACHYLITES IN THE FOOTWALL OF THE WHIPPLE DETACHMENT FAULT: IMPLICATIONS FOR SEISMOGENESIS IN THE MIDDLE CRUST**

**SESSION NO. 319**

*T214. Mountains across the Oceans: Caledonian, Variscan, and Appalachian Orogenies through Time (Posters) (GSA Structural Geology and Tectonics Division; EGU Division on Tectonics and Structural Geology; GSA Mineralogy, Geochemistry, Petrology, and Volcanology Division)*

9:00 AM, Baltimore Convention Center, Exhibit Hall

Authors will be present from 4:30 to 6:30 PM

- Booth #
- 319-1** 474 Klonowska, Iwona\*; Majka, Jaroslaw; Johansson, Sara; Andersson, Barbro: **TIMING OF THE HP METAMORPHISM RECORDED BY ZIRCON AND MONAZITE IN THE TJELIKEN AND HELAGS GNEISSES, SEVE NAPPE COMPLEX, SCANDINAVIAN CALEDONIDES**
- 319-2** 475 Kinney, Sean T.\*; Olsen, Paul E.\*; Schoene, Blair; VanTongeren, Jill; Setera, Jacob; Hemming, Sidney R.: **RE-EVALUATING THE WHITE MOUNTAIN MAGMA SERIES THROUGH HIGH-PRECISION ZIRCON U-PB GEOCHRONOLOGY AND TRACE ELEMENT GEOCHEMISTRY: A PRELIMINARY REPORT**
- 319-3** 476 Perrot, Morgann Gwenna\*; Tremblay, Alain; David, Jean: **STRUCTURAL AND METAMORPHIC CHARACTERIZATION OF THE CONNECTICUT VALLEY-GASPÉ TROUGH IN THE SOUTHERN QUÉBEC-NORTHERN VERMONT APPALACHIANS, CANADA AND USA**
- 319-4** 477 Bowman, Samuel\*; Weislogel, Amy L.: **PROVENANCE OF NEWARK SUPERGROUP DEPOSITS IN THE DEEP RIVER SUB-BASIN FROM DETRITAL ZIRCON ANALYSIS**
- 319-5** 478 Keller, Duncan S.\*; Peck, William H.: **GARNET EXSOLUTION IN MEGACRYSTIC CLINOPYROXENE: EVIDENCE OF ULTRAHIGH-PRESSURE METAMORPHISM IN THE MARYLAND PIEDMONT?**
- 319-6** 479 Kulp, Robert R.\*: **MYLONITIZATION OF PRE-CAMBRIAN GNEISS AND IRON ORE AT THE RITTENHOUSE GAP MINES, LONGSWAMP TOWNSHIP, BERKS COUNTY, PENNSYLVANIA**
- 319-7** 480 Catlos, Elizabeth J.\*; Miller, Nathan R.: **ION MICROPROBE 232TH/208PB AGES FROM THE HIGH COMMON PB AMELIA PEGMATITE MONAZITE, VIRGINIA: IMPLICATIONS FOR ALLEGHENIAN TECTONICS**
- 319-8** 481 Miranda Berrocales, Viridis M.\*; Hughes, K. Stephen; Pollock, Jeffrey C.; Hibbard, James P.: **ORIGIN OF SMALL GRANITOID BODIES IN THE WESTERN PIEDMONT OF CENTRAL VIRGINIA**
- 319-9** 482 Hughes, K. Stephen\*; Pollock, Jeffrey C.; Hibbard, James P.: **HAFNIUM ISOTOPIC ANALYSIS OF THE CHOPAWAMSIK ARC, APPALACHIAN PIEDMONT OF VIRGINIA**
- 319-10** 483 Bosbyshell, Howell\*; Blackmer, Gale C.; Srogi, LeeAnn; Schenck, William S.; Mathur, Ryan; Lutz, Tim; Valencia, Victor: **THE CHESTER PARK GNEISS - A PERI-GONDWANAN TERRANE: NEW DETRITAL ZIRCON RESULTS FROM THE CENTRAL APPALACHIAN PIEDMONT**
- 319-11** 484 Green, Carlin\*; Singleton, John S.; Rahl, Jeffrey M.; Doctor, Daniel H.: **3-D STRAIN ANALYSIS AND STRUCTURAL DEVELOPMENT OF THE CHILHOWEE GROUP IN THE WESTERN BLUE RIDGE PROVINCE NEAR FRONT ROYAL, VIRGINIA**
- 319-12** 485 Abolins, Mark\*; Young, Shaunna; Camacho, Joe; Trexler, Mark; Ward, Alex C.; Han, Amber; Flores, Jonathan; Cooley, Matthew: **INFERRED PALEOZOIC REACTIVATION OF PRECAMBRIAN BASEMENT FAULTS WITHIN A CRATONIC FLEXURAL BULGE, NASHVILLE DOME, CENTRAL TENNESSEE**
- 319-13** 486 Craig, Taylor D.\*; Levine, Jamie S.F.; Casale, Gabriele; Rahl, Jeffrey M.; Stewart, Craig: **MICROSTRUCTURAL ANALYSIS OF THE TALLULAH FALLS DOME: DEFORMATION CONDITIONS AND KINEMATICS ASSOCIATED WITH ALLEGHANIAN DOME FORMATION**
- 319-14** 487 Stewart, Craig\*; Casale, Gabriele; Levine, Jamie S.F.; Craig, Taylor D.: **FIELD BASED STRUCTURAL OBSERVATION OF DOME GEOMETRY AND KINEMATICS, TALLULAH FALLS DOME, GEORGIA**
- 319-15** 488 Kinney, Sean T.\*; Olsen, Paul E.\*; Blackburn, Terrance J.; Hemming, Sidney R.; Rasbury, Troy; Jaret, Steven J.: **SUBSURFACE IGNEOUS ROCKS OF FLORIDA AND GEORGIA: TIMING AND RELATIONSHIP TO THE CENTRAL ATLANTIC MAGMATIC PROVINCE (CAMP)**

- 319-16** 489 Stein, Carol A.\*; Kley, Jonas; Stein, Seth; Craddock, John P.; Malone, David H.: **AGE OF THE JACOBVILLE SANDSTONE AND IMPLICATIONS FOR THE EVOLUTION OF THE MIDCONTINENT RIFT**

## SESSION NO. 320

*Volcanology (Posters)*

9:00 AM, Baltimore Convention Center, Exhibit Hall

Authors will be present from 4:30 to 6:30 PM

- Booth #
- 320-1** 490 Baxstrom, Kelli\*; Williams, Michael; Judge, Shelley; Pollock, Meagen; Franceschi, Julia O'Rorke; Wallace, Chloe; Schantz, Krysden; Misinay, II, Daniel: **TRANSPORT AND EMPLACEMENT OF A MONOGENETIC LAVA FLOW AT ICE SPRINGS VOLCANIC FIELD, BLACK ROCK DESERT, UTAH**
- 320-2** 491 Deardorff, Nick\*; Soule, Adam: **LAVA BLOCK SIZE MEASUREMENTS USING 3D POINT CLOUDS DERIVED FROM 2D PHOTOS AND STRUCTURE-FROM-MOTION**
- 320-3** 492 Kroner, Ryan K.\*; Hampton, Samuel J.; Gravley, Darren M.: **COMPOSITION AND RHEOLOGY OF OVER-THICKENED LAVA FLOW UNITS ON BANKS PENINSULA, NZ**
- 320-4** 493 George, Alex\*; Moore, Dan K.; Embree, Glenn; Champion, Duane E.; Kuntz, Mel A.; Leishman, Blair M.: **ORIGIN OF LAVA BENCHES AND UPPER AND LOWER MESA FALLS IN THE HENRY'S FORK AND WARM RIVER CANYONS, ISLAND PARK, IDAHO**
- 320-5** 494 Roverato, Matteo\*: **TEXTURAL FEATURES AS INDICATORS OF DEBRIS AVALANCHE TRANSPORT AND EMPLACEMENT**
- 320-6** 495 Toews, Chelsea E.\*; Hanson, Richard E.; Boro, Joseph R.; Eschberger, Amy M.: **CAMBRIAN BASALTIC VENT CONDUITS IN THE WEST TIMBERED HILLS, ARBUCKLE MOUNTAINS, SOUTHERN OKLAHOMA: EVIDENCE FOR EXPLOSIVE PHREATOMAGMATIC ERUPTIONS DURING RIFT-RELATED VOLCANISM**
- 320-7** 496 Bucholz, John F.\*; Hanson, Richard E.; Miggins, Daniel P.: **ERUPTIVE STYLES IN EOCENE BASALTIC PHREATOMAGMATIC FISSURE VENTS, BIG BEND NATIONAL PARK, WEST TEXAS**
- 320-8** 497 Boro, Joseph R.\*; Toews, Chelsea E.; Hanson, Richard E.: **CAMBRIAN BIMODAL VOLCANIC AND HYPABYSSAL INTRUSIVE LITHOFACIES DEVELOPED ALONG A MAJOR RIFT-BOUNDING FAULT IN THE SOUTHERN OKLAHOMA AULACOGEN: RESULTS OF NEW MAPPING IN THE WEST TIMBERED HILLS, ARBUCKLE MOUNTAINS**
- 320-9** 498 Seaman, Sheila J.\*; Whitman, Megan L.: **TIMING AND TECTONIC SETTING OF LARGE-SCALE EXPLOSIVE SILICIC VOLCANIC ERUPTIONS IN COASTAL AND CENTRAL MAINE, USA**
- 320-10** 499 Su, Yanqing\*; Huber, Christian: **H<sub>2</sub>O-CO<sub>2</sub> DEGASSING IN RHYOLITIC ERUPTIONS AND IMPLICATION OF MAGMA ASCENT HISTORY**
- 320-11** 500 Andrews, Claire\*; Lodes, Emma; Ojeda, Judith; Rice, Jonathan J.; Medynski, Sarah; Busby, Cathy: **GEOLOGIC AND PETROGRAPHIC ANALYSIS OF ARC-RIFT TRANSITION VOLCANIC ROCKS OF THE SANTA ROSALIA BASIN, GULF OF CALIFORNIA RIFT, BAJA CALIFORNIA SUR, MEXICO**
- 320-12** 501 McKay, Matthew P.\*; Coble, Matthew A.; Hessler, Angela; Weislogel, Amy L.; Fildani, Andrea: **PETROGENESIS AND PROVENANCE OF DISTAL VOLCANIC TUFFS IN THE PERMIAN-TRIASSIC KAROO BASIN, SOUTH AFRICA: A WINDOW INTO A DISSECTED, MAGMATIC PROVINCE**
- 320-13** 502 Roverato, Matteo\*; Juliani, Caetano; Martins da Rocha Junior, Jeovaci; Dias Fernbandes, Carlos Marcelo: **WHAT WE CAN INFER FROM ANCIENT VOLCANIC AND VOLCANICLASTIC ROCKS: THE ~ 2.00-1.85 GA AMAZONIAN VOLCANISM**
- 320-14** 503 Anderson, Peter\*; Snow, Jonathan E.: **DOOR POINT: VOLCANO IN THE GULF**

- 320-15** 504 Shields, Sarah\*; Petronis, Michael; Rapprich, Vladislav; Valenta, Jan; Prokupek, Christopher: **MAGMA EMPLACEMENT PROCESSES OF THE OLIGOCENE ZÁKUPY AND THE MIOCENE MĚRUNICE DIATREMES, CZECH REPUBLIC REVEALED VIA FIELD RELATIONS, PETROGRAPHIC, ANISOTROPY OF MAGNETIC SUSCEPTIBILITY, PALEOMAGNETICS, AND GROUND MAGNETOMETRY**
- 320-16** 505 Wnuk, Kendall\*; Wauthier, Christelle: **INSAR TIME SERIES ANALYSIS OF SURFACE DEFORMATION AT PACAYA, GUATEMALA**

## AFTERNOON ORAL TECHNICAL SESSIONS

### SESSION NO. 321

#### *T186. Estimating the Timing and Characteristics of Continental Earthquakes from Geologic Data (GSA Quaternary Geology and Geomorphology Division)*

1:30 PM, Baltimore Convention Center, Room 336

Mark Quigley and Timothy Stahl, Presiding

- 321-1** 1:30 PM Wallace, Katherine E.\*; Eyles, Nick; Doughty, Michael; Eyles, Carolyn H.; Daurio, Louise; Boyce, Joseph I.: **LAKE SEDIMENTS AS NATURAL SEISMOGRAPHS: EARTHQUAKE-RELATED DEFORMATION IN CENTRAL CANADIAN LAKES**
- 321-2** 1:45 PM Wolf, Lorraine W.\*; Tuttle, Martitia; Mayne, Paul; Dyer-Williams, Kathleen; Lafferty, Robert: **ESTIMATING TIMING AND CHARACTERISTICS OF PALEOEARTHQUAKES FROM PALEOLIQUEFACTION DATA**
- 321-3** 2:00 PM Sandersen, Peter B.E.\*; Jørgensen, Flemming: **TIMING AND GEOMORPHOLOGICAL IMPACT OF POSTGLACIAL FAULTING IN SOUTHWESTERN DENMARK**
- 321-4** 2:15 PM Friedrich, Anke M.\*; Kübler, Simon; Strecker, Manfred R.: **COSEISMIC ORIGIN OF TRANSGRAVEL FRACTURES NON-LITHIFIED CLASTIC DEPOSITS**
- 321-5** 2:30 PM Streig, Ashley\*; Dawson, Timothy; Weldon, II, Ray J.; Gavin, Daniel; Guilderson, Tom: **THREE HISTORIC GROUND RUPTURING EARTHQUAKES IN THE SANTA CRUZ MOUNTAINS, SAN ANDREAS FAULT: REFINING AGE ESTIMATES WITH <sup>14</sup>C WIGGLE-MATCHING AND EARLY HISTORIC REPORTS**
- 321-6** 2:45 PM Stahl, Timothy\*; Quigley, Mark: **PALEOSEISMOLOGY OF AN IMBRICATE REVERSE FAULT SYSTEM, SOUTH ISLAND, NEW ZEALAND: MAXIMUM MOMENT MAGNITUDES**
- 321-7** 3:00 PM Barefoot, Eric A.\*; Quigley, Mark: **QUANTITATIVE GEOMORPHOLOGY OF BANK'S PENINSULA PROVIDES INSIGHT INTO FORCING MECHANISMS FOR LANDSCAPE EVOLUTION IN CONTINENTAL EARTHQUAKE ZONES**
- 321-8** 3:15 PM Quigley, Mark\*; Borella, Josh; Mackey, Ben; Sohbat, Reza; Bradley, Brendon A.; Murray, Andrew; Vick, Louise: **CONTEMPORARY AND PALEO-ROCKFALLS AS PROXIES FOR STRONG GROUND MOTIONS**

### SESSION NO. 322

#### *Economic Geology*

1:30 PM, Baltimore Convention Center, Room 331/332

Jeffrey L. Mauk and Nora Foley, Presiding

- 322-1** 1:30 PM Brown, Alex C.\*: **EARLY DIAGENETIC SEDIMENT-HOSTED STRATIFORM COPPER DEPOSITS: SOURCING AND TRANSPORTING COPPER VIA A ROLL FRONT-LIKE FOOTWALL LEACHING MODEL**

- 322-2** 1:45 PM Chudasama, Bijal\*; Porwal, Alok; Kreuzer, Oliver: **HYDROGEOCHEMISTRY OF URANIUM LEACHING, TRANSPORTATION AND CALCRETE-HOSTED CARNOTITE PRECIPITATION IN SURFICIAL ENVIRONMENTS IN HOT, ARID AND DESERT REGIONS**
- 322-3** 2:00 PM Foley, N.\*; Ayuso, R.: **RARE EARTH ELEMENTS IN CLAYS: A DOMESTIC RESOURCE FOR THE FUTURE?**
- 322-4** 2:15 PM Bern, Carleton R.\*; Foley, Nora: **HIGH PROPORTIONS OF ION-ADSORBED REES ON THE LIBERTY HILL PLUTON, SOUTH CAROLINA, A POSSIBLE LINK TO HYDROTHERMAL ALTERATION**
- 322-5** 2:30 PM Shah, Anjana K.\*; Bern, Carleton R.; Ellefsen, Karl J.; Van Gosen, Bradley S.; Budahn, James R.; Benzel, William F.; Daniels, David L.; Karst, Adam; Davis, Richard Bart: **GEOPHYSICAL AND GEOCHEMICAL APPROACHES TO EVALUATING PLACER RARE-EARTH ELEMENT RESOURCES IN THE SOUTHEASTERN U.S. COASTAL PLAIN**
- 322-6** 2:45 PM McLemore, Virginia T.\*; Dunbar, Nelia; Heizler, Matthew; Rämö, O. Tapani: **ORIGIN OF THE REE-BEARING CAMBRIAN-ORDOVICIAN EPISYENITES AND CARONATITES IN SOUTHERN AND CENTRAL NEW MEXICO, USA**
- 322-7** 3:00 PM Howell, Brock\*; Emerman, Steven H.; Christensen, Norm: **GEOCHEMICAL SURVEY FOR ASSESSING THE ECONOMIC POTENTIAL OF THE MOUNT BELKNAP VOLCANICS, SOUTH-CENTRAL UTAH**
- 322-8** 3:15 PM Richards, Jeremy P.\*; Sholeh, Ali: **PETITHERMAL AND MICROPORPHYRY DEPOSITS: A NEW CLASS OF LINKED CU-AU DEPOSIT**
- 322-9** 3:30 PM Beukes, Nicolas J.\*; Gutzmer, Jens; Kruger, Stephanus J.: **GENESIS OF THE PALEOPROTEROZOIC ROONKKE IRON AND MANGANESE ORE DEPOSIT OF THE TRANSVAAL SUPERGROUP IN SOUTH AFRICA WITH REFERENCE TO THE HISTORY OF FREE OXYGEN IN THE OCEAN AND ATMOSPHERE**
- 322-10** 3:45 PM Taylor, Bruce E.\*; Peter, Jan M.; Laakso, Kati; Rivard, Benoit: **OXYGEN ISOTOPE ZONATION ABOUT THE IZOK AG-ZN-CU VMS DEPOSIT, SLAVE PROVINCE, NUNAVUT, CANADA: HANGING WALL VECTOR TO MINERALIZATION**
- 322-11** 4:00 PM Slack, John F.\*; Falck, Hendrik; Dumoulin, Julie A.: **OUTER SHELF AND SLOPE SETTINGS FOR SEDIMENT-HOSTED STRATIFORM ZN-PB DEPOSITS: EVIDENCE FROM ASSOCIATED PHOSPHORITES AND PHOSPHATE-RICH STRATA**
- 322-12** 4:15 PM McMillan, Nancy J.\*; Curry, John C.; Dutrow, Barbara L.; Henry, Darrell J.: **NEW TECHNIQUES FOR USING TOURMALINE AS AN INDICATOR MINERAL FOR EXPLORATION: ANALYSIS BY LASER-INDUCED BREAKDOWN SPECTROSCOPY (LIBS) AND MULTIVARIATE STATISTICS**
- 322-13** 4:30 PM Heimann, Adriana\*; Yonts, Jason A.; Wise, Michael A.; Spry, Paul G.; O'Brien, Joshua J.; Rodrigues Soares, Dwight; Leyh, Wolf: **THE MAJOR- AND TRACE-ELEMENT COMPOSITION OF GAHNITE AS A CHEMICAL DISCRIMINANT FOR GRANITIC PEGMATITES AND BROKEN HILL-TYPE PB-ZN-AG DEPOSITS**
- 322-14** 4:45 PM Terry, Michael\*; Bachman, Richard; Aberle, Gerald: **STRUCTURAL CONTROLS ON PALEOPROTEROZOIC IRON FORMATION-HOSTED GOLD MINERALIZATION IN THE HOMESTAKE MINE AREA, LEAD, SOUTH DAKOTA USA**
- 322-15** 5:00 PM Pires, Fernando R.M.\*; Miano, Sandra Cecilia: **DISTRIBUTION AND GENETIC CONTRASTS OF THE ZN, PB, F MINERALIZATIONS OF THE PROTEROZOIC BAMBUI-TYPE, MG, BRAZIL**

- 322-16** 5:15 PM Hart, Alistair J.\*: **IDENTIFYING, RECORDING AND PRESERVING CULTURALLY SIGNIFICANT SITES USING YOUR TABLET: THE DISRUPTION OF FIELD BASED GEOLOGICAL DATA COLLECTION**

**SESSION NO. 323****Geochemistry: Frontiers in Geochemistry**

1:30 PM, Baltimore Convention Center, Room 317

Katherine L French and William E. Holt, Presiding

- 323-1** 1:30 PM Sun, Hongbing\*; Panuccio, Elaine; Sarwar, Muhammad; Husch, Jonathan; Dell'Oro, Ambria: **NACL CONTRIBUTIONS FROM WINTER DEICING SALT AND SODIUM RETENTION IN A SALTED WATERSHED**
- 323-2** 1:45 PM Ajayi, Seyi\*: **TESTING THE VIABILITY OF SUPERCRITICAL CO<sub>2</sub> AS A FRACKING FLUID BY COMPUTING ITS CHEMICAL INTERACTION WITH VARIOUS MINERALS**
- 323-3** 2:00 PM Ajidahun, Emmanuel Jeminiyi\*; Imeokparia, Gabriel; Rammimair, Dieter: **ELEMENTAL CHARACTERIZATION OF HARDPAN TOPPING SELECTED SECTIONS IN AJALI SAND, ANAMBRA BASIN, NIGERIA**
- 323-4** 2:15 PM Meng, Sr., Fanwei\*; Zhang, Yongsheng; Galamay, Sr., A.R.; Bukowski, Krzysztof; Ni, Sr., Pei; Xing, Sr., Enyuan: **ORDOVICIAN SEAWATER COMPOSITION: EVIDENCE FROM FLUID INCLUSIONS IN HALITE**
- 323-5** 2:30 PM Zaky, Amir H.\*; Brand, Uwe; Azmy, Karem: **A NEW SAMPLE PROCESSING PROTOCOL FOR PROCURING SEAWATER REE SIGNATURES IN BIOGENIC AND ABIOGENIC CARBONATES**
- 323-6** 2:45 PM Roy, Rupsa\*: **ISOTOPIC SYSTEMATICS OF MODERN FRESHWATER SNAIL SHELLS: IMPLICATION FOR PALEOCLIMATE AND PALEOELEVATION RECONSTRUCTION**
- 323-7** 3:00 PM French, Katherine L.\*; Hallmann, Christian; Schoon, Petra L.; Zumberge, J. Alex; Hoshino, Yosuke; George, Simon C.; Love, G.D.; Brocks, Jochen J.; Buick, Roger; Summons, Roger E.: **REAPPRAISAL OF HYDROCARBON BIOMARKERS IN ARCHEAN ROCKS**
- 3:20 PM **BREAK**
- 323-8** 3:35 PM Hwang, Bohyun\*; Sheets, Julia M.; Swift, Alexander M.; Welch, Susan A.; Buchwalter, Edwin R.; Cole, David R.: **WATER-ROCK INTERACTION IN THE COSO GEOTHERMAL SYSTEM**
- 323-9** 3:50 PM Holt, William E.\*; Rasbury, Troy; Wang, Xinguo; Piccione, Gavin G.: **A MEASURED CORRELATION BETWEEN FLUORINE CONCENTRATIONS IN GEOTHERMAL SPRINGS AND GREAT BASIN CRUSTAL STRAIN RATES: A NEW GEOCHEMICAL TRACER FOR MANTLE FLUID INPUT**
- 323-10** 4:05 PM Zhou, Shuda\*; Polat, Ali; Longstaffe, Fred J.: **FORMATION OF THE NEOARCHEAN BAD VERMILION LAKE ANORTHOSITE COMPLEX AT A CONVERGENT PLATE MARGIN, SUPERIOR PROVINCE, WESTERN ONTARIO, CANADA**
- 323-11** 4:20 PM Wise, Michael A.\*; Hark, Richard R.; Defnet, Peter A.; Harmon, Russell S.: **CLASSIFICATION AND GEOGRAPHIC ORIGIN OF GARNETS USING LASER-INDUCED BREAKDOWN SPECTROSCOPY (LIBS)**
- 323-12** 4:35 PM Whattam, Jessica\*; Fayek, Mostafa; Quirt, Dave; Kyser, Kurt: **MASS BIAS CORRECTIONS FOR OXYGEN AND HYDROGEN ISOTOPIC ANALYSES OF TOURMALINES BY SECONDARY ION MASS SPECTROMETRY**
- 323-13** 4:50 PM Aja, Stephen\*: **A TERNARY SOLID SOLUTION MODEL OF NATURAL CHLORITES**
- 323-14** 5:05 PM Camper, Nicholas\*: **GEOCHEMICAL ANALYSIS OF CENOZOIC TOPAZ RHYOLITE BEARING RED BERYL FROM THE THOMAS RANGE AND WAH WAH MOUNTAINS IN WESTERN UTAH**

**SESSION NO. 324****Geoinformatics**

1:30 PM, Baltimore Convention Center, Room 349/350

M. Lee Allison and Kerstin Lehnert, Presiding

- 324-1** 1:30 PM Ramdeen, Sarah\*: **FOCUSING ON THE INDIVIDUAL: CHANGING EVERYDAY PRACTICES IN RESPONSE TO LARGE-SCALE CYBERINFRASTRUCTURE**
- 324-2** 1:45 PM Cooperdock, Emily\*; Carter, Megan; Lehnert, Kerstin A.: **THE INTERNET OF SAMPLES IN THE EARTH SCIENCES: GRADUATE STUDENTS INVESTED IN THE FUTURE OF PHYSICAL SAMPLES**
- 324-3** 2:00 PM Hills, Denise J.\*: **STATE GEOLOGICAL SURVEYS' ROLE IN DATA MANAGEMENT, PRESERVATION, AND RESCUE**
- 324-4** 2:15 PM Allison, M. Lee\*: **SEEKING COMMUNITY GUIDANCE ON GEOSCIENCE CYBERINFRASTRUCTURE**
- 324-5** 2:30 PM Wyborn, Lesley A.I.\*; Evans, Benjamin J.K.: **BUILDING AN AUSTRALIAN PETASCALE DATA REPOSITORY TO SUPPORT GEOSCIENCE RESEARCH AND BEYOND: IS CENTRALIZATION THE WAY FORWARD?**
- 324-6** 2:45 PM Lehnert, Kerstin A.\*; Zaslavsky, Ilya; Carbotte, Suzanne M.; Cutcher-Gershenfeld, Joel; Dera, Przemyslaw; Ferrini, Vicki; Frearson, Nicholas; Hsu, Leslie; Soule, Adam; Spear, Frank S.: **INTERDISCIPLINARY EARTH DATA ALLIANCE (IEDA): A MODEL FOR A COLLABORATIVE DATA FACILITY THAT ENHANCES COMMUNITY-DRIVEN DATA SERVICES IN THE SOLID EARTH SCIENCES**
- 324-7** 3:00 PM Walker, J. Douglas\*; Tikoff, Basil; Newman, Julie; Good, Jessica; Ash, Jason; Michels, Z.D.; Andrew, Joseph E.; Williams, Randolph T.; Möller, Andreas; Richard, Stephen M.: **CYBERINFRASTRUCTURE FOR STRUCTURAL GEOLOGY AND TECTONICS**
- 324-8** 3:15 PM Trabant, Chad\*; Ahern, Tim; Weekly, Robert; Suleiman, Yazan; Stults, Mike; Van Fossen, Mick; Weertman, Bruce: **THE WEB SERVICE BASED APPROACH FOR DATA DISTRIBUTION AT THE IRIS DMC**
- 324-9** 3:30 PM Campbell, Jeffrey D.\*; Parr, Cynthia: **DESIGN OF THE NATIONAL AGRICULTURAL LIBRARY'S DATA REPOSITORY AND DATA MANAGEMENT SERVICES**
- 324-10** 3:45 PM Pierce, Suzanne A.\*; Tikoff, Basil; Gil, Yolanda: **COMBINING KNOWLEDGE IN INTELLIGENT SYSTEMS WITH GEOSCIENCES TO EXPLORE AN EMERGING SET OF RESEARCH OPPORTUNITIES**
- 324-11** 4:00 PM Gurney, Robert\*; Allison, M. Lee: **E-INFRASTRUCTURE AND DATA MANAGEMENT IN SUPPORT OF GLOBAL CHANGE RESEARCH**
- 324-12** 4:15 PM Sun, Fu-Shing\*; Weng, Yi-Hua: **MOBILE AND WEB-BASED APPLICATIONS FOR GEOSCIENCE FIELD DATA MANAGEMENT**
- 324-13** 4:30 PM Loeffler, Shane\*; Myrbo, Amy: **INTERDISCIPLINARY GEOSCIENCE DATA IN FIELD CONTEXT USING FLYOVER COUNTRY, A MOBILE APP**

**SESSION NO. 325****Geomorphology: Channels and Channel Change at Short to Long Time Scales**

1:30 PM, Baltimore Convention Center, Room 342

Douglas M. Thompson and Joshua C. Galster, Presiding

- 1:30 PM **INTRODUCTORY REMARKS**
- 325-1** 1:35 PM Stanford, Scott D.\*: **GROUNDWATER SEEPAGE, LANDFORMS, AND LANDSCAPE EVOLUTION IN THE NEW JERSEY PINE BARRENS**
- 325-2** 1:50 PM Thompson, Douglas M.\*; Puklin, Leah S.; Marshall, Anna E.: **THE ROLE OF CHANNEL ARMORING WITH GABIONS ON CHANNEL ADJUSTMENTS ON THE ZEALAND RIVER, NEW HAMPSHIRE**



- 325-3** 2:05 PM Shobe, Charles M.\*; Tucker, Gregory E.: **HOW MIGHT SEDIMENT SIZE HETEROGENEITY INHIBIT RIVER INCISION?**
- 325-4** 2:20 PM Burnett, Benjamin N.\*; Meyer, Grant A.: **A SPACE-FOR-TIME ASSESSMENT OF STREAM NETWORK DEVELOPMENT AND INCISION PATTERNS ON THE PLATEAU RHYOLITE FLOWS IN YELLOWSTONE NATIONAL PARK**
- 325-5** 2:35 PM Guccione, Margaret J.\*; Rains, Daniel S.: **ORIGIN OF MARIANNA GAP, A TRANSVERSE STREAM VALLEY, THROUGH CROWLEY'S RIDGE, NORTHERN MISSISSIPPI ALLUVIAL VALLEY, USA**
- 325-6** 2:50 PM Zhao, Zhijun\*; Wu, Qinglong; Kong, Xinggong; Rong, Pei; Qiao, Lingling: **LANDSLIDE DAMMED FLUVIAL SEDIMENTS AT THE ANNING-DADU DIVIDE, EAST MARGIN OF THE TIBET PLATEAU**
- 325-7** 3:05 PM Plink-Bjorklund, Piret\*: **RIVERS AS ARCHIVES OF PALEO-PRECIPITATION PATTERNS**
- 3:20 PM **BREAK**
- 325-8** 3:35 PM Kowler, Andrew L.\*; Bright, Jordon; Quade, Jay: **LATEST PLEISTOCENE PALEOHYDROLOGY OF WILLCOX BASIN (32°N), SOUTHEASTERN ARIZONA, AND IMPLICATIONS FOR REGIONAL ATMOSPHERIC CIRCULATION DURING THE LAST DEGLACIATION**
- 325-9** 3:50 PM Holdridge, Genevieve A.\*; Leigh, David S.: **LATE PLEISTOCENE AND HOLOCENE ARROYO STRATIGRAPHY OF THE MIXTECA ALTA, OAXACA, MEXICO**
- 325-10** 4:05 PM Foroutan, Marzieh\*: **RIPPLE-LIKE FEATURES ON MARS, CHARACTERISTICS AND CLASSIFICATION**
- 325-11** 4:20 PM Urbanczyk, Kevin\*; Bennett, Jeffery: **TOPOGRAPHIC CHANGE RELATED TO CHANGING FLOW CONDITIONS IN THE RIO GRANDE, BIG BEND NATIONAL PARK, TEXAS, USA**
- 325-12** 4:35 PM Gunawan, Atinna Paramita\*: **CHANNEL CHANGES AND SEDIMENT TRANSPORT IN CANYON LAKE GORGE, TX AFTER 2002 FLOOD**
- 325-13** 4:50 PM Johnson, William C.\*; Andrzejewski, Kolbe David; Halfen, Alan F.: **A DYING RIVER—HISTORICAL TRANSFORMATION OF THE ARKANSAS RIVER, WESTERN KANSAS**
- 325-14** 5:05 PM Patch, Nickolas\*: **VARIABLES AFFECTING MEANDER BEND MIGRATION OF REGULATED STREAM, KANSAS RIVER, USA**
- 326-5** 2:30 PM Mound, Michael C.\*; Dudley, Kenneth I.: **CORE ANALYSIS COMBINING MT (TIPPER ) AND DIELECTRIC SENSORS (SANS EC) IN EARTH AND SPACE**
- 326-6** 2:45 PM Heggy, Essam\*; Scabbia, Giovanni; Normand, Jonathan; Al-Maktoumi, Ali; Rouchdi, Mohamed; Avouac, Jean-Philippe; Al-Maktoumi, Ali: **POTENTIAL FOR VHF SOUNDING RADAR TO PROBE SHALLOW FOSSIL AQUIFERS IN HYPER-ARID ENVIRONMENTS**
- 3:00 PM **BREAK**
- 326-7** 3:15 PM Sparks, Bradley\*; Harry, Dennis L.; Wohl, Ellen: **GEOPHYSICAL CONSTRAINTS ON THE EVOLUTION OF SAND CREEK AT THE SAND CREEK MASSACRE NATIONAL HISTORIC SITE, COLORADO, USA**
- 326-8** 3:30 PM Tamimi, Naser\*: **CORRELATION BETWEEN ELECTRICAL RESISTIVITY AND ANISOTROPIC ELASTIC PROPERTIES OF PIERRE SHALE, WATTENBURG FIELD, COLORADO**
- 326-9** 3:45 PM Worthing, Wade\*; Wood, Thomas R.; Glen, Jonathan; McLing, Travis L.; Dobson, Patrick F.; Ritzinger, Brent; Cannon, Cody; Neupane, Ghanashyam; Thorne, Michael S.: **USING GRAVITY AND MAGNETICS TO DELINEATE STRUCTURAL CONTROLS ON GEOTHERMAL FLUIDS, NORTHERN CACHE VALLEY, IDAHO**
- 326-10** 4:00 PM Farough, Aida\*; Moore, Diane E.; Lockner, David A.; Lowell, Robert: **AN EXPERIMENTAL STUDY ON EVOLUTION OF FRACTURE PERMEABILITY OF ULTRAMAFIC ROCKS DURING SERPENTINIZATION REACTIONS**
- 326-11** 4:15 PM Krishnamacharyulu, S.K.G.\*; Vijaya Kumar, K.: **MESOPROTEROZOIC FERROSyenites OF EASTERN GHATS, INDIA - THOLEIITIC OR ALKALINE? A GEOPHYSICAL SOLUTION**
- 326-12** 4:30 PM Berkland, James O.\*: **EARTHQUAKES AND TIDAL FORCES**

## SESSION NO. 327

*Paleontology: Building the Fossil Record: Taphonomic and Paleocological Controls on Fossilization*

1:30 PM, Baltimore Convention Center, Room 315

Victoria McCoy and Emma Locatelli, Presiding

- 327-1** 1:30 PM Anderson, Evan P.\*: **A COMPREHENSIVE MODEL OF THE FOSSILIZATION OF SOFT-BODIED ORGANISMS**
- 327-2** 1:45 PM Martí Mus, Mónica\*: **A HYOLITH WITH PRESERVED SOFT PARTS FROM THE ORDOVICIAN FEZOUATA KONSERVAT-LAGERSTÄTTE OF MOROCCO**
- 327-3** 2:00 PM Parry, Luke\*; Vinther, Jakob; Edgecombe, Gregory D.; Sykes, Dan; Wilson, Paul: **EXCEPTIONALLY PRESERVED FIREWORMS FROM THE CRETACEOUS OF LEBANON IDENTIFIED FROM THREE DIMENSIONALLY PRESERVED MYOANATOMY**
- 327-4** 2:15 PM Downen, Matthew R.\*; Selden, Paul A.: **ANCIENT SPIDERS AND SALT LAKES**
- 327-5** 2:30 PM Cuomo, Carmela\*; Rosbach, Stephanie; Bartholomew, Paul R.: **INVERTEBRATES OF THE UPPER MISSISSIPPIAN BEAR GULCH LIMESTONE – A TALE OF JELLIES AND TUNICATES ?**
- 327-6** 2:45 PM Hussey, Meghan C.\*; McMenamin, Mark A.S.: **TRIASSIC COPROLITES FROM THE LUNING FORMATION, CENTRAL NEVADA**
- 327-7** 3:00 PM McCall, Linda J.\*; Molineux, Ann; Sprinkle, James: **BEACH SAND RESTORATION PROJECT ON TOPSAIL ISLAND, NORTH CAROLINA, YIELDS OLIGOCENE FAUNA WITH UNUSUAL PRESERVATION, INCLUDING COLOR RETENTION**
- 327-8** 3:15 PM Loughney, Katharine M.\*; Badgley, Catherine: **FACIES CONTROL ON FOSSIL PRESERVATION IN THE BARSTOW FORMATION, MOJAVE DESERT, CALIFORNIA**

## SESSION NO. 326

*Geophysics/Geodynamics*

1:30 PM, Baltimore Convention Center, Room 322/323

Nicholas C. Schmerr and Mark Oscar Larson, Presiding

- 326-1** 1:30 PM Gorgun, Ethem\*; Gorgun, Burcak: **SEISMICITY OF THE 24 MAY 2014 MW 7.0 AEGEAN SEA EARTHQUAKE SEQUENCE ALONG THE NORTH AEGEAN TROUGH**
- 326-2** 1:45 PM Karabulut, Savas\*: **MODELLING OF BASIN STRUCTURES AND DETERMINATION OF WEST BLACK SEA FAULT IN THE AREA BETWEEN BUYUKCEKMECE AND KUCUKCEKMECE LAKES WITH USING DIFFERENT GEOPHYSICAL METHODS**
- 326-3** 2:00 PM Sianipar, Dimas Salomo Januario\*; Kambali, Retno Agung Prasetyo; Daryono, Daryono: **DISCRIMINATION OF THE BENER MERIAH, ACEH, INDONESIA MW 6.2 DESTRUCTIVE EARTHQUAKE AS IMPLICATION FROM NEW (RE) ACTIVE FAULT: EVIDENCES FROM GEOLOGY AND GEOPHYSICAL DATA**
- 326-4** 2:15 PM Nikoley, Timothy L.\*; Roth, Michael; Wilkinson, Steven: **ANTIPODAL FEATURE GEOPHYSICS ON MARS THROUGH SEISMIC FOCUSING VIA IMPACT EVENT**

