



GSA NORTH-CENTRAL SECTION MEETING

16–17 April

Iowa State University, Ames, Iowa, USA

www.geosociety.org/nc-mtg

Program

Photo by Bri Gerke.



52nd Annual Meeting
NORTH-CENTRAL SECTION
GEOLOGICAL SOCIETY OF AMERICA
16–17 April 2018
Iowa State Center - Scheman Building
Iowa State University
Ames, Iowa

with
Council on Undergraduate Research, Geoscience Division
Great Lakes Section–SEPM (Society for Sedimentary Geology)
National Association of Geoscience Teachers



Hosted by
Department of Geological and Atmospheric Sciences
Iowa State University

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K-12 and Informal Education	Beth Caissie and Aaron Wood
Budget/Logistics	DeAnn Frisk
Exhibits	Elizabeth Swanner
Student Awards	Paul Spry
Student Volunteer Coordinator	Suzanne Ankerstjerne
Special Events	Jacqueline Reber and Jane Dawson
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Thank you to Our Sponsors

We thank our sponsors below for their generous support of the GSA North-Central Section meeting.

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NOTICE

By registering for this meeting, you have acknowledged that you have read and will comply with the GSA Code of Conduct for Events (full code of conduct listed on page 39). If you need to report unacceptable behavior, please contact:

GSA Senior Director of Meetings, Melissa Cummiskey, mcummiskey@geosociety.org

GSA President, Isabel Montanez, president@geosociety.org

You may also stop by registration or the GSA Bookstore to have them directly contacted via phone.

General Information



The 52nd Annual Meeting of GSA's North-Central Section returns to the location of its 30th Annual Meeting at the Iowa State Center's Scheman Building, located on the campus of Iowa State University, in Ames, Iowa, USA. As a premiere university-based convention and meeting location, Ames is centrally located in America's Heartland. Known for one of the most beautiful campuses in the nation, Iowa State University is easy to navigate, and the Conference Center offers easy access to community and campus amenities. Whether you're looking for unique dining options or distinctive shopping experiences, you'll enjoy the Midwestern hospitality in Ames. If you're driving, Ames is easily accessible from both I-35 and I-80. If flying, the Des Moines International Airport is served by all major airlines and is 45 minutes from Ames by car. We look forward to presentations and posters that highlight advancements in the geosciences, including current or emerging research issues at the boundary of geoscience and related disciplines. Visit the meeting web-site at <http://www.geosociety.org/nc-mtg/> for complementary information about the meeting

Planning Your Trip

For more information about hotels, restaurants, cultural attractions, recreational opportunities, local events, and other things to do in the Ames area, please connect with **Think Ames**, the official site of the Ames Convention and Visitors Bureau at <https://www.thinkames.com> (+1-515-232-4032) or the CYtes magazine at registration. Points of interest include Reiman Gardens, Ledges State Park, Ada Hayden Heritage Park, Dolittle Prairie, and Octagon Center for the Arts.

Scheman Building

The venue for this meeting, the Scheman Building, houses 25 conference rooms, the 450-seat Benton Auditorium, the Brunnier Art Museum, and an executive board suite. It is located within the Iowa State Center complex, between Hilton Coliseum (on the east) and Stephens Auditorium (on the west). It is directly north and across the parking lot from Jake Trice Stadium (football). It can be accessed from the west via Beach Avenue and from the east via University Blvd. Free parking and the front entrance are on the north side of the building. The official address is 1805 Center Dr. #102, phone +1-515-294-3347.

Travel to the Meeting

From Des Moines International Airport

By Shuttle: Executive Express <https://www.executiveexpress.biz/shuttle-service> offers convenient shared shuttle transportation between Des Moines International Airport and Iowa State University. Please visit their web site for information or to make a reservation.

By Car: Upon leaving the airport, drive north 5.7 miles on Fleur Drive and continue on when it changes to MLK Pkwy. Turn right onto the I-235E on-ramp and merge onto I-235E. Follