

2022 PROGRAM

Vol. 54, No. 4



JOINT NORTH-CENTRAL- SOUTHEASTERN SECTION

7–8 April
Cincinnati, Ohio USA

<https://www.geosociety.org/nc-mtg>

Cincinnati skyline at night
Photo by Jake Blucker on Unsplash.

SPONSORS

We are thankful to sponsors who made substantial contributions that enhanced this meeting. Their names will be prominently displayed throughout the meeting space. Sponsors as of press time include:



NOTICE

By registering for this meeting, you have acknowledged that you have read and will comply with the GSA Code of Conduct for Events. If you have any concerns about behavior that may violate the Code, please contact:

GSA Executive Director, Vicki McConnell, vmconnell@geosociety.org

GSA Ethics and Compliance Officer, Nan Stout, ethics@geosociety.org

You may also stop by the registration desk or the GSA Bookstore to have the named individuals directly contacted via phone. You may also speak with a GSA RISE liaison, identified by their RISE buttons.

**FINAL PROGRAM
FOR
56th Annual Meeting
NORTH-CENTRAL SECTION, GEOLOGICAL SOCIETY OF AMERICA
71st Annual Meeting
SOUTHEASTERN SECTION, GEOLOGICAL SOCIETY OF AMERICA
7–8 April 2022
Duke Energy Convention Center, Cincinnati, Ohio**



Our Liveable Future Needs Geoscience

Hosted By:

University of Cincinnati
University of Kentucky
Kentucky Geological Survey
Miami University of Ohio
Appalachian State University
Winthrop University

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Local Organizing Committee for the 2022 Meeting

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Associated Society Events Coordinator Gwen Daley
Exhibits Chair Cole Edwards
Field Trip Co-Chairs Claire McLeod, Steve Greb
Posters Chair Kent Ratajeski
Public Engagement Committee Meg Corcoran, Andrea Corpolongo, Zeke King Phillips, Emily Simpson
Short Course Chair Jason Dortch
Sponsorship Chair David P. Moecher
Student Volunteers Maija Sipola

General Information



Covid Statement

To ensure a healthy, safe, and comfortable event, we require that only those vaccinated against COVID-19 attend the in-person meeting. If you are not vaccinated or test positive for COVID-19 before or during the meeting, please opt for the online version. In person attendees must wear masks at all times while attending the meeting. In person attendees will be required to upload proof of vaccination as well as a negative test result before the convention and will answer a brief health screening via an app each morning.

Welcome

The Local Organizing Committee and Section Officers welcome you to the 2022 joint meeting of the North-Central and Southeastern Sections of the Geological Society of America, located in historic downtown Cincinnati, Ohio. We welcome you to Cincinnati and hope you enjoy the attractions of the downtown riverfront area as well as the surrounding city.

Location

Renewed interest in downtown Cincinnati and areas just across the Ohio River in northern Kentucky has created dozens of breweries and brew pubs, new and renovated city parks, restaurants, cafés, and coffee bars, museums, theaters, and shopping venues. Cincinnati's seven hills lie atop the world-renowned fossiliferous Ordovician Cincinnati Series, and southwestern Ohio and northern Kentucky mark the terminus of the Laurentide Ice Sheet. The region's bedrock geology and its glacial history underlie Cincinnati's nexus of landslide hazards and urban development, as well as the dynamics of large and small watersheds throughout the region.

The Duke Energy Convention Center is located at 525 Elm Street in downtown Cincinnati, blocks away from the attractions of the Ohio Riverfront, including Paul Brown Stadium, home of the Cincinnati Bengals football team, and the Great American Ballpark, home of the Cincinnati Reds baseball team. Between the stadiums is The Banks, an 18-acre mixed-use development with restaurants, bars and brewpubs, and night life. The National Underground Railroad Freedom Center is located in the center of The Banks and adjoins riverfront parks. The pedestrian-friendly Roebling Suspension Bridge (designed by John Roebling and completed in 1867 in advance of the Brooklyn Bridge) connects downtown Cincinnati with Covington, KY (founded in 1815) where bistros and taverns are concentrated in Mainstrasse Village and along Main Street west of the bridge.

Historic Over-the-Rhine is located just north of the Duke Energy Convention Center along Vine St. north of Central Parkway (once a canal...the Rhine...) and is rich in restaurants, breweries, shops, and historic buildings. Over-the-Rhine

includes Washington Park which fronts Cincinnati Music Hall (completed in 1878 and a National Historic Landmark) and Memorial Hall. Historic Findley Market, Ohio's oldest continuously operated public market, is located north of Liberty Street between Race and Elm Streets in Over-the-Rhine. The Cincinnati Bell Connector streetcar connects the riverfront with Over-the-Rhine.

A short ride just west of Interstate 75 is the Cincinnati Museum Center located in spectacular Art Deco Union Terminal. Eden Park, located a short distance east of the downtown core, is home to the Cincinnati Art Museum, Playhouse in the Park, and the Krohn Conservatory, and offers vistas of the Ohio River. Adjoining Eden Park is Mount Adams, a neighborhood with restaurants, taverns, music venues, and shopping. The renowned Cincinnati Zoo and Botanical Garden is located uptown between the Clifton and Avondale neighborhoods. See the meeting website for more details of attractions and restaurant suggestions.

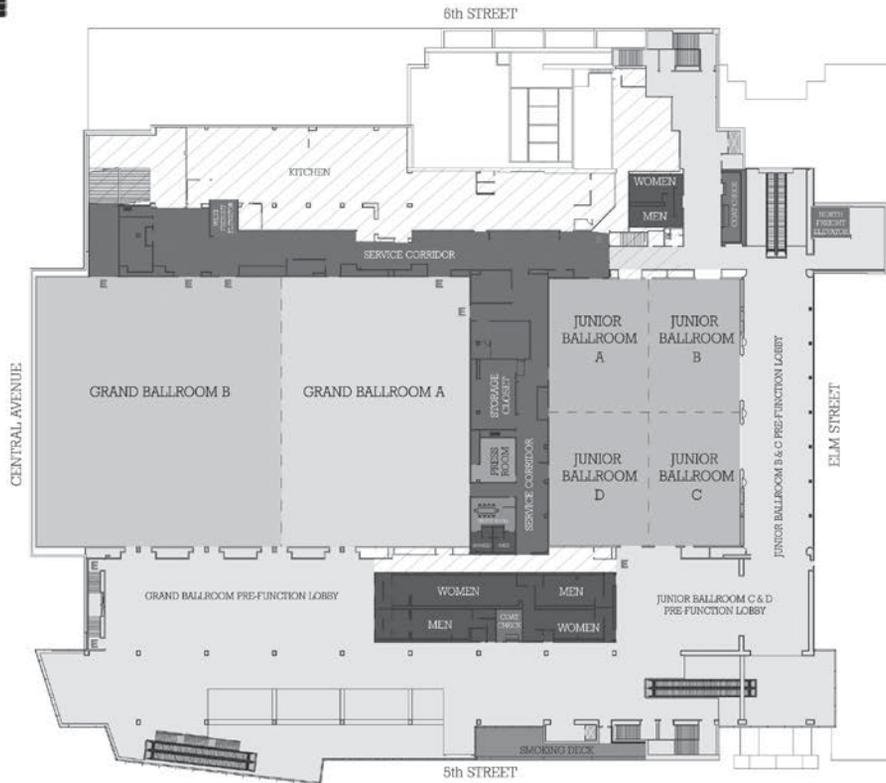


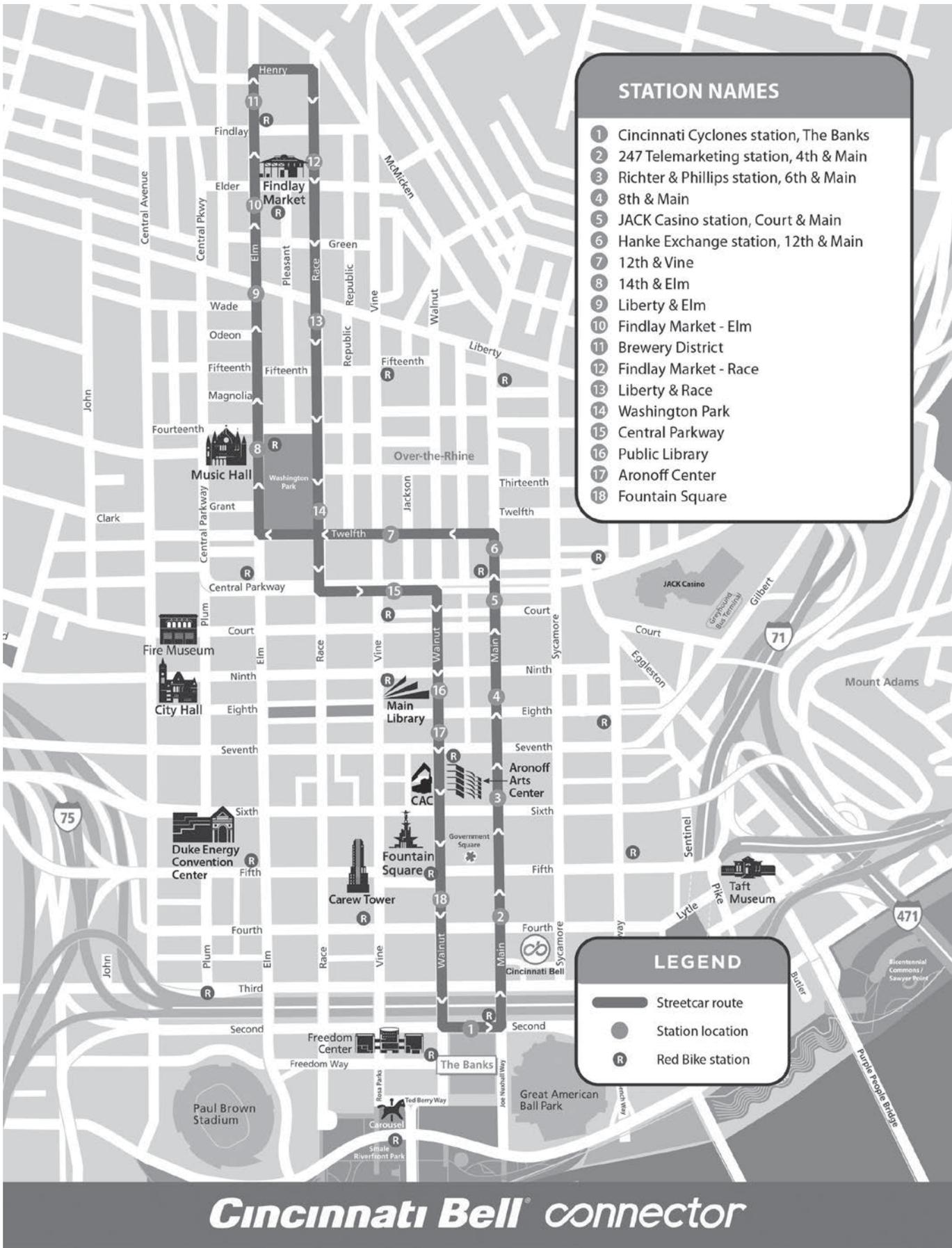
Convention Center Maps

The convention will take place in the 2nd floor North Meeting Rooms and in the 3rd floor Junior Ballroom.

Climate

April weather is Spring in Cincinnati, with average highs of 66° F/43° C, but sometimes ranging much cooler. As is





typical of Spring in the midcontinent, rain is often expected. We recommend dressing in light layers and carrying an umbrella or raincoat as needed.

Transportation and Directions

Cincinnati is easily accessed by car via interstates I-75, I-74, and I-71. The nearest airport is the Cincinnati/Northern Kentucky Regional Airport in Hebron, KY, on the outskirts of the larger metro area. Once downtown, the area around the convention center is walkable and is 3.5 blocks away from the Cincinnati Bell Connector streetcar line. The city also has an abundance of ride-share options.

Accommodations

We strongly encourage meeting participants to reserve rooms at the Hilton Cincinnati Netherland Plaza (35 West 5th Street, one block from the Duke Energy Convention Center, +1-513-421-9100) or the Hyatt Regency Cincinnati (151 West 5th Street, across the street from the Convention Center, +1-513-579-1234). Please be sure to identify yourself with the group and that you are attending the GSA Joint North-Central & Southeastern Section Meeting. Both hotels are ADA compliant.

Parking

The Duke Energy Convention Center's main entrance is located at the intersection of Fifth Street and Elm Street in downtown Cincinnati. Over 5,000 parking spaces are located immediately surrounding the Center in metered street spaces, private flat lots and privately managed garages. The garages offer direct entry to the convention center via Cincinnati's Skywalk System.

Registration

Registration is required to participate in all events associated with the meeting, including technical sessions, field trips, short courses, exhibits, special meetings, and planned social events. Registration badges must be worn for access to all activities, and guest registration is required for attendance at the welcoming reception, scheduled lunches, breakfasts, dinners, and field trips. A current student ID is required to obtain student registration rates. K-12 professionals are invited to attend at reduced rates.

Registration Schedule

On-site registration and badge pick-up are located in the Junior Ballroom C&D Pre-Function Lobby of the Convention Center, on the following schedule.

Wednesday, 6 April: 3:30–7 p.m.

Thursday, 7 April 7 a.m.–5 p.m.

Friday, 8 April: 7 a.m.–2 p.m.

On-Site Registration Fees

All fees are in US dollars.

A note about the registration fees: GSA is striving to be inclusive, recognizing that not everyone is able to physically attend meetings. Moreover, the COVID-19 pandemic has resulted in additional constraints on attending meetings in

person. The registration fees for this meeting include the costs for the technology that allows participants to attend and present in oral sessions virtually.

Rates	Full meeting	One day
Professional Member	\$295	\$200
Senior Mbr./Fellow (70+)*	\$200	\$150
Senior Mbr./Fellow (65+)**	\$295	\$200
Professional Nonmember	\$335	\$250
Early Career Professional	\$230	\$180
Student Member	\$125	\$75
Student Nonmember	\$150	\$95
K-12 Professional	\$100	\$75
Guest	\$75	n/a
Field trip/Short Course only	\$50	n/a

*70 years of age or older, and a member for 30 or more years

**65 years of age or older, and a member for 25 or more years

Guest registration is intended for non-geoscientist spouses or friends, and does not include attendance at technical sessions, field trips or short courses. A registered professional, student, or K-12 attendee must accompany guest registrants. Student and K-12 professionals must show a current photo ID at registration to obtain applicable rates.

Cancellations, Changes, and Refunds

Requests for additions, changes, and cancellations must have been made in writing to GSA Headquarters, in writing, by 11 March. No refunds will be made on cancellation notices received after this date. GSA cannot provide refunds for on-site registration or event ticket sales. Refunds will be mailed from GSA after the meeting; refunds for fees paid by credit card will be credited to the card identified on the registration form.

Meeting App and Abstracts

A web-based app is available for this meeting. This app allows you to view and search the meeting program and create your own schedule of events to attend. You can also view the full abstracts text from this app. Please access the app at <https://gsa.confex.com/gsa/2022NC/meetingapp.cgi>. If you would prefer a paper version of the program book, please print this .pdf version of the program book instead.

Accessibility

GSA is committed to ensuring full participation for all conference attendees. You may indicate special requirements on your registration form; please inform the local organizing committee of these requirements at least one month prior to the meeting. Accessible rooms at the hotel are available and can be reserved.

Continuing Education Units (CEU)

The North-Central and Southeastern Joint Section Meeting offers an excellent opportunity to earn CEUs toward your continuing education requirements for your employer, K-12

school, or professional registration. Please check the meeting website after the meeting to download your CEU certificate.

Special Events and Activities

Wednesday, 6 April

Welcoming Reception. 5–7 p.m., Junior Ballroom C&D, 3rd floor, DECC

Thursday, 7 April

GSA North-Central Section Management Board Meeting. Room 207, 6:30–8 a.m.

GSA Southeastern Section Management Board Meeting. Room 208, 6:30–8 a.m.

Session Chairs Orientation. Room 203, 7–7:30 a.m. This meeting will include a review of session time management, AV procedures, and other information affecting the conduct of the day's sessions.

GeoCareers Workshop Part 1: Career Planning and Informational Interviewing. Room 207. 9–10 a.m. This workshop will help you begin the job hunting process and will introduce you to informational interviewing.

GeoCareers Workshop Part 2: Geoscience Career Exploration. 10–11 a.m., Room 207. What do geologists in various sectors earn? What do they do? What are the pros and cons to working in academia, government, and industry? Workshop presenters and professionals in the field will address these issues.

Southeast Section of the National Association for Geoscience Teachers. Room 209, noon–1 p.m. Anyone is welcome to attend.

Roy J. Shlemon Mentors Program in Applied Geoscience. Room 207, noon–1:30 p.m., Room 207. GSA student members will have the opportunity to discuss career prospects and challenges with applied geoscientists from various sectors over a FREE lunch.

Darcy Lecture in Groundwater Science. *Sponsored by the Groundwater Foundation.* Room 206, 1:30–2:30 p.m. Dr. Chen Zhu, Watershed-Scale Hydrological Models as a Community CyberPlatform for Research, Teaching, and Service to Society.

Geology Club Meet-Up. 2–3 p.m., Room 207. Chat with other representatives about their activities, goals, and accomplishments

Evening Social. Junior Ballroom C&D. 4:30–6 p.m.

GSA North-Central Section Open Meeting. Room 201/202, 5–5:30 p.m.

GSA Southeastern Section Open Meeting. Room 212, 5–5:30 p.m.

Paleontological Society Open House. 5–7 p.m., Location TBD off-site. If you would like to be informed of more details nearer to the event, please contact either Carrie Schweitzer (cschweit@kent.edu) or Thomas Tobin (ttobin@ua.edu).

Sustainability Panel Discussion. Room 206, 5:30–6:30 p.m. Corporate, government, and university sustainability officers will discuss current approaches, future directions, and potential career opportunities for geoscientists.

Informal Alumni Gatherings. The University of Cincinnati and Northern Kentucky University plan to meet at

the Rhinegeist Brewery, located at 1910 Elm St., on Thursday evening at 8 p.m., for a combined, informal alumni gathering. All alumni groups are welcome. For more information, contact Craig Dietsch (UC, dietscc@ucmail.uc.edu) or Sarah Johnson (NKU, johnsonsa@nku.edu).

Friday, 8 April

Session Chairs Orientation. Room 203, 7–7:30 a.m. This meeting will include a review of session time management, AV procedures, and other information affecting the conduct of the day's sessions.

GSA Campus Representative Appreciation Breakfast. Room 207, 7–8 a.m. This complimentary breakfast for Campus Reps is held to say Thank You. If you are a campus representative or are interested in becoming one, please plan to attend this celebratory event.

Directions in Geoscience Research and Careers: Virtual Outreach Event for Local Students. Room 209 and online. 10 a.m.–noon. Faculty, graduate students, and geoscience professionals will meet with high school students to discuss geoscience research and careers in a virtual open house event. Please email Andrea Corpolongo at corpolaa@mail.uc.edu or Meg Corcoran at corcormc@mail.uc.edu if you are interested in taking part in this event.

GeoCareers Workshop Part 3: Cover Letters, Résumés and CV's. 9–10 a.m., Room 207. Whether you are currently on the job market or not, learn how to prepare the best résumé possible. You will review numerous examples to help you learn important résumé do's and don'ts.

John Mann Mentors Program in Applied Hydrogeology. Noon–1:30 p.m., Room 207. GSA student members interested in applied hydrogeology or hydrology as a career will have the opportunity to network with professionals in these fields over a FREE lunch.

Midwest MinPet. 4:30–6 p.m., Location TBD. Researchers, students, faculty, and other practitioners of hard rock geology are invited to socialize, network, and share ideas on how to build connections and collaborations across our region. Please contact either Claire McLeod (mcleodcl@miamioh.edu) or Craig Dietsch (dietscc@ucmail.uc.edu) if you plan to be part of this gathering.

Historic Buildings and Building Stone of Cincinnati. 7:30 p.m. All meeting registrants are welcome to join an informal post-meeting walking tour of downtown Cincinnati on Friday evening, with optional stops at various locations. Meet on the south side of the historical Tyler Davidson Fountain (aka the Genius of Water originally dedicated in 1871) on Fountain Square, located at 5th and Vine Streets, at 7:30 p.m. For more information, contact Craig Dietsch (dietscc@ucmail.uc.edu).

Saturday, 9 April

Geology in the Park: Geology of Cincinnati for Members of the Public. 10 a.m.–4 p.m. Attendees will meet with local experts to discuss the geology of the Cincinnati metro area. At Eden Park, guests will learn about the region's topography, landscape evolution, and pressing natural hazards resulting from the terrain. At Trammel Fossil Park, guests will interact with some of the area's most famous fossils.

Trammel Fossil Park: Around 450 million year ago, a vast inland sea covered the land that is now home to this beautiful local attraction. As a result, fossils of the animals that lived there now wash out of the hills all around this park. Attendees will have the opportunity to hear about the history of Trammel Fossil Park, and to dig for fossils of their own to take home. Local experts in the paleontology of the area will be onsite to answer questions and help identify any fossil finds. Attendees can meet in the Trammel Fossil Park parking lot located at 11989 Tramway Dr., Sharonville, OH 45241.

Eden Park: Home to the Cincinnati Art Museum, Playhouse in the Park, and the Krohn Conservatory, Eden Park has a wide variety of attractions to offer. Above all, the views from the overlooks are among the most beautiful in the city and provide an excellent view of the surrounding landscape. Attendees will have the opportunity to hear from local experts from the Ohio Geological Survey about the development of the region's famous hills and valleys, as well as the natural hazards that result from the topography. Attendees will meet at Spencer Overlook located at Cliff Dr., Cincinnati, OH 45202.

Please check our online program for final details.

Mentor Programs

For information about the Mentor Programs, please contact Jennifer Nocerino at jnocerino@geosociety.org.

Roy J. Shlemon Mentor Program in Applied Geoscience. Thursday, 7 April, noon–1:30 p.m., Room 207. GSA student members will have the opportunity to discuss career prospects and challenges with applied geoscientists from various sectors over a FREE lunch. GSA student members will receive priority; any remaining space will be offered to student nonmembers on first come, first served basis.

John Mann Mentors in Applied Hydrogeology Program. Friday, 8 April, noon–1:30 p.m., Room 207. GSA student members interested in applied hydrogeology or hydrology as a career will have the opportunity to network with professionals in these fields over a FREE lunch. GSA student members will receive priority; any remaining space will be offered to student nonmembers on first come, first served basis.

Geology Club Meet-Up. Thursday, 7 April, 2–3 p.m. Room 207. Chat with other representatives about their activities, goals and accomplishments

GSA Career Workshops

Geoscience Career Program Workshop Part 1: Career Planning and Informational Interviewing. Thursday, 7 April, 9–10 a.m. Room 207. Your job-hunting process should begin with career planning, not when you apply to jobs. This workshop will help you begin this process and will introduce you to informational interviewing. This section is highly recommended for freshman, sophomores, and juniors. The earlier you start your career planning the better.

Geoscience Career Program Workshop Part 2: Geoscience Career Exploration. Thursday, 7 April, 10–11 a.m. Room 207. What do geologists in various sectors earn? What do they do? What are the pros and cons to working in academia, government, and industry? Workshop presenters and professionals in the field will address these issues.

Geoscience Career Program Workshop Part 3: Cover Letters, Résumés, and CVs. Friday, 8 April, 9–10 a.m. Room 207. How do you prepare a cover letter? Does your résumé need a good edit? Whether you are currently in the market for a job or not, learn how to prepare the best résumé possible. You will review numerous résumés helping you to learn important résumé dos and don'ts.

Student Volunteers

Students accepted as meeting volunteers must check in at the Student Volunteer Desk, located at the registration desk, the third floor Junior Ballroom C&D Pre-function lobby.

Exhibits

Exhibitors are located in the Junior Ballroom C&D on the third floor of the Convention Center.

Hours for Exhibits are:

Set up: Wednesday, 6 April, 10 a.m.–4 p.m.

Open: Wednesday, 6 April, 5–7 p.m.

Open: Thursday, 7 April, 9 a.m.–6 p.m.

Open: Friday, 8 April, 9 a.m.–4 p.m.

Tear down: 8 Friday, 4–6 p.m.

Information for Presenters

Unless otherwise noted, each speaker will be allotted a time of 15 minutes for oral presentations (12 minutes for presentation; 3 minutes for questions, discussion, and transition). Presentations must be prepared using PowerPoint or PDF formats. One laptop with Windows PowerPoint, one LCD projector, and one screen will be provided for all oral sessions. In addition, each room is equipped with a lectern microphone, wireless microphone, wireless computer mouse and PowerPoint advancer, and a speaker timer. All screens will be in widescreen (16:9) format. Each room will be equipped with Zoom for remote presentations and attendance. Access to remote participation other than presenting via video or viewing presentations in real time remotely is at the discretion of session chairs. Live question and answer participation remotely is not guaranteed. **Speakers may not use their own laptops for presentations.**

All poster sessions are in the Junior Ballroom. Authors in the morning sessions are asked to have their posters in place by 7:45 a.m. and taken down at noon. Afternoon posters may be put up at 12:45 p.m. and taken down at 5:30 p.m. Authors of posters should be present at their posters for 2 hours during their allotted sessions: 9–11 a.m. for morning sessions, and 2:30–4:30 p.m. for afternoon sessions.

Poster presenters have one 4' x 8' (1219 mm x 2438 mm) horizontal "landscape" poster display surface, and numbers on the poster boards correspond to the poster booth numbers listed in the Program. Pushpins will be provided. For student presenters, please discuss the fonts and layout of your poster with your advisor so you can have the highest impact for your visitors.

Speaker Ready Room

The Speaker Ready Room is located in Room 210 on the 2nd floor of the Convention Center, and will be open as follows:

Wednesday, 6 April: 3–7 p.m.

Thursday, 7 April: 7 a.m.–7 p.m.

Friday, 8 April: 7 a.m.–2 p.m.

Each oral presenter must bring their PowerPoint or PDF presentation on a USB-compatible flash drive (a.k.a. thumb drive or memory stick) to the Speaker Ready Room for uploading to their session's folder according to the deadlines below. Failure to do so may result in presentations being omitted from session sequences. Morning presentations must be uploaded by the end of the day prior to the presentation, and afternoon presentations must be uploaded by noon on the day of the presentation.