SESSION NO. 327

- 327-9 3:30 PM Barord, Gregory J.\*; Ward, Peter D.; Rollog, Mark Rollog; Landman, Neil H.: **LONG TERM HABITAT CHANGE IN POST JURASSIC NAUTILIDS - FROM WARM SHALLOWS TO DEEP, COOL, FORE REEF SLOPES**
- 327-10 3:45 PM Kurihara, Kenji\*; Yabumoto, Juna: **P/B RATIOS IN THE DEEP SEA SEDIMENTS OF THE OCEAN—A PROPOSAL FOR COUNTING ERRORS OF THE DEEP SEA BENTHIC FORAMINIFERA**
- 327-11 4:00 PM Johnson, Michael R.\*; Geary, Dana H.: **TERRESTRIAL HABITATS IN THE LATE MIOCENE PANNONIAN BASIN SYSTEM FROM STABLE ISOTOPES IN THE HORSE HIPPOTherium**
- 327-12 4:15 PM Elliott Smith, Emma A.\*; Newsome, Seth D.; Tinker, M. Tim; Hylkema, Mark G.; Whistler, Emily L.: **THE ABSENT NICHE: SEA OTTER ECOLOGY IN CALIFORNIA THROUGH THE HOLOCENE**
- 327-13 4:30 PM Kelley, Neil P.\*; dePolo, Paige; Noble, Paula J.; Pyenson, Nicholas; Angster, Stephen; Little, Holly; Blundell, Jon: **HUNTING THE DIGITAL KRAKEN: A MULTI-PLATFORM APPROACH TO DIGITIZING AN *IN-SITU* GIANT ICHTHYOSAUR DEATH ASSEMBLAGE**
- 327-14 4:45 PM Hawkins, Andrew D.\*; Xiao, Shuhai: **MODELLING THE LITHIFICATION BIAS: UNDERSTANDING ITS CAUSES AND ITS IMPLICATIONS**
- 327-15 5:00 PM Conwell, Christopher T.\*; Grandstaff, David E.; Terry, Jr., Dennis O.: **DIAGENETIC HISTORY OF TERRESTRIAL FOSSIL BONE FROM THE PALEOGENE WHITE RIVER GROUP, BADLANDS NATIONAL PARK, SOUTH DAKOTA**
- 327-16 5:15 PM Davis, Matt\*; Glass, Jessica R.; Walsh, Timothy J.; Sargis, Eric J.; Caccone, Adalgisa: **WAS FROZEN MAMMOTH OR GIANT GROUND SLOTH SERVED FOR DINNER AT THE EXPLORERS CLUB?**
- 328-7 3:30 PM Haines, Forest\*: **LITTLE BIGHORN (TOURNASIAN) TO KEOKUK (VISEAN) SEDIMENTATION PATTERNS OF THE MCELHINNY MODEL (1961) OF NORTH AND SOUTH AMERICA**
- 328-8 3:45 PM Gianniny, Gary L.\*: **A SEQUENCE STRATIGRAPHIC MODEL FOR THE REDWALL LIMESTONE IN THE GRAND CANYON, ARIZONA**
- 328-9 4:00 PM Chen, Jitao\*; Montañez, Isabel P.; Qi, Yuping; Wang, Xiangdong; Wang, Qiulai; Lin, Wei: **COUPLED SEDIMENTARY AND  $\delta^{13}\text{C}$  RECORDS OF LATE MISSISSIPPIAN PLATFORM-TO-SLOPE SUCCESSIONS FROM SOUTH CHINA: INSIGHT INTO  $\delta^{13}\text{C}$  CHEMOSTRATIGRAPHY**
- 328-10 4:15 PM Marshall, Madeline S.\*; DeCorte, Ilian: **HIATAL SURFACES WITHIN THE PHOSPHORITE, ORGANIC-RICH, AND CHERT FACIES OF THE PERMIAN PHOSPHORIA FORMATION, SOUTHEASTERN IDAHO**
- 328-11 4:30 PM McMullen, Sharon K.\*: **MACROSTRATIGRAPHY OF THE JURASSIC WESTERN UNITED STATES**
- 328-12 4:45 PM Husinec, Antun\*; Read, J.F.: **SEQUENCE STRATIGRAPHIC FRAMEWORK, OCEANIC ANOXIC EVENTS, AND STABLE CARBON ISOTOPE SIGNAL OF ALBIAN ADRIATIC PLATFORM, CROATIA**
- 328-13 5:00 PM Ameen, Fadhil\*: **MAASTRICHTIAN GREEN HOUSE IMPACT ON THE RUDIST RICH RESERVOIR WITHIN MIXED CARBONATES-SILICICLASTIC SUCCESSION, FROM KURDISTAN FORELAND AND PLATFORM, NE-IRAQ**
- 328-14 5:15 PM Ferrusquía-Villafranca, Ismael\*; Ruiz-González, José E.; Torres-Hernández, José Ramón; Martínez-Hernández, Enrique; Urrutia-Fucugauchi, Jaime: **CONTRIBUTION TO THE CENOZOIC GEOLOGY OF THE YOLOMÉCATL-TLAXIACO AREA, CENTRAL SIERRA MADRE DEL SUR, SOUTHEASTERN MEXICO, AND ITS REGIONAL SIGNIFICANCE**

SESSION NO. 328

*Stratigraphy and Sediments, Carbonates*

1:30 PM, Baltimore Convention Center, Room 340

Gary L. Gianniny and Antun Husinec, Presiding

- 328-1 1:30 PM Finney, Stanley C.\*: **THE 'ANTHROPOCENE' EPOCH: ITS CONSIDERATION BY ICS SHOULD BE A DISCUSSION AND NOT A DEBATE**
- 1:45 PM **DISCUSSION**
- 328-2 2:00 PM Koirala, Dibya\*; Etensohn, Frank R.; Clepper, Marta L.: **SEQUENCE AND EVENT STRATIGRAPHY ON A LATE ORDOVICIAN CARBONATE BUILDUP: PARASEQUENCES AND SEISMITES IN THE UPPER PART OF THE LEXINGTON LIMESTONE (EDENIAN), CENTRAL KENTUCKY, U.S.A**
- 328-3 2:15 PM BlackEagle, Cory W.\*; Zourarakis, Demetrio; Greb, Stephen F.; Dinger, James S.: **THE INTERPRETATION DILEMMA - COMPLEX LITHOSTRATIGRAPHIES IN THE ERA OF GIS: THE CASE OF THE INNER BLUEGRASS REGION OF KENTUCKY**
- 328-4 2:30 PM Jeffery, David L.\*; Booth, Cody: **STRATIGRAPHY OF A MISSING, BACK-STEPPING, TRANSGRESSIVE REEF IN THE SILURIAN KEYSER FORMATION, MUSTOE, VIRGINIA**
- 328-5 2:45 PM McAdams, Neo E.B.\*; Cramer, Bradley D.; Bancroft, Alyssa Marie; Witzke, Brian J.: **RECOGNITION OF THE LATE AERONIAN, VALGU, AND IREVIKEN CARBON ISOTOPE EXCURSIONS IN THE ILLINOIS BASIN, MIDCONTINENT UNITED STATES**
- 328-6 3:00 PM Egenhoff, Sven\*: **THE LOST DEVONIAN SEQUENCE - SEQUENCE STRATIGRAPHY OF THE MIDDLE BAKKEN MEMBER, AND THE IMPORTANCE OF CLASTIC DYKES IN THE LOWER BAKKEN SHALE, NORTH DAKOTA, USA**
- 3:15 PM **BREAK**

SESSION NO. 329

*P5. Appalachian Geomorphology II (GSA Quaternary Geology and Geomorphology Division)*

1:30 PM, Baltimore Convention Center, Room 327/328/329

Frank J. Pazzaglia, Gregory S. Hancock and Sean F. Gallen, Presiding

- 329-1 1:30 PM Merritts, Dorothy J.\*; Walter, Robert C.; Blair, Aaron; Demitroff, Mark; Potter, Jr., Noel; Alter, Samuel; Markey, Erin; Guillorn, Sally; Gigliotti, Sophia; Studnický, Caroline: **LIDAR, ORTHOIMAGERY, AND FIELD ANALYSIS OF PERIGLACIAL LANDFORMS AND THEIR COLD CLIMATE SIGNATURE, UNGLACIATED PENNSYLVANIA AND MARYLAND**
- 329-2 2:00 PM Eppes, Martha Cary\*; Keanini, Russell: **NEW INSIGHTS INTO THE MECHANICAL WEATHERING OF ROCK IN HUMID-TEMPERATE CLIMATES**
- 329-3 2:30 PM West, Nicole\*; Kirby, Eric: **TOPOGRAPHIC FINGERPRINTS OF MICRO-CLIMATE AND LITHOLOGY IN THE CENTRAL APPALACHIANS**
- 3:00 PM **BREAK**
- 329-4 3:15 PM Ma, Lin\*; Chabaux, Francois; West, Nicole; Kirby, Eric; Jin, Lixin; Brantley, Susan L.: **REGOLITH PRODUCTION AND TRANSPORT IN THE SUSQUEHANNA SHALE HILLS CRITICAL ZONE OBSERVATORY: INSIGHTS FROM U-SERIES ISOTOPES**
- 329-5 3:45 PM DiBiase, Roman A.\*; Del Vecchio, Joanmarie; Granke, Sarah B.: **TOPOGRAPHIC AND COLLUVIAL SIGNATURES OF LITHOLOGY, BASE LEVEL, AND CLIMATE IN THE SHAVERS CREEK WATERSHED, PENNSYLVANIA**
- 329-6 4:15 PM Kochel, R. Craig\*: **GEOMORPHIC RESPONSE TO EXTREME FLOODS IN THE APPALACHIANS**
- 4:45 PM **DISCUSSION**

## SESSION NO. 330

**T27. Intersections of Sustainability and Geosciences (GSA Environmental and Engineering Geology Division; GSA Geology and Society Division)**

1:30 PM, Baltimore Convention Center, Room 339

Robert Brinkmann and Leslie North, Presiding

- 1:30 PM **INTRODUCTORY REMARKS**
- 330-1** 1:35 PM Boss, Stephen K.\*: **TOWARD A MASS BALANCE FOR HUMANITY**
- 330-2** 1:50 PM Brinkmann, Robert\*; Garren, Sandra; Bisceglia, Kevin; Hunter, Margaret; D'Orsa, Lauren; Nandlall, Keshanti: **VARIATIONS OF STREET SWEEPING PRACTICES ON LONG ISLAND: IMPLICATIONS FOR WATER QUALITY**
- 330-3** 2:05 PM Smidt, Samuel J.\*; Haacker, EK; Deines, JM; Pei, L; Cotterman, KA; Li, H; Liu, X; Kendall, Anthony D.; Hyndman, David W.: **MODERN CHALLENGES TO AGRICULTURAL WATER MANAGEMENT: PHYSICAL, AGRICULTURAL, AND SOCIOECONOMIC IMPLICATIONS ON THE HIGH PLAINS AQUIFER**
- 330-4** 2:20 PM Bradbury, Kenneth R.\*; Fienen, Michael N.; Kniffin, Maribeth; Krause, Jacob J.: **USING WATER-BALANCE AND GROUNDWATER FLOW MODELS TO SUPPORT DECISION MAKING FOR AGRICULTURE AND THE ENVIRONMENT IN CENTRAL WISCONSIN**
- 330-5** 2:35 PM Biegel, Jenna\*; Ndam Njoya, Amirah; Low, P.C.: **ACCESS TO SAFE DRINKING WATER IN RURAL, URBAN, AND AGRICULTURAL REGIONS OF THE WESTERN REGION OF CAMEROON**
- 330-6** 2:50 PM Kovarik, Johanna L.\*: **A MULTIDISCIPLINARY PROJECT FOR SUSTAINABLE MANAGEMENT PLANNING IN A KARST WATERSHED, CHIAPAS, MEXICO**
- 330-7** 3:05 PM Swanson, Susan\*; Bradbury, Kenneth; Graham, Grace; Hart, David J.: **INVENTORYING SPRINGS IN SUPPORT OF GROUNDWATER SUSTAINABILITY**
- 3:20 PM **BREAK**
- 330-8** 3:35 PM Garren, Sandra\*; Brinkmann, Robert; Bisceglia, Kevin; Hunter, Margaret; D'Orsa, Lauren; Vogel, Thomas; Nandlall, Keshanti: **WATER QUALITY MANAGEMENT AND THE POLICY RESPONSE IN LOCAL GOVERNMENTS IN LONG ISLAND, NEW YORK**
- 330-9** 3:50 PM Brey, James A.\*; Kauffman, Chad; Geer, Ira W.; Mills, Elizabeth W.; Nugnes, Kira A.; Asokan, Anupa; Stimach, Abigail E.: **EDUCATING TO LIVE MORE SUSTAINABLY IN OUR CHANGING CLIMATE**
- 330-10** 4:05 PM Smith, Hayley Joyell\*; McConnell, David: **WHAT DO UNDERGRADUATES' PERCEPTION OF THE RELEVANCE OF GEOSCIENCE AND SOCIETY HAVE IN COMMON WITH THE HUMAN-EARTH RELATED EARTH SCIENCE LITERACY PRINCIPLES? STUDENTS IDENTIFY CERTAIN TOPICS AS APPLICABLE FOR DECISION-MAKING FOR A MORE SUSTAINABLE FUTURE**
- 330-11** 4:20 PM Turski, Mark P.\*; Doner, Lisa A.: **REVISITING THE LIFESTYLE PROJECT**
- 330-12** 4:35 PM Greenberg, Jeffrey K.\*: **UNDERGRADUATE SERVICE-RESEARCH VIA PREDEVELOPMENT SURVEYS**
- 330-13** 4:50 PM Bennington, J. Bret\*; Brinkmann, Robert; Farmer, E. Christa; Garren, Sandra; Marsellos, Antonios E.: **INTEGRATING SUSTAINABILITY AND GEOLOGY IN A NEW CURRICULUM FOR UNDERGRADUATE EARTH SCIENCE EDUCATION**
- 330-14** 5:05 PM North, Leslie\*; Polk, Jason; Strennecky, Bernie: **TRANSFORMING THE STUDY ABROAD MODEL: PARTNERING INTERNATIONAL UNIVERSITIES TO ENHANCE CLIMATE AND SUSTAINABILITY LITERACY THROUGH INTERDISCIPLINARY, CROSS-CULTURAL LEARNING**
- 5:20 PM **CONCLUDING REMARKS**

## SESSION NO. 331

**T54. Geomorphology and Hydrology of Wildland Fires (GSA Quaternary Geology and Geomorphology Division; GSA Environmental and Engineering Geology Division)**