For Presentation	Upload No Later Than:
Thursday, 7 April, AM	7 p.m., Wednesday, 6 April
Thursday, 7 April, PM	noon, Thursday, 7 April
Friday, 8 April, AM	7 p.m., Thursday, 7 April
Friday, 8 April, PM	noon, Friday, 8 April

Information for Session Chairs

Session chairs are required to attend a Session Chairs Orientation, being held 7–7:30 a.m., in Room 203 on Thursday, 7 April and Friday, 8 April. Session chairs are requested to adhere to the schedule and to encourage the strict time limits provided to speakers. Session chairs will be responsible for handling Zoom versions of the sessions with the assistance of student volunteers.

Technical Program Sessions

View the technical program starting on page 13.

Field Trips

GSA's Commitment to Care prioritizes your safety, therefore we are implementing the following for all field trips:

- Only one person will be allowed per hotel room unless the people are related or are partners.
- If a field trip uses dormitory-style lodging, rooms won't be shared.
- If a field trip uses tent camping for lodging, each person must have their own tent.
- Transportation in minivans, SUVs, vans, and buses will operate at half capacity to allow for social distancing.

For additional information, please contact the Field Trip Co-Chairs: Steve Greb, greb@uky.edu; Claire McLeod, mcleodcl@miamioh.edu. Prices shown below are based on implementation of GSA COVID-19 social distancing restrictions on transportation and lodging.

Most field trips depart from the Duke Energy Convention Center will meet at the field trip check in area off Central Avenue located in the Exhibit Hall C lobby. Field trips FT5 and FT 10 depart from other locations. Please consult your individual field trip leaders to confirm logistics for your field trip as several field trips meet at other locations.

Pre-Meeting

FT1. Hydrogeology and Water Monitoring Technology in Yellow Springs, Ohio. *Endorsed by GSA Hydrogeology Division, NCKRI (National Cave and Karst Research Institute).* Wed., 6 April. Cost: US\$165. Check in 7 a.m., depart at

7:30 a.m. Leaders: Sarah A. Burgess, Indiana Geological & Water Survey, Indiana University, burgesss@iu.edu; Douglas Aden, Ohio Geological Survey, Ohio Department of Natural Resources, douglas.aden@dnr.ohio.gov; Brittany Parrick, Ohio Geological Survey, Ohio Department of Natural Resources, brittany.parrick@dnr.ohio.gov; Lee Florea, Indiana Geological & Water Survey, Indiana University, lflorea@iu.edu; Tracy Branam, Indiana Geological & Water Survey, Indiana University, tbranam@iu.edu.

Description: Glaciated regions of Ohio, Indiana, and Illinois contain complex hydrologic systems in a mantled karst topography. Yellow Springs, Ohio, has hydrogeologic features that are exemplary of this complex landscape. Half the day will be spent on short hikes around Yellow Springs. Afterward, we will tour local developers/retailers of environmental instrumentation.

FT2. Upper Ordovician and Lower Silurian Facies, Cycles and Sequences in Southern Ohio: A Field and Core Workshop. *Endorsed by Ohio Department of Natural Resources, Division of Geological Survey.* Wed., 6 April. Cost: US\$95. Check in at 8 a.m., depart at 8:30 a.m. Leaders: Carlton E. Brett, University of Cincinnati, brettce@ucmail.uc.edu; Christopher Waid, Ohio Department of Natural Resources, Division of Geological Survey, christopher.waid@dnr.ohio.gov; Cole Farnam, University of Cincinnati, farnamce@mail.uc.edu; Patrick McLaughlin, Indiana Geological & Water Survey, pimclaug@iu.edu.

Description: This will be a single-day pre-meeting workshop combining field and subsurface study of newly reinterpreted uppermost Ordovician to lower Silurian successions. Facies include gray and red shales, fossiliferous limestones and dolostones, patch reefs, and minor ironstones. The focus is on methodology of correlation and sequence/environmental interpretation in mixed siliciclastic-carbonate successions using litho- and biofacies, gamma ray logs, and chemostratigraphy.

Post-Meeting

FT3. Geology of the Central Kentucky Karst and Mammoth Cave. Fri., 8 April. Cost: US\$187. Check in at 4:30 p.m., depart at 5 p.m. Leaders: Rachel Bosch, Northern Kentucky University, rachelfbosch@gmail.com; Sarah Arpin, Kentucky Geological Survey, University of Kentucky, sarah.arpin@uky.edu; Patricia Kambesis, Western Kentucky University, pat.kambesis@wku.edu; Rickard Toomey III, Mammoth Cave National Park, rick_toomey@nps.gov.

Description: On this field trip, we will explore the Central Kentucky Karst, home to the world's longest cave system, Mammoth Cave. We will visit both surface and subsurface karst features, from a tour of the Sinkhole Plain to hiking into an enormous karst window to trips inside Mammoth Cave.

FT4. Natural Arches in the Red River Gorge Geological Area. Fri.–Sun., 8–10 April. Cost: US\$530. Check in at 5 p.m., depart at 5:30 p.m. Leader: Steve Martin, Kentucky Geological Survey, smartin401@uky.edu.

Description: The Red River Gorge Geological Area in east-central Kentucky contains an abundance of natural arches. This field trip focuses on the formation and classification of natural sandstone arches and involves short- to moderate-length hikes in the scenic Red River Gorge.

FT5. A Bike Tour: Piecing Together the Surficial Geology and History of the Four Mile Creek River Valley, Ohio. Sat., 9 April. Cost: US\$52/\$US40*. Check in at 8:45 a.m. at the pavilion at the Leonard G. Howell Park, depart at 9 a.m. Leaders: Christina Tenison, Miami University, tenisocn@miamioh.edu; Jason Rech, Miami University, rechja@miamioh.edu.

Description: Participants will bike along Four Mile Creek viewing historic sites and Quaternary fluvial deposits used to determine the geologic history of the river. Participants will also discover long-term water-quality and sediment load studies of upstream Acton Lake reservoir and visit outcrops exemplifying southwestern Ohio's broader bedrock and glacial stratigraphy.

*Cost is \$52 if you don't provide your own bike and helmet, or \$40 if you do provide your own bike and helmet.

FT6. A New Look at the Classic Cincinnati: Sequences, Cycles, and Events in the Upper Ordovician of the Cincinnati Vicinity. Sat., 9 April. Cost: US\$95. Check in at 7:30 a.m., depart at 8 a.m. Leaders: Carlton E. Brett, Department of Geology, University of Cincinnati, brettce@ucmail.uc.edu; Ben Dattilo, Purdue University, Fort Wayne, dattilob@pfw.edu; Kyle Hartshorn, Cincinnati Dry Dredgers, khartshorn1.0@gmail.com.

Description: This one-day, post-meeting field trip highlights key reference sections of the world-renowned Upper Ordovician Cincinnati Series (ca. 450-446 Ma) in its type of region. Trip provides an overview of highly fossiliferous shale/limestone successions, focused on the interpretation of depositional processes, cycles, taphonomy, and paleoecology in the context of a recently revised sequence stratigraphic framework.

FT7. Buried-Valley Aquifers and the Theis Environmental Monitoring and Modeling Site. Sat., 9 April. Cost: US\$85. Check in at 8:30 a.m., depart at 9 a.m. Leaders: Reza Soltanian, University of Cincinnati, soltanma@uc.edu; Alan Fryar, University of Kentucky, afryar1@email.uky.edu.

Description: Buried-valley aquifers provide drinking water to 45 million people in the USA. This field trip focuses on such aquifers, their interaction with rivers, and their vulnerability to pollution due to anthropogenic activities. The trip includes visits to the Fernald Preserve, and Theis Environmental Monitoring and Modeling Site.

FT8. Defenses of Cincinnati: Geological and Topographical Aspects of Civil War Forts and Batteries, Camp Dennison, and Morgan's Raid. Sat., 9 April. Cost: US\$100. Check in at 7:45 a.m., depart at 8:15 a.m. Leaders: Joe Hannibal, Cleveland Museum of Natural History, jhannibal@uakron.edu; Jeannine Kreinbrink, K & V Cultural Resources Management LLC, kreinbrinkjmo@gmail.com; Kevin E. Evans, Missouri State University, kevinevans@missouristate.edu.

Description: This trip visits sites related to once formidable Civil War defenses in Ohio and northern Kentucky designed by geologist and topographer Col. Charles Whittlesey, Camp Dennison, designed by William Rosecrans, who also had a geological background, and Morgan's Raid, which passed north of the Queen City.

FT9. Organic-Rich Rocks and Associated Sediments near the Devonian–Mississippian Boundary in Northeastern Kentucky. Sat., 9 April. Cost: US\$215. Check in at 7:30 a.m., depart at 8 a.m. Leaders: Frank R. Etensohn, University of Kentucky, fettens@uky.edu; Charles Mason, retired, Morehead State University, mason.charles1947@gmail.com; R. Tim Lewis, retired, WPXEnergy, rtim.lewis@gmail.com; Geoff Clayton, retired, Trinity University, gclayton@tcd.ie.

Description: This trip examines classic exposures of the organic-rich Devonian and Mississippian Ohio and Sunbury shales and associated deltaic sediments from the Bedford Shale and Borden Formation in northeastern Kentucky. Important stratigraphic intervals, including the Three Lick Bed, Silurian–Devonian boundary, *Protosalvinia* zone, and Devonian–Mississippian boundary, as well as a Late Devonian dropstone in the upper Ohio Shale, will be examined.

FT10. Pleistocene Geology, Paleontology, and the History of Science at Big Bone Lick, Kentucky. Sat., 9 April. Cost: US\$40. Check in at 8:30 a.m. at the Bone Lick State Historic Site Visitor Center, depart at 9 a.m. Leaders: Glenn W. Storr, Cincinnati Museum Center, gstorr@cincymuseum.org; Cameron Schwalbach, Cincinnati Museum Center, cschwalbach@cincymuseum.org.

Description: Participants will visit Big Bone Lick State Historic Site, the birthplace of American vertebrate paleontology, where mastodon fossils have been collected since 1739. We will tour the visitor center, walk the lick trail, learn its history, and complete the day with a visit to Cincinnati Museum Center's Ice Age Gallery.

FT11. Revisiting the Wisconsin Depositional History of the Southernmost Extent of the Scioto Sublobe, Ohio. Sat., 9 April. Cost: US\$283. Check in at 7:30 a.m., depart at 8 a.m. Leaders: T. Andrew Nash, Ohio Department of Natural Resources, Division of Geological Survey, thomas.nash@dnr.ohio.gov; Tyler Norris, Ohio Department of Natural Resources, Division of Geological Survey, tyler.norris@dnr.ohio.gov; Thomas Valachovics, Ohio Department of Natural Resources, Division of Geological Survey, thomas.valachovics@dnr.ohio.gov.

Description: Data collected while mapping in Clinton and Fayette counties led to a better understanding of the Scioto Sublobe glacial history. New radiocarbon dates collected within the counties help constrain the chronology of glacial deposition and moraine construction. Field stops will examine Quaternary stratigraphy via outcrop and core.

Short Courses

All in-person short courses are being held on Wednesday, 6 April in the Duke Energy Convention Center North Meeting Rooms. For additional information, please contact the Short

Courses chair, Jason Dortch, jason.m.dortch@uky.edu.

Pre-Meeting

SC1. Designing Instructional Access and Inclusion across Geoscience Learning Environments. *Endorsed by International Association for Geoscience Diversity (IAGD); GSA Geoscience Education Division.* Room 207. Wed., 6 Apr., 9 a.m.–4 p.m., with lunch break. Cost: US\$25 students/US\$50 professionals. Max. participants: 25. Instructors: Christopher Atchison, University of Cincinnati, christopher.atchison@uc.edu; Anita Marshall, University of Florida, anita.marshall@ufl.edu; Sean Thatcher, Rutgers University, sean.thatcher1990@gmail.com; Ian Castro, University of Cincinnati, castroio@ucmail.uc.edu; Ivan Carabajal, University of Cincinnati, carabaig@mail.uc.edu.

Description: This workshop will assist participants in designing and implementing accessible strategies to support all students in geoscience classroom and field instruction. Participants will consider how their own course and field scenarios can be enhanced through Universal Design for Learning and the integration of technology to enable active engagement and inclusion.

SC2. Fluvial Terraces: From Modeling to the Field. *Endorsed by Kentucky Geological Survey.* Room 208. Wed., 6 Apr., 1–4 p.m. Cost: US\$25 students/US\$50 professionals. Max. participants: 25. Instructors: Yichuan Zhu, Kentucky Geological Survey, yichuan.zhu@uky.edu; Matt Massey, Kentucky Geological Survey, matthew.massey@uky.edu; Jason Dortch, Kentucky Geological Survey, Jason.M.Dortch@uky.edu.

Description: PyOSP is an open-source Python library that can objectively characterize complex geomorphic boundaries, collect swath data, and perform a range of post-processing

calculations. This workshop will introduce participants to PyOSP using the nearby Licking River, followed by a short field trip to assess model utility.

SC3. Methods of Metal Pollution Investigation. Room 209, Wed., 6 Apr., 8:30 a.m.–4 p.m., with lunch break 11:45 a.m.–1:15 p.m. Cost: US\$25 students/US\$50 professionals. Max. participants: 30. Instructors: Mark P.S. Krekeler, Miami University, krekelp@miamioh.edu; Matthew Dietrich, Indiana University–Purdue University Indianapolis, dietrimj17@gmail.com; Kenneth Brown, DePauw University, kennethbrown@depauw.edu.

Description: This short course focuses on understanding metal pollution in urban, industrial, and agricultural environments. Fundamental aspects of metal pollutant chemistry, geogenic background, and complexity will be presented. Several analytical techniques (e.g., electron microscopy, bulk chemistry, X-ray diffraction) will be covered. Participants will receive reference geologic materials for future work.

S4. Professional Registration and Preparation Tips for National Professional Geologist (PG) Exams. Room 212. Wed., 6 Apr., 9 a.m.–noon. Cost: US\$25 students/US\$50 professionals. Instructors: William Andrews, Kentucky Geological Survey, wandrews@uky.edu.

Description: Professional registration is critical for working in consulting or private industry and can be useful for many working in academia. This short course will explore general requirements for professional geology licensure and tips for exam preparation. The organizer has 20+ years of experience providing guidance in PG exam preparation.

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.

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

THURSDAY, 7 APRIL 2022

MORNING ORAL TECHNICAL SESSIONS

SESSION NO. 1

T1. Actualistic Paleontology: Learning from the Modern to Better Interpret the Past (SEPM (Society for Sedimentary Geology); Paleontological Society; GSA Sedimentary Geology Division; GSA Quaternary Geology and Geomorphology Division)

8:00 AM, Duke Energy Convention Center, North Meeting Room 203/204

Yurena Yanes, Ezekiel King Phillips and Catherine Nield, Presiding

8:00 AM **INTRODUCTORY REMARKS**

- 1-1 8:05 AM Meadows, Caitlin*; Kidwell, Susan: **ARCTIC BIVALVE SHELL ASSEMBLAGES AS HIGH TEMPORAL- AND SPATIAL-RESOLUTION ARCHIVES OF ECOLOGICAL REGIME CHANGE**
- 1-2 8:25 AM Nield, Catherine*; Yanes, Yurena; Miller, Joshua; Druckenmiller, Patrick; Sniezak, Thomas: **OXYGEN ISOTOPE VALUES OF MODERN AND FOSSIL LAND SNAILS FROM FAIRBANKS, ALASKA**
- 1-3 8:40 AM Muruganantham, Kaaviya*; King Phillips, Ezekiel; Yanes, Yurena: **ASSESSING THE DIETARY HABITS OF SLUGS FROM A DECIDUOUS FOREST IN SE OHIO USING STABLE ISOTOPE ECOLOGY**
- 1-4 8:55 AM McKeeby, Ryan*; Gottfried, Michael D: **USING QUANTITATIVE MORPHOMETRICS AND OUTLINE ANALYSIS TO DELINEATE ONTOGENETIC HETERODONTY IN RECENT AND FOSSIL TAXA OF WHITE SHARKS (FAMILY LAMNIDAE)**
- 1-5 9:10 AM DeVore, Melanie*; Nyandwi, Alphonse; Uhawenimana, Pasteur Migine; Eckardt, Winnie; van der Hoek, Yntze; Bizuru, Elias; Manishimwe, Aloysie; Pigg, Kathleen: **MODERN ENVIRONMENTAL ANALOGUES AND MORPHOLOGICAL LEAF FEATURES ARE IMPORTANT**

IN UNDERSTANDING PALEOGENE MAMMAL HERBIVORY

- 1-6 9:25 AM Denton, Robert*: **ALBEMARLE SOUND NC - A MODERN ANALOG FOR THE ELLISDALE FOSSIL SITE (LATE CRETACEOUS, CAMPANIAN, NJ)**
- 9:40 AM **BREAK**
- 1-7 9:55 AM Hembree, Daniel*; Thacker, Hayden A.; Wislocki, Joseph: **COMPLEX ICHNOFABRIC PRODUCED BY LARVAL TO ADULT BEETLES: MODERN AND ANCIENT EXAMPLES**
- 1-8 10:10 AM Rogers, Logan R.*; Schuette, Jaren D.; Bilodeau, Remy A.; Finn, Thaddeus J.; Gomez, Ramona R.; Paul, Michael T.; Sommer, Sarah P.; Wallenmeyer, Teddy J.; Evans, Kevin; Schiffbauer, James; Selly, Tara: **STOP MOTION MOVIES OF MICRO-CT CORE SCANS AS TOOLS FOR EXAMINING ETHOLOGY IN TRACE FOSSIL ASSEMBLAGES FROM THE LOWER MISSISSIPPIAN NORTHVIEW FORMATION, SOUTHWESTERN MISSOURI, USA**
- 1-9 10:25 AM Martin, Anthony*; Rindsberg, Andrew: **NEOICHOLOGY AS ACTUALISM AND ITS USES IN PALEONTOLOGY**
- 1-10 10:40 AM Meyer, David*; Messing, Charles G; Stevenson, Angela; Veitch, Margaret: **SUBSEA PHOTOGRAPHY AND TIME-LAPSE VIDEO OF LIVING CRINOIDS UNLOCK SECRETS OF A DEEP EVOLUTIONARY PAST**
- 1-11 10:55 AM Manning-Berg, Ashley*; Lam, Elizabeth Kathleen: **DECOMPOSITION PATHWAYS OF MICROBIAL COMMUNITIES AND MATS**
- 1-12 11:10 AM Neely, Samuel*; Raymond, Anne: **UNDERSTANDING ANCIENT WETLAND PALEOECOLOGY FROM THE TAPHONOMY OF MODERN MANGROVE PEATS**
- 1-13 11:25 AM McLellan, Oliver*; Leonard-Pingel, Jill S.: **EMPLOYING DIATOM-BASED ENVIRONMENTAL RECONSTRUCTIONS TO UNDERSTAND CHANGING NUTRIENT LOADS IN OHIO'S INLAND LAKES**

SESSION NO. 2

T5. Development and Application of Geochemical Proxies to Paleoclimate Studies

8:00 AM, Duke Energy Convention Center, North Meeting Room 201/202

Megan Corcoran and Aaron Diefendorf, Presiding

- 8:00 AM **INTRODUCTORY REMARKS**
- 2-1 8:05 AM Hayes, Sara*; Them, Theodore R.; Yuan, Wei; Liu, Mu; Caruthers, Andrew H.; Kaczmarek, Stephen: **A NEW SEDIMENTARY MERCURY RECORD TO EVALUATE THE SILURIAN NIAGARA-SALINA TRANSITION MICHIGAN BASIN, USA**
- 2-2 8:20 AM Avila, Teresa*; Saltzman, Matthew; Griffith, Elizabeth M.; Joachimski, Michael; Olesik, John: **THE ROLE OF SILICATE WEATHERING IN SHIFTING DEVONIAN PALEOCLIMATE**
- 2-3 8:35 AM Schoepfer, Shane*; Sano, Hiroyoshi; Shen, Jun; Algeo, Thomas J.: **ENVIRONMENTAL STRESSES PRECEDING THE END-TRIASSIC EXTINCTION IN THE PANTHALASSIC OCEAN**
- 2-4 8:50 AM Hayes, Joseph*; Kelly, Daniel; Beard, Brian L.; Tappa, Michael; Bauer, Annie: **RECONSTRUCTING OCEAN CIRCULATION ALONG THE EASTERN MARGIN OF THE WESTERN INTERIOR SEAWAY DURING THE LATE CRETACEOUS COOLDOWN**
- 2-5 9:05 AM Doiron, Kelsey; Stevens, Lora; Brassell, Simon*: **BIOGEOCHEMICAL RESPONSES TO CLIMATE TRANSITIONS OVER THE PAST 40 KYR RECORDED IN SEDIMENTS FROM LAKE IA M'HE, A MAAR LAKE IN THE CENTRAL HIGHLANDS OF VIETNAM**
- 2-6 9:20 AM Grimley, David*; Dendy-Metz, Sarah N.; Conroy, Jessica L.; Nield, Catherine: **HYDROCLIMATE INFERENCES FOR THE LAST GLACIAL AND PENULTIMATE GLACIAL MAXIMA BASED ON FOSSIL TERRESTRIAL GASTROPOD ASSEMBLAGES AND STABLE ISOTOPES, CENTRAL USA**
- 2-7 9:35 AM Baldasare, Alexander; Rech, Jason*; Tenison, Christina N.; Currie, Brian: **RADIOCARBON RESERVOIR EFFECTS AND ¹⁴C DATING OF AQUATIC MOLLUSK SHELLS IN THE MIDWESTERN US**
- 9:50 AM **BREAK**
- 2-8 10:05 AM Wiles, Greg*; Wiesenberg, Nick; Gaglioti, Ben: **PUTTING THE RECENT PLUVIAL INTO CONTEXT: TREE-RING RECORDS OF MIDCONTINENTAL NORTH AMERICAN HYDROCLIMATE**
- 2-9 10:20 AM Corcoran, Megan*; Diefendorf, Aaron; Lowell, Thomas; Wiesenberg, Nicholas; Wiles, Gregory; Wilson, Mark A.; Dietrich, Watts; Berina, Justine Paul: **SEASONALITY OF HYDROGEN ISOTOPES AND CONCENTRATIONS OF HIGHLY BRANCHED ISOPRENOIDS (HBIS) PRODUCED BY LAKE DIATOMS**
- 2-10 10:35 AM Hughes, Hunter*; Surge, Donna; Thompson, Diane M.; Lees, Jonathan; Foster, Gavin L.; Standish, Christopher D.; Chalk, Thomas B.: **SMITE: A NOVEL METHOD FOR ESTIMATING SEA SURFACE TEMPERATURES USING SCLERACTINIAN CORALS**
- 2-11 10:50 AM Lukens, William*; Fox, David L.: **A MONTE CARLO APPROACH TO QUANTIFYING UNCERTAINTY IN C₄ BIOMASS ESTIMATES FROM PALEOSOL ORGANIC MATTER AND CARBONATES**
- 2-12 11:05 AM Hashim, Mohammed*; Kaczmarek, Stephen: **RHOMBIC CALCITE MICROCRYSTALS AS A PROXY FOR METEORIC DIAGENESIS**
- 11:20 AM **CONCLUDING REMARKS**

SESSION NO. 3

T10. Crossing Streams: Advances in Stream Science in the Southeast and North-Central United States (GSA Quaternary Geology and Geomorphology Division)

8:00 AM, Duke Energy Convention Center, North Meeting Room 205

Bradley Johnson and Anne Jefferson, Presiding

- 3-1 8:00 AM Wichterich, Connor*; Gardner, Christopher; Welch, Sue A.; Smith, Devin F.; Lyons, W.: **THE INFLUENCE OF AGRICULTURE AND URBANIZATION ON TRACE METAL GEOCHEMISTRY OF THE SCIOTO RIVER, OHIO**
- 3-2 8:15 AM Smith, Devin*; Lyons, W.; Welch, Sue A.; Wichterich, Connor; Gardner, Christopher; Carey, Anne E.: **RIVER CHEMISTRY OF THE SCIOTO, MIAMI, AND MUSKINGUM WATERSHEDS IN OHIO, USA**
- 3-3 8:30 AM Tenison, Christina*; Rech, Jason: **A GEOSCIENTIST'S ROLE IN INFORMING STREAM RESTORATION DESIGN: A CASE STUDY OF THE FOUR MILE CREEK RIVER VALLEY, SOUTHWESTERN OHIO**
- 3-4 8:45 AM Baldus, David*; Erickson, Annika; Gran, Karen; Brady, Valerie; Jicha, Terri; Johnson, Lucinda: **THE IMPACT OF STREAM RESTORATION PROJECTS ON ECOSYSTEM FUNCTION THROUGH CHANGES IN NUTRIENT SPIRALING DYNAMICS**
- 3-5 9:00 AM Blumentritt, Dylan*; Otten, Megan; Zanon, Emily: **MAPPING WATER AND SEDIMENT RETENTION STRUCTURES IN AN AGRICULTURAL AND TOPOGRAPHICALLY VARIABLE WATERSHED IN SOUTHEASTERN MINNESOTA**
- 3-6 9:15 AM Peterson, Eric*: **STREAM RECOVERY POST CHANNELIZATION: A CASE STUDY OF LOW-GRADIENT, AGRICULTURAL STREAMS IN CENTRAL ILLINOIS**
- 9:30 AM **BREAK**
- 3-7 9:45 AM Higgins, Dana V.*; Carr, Jake A.; Galler, Genn; McKinney, Michael: **MICROPLASTICS IN SNAILS FROM AN URBANIZED CREEK**
- 3-8 10:00 AM Greising, Christopher*; Jefferson, Anne; Farooq, Nageen; Muratori, Sophia; Kearns, Makayla; Brown, Emily: **DETERMINING DRIVERS OF ANTHROPOGENIC LITTER IN CLEVELAND (OH) AND CHARLOTTE (NC) URBAN STREAMS BASED ON WATERSHED AND STREAM CHARACTERISTICS**
- 3-9 10:15 AM Grote, Todd*; Comstock, Aaron; Bird, Broxton W.; Cook, Robert; Cross, Benjamin: **LATE HOLOCENE PALEOENVIRONMENTAL CHANGE, MIGRATION AND THE EMERGENCE OF THE FORT ANCIENT CULTURE IN THE MIDDLE OHIO RIVER VALLEY**
- 3-10 10:30 AM Johnson, Bradley*; Mullinax, Roy; Rieden, Hannah: **THE TIMING OF AND CAUSE OF STREAM INCISION IN THE NORTH CAROLINA PIEDMONT**
- 3-11 10:45 AM Hunt, Allen*: **QUANTITATIVELY RELATING STREAM NETWORK EVOLUTION TO GROUNDWATER FLOW**
- 3-12 11:00 AM Weirich, Nicole*; Callahan, Timothy; Trettin, Carl C.; Amatya, Devendra M.: **A STREAM CATENA: COLLABORATIVE RESEARCH AND MONITORING IN A TIDAL SYSTEM FROM FORESTED WETLAND HEADWATERS TO THE CHARLESTON ESTUARY**

SESSION NO. 4

T16. Geosciences for a Sustainable Future

8:00 AM, Duke Energy Convention Center, North Meeting Room 206

Amy Townsend-Small and Reza Soltanian, Presiding

- 4-1 8:00 AM Erhardt, Andrea*; Alvarez, Cristopher; Fichtner, Vanessa; Parris, Thomas M.; Zhu, Junfeng; Fryar, Alan; Webb, Steven E.; Munizzi, Jordon: **CAUSES AND EXTENT OF ELEVATED METHANE CONCENTRATIONS IN THE GROUNDWATER OF EASTERN KENTUCKY**

- 4-2 8:15 AM Van Beynen, Philip*: **VALUE OF GROUNDWATER TO PUBLIC SUPPLY IN WEST-CENTRAL FLORIDA**
- 4-3 8:30 AM DeVries, Stephanie*: **AN IMPROVED NITRATE MODELLING TOOL FOR SOURCE WATER PROTECTION IN SAND AND GRAVEL AQUIFERS**
- 4-4 8:45 AM McCarthy, Rowan*; Iqbal, Mohammad: **BACKGROUND INVESTIGATIONS INTO MAQUOKETA CAVE WATER SOURCES IN EASTERN IOWA**
- 4-5 9:00 AM Dapkus, Ryan*; Fryar, Alan E.; Byrne, Diana M.; Sarker, Shishir: **VARIABILITY IN E. COLI AND TRYPTOPHAN-LIKE FLUORESCENCE IN TWO KARST BASINS, INNER BLUEGRASS REGION, KENTUCKY**
- 9:15 AM **BREAK**
- 4-6 9:30 AM Galeano, Daniela; Meyer, Brian K.; Kabengi, Nadine; Dai, Dajun; He, Xiaochun; Gore, Pamela*; Ashok, Ashwin: **SOIL RADON STUDIES IN ATLANTA, GEORGIA**
- 4-7 9:45 AM Dobbs, Elizabeth*; Mobasher, Katayoun; Hughart, Joseph: **PRELIMINARY STUDY OF NATURALLY OCCURRING ASBESTOSES EXPOSURE AND ITS ADVERSE HEALTH EFFECTS IN NORTH GEORGIA USING GEOSPATIAL TECHNOLOGY**
- 4-8 10:00 AM Watts, Chester*; McClellan, Elizabeth A.; Stephenson, George C.; Young, James R.: **IMPLEMENTATION OF UNMANNED AERIAL SYSTEMS FOR DESIGN, RISK ANALYSIS, AND HAZARD MITIGATION OF ROCK SLOPES IN VIRGINIA**
- 4-9 10:15 AM Huot, Sebastien*; Spitzer, Liz; Mattheus, C. Robin; Phillips, Andrew: **WATER-LEVEL CHANGES AND TERRAIN EVOLUTION ALONG THE ILLINOIS LAKE MICHIGAN COAST: DEVELOPING A GEOCHRONOLOGY FOR THE ZION BEACH-RIDGE PLAIN**
- 4-10 10:30 AM Becker, Richard*; Palaseanu-Lovejoy, Monica; Yellich, John A.; Kincaire, Kevin: **WATER LEVEL AND LITHOLOGY IMPACTS ON COASTAL BLUFF EROSION ON THE EAST SHORE OF LAKE MICHIGAN FROM 2012-2021**
- 4-11 10:45 AM MacKenzie, Richard*; Bremner, Paul; Fletcher, Sean D.T.; Laycock, Dallin: **VISUALIZING INTERANNUAL TO DECADAL COASTAL VARIABILITY UTILIZING VIDEOS PRODUCED FROM REMOTELY SENSED DATA**

SESSION NO. 5

T20. Advances in Geophysics for Shallow Subsurface Investigations (GSA Geophysics and Geodynamics Division; GSA Hydrogeology Division; GSA Environmental and Engineering Geology Division; GSA Soil and Soil Processes Division)

8:00 AM, Duke Energy Convention Center, North Meeting Room 212

Kennedy Doro, Presiding

- 8:00 AM **INTRODUCTORY REMARKS**
- 5-1 8:05 AM Macias, Kristian*; Counts, Ronald: **USING GEOPHYSICS AND LUMINESCENCE GEOCHRONOLOGY TO DETERMINE THE AGE AND EXTENT OF THE ADAMS MILL FAULT AT THE SMITHSONIAN NATIONAL ZOOLOGICAL PARK, WASHINGTON, DC**
- 5-2 8:20 AM Okoko, George*; Emmanuel, Efemena D.; Adebayo, Moses B.; Casaus, Maureen; Ogunkoya, Akinwale; Otchere, E.; Ogundeji, Seyi E.; Doro, Kennedy; Fisher, Timothy: **USING GEOPHYSICAL METHODS TO DIFFERENTIATE BETWEEN TILL AND GLACIAL RHYTHMITE SEDIMENT AT WILDWOOD METROPARK, TOLEDO, OHIO**
- 5-3 8:35 AM Wormington, Donald*; Mickus, Kevin; Gouzie, Douglas: **NEAR SURFACE GEOPHYSICAL INVESTIGATION OF KARST FEATURES IN STONE COUNTY MISSOURI**
- 5-4 8:50 AM Emmanuel, Efemena D.*; Doro, Kennedy: **ESTIMATING THE DISTRIBUTION OF SOIL MOISTURE AND ORGANIC MATTER CONTENT IN RESTORED WETLANDS USING ELECTROMAGNETIC IMAGING**
- 5-5 9:05 AM Doro, Kennedy*; Emmanuel, Efemena D.; Kolapkar, Amar M.; Lapoint, Hannah N.: **WETLAND GEOPHYSICS: USING NON-INVASIVE GEOPHYSICAL IMAGING TO SUPPORT WETLAND RESTORATION PROJECTS IN NORTHWEST OHIO**
- 5-6 9:20 AM McGarr, Jeffery*; Wallace, Corey; Ntarlagiannis, Dimitrios; Sturmer, Daniel; Soltanian, Reza: **GEOPHYSICAL MAPPING OF HYPORHEIC PROCESSES CONTROLLED BY SEDIMENTARY ARCHITECTURE WITHIN COMPOUND BAR DEPOSITS**
- 9:35 AM **CONCLUDING REMARKS**

SESSION NO. 6

T21. Geologic Mapping Using the H/V Spectral Ratio Method in the North-Central United States

9:55 AM, Duke Energy Convention Center, North Meeting Room 212

Daniel Blake, John Esch, Carole Johnson, Brian Currie and Ernest Hauser, Presiding

- 9:55 AM **INTRODUCTORY REMARKS**
- 6-1 10:00 AM Norris, Tyler*; Antinao, Jose Luis: **USING HVSR TO REMAP OHIO'S BEDROCK TOPOGRAPHY AND DRIFT THICKNESS**
- 6-2 10:15 AM Clark, Ryan*; Tassier-Surine, Stephanie; Vogelgesang, Jason; Brennan, Greg; Kerr, Phil; Bancroft, Alyssa M.: **FILLING IN THE GAPS: USING PASSIVE SEISMIC FOR BEDROCK TOPOGRAPHIC CONTROL IN IOWA, USA**
- 6-3 10:30 AM Esch, John*; Kehew, Alan; Sauck, William; Norris, Tyler; Yellich, John A.; Joupperi, Clayton: **BEDROCK TOPOGRAPHY MAPPING USING THE HORIZONTAL-TO-VERTICAL SPECTRAL RATIO (HVSR) PASSIVE SEISMIC METHOD – CASS COUNTY MICHIGAN**
- 6-4 10:45 AM Currie, Brian*; Williams, Eva; Stubbins, Blake; Palko, Emma; Thoresen, Haley: **HVSR-ASSISTED MAPPING OF GLACIAL BURIED VALLEYS IN SOUTHWESTERN OHIO**
- 6-5 11:00 AM Blake, Daniel*: **USING THE H TO V SPECTRAL RATIO METHOD TO BETTER MAP THE BEDROCK TOPOGRAPHY AND DRIFT THICKNESS OF THE PREGLACIAL TEAYS RIVER WITHIN THE ANNA SEISMIC ZONE, OHIO**
- 6-6 11:15 AM Bell, Matthew*; Esch, John; Yellich, John A.; Voice, Peter: **DAM FAILURE – HYDROGEOLOGIC CONSEQUENCES AND EFFECTS ON THE TITTABAWASSEE AND TOBACCO RIVERS AND THE GROUNDWATER SYSTEMS IN SOUTHERN GLADWIN COUNTY, MICHIGAN**
- 6-7 11:30 AM Williams, Eva; Currie, Brian*: **DETAILED HVSR ANALYSIS OF HETEROGENOUS GLACIAL BURIED-VALLEY DEPOSITS NEAR OXFORD, OHIO**
- 6-8 11:45 AM Johnson, Carole*; White, Eric A.; Brown, Craig J.; Lane, John: **IMPROVING THE QUALITY OF HVSR REGRESSION EQUATIONS**

SESSION NO. 7

T28. Geoscience in Plain Language

8:00 AM, Duke Energy Convention Center, Online

Andrea Corpolongo, Ezekiel King Phillips, Emily Simpson and Megan Corcoran, Presiding

- 7-1 8:00 AM Isiorho, Solomon*: **SHOULD YOU TRUST A SCIENTIST?**
- 7-2 8:15 AM Sturmer, Daniel*: **BUILDING PALEOGEOGRAPHIC MAPS TO UNDERSTAND THE GEOLOGIC HISTORY OF AN AREA: HOW WE MAP AND VISUALIZE DEEP TIME**
- 7-3 8:30 AM Czaja, Andrew*: **THE ANCIENT EARTH WAS AN ALIEN PLANET**
- 7-4 8:45 AM Corpolongo, Andrea*; Czaja, Andrew D.: **NASA'S PERSEVERANCE ROVER IS SEARCHING FOR SIGNS OF ANCIENT LIFE ON MARS**

- 7-5 9:00 AM Georgen, Jennifer*: **MARINE VOLCANOES AND SEAFLOOR ERUPTIONS**
- 7-6 9:15 AM Cone, Lee*; Perez, Victor: **MORPHOLOGY OF SHARK TEETH FROM TWO SPECIES OF MID-MIOCENE SHARKS: C. HASTALIS AND C. PLANUS, AND POSSIBLE ECOLOGICAL IMPLICATIONS**
- 7-7 9:30 AM Simpson, Emily*; Crowley, Brooke; Sturmer, Daniel: **EVALUATING A NON-DESTRUCTIVE METHOD FOR ASSESSING SPECIMEN PRESERVATION**
- 7-8 9:45 AM Miller, Kurtz*: **UNDERGROUND RIVERS IN OHIO? A NARRATIVE, CURRERE JOURNEY EXPLORING ALTERNATIVE CONCEPTIONS IN THE GEOSCIENCES**

SESSION NO. 8

T42. Carbon Storage Research (GSA Environmental and Engineering Geology Division; GSA Energy Geology Division)

8:00 AM, Duke Energy Convention Center, North Meeting Room 211

Stephen Greb and James McDonald, Presiding

- 8:00 AM **INTRODUCTORY REMARKS**
- 8-1 8:05 AM Conner, Amber*; Kelley, Mark; Ravi Ganesh, Priya; Haagsma, Autumn; Gupta, Neeraj; Greenberg, Sallie; Leetaru, Hannes E.; Greb, Stephen; Carter, Kristin; Harrison, William: **ASSESSING MULTI-STATE CO₂ STORAGE SYSTEMS IN THE MIDWESTERN TO NORTHEASTERN UNITED STATES**
- 8-2 8:20 AM Greb, Stephen*; Leetaru, Hannes E.; Kelley, Mark; Carter, Kristin; Clark, Ryan; Dinterman, Philip; Harrison, William; Waid, Christopher: **CARBON STORAGE SYSTEMS OF BASIN AND ARCH REGIONS IN THE MIDWEST AND EASTERN UNITED STATES**
- 8-3 8:35 AM Carpenter, N. Seth*; Schmidt, Jonathan P.; Kelley, Mark; Greb, Stephen; Wang, Zhenming: **DEVELOPING A BASELINE SEISMICITY CATALOG IN THE NORTH-CENTRAL AND NORTHEASTERN U.S. TO ASSIST WITH CCUS DEPLOYMENT**
- 8-4 8:50 AM Haagsma, Autumn*: **DEVELOPING 3D STATIC EARTH MODELS TO REPRESENT CO₂ STORAGE SYSTEMS IN THE MIDWESTERN UNITED STATES**
- 8-5 9:05 AM Ershadnia, Reza*; Soltanian, Reza: **HYDRO-THERMO-CHEMO-MECHANICAL MODELING OF CARBON DIOXIDE INJECTION IN FLUVIAL HETEROGENEOUS AQUIFERS**
- 9:20 AM **BREAK**
- 8-6 9:35 AM Kutsienyo, Eusebius junior*: **MODELING THE FATE AND IMPACT OF CO₂ INJECTED INTO THE MORROW-B SANDSTONE THROUGH NON-ISOTHERMAL REACTIVE TRANSPORT MODELING: A CASE STUDY OF THE FARNSWORTH UNIT, TEXAS**
- 8-7 9:50 AM McDonald, James*; Waid, Christopher T. B.; Solis, Michael P.; Hulett, Samuel; Danielsen, Erika: **REGIONAL CHARACTERIZATION OF THE UTICA SHALE/POINT PLEASANT FORMATION FOR ENHANCED OIL RECOVERY IN OHIO**
- 8-8 10:05 AM Meyers, Joao S.*; Buursink, Marc L.; Hinnov, Linda A.: **A REVIEW OF THE CURRENT STATE OF SUBSURFACE HYDROGEN STORAGE IN THE UNITED STATES**
- 8-9 10:20 AM Willette, Donna*; Dessenberger, Richard: **STORAGE AND RECOVERY OF HYDROGEN IN NON-SALT BEARING STRATA FOR FLEXIBLE-FUEL POWER GENERATION**
- 8-10 10:35 AM Bowersox, J.*: **ASSESSING COMPRESSED AIR ENERGY STORAGE (CAES) POTENTIAL IN KENTUCKY TO AUGMENT ENERGY PRODUCTION FROM RENEWABLE RESOURCES**

MORNING POSTER TECHNICAL SESSIONS

SESSION NO. 9

T31. Undergraduate Research (Posters) (Council on Undergraduate Research Geosciences Division)

8:00 AM, Duke Energy Convention Center, Junior Ballroom B

Authors will be present from 9 to 11 AM

- | Booth # | |
|---------|---|
| 9-1 | 1 Radloff, Garris*; Hayes, Shannon; Liu, Katherine M; Moore, Andrew L; Richardson, Amelia J: LEGACY DAM POOL SEDIMENTS LESS RISKY THAN ASSUMED IN A LOW-HEAD DAM IN RICHMOND, IN |
| 9-2 | 2 Ornes, Stine*; Johnson, Bradley: MORPHOLOGY OF STREAM SEDIMENTS IN UPPER CREEK, BLUE RIDGE MOUNTAINS NC |
| 9-3 | 3 Hoffmann, Cordelia*; Peck, John A.: ENVIRONMENTAL HISTORY AS RECORDED IN THE SEDIMENTS OF LAKE ISAAC IN MIDDLEBURG HEIGHTS, OHIO |
| 9-4 | 4 Hensley, Andrew*; Borowski, Walter: HIGH-RESOLUTION LITHOLOGY AND STRATIGRAPHY OF AN OUTCROP WITHIN THE GRUNDY FORMATION, BREATHITT GROUP (PENNSYLVANIAN), SOUTHEAST KENTUCKY |
| 9-5 | 5 Clanton, Billy L.*; Luna, Jeannette Wolak: SPECTRAL GAMMA RAY RESPONSE IN A MIXED CARBONATE-SILICICLASTIC CHANNEL SYSTEM, FORT PAYNE (MIDDLE MISSISSIPPIAN), TENNESSEE |
| 9-6 | 6 Haller, Kevin*; Lo, Edward; McGlue, Michael M.: PRELIMINARY CHEMICAL WEATHERING INTENSITY INFERRED FROM MODERN FINE-GRAINED FLUVIAL SEDIMENTS OF THE PANTANAL BASIN (BRAZIL) |
| 9-7 | 7 Bartelt, Cheyenne V.*; Arkle, Jeanette C.; Weber, John C.; Erlich, Robert N.: PROVENANCE OF THE NORTHERN RANGE, TRINIDAD, USING DETRITAL ZIRCON U-PB GEOCHRONOLOGY: IMPLICATIONS FOR NORTHERN SOUTH AMERICAN RIVER SYSTEM PALEOGEOGRAPHY |
| 9-8 | 8 McGehee, James*; Davidson, Cameron; Garver, John I.: U-PB DETRITAL ZIRCON DATING OF THE SITKA GREYWACKE, BARANOF ISLAND, SE ALASKA |
| 9-9 | 9 Walters, Alexis*; Davidson, Cameron; Jongens, Richard; Turnbull, Rose: U-PB ZIRCON DATING OF MAGMATISM AND METAMORPHISM IN THE CHARLESTON METAMORPHIC GROUP, NEW ZEALAND |
| 9-10 | 10 McCoy-Bruce, Thomas*; Hunt, Emma; Horváth, Péter; Ranson, William: MULTI-STAGE REACTION CONTROLLED TEXTURES OF META-TROCTOLITES IN THE BUCK CREEK COMPLEX, NC |
| 9-11 | 11 Zieziul, Jacob*; Sirbescu, Mona-Liza C.; Student, James; Hill, Tina R.: TRACE ELEMENT DISTRIBUTION IN BERYL CRYSTALS FROM LCT AND NYF PEGMATITES: A PRELIMINARY PORTABLE-XRF STUDY |
| 9-12 | 12 Ames, Joshua*; Birner, Suzanne: OXYGEN FUGACITY OF PERIDOTITES FROM THE VEMA FRACTURE ZONE |
| 9-13 | 13 Thompson, Madeline*; Deibert, Jack E.; Camilleri, Phyllis: CORRELATION OF DISTAL ~13-10 MA COUGAR POINT TUFF UNITS IN KNOLL BASIN, NORTHEASTERN NEVADA, USING MAJOR MINERAL ASSEMBLAGES |
| 9-14 | 14 Sommer, Sarah*; Bohannon, Loren; Michelfelder, Gary: U-PB GEOCHRONOLOGY OF TITANITE AND ZIRCON TO DATE METAMORPHIC RESET OF 1.6 GA METAMORPHIC PLUTONIC ROCKS NEAR BUENA VISTA, COLORADO |
| 9-15 | 15 Smith, Peter*; Sirbescu, Mona-Liza C.; Hlohowskyj, Stephan R.: PRELIMINARY GEOCHEMICAL ANALYSIS OF SOILS FORMED ON LITHIUM-CESIUM-TANTALUM PEGMATITES IN OXFORD COUNTY, MAINE |

- 9-16 16 Hanson, Whitney*; Boddy, Dairian; Satkoski, Aaron M.; Haroldson, Erik: **MINERALOGY AND RADIOGENIC ISOTOPES OF THE BELL-ORREN PROSPECT: A MISSISSIPPI VALLEY-TYPE SURFACE VEIN IN CENTRAL TENNESSEE**
- 9-17 17 Ryan, Megan*; Holyoke, Caleb: **RELATIVE VISCOSITIES OF WET OLIVINE AGGREGATES WITH DIFFERENT CRYSTALLOGRAPHIC PREFERRED ORIENTATIONS; IMPLICATIONS FOR SEISMIC ANISOTROPY IN THE MANTLE WEDGE**
- 9-18 18 Schneider, Audrianna N.*; Wolf, Michael B.: **EXPERIMENTAL INVESTIGATION OF CRYSTALLIZATION TEXTURES: INTERPRETING THE JUWA PASS RHYOLITES AND THE SALIÑA MATIJS BASALTIC TRACHYANDESITES, FROM BONAIRE, LEEWARD ANTILLES**
- 9-19 19 Hindrichs, Anna*; Eleazer, Kiana; Lui, Timothy; Williams, Jason; Nord, Julia; Gregory, Daniel; Morrison, Shaunna; Hazen, Robert M.; Ostroverkhova, Alexandra: **OXIDE SPINEL AND DATA-DRIVEN DISCOVERY: A COMPREHENSIVE MINERALOGICAL AND GEOCHEMICAL DATA RESOURCE, INCORPORATING COMPOSITION, LOCATION, AND PARAGENESIS**
- 9-20 20 Murchland, Madeline; Certain, Jessica*; Curtis, Juliana; Pizsel, Charlotte; Stittle, Landon; Krekeler, Mark: **MINERALOGICAL CHARACTERIZATION OF BLUSH**
- 9-21 21 Larson, Mary*; Kairies-Beatty, Candace; Benson, Sydney; Franz, Jeanne: **EVALUATING SOIL HEALTH IN THE SEED GARDEN AT WINONA STATE UNIVERSITY**
- 9-22 22 Wobig, Elissa*; Kairies-Beatty, Candace; Runck, Amy: **EVALUATION OF SOIL HEALTH IN THE INDIGENOUS LEARNING GARDEN AT WINONA STATE UNIVERSITY**
- 9-23 23 Benson, Sydney*; Kairies-Beatty, Candace; Larson, Mary: **COMPARISON OF METHODS TO EVALUATE SOIL NUTRIENT AVAILABILITY**
- 9-24 24 Speight, Nicholas*: **SOIL MAGNETISM AS A FUNCTION OF SLOPE, NORWESCOR HOLSTEIN FARMS IN STARK CO., OHIO**
- 9-25 25 Stanevich, Leah*: **MAGNETIC PARAMETER OF A SOIL AND LOESS SEQUENCE FROM ROSS COUNTY, OHIO, AND IT'S MEANING FOR PALEOCLIMATIC AND ENVIRONMENTAL CHANGE IN OHIO**
- 9-26 26 Maucieri, Breanne*; Kaylor, Steven; King, Amelia; Romero, Stephen; Fleszewski, Grace: **SALINITY OF LAKE MICHIGAN TRIBUTARIES AS AFFECTED BY ROAD SALTING**
- 9-27 27 Eason, Colin*; Allen, Phillip P: **USING THE PAST TO GUIDE THE FUTURE: RECONSTRUCTING THE ENVIRONMENTAL HISTORY OF FINZEL SWAMP FROM MULTI-PROXY DATA FOR FUTURE MANAGEMENT**
- 9-28 28 Hernandez, Elisabeth*; Carlson Mazur, Martha: **GREAT LAKES RIVERMOUTH WETLANDS: IMPACTS OF LAKE LEVELS AND RIVER FLOWS ON WETLAND AREA**
- 9-29 29 Pizsel, Charlotte*; Wagner, John X.; Rech, Jason: **IDENTIFYING THE RELATIONSHIP BETWEEN LARGE DISCHARGE EVENTS AND THE TRANSPORT OF WOODY DEBRIS ON THE WHITEWATER RIVER, INDIANA**
- 9-30 30 Cahn, Ariel V.; Edwards, Jack*; Rech, Jason; Tenison, Christina N.: **EXAMINING THE SPATIAL VARIABILITY OF CHANNEL MORPHOLOGY AND PARTICLE SIZE OF FOUR MILE CREEK, OHIO**
- 9-31 31 Stanford, Molly; Dull, Sally; Flanagan, Paige; Winn, Clara; Carr, Jake A.; Bonilla, Gregory; McKinney, Michael*: **MICROPLASTICS IN THE TENNESSEE RIVER AND THREE TRIBUTARY URBAN CREEKS**
- 9-32 32 Gossett, Lauren*; DeVries, Stephanie: **MICROPLASTICS IN A SMALL STREAM: STORM RESPONSE IN A TRIBUTARY TO THE TENNESSEE RIVER**
- 9-33 33 Carr, Meghan*; Strasser, Jeffrey: **A CARBON FOOTPRINT ANALYSIS OF AUGUSTANA COLLEGE RESIDENCE HALLS**
- 9-34 34 Neidich, Beau; White, Cole*; Adler, Dylan; DeVries, Stephanie: **TRANSPORT OF COLLOIDAL MICROPLASTICS THROUGH POROUS MEDIA**
- 9-35 35 Grissom, Tessa*; Mihindukulasooriya, Lorita; Dixit, Nilesh: **MODELING CHLOROPHYLL-A CONCENTRATIONS USING LANDSAT 8 SATELLITE IMAGERY**
- 9-36 36 Zhao, Wenshuo*; Papay, Richard; Wiesenberg, Nick; Fiala, Lucie; Gaglioti, Ben; Wiles, Greg: **VOICES IN THE TREES: SEEKING COMMON STORIES FROM TREE RINGS IN A REMOTE COLLABORATION**
- 9-37 37 Abercrombie, Chamari; Hodges, Grace; Wilson, Luke; Yoon, Ellen; Braun, Elizabeth; Leisher, Kai; Chikomo, Mazvita; Banna, Layali; Pollock, Meagen; Wiesenberg, Nick*; Wiles, Greg: **THE COMMUNITY WATER PROJECT: STUDENT EXPLORATION OF THE GEOSCIENCES IN THE CONTEXT OF STORMWATER MANAGEMENT IN NORTHEAST OHIO**
- 9-38 38 Messerly, Owen*; Mihindukulasooriya, Lorita; Nguyen, Ngoc Minh Thao; Kaeff, Tracy: **MONITORING OF MULTIPLE VARIABLES AFFECTING WATER QUALITY IN KARST SPRINGS THROUGHOUT THE NORTHERN KENTUCKY AND LEXINGTON AREAS**
- 9-39 39 Thomas, Zach; Garcia, Angel*: **CHARACTERIZING SHIELD SPELEOTHEMS USING MOBILE LIDAR AT GRAND CAVERNS, GROTTOS, VA**
- 9-40 40 Ritchey, Evan*; Manning-Berg, Ashley; Santamaria, Jose; Roney, Ryan: **INVESTIGATING THE RELATIONSHIP OF MINERAL AND ORGANIC PHASES IN THE STROMATOLITIC FABRICS OF THE KNOX GROUP, NW GA**
- 9-41 41 Dellavedova, Lorelei*; Garcia, Angel: **EXAMINING HUMAN IMPACT INSIDE A SHOW CAVE BY MAPPING THE SPATIOTEMPORAL DISTRIBUTION OF HISTORICAL SIGNATURES AT GRAND CAVERNS, GROTTOS, VA**
- 9-42 42 Whitman, Lily*; Garcia, Angel; Shank, Austin; Neary, Morgan; Collins, Tracey; See, Cory: **MEASURING THE EFFICACY OF GEO-INTERPRETIVE STOPS AS AN INTERVENTION TO HIGHLIGHT CAVE AND KARST KNOWLEDGE AT GRAND CAVERNS**
- 9-43 43 Marsch, Emily Ann*; Mcgary, R Shane; Dakouri-Hild, Anastasia; Pfeifer, Brian: **GEOPHYSICAL INVESTIGATION OF THE ANCIENT APHIDNA REGION FOR THE KOTRONI ARCHAEOLOGICAL SURVEY PROJECT (KASP)**
- 9-44 44 Shaw, Mason*; Holder, Daniel; Eadie, Christian B.; Marquand, Sydney; Ludwick, Trevor; Elgin, Lauren; Sipe, W. Jay; Dickson, Robin; Lord, Mark: **THE EFFECT OF EUROPEAN SETTLEMENT WITHIN THE CULLOWHEE CREEK FLOODPLAIN, WESTERN NORTH CAROLINA**
- 9-45 45 Guarneri, Nickolas*; Kinner, David; Waters-Tormey, Cheryl: **DEFINING HOLLOWES AND COMPARING FACTORS THAT CONTRIBUTE TO MASS WASTING IN THE SOUTHERN APPALACHIANS, WESTERN NORTH CAROLINA**
- 9-46 46 Palmer, Megan*; Langille, Jackie: **MIOCENE LINEAMENTS AND FRACTURES IN THE SPRUCE PINE 7.5-MINUTE QUADRANGLE, WESTERN NORTH CAROLINA, ASSOCIATED WITH TOPOGRAPHIC REJUVENATION OF THE BLUE RIDGE MOUNTAINS**
- 9-47 47 Green, Chloe*; Langille, Jackie: **KNICKPOINT ELEVATIONS WITHIN THE SPRUCE PINE 7.5-MINUTE QUADRANGLE, NC: IMPLICATIONS FOR MIOCENE UPLIFT OF THE BLUE RIDGE PROVINCE**
- 9-48 48 Clark, Abigail F.*; Weber, John; Arkle, Jeanette C.: **STRUCTURAL GEOLOGY AND CENOZOIC DEFORMATION: WESTERN NORTHERN RANGE, TRINIDAD**