1:30 PM, Baltimore Convention Center, Room 307

Daniel Cadol and Francis K. Rengers, Presiding

- 1:30 PM **INTRODUCTORY REMARKS**
- 331-1** 1:35 PM Wagenbrenner, Joe\*: **POST-FIRE HILLSLOPE RUNOFF AND EROSION RESPONSES: NUGGETS AND GAPS FROM EMPIRICAL STUDIES**
- 331-2** 1:55 PM Sankey, Joel B.\*; Kreitler, Jason; Hawbaker, Todd J.; McVay, Jason; Vaillant, Nicole; Lowe, Scott: **PREDICTING FUTURE, POST-FIRE EROSION AND SEDIMENTATION FOR WATERSHEDS OF THE WESTERN USA**
- 331-3** 2:10 PM Staley, Dennis M.\*; Negri, Jacquelyn; Kean, Jason W.: **SPATIALLY-EXPLICIT PREDICTION OF RAINFALL INTENSITY-DURATION THRESHOLDS FOR THE GENERATION OF POST-FIRE DEBRIS FLOWS IN THE WESTERN UNITED STATES**
- 331-4** 2:25 PM Kendrick, Katherine J.\*; Partin, Camille A.; Graham, Robert C.: **GRANITIC BOULDER EROSION CAUSED BY CHAPARRAL WILDFIRE; IMPLICATIONS FOR COSMOGENIC RADIONUCLIDE DATING OF BEDROCK SURFACES**
- 331-5** 2:40 PM MacGregor, Kelly\*; Kutvirt, Jacqueline; Riihimaki, Catherine A.; Myrbo, Amy; Locatelli, Emma; Bradtmiller, Louisa: **Holocene Fire History and Geomorphic Response in Eastern Glacier National Park, Montana, USA**
- 331-6** 2:55 PM Pierce, Jennifer L.\*; Meyer, Grant A.; Bigio, Erica; Nelson, Nathan; Poulos, Michael; Jenkins, Sara; Weppner, Kerrie N.; Riley, Kerry; Fitch, Erin; Frechette, Jed: **A SYNTHESIS OF ALLUVIAL RECORDS OF WILDFIRE IN THE WESTERN USA: A COMPLEX INTERPLAY OF CLIMATE AND VEGETATION**
- 3:15 PM **BREAK**
- 331-7** 3:30 PM Ebel, Brian A.\*: **WILDLAND FIRE IMPACTS ON HILLSLOPE SURFACE RUNOFF GENERATION DURING AN EXTREME RAINFALL EVENT IN THE COLORADO FRONT RANGE**
- 331-8** 3:50 PM Wicherski, Will\*; Dethier, David P.; Ouimet, William B.; Kaste, James M.: **FIRE AND FLOOD IN FOURMILE CANYON, COLORADO —ANALYZING THE GEOMORPHIC EFFECTS OF CATASTROPHIC EVENTS USING LIDAR AND FIELD STUDIES**
- 331-9** 4:05 PM Ryan, Sandra E.\*; Rathburn, Sara L.; Dixon, Mark: **SUSPENDED SEDIMENT CONCENTRATIONS IN THE SOUTH FORK CACHE LA POUDDRE FOLLOWING THE HIGH PARK FIRE**
- 331-10** 4:20 PM Schenk, Edward R.\*; Healy, Brian D.; Smith, Emily O.; Tobin, Benjamin W.; Valle, Cynthia M.; MacKinnon, Peter D.: **IMPACTS OF A RECENT WILDFIRE AND MAJOR FLASH FLOOD ON ENDANGERED HUMPBAC CHUB HABITAT - SHINUMO CREEK, GRAND CANYON**
- 331-11** 4:35 PM Wine, Michael Louis\*; Cadol, Daniel: **WATERSHED-SCALE HYDROLOGIC EFFECTS OF LARGE WILDFIRES IN THE SOUTHWESTERN USA**

## SESSION NO. 332

**T92. Clear As Mud? Advancing Communication in the Geosciences (GSA Geology and Society Division; GSA Committee on Geology and Public Policy; GSA Geoscience Education Division)**

1:30 PM, Baltimore Convention Center, Room 343

Justin M. Samuel, Christa K. Stratton and Susanna W. Blair, Presiding

1:30 PM **INTRODUCTORY REMARKS**

SESSION NO. 332

- 332-1** 1:35 PM Diecchio, Richard J.\*: **TELL IT LIKE IT IS**
- 332-2** 1:50 PM Gibson, Hazel\*; Stewart, Iain; Stokes, Alison; Pahl, Sabine: **COMMUNICATING THE INVISIBLE: PUBLIC PERCEPTIONS OF THE GEOLOGICAL SUBSURFACE**
- 332-3** 2:05 PM Cook, Terri L.\*: **SCIENCE AS STORY: COMMUNICATING GEOSCIENCE IN UNEXPECTED (AND EFFECTIVE) WAYS**
- 332-4** 2:20 PM Kirk, Karin B.\*; Gold, Anne U.; Sullivan, Susan: **DISSECTING THE TACTICS OF CLIMATE DENIAL: LESSONS FOR COMMUNICATORS**
- 332-5** 2:35 PM Duggan-Haas, Don\*: **THE OBSTACLES ARE LARGELY THE SAME: ON CLIMATE CHANGE AND SCHOOL REFORM**
- 332-6** 2:50 PM Dixon, Jennifer L.\*; McConnell, David; Bedward, John: **COMMUNICATING GEOSCIENCE CONCEPTS BEYOND THE CLASSROOM: WHO IS WATCHING GEOSCIENCE VIDEOS ON YOUTUBE?**
- 332-7** 3:05 PM Bartel, Beth\*; Charlevoix, Donna: **PRODUCING A SINGLE OUTREACH PRODUCT TO REACH MULTIPLE AUDIENCES**
- 3:20 PM **BREAK**
- 332-8** 3:35 PM Rubin, Jeffrey\*: **SCIENCE, POLICY, AND COMMUNICATION: ALL OR NOTHING**
- 332-9** 3:50 PM Szymanski, David W.\*; Boland, Maeve A.; Gonzales, Leila M.; Wood, Charlotte: **TEACHING NON-MAJORS TO COMMUNICATE THE IMPORTANCE OF GEOSCIENCE FOR POLICYMAKING THROUGH SERVICE-LEARNING AND CIVIC ENGAGEMENT**
- 332-10** 4:05 PM Gotkowitz, Madeline B.\*: **TO TREAT OR NOT TO TREAT: COMMUNICATING THE HEALTH RISK POSED BY DRINKING UNTREATED GROUNDWATER**
- 332-12** 4:35 PM Walsler, Maggie L.\*: **FUNDING OPPORTUNITIES FROM THE GULF RESEARCH PROGRAM**

**SESSION NO. 333**

***T100. Advances in Groundwater Modeling (GSA Hydrogeology Division; GSA Karst Division)***

1:30 PM, Baltimore Convention Center, Room 341

Javier Vilcaez and Todd Halihan, Presiding

- 1:30 PM **INTRODUCTORY REMARKS**
- 333-1** 1:35 PM Li, Li\*: **PREDICTIVE UNDERSTANDING OF BIOGEOCHEMICAL REACTIONS IN HETEROGENEOUS POROUS MEDIA**
- 333-2** 1:55 PM Pappas, Lena K.\*; Lemke, Lawrence D.: **INFLUENCE OF DETERMINISTIC AND STOCHASTIC HYDRAULIC CONDUCTIVITY DISTRIBUTIONS ON PREFERENTIAL FLOW PATHWAYS IN A GLACIAL AQUIFER SYSTEM**
- 333-3** 2:10 PM Wen, Hang\*; Li, Li: **THE DEPENDENCE OF CHEMICAL WEATHERING RATES ON PHYSICAL AND GEOCHEMICAL HETEROGENEITIES**
- 333-4** 2:25 PM Malzone, Jonathan M.\*; Lowry, Christopher S.; Ward, Adam S.: **HYPORHEIC DYNAMICS DURING STORMS ARE PRIMARILY GOVERNED BY PRE-STORM GROUNDWATER CONDITIONS: INSIGHTS FROM A FULLY COUPLED NUMERICAL MODEL UTILIZING THE BRINKMAN-DARCY EQUATION**
- 333-5** 2:40 PM Schlaudt, Elisabeth A.\*; Wade, Kenneth S.: **DEVELOPING A GROUNDWATER FLOW MODEL FOR SLOUGH MANAGEMENT IN SAUK COUNTY, WI**
- 333-6** 2:55 PM Maharjan, Madan\*; Donovan, Joseph J.: **GROUNDWATER RESPONSE TO STREAM STAGE FLUCTUATIONS IN A REGULATED STREAM AT GLEN DALE, WEST VIRGINIA**
- 333-7** 3:10 PM Xu, Zexuan\*; Hu, Bill: **SIMULATING SEAWATER INTRUSION USING NUMERICAL VARIABLE-DENSITY SEAWAT MODEL IN COASTAL KARST AQUIFER WITH WELL-DEVELOPED CONDUITS**

- 333-8** 3:25 PM Cardiff, Michael\*: **PHASE-DOMAIN MODELING IN HYDROGEOLOGY: AN UNDER-USED AND UNDER-APPRECIATED TOOL**
- 3:40 PM **BREAK**
- 333-9** 3:55 PM Umari, Amjad\*; Fridrich, Christopher J.; Nelson, Philip H.: **PRELIMINARY MODFLOW SIMULATIONS OF UNDERPRESSURE IN GEOHYDROLOGIC UNITS IN THE GREAT PLAINS DURING LARAMIDE, AND LATE CENOZOIC EPEIROGENIC, UPLIFT AND TILTING - PART1: THE SINGLE AQUIFER SCENARIO**
- 333-10** 4:10 PM Cheng, Chu-Lin\*: **HYDRAULIC PARAMETER UPSCALING AND SENSITIVITY IN GEOLOGIC CARBON SEQUESTRATION SIMULATIONS**
- 333-11** 4:25 PM Lee, Sungho\*; Park, Jai-Yong; Kim, Jun-Mo; Kihm, Jung-Hwi: **PROBABILISTIC EVALUATION MODELING OF GEOLOGIC CARBON DIOXIDE STORAGE CAPACITIES OF TARGET GEOLOGIC FORMATIONS AT A PROSPECTIVE STORAGE SITE IN THE JANGGI BASIN, KOREA**
- 333-12** 4:40 PM Glose, Thomas J.\*; Malzone, Jonathan M.; Lowry, Christopher S.: **USING NUMERICAL MODELING TO QUANTIFY THE ERROR ASSOCIATED WITH VIOLATING THREE COMMON ASSUMPTIONS OF USING HEAT AS A TRACER**
- 333-13** 4:55 PM Vilcaez, Javier\*: **PORE-SCALE SIMULATION OF TRANSPORT PROPERTIES OF CARBONATE ROCKS USING NANOSCALE FIB-SEM 3D IMAGES**

**SESSION NO. 334**

***T101. Arsenic: Source to Sustainability II (GSA Hydrogeology Division; GSA Geobiology & Geomicrobiology Division; GSA Geology and Society Division; GSA Environmental and Engineering Geology Division; International Society of Groundwater for Sustainable Development)***

1:30 PM, Baltimore Convention Center, Room 337

Prosun Bhattacharya, Abhijit Mukherjee, Alan E. Fryar, Saugata Datta and Mohammad Alauddin, Presiding

- 1:30 PM **INTRODUCTORY REMARKS**
- 334-1** 1:35 PM Verma, Swati\*; Mukherjee, Abhijit; Mahanta, Chandan: **OCCURRENCE OF ARSENIC-ENRICHED GROUNDWATER BY SEDIMENT-WATER INTERACTIONS IN ALLUVIAL AQUIFERS OF BRAHMAPUTRA RIVER BASIN, INDIA**
- 334-2** 1:50 PM Saha, Dipankar\*; Sahu, Sudarshan: **GEOLOGY AS A PREDICTIVE TOOL IN DELINEATING GROUNDWATER ARSENIC CONTAMINATED AREAS- AN APPROACH FROM MIDDLE GANGA PLAIN, INDIA**
- 334-3** 2:10 PM Chatterjee, Debashis\*: **GROUNDWATER ARSENIC IN THE FLUVIAL BENGAL PLAINS: GEOCHEMISTRY AND MITIGATION**
- 334-4** 2:25 PM Neumann, Rebecca B.\*; Pracht, Lara E.; Ardissono, Robert J.; Polizzotto, Matthew; Badruzzaman, A. Borhan M.; Tfaily, Malak M.: **BIODEGRADABLE ORGANIC CARBON IN AQUIFER SEDIMENT FROM BANGLADESH: IMPLICATIONS FOR GROUNDWATER ARSENIC CONTAMINATION**
- 334-5** 2:40 PM Khan, Mahfuzur R.\*; Nath, Bibhash; Huhmann, Brittany L.; Choudhury, Imtiaz; Chakraborty, M; Mukherjee, Abhijit; Ahmed, Kazi Matin; Harvey, Charles F.; van Geen, Alexander; Michael, Holly A.: **ORIGIN OF ARSENIC RICH, YOUNG GROUNDWATER IN DEEP TUBEWELLS IN THE CENTRAL SOUTHWESTERN BENGAL BASIN**
- 334-6** 2:55 PM Nath, Bibhash\*; Khan, Mahfuzur R.; Huhmann, Brittany L.; Chakraborty, Madhumita; Mukherjee, Abhijit; Ahmed, Kazi Matin; Michael, Holly A.; Bostick, Benjamin C.; Mailloux, Brian J.; van Geen, Alexander: **GROUNDWATER CHEMISTRY OF DEEP (>300 FEET) HIGH-AS AQUIFERS ACROSS THE INDIA-BANGLADESH BORDER**