9-49	49	Baxter, Andrew*; Wolf, Michael B.: POINT CLOUD MODELING OF SHATTER CONES FROM WELLS CREEK CRATER, NORTHWESTERN TENNESSEE			BIOSTRATIGRAPHY OF THE CENTRAL WILLISTON BASIN: AGE CONTROL FOR RECOGNIZING SIX GLOBAL POSITIVE $\delta^{13}\text{C}$ EXCURSIONS
9-50	50	Borst, Grace C*; Zakhrova, Natalia; Goldberg, David: STRESS HETEROGENEITY IN THE NEWARK BASIN: MODELING STRESS PERTURBATION ON FAULTS	10-8	3:20 PM	BREAK
9-51	51	Kohl, Jove*; Corpolongo, Andrea: USING 3D PROJECTIONS TO UNDERSTAND PRECAMBRIAN MICROBIALITE MORPHOLOGY		3:35 PM	Al-Musawi, Mohammed*; Kaczmarek, Stephen; Voice, Peter; Harrison, William B.; Kuglitsch, Jefferey J.; Griffith, Elizabeth M.; Saltzman, Matthew: $\delta^{13}\text{C}_{\text{CARB}}$ CHRONOSTRATIGRAPHIC CORRELATION OF THE LLANDOVERY CARBONATE SUCCESSION ACROSS THE MICHIGAN BASIN
9-52	52	Tarlton, Laikin*; Jones, Savannah; Caldwell, Abigayle; Romero, Ingrid; Nuñez Otaño, Noelia B.; Spears, Tyler; Fairchild, C. Jolene; Lennex-Stone, June E.; Horsfall, Taylor; Warny, Sophie; Pound, Matthew J.; O'Keefe, Jennifer: FUNGI IN A WARMER WORLD: MIDDLE MIOCENE FUNGAL ASSEMBLAGES FROM ALUM BLUFF, FLORIDA	10-9	3:50 PM	Farnam, Cole*; Brett, Carlton E.: REEXAMINING THE $\delta^{13}\text{C}_{\text{CARB}}$ CHEMOSTRATIGRAPHY OF THE UPPERMOST ORDOVICIAN STRATA IN OHIO
9-53	53	Fairchild, C. Jolene*; Lennex-Stone, June E.; Horsfall, Taylor; Spears, Tyler; Romero, Ingrid; Nuñez Otaño, Noelia B.; Tarlton, Laikin; Jones, Savannah; Caldwell, Abigayle; Warny, Sophie; Pound, Matthew J.; O'Keefe, Jennifer: FUNGI IN A WARMER WORLD – FUNGAL DIVERSITY IN THE TROPICAL MIDDLE MIOCENE CLIMATE OPTIMUM OF THE CLARKIA REGION OF IDAHO, USA	10-10	4:05 PM	Conwell, Christopher*; Saltzman, Matthew; Lindskog, Anders; Eriksson, Mats E.; Griffith, Elizabeth M.; Leslie, Stephen A.; Hints, Olle; Edwards, Cole; Herrmann, Achim D.: CORRELATING MIDDLE-LATE ORDOVICIAN CARBONATE STRATA ACROSS THE IAPETUS USING STRONTIUM ISOTOPES ($^{87}\text{SR}/^{86}\text{SR}$) CALIBRATED TO CONODONT BIOSTRATIGRAPHY
9-54	54	Boyer, Irysa*: A MORPHOLOGICAL ANALYSIS OF WOLF-LIKE CANIDS, AND A LOOK INTO AUGUSTANA'S DIRE WOLVES FROM THE LA BREA TAR PITS, LOS ANGELES, COUNTY, CA	10-11	4:20 PM	Stigall, Alycia L.*: A REVIEW OF THE LATE ORDOVICIAN (KATIAN) RICHMONDIAN INVASION OF EASTERN LAURENTIA : WHAT I'VE LEARNED IN THE 25 YEARS SINCE STIG BERGSTRÖM FIRST INTRODUCED ME TO THESE ROCKS
9-55	55	Neale, Bianca L*; Miller, Joshua; Druckenmiller, Patrick; Wald, Eric: RAPTOR PELLETS OF THE ARCTIC NATIONAL WILDLIFE REFUGE REVEAL SPATIAL GRADIENT IN SMALL MAMMAL COMMUNITIES	10-12	4:35 PM	Forsythe, Ian*; Stigall, Alycia: QUANTIFYING THE BIOTIC RESPONSE TO THE CLARKSVILLE PHASE OF THE RICHMONDIAN INVASION
			10-13	4:50 PM	Little, Samuel*; Brett, Carlton: A DETAILED VIEW OF THE RICHMONDIAN INVASION (LATE ORDOVICIAN, CINCINNATIAN): FACIES PARTITIONING OF INCUMBENTS AND INVADERS
			10-14	5:05 PM	Vayda, Prescott*; Babcock, Loren: XCT-BASED COMPARATIVE TAPHONOMY OF EXCEPTIONALLY PRESERVED FOSSILS FROM THE ORDOVICIAN AND DEVONIAN OF THE MIDWESTERN UNITED STATES
				5:20 PM	CONCLUDING REMARKS

AFTERNOON ORAL TECHNICAL SESSIONS

SESSION NO. 10

T2. Correlating the Ordovician: Honoring the Career and Contributions of Stig M. Bergström

1:30 PM, Duke Energy Convention Center, North Meeting Room 203/204

Stephen A. Leslie, Daniel Goldman and Matthew Saltzman, Presiding

1:30 PM **INTRODUCTORY REMARKS**

10-1	1:35 PM	Babcock, Loren E.*: THE DEVELOPING CAMBRIAN CHRONOSTRATIGRAPHIC SCALE: IDEAS ROOTED IN THE WORK OF STIG M. BERGSTRÖM
10-2	1:50 PM	Huff, Warren*: BENTONITES AND K-BENTONITES: ISSUES IN IDENTIFYING AND INTERPRETING ANCIENT TEPHRAS
10-3	2:05 PM	Herrmann, Achim D.*; Haynes, John T.; Robinet, Richard M.: MOVING ORDOVICIAN TEPHROCHRONOLOGY INTO THE 21ST CENTURY WITH LASER ABLATION AND MACHINE-LEARNING (ML) TECHNIQUES
10-4	2:20 PM	Finney, Stanley*: ORDOVICIAN ODYSSEY OF CUYANIA, THE GREATER PRECORDILLERA TERRANE OF WESTERN ARGENTINA
10-5	2:35 PM	Haynes, John T.*; Herrmann, Achim; Robinet, Richard; Leslie, Stephen A.: GEOCHEMISTRY OF MIDDLE AND UPPER ORDOVICIAN CARBONATE STRATA AND K-BENTONITES AT TIDWELL HOLLOW, ALABAMA APPALACHIANS: IMPLICATIONS FOR PALEOCEANOGRAPHY AND REGIONAL CORRELATIONS
10-6	2:50 PM	Over, D*; Repetski, John E.: CONODONTS IN MIDDLE AND UPPER DEVONIAN BLACK SHALES OF THE APPALACHIAN BASIN IN NEW YORK
10-7	3:05 PM	Leslie, Stephen*; Husinec, Antun: UPPER ORDOVICIAN THROUGH LOWER SILURIAN CONODONT

SESSION NO. 11

T18. Urban Geochemistry and Hydrology (International Association of GeoChemistry)

2:45 PM, Duke Energy Convention Center, North Meeting Room 206

W. Lyons and David Long, Presiding

11-1	2:45 PM	Tu, Jun*: IMPACT OF ROADS AND TRAFFIC ON WATER QUALITY IN ATLANTA METROPOLITAN AREA, USA
11-2	3:00 PM	Hernandez, Natalie*; Hasenmueller, Elizabeth: MICROPLASTIC DEBRIS STORAGE AND TRANSPORT IN SMALL URBAN STREAMS
11-3	3:15 PM	Wibel, Ashley*; Squiggins, Kayla T.; Fullerton, Heather E.; Vulava, Vijay M.: PRESENCE OF ANTIBIOTIC RESISTANT BACTERIA IN URBAN FLOODWATER OF PENINSULAR CHARLESTON, SC
11-4	3:30 PM	Wells, Kate*; Them, Theodore; Beutel, Erin K: TOMBSTONE WEATHERING IN CHARLESTON, SOUTH CAROLINA
11-5	3:45 PM	Ford, Robert*; Fritz, Ken M.; Brase, Lauren; Lehmann, Adam; Gamble, Ben: ASSESSING THE INFLUENCE OF URBAN KARST ON THE SUSTAINABILITY OF STREAM FLOW
11-6	4:00 PM	Chikomo, Mazvita*; Sawyer, Audrey; Meiner, Kathleen M.: MODELING MEETS MIRROR LAKE: HOW HIGHLY URBANIZED AREAS INFLUENCE SURFACE WATER-GROUNDWATER INTERACTIONS
11-7	4:15 PM	Zic, Kathryn*; Gardner, Christopher; Welch, Sue A.; Smith, Devin F.; Wichterich, Connor; Lyons, W.: LEAD IN COLUMBUS, OH TAP WATER

SESSION NO. 12**T24. Landscape Evolution in Mid-Continental Settings**

1:30 PM, Duke Energy Convention Center, North Meeting Room 201/202

Jason M. Dortch, Dylan Ward and Matthew Jungers, Presiding

- 12-1 1:30 PM Hammond, Maxwell*; Haneberg, William; Dortch, Jason M.: **GEOMORPHIC QUANTIFICATION OF COLLUVIAL DEPOSITS IN THE INTERIOR LOW PLATEAUS USING LIDAR-DERIVED MAPS**
- 12-2 1:45 PM Almaz, Moamen*; Aly, Mohamed H.: **GEOSPATIAL ANALYSIS AND MODELING OF LANDSLIDE SUSCEPTIBILITY IN COLORADO SPRINGS, COLORADO**
- 12-3 2:00 PM Thompson, Todd*; Johnson, Matthew R.; Argyilan, Erin P.: **SHIFTING MORPHOLOGY AND HAZARD MAPPING OF THE MOUNT BALDY DUNE, INDIANA DUNES NATIONAL PARK**
- 12-4 2:15 PM Herlinger, Jillian*; Higley, Melinda: **GPR-BASED MODEL OF A DUNE PALEOSOL: AN EXAMPLE FROM HOLLAND, MICHIGAN, USA**
- 12-5 2:30 PM O'Connor, Abigale*; Comerford, Ella; Rech, Jason: **GEOCHEMISTRY AND MINERALOGY OF A SOIL CHRONOSEQUENCE ON FLUVIAL TERRACES, FOUR MILE CREEK, SOUTHWESTERN OHIO**
- 12-6 2:45 PM Bosch, Rachel*; Ward, Dylan: **EVOLUTION OF THE SURFACE AND SUBSURFACE DRAINAGE OF THE SINKHOLE PLAIN, CENTRAL KENTUCKY KARST, USA**
- 12-7 3:00 PM Koch, Hudson*; Dortch, Jason M.; Haneberg, William: **DEVELOPING GEOMORPHIC LANDFORM MAPS OF CENTRAL KENTUCKY USING LIDAR-BASED TERRAIN INTERPRETATION**
- 12-8 3:15 PM Jungers, Matthew*: **DRAINAGE REORGANIZATION DRIVEN BY PROGLACIAL LAKE SPILLOVER ALONG THE WISCONSINAN AND ILLINOIAN ICE MARGINS OF CENTRAL AND SOUTHEASTERN OHIO**
- 12-9 3:30 PM Kerr, Phil*; Heinzel, Chad: **EVIDENCE FOR LATE PLIESTOCENE PERIGLACIAL FEATURES IN THE MIDWEST UNITED STATES**
- 12-10 3:45 PM Gwyn, Richard*: **LINKING WEATHERING TO THE MINERALOGY AND GRAIN SIZE CHARACTERISTICS OF SUPRAGLACIAL BOULDERS OF THE ANTARCTICA DRY VALLEYS**
- 12-11 4:00 PM Davias, Michael*; Harris, Thomas H.S.: **CATAclysm ON THE CONTINENT: OFFERING A NON-CLASSICAL SOLUTION FOR THE GEOMORPHOLOGY OF ENIGMATIC SURFICIAL SEDIMENTARY FORMATIONS BLANKETING NORTH AMERICA**
- 13-5 2:30 PM Sparks, Nathaniel*; O'Keefe, Jennifer; Mason, Charles E.: **GRAIN-SIZE AND PETROGRAPHIC ANALYSIS OF SUSPECTED LOESS IN ROWAN COUNTY, KY**
- 13-6 2:45 PM Spears, Tyler*; Romero, Ingrid; Nuñez Otaño, Noelia B.; Starnes, James; Alford, Mac; Brink, Alyson; Pound, Matthew J.; O'Keefe, Jennifer: **MIDDLE MIOCENE FUNGI FROM THE BOUIE RIVER FOSSIL FLORA SITE IN THE UPPER HATTIESBURG FORMATION, HATTIESBURG, MISSISSIPPI**
- 13-7 3:00 PM Ford, Holly*; Currier, Ryan: **VESICLE BANDS IN A DIKE: INVESTIGATING MAGMA DYNAMICS IN A MOUNT TAYLOR DIKE, NEW MEXICO**
- 3:15 PM **BREAK**
- 3:30 PM Lightning talk: Beasecker, J.; Brandt, D.: **PREDATORY TRILOBITES: COMBINING MORPHOLOGICAL AND ICHNOLOGICAL DATA**
- 3:35 PM Lightning talk: Borsos, D.; Gonzalez, R.M.; Visaggi, C.C.; Estrada, J.L.; Simone, M.; Ransom, M.A.; Clinton, J.M.; Vendetti, J.E.: **NATURAL COMMUNITY TYPES AND NATIVE AND NON-NATIVE TERRESTRIAL GASTROPODS IN THE PIEDMONT REGION OF GEORGIA**
- 3:40 PM Lightning talk: Pugh, I.; Crothers, J.; Heckert, A.: **3D MODELING AND PRINTING AS A RESOURCE IN PALEONTOLOGICAL OUTREACH**
- 3:45 PM Lightning talk: Leesburg, J.; Clary, R.M.; Nagel, A.O.: **DOCUMENTING UNIQUE GEOLOGIC LOCATIONS AS VIRTUAL ENVIRONMENTS: OSBORN PRAIRIE, MS VERSUS SWEETING'S POND, ELEUTHERA**
- 3:50 PM Lightning talk: Osborne, L.; Lukoczki, G.; Kaczmarek, S.; Fichtner, V.; Schurr, S.; Strauss, H.: **A DETAILED RE-EXAMINATION OF CA-MG-CARBONATE SEDIMENTS IN LAGOA VERMELHA USING RIETVELD REFINEMENT**
- 3:55 PM Lightning talk: Piquet, M.; Molina, R.; Morejon, S.; Roberts, B.; Jerew, H.R.; MacDonald Jr., J.; Barbosa, A.; McManus, G.J.: **CALCITE MINERALOGY FROM THE NASHUA FORMATION, FORT DRUM, AND FORT THOMPSON FORMATION, NORTH FORT MYERS, FLORIDA. AN NSF GEOPATH AND MRI FUNDED STUDY**
- 4:00 PM Lightning talk: Dewaelsche, P.; Brown, K.; Loocke, M.; McLeod, C.: **CONSTRAINING K-FELDSPAR MEGACRYST GROWTH THROUGH INVESTIGATIONS OF PLAGIOCLASE INCLUSIONS**
- 4:05 PM Lightning talk: Madsen, L.; Maneiro, K.A.; Brown, A.; Dragovic, B.; Stevens, G.: **BULK LU-HF GARNET GEOCHRONOLOGY IN THE SOUTHERN MARGINAL ZONE, LIMPOPO BELT, SOUTH AFRICA**
- 4:10 PM Lightning talk: Arimes, A.; Chappuies, J.; Dapkus, R.; Fryar, A.E.: **COMPARING CONTROLS ON WATER QUALITY IN TWO KARST BASINS, INNER BLUEGRASS REGION, KENTUCKY**
- 4:15 PM Lightning talk: Rechenberg, M.; Peck, J.A.: **SURFACE SEDIMENT DISTRIBUTION BY LAKE PROCESSES IN WYOGA LAKE, OH**
- 4:20 PM Lightning talk: Head, E.; Stone, J.; Yost, C.: **A PALEOLIMNOLOGY STUDY OF HISTORICAL WILD RICE (ZIZANIA PALUSTRIS) IN LAC VIEUX DESERT, MI**
- 4:25 PM Lightning talk: Bailey M.; Lepper, K.: **A CLOSER LOOK AT THE DEPOSITIONAL AGES FOR THE UPPER AND LOWER CAMPBELL SHORELINE OF GLACIAL LAKE AGASSIZ IN NORTHWESTERN MINNESOTA**
- 4:30 PM Lightning talk: Blanton, B.: **AN ANALYSIS OF RESERVOIR PROPERTIES AND CONTROLS IN THE COTTON VALLEY GROUP OF JONES COUNTY, MS**
- 4:35 PM Lightning talk: Worthan, M.; Mason, C.; Johnson, M.; Hidy, A.J.: **SPATIAL PATTERNS OF 10BE-BASED CATCHMENT WIDE DENUDATION IN THE WESTERN PANAMINT MOUNTAINS, CALIFORNIA**

SESSION NO. 13**T30. Undergraduate Oral Presentations**

1:30 PM, Duke Energy Convention Center, North Meeting Room 205

Marian Buzon and Brittani McNamee, Presiding

- 13-1 1:30 PM Guevara, Rachel*; van Beynen, Philip: **SEASONAL CHANGES IN FATE AND TRANSPORT OF PHARMACEUTICALS AND PERSONAL CARE PRODUCTS DUE TO THE EFFICACY OF ONSITE WASTEWATER TREATMENT SYSTEMS IN A SINKHOLE LAKE ENVIRONMENT**
- 13-2 1:45 PM Sarkisian, Leah*; Kay, Malia; Johnson, Bradley: **EFFECT OF DEVELOPMENT ON COVE SEDIMENTATION IN LAKE WYLIE, NC**
- 13-3 2:00 PM Mullinax, Roy*; Johnson, Bradley: **STREAM INCISION IN THE SOUTHEASTERN PIEDMONT AS A DRIVER OF HABITAT CHANGE**
- 13-4 2:15 PM heme, Onyinyechi; Higley, Melinda*: **SEDIMENT CHARACTERISTICS OF THE UPPER UNITS OF LANDSLIDE-PRONE BLUFFS ALONG THE SOUTHEAST SHORELINE OF LAKE MICHIGAN**

Thursday, 7 April 2022

4:40 PM Lightning talk: Bowman, C.; Lazar, K.B.; Whitmire, S.; Carraway, E.; Gleasman, G.: **SEDIMENT TRAP DEVELOPMENT AND QUANTIFICATION OF MICROPLASTICS DEPOSITION IN THE BLACK AND WACCAMAW RIVER SYSTEMS, SOUTH CAROLINA**

SESSION NO. 14

T37. *Appalachian Orogenies: When and How Do They Start and End?*

1:30 PM, Duke Energy Convention Center, North Meeting Room 212

Arthur J. Merschat, Ryan J. McAleer, Ryan Thigpen and Jamie Levine, Presiding

- 1:30 PM **INTRODUCTORY REMARKS**
- 14-1 1:35 PM Bailey, Christopher*; Foster-Baril, Zachary: **NEOPROTEROZOIC TECTONICS, MAGMATISM, & SEDIMENTATION IN THE CENTRAL & SOUTHERN APPALACHIANS: THE LONG ROAD TO IAPETUS**
- 14-2 1:50 PM Liscomb, Juliet*; Bailey, C.M.; Foster-baril, Zachary; Hinshaw, Emily; Stockli, Daniel F.; Rich, M.: **AGE AND ORIGIN OF THE ALBEMARLE-NELSON MAFIC-ULTRAMAFIC COMPLEX IN VIRGINIA'S EASTERN BLUE RIDGE: RIFT-RELATED DIFFERENTIATED SILLS?**
- 14-3 2:05 PM El-Shazly, Aley*; Felix, Breana; Willard, Sierra Rose; Summers, Paul: **PETROLOGY AND GEOCHEMISTRY OF THE LITTLE PINE GARNET MINE SCHISTS, WESTERN BLUE RIDGE**
- 14-4 2:20 PM Zach, Terri*; Bailey, Christopher M.; Foster-Baril, Zachary; Hinshaw, Emily; Stockli, Daniel F.: **STRUCTURAL GEOLOGY AND GEOCHRONOLOGY OF THE SHORES MÉLANGE: POLYPHASE DEFORMATION ACROSS THE TACONIAN SUTURE IN THE PIEDMONT, VIRGINIA**
- 14-5 2:35 PM Becker, Naomi*; George, Freya; Guice, George; Viète, Daniel: **EVIDENCE OF SUBDUCTION INITIATION RECORDED IN THE DADEVILLE COMPLEX OF ALABAMA**
- 2:50 PM **BREAK**
- 14-6 3:05 PM Barineau, Clinton*; Tull, James: **GEOMETRY, KINEMATIC EVOLUTION, AND TIMING OF CRYSTALLINE THRUST SHEETS AND ASSOCIATED STRUCTURES ALONG THE WEST FLANK OF THE SOUTHERN APPALACHIAN OROGEN IN ALABAMA AND GEORGIA, USA**
- 14-7 3:20 PM Merschat, Arthur*; McAleer, Ryan J.: **THREE PALEOZOIC APPALACHIAN OROGENIES IN THE SOUTHERN APPALACHIAN CRYSTALLINE CORE: BOXES WITH BROKEN EDGES?**
- 14-8 3:35 PM Stokes, Rebecca*; McAleer, Ryan; Merschat, Arthur J.: **UNRAVELING LOW-TEMPERATURE COOLING IN THE BLUE RIDGE, VA AND NC, THROUGH ⁴⁰AR/³⁹AR ANALYSIS AND GRAIN-SCALE CHARACTERIZATION OF K-FELDSPAR**
- 14-9 3:50 PM Deasy, Ryan*: **BASEMENT INFRASTRUCTURE OF NORTHWEST FLORIDA REVEALED BY ³⁹AR/⁴⁰AR AGE SPECTRA OF K-FELDSPAR AND MUSCOVITE**

SESSION NO. 15

T40. *Strategic Minerals of North American Midcontinent: Importance, Occurrence, and U.S. Initiatives*

1:30 PM, Duke Energy Convention Center, North Meeting Room 211

John Rakovan, Jared Freiburg and Craig Dietsch, Presiding

- 1:30 PM **INTRODUCTORY REMARKS**
- 15-1 1:35 PM Kleinsasser, Jackie*; Simon, Adam C.; Kattamalavadi, Amartya; Goan, Ian; Peterson, Dean; Hudak, George J.: **FE-TI OXIDE-BEARING ULTRAMAFIC INTRUSIONS OF THE DULUTH COMPLEX, MN: UNRAVELING THE GENESIS OF A DOMESTIC TI RESOURCE**
- 15-2 1:50 PM Kattamalavadi, Amartya*; Kleinsasser, Jackie; Simon, Adam C.; Hudak, George J.; Peterson, Dean: **OLIVINE GEOCHEMISTRY AND SERPENTINIZATION FROM**

FE-TI OXIDE-BEARING ULTRAMAFIC INTRUSIONS IN THE DULUTH COMPLEX, MN

- 15-3 2:05 PM Freiburg, Jared*; Elrick, Scott; Delpomdor, Franck: **THE ILLINOIS BASIN CARBON ORE, RARE EARTH, AND CRITICAL MINERAL INITIATIVE (IB CORE-CM)**
- 15-4 2:20 PM Lukoczki, Georgina*; Hickman, John B.: **APPLICATION OF THE MINERAL SYSTEMS APPROACH FOR SUSTAINABLE CRITICAL MINERAL EXPLORATION AND RESEARCH IN KENTUCKY**
- 15-5 2:35 PM Smith-Schmitz, Sarah*; Appold, Martin: **REACTIVE TRANSPORT MODELING OF THE ROLE OF A F-RICH, ACIDIC BRINE IN THE FORMATION OF FLUORITE- RICH ORE BODIES IN THE ILLINOIS-KENTUCKY MVT DISTRICT**
- 2:50 PM **BREAK**
- 15-6 3:05 PM Murchland, Madeline*; Rakovan, John; Trela, Jarek; Yu, Mingyue; Freiburg, Jared; Nuelle, Laurence M.: **HICKS DOME DRILL CORES: MINERALOGICAL AND GEOCHEMICAL OBSERVATIONS**
- 15-7 3:20 PM Trela, Jarek*; Freiburg, Jared; Yu, Mingyue; Gazel, Esteban; Lundstrom, Craig; Nuelle, Laurence M.; Maria, Anton; Rakovan, John; Murchland, Madeline: **PETROLOGIC AND GEOCHEMICAL CONSTRAINTS ON THE ORIGIN OF LAMPROPHYRES AND CARBONATITES IN THE MIDWEST PERMIAN ULTRAMAFIC DISTRICT AND THEIR RARE EARTH ELEMENT ECONOMIC POTENTIAL**
- 15-8 3:35 PM Uhl, Thomas*; Dietsch, Craig: **PETROLOGY, MINERALOGY & GEOCHEMISTRY OF AN ALNÖITE FROM WESTERN KENTUCKY**
- 15-9 3:50 PM Dietsch, Craig*; Lukoczki, Georgina; Bergbower, Josh; Uhl, Thomas: **RARE EARTH ELEMENT CHEMISTRY LINKS CARBONATED DIKES AND FLUORITE MINERALIZATION IN WESTERN KENTUCKY**
- 15-10 4:05 PM Frank, Mark R.*; Coursey, Seth: **DEVELOPMENT OF A COBALT EXPLORATION TOOL FOR DOLOMITE-BEARING HYDROTHERMAL ORE DEPOSITS**
- 15-11 4:20 PM Appold, Martin*; Smith-Schmitz, Sarah E.: **PARTITIONING THEORY AS A TOOL FOR DETERMINING BASE METAL CONTENT IN HYDROTHERMAL FLUIDS: EXAMPLES FROM SEDIMENT-HOSTED MINERAL DEPOSITS IN THE NORTH AMERICAN MIDCONTINENT, CORDILLERA, AND SOUTH AUSTRALIA**
- 15-12 4:35 PM Hale, Thomas*; Shane, Allison; Trainer, Jocelyn; Zhou, Yaofu: **A PRACTICAL ANALYSIS TO CRITICAL MINERAL SUPPLY CHAINS FOR U.S. GOVERNMENT AGENCIES: A CASE STUDY OF COBALT**
- 4:50 PM **Discussion**

AFTERNOON POSTER TECHNICAL SESSIONS

SESSION NO. 16

D1. *Environmental and Engineering Geology and Geoarchaeology (Posters)*

1:30 PM, Duke Energy Convention Center, Junior Ballroom B

Authors will be present from 2:30 to 4:30 PM

- Booth #
- 16-1 1 Saim, Abdullah Al*; Aly, Mohamed H.: **SPATIO-TEMPORAL TRENDS OF AIR POLLUTION DUE TO WILDFIRES IN CALIFORNIA: INFERRED FROM MODIS MAIAC AND SENTINEL-5P**
- 16-2 2 Cochran, Cole*; Kaste, James M.: **HONEY AS A TOOL FOR MONITORING AIR QUALITY AND POLLUTION AT HIGH SPATIAL RESOLUTION**

- 16-3 3 Bonilla, Gregory*; Watson, Eryn; McKinney, Michael; Gerhold, Richard; Elonen, Carissa: **MICROPLASTICS IN TERRESTRIAL SNAILS**
- 16-4 4 Neely, Samuel*; Svoboda, Isabella; Siddall, Ashlee; Raymond, Anne: **MICROPLASTICS IN A POST-HURRICANE PEAT DEPOSIT, LONG KEY, FLORIDA**
- 16-5 5 Guevara, Rachel*; Brown, Teresa: **ELEMENTAL COMPOSITION OF SPECIFIC CONDUCTANCE ASSOCIATED WITH LAND USE AND GEOLOGY IN CENTRAL APPALACHIA**
- 16-6 6 Hornak, Andrew*; Gorman, Sarah G.; Leonard, Maria; Loertscher, Seth; Loertscher, Cynthia; Krekeler, Mark: **REFLECTIVE SPECTROSCOPY STUDY OF SELECTED SOILS FROM THE U.S. – MEXICO BORDER REGION IN TEXAS AND NEW MEXICO: PROVIDING CONTEXT FOR SEARCH AND RESCUE AND CRIMINAL INVESTIGATIONS**
- 16-7 7 Fu, Junpeng*; Zhao, Wenshuo; Wiesenberg, Nick; Wiles, Greg: **TREE RING DATING OF THE DAVEY TREE BARN, KENT, OHIO AND THE VALUE OF BUILDING LONG TREE-RING RECORDS IN NE OHIO**
- 16-8 8 Cardona, Nathan*; O'Connor, Abigale; Zhang, Jing; Rech, Jason; Levy, Jonathan: **DEVELOPING A REGIONAL RECORD OF HISTORIC TEMPERATURE CHANGES FROM 1893 TO 2021 IN THE TRI-STATE AREA OF OHIO, INDIANA, AND KENTUCKY**
- 16-9 9 Peterson, Cameron*; Dogwiler, Toby: **EVALUATION OF PPK-CORRECTED GEOTAGS FOR THE REDUCTION OR ELIMINATION OF GROUND CONTROL POINTS IN FOREST AND PASTURE SETTINGS**
- 16-10 10 Shafer, Matthew*; Caudill, Michael: **LOSS SLAKE INDEX OF AN UPPER PENNSYLVANIAN MUDROCK, APPALACHIAN PLATEAU, WEST VIRGINIA**
- 16-11 11 Puckett, Michala A.*; Seramur, Keith C.; Cowan, Ellen: **USING SHALLOW GEOPHYSICS TO RECONSTRUCT HISTORIC INFRASTRUCTURE AT BENJAMIN HUBBARD HOUSE, WILKES COUNTRY, NORTH CAROLINA**
- 16-12 12 Purtil, Matthew*: **INLAND EOLIAN SEDIMENTS AND THE POTENTIAL FOR ARCHAEOLOGICAL SITE BURIAL IN THE UPPER MIDWEST: WHAT ARE WE MISSING?**
- 16-13 13 Crooks, Alex*; Meyer, Brian K.; Glover, Jeffrey B.: **FP-XRF ANALYSIS OF ARCHAEOLOGICAL SEDIMENTS FROM VISTA ALEGRE, QUINTANA ROO, MEXICO**

SESSION NO. 17

D2. Geoscience Education (Posters)

1:30 PM, Duke Energy Convention Center, Junior Ballroom B

Authors will be present from 2:30 to 4:30 PM

Booth #

- 17-1 14 Lam, Adriane*; Bauer, Jennifer E.; Daemmer, Linda; Sheffield, Sarah; Barclay, Kristina; Bolger, Lexi; Favaro, Alexander; Ocon, Samantha B.: **NEW INITIATIVES TO INCREASE PARTICIPATION IN THE GEOSCIENCES THROUGH NETWORKING AND COMMUNICATION**
- 17-2 15 Brase, Lauren*; Ford, Robert; Mayfield, Heather; Parker, Amy; Lehmann, Adam; Meadows, Sarah: **USING A RAIN GARDEN TO TEACH HYDROGEOLOGICAL CONCEPTS IN A HIGH SCHOOL SCIENCE CLASSROOM**
- 17-3 16 Bramblett, Jeremy*; Gossett, Lauren; Mies, Jonathan: **USING PORTABLE DOCUMENT CAMERAS AND PORTABLE DIGITAL MICROSCOPES IN BOTH VIRTUAL AND IN-CLASS HISTORICAL GEOLOGY AND PETROLOGY LABS**
- 17-4 17 Anderson, Jennifer L. B.*; Gonzalez, Matthew D.; Morschhauser, Jessica M.: **GEOLOGIC WALKING TOUR OF DOWNTOWN WINONA, MN**

- 17-5 18 Bevis, Kenneth A*; Cox, Adison R; Kumler, Coghlin C: **GIS APPLICATIONS IN GEOSCIENCE EDUCATION PART I: EXAMPLES FROM AUTO-TOURING ROUTE MAPS DEVELOPED FOR THE WEBSITE, INTHEPLAYGROUNDGIANTS.COM**
- 17-6 19 Cox, Adison R; Kumler, Coghlin C; Bevis, Kenneth A*: **GIS APPLICATIONS IN GEOSCIENCE EDUCATION PART II: EXAMPLES FROM GRAND CANYON HIKING TRAIL MAPS DEVELOPED FOR THE WEBSITE, INTHEPLAYGROUNDGIANTS.COM**
- 17-7 20 Mayo, Amanda*; Clary, Renee; Owen Nagel, Athena: **EXPANDING ACCESS TO DUNN-SEILER MUSEUM FOSSIL SPECIMENS THROUGH VIRTUAL COLLECTIONS**

SESSION NO. 18

T1. Actualistic Paleontology: Learning from the Modern to Better Interpret the Past (Posters) (SEPM (Society for Sedimentary Geology); Paleontological Society; GSA Sedimentary Geology Division; GSA Quaternary Geology and Geomorphology Division)

1:30 PM, Duke Energy Convention Center, Junior Ballroom B

Authors will be present from 2:30 to 4:30 PM

Booth #

- 18-1 21 Wingard, G.*; Stackhouse, Bethany L.; Daniels, Andre: **DISTRIBUTIONS OF LIVING AND FOSSIL MOLLUSKS AS ASSESSMENT TOOLS FOR RESTORATION OF SOUTH FLORIDA**
- 18-2 22 Braniecki, Garrett*; Surge, Donna; Hyland, Ethan; Goodwin, David: **REFINING A Δ_{47} PALEOTEMPERATURE CALIBRATION USING MODERN AND FOSSIL *MERCENARIA* SPP. (BIVALVIA) TO RECONSTRUCT DEEP-TIME SEASONALITY**
- 18-3 23 King Phillips, Ezekiel*; Yanes, Yurena; Pearce, Timothy A.: **ASSESSING CARBON AND NITROGEN ISOTOPE FRACTIONATION BETWEEN LAND SNAIL TISSUES AND DIET UNDER LABORATORY CONDITIONS**
- 18-4 24 Crowley, Brooke*; Greenwood, Maddie L.: **IS WHAT COMES OUT THE SAME AS WHAT GOES IN? FIRST STEPS TOWARDS UNDERSTANDING THE ISOTOPIC INFLUENCE OF DIGESTION BY PREDATORY BIRDS**
- 18-5 25 Visaggi, Christy C.; Bryant, Kiedon J.*; Stobaeus, Akira E.; Ajavon, Ayi J.; Blore, Michael K.; Hogans, Victoria; Marcondes, Vhanessa L.; Clinton, J. Michael; Kelley, Patricia H.; Pastorino, Guido; Martin Serralta, Diego A.: **LATITUDINAL VARIATION IN DRILLING PREDATION ON MUSSELS FROM EASTERN SOUTH AMERICA**
- 18-6 26 Hardin, Alize*; Casebolt, Sahale; Hyman, Alexander; Barry, Savanna; Cummings, Katherine; Frazer, Thomas; Kowalewski, Michal: **HISTORICAL ECOLOGY OF SEAGRASS MEADOWS ALONG THE GULF COAST OF FLORIDA: ENVIRONMENTAL TRENDS IN BODY SIZE AND PREDATION ARCHIVED IN SEAGRASS-ASSOCIATED MOLLUSK DEATH ASSEMBLAGES**
- 18-7 27 Falb, Olivia L.*; Obara, Chloe A.; Volante, Paul; Lockwood, Rowan: **GROWTH RATES AND SCLEROCRONOLOGY OF MODERN *CRASSOSTREA VIRGINICA* FROM THE LOWER CHESAPEAKE BAY (SOUTHEASTERN VIRGINIA)**
- 18-8 28 Grimmelbein, Luke*; Barry, Savanna; Casebolt, Sahale; Cummings, Katherine; Hyman, Alexander; Frazer, Thomas; Kowalewski, Michal: **HIGH LIVE-DEAD FIDELITY OF SEAGRASS ASSOCIATED MOLLUSK ASSEMBLAGES ALONG THE NORTHERN GULF COAST OF FLORIDA AT BOTH REGIONAL AND LOCAL SCALES**
- 18-9 29 Shell, Ryan*; Gardner, Nicholas; Peterman, David; Ciampaglio, Charles N.; Jacquemin, Stephen; Fuelling, Lauren J.: **BOBCAT SUBFOSSILS AND HISTORICAL**

**RECORDS IN OHIO MAY SUGGEST DECLINE BUT NO
EXTIRPATION**

SESSION NO. 19

**T5. Development and Application of Geochemical Proxies to
Paleoclimate Studies (Posters)**

1:30 PM, Duke Energy Convention Center, Junior Ballroom B

Authors will be present from 2:30 to 4:30 PM

Booth #	
19-1	30 Haber, Peter*; Saltzman, Matthew; Griffith, Elizabeth M.; Adiatma, Yoseph: EARLY MISSISSIPPIAN CALCIUM ISOTOPE STRATIGRAPHY AND IMPLICATIONS FOR CONDITIONS OF CARBONATE DEPOSITION
19-2	31 Michaels, Russell*; Blackman, Cole; Liutkus-Pierce, Cynthia M.: ANALYSIS OF ENVIRONMENTAL CONDITIONS OF AN EARLY MIOCENE PERENNIAL RIVER SYSTEM IN EAST AFRICA USING SEDIMENTOLOGY, STRATIGRAPHY, AND GEOCHEMICAL PROXIES
19-3	32 Tagle, Natasha B.*; Ramirez, Mariano; Cherry, Lucas B.; Kaufman, Alan J.; Burls, Natalie J.; Gilleaudeau, Geoffrey J.: NITROGEN ISOTOPE CONSTRAINTS ON REDOX CONDITIONS IN THE NORTH PACIFIC OCEAN DURING THE WARM PLIOCENE EPOCH
19-4	33 Topness, Rebecca*; Balascio, Nicholas L.; Vachula, Richard S.: NORTHERN NORWAY PALEOFIRE RECORDS REVEAL HUMAN IMPACTS ON REGIONAL FUELS AND FIRE ACTIVITY BEGAN C. 3500 YEARS AGO
19-5	34 Young, Madeleyn*; Lukens, William; Johnson, Elizabeth; Schubert, Brian A.: A NON-DESTRUCTIVE TECHNIQUE FOR ASSESSING FOSSIL WOOD DECAY USING ATR-FTIR SPECTROSCOPY
19-6	35 Martin, Ariel*; Kaczmarek, Stephen; Winkelstern, Ian Z.; Petersen, Sierra: THE LINK BETWEEN CATION ORDERING AND OXYGEN ISOTOPE FRACTIONATION IN EXPERIMENTAL DOLOMITES
19-7	36 Frank-DePue, Lee*; Vachula, Richard S.; Balascio, Nicholas L.; Cahoon, Kayla; Kaste, James: TRENDS IN SEDIMENTARY CHARCOAL SHAPES AND PAH ASSEMBLAGES CORRESPOND WITH BROAD-SCALE LAND USE CHANGES: INSIGHTS GAINED FROM A 300-YEAR LAKE SEDIMENT RECORD FROM EASTERN VIRGINIA, USA
19-8	37 Feldberg-Bannatyne, Maya*; Whitney, Nina M.; Hughen, Konrad A.: DETERMINING THE EFFICACY OF OCEAN QUAHOG SHELL OXYGEN ISOTOPES AS A MID-ATLANTIC BIGHT COLD POOL BOTTOM WATER TEMPERATURE PROXY

SESSION NO. 20

**T10. Crossing Streams: Advances in Stream Science in
the Southeast and North-Central United States (Posters)
(GSA Quaternary Geology and Geomorphology Division)**

1:30 PM, Duke Energy Convention Center, Junior Ballroom B

Authors will be present from 2:30 to 4:30 PM

Booth #	
20-1	38 Ward, Dylan*; Lehmann, Adam; Booth, Michael; Matter, Stephen; Soltanian, Reza; Sturmer, Daniel; Grap, Peter; Walson, Jade; Brown, Jayla; Boylson, Patrick: ONGOING RESEARCH IN GEOMORPHOLOGY AND HYDROGEOLOGY AT THE COOPER CREEK COLLABORATIVE EXPERIMENTAL WATERSHED, CINCINNATI
20-2	39 Necastro, George*; Lewis, Gregory P.; Muthukrishnan, Suresh: RELATIONSHIPS BETWEEN STREAM SOLUTE CONCENTRATIONS AND WATERSHED TOPOGRAPHICAL CHARACTERISTICS IN THE BLUE RIDGE AND PIEDMONT PROVINCES OF SOUTH CAROLINA

20-3	40 Zych, Thomas*; Fisher, Timothy: TERRACE CHRONOLOGIES OF THE MAUMEE RIVER VALLEY, NW OHIO
20-4	41 Mattioli, Taylor*; McKinney, Michael: SEDIMENT POLLUTION AND RESTORATION EFFECTIVENESS IN AN IMPAIRED URBAN CREEK

SESSION NO. 21

**T32. Geologic Maps, Geophysical Maps, 3-D Geological Models,
Digital Mapping Techniques, Map Derivatives, and Digital Map
Preparation (Posters)**

1:30 PM, Duke Energy Convention Center, Junior Ballroom B

Authors will be present from 2:30 to 4:30 PM

Booth #	
21-1	42 Tamulonis, Kathryn*: DATA MINING AND GEOMODEL VISUALIZATION FOR HETEROGENEOUS, STRUCTURALLY COMPLEX, UNCONVENTIONAL RESERVOIRS
21-2	43 Witt, Anne; Spears, David*; Heller, Matthew J.: NEW DIGITAL GEOLOGIC MAP OF VIRGINIA COMPLETED AS A LEVEL 2 GEMS GEODATABASE
21-3	44 Crider, Ernest; Self-Trail, Jean*; Parker, Mercer; Seefelt, Ellen L.; Staley, Andrew; Beach, Todd; Bruce, T. Scott; Quinn, Heather: STRUCTURE CONTOUR AND ISOPACH MAPPING OF THE CRETACEOUS-PALEOGENE BOUNDARY AND DANIAN SEDIMENTS IN MARYLAND AND VIRGINIA
21-4	45 Cullen, Katie*; Liscomb, J.B.; Meyrowitz, Haley E.; Zach, Terri; Bailey, C.M.: GEOLOGY OF THE SCHUYLER 7.5' QUADRANGLE: UNDERSTANDING IAPETAN RIFTING, SEDIMENTATION, AND MAGMATISM IN THE EASTERN BLUE RIDGE, VIRGINIA
21-5	46 Nelson, Craig*; Valachovics, Thomas; Angle, Michael; Hardin, Krista; Nash, T. Andrew; Spahr, Paul; Raab, Jim; Coe, Curtis: STATEWIDE, SEAMLESS MAPPING OF GROUNDWATER VULNERABILITY AND HYDROGEOLOGIC SETTING IN OHIO
21-6	47 Norris, Tyler*; Nash, T. Andrew; Erber, Nathan R.: SURFICIAL GEOLOGY OF JACKSON COUNTY, OH, USA
21-7	48 Nash, Thomas*: THE SURFICIAL GEOLOGY AND BEDROCK TOPOGRAPHY OF LAWRENCE COUNTY, OHIO
21-8	49 Burgess, Sarah*; Tripp, Don C.; Allred, Isaac; Rupp, Robin; Florea, Lee; Frushour, Sam: REFINING THE MT. CARMEL FAULT ZONE WITH NEW BEDROCK MAPPING OF THE BEDFORD QUADRANGLE, INDIANA
21-9	50 Casaus, Maureen*; Fisher, Timothy; Jol, Harry M.; Becker, Richard; Doro, Kennedy: GEOMORPHIC ASSESSMENT AND SURFICIAL MAPPING OF GLACIAL LAKE AGASSIZ STRANGLINES IN POLK COUNTY, MINNESOTA

SESSION NO. 22

**T42. Carbon Storage Research (Posters) (GSA Environmental and
Engineering Geology Division; GSA Energy Geology Division)**

1:30 PM, Duke Energy Convention Center, Junior Ballroom B

Authors will be present from 2:30 to 4:30 PM

Booth #	
22-1	51 Greb, Stephen*; Brezinski, David; Carter, Kristin; Clark, Ryan; Dinterman, Phillip; Harrison, William; Lasemi, Yaghoob; Slater, Brian; Solis, Michael; Ver Straeten, Charles; Waid, Christopher: REGIONAL STRATIGRAPHIC CHARTS KEYED TO CARBON STORAGE POTENTIAL FOR THE MIDWEST AND NORTHEASTERN UNITED STATES
22-2	52 Sparks, Thomas*; Hickman, John B.; Greb, Stephen; Monson, Charles; Harrison, William B.; Anthony, Robin; Schmid, Katherine W.; Clark, Ryan: REGIONAL

		PRECAMBRIAN SURFACE AND MOUNT SIMON-LAMOTTE SANDSTONE MAPS
22-3	53	Conner, Amber*; Keister, Laura; Haagsma, Autumn; Mishra, Srikanta: VUG AND FRACTURE CHARACTERIZATION OF TRENTON-BLACK RIVER RESERVOIRS THROUGH CT SCAN AND IMAGE LOG ANALYSIS IN THE SOUTHERN MICHIGAN BASIN
22-4	54	Hulett (he/him), Samuel*; McDonald, James: CO₂ SOLUBILITY IN THE SILURIAN "CLINTON/MEDINA" SANDSTONE: MULTI-ELEMENT MODELING AND IMPLICATIONS FOR CARBON STORAGE
22-5	55	Royce, Bethany*; Moore, Jessica; McDowell, Ronald R.; Dinterman, Philip: PORES AREN'T THE ONLY GAPS: EXAMINING THE GORDON SANDSTONE IN THE JACKSONBURG-STRINGTOWN FIELD, WEST VIRGINIA USING NEW PERMEABILITY AND XRF DATA
22-6	56	Haagsma, Autumn*: A GEOLOGIC COMPLEXITY RANKING SYSTEM FOR ENERGY STORAGE PROGRAMS

FRIDAY, 8 APRIL 2022

MORNING ORAL TECHNICAL SESSIONS

SESSION NO. 23

T3. Under the (Ancient) Sea: Marine Life from the Coastal to Great Plains

8:00 AM, Duke Energy Convention Center, North Meeting Room 203/204

Sarah Sheffield, Christy Visaggi and Stephen Hill, Presiding

23-1	8:00 AM	Hensen, Corey*; Rindsberg, Andrew; Ivany, Linda: EXTRACTING THE ICHNOLOGIC RECORD FROM COASTAL PLAIN STRATA: THE EOCENE LISBON TO MOODYS BRANCH SECTION OF MISSISSIPPI AND ALABAMA (USA)
23-2	8:15 AM	LoDuca, Steven T.: SILURIAN SEaweEDS AND STRATIGRAPHY: NEW ALGAL-LAGERSTÄTTEN FROM THE LLANDOVERIAN OF MICHIGAN AND ONTARIO
23-3	8:30 AM	Runciman, Kate*; Wilson, Mark A.; Buttler, Caroline J.; Judge, Shelley: MODEL OF A BIOTIC HARD SUBSTRATE COMMUNITY: PALEOECOLOGY OF LARGE TREPOSTOME BRYOZOANS FROM THE UPPER ORDOVICIAN (KATIAN) OF THE CINCINNATI REGION, USA
23-4	8:45 AM	Tobin, Thomas*; Stanford, Samantha; Mccraw, Jessie: ORGANIZED MICRO-TUBULES OF UNKNOWN ORIGIN IN WELL-PRESERVED AMMONITE SHELLS
23-5	9:00 AM	Tennakoon, Shamindri*; Portell, Roger W.; Kowalewski, Michal: MORPHOLOGICAL DISPARITY AND VARIABILITY OF THE FOSSIL GASTROPOD <i>HYSTRIVASUM</i> (FAMILY TURBINELLIDAE)
23-6	9:15 AM	Thompson, Carmi Milagros*; Felt, Elise; Portell, Roger W.; Kowalewski, Michal: PLEISTOCENE MOLLUSCAN PALEOECOLOGY IN THE FLORIDA SHELL AND FILL QUARRY (FLORIDA, USA)
23-7	9:30 AM	Rich, Megan*; Visaggi, Christy C.; Cantrell, Madison P.; Hoffman, Kalysa F.; Gluck, Cooper E.; Swann, Christina C.; Armstrong, Kelly E.; Dunham, Jeremy I.; Martinez, Jessica; Clinton, J. Michael; Ivany, Linda; Kelley, Patricia: PATTERNS OF MOLLUSCAN PREDATION IN THE OLIGOCENE BYRAM FORMATION OF VICKSBURG, MISSISSIPPI
	9:45 AM	BREAK