- 334-7 3:10 PM Hossain, Mohammed\*; Bhattacharya, Prosun; Hasan, M. Aziz; Ahmed, Kazi Matin; von Brömssen, Mattias; Jacks, Gunnar: **HYDROGEOCHEMICAL CHARACTERIZATION OF SHALLOW, INTERMEDIATE AND DEEP AQUIFERS IN MATLAB, BANGLADESH – IMPLICATIONS FOR THE INSTALLATION OF ARSENIC-SAFE DRINKING WATER TUBEWELLS AND THEIR SUSTAINABILITY**
- 334-8 3:25 PM Dhar, Ratan\*; Dhar, Avik; Robel, Md.; Alam, MD. Mahabub; Palit, Swapan: **HYDROGEOCHEMICAL STUDY TO UNDERSTAND MOBILIZATION OF ARSENIC AND MANGANESE IN AQUIFERS OF CHITTAGONG, A RAPIDLY EXPANDING COASTAL CITY IN BANGLADESH**
- 3:40 PM **BREAK**
- 334-9 3:55 PM Knappett, Peter S.K.\*; Dimova, N.T.; Rhodes, K.; Hossain, Abrar; Lipsi, Mehtaz M.; Nichols, Zoe G.; Datta, Saugata; Ahmed, Kazi Matin: **QUANTIFYING GROUNDWATER DISCHARGE TO THE MEGHNA RIVER USING DIFFERENTIAL GAGING, RADON AND HYDRAULIC GRADIENTS**
- 334-10 4:10 PM Mozumder, M. Rajib Hassan\*; Mailloux, Brian; Bostick, Benjamin C.; Ahmed, Ershad Bin; Ahmed, Kazi Matin; Chen, Therese; Ellis, Tyler; Harvey, Charles F.; Stute, Martin; van Geen, Alexander: **TRANSIENT ARSENIC CONCENTRATIONS IN A SHALLOW AQUIFER OF BANGLADESH INDUCED BY IRRIGATION PUMPING**
- 334-11 4:25 PM Polizzotto, Matthew\*; Birgand, Francois; Hesterberg, Dean; Badruzzaman, A. Borhan M.; Ali, M. Ashraf: **IMPACTS OF HYDRAULICS AND CHANNEL AMENDMENTS ON ARSENIC CONCENTRATIONS IN FLOWING IRRIGATION WATER**
- 334-12 4:45 PM Huhmann, Brittany L.\*; Uddin, Anjal; Choudhury, Imtiaz; Duxbury, John; Bostick, Benjamin C.; Ahmed, Kazi Matin; van Geen, A.; Harvey, Charles F.: **REPLACEMENT OF ARSENIC-CONTAMINATED SOIL FOR IMPROVED RICE YIELDS IN BANGLADESH**
- 334-13 5:00 PM Barla, Anil\*; Shrivastava, Anamika; Singh, Surjit; Bose, Sutapa: **GROUNDWATER IRRIGATION AND INTENSIFICATION OF ARSENIC CONCENTRATION IN MONSOON RICE GRAINS**
- 334-14 5:15 PM Shrivastava, Anamika\*; Barla, Anil; Singh, Surjit; Bose, Sutapa: **INTRODUCTION OF INTERMITTENT SYSTEM OF IRRIGATION TO REDUCE ARSENIC CONTENT IN RICE GRAINS: A PROMISING APPROACH**
- 335-5 2:40 PM Salley, Devon C\*; Groves, Chris: **ADVANCING METHODS TO MEASURE THE ATMOSPHERIC CO<sub>2</sub> SINK FROM CARBONATE ROCK WEATHERING**
- 2:55 PM **BREAK**
- 335-6 3:10 PM Riddell, Jill L.\*; Vesper, Dorothy J.; Edenborn, Harry M.; Martin, Jonathan B.: **SEASONAL VARIATIONS IN DIEL BEHAVIOR OF DISSOLVED INORGANIC CARBON IN A COAL MINE DRAINAGE STREAM**
- 335-7 3:25 PM Doctor, Daniel H.\*; McGeehin, John P.; Bravo-Ruiz, Habib; Vesper, Dorothy J.: **DEPOSITION AND EROSION OF AN APPALACHIAN TUFF DEPOSIT: HYDROLOGIC RESPONSE TO CLIMATE CHANGE?**
- 335-8 3:40 PM Khadka, Mitra B.\*; Martin, Jonathan B.; Pu, Junbing: **SEDIMENTATION AND HYDROLOGIC CONTROLS ON ORGANIC AND INORGANIC CARBON DEPOSITION IN A KARSTIC WATERSHED**
- 335-9 3:55 PM Liu, Zaihua\*; Dreybrodt, Wolfgang: **SIGNIFICANCE OF THE CARBON SINK PRODUCED BY COUPLED INTERACTION OF CARBONATE WEATHERING AND AQUATIC PHOTOSYNTHESIS: REGULATION BY GLOBAL WARMING AND LAND USE/COVER CHANGES**
- 4:15 PM **BREAK**
- 335-10 4:30 PM Pain, Andrea J\*; Martin, Jonathan B.; Young, Caitlin; Brown, Amy L.: **ORGANIC CARBON QUALITY IN SUBMARINE GROUNDWATER DISCHARGE AND IMPLICATIONS FOR MINERAL DISSOLUTION IN A COASTAL CARBONATE AQUIFER**
- 335-11 4:45 PM Dyer, Blake\*; Maloof, Adam C.; Higgins, John A.: **GLACIOEUSTASY, METEORIC DIAGENESIS, AND THE CARBON CYCLE DURING THE MID-CARBONIFEROUS**
- 335-12 5:00 PM Arendt, Carli A.\*; Aciego, S.M.; Stevenson, Emily I.: **RADIOGENIC SR AS AN INDICATOR OF SUBGLACIAL WEATHERING PROCESSES: SEASONAL SHIFTS AT AN ALPINE GLACIER**
- 335-13 5:15 PM Cooper, Max P.\*; Thaler, Evan; Turner, Noel L.; Whetstone, Chelsea; Holcomb, Ginny; Covington, Matthew D.: **CONTROLS ON THE VARIABILITY IN CALCITE DISSOLUTION RATES IN SURFACE STREAMS ACROSS THE CONTIGUOUS UNITED STATES**

## SESSION NO. 335

*T119. Geological Interactions within the Global Carbon Cycle (GSA Karst Division; International Research Center on Karst Under the Auspices of UNESCO; Karst Waters Institute; National Cave and Karst Research Institute; GSA Quaternary Geology and Geomorphology Division; GSA Mineralogy, Geochemistry, Petrology, and Volcanology Division; Geochemical Society; GSA Hydrogeology Division)*

1:30 PM, Baltimore Convention Center, Room 345/346

Chris Groves and Jonathan B. Martin, Presiding

- 335-1 1:30 PM Martin, Jonathan B.\*; Groves, Chris: **CARBONATE MINERALS AND THE GLOBAL CARBON CYCLE**
- 335-2 1:45 PM Gulley, Jason\*; Martin, Jonathan B.; Moore, Paul J.; Spellman, Patricia; Brown, Amy L.; Ezell, John: **DIGGING BENEATH THE SOIL: EXAMINING THE ROLE OF ORGANIC CARBON OXIDATION IN VADOSE ZONES AND WATER TABLES IN KARSTIFICATION OF EOGENETIC LIMESTONE**
- 335-3 2:05 PM Covington, Matthew D.\*; Vaughn, Kiefer A.; Young, Holly A.; Myre, Joseph; Knierim, Katherine J.: **INTERACTIONS AMONG CAVE AIRFLOW, CARBON DIOXIDE, AND DISSOLUTION RATES WITHIN KARST CONDUITS**
- 335-4 2:20 PM Cao, Sr., Jianhua\*; Hu, Bill; Groves, Chris; Huang, Fen; Yang, Hui; Zhang, Chunlai: **THE CARBON CYCLE AND CARBON INTERACTIONS IN KARST DYNAMIC SYSTEMS**
- 336-1 1:30 PM Rodysill, Jessica R.\*: **PRELIMINARY RESULTS OF A NOVEL MULTI-PROXY CLIMATE SYNTHESIS APPROACH FROM THE NORTH AMERICAN HOLOCENE CLIMATE SYNTHESIS WORKING GROUP**
- 336-2 1:45 PM Glover, Katherine C.\*; MacDonald, Glen M.; Kirby, Matthew E.; Rhodes, Edward J.; Stevens, Lora; Lydon, Scott; Silveira, Emily; Whitaker, Alexis: **INSIGHT INTO SOUTHERN CALIFORNIA PALEOCLIMATE SINCE MARINE ISOTOPE STAGE 5C (C. 96 KA) FROM BALDWIN LAKE, SAN BERNARDINO MOUNTAINS**
- 336-3 2:00 PM Menking, Kirsten M.\*; Anderson, Roger Y.; Polyak, Victor J.; Asmerom, Yemane: **A 65,000-YEAR RECORD OF HYDROLOGIC VARIABILITY IN THE ESTANCIA BASIN OF CENTRAL NEW MEXICO**
- 336-4 2:15 PM Reed, Michael P.\*; Laabs, Benjamin J.C.; Amidon, William H.; Munroe, Jeffrey S.: **EVALUATING SIGNALS OF MOUNTAIN GLACIER AND PALEOLAKE RESPONSE TO HEINRICH EVENT 1, NORTHERN GREAT BASIN, NEVADA**

## SESSION NO. 336

*T125. Lakes of the World (GSA Limnogeology Division; GSA Quaternary Geology and Geomorphology Division)*

1:30 PM, Baltimore Convention Center, Room 347/348

Scott W. Starratt and Johan C. Varekamp, Presiding

WEDNESDAY

PM



SESSION NO. 336

- 336-5** 2:30 PM Starratt, Scott W.\*: **HOLOCENE PRECIPITATION VARIATIONS IN THE WESTERN UNITED STATES**
- 336-6** 2:45 PM Zimmerman, Susan Herrgesell\*; Brown, Tom; Hemming, Sidney: **POTENTIAL FOR HIGH-PRECISION AGE MODELS FOR TERRESTRIAL CLIMATE ARCHIVES USING RADIOCARBON AGES OF POLLEN SEPARATED BY FLOW CYTOMETRY**
- 336-7** 3:00 PM Chraïbi, Victoria L. Shaw\*; Fritz, Sherilyn C.; Lu, Yanbin; Stone, Jeffery R.: **CENTRIC DIATOM SIZE SHIFTS IN RESPONSE TO EARLY HOLOCENE CLIMATIC CHANGE**
- 336-8** 3:15 PM Delusina, Irina\*; Verosub, Kenneth L.; Starratt, Scott W.: **SEDIMENTATION AND PEAT FORMATION IN SMALL POOLS OF THE SACRAMENTO-SAN JOAQUIN DELTA (CALIFORNIA, USA) IN THE HOLOCENE: SIGNIFICANT RESPONSE OF A SYSTEM TO MILD CLIMATIC CHANGE**
- 336-9** 3:30 PM Goman, Michelle F.\*; Lund, S.P.; Pearson, Charlotte; Guerra, William J.; Joyce, Arthur: **THE POTENTIAL FOR HIGH RESOLUTION PALEOCLIMATE RECONSTRUCTIONS AT LAGUNA MINUCUA, OAXACA, MEXICO**
- 336-10** 3:45 PM Stine, Scott\*: **THE USE OF LAKES, MARSHES, AND RIVERS IN DEFINING AND DATING THE MEDIEVAL CLIMATIC ANOMALY**
- 336-11** 4:00 PM Faiia, Anthony M.\*; Szykiewicz, Anna; Zhang, Zhaohui: **SULFUR AND CARBON CYCLING IN THE MONIMOLIMNION OF MEROMICTIC GREEN LAKE, NY**
- 336-12** 4:15 PM Varekamp, Johan C.\*; Capece, Lena R.; Thomas, Ellen: **CARBON CYCLING IN TWO VOLCANIC LAKES FED BY GEOTHERMAL FLUIDS: PHOTOSYNTHETIC SEQUESTRATION AND DIFFUSIVE CO<sub>2</sub> ESCAPE**
- 336-13** 4:30 PM Patterson, R. Timothy\*; Swindles, Graeme T.: **"ICE OUT": THE CONTRIBUTION OF CITIZEN SCIENTISTS TO OUR UNDERSTANDING OF CLIMATE CHANGE**
- 336-14** 4:45 PM Dietz, Robert D.\*: **EVALUATING THE IMPORTANCE OF LAKE CARBON BURIAL AS A COMPONENT OF LANDSCAPE-WIDE CARBON ACCUMULATION (MINNESOTA, USA)**
- 336-15** 5:00 PM Yang, Hong\*; Liu, Weiguang; Leng, Qin: **SOURCE OF LONG CHAIN N-ALKANES AND THEIR STABLE ISOTOPE SIGNATURES IN LAKE SEDIMENTS: IMPLICATIONS TO PALEOENVIRONMENT RECONSTRUCTION**
- 336-16** 5:15 PM Lyons, W. Berry\*; Welch, Kathleen A.; Priscu, John C.; Dowling, Carolyn B.; Neumann, Klaus; Snyder, Glen: **THE LIMNOLOGY OF LAKE JOYCE, PEARSE VALLEY, ANTARCTICA**
- 337-5** 2:30 PM Carmichael, Sarah K.\*; Waters, Johnny A.; Suttner, Thomas J.; Kido, Erika; Batchelor, Cameron J.; Coleman, Drew S.: **OVERTURNING IDEAS ABOUT OCEANIC OVERTURNING IN THE LATE DEVONIAN: INSIGHTS FROM THE CENTRAL ASIAN OROGENIC BELT**
- 2:45 PM **BREAK**
- 337-6** 3:00 PM Herrle, Jens O.\*; Schröder-Adams, Claudia: **MID-CRETACEOUS STRATIGRAPHY, CLIMATE AND OCEANIC ANOXIC EVENTS: EXAMPLES FROM HIGH- AND LOW-LATITUDE SEDIMENTARY RECORDS**
- 337-7** 3:15 PM Kukla, Tyler J.\*; Sageman, Bradley B.; Hurtgen, Matthew T.; Kristall, Brian; Jarvis, Ian: **COMPARATIVE SULFUR ISOTOPE STUDY OF THE MID CENOMANIAN EVENT AND THE CENOMANIAN-TURONIAN OAE2**
- 337-8** 3:30 PM Trabucho-Alexandre, João P.\*; Gröcke, Darren R.: **BLACK TURBIDITES: EXPORTING OCEANIC ANOXIC EVENTS TO DEEP WATER**
- 337-9** 3:45 PM Lindström, Sofie\*; Pedersen, Gunver; Sanei, Hamed; Dybkjær, Karen; Hansen, Katrine Hovedskov; Bjerrum, Christian J.; Nielsen, Lars Henrik: **ORGANIC RICH MUDSTONES BEFORE AND AFTER THE END-TRIASSIC EVENT IN THE DANISH BASIN**
- 337-10** 4:00 PM Tuite, Jr., Michael\*: **DURING THE MIDDLE AND LATE DEVONIAN HOTHOUSE, NITROGEN LIMITATION MADE JUICY ROCKS**
- 337-11** 4:15 PM Williams, Jeremy C.\*; Darrach, Thomas H.; Poreda, Stephanie; Whyte, Colin; Stebbins, Alan G; Hannigan, Robyn: **ARE UNION SPRINGS AND OATKA CREEK MEMBERS OF THE MARCELLUS FORMATION FORMED UNDER DIFFERENT DEPOSITIONAL CONDITIONS?**