23-8	10:00 AM	Campbell, Timothy*; Campbell, David; Campbell, Lyle David: THE OTHER 82%: INCREASING THE DIVERSITY OF THE WACCAMAW FORMATION
23-9	10:15 AM	Dattilo, Benjamin*; Plotnick, Roy: TRACKING THE WATER DEPTH HABITAT RANGE OF <i>MEGALOGRAPTUS</i> THROUGH THE KATIAN FROM THE APPALACHIAN BASIN TO THE CINCINNATI REGION
23-10	10:30 AM	Sheffield, Sarah*; Lam, Adriane; Deline, Bradley; Lamsdell, James; Bauer, Jennifer E.; Harris, Ohav B.: INVESTIGATING EVOLUTIONARY DYNAMICS OF PALEOZOIC ECHINODERMS
23-11	10:45 AM	McCarthy, Nathan*; Neale, Bianca L.; Brett, Carlton; Paton, Timothy: INTER- AND INTRASPECIES COMPETITION AMONG EDRIOASTEROIDS (ECHINODERMATA) EXHIBITED ON A NEW HARDGROUND FROM THE UPPER ORDOVICIAN (KATIAN) OF THE CINCINNATI
23-12	11:00 AM	Westgaard, John*; Hanks, H. Douglas; Korf, Jason J.; Hastings, Alexander: UPDATES TO THE BIOTA OF THE LATE CRETACEOUS COLERAINE FORMATION OF NORTHERN MINNESOTA
23-13	11:15 AM	Kilmury, Aaron*; Brink, Kirstin: "HI DIDDLY HO, NEIGHBORINOS!": VERTEBRATE BIOGEOGRAPHY OF THE LATE CRETACEOUS (CENOMANIAN-MAASTRICHTIAN) WESTERN INTERIOR SEAWAY BY PERCENT COMMUNITY SIMILARITY WITH THE FAUNAL ASSEMBLAGES OF THE MANITOBA ESCARPMENT IN SOUTHWESTERN MANITOBA AND EAST-CENTRAL SASKATCHEWAN, CANADA
23-14	11:30 AM	Van Vranken, Nathan*; Strager, Michael: LOOKING FOR SEA-MONSTERS: THE USE OF GEOGRAPHIC INFORMATION SYSTEMS ON MOSASAUR-BEARING FORMATIONS IN NORTH AMERICA
23-15	11:45 AM	Clinton, J. Michael*; Visaggi, Christy C.; Santucci, Vincent L.; Tweet, Justin S.; Irick, Kelly A.: AN INVENTORY OF FOSSIL SHARK TEETH AND OTHER PALEONTOLOGICAL RESOURCES AT GULF ISLANDS NATIONAL SEASHORE

SESSION NO. 24

T6. Limnogeology and Paleoclimate (GSA Limnogeology Division)

8:00 AM, Duke Energy Convention Center, North Meeting Room 201/202

Edward Lo, Leandro Domingos Luz and John Dilworth, Presiding

	8:00 AM	INTRODUCTORY REMARKS
24-1	8:05 AM	Porinchi, David*: LATE QUATERNARY CLIMATE AND VEGETATION DYNAMICS IN NORTHEASTERN EURASIA
24-2	8:25 AM	Smart, Matthew*; Filippelli, Gabriel M.; Gilhooly, William; Marshall, John; Whiteside, Jessica H.; Vander Pas, Brooke E.: IMPLICATING LAND PLANT EXPANSION IN THE KAČÁK EVENT: INCORPORATING NITROGEN ISOTOPES IN A DEVONIAN LACUSTRINE RECORD
24-3	8:40 AM	Vander Pas, Brooke*; Gilhooly, William; Smart, Matthew; Filippelli, Gabriel M.; Marshall, John; Whiteside, Jessica H.: CARBON/PHOSPHORUS DYNAMICS OF MIDDLE DEVONIAN LACUSTRINE SEQUENCES OF THE OLD RED SANDSTONE CONTINENT
24-4	8:55 AM	Lepper, Kenneth*: TESTING PAST CORRELATIONS OF LAKE AGASSIZ'S TINTAH SHORELINE IN NORTHWESTERN MINNESOTA WITH NEW GEOCHRONOLOGY
24-5	9:10 AM	Wiggins, Tahira*; Munevar Garcia, Santiago; Lepp, Allison P.; Simkins, Lauren M.: MORPHOMETRY OF GLACIGENIC LAKES IN NORTH AMERICA
24-6	9:25 AM	Curry, Ben*; Puleo, Pete J.K.; Pentrak, Martin; Diefendorf, Aaron F.; Lowell, Thomas; Sivapalan, Vinothan: TWO-STAGE CESSATION OF LGM LOESS DEPOSITION IN CENTRAL ILLINOIS: THE LACUSTRINE EVIDENCE
	9:40 AM	BREAK

Friday, 8 April 2022

- 24-7 9:55 AM Domingos Luz, Leandro*; McGlue, Michael; Rasbold, Giliiane; Silva, Aguinaldo; Kuerten, Sidney: **INTEGRATING PALEOLIMNOLOGICAL AND ARCHEOLOGICAL DATASETS IN THE PANTANAL WETLANDS (BRAZIL)**
- 24-8 10:10 AM Lo, Edward*; Matocha, Chris; Kuerten, Sidney; Silva, Aguinaldo; Louzada, Romullo O.; McGlue, Michael M.: **CLAY MINERAL COMPOSITION OF MODERN SEDIMENTS IN THE PANTANAL FLOODPLAIN, BRAZIL**
- 24-9 10:25 AM Johnson, Hillary*; McGlue, Michael M.; Thigpen, Ryan; Woolery, Edward W.; Yeager, Kevin; Brown, Summer J.; Dilworth, John: **RECENT PALEOLIMNOLOGICAL HISTORY OF JACKSON LAKE: GRAND TETON NATIONAL PARK, WYOMING**
- 24-10 10:40 AM Dilworth, John*; Cortese, Callia J; McGlue, Michael; Thigpen, Ryan; Yeager, Kevin; Woolery, Edward W.; Brown, Summer J.: **PRELIMINARY HIGH RESOLUTION SEISMIC STRATIGRAPHIC AND SEDIMENT CORE INVESTIGATION OF JACKSON LAKE (WYOMING)**
- 24-11 10:55 AM McGlue, Michael*; Zimmerman, Susan; Hodelka, Bailee N.; Bottoms, Antonia; Benfield, Adam J.; Ivory, Sarah; Palacios-Fest, Manuel R.; Starratt, Scott: **PRELIMINARY INSIGHTS ON THE ECOLOGICAL CONSEQUENCES OF LATE QUATERNARY ENVIRONMENTAL CHANGES ON MONO LAKE (CALIFORNIA)**
- 24-12 11:10 AM Lyon, Eva*; McGlue, Michael; Erhardt, Andrea; Streib, Laura C.; Stone, Jeffery; Zimmerman, Susan: **A HIGH-RESOLUTION RECORD OF MULTIPLE DROUGHTS DURING THE LATE HOLOCENE DRY PERIOD FROM JUNE LAKE, CALIFORNIA**
- 11:30 AM CONCLUDING REMARKS

SESSION NO. 25

T8. Integrated Studies of Paleozoic Black Shale (GSA Sedimentary Geology Division; GSA Energy Geology Division)

8:00 AM, Duke Energy Convention Center, North Meeting Room 205

James Zambito IV and Patrick McLaughlin, Presiding

- 25-1 8:00 AM Algeo, Thomas*; Wei, Wei; Song, Yi; Liu, Jinhua; Ramirez, Mariano; Xie, Shucheng; Gilleaudeau, Geoffrey; Herrmann, Achim: **THE IMPORTANCE OF SALINITY ANALYSIS IN PALEOENVIRONMENTAL STUDIES**
- 25-2 8:20 AM Ramirez, Mariano*; Gilleaudeau, Geoffrey J.; Elrick, Maya; Algeo, Thomas J.: **TEMPORAL AND SPATIAL WATERMASS EVOLUTION DURING DEPOSITION OF MIDDLE TO UPPER DEVONIAN ORGANIC-RICH SHALES OF THE ILLINOIS BASIN, NORTH AMERICA**
- 25-3 8:35 AM Gilleaudeau, Geoffrey J.*; Wei, Wei; Ramirez, Mariano; Lyons, Timothy; Bates, Steve; Anbar, Ariel; Algeo, Thomas J.: **WATERMASS RECONSTRUCTION IN ANCIENT EPEIRIC SEAS: REDOX AND SALINITY ANALYSIS OF DEVONIAN-MISSISSIPPIAN BLACK SHALES OF THE APPALACHIAN BASIN, NORTH AMERICA**
- 25-4 8:50 AM Day, James*: **HIGH RESOLUTION UPPER DEVONIAN BIOSTRATIGRAPHY OF THE SWEETLAND CREEK AND GRASSY CREEK SHALES, KELLWASSER EXTINCTION SIGNATURES, AND THE FRASNIAN-FAMENNIAN STAGE BOUNDARY IN THE IOWA BASIN-CENTRAL NORTH AMERICA**
- 25-5 9:05 AM Lau, Catherine*; Ramirez, Mariano; Algeo, Thomas J.; Cherry, Lucas B.; Kaufman, Alan J.; Gilleaudeau, Geoffrey J.: **CARBON CYCLE PERTURBATIONS AT THE FRASNIAN-FAMENNIAN BOUNDARY IN THE ILLINOIS BASIN, USA**
- 25-6 9:20 AM Zambito, James*; McLaughlin, Patrick I.; Holicky, Madeline G.; Farbarik, Olivia; Clinkscales, Emily N.; Fries, Morgan A.: **MID-LATE GIVETIAN CARBON-CYCLE PERTURBATIONS IN BLACK SHALE AND ASSOCIATED DEPOSITS OF THE NORTHERN APPALACHIAN BASIN**
- 25-7 9:35 AM Brett, Carlton*; Zambito, James; Baird, Gordon; Ver Straeten, Charles: **CONTRASTING DEPOSITIONAL SETTINGS OF**

EPICONTINENTAL ORGANIC RICH FACIES: SHALLOW VS. DEEP WATER BLACK SHALES

9:55 AM BREAK

- 25-8 10:10 AM Emsbo, Poul*: **NEW INSIGHTS INTO THE ORIGIN OF CRITICAL MINERAL RESOURCES IN ORGANIC-RICH BLACK SHALES**
- 25-9 10:30 AM McLaughlin, Patrick*; Zambito, James; Vandenbroucke, Thijs R.A.; Emsbo, Poul: **ORDOVICIAN AND DEVONIAN BLACK SHALE REE PHOSPHORITES OF THE US MIDCONTINENT: ACTIVE EARTH MRI PHASE 2 TARGETS**
- 25-10 10:45 AM Moore, Jessica P*; Royce, Bethany; Vance, Timothy W: **INSIGHTS FROM THE UTICA/POINT PLEASANT DRY GAS FAIRWAY: PRODUCTION TRENDS, RESERVOIR CHARACTERIZATION, AND CRITICAL MINERAL POTENTIAL**
- 25-11 11:00 AM McCleery, Raymond*; Carr, Timothy; Kuehn, Stephen C.: **INTERVALS OF ZINC HYPER-ENRICHMENT IN THE MIDDLE DEVONIAN MARCELLUS SHALE: IMPLICATIONS OF A SPECIAL TYPE OF EUXINIA, PHOTIC ZONE EUXINIA, AND THE ACTIVITY OF PHOTO-TROPIC SULFUR OXIDIZING BACTERIA**
- 25-12 11:15 AM Blood, David*: **DEPOSITIONAL AND DIAGENETIC PROCESSES THAT CONCENTRATE CRITICAL MINERALS IN FINE-GRAINED STRATA: A CASE STUDY IN THE UPPER DEVONIAN HANOVER AND DUNKIRK SHALES OF WESTERN NEW YORK STATE**
- 25-13 11:30 AM Adeyilola, Adedoyin*; Zakharova, Natalia; Harrison, William B.; Gentzis, Thomas: **SOURCE ROCK POTENTIAL, ORGANOFACIES AND PALEOENVIRONMENT STUDIES OF THE DEVONIAN ANTRIM SHALE, MICHIGAN BASIN**
- 25-14 11:45 AM Eddensohn, Frank*; Li, Jun; Gilliam, William: **NEOACADIAN TECTONISM AND THE ORIGIN OF THE SUNBURY BLACK SHALE, EAST-CENTRAL UNITED STATES**

SESSION NO. 26

T17. Metal Pollution in the Eastern Midcontinent and Beyond

8:00 AM, Duke Energy Convention Center, North Meeting Room 206

Mark Krekeler and Matthew Dietrich, Presiding

8:00 AM INTRODUCTORY REMARKS

- 26-1 8:05 AM Noerpel, Matthew*; Pribil, Michael J.; Rutherford, Danny; Law, Preston; Bradham, Karen; Nelson, Clay; Weber, Rob; Gunn, Gene; Scheckel, Kirk G.: **LEAD SPECIATION, BIOACCESSIBILITY AND SOURCE ATTRIBUTION IN MISSOURI'S BIG RIVER WATERSHED**
- 26-2 8:20 AM Mortensen, Tessa*; Grote, Katherine: **STUDY OF CONTAMINATION RESULTING FROM HISTORICAL MINING WITHIN THE OLD LEAD BELT: MINERAL FORK WATERSHED, 2021-2022**
- 26-3 8:35 AM Gardner, Christopher*; Welch, Sue A.; Widom, Elisabeth; Calero, Adolfo Eberhard; Smith, Devin F.; Carey, Anne E.; Lyons, W.: **URANIUM IN OHIO SURFACE WATERS: GEOGENIC AND FERTILIZER DERIVED SOURCES**
- 26-4 8:50 AM Kibria, Md*: **A COMPARISON OF ARSENIC CONTAMINATION IN BETWEEN SOUTH ASIA AND EASTERN KENTUCKY'S WATER AND SEDIMENTS**
- 26-5 9:05 AM Chellman, Kathleen O'Hara*; Kaste, J.M.: **GEOLOGIC CONTROLS ON ¹³⁷CS CYCLING BY TERRESTRIAL VEGETATION IN THE EASTERN U.S**
- 26-6 9:20 AM Krekeler, Mark*; Wudke, Hannah; Murchland, Madeline; Brown, Ken; Gokey, Kailee; Gillis, Morgan: **NICKEL AND CHROMIUM CONTENT IN A BOTTLE OF JOHNSON'S BABY POWDER FROM 1985 DESIGNATED FOR HOSPITAL USE OPENS QUESTIONS REGARDING PRODUCT SOURCE AND CONTAMINATION**
- 26-7 9:35 AM Pasour, Maggie*; Wilcox, Jeffrey: **HEXAVALENT CHROMIUM REDUCTION BY MINERAL OLIVINE**

- 9:50 AM **BREAK**
- 26-8 10:05 AM Betts, Aaron*; Sowers, Tyler; Siebecker, Matthew; Wang, Jian; Elzinga, Evert; Luxton, Todd; Thompson, Aaron; Sparks, Donald L.: **ELECTRON TRANSFER AND DISSOLUTION OF CLAY MINERALS INFLUENCE GREEN RUST PRECIPITATION AT IRON-REDUCING CONDITIONS**
- 26-9 10:20 AM Fouh Mbindi, Mireille*; Gokey, Kailee; Gillis, Morgan; Dietrich, Matthew; Argyilan, Erin P.; Krekeler, Mark: **USING SANDS AS A POTENTIAL INDICATOR OF HEAVY METAL POLLUTION: LESSONS LEARNED FROM MOUNT BALDY**
- 26-10 10:35 AM Gokey, Kailee*; Gillis, Morgan; Krekeler, Mark; Renkes, Natalie; Brown, Ken: **TEXTURAL AND GEOCHEMICAL ANALYSIS OF HEAVY METAL CONTAMINANTS PRESENT WITHIN LAS VEGAS, NEVADA ROAD SEDIMENTS**
- 26-11 10:50 AM Gillis, Morgan*; Gokey, Kailee; Brown, Ken; Renkes, Natalie G.; Krekeler, Mark: **ANALYSIS OF HEAVY METAL AND OTHER CONTAMINANTS IN STREET SEDIMENT FROM BOULDER CITY, NEVADA**
- 26-12 11:05 AM Krekeler, Mark*; Dietrich, Matthew; O'Shea, Michael J.; Giere, Reto: **A REVIEW OF UNITED STATES ROAD SEDIMENT STUDIES WITH A FOCUS ON METAL POLLUTION: INSIGHTS AND OPPORTUNITIES**
- 26-13 11:20 AM Wood, Leah*; Dietrich, Matthew; Shukle, John T.; Herrmann, Angela; Filippelli, Gabriel M.: **LESSONS LEARNED FROM COMMUNITY SCIENCE IN LEAD POLLUTION AND LEAD POISONING PREVENTION**
- 26-14 11:35 AM Dietrich, Matthew*; Shukle, John T.; Krekeler, Mark; Wood, Leah; Isley, Cynthia; Fry, Kara; Taylor, Mark; Filippelli, Gabriel M.: **PREDICTIVE MODELING USING COMMUNITY SCIENCE: INSIGHTS INTO HOUSEHOLD LEAD**
- 11:50 AM **CONCLUDING REMARKS**

SESSION NO. 27

T25. Justice, Equity, Diversity, and Inclusion in the Geoscience Classroom

8:00 AM, Duke Energy Convention Center, North Meeting Room 212

Meghan Cook, Heather Lehto and Victor Ricchezza, Presiding

- 27-1 8:00 AM Garcia, Angel*; Whitmeyer, Shelley: **ENGAGING UNDERGRADUATE STUDENTS IN A CONVERSATION ABOUT UNDERREPRESENTATION IN THE GEOSCIENCES THROUGH A CONTEMPORARY AND HISTORICAL PERSPECTIVE**
- 27-2 8:15 AM Castro, Ian*; Atchison, Chris: **DISABILITY CRITICAL RACE THEORY (DISCRIT) AND GEOSCIENCE: A CALL TO ACTION FOR NEW FRAMEWORKS TO ASSESS ACCESSIBILITY AND INCLUSION**
- 27-3 8:30 AM Rossbach, Thomas*; Jessee, M. Anna; Fore, Grant A.: **INTRODUCING AN ETHICAL COMPONENT INTO TEACHING ENVIRONMENTAL GEOLOGY**
- 27-4 8:45 AM Lehto, Heather*; Robledo, Andrea; Madero, Flor Leos; Garza, Jessica; Brown, Jay; Battistini, Anthony; Daniel, Jordan: **INSTITUTIONALIZING A CULTURALLY RESPONSIVE APPROACHES TO SERVING HISPANIC STUDENTS (CRASH) COURSE FOR FACULTY AT A SMALL HSI**
- 27-5 9:00 AM Downen, Matthew*; Olcott, Alison N.: **CREATING LGBTQ+-INCLUSIVE LEARNING ENVIRONMENTS IN THE GEOSCIENCES**
- 27-6 9:15 AM Toran, Marta*: **"WATER ON THE MOVE": A MOBILE HYDROLOGY EDUCATION PROGRAM TO BRING GEOSCIENCE TO RURAL APPALACHIAN SCHOOLS**
- 27-7 9:30 AM Tennakoon, Shamindri*; Thompson, Carmi Milagos: **USING MUSEUM SPECIMENS TO TEACH FLORIDA FOSSILS**

AND GEOLOGY ACROSS MULTIPLE LEARNING ENVIRONMENTS

- 27-8 9:45 AM Rutherford, Mackenzie*; McLeod, Claire: **GLOBAL EDUCATION OUTREACH FOR DIVERSIFYING THE EARTH SCIENCES (GEODES): ENGAGING HIGH SCHOOL STUDENTS WITH GEOSCIENCE MATERIALS AND INVESTIGATING OHIO HIGH SCHOOL TEACHERS' FAMILIARITY WITH THE EARTH SCIENCES**

SESSION NO. 28

T26. Nevertheless She Persisted (or Not): Challenges to Retention of Women in the Geosciences through Pandemic and Non-Pandemic Times (Association for Women Geoscientists)

10:15 AM, Duke Energy Convention Center, North Meeting Room 212

Patricia Kelley, Georgina Lukoczki, G. Lynn Wingard, Amy Block and Lisa Tranel, Presiding

- 28-1 10:15 AM Yacobucci, Margaret*: **FROM INDIVIDUAL ALLYSHIP TO COLLECTIVE ACTION FOR GENDER EQUITY: TRANSFORMING GEOSCIENCE CULTURE**
- 28-2 10:30 AM Schneider, Blair*: **DISMANTLING THE LEAKY PIPELINE METAPHOR: GEOSCIENTISTS EXPERIENCE DISPROPORTIONATE LEVELS OF EXCLUSIONARY BEHAVIORS**
- 28-3 10:45 AM Kelley, Patricia*; Lukoczki, Georgina; Wingard, G. Lynn; Block, Amy; Tranel, Lisa M.: **ASSOCIATION FOR WOMEN GEOSCIENTISTS: HELPING WOMEN TO PERSIST IN THE GEOSCIENCES THROUGH THE COVID-19 PANDEMIC**
- 28-4 11:00 AM Clary, Renee*; Nagel, Athena; Sumrall, Jeanne Lambert: **FEMALES, MOTHERS, AND GEOSCIENTISTS: OUR PERSONAL GENDER CHALLENGES IN STEREOTYPES, CHILDCARE, AND COVID-19**
- 28-5 11:15 AM Visaggi, Christy*: **FAMILY FIELDWORK: PARENTING, PERSEVERANCE, AND A PANDEMIC PIVOT**
- 28-6 11:30 AM Bulinski, Katherine*: **MEDICAL CHALLENGES, TRIPLETS, PANDEMIC: TEN STRATEGIES FOR STAYING AFLOAT IN ACADEMIA IN THE FACE OF OVERWHELMING DIFFICULTIES**
- 28-7 11:45 AM Mori, Yoko; Kelley, Patricia*: **INTERDISCIPLINARY, CROSS-CULTURAL PERSPECTIVE ON DEALING WITH AMBIGUITY, UNCERTAINTY, AND LIMINALITY DURING THE COVID-19 PANDEMIC BY CREATING "IBASHO"**

SESSION NO. 29

T34. Melt, Emplace, Mix, Erupt! (MEME) Investigating the Dynamics of Magmatic Systems via Microanalysis

8:00 AM, Duke Energy Convention Center, North Meeting Room 211

Claire McLeod, Aleksandra Gawronska, Marion Lytle and Alex Schweitzer, Presiding

- 29-1 8:00 AM Birner, Suzanne*; Cottrell, Elizabeth; Warren, Jessica; Kelley, Katherine A.; Davis, Fred A.: **THE EFFECTS OF MELT ADDITION ON MID-OCEAN RIDGE PERIDOTITES**
- 29-2 8:15 AM Michelfelder, Gary*; Reinier, Clayton: **MANTLE MAGMA SOURCES FOR SMALL VOLUME MONOGENETIC BASALTS IN THE PRIBILOF ISLANDS, ALASKA: EVIDENCE FROM $\delta^{18}\text{O}$ VALUES, SR ISOTOPE RATIOS AND TRACE ELEMENT CONTENTS**
- 29-3 8:30 AM Currier, Ryan*; Hidalgo, Paulo J.; Hulsey, Kaitlyn: **FABRIC CUT EFFECT: AN EBSD CAUTIONARY TALE**
- 29-4 8:45 AM Brown, Ken*; Loocke, Matthew; McLeod, Claire; Dewaelsche, Peyton: **USING MICROANALYTICAL TECHNIQUES TO UNRAVEL K-FELDSPAR MEGACRYST FORMATION**
- 29-5 9:00 AM Hannon, Jeffrey*; Dietsch, Craig: **TRACKING CRUST-MAGMA INTERACTION ACROSS THE IDAHO BATHOLITH USING ZIRCON U-PB AGES AND TRACE ELEMENT DATA FROM CRETACEOUS BENTONITES**

SESSION NO. 30

T35. Midcontinent Precambrian Basement from the Superior Province to the Southern Appalachians

9:30 AM, Duke Energy Convention Center, North Meeting Room 211

Dave Moecher, J. Mitchell Clay and J. Bowersox, Presiding

- 30-1 9:30 AM Moecher, David*: **DOMINANCE AND PERSISTENCE OF THE GRENVILLE MAGMATIC SIGNATURE IN THE DETRITAL ZIRCON RECORD: INSIGHT INTO EXHUMATION OF THE GRENVILLE OROGEN AND POTENTIAL TECTONIC INTERACTION OF LAURENTIA AND AMAZONIA DURING GRENVILLIAN COLLISION**
- 30-2 9:45 AM Clay, J. Mitchell*; Moecher, David P.: **DETRITAL ZIRCON AND MAGMATIC U-PB GEOCHRONOLOGY OF MESOPROTEROZOIC BASEMENT UNITS, WEST TEXAS, U.S.A.: IMPLICATIONS FOR GRENVILLIAN FORELAND BASIN EVOLUTION ALONG THE GRENVILLE FRONT TECTONIC ZONE**
- 30-3 10:00 AM Hatcher, Robert*: **CAN THE GRENVILLE FRONT BE TRACED SOUTHWARD INTO ALABAMA?**
- 30-4 10:15 AM Hanawalt, Laura*; Cuilik, Michael P.; Hawman, Robert: **MOUNTAIN ROOTS, LITHOSPHERIC LAYERING, AND MANTLE FLOW: IMAGING P-WAVE REFLECTIVITY BENEATH THE EASTERN US**
- 30-5 10:30 AM Hillenbrand, Ian*; Karlstrom, Karl; Williams, Michael L.; Gilmer, Amy K.: **CRUSTAL THICKNESS EVOLUTION OF SOUTHERN LAURENTIA'S PROTEROZOIC OROGENS**
- 30-6 10:45 AM McGrew, Allen*; Rahl, Jeffrey; Metcalf, James: **INTEGRATING THERMOCHRONOLOGIC, THERMOBAROMETRIC AND DEFORMATION PATH ANALYSIS TO CONSTRAIN THE PACE, EVOLUTION AND TECTONIC SIGNIFICANCE OF A DEEP-CRUSTAL SHEAR ZONE: A CASE STUDY FROM THE RUBY MOUNTAINS-EAST HUMBOLDT RANGE METAMORPHIC CORE COMPLEX, NEVADA**
- 30-7 11:00 AM Nowaczewski, Vincent*; Sturmer, Daniel: **EUSTATIC IMPLICATIONS FOR BACK ARC AND TRANSFORM MODELS OF THE LATE PALEOZOIC SLIDE MOUNTAIN/HAVALLAH OCEAN BASIN**