SESSION NO. 338

*T152. Geobiology of Critical Transitions: Integrating Fossils, Proxies, and Models III (GSA Geobiology & Geomicrobiology Division; Paleontological Society; Geochemical Society)*

1:30 PM, Baltimore Convention Center, Room 325/326

A. D. Muscente, Natalia Bykova, Jesse S. Broce and James D. Schiffbauer, Presiding

- 338-1** 1:30 PM Darroch, Simon A.F.\*; Rahman, Imran A.; Wagner, Peter J.; Racicot, Rachel; Laflamme, Marc: **HOW 'COMPLEX' WERE EDIACARAN ECOSYSTEMS?**
- 338-2** 1:45 PM Boag, Thomas H.\*; Darroch, Simon A.F.; Laflamme, Marc: **EDIACARAN DISTRIBUTIONS IN SPACE AND TIME: TESTING ASSEMBLAGE CONCEPTS OF THE EARLIEST MACROSCOPIC BODY-FOSSILS**
- 338-3** 2:00 PM Mitchell, Emily G.\*: **IMPACT OF SPATIAL HETEROGENEITIES ON EDIACARAN COMMUNITIES FROM MISTAKEN POINT, NEWFOUNDLAND**
- 338-4** 2:15 PM Högström, Anette E.S.\*; Taylor, Wendy L.; Jensen, Sören; Ebbestad, Jan Ove R.; Høyberget, Magne; Meinhold, Guido; Palacios, Teodoro; Novis, Linn; Ou, Zhiji: **EXPLORING THE EDIACARAN BIOTA OF THE DIGERMULEN PENINSULA, NORTHERN NORWAY**
- 338-5** 2:30 PM Penny, Amelia\*; Wood, Rachel; Zhuravlev, Andrey Yu.; Curtis, Andrew; Bowyer, Fred; Tostevin, Rosalie: **ECOLOGICAL COMPLEXITY AND ENVIRONMENTAL PREFERENCES IN EDIACARAN SKELETAL METAZOANS**
- 338-6** 2:45 PM O'Neil, Gretchen R.\*; Huntley, John Warren; Schiffbauer, James D.: **EVOLUTIONARY AND ECOLOGICAL IMPLICATIONS OF BODY SIZE DYNAMICS OF EDIACARA ORGANISMS**
- 338-7** 3:00 PM Laflamme, Marc\*; Darroch, Simon A.F.; Schiffbauer, James D.: **STUDIES IN EDIACARAN PRESERVATION**
- 3:15 PM **BREAK**

SESSION NO. 337

*T143. What Makes a Juicy Rock? Global Climate Events and Deposition of Organic Rich Shales through Time (Geochemical Society; GSA Energy Geology Division; AASP - The Palynological Society)*

1:30 PM, Baltimore Convention Center, Room 309

Stephen E. Grasby and Jennifer Galloway, Presiding

- 337-1** 1:30 PM Wignall, Paul B.\*: **EARLY TRIASSIC MARINE ANOXIA**
- 337-2** 1:45 PM Ma, Yiquan\*; Fan, Majie; Lu, Yongchao: **GEOCHEMISTRY AND SEDIMENTOLOGY OF THE LOWER SILURIAN LONGMAXI SHALE IN SOUTHWESTERN CHINA: IMPLICATIONS FOR DEPOSITIONAL CONTROLS ON ORGANIC MATTER ACCUMULATION**
- 337-3** 2:00 PM Bond, David P.G.\*; Sun, Yadong; Wignall, Paul B.; Joachimski, Michael M.; Grasby, Stephen E.; Lai, Xulong; Wang, Lina; Zhang, Zaitian; Sun, Si: **CLIMATE WARMING, EUXINIA AND CARBON ISOTOPE PERTURBATIONS DURING THE CARNIAN (TRIASSIC) CRISIS**
- 337-4** 2:15 PM Hennissen, Jan A.I.\*; Hough, Edward; Vane, Christopher H.; Stephenson, Michael H.: **CHARACTERIZATION OF THE KEROGEN FRACTION OF ARNSBERGIAN (LATE**



- 338-8** 3:30 PM Smith, Emily F.\*; Nelson, Lyle L.; Eyster, Athena E.; Macdonald, Francis A.: **THE EDIACARAN-CAMBRIAN TRANSITION IN THE DEEP SPRING FORMATION AT MT. DUNFEE, NV, USA**
- 338-9** 3:45 PM Meyer, Michael\*; Polys, Nick: **TRACE FOSSILS IN 3DI MICRO-CT RECONSTRUCTIONS OF THE LATE EDIACARAN TRACE FOSSIL *LAMONTE TREVALLIS*, FROM THE YANGTZE GORGES AREA, SOUTH CHINA**
- 338-10** 4:00 PM Tarhan, Lidya G.\*; Planavsky, Noah J.; Droser, Mary L.; Gehling, James G.: **DEPOSITIONAL AND PRESERVATIONAL ENVIRONMENTS OF THE EDIACARA MEMBER, RAWNSLEY QUARTZITE (SOUTH AUSTRALIA): ASSESSING THE TIMING OF 'FERRUGINIZATION'**
- 338-11** 4:15 PM Evans, Scott D.\*; Droser, Mary L.; Gehling, James: **SIZE 'EM UP: BODY SIZE DISTRIBUTIONS OF *DICKINSONIA COSTATA* FROM NILPENA, FLINDERS RANGES, SOUTH AUSTRALIA**
- 338-12** 4:30 PM Menon, Latha R.\*; McLroy, Duncan; Brasier, Martin D.: **DISCOIDAL FORMS AS EVIDENCE OF COMPLEX LIFE: A CAUTIONARY TALE AND A NEW VARIETY OF MISS FROM THE EDIACARAN ROCKS OF THE LONG MYND, ENGLAND**
- 338-13** 4:45 PM Newman, Sharon\*; Mariotti, Giulio; Bosak, Tanja: **A RECIPE FOR CYANOBACTERIAL FOSSILIZATION IN SILICICLASTIC ENVIRONMENTS**
- 338-14** 5:00 PM Bosak, Tanja\*; Newman, Sharon; Pruss, Sara B.; Mariotti, Giulio: **FORMATION AND PRESERVATION OF MICROBIAL TEXTURES IN SILICICLASTIC SEDIMENTS**
- 5:20 PM **CONCLUDING REMARKS**

**SESSION NO. 339****T161. Echinoderm Paleobiology: Diversity, Form, and Phylogeny (Paleontological Society)**

1:30 PM, Baltimore Convention Center, Room 316

David F. Wright, Selina R. Cole and Jeffrey R. Thompson, Presiding

- 339-1** 1:30 PM Zamora, Samuel\*; Rahman, Imran A.: **THE ROLE OF SUBSTRATES IN THE EARLY DIVERSIFICATION OF ECHINODERMS**
- 339-2** 1:50 PM Parsley, Ronald L.\*: **BASAL ECHINODERMS: THEIR PLEISIOMORPHIC CHARACTERS AND AND WHAT SETS THEM APART FROM MOST MODERN CROWN GROUPS?**
- 339-3** 2:05 PM Cole, Selina R.\*: **A PHYLOGENETIC TEST OF THE SUPRAGENERIC CLASSIFICATION OF DIPLOBATHRID CRINOIDS**
- 339-4** 2:20 PM Bauer, Jennifer E.\*; Sumrall, Colin D.: **REVISED PHYLOGENETIC HYPOTHESIS OF BLASTOIDEA (ECHINODERMATA)**
- 339-5** 2:35 PM Zachos, Louis G.\*: **MORPHOLOGIC CHARACTERIZATION OF THE "PRIMITIVE" ECHINOID *FIBULARIA TEXANA* (CLYPEASTEROIDA:SCUTELLINA)**
- 339-6** 2:50 PM Thompson, Jeffrey R.\*; Petsios, Elizabeth; Bottjer, David J.: **USING FOSSILS AND PHYLOGENIES TO DATE THE TIMING OF KEY GENE REGULATORY NETWORK INNOVATIONS: AN EXAMPLE USING ECHINOIDS**
- 339-7** 3:05 PM Wright, David F.\*: **TESTING THE TAXONOMIC STRUCTURE OF PALEOZOIC PAN-CLADID CRINOIDS: A STATISTICAL APPROACH USING THE FOSSILIZED BIRTH-DEATH PROCESS AND BAYESIAN PHYLOGENETIC INFERENCE**
- 339-8** 3:20 PM Deline, Bradley\*: **THE ESTABLISHMENT OF ECHINODERM BODY PLANS**
- 339-9** 3:40 PM Sheffield, Sarah L.\*; Sumrall, Colin D.: **UNCOVERING THE DIVERSITY AND BIOGEOGRAPHY OF SILURIAN DIPLOPORITANS: NEW DATA FROM MISSOURI, USA**
- 339-10** 3:55 PM Veitch, Margaret A.\*; Messing, Charles G.; Baumiller, Tomasz K.: **CONTRACTILE CONNECTIVE TISSUE (CCT) IN THE STALK OF THE BOURGUETICRINID CRINOID, *DEMOCRINUS*: FUNCTIONAL, ECOLOGICAL, AND EVOLUTIONARY IMPLICATIONS**
- 339-11** 4:10 PM Nguyen, Bonnie K.\*; Waters, Johnny A.; Sumrall, Colin D.: **HYDRODYNAMIC MODELING OF BRACHIOLAR FILTRATION SYSTEMS IN BLASTOIDS (ECHINODERMATA)**
- 339-12** 4:25 PM White, Lyndsie Elizabeth\*; Waters, Johnny A.; Sumrall, Colin D.: **HYDRODYNAMIC MODELING OF RESPIRATORY SYSTEMS IN BLASTOIDS (ECHINODERMATA)**
- 339-13** 4:40 PM Sumrall, Colin D.\*: **TAXONOMY, AND PALEOECOLOGY OF THE ORDOVICIAN EDRIOASTEROIDS OF THE BARRANDIAN AREA, CZECH REPUBLIC**
- 339-14** 4:55 PM Ausich, William I.\*; Donovan, Stephen K.: **PHYLOGENY OF DISPARID CRINOIDS**
- 339-15** 5:10 PM Oji, Tatsuo\*; Matsumoto, Mahiro; Burns, Casey: **EXPERIMENTAL TAPHONOMY OF CRINOIDS: A POSITIVE FEEDBACK FROM MODERN AND ANCIENT EXAMPLES**

**SESSION NO. 340****T175. Oceans, Fire, and Ice of the Outer Solar System (GSA Planetary Geology Division; GSA Structural Geology and Tectonics Division; GSA Quaternary Geology and Geomorphology Division; GSA Geophysics Division; GSA Mineralogy, Geochemistry, Petrology, and Volcanology Division)**

1:30 PM, Baltimore Convention Center, Room 344

D. Alex Patthoff and Emily S. Martin, Presiding

- 340-1** 1:30 PM Hurford, Terry\*; Asphaug, Erik; Spitale, Joseph; Hemingway, Douglas; Rhoden, Alyssa; Henning, Wade; Bills, Bruce; Kattenhorn, Simon; Walker, Matthew: **SURFACE EVOLUTION FROM ORBITAL DECAY ON PHOBOS AND TRITON**
- 340-2** 1:50 PM Stickle, Angela M.\*; Roberts, James H.: **MODELING AN EXOGENIC ORIGIN FOR THE EQUATORIAL RIDGE ON IAPETUS**
- 340-3** 2:05 PM Patthoff, D. Alex\*; Pappalardo, Robert T.; Maue, Anthony D.; Chilton, Heather; Craft, Kathleen L.; Martin, Emily S.: **RIDGES ON ENCELADUS, EUROPA, AND OTHER ICY WORLDS**
- 340-4** 2:20 PM Craft, Kathleen L.\*; Patthoff, D. Alex; Martin, Emily S.; Dombard, Andrew J.; Rhoden, Alyssa: **RIDGES ON ENCELADUS: INITIAL MODELS OF FORMATION AND FLEXURE**
- 340-5** 2:35 PM Patterson, Gerald Wesley\*; Collins, Geoffrey C.; Pappalardo, Robert T.; Becker, Tammy L.; Edmundson, Kenneth L.; Bland, Michael: **GLOBAL GEOLOGIC MAPPING OF ENCELADUS**
- 340-6** 2:55 PM Maue, Anthony D.\*; Patthoff, D. Alex; Pappalardo, Robert T.: **MAPPING AND ANALYSIS OF TECTONIC FEATURES ON ENCELADUS'S LEADING HEMISPHERE TERRAIN**
- 340-7** 3:10 PM Lopes, Rosaly M.C.\*; Malaska, Michael J.; Schoenfeld, Ashley; Birch, Samuel P.D.; Hayes, Alexander G.; Solomonidou, Anezina; Radebaugh, Jani; Williams, David: **GEOMORPHIC UNITS ON TITAN**
- 3:25 PM **BREAK**
- 340-8** 3:40 PM Martin, Emily S.\*; McDaniel, Jessica; Watters, Thomas R.: **DETAILED MAPPING AND CHARACTERIZATION OF DIONE'S WISPY TERRAINS**
- 340-9** 3:55 PM Roberts, James H.\*; Phillips, Cynthia B.: **VISCOELASTIC RELAXATION OF CRATERS AND THERMAL HISTORIES OF THE MID-SIZED ICY SATELLITES OF SATURN**
- 340-10** 4:10 PM Quick, Lynnae C.\*; Glaze, Lori S.; Baloga, Stephen M.: **CRYOVOLCANIC EMPLACEMENT OF DOMES ON EUROPA**

## SESSION NO. 340

- 340-11** 4:30 PM Manga, Michael\*; Michaut, Chloe; Culha, Cansu: **CRYOMAGMATISM ON EUROPA**
- 340-12** 4:45 PM Walker, Catherine C.\*: **ENDLESS (FROZEN) SUMMER: IN SEARCH OF THE PERFECT WAVE**
- 340-13** 5:00 PM Bradburne, Christopher\*; Craft, Kathleen L.: **AUTOMATED SAMPLE PREPARATION AND IN SITU SEQUENCING OF A DNA BIOSIGNATURE FOR ASTROBIOLOGICAL ANALOGUE SAMPLES**
- 340-14** 5:15 PM Williams, Jason\*; Potter-McIntyre, Sally L.; Phillips-Lander, Charity; O'Connell, Laura: **A JURASSIC SPRING-FED LAKE SYSTEM IN THE BRUSHY BASIN MEMBER OF THE MORRISON FORMATION, TEN MILE GRABEN, UTAH, USA; BIOSIGNATURE PRESERVATION AND ASTROBIOLOGICAL IMPLICATIONS**

## SESSION NO. 341

**T212. Deconstructing Rodinia: Neoproterozoic-Cambrian Geologic Evolution of Laurentia's Margins (GSA Structural Geology and Tectonics Division; GSA Geophysics Division; GSA Sedimentary Geology Division; GSA Mineralogy, Geochemistry, Petrology, and Volcanology Division; Precambrian Geology; SEPM (Society for Sedimentary Geology); Geochemical Society; Society of Economic Geologists; Paleooceanography/Paleoclimatology Discipline; Paleontological Society)**

1:30 PM, Baltimore Convention Center, Room 314

Chris Holm-Denoma and Arthur J. Merschat, Presiding

- 341-1** 1:30 PM Evans, David A.D.\*; Wen, Bin; Li, Yongxiang: **PROTEROZOIC PALEOGEOGRAPHY OF TARIM BLOCK: AN EXTENDED OR ALTERNATIVE "MISSING-LINK" MODEL FOR RODINIA?**
- 341-2** 1:50 PM Southworth, Scott\*; Aleinikoff, J.N.; Holm-Denoma, Chris; Merschat, Arthur J.; Satkoski, Aaron M.: **SPATIAL AND TEMPORAL COMPLEXITIES OF THE EASTERN LAURENTIAN MARGIN: NEW INSIGHT FROM OLD ROCKS OF THE APPALACHIAN BLUE RIDGE AND WESTERN PIEDMONT**
- 341-3** 2:05 PM Yonkee, Adolph\*; Dehler, Carol M.; Link, Paul K.; Balgord, Elizabeth; Keeley, Joshua A.; Wells, Michael L.; Fanning, C. Mark; Johnston, Scott M.: **TECTONO-STRATIGRAPHIC FRAMEWORK OF NEOPROTEROZOIC TO EARLY PALEOZOIC STRATA, WESTERN US: PROTRACTED RIFTING AND EVOLUTION OF THE WESTERN LAURENTIA MARGIN**
- 341-4** 2:25 PM Holm-Denoma, Christopher S.\*; Southworth, C.S.; Merschat, Arthur J.; McClellan, Elizabeth: **THE DETRITAL RECORD OF NEOPROTEROZOIC TO CAMBRIAN ROCKS FROM THE SOUTHERN APPALACHIAN BLUE RIDGE: PROTRACTED RIFTING, RAPID UNROOFING, AND STABILIZATION OF THE MARGIN**
- 341-5** 2:40 PM Eyster, Athena E.\*; Macdonald, Francis A.; Ferri, Filippo; Schmitz, Mark D.: **ONE NEOPROTEROZOIC GLACIATION, TWO EPISODES OF EXTENSION, AND ONE RIFT RECORDED AT GATAGA MOUNTAIN IN NORTHERN BRITISH COLUMBIA**
- 341-6** 2:55 PM McClellan, Elizabeth\*; Holm-Denoma, Christopher S.; Gazel, Esteban; Rizzo, Brandon R.; Brown, Elise: **BREAKING UP RODINIA: MAGMATIC AND SEDIMENTOLOGICAL EVIDENCE FOR A MANTLE PLUME TRIGGER**
- 341-7** 3:10 PM Hodgkin, Eben Blake\*; Carlotto, Victor; Crowley, James; Macdonald, Francis A.: **WAS THE AREQUIPA MASSIF THE CONJUGATE RIFTED MARGIN OF EASTERN LAURENTIA?**
- 341-8** 3:25 PM Mahoney, J. Brian\*; Link, Paul K.; Pearson, David M.: **SEGMENTATION OF THE WESTERN LAURENTIAN CONTINENTAL MARGIN: EVIDENCE FOR ACTIVE TECTONISM IN THE NEOPROTEROZOIC-CAMBRIAN 'MIOGEOCLINE'**

3:40 PM **BREAK**

- 341-9** 3:55 PM Creveling, Jessica R.\*; Bergmann, Kristin D.; Grotzinger, John P.: **CAP CARBONATE PLATFORM FACIES MODEL, NEOPROTEROZOIC NOONDAY FORMATION, SE CALIFORNIA**
- 341-10** 4:10 PM Hageman, Steven J.\*; Miller, III, William: **CHRONOSTRATIGRAPHY OF THE LATE EDIACARAN - EARLY CAMBRIAN CHILHOWEE CLASTIC SUCCESSION OF SOUTHERN LAURENTIA: REDUX WITH REFINEMENT**
- 341-11** 4:25 PM Jones, III, James V.\*; Holm-Denoma, Christopher S.; O'Sullivan, Paul B.: **USING DETRITAL ZIRCON TO CORRELATE AND RECONSTRUCT NEOPROTEROZOIC AND EARLY PALEOZOIC COMPONENTS OF PERI-LAURENTIAN TERRANES IN THE NORTHERN CORDILLERA AND ALASKA**
- 341-12** 4:40 PM Farmer, G. Lang\*; Fedo, Christopher M.: **DECOUPLING OF WHOLE-ROCK ND AND ZIRCON U-PB AND HF ISOTOPE SEDIMENT PROVENANCE DETERMINATIONS: EXAMPLES FROM NEOPROTEROZOIC-CAMBRIAN SEDIMENTARY ROCKS ALONG THE WESTERN MARGIN OF LAURENTIA**
- 341-13** 4:55 PM Muhlbauer, Jason\*; Fedo, Christopher M.; Farmer, G. Lang: **TESTING FOR THE EFFECTS OF SEDIMENT SORTING ON DETRITAL-ZIRCON AGE SPECTRA: CASE STUDIES FROM THE WOOD CANYON FORMATION (CAMBRIAN) AND STIRLING QUARTZITE (NEOPROTEROZOIC), SOUTHEASTERN CA**
- 341-14** 5:10 PM Hantsche, Aaron L.\*; Farmer, G. Lang; Siddoway, Christine; Fedo, Christopher M.: **HAFNIUM ISOTOPE EVIDENCE ON THE SOURCES OF GRENVILLE-AGE DETRITAL ZIRCON DEPOSITED AT THE GREAT UNCONFORMITY**

## SESSION NO. 342

**T214. Mountains across the Oceans: Caledonian, Variscan, and Appalachian Orogenies through Time (GSA Structural Geology and Tectonics Division; EGU Division on Tectonics and Structural Geology; GSA Mineralogy, Geochemistry, Petrology, and Volcanology Division)**

1:30 PM, Baltimore Convention Center, Room 308

Jeffrey Marsh, Loic Labrousse, Nicolas Pinet and Stacia M. Gordon, Presiding

- 342-1** 1:30 PM Ague, Jay J.\*; Axler, Jennifer A.; Chu, Xu: **ULTRAHIGH-TEMPERATURE METAMORPHISM IN THE CALEDONIAN, VARISCAN, AND APPALACHIAN OROGENS: RARE, UNEXPOSED, OR JUST UNRECOGNIZED?**
- 342-2** 1:45 PM Waldron, John W.F.\*; Schofield, David I.; Reusch, Douglas N.: **ARC-MICROCONTINENT INTERACTION IN THE EARLY HISTORY OF THE IAPETUS OCEAN**
- 342-3** 2:00 PM Tremblay, Alain\*; Pinet, Nicolas: **TECTONIC EVOLUTION OF THE QUÉBEC APPALACHIANS – A LAURENTIAN PERSPECTIVE AND IMPLICATIONS FOR THE TACONIAN-GRAMPIAN OROGENY**
- 342-4** 2:15 PM Massey, Matthew A.\*; Moecher, David P.: **PENNSYLVANIAN TO PERMIAN LATERAL ESCAPE OF THE BRONSON HILL ARC AND CENTRAL MAINE BASIN IN SOUTHERN NEW ENGLAND: SIGNIFICANCE OF SINISTRAL KINEMATICS ALONG THE WESTERN BRONSON HILL SHEAR SYSTEM**
- 342-5** 2:30 PM McCulla, James\*; Massey, Matthew; Moecher, David; Young, Jared; Draper, Kyle: **DATING DEFORMATION IN THE PALMER ZONE OF TRANSPRESSION, CENTRAL MASSACHUSETTS: TEMPORAL CONSTRAINTS ON MODELS FOR PROGRESSIVE DEFORMATION IN THE MIDDLE CRUST**
- 342-6** 2:45 PM Buchanan, II, John Wesley\*; Kuiper, Yvette D.; Buchwaldt, Robert: **NEW ADVANCES ON THE DEFORMATION AND ANATECTIC HISTORY OF THE NASHOBA TERRANE, NEW ENGLAND APPALACHIANS**

- 342-7** 3:00 PM Buchwaldt, Robert\*: **REFINED AGES OF PALEOZOIC ROCKS IN RHODE ISLAND AS CONSTRAINTS ON THE FORMATION OF THE APPALACHIAN HOPE VALLEY TERRANE IN SOUTHEASTERN NEW ENGLAND**
- 3:15 PM **BREAK**
- 342-8** 3:30 PM Duff, Patrick D.\*; Kellogg, James: **COLLISIONAL TECTONICS OF THE SOUTHERN APPALACHIAN OROGENIC BELT - REINTERPRETATION OF ADCOH AND COCORP SEISMIC REFLECTION DATA WITH CONSTRAINTS FROM NEW POTENTIAL FIELD DATA**
- 342-9** 3:45 PM Levine, Jamie S.F.\*; Quillan, Kevin, R.; Merschhat, Arthur; Casale, Gabriele; Rohl, Paige: **DEFORMATION CONDITIONS, KINEMATICS, AND CHARACTER OF THE FRIES AND GOSSAN-LEAD FAULTS, NORTH CAROLINA: IMPLICATIONS FOR THE ALLEGHANIAN OROGENY IN THE SOUTHERN APPALACHIANS**
- 342-10** 4:00 PM Casale, Gabriele\*; Levine, Jamie S.F.; Craig, Taylor D.; Stewart, Craig; Rahl, Jeffrey M.: **TIMING AND CONDITIONS OF DOME FORMATION IN THE SOUTHERN APPALACHIANS; IMPLICATIONS FOR INTERNAL DEFORMATION OF THE BLUE RIDGE THRUST SHEET**
- 342-11** 4:15 PM Barineau, Clinton I.\*; Tull, James F.; Mueller, Paul A.; Sagul, Douglas A.; Holm-Denoma, Christopher S.: **TECTONIC IMPLICATIONS OF ORDOVICIAN-SILURIAN MAGMATIC-VOLCANIC SEQUENCES IN THE EASTERN BLUE RIDGE AND INNER PIEDMONT, SOUTHERN APPALACHIAN OROGEN**
- 342-12** 4:30 PM Farris, David W.\*; Tull, James F.; Mueller, Paul A.; Davis, Benjamin L.; Thomas, Richard: **THE DADEVILLE COMPLEX OF EASTERN ALABAMA AND WESTERN GEORGIA: IMPLICATIONS FOR THE "MISSING" TACONIC ARC IN THE SOUTHERN APPALACHIANS**
- 342-13** 4:45 PM Eddy, Michael P.\*; Jagoutz, Oliver: **TEMPORAL RECORD OF MAGMATISM DURING THE RIFT TO DRIFT TRANSITION ALONG THE NEWFOUNDLAND-IBERIA CONJUGATE MARGINS**
- 342-14** 5:00 PM Hutchinson, Deborah\*; Jackson, H. Ruth; Chian, Deping; Shimeld, John; Oakey, Gordon; Lebedeva-Ivanova, Nina; Li, Qingmou; Saltus, Richard W.; Mosher, David: **OCEANIC CRUST OF THE CANADA BASIN, ARCTIC OCEAN**