MORNING POSTER TECHNICAL SESSIONS

SESSION NO. 31

D4. Mineralogy, Geochemistry, Petrology, and Volcanology (Posters)

8:00 AM, Duke Energy Convention Center, Junior Ballroom B

Authors will be present from 9 to 11 AM

- | Booth # | |
|---------|--|
| 31-1 | 1 Jenkins, Nick*; Gillis, Morgan; Krekeler, Mark; Bhowmick, Mithun; Zhou, Xuan: INITIAL CHARACTERIZATION OF SYNTHETIC GOETHITE POST-SHOCK COMPRESSION USING SCANNING ELECTRON MICROSCOPY INDICATES SHOCK RESISTANCE |
| 31-2 | 2 Certain, Jessica; Curtis, Juliana*; Murchland, Madeline; Pizsel, Charlotte; Stittle, Landon; Krekeler, Mark: REFLECTIVE SPECTROSCOPY INVESTIGATIONS OF A COMMON COSMETIC BLUSH (WET'N'WILD) PROVIDE CONSTRAINTS FOR FORENSIC INVESTIGATIONS IN THE CONTEXT OF VIOLENCE AGAINST WOMEN AND OTHERS |
| 31-3 | 3 Foust, Livia*: ELECTRON MICROSCOPY INVESTIGATIONS OF AN ARTIFICIAL SOIL AGGREGATE USED IN BOTANICAL AND AGRICULTURAL EXPERIMENTS |

- 31-4 4 Bank, Justin*; Klein, Ethan; Krekeler, Mark: **MINERALOGY AND TEXTURES OF TALC ORE FROM THE WILLOW CREEK MINE, MONTANA: AN INITIAL INVESTIGATION USING SCANNING ELECTRON MICROSCOPY**
- 31-5 5 Mounce, Stephanie E.*; Emproto, Christopher R.; Rakovan, John: **APATITE-HOSTED MELT INCLUSIONS FROM GRENVILLE CARBONATITIC VEIN DIKES AT THE SCHICKLER OCCURRENCE AND DWYER MINE, ONTARIO, CANADA**
- 31-6 6 Napiwocki, Spencer*; Arkle, Jeanette C.; Wolf, Michael B.; Weber, John C.: **PROVENANCE AND GEOCHEMICAL ANALYSIS OF THE NORTHERN RANGE, TRINIDAD**
- 31-7 7 Pereira Pierangeli, Luiza*; Silva, Sérgio Henrique Godinho da; Sirbescu, Mona-Liza C.; Weindorf, David: **PRELIMINARY TRACE-ELEMENT DISTRIBUTION USING PXRF GEOCHEMICAL DATA ON AMPHIBOLITE AND PEGMATITE ROCKS FROM SOUTHERN MINAS GERAIS, BRAZIL**
- 31-8 8 Lenhard, Nathaniel*; Michelfelder, Gary; Laviada-Garmon, Drew: **GEOCHEMICAL COMPARISON OF THE CHASCA ORKHO SERIES AND MAGMATIC INCLUSIONS AT VOLCÁN OLLAGÜE, CENTRAL VOLCANIC ZONE, NORTHERN CHILE**
- 31-9 9 Williams, Spencer*; Williams, Jeremy C.: **EVALUATING PTB REDOX CONDITIONS IN RELATION TO S-CYCLE AND TRACE ELEMENTS**

SESSION NO. 32

D5. Paleontology (Posters)

8:00 AM, Duke Energy Convention Center, Junior Ballroom B

Authors will be present from 9 to 11 AM

- | Booth # | |
|---------|--|
| 32-1 | 10 Hartzell, Samantha*; Schweitzer, Carrie; Feldmann, Rodney M.: EXTINCTION AND SURVIVAL OF FROG CRABS (CRUSTACEA: BRACHYURA: RANINOIDA) FROM THE EARLY CRETACEOUS TO THE PRESENT |
| 32-2 | 11 Miller, Jennifer*; Schweitzer, Carrie; Feldmann, Rodney M.: EARLY PALEOGENE CRABS (CRUSTACEA: BRACHYURA) AND SEDIMENTOLOGY OF THE KAMBÜHEL FORMATION, SOUTHERN AUSTRIA |
| 32-3 | 12 Schweitzer, Carrie*; Feldmann, Rodney M.: ORIGINATION AND EXTINCTION IN DECAPODA (CRUSTACEA) AT THE END-CRETACEOUS |
| 32-4 | 13 Tungate, Joshua*; Feldmann, Rodney M.; Schweitzer, Carrie: SYSTEMATIC ANALYSIS OF PHYLLOCARID MANDIBLES FROM THE MISSISSIPPIAN MARSHALL FORMATION IN SOUTHERN MICHIGAN AND THE LATE DEVONIAN SILICA FORMATION IN NORTHWESTERN OHIO |
| 32-5 | 14 Crowell, Jennifer*; Hembree, Daniel: CLIMATE-INDUCED CHANGES IN FLUVIAL ICHNOFOSSIL ASSEMBLAGES OF THE PENNSYLVANIAN-PERMIAN APPALACHIAN BASIN |
| 32-6 | 15 Clark, Sarah*; Samuels, Joshua X.: COMMUNITY STRUCTURE ANALYSIS OF THE MAMMALS FOUND AT THE GRAY FOSSIL SITE, TN |
| 32-7 | 16 Cline, Daniel*; Shell, Ryan; Ciampaglio, Charles; Fuelling, Lauren J.: FOR MODERN SHARKS TO RISE, THEY MUST FIRST SURVIVE AN ICE AGE |
| 32-8 | 17 Hostetler, Michaela*: BIOMAGNETIC AS A PROXY FOR ANCIENT LIFE |

SESSION NO. 33

D6. Sedimentary Geology and Geomorphology (Posters)

8:00 AM, Duke Energy Convention Center, Junior Ballroom B

Authors will be present from 9 to 11 AM

Booth #

- 33-1 18 Papay, Richard*; Wiesenberg, Nick; Gaglioti, Ben; Wiles, Gregory: **THE GLACIAL HISTORY OF WOLF LAKE VALLEY AND THE DEVELOPMENT OF A 4000 YEAR TREE RING RECORD IN GLACIER BAY NATIONAL PARK AND PRESERVE, ALASKA**
- 33-2 19 Fiol, Stefan P.*; Sturmer, Daniel: **INFLUENCE OF GEOMORPHOLOGY AND GEOLOGY ON THE EVOLUTION OF DRUMMING IN THE UTTARAKHAND REGION OF THE INDIAN HIMALAYAS**
- 33-3 20 Jurgevich, Jeremy*; Langille, Jackie; Palmer, Megan: **LANDSLIDE HAZARDS WITHIN THE SPRUCE PINE 7.5-MINUTE QUADRANGLE, NC: AN EVALUATION OF STRUCTURAL CONTROLS ON BEDROCK DETERIORATION**
- 33-4 21 Martin, Steven*; Dortch, Jason M.: **DISTRIBUTION, FORMATION, AND CLASSIFICATION OF NATURAL ROCK OPENINGS IN KENTUCKY**
- 33-5 22 Erber, Nathan R.*; Kehew, Alan E.; Gillespie, Robb H.; Sultan, Mohamed: **HURON-ERIE LOBE MELT WATER INFLUENCE ON SAGINAW LOBE TERRAIN IN SOUTH-CENTRAL MICHIGAN**
- 33-6 23 Greb, Stephen*; May, Michael; Goldstein, Alan: **AN NEW AND UNUSUAL EXPOSURE OF THE SUB-MIDDLE DEVONIAN UNCONFORMITY AT THE FALLS OF THE OHIO, KENTUCKY AND INDIANA**
- 35-2 31 Carter, Lucas M.*; Saltzman, Matthew R.; Griffith, Elizabeth M.; Adiatma, Yoseph; Conwell, Christopher: **LITHOFACIES AND $\delta^{13}\text{C}$ ISOTOPE STRATIGRAPHY OF THE KNOX UNCONFORMITY IN THE CENTRAL APPALACHIAN BASIN**
- 35-3 32 Husinec, Antun*; Leslie, Stephen: **DEPOSITIONAL SEQUENCE FRAMEWORK TIED TO $\delta^{13}\text{C}$ EXCURSIONS AND CONODONT BIOSTRATIGRAPHY, UPPER ORDOVICIAN (KATIAN) TO LOWER SILURIAN (TELYCHIAN) WILLISTON BASIN, USA**
- 35-4 33 Smith, Carter*; Edwards, Cole; Hibner, Brianna: **USING PAIRED CARBON AND SULFUR ISOTOPES FROM CARBONATE ROCKS TO CONSTRAIN THE TIMING OF ANOXIA DURING THE LATE DEVONIAN IN THE GREAT BASIN REGION, USA: IMPLICATIONS FOR CHEMOSTRATIGRAPHIC CORRELATIONS**
- 35-5 34 Robinet, Richard*; Leslie, Stephen; Haynes, John T.; Herrmann, Achim D.: **REASSESSMENT OF THE TIMING AND SYNCHRONICITY OF THE GICE, M4-M5 SEQUENCE BOUNDARY, AND *PLECTODINA TENUIS* ZONE IN THE CENTRAL APPALACHIANS BASED ON IDENTIFICATION OF THE MILLBRIG K-BENTONITE IN WEST VIRGINIA**
- 35-6 35 Parker, Mercer*; Orndorff, Randall; Haynes, John: **A LITHOSTRATIGRAPHIC, BIOSTRATIGRAPHIC, AND PETROGRAPHIC ANALYSIS OF MIDDLE AND UPPER ORDOVICIAN STRATA IN THE SOUTHERN CHAMPLAIN VALLEY, NEW YORK: PRELIMINARY CORRELATION OF STRATIGRAPHY AND NOMENCLATURE IN THE CENTRAL AND NORTHERN APPALACHIANS**
- 35-7 36 Scott, Ashley*; Kaczmarek, Stephen: **SYSTEMATIC DIAGENETIC CHARACTERIZATION OF THE UPPER ORDOVICIAN (RICHMONDIAN) SALUDA FORMATION, CINCINNATI ARCH REGION, USA**
- 35-8 37 Goldman, Daniel; Leslie, Stephen*; Mitchell, Charles; Maletz, Jörg: **ORDOVICIAN GRAPTOLITES AND CONODONTS OF THE PHI KAPPA FORMATION IN THE TRAIL CREEK REGION OF CENTRAL IDAHO: A REVISED, INTEGRATED BIOSTRATIGRAPHY**
- 35-9 38 Ogg, James*; Liu, Xinchun; Zhang, Yang; Hou, Mingcai: **LATEST SANDBIAN-EARLIEST KATIAN (LATE ORDOVICIAN) "GUTTENBERG" POSITIVE $\delta^{13}\text{C}$ EXCURSION (GICE) IN ASIA SPANS CA. 1.2 MYR (3 LONG-ECCENTRICITY CYCLES)**
- 35-10 39 Schuster, Erin*: **ANALYSIS OF GRAPTOLITE BIOTOPE AFFINITY THROUGH THE LATE ORDOVICIAN MASS EXTINCTION**
- 35-11 40 Adiatma, Yoseph*; Saltzman, Matthew R.; Griffith, Elizabeth M.; O'Neill, Brian E.: **CHEMOSTRATIGRAPHIC CORRELATION OF A DARRIWILIAN UNCONFORMITY IN THE APPALACHIAN BASIN**

SESSION NO. 34**D8. Structural Geology and Tectonics (Posters)**

8:00 AM, Duke Energy Convention Center, Junior Ballroom B

Authors will be present from 9 to 11 AM

Booth #

- 34-1 24 Kebede, Haliemichael; Alemu, Abera; Mickus, Kevin*: **MAGNETIC ANOMALY PATTERNS AND VOLCANO-TECTONIC FEATURES ASSOCIATED WITH GEOTHERMAL PROSPECT AREAS IN THE ZIWAY-SHALA LAKES BASIN, CENTRAL MAIN ETHIOPIAN RIFT**
- 34-2 25 Nigussie, Wubamlak; Alemu, Abera; Mickus, Kevin*; Muluneh, Aneha: **STRUCTURE OF THE UPPER CRUST AT THE AXIS SEGMENTATION STAGE OF RIFT EVOLUTION AS REVEALED BY GRAVITY DATA: CASE STUDY OF THE GEDEMSA MAGMATIC SEGMENT, MAIN ETHIOPIAN RIFT**
- 34-3 26 Razo, Maria*; Holyoke, Caleb: **EFFECTS OF MELT INTERCONNECTIVITY AND COMPOSITION OF THE STRENGTH OF A FINE-GRAINED GNEISS**
- 34-4 27 Hilliard, Geoffrey*; Holyoke, Caleb: **EFFECT OF PREEXISTING SHEAR ZONE ORIENTATION ON ROCK STRENGTH**
- 34-5 28 Waller, Jacob*; Holyoke, Caleb: **FOLIATION INTENSITY AND ORIENTATION AND THEIR AFFECT ON ROCK STRENGTH**
- 34-6 29 Coffee, Mackenzie*; Barineau, Clinton: **RF/PHI ANALYSIS OF FELDSPAR IN DEFORMED ORTHOGNEISS: COMPARING MACRO- AND MICRO-ANALYTICAL TECHNIQUES**
- 35-2 31 Carter, Lucas M.*; Saltzman, Matthew R.; Griffith, Elizabeth M.; Adiatma, Yoseph; Conwell, Christopher: **LITHOFACIES AND $\delta^{13}\text{C}$ ISOTOPE STRATIGRAPHY OF THE KNOX UNCONFORMITY IN THE CENTRAL APPALACHIAN BASIN**
- 35-3 32 Husinec, Antun*; Leslie, Stephen: **DEPOSITIONAL SEQUENCE FRAMEWORK TIED TO $\delta^{13}\text{C}$ EXCURSIONS AND CONODONT BIOSTRATIGRAPHY, UPPER ORDOVICIAN (KATIAN) TO LOWER SILURIAN (TELYCHIAN) WILLISTON BASIN, USA**
- 35-4 33 Smith, Carter*; Edwards, Cole; Hibner, Brianna: **USING PAIRED CARBON AND SULFUR ISOTOPES FROM CARBONATE ROCKS TO CONSTRAIN THE TIMING OF ANOXIA DURING THE LATE DEVONIAN IN THE GREAT BASIN REGION, USA: IMPLICATIONS FOR CHEMOSTRATIGRAPHIC CORRELATIONS**
- 35-5 34 Robinet, Richard*; Leslie, Stephen; Haynes, John T.; Herrmann, Achim D.: **REASSESSMENT OF THE TIMING AND SYNCHRONICITY OF THE GICE, M4-M5 SEQUENCE BOUNDARY, AND *PLECTODINA TENUIS* ZONE IN THE CENTRAL APPALACHIANS BASED ON IDENTIFICATION OF THE MILLBRIG K-BENTONITE IN WEST VIRGINIA**
- 35-6 35 Parker, Mercer*; Orndorff, Randall; Haynes, John: **A LITHOSTRATIGRAPHIC, BIOSTRATIGRAPHIC, AND PETROGRAPHIC ANALYSIS OF MIDDLE AND UPPER ORDOVICIAN STRATA IN THE SOUTHERN CHAMPLAIN VALLEY, NEW YORK: PRELIMINARY CORRELATION OF STRATIGRAPHY AND NOMENCLATURE IN THE CENTRAL AND NORTHERN APPALACHIANS**
- 35-7 36 Scott, Ashley*; Kaczmarek, Stephen: **SYSTEMATIC DIAGENETIC CHARACTERIZATION OF THE UPPER ORDOVICIAN (RICHMONDIAN) SALUDA FORMATION, CINCINNATI ARCH REGION, USA**
- 35-8 37 Goldman, Daniel; Leslie, Stephen*; Mitchell, Charles; Maletz, Jörg: **ORDOVICIAN GRAPTOLITES AND CONODONTS OF THE PHI KAPPA FORMATION IN THE TRAIL CREEK REGION OF CENTRAL IDAHO: A REVISED, INTEGRATED BIOSTRATIGRAPHY**
- 35-9 38 Ogg, James*; Liu, Xinchun; Zhang, Yang; Hou, Mingcai: **LATEST SANDBIAN-EARLIEST KATIAN (LATE ORDOVICIAN) "GUTTENBERG" POSITIVE $\delta^{13}\text{C}$ EXCURSION (GICE) IN ASIA SPANS CA. 1.2 MYR (3 LONG-ECCENTRICITY CYCLES)**
- 35-10 39 Schuster, Erin*: **ANALYSIS OF GRAPTOLITE BIOTOPE AFFINITY THROUGH THE LATE ORDOVICIAN MASS EXTINCTION**
- 35-11 40 Adiatma, Yoseph*; Saltzman, Matthew R.; Griffith, Elizabeth M.; O'Neill, Brian E.: **CHEMOSTRATIGRAPHIC CORRELATION OF A DARRIWILIAN UNCONFORMITY IN THE APPALACHIAN BASIN**

SESSION NO. 36**T29. Undergraduate and Graduate Geoscience Student Showcase (Posters) (Council on Undergraduate Research Geosciences Division)**

8:00 AM, Duke Energy Convention Center, Junior Ballroom B

Authors will be present from 9 to 11 AM

Booth #

- 35-1 30 Waid, Christopher*: **LOWER MEDINA GROUP (UPPER ORDOVICIAN THROUGH LOWER SILURIAN) CHANNEL SANDS IN NEW YORK STATE, USA**
- 36-1 41 Beasecker, Jacob*; Brandt, Danita: **PREDATORY TRILOBITES: COMBINING MORPHOLOGICAL AND ICHNOLOGICAL DATA**
- 36-2 42 Borsos, Donata*; Gonzalez, Raquel M.; Visaggi, Christy C.; Estrada, Jessica L.; Simone, Matthew; Ransom, Matthew A.; Clinton, J. Michael; Vendetti, Jann E.: **NATURAL COMMUNITY TYPES AND NATIVE AND NON-NATIVE TERRESTRIAL GASTROPODS IN THE PIEDMONT REGION OF GEORGIA**

- 36-3 43 Pugh, Isaac*; Crothers, JP; Heckert, Andrew: **3D MODELING AND PRINTING AS A RESOURCE IN PALEONTOLOGICAL OUTREACH**
- 36-4 44 Leesburg, Jessica*; Clary, Renee; Nagel, Athena Owen: **DOCUMENTING UNIQUE GEOLOGIC LOCATIONS AS VIRTUAL ENVIRONMENTS: OSBORN PRAIRIE, MS VERSUS SWEETING'S POND, ELEUTHERA**
- 36-5 45 Osborne, Laura*; Lukoczki, Georgina; Kaczmarek, Stephen; Fichtner, Vanessa; Schurr, Simon; Strauss, Harald: **A DETAILED RE-EXAMINATION OF CA-MG-CARBONATE SEDIMENTS IN LAGOA VERMELHA USING RIETVELD REFINEMENT**
- 36-6 46 Piquiet, Megan*; Molina, Richard; Morejon, Sophia; Roberts, Brandon; Jerew, Hailey R.; MacDonald, James; Barbosa, Alli; McManus, Gregory J.: **CALCITE MINERALOGY FROM THE NASHUA FORMATION, FORT DRUM, AND FORT THOMPSON FORMATION, NORTH FORT MYERS, FLORIDA. AN NSF GEOPATH AND MRI FUNDED STUDY**
- 36-7 47 Dewaelsche, Peyton*; Brown, Ken; Loocke, Matthew; McLeod, Claire: **CONSTRAINING K-FELDSPAR MEGACRYST GROWTH THROUGH INVESTIGATIONS OF PLAGIOCLASE INCLUSIONS**
- 36-8 48 Madsen, Lauren*; Maneiro, Kathryn A.; Brown, Allison; Dragovic, Besim; Stevens, Gary: **BULK LU-HF GARNET GEOCHRONOLOGY IN THE SOUTHERN MARGINAL ZONE, LIMPOPO BELT, SOUTH AFRICA**
- 36-9 49 Arimes, Alexandra*; Chappuies, Jack; Dapkus, Ryan; Fryar, Alan E.: **COMPARING CONTROLS ON WATER QUALITY IN TWO KARST BASINS, INNER BLUEGRASS REGION, KENTUCKY**
- 36-10 50 Rechenberg, Matthew*; Peck, John A.: **SURFACE SEDIMENT DISTRIBUTION BY LAKE PROCESSES IN WYOGA LAKE, OH**
- 36-11 51 Head, Elynor*; Stone, Jeffery; Yost, Chad: **A PALEOLIMNOLOGY STUDY OF HISTORICAL WILD RICE (ZIZANIA PALUSTRIS) IN LAC VIEUX DESERT, MI**
- 36-12 52 Bailey, Mary*; Lepper, Kenneth: **A CLOSER LOOK AT THE DEPOSITIONAL AGES FOR THE UPPER AND LOWER CAMPBELL SHORELINE OF GLACIAL LAKE AGASSIZ IN NORTHWESTERN MINNESOTA**
- 36-13 53 Blanton, Brightin*: **AN ANALYSIS OF RESERVOIR PROPERTIES AND CONTROLS IN THE COTTON VALLEY GROUP OF JONES COUNTY, MS**
- 36-14 54 Worthan, Matthew*; Mason, Cody; Johnson, Matthew; Hidy, Alan J.: **SPATIAL PATTERNS OF 10BE-BASED CATCHMENT WIDE DENUDATION IN THE WESTERN PANAMINT MOUNTAINS, CALIFORNIA**
- 36-15 55 Bowman, Cole*; Lazar, Kelly Best; Whitmire, Stefanie; Carraway, Elizabeth; Gleasman, Gavin: **SEDIMENT TRAP DEVELOPMENT AND QUANTIFICATION OF MICROPLASTICS DEPOSITION IN THE BLACK AND WACCAMAW RIVER SYSTEMS, SOUTH CAROLINA**

SESSION NO. 37

T37. Appalachian Orogenies: When and How Do They Start and End? (Posters)

8:00 AM, Duke Energy Convention Center, Junior Ballroom B

Authors will be present from 9 to 11 AM

Booth #

- 37-1 56 Kortan, Matthew*; Bailey, C.M.; Sasina, Amanda M.; Foster-baril, Zachary; Hinshaw, Emily; Stockli, Daniel F.: **PETROLOGY, STRUCTURE, AND GEOCHRONOLOGY OF THE OAKVILLE METAVOLCANIC SEQUENCE: IMPLICATIONS FOR THE PROVENANCE OF THE SMITH RIVER ALLOCHTHON, VIRGINIA**
- 37-2 57 Williams, S.J.*; Farris, D.W.; Horsman, E.: **MAGNETIC CONSTRAINTS ON THE NATURE OF THE BREVARD**

ZONE ADJACENT TO THE GRANDFATHER MOUNTAIN WINDOW, COLLETTSVILLE, NC

- 37-3 58 Fisher, Sabrina*; Coffee, Mackenzie; Barineau, Clinton: **AN ATTEMPT TO RESOLVE THE AGE OF THE SUB-MINERAL BLUFF UNCONFORMITY: EXTRACTING ZIRCON FROM THE MARBLE HILL HORNBLENDE SCHIST**

SESSION NO. 38

T40. Strategic Minerals of North American Midcontinent: Importance, Occurrence, and U.S. Initiatives (Posters)

8:00 AM, Duke Energy Convention Center, Junior Ballroom B

Authors will be present from 9 to 11 AM

Booth #

- 38-2 60 Goan, Ian*; Kleinsasser, Jackie; Simon, Adam C.; Hudak, George J.; Peterson, Dean: **USING THE GEOCHEMISTRY OF SULFIDES TO UNDERSTAND THE GENESIS OF TI-RICH FE-OXIDE ULTRAMAFIC INTRUSIONS WITHIN THE DULUTH COMPLEX**
- 38-3 61 Whitlock, Jacob*; Macdowell, Matthew T.; Elmi, Chiara; Foust, Richard D.: **CHARACTERIZATION OF MANGANESE OXIDES FROM SHENANDOAH VALLEY (VIRGINIA): FORMATION CONDITIONS AND ENVIRONMENT**

**AFTERNOON
ORAL TECHNICAL SESSIONS**

SESSION NO. 39

D7. Sedimentary Geology, Geomorphology, and Karst

1:30 PM, Duke Energy Convention Center, North Meeting Room 212

Andrea Erhardt and Sarah Arpin, Presiding

- 39-1 1:30 PM Hogan, Hannah*; Schoepfer, Shane: **EUXINIA SEEN THROUGH PYRITE FRAMBOIDS IN TRAPPER CREEK, IDAHO, LEADING UP TO THE END-PERMIAN EXTINCTION**
- 39-2 1:45 PM Rice, Trezevant Adair*; Foust, Livia; Homan, Renee; Currie, Brian: **SEDIMENTOLOGY OF POSSIBLE SUPER-CRITICAL SEDIMENT GRAVITY FLOW DEPOSITS IN THE UPPERCRETACEOUS MANCOS SHALE, EASTERN UTAH**
- 39-3 2:00 PM Allred, Isaac*; Blum, Michael: **THERE AND BACK AGAIN: THE RECYCLING OF APPALACHIAN AND GRENVILLE SIGNATURES IN DZ U-PB RECORDS OF PHANEROZOIC NORTH AMERICA**
- 39-4 2:15 PM Rovey, Charles*: **TILL STRATIGRAPHY WITHIN THE FREMONT CHANNEL, WESTERN IOWA**
- 39-5 2:30 PM Mcavoy, Jared*; Evans, Kevin: **ORIGINS OF CARBONATE MOUNDS IN SOUTHERN MISSOURI**
- 39-6 2:45 PM Kaczmarek, Stephen*; Scott, Ashley; Manche, Cameron; Ryan, Brooks: **REEVALUATING EVAPORATIVE REFLUX DOLOMITIZATION IN PERI-TIDAL CARBONATES**
- 39-7 3:00 PM Rawls, Guy E.*; Swezey, Christopher; Lambert, Richard A.; Garcia, Angel A.; Haynes, John T.: **GEOLOGY AND GEOMORPHOLOGY OF PARSONAGE CAVE AND MUSTOE-ULCER CAVE IN THE SILURIAN-DEVONIAN HELDERBERG GROUP, HIGHLAND COUNTY, VIRGINIA**
- 39-8 3:15 PM Florea, Lee*; Burgess, Sarah; Lukoczki, Georgina; Tobin, Benjamin: **TOWARD A MORE COMPREHENSIVE MODEL OF KARST DEVELOPMENT IN THE U.S. MIDCONTINENT**

SESSION NO. 40**D9. Vertebrate Paleontology**

1:30 PM, Duke Energy Convention Center, North Meeting Room 211

Joshua Miller, Presiding

- 40-1 1:30 PM Heckert, Andrew*; Carrano, Matthew; Howell, Logan S.; Ore, Zachary; Schneider, Katie E.: **THE PALEOPATHOLOGICAL RECORD OF NON-AVIAN DINOSAURS: IMPLICATIONS OF THE DISTRIBUTION OF DISEASE AND INCIDENCE OF INJURY THROUGHOUT THE MESOZOIC**
- 40-2 1:45 PM Bakker, Robert*: **JURASSIC TAIL FIGHTERS: BRONTOSAURS AND STEGOSAURS SHOW ADAPTATIONS FOR PRECISION BLOWS**
- 40-3 2:00 PM Gottfried, Michael D*; Eberle, Jaelyn: **EOCENE 'GREENHOUSE EARTH' FISH RECORDS FROM THE CANADIAN ARCTIC PROVIDE A DEEP-TIME PERSPECTIVE ON ARCTIC BIODIVERSITY AND ENVIRONMENTAL CHANGE**
- 40-4 2:15 PM Ward, Clark*; Secord, Ross: **THE EVOLUTION OF SEXUAL DIMORPHISM IN TELEOCERAS, A NORTH AMERICAN RHINOCEROS**
- 40-5 2:30 PM Miller, Joshua*; Wright, William; Kelly, Abigail; Gaetano, Maddie; Neale, Bianca; DeSantis, Larisa; Zazula, Grant D.; Wooller, Matthew J.: **CARNIVORES PREFERRED HORSE OVER BISON IN PLEISTOCENE YUKON**
- 40-6 2:45 PM Kelly, Abigail*; Miller, Joshua; Wright, William; DeSantis, Larisa; Zazula, Grant D.; Hall, Elizabeth; Hewitson, Susan; Wooller, Matthew J.: **NICHE NARROWS IN RECOVERY FROM POPULATION CRASH: A RETREAT TO THE 'BIOLOGICAL OPTIMUM' FOR KLONDIKE BISON PRISCUS?**
- 40-7 3:00 PM Gaetano, Maddie*; Miller, Joshua; Wald, Eric; Druckenmiller, Patrick: **SPECIALIZATION IN CONSUMPTION OF ANTLERS AND POSTCRANIA BY ARCTIC MAMMALS**
- 40-8 3:15 PM Gibson, Michael*; Byl, Tom; Cunningham, Champagne: **PRELIMINARY RESULTS OF MICROCYSTIN (MT) AND SAXITOXIN (SXT) PRESERVATION IN FOSSIL MOLLUSKS OF THE LATE CRETACEOUS COON CREEK FORMATION LAGERSTÄTTE: IMPLICATIONS FOR A KILL MECHANISM PRODUCING POSSIBLE MARINE REPTILE DEADFALLS**

SESSION NO. 41**T4. Astrobiology: What's the Latest on the Search for Life, Past or Present, Outside of Earth?**

1:30 PM, Duke Energy Convention Center, North Meeting Room 206

Andrew Czaja and Sally Potter-McIntyre, Presiding

- 41-1 1:30 PM Luna, Jeannette Wolak*; Beltran, Sydney J.: **SURVEY AND FIELD ANALYSIS OF FAN-SHAPED FEATURES IN NORTHERN NORWAY: ARCTIC ANALOGS FOR EXPLORATION ON MARS**
- 41-2 1:45 PM Rindsberg, Andrew*; Vallon, Lothar H.: **NEW CHALLENGES AND OPPORTUNITIES IN ICHNOLOGY**
- 41-3 2:00 PM Brandt, Danita*: **ASTROBIOLOGY AND THE IMPOSITION OF STRONG HOPE: LESSONS FROM PALEONTOLOGY**
- 41-4 2:15 PM Potter-McIntyre, Sally*: **ASTROBIOLOGICAL CONSIDERATIONS IN CONCRETION FORMATION**
- 41-5 2:30 PM Goland, Camden*; Czaja, Andrew D.: **USING RAMAN SPECTROSCOPY OF ANCIENT KEROGEN TO UNDERSTAND THERMAL ALTERNATION AND BIOSIGNATURE PRESERVATION**
- 2:45 PM **BREAK**
- 41-6 3:00 PM Corpolongo, Andrea*; Czaja, Andrew D.: **DEEP ULTRAVIOLET RAMAN SPECTROSCOPY OF NEOARCHEAN MICROBIALITES AS ANALOGS TO POSSIBLE MARS 2020 SAMPLES**

- 41-7 3:15 PM Velbel, Michael*; Brandt, Danita: **THE SEARCH FOR ANCIENT LIFE ON MARS FROM PAST AND FUTURE STUDIES OF SAMPLES: A FRAMEWORK FROM PALEONTOLOGY**
- 41-8 3:30 PM Czaja, Andrew*; Sharma, Sunanda; Allwood, Abigail; Benison, Kathleen; Corpolongo, Andrea; Gómez, Felipe; Mayhew, Lisa E.; Sephton, Mark; Siljeström, Sandra; Williams, Amy: **SAMPLING POTENTIAL BIOSIGNATURES WITH THE MARS 2020 PERSEVERANCE ROVER**
- 41-9 3:45 PM Velbel, Michael*; MSPG2, (MSR Science Planning Group 2): **MARS SAMPLE RETURN (MSR) SCIENCE PLANNING GROUP 2 (MSPG2): CHALLENGES AND ADVANCES IN PLANNING FOR THE FIRST SAMPLES FROM ANOTHER PLANET**
- 4:00 PM **Discussion**

SESSION NO. 42**T27. The Future of Geoscience Teaching after the "Great Disruption": Lessons from Lockdown**

1:30 PM, Duke Energy Convention Center, North Meeting Room 203/204

Kent Ratajeski and Suzanne Birner, Presiding

- 1:30 PM **INTRODUCTORY REMARKS**
- 42-1 1:35 PM Mittwede, Steven*: **SNIFFING SULFIDES OR STAYING SAFE? LEARNING WITH AND FROM STRICTURES**
- 42-2 1:50 PM Brande, Scott*: **TEACHING AND LEARNING MAP SKILLS DURING THE GREAT DISRUPTION: NO PHYSICAL RULERS NEEDED (HOW CAN THAT BE?)**
- 42-3 2:05 PM Lyons, Karly*; Katkar, Ankita; Jimenez, Angel; Walker, Ryan; Lalk, Sarah; Owen Nagel, Athena; Clary, Renee: **THE DEVELOPMENT AND ASSESSMENT OF STUDENT-CREATED INTERACTIVE DOODLE NOTES AS AN EFFECTIVE TEACHING STRATEGY IN INTRODUCTORY GEOLOGY COURSES**
- 42-4 2:20 PM Maneiro, Kathryn A.*: **"SURVIVING" AN INTRODUCTORY GEOLOGY AND ENVIRONMENTAL SCIENCE COURSE DURING PANDEMIC TEACHING**
- 42-5 2:35 PM Ratajeski, Kent*: **FIVE YEARS OF MID-SEMESTER SURVEY DATA FROM TWO INTRODUCTORY GEOSCIENCE COURSES: WHAT THEY REVEAL ABOUT THE ACADEMIC AND PERSONAL LIVES OF COLLEGE STUDENTS BEFORE AND DURING THE COVID-19 PANDEMIC**
- 42-6 2:50 PM Clary, Renee*: **GEOSCIENCES CONTENT DELIVERY: CHANGING PERCEPTIONS FOR ONLINE AND TRADITIONAL TEACHING**
- 3:05 PM **BREAK**
- 42-7 3:20 PM Hunt, Emma*: **PETROLOGY IN A PANDEMIC: VIRTUAL OPTICAL MINERALOGY**
- 42-8 3:35 PM Weiss, Jennifer*; Whitmeyer, Steven: **BUILDING TARGETED EXERCISES ALONG CORRIDOR H, WV FOR USE IN UPPER-LEVEL GEOLOGY CLASSES**
- 42-9 3:50 PM Brudzinski, Michael*; Hubenthal, Michael: **ONLINE SKILL BUILDING WORKSHOPS TO BROADEN PARTICIPATION IN UNDERGRADUATE STEM**
- 42-10 4:05 PM Jefferson, Anne*; Loheide, Steven; McCay, Deanna: **FACULTY PERSPECTIVES ON AN ONLINE, COLLABORATIVE GRADUATE COURSE IN HYDROLOGY**
- 42-11 4:20 PM Sturmer, Daniel*: **EVOLUTION OF A CAREERS IN THE GEOSCIENCES COURSE BEFORE AND DURING THE COVID-19 PANDEMIC**
- 4:35 PM **CONCLUDING REMARKS**

SESSION NO. 43

T39. Intraplate Earthquakes in Central and Eastern USA

1:30 PM, Duke Energy Convention Center, North Meeting Room 201/202

Lewis Owen and Ronald Counts, Presiding

- 1:30 PM **INTRODUCTORY REMARKS**
- 43-1 1:35 PM Pratt, Thomas*: **EXPLORING THE EASTERN U.S. FOR EARTHQUAKES OUTSIDE OF THE MAJOR SEISMIC ZONES**
- 43-2 1:55 PM Van Arsdale, Roy*: **QUATERNARY FAULTING IN THE CAMBRIAN REELFOOT RIFT OF THE MISSISSIPPI RIVER VALLEY**
- 43-3 2:15 PM Cox, Randy*: **NEW RESULTS ON LATE PLEISTOCENE FAULTING IN THE NEW MADRID SEISMIC ZONE**
- 43-4 2:30 PM Afroz, Mahmud*; Aly, Mohamed H.: **ASSESSMENT OF ECONOMIC LOSS AND CASUALTIES DUE TO EARTHQUAKES OF DIFFERENT MAGNITUDES AT THE NEW MADRID FAULT ZONE**
- 2:45 PM **BREAK**
- 43-5 3:00 PM Brudzinski, Michael*; Fasola, Shannon L.; Currie, Brian: **AN OVERVIEW OF RECENT INJECTION INDUCED SEISMICITY IN THE CENTRAL AND EASTERN UNITED STATES**
- 43-6 3:15 PM Carpenter, N. Seth*; Hickman, John B.; Brudzinski, Michael; Schmidt, Jonathan P.; Wang, Zhenming: **THE ROME TROUGH: A SEISMICALLY QUIESCENT INTRAPLATE RIFT BOUNDING ACTIVE SEISMIC ZONES**
- 43-7 3:30 PM Figueiredo, Paula*: **UNKNOWN SEISMIC SOURCES IN EASTERN USA - THE 2020 MW 5.1 SPARTA, NORTH CAROLINA EARTHQUAKE AND EVIDENCE OF RECURRENT QUATERNARY DEFORMATION**
- 43-8 3:45 PM Merschat, Arthur*; Carter, Mark W.: **SURFACE RUPTURE FROM THE 9 AUGUST 2020, MW 5.1 SPARTA, NORTH CAROLINA EARTHQUAKE AND POSSIBLE PALEOSEISMICITY: EVIDENCE FROM DETAILED BEDROCK AND SURFICIAL GEOLOGIC MAPPING**
- 43-9 4:00 PM Carter, Mark*; Merschat, Arthur J.; Horton, James; Burton, William; Counts, Ronald; Tuttle, Martitia; Green, Russell A.; Pazzaglia, Frank J.; Hill, Jesse; Figueiredo, Paula: **A TALE OF TWO QUAKES: COMPARING THE 2011 M5.7 MINERAL VA AND THE 2020 M5.1 SPARTA NC EARTHQUAKES FROM A GEOLOGIC MAPPING VIEWPOINT**
- 43-10 4:20 PM Fakhari, Mohammad*: **THE MAJOR MISSISSIPPIAN SEISMIC EVENT IN SOUTHERN OHIO AND ITS PROBABLE ORIGIN**

SESSION NO. 44

T44. Success in the Face of Adversity: Telling the Stories of Women in Geology

1:30 PM, Duke Energy Convention Center, North Meeting Room 205

Katherine Lewandowski, Presiding

- 1:30 PM Lewandowski, Katherine*: **INTRODUCTORY REMARKS**
- 44-1 1:35 PM Lewandowski, Katherine*: **MARIA KLENOVA: PIONEERING POLAR MARINE GEOLOGIST**
- 44-2 1:50 PM Sack, Dorothy*: **THE LIFE AND TIMES OF GEOMORPHOLOGIST MARIE MORISAWA**
- 44-3 2:05 PM Lipps, Jere*: **ESTER ENGLISH RICHARDS APPLIN, 1895-1972, MICROPALAEONTOLOGIST: SUCCESS IN A MAN'S WORLD**
- 44-4 2:20 PM McDonald, James*: **VERA AND ELSA LUND – PIONEERING WOMEN IN THE PETROLEUM INDUSTRY**
- 44-5 2:35 PM Lipps, Jere; Lewandowski, Katherine*: **HELEN TAPPAN: SUCCESS IN PALEONTOLOGY THROUGH DEDICATION, ORGANIZATIONAL SKILLS, AND HARD WORK**
- 2:50 PM Lewandowski, Katherine*: **CONCLUDING REMARKS**

SESSION NO. 45

T45. All Things Whittlesey: Civil War, Glacial, Engineering, Structural Geology, and Other Topics Related to Fields Investigated by Geologist Charles Whittlesey (1808–1886) (GSA Environmental and Engineering Geology Division; GSA Quaternary Geology and Geomorphology Division)

3:10 PM, Duke Energy Convention Center, North Meeting Room 205

Joseph Hannibal and Kevin Evans, Presiding

- 3:10 PM **INTRODUCING THE FIRST BOOK-LENGTH BIOGRAPHY OF CHARLES WHITTLESEY**
- 45-1 3:20 PM Totten, Stanley*: **CHARLES WHITTLESEY, SAMUEL PRESCOTT HILDRETH, AND THE FIRST OHIO GEOLOGICAL SURVEY THAT BROUGHT THEM TOGETHER**
- 45-2 3:35 PM Kreinbrink, Jeannine*: **CHARLES WHITTLESEY AND THE NORTHERN KENTUCKY CIVIL WAR FORTIFICATION SYSTEM**
- 45-3 3:50 PM Hannibal, Joseph*: **CHARLES WHITTLESEY: CONNECTIONS BETWEEN GEOLOGY, ARCHAEOLOGY, AND MILITARY TRAINING AND DEFENSES**
- 45-4 4:05 PM Totten, Stanley*: **INSTANCES WHEN REPORTS WRITTEN AND MAPS DRAWN BY CHARLES WHITTLESEY WERE EITHER ATTRIBUTED TO OTHERS, SEVERELY EDITED, OR OTHERWISE OVERLOOKED OR DISMISSED AS BEING HERESAY**
- 45-5 4:20 PM Evans, Kevin*: **JOHN WESLEY POWELL AND “BIG GEORGE” CROOKHAM IN JACKSON, OHIO: THE MAKING OF A GEOLOGIST**
- 4:35 PM **CONCLUDING REMARKS**

**AFTERNOON
POSTER TECHNICAL SESSIONS**

SESSION NO. 46

D3. Hydrogeology and Karst (Posters)

1:30 PM, Duke Energy Convention Center, Junior Ballroom B

Authors will be present from 2:30 to 4:30 PM

- | | Booth # | |
|------|---------|--|
| 46-1 | 1 | Maharjan, Madan*; Rouse, Linwood Jesse; Nelson, Daren T.: HURRICANE-INDUCED WATER LEVEL CHANGES IN THE BLACK CREEK AQUIFER, ROBESON COUNTY |
| 46-2 | 2 | Dwyer, Trevor*; Sasowsky, Ira; Bullerjahn, George S.: CHEMICAL AND FLOW CHARACTERISTICS OF MAJOR KARST SPRINGS OF NORTH-CENTRAL OHIO |
| 46-3 | 3 | Cobbinah, Emmanuel*; Liu, Ganming: AN INTEGRATED FIELD AND MODELING STUDY OF THE TRANSPORT OF CYANOTOXIN FROM LAKE ERIE TO COASTAL AQUIFERS |
| 46-4 | 4 | Rego, Melissa*; Peck, John A.: INTERACTIONS BETWEEN URBAN LAKE HYDROLOGY AND SEDIMENTS; AN EXAMPLE FROM SUMMIT LAKE, AKRON, OHIO |
| 46-6 | 6 | Fleszewski, Grace*: IDENTIFYING SEDIMENT SOURCE AREA WITHIN THE BINKLEY CAVE SYSTEM |
| 46-7 | 7 | Brown, Teresa*; Cahoon, A. Bruce; Brown, Teresa L.: MICROBES ON MOONMILK: A SPELEOLOGICAL EXPLORATION |

SESSION NO. 47**T3. Under the (Ancient) Sea: Marine Life from the Coastal to Great Plains (Posters)**

1:30 PM, Duke Energy Convention Center, Junior Ballroom B

Authors will be present from 2:30 to 4:30 PM

Booth #					
47-1	8	Bilodeau, Remy A.*; Finn, Thaddeus J.; Gomez, Ramona R.; Paul, Michael T.; Rogers, Logan R.; Schuette, Jaren D.; Sommer, Sarah P.; Wallenmeyer, Teddy J.; Evans, Kevin; Schiffbauer, James; Selly, Tara: CULTURAL GEOLOGY OF THE LOWER MISSISSIPPIAN NORTHVIEW FORMATION "WORM ROCK", SOUTHWESTERN MISSOURI, USA	47-13	20	Taylor, Margaret*; Lockwood, Rowan: QUANTIFYING CHANGES IN SHELL MORPHOLOGY OF CHESAPECTEN (BIVALVIA) ACROSS THE MID-PLIOCENE WARM PERIOD IN VIRGINIA
47-2	9	Self-Trail, Jean*; Parker, Mercer; Govoni, David L.; Bybell, Laurel M.: RE-EXAMINATION OF UPPER CRETACEOUS AND PALEOGENE FOSSILS AND SEDIMENTS AT THE CABIN BRANCH OUTCROP LOCALITY, MARYLAND: IMPLICATIONS FOR REGIONAL GEOLOGY	47-14	21	Felt, Elise; Thompson, Carmi Milagros*; Kowalewski, Michał: THE TWO FOSSIL RECORDS: A PILOT STUDY IN THE FLORIDA PLEISTOCENE
47-3	10	Parker, Mercer*; Self-Trail, Jean; Govoni, David L.; Bybell, Laurel M.: LITHOSTRATIGRAPHIC AND PETROGRAPHIC ANALYSIS OF UPPER CRETACEOUS THROUGH LOWER PALEOGENE SEDIMENTS AND HARDGROUNDS IN THE NORTHERN SALISBURY EMBAYMENT: CABIN BRANCH, MARYLAND – MID-ATLANTIC COASTAL PLAIN	47-15	22	Brower, James C.; Cournoyer, Mario; Iellamo, John; Wright, David; Cole, Selina; Ausich, William*: DIVERSITY AND PALEOECOLOGY OF A NEW ORDOVICIAN (KATIAN) CRINOID FAUNA FROM THE NEUVILLE FORMATION, SOUTHERN QUÉBEC, CANADA
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SESSION NO. 48**T6. Limnogeology and Paleoclimate (Posters) (GSA Limnogeology Division)**

1:30 PM, Duke Energy Convention Center, Junior Ballroom B

Authors will be present from 2:30 to 4:30 PM

Booth #

48-1	31	Berina, Justine Paul A.*; Wiles, Greg; Wilson, Mark A.; Lowell, Thomas V.; Diefendorf, Aaron F.; Corcoran, Megan; Dietrich, Watts; Wiesenberg, Nicholas: UNEARTHING THE EFFECTS OF EUROPEAN-AMERICAN SETTLEMENT ON A NORTHEAST OHIO KETTLE HOLE THROUGH DIATOM STRATIGRAPHY
48-2	32	Lopera Congote, Laura*; McGlue, Michael; Stone, Jeffery; Westover, Karlyn S.: UNRAVELING PAST HYDROCLIMATE DYNAMICS IN A SIERRA NEVADA LAKE, CALIFORNIA. INSIGHTS FROM DIATOM COMMUNITY ASSEMBLAGES AND FIRE RECONSTRUCTIONS
48-3	33	Ramirez, Giannina*; Gilhooly, William; Correa Metro, Alexander; Werne, Josef P.; Vander Pas, Brooke E.; Licht, Kathy; Bosco Santos, Alice: RECONSTRUCTING THE HISTORY OF ANOXIA AND CLIMATE CHANGE IN LAGUNA ENCANTADA IN CHETUMAL, MEXICO
48-4	34	Seidler, Addison*; Westover, Karlyn S.; Stone, Jeffery R.; Bird, Broxton W.: THE IMPACT OF HYDROCLIMATE VARIABILITY ON DIATOM ASSEMBLAGES FROM CLEAR LAKE, IOWA OVER THE LAST 2,000 YEARS

Friday, 8 April 2022

48-5 35 Fish, Andrew*; Lepper, Kenneth: **AN ANALYSIS OF POTASSIUM TO RUBIDIUM RATIOS IN SHORELINE SEDIMENTS: IMPLICATIONS FOR OSL DATING**

SESSION NO. 49

T8. Integrated Studies of Paleozoic Black Shale (Posters) (GSA Sedimentary Geology Division; GSA Energy Geology Division)

1:30 PM, Duke Energy Convention Center, Junior Ballroom B

Authors will be present from 2:30 to 4:30 PM

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49-1	36 Rutledge, Randolph*; Gilleaudeau, Geoffrey; Ramirez, Mariano; Sahoo, Swapan K.; Algeo, Thomas: REDOX GRADIENTS RECORDED IN LOWER MISSISSIPPIAN BLACK SHALES OF THE APPALACHIAN AND WILLISTON BASINS, NORTH AMERICA: A TEST CASE FOR URANIUM ISOTOPE BEHAVIOR
49-2	37 Weldon, Annette*; Zambito, James; McLaughlin, Patrick I.: TESTING THE IMPACT OF FOREST EVOLUTION ON THE ORGANIC MATTER COMPOSITION OF ILLINOIS BASIN DEVONIAN MARINE BLACK SHALE
49-3	38 Hughson, Laura*; Zambito, James; Farbarik, Olivia: COMPARING LOCAL AND BASINAL PATTERNS OF MARINE BLACK SHALE GEOCHEMISTRY IN THE DEVONIAN APPALACHIAN BASIN, KENTUCKY
49-4	39 Danielsen, Erika*; Waid, Christopher: HIGH-RESOLUTION MAPPING OF ORGANIC CARBON DISTRIBUTION IN THE LOWER HURON MEMBER OF THE OHIO SHALE, EASTERN OHIO, USA
49-5	40 Long, Gavin*; Day, James: LATE DEVONIAN ABERRANT CONODONT MORPHOTYPES FROM LOWER KELLWASSER EXTINCTION AND POST-EXTINCTION INTERVAL OF THE SWEETLAND CREEK SHALE, IOWA BASIN-CENTRAL NORTH AMERICA

SESSION NO. 50

T17. Metal Pollution in the Eastern Midcontinent and Beyond (Posters)

1:30 PM, Duke Energy Convention Center, Junior Ballroom B

Authors will be present from 2:30 to 4:30 PM

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50-2	42 Karcher, Randall K*; Cowan, Ellen A.; Brachfeld, Stefanie A.; Wang, Zhen; Vengosh, Avner: MAGNETIC ANALYSIS AS A NOVEL METHOD FOR COAL ASH DETECTION IN RESERVOIR SEDIMENT
50-3	43 Wilson, Jessica C*; Cowan, Ellen A.; Seramur, Keith C.; Wang, Zhen; Vengosh, Avner: VARIABILITY OF COAL ASH MORPHOLOGY IN RESERVOIR SEDIMENT USING LIGHT MICROSCOPY
50-4	44 Adams, J. Cameron; Hurst, Jennifer D.; Rader, Shelby T.*: GEOCHEMICAL CONTROLS ON METAL DISTRIBUTION WITHIN <i>BRASSICA JUNCEA</i>: IMPLICATIONS FOR METAL POLLUTION AND SOURCING
50-5	45 Wood, Madison M.*; Singer, David: LEAD (PB) IN URBAN SOIL
50-6	46 Seten, Isabelle*; Strasser, Jeffrey; Reisner, Michael: GEOCHEMISTRY OF URBAN WATERSHEDS: A HEAVY METAL AND LAND USE ANALYSIS

SESSION NO. 51

T34. Melt, Emplace, Mix, Erupt! (MEME) Investigating the Dynamics of Magmatic Systems via Microanalysis (Posters)

1:30 PM, Duke Energy Convention Center, Junior Ballroom B

Authors will be present from 2:30 to 4:30 PM

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51-1	47 Bucheli-Olaya, César*; Michelfelder, Gary; Van Horn, Bennett; Rasor, Sarah: LINKING VOLATILE BEHAVIOR AND ERUPTIVE STYLE IN CENTRAL ANDEAN VOLCANOES: THE CASES OF LASCAR AND UTURUNCU
51-2	48 Van Horn, Bennett*; Michelfelder, Gary; Bucheli-Olaya, César; Shaulis, Barry: OPEN SYSTEM PROCESSES RECORDED BY PLAGIOCLASE DISEQUILIBRIUM, LASCAR VOLCANO, CENTRAL ANDES VOLCANIC ZONE, CHILE
51-3	49 Rasor, Sarah*; Michelfelder, Gary; Bucheli-Olaya, César: PLAGIOCLASE TRACE ELEMENT ZONING REVEALS CHANGES IN MAGMA STORAGE AT CERRO UTURUNCU
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SESSION NO. 52

T35. Midcontinent Precambrian Basement from the Superior Province to the Southern Appalachians (Posters)

1:30 PM, Duke Energy Convention Center, Junior Ballroom B

Authors will be present from 2:30 to 4:30 PM

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52-3	55 Malone, Shawn*: PRELIMINARY PETROGRAPHIC AND GEOCHEMICAL INVESTIGATIONS OF (PRESUMED) ARCHEAN BASEMENT TO THE MARSHFIELD TERRANE EXPOSED IN THE WISCONSIN RIVER VALLEY (WOOD AND PORTAGE COUNTIES), WISCONSIN

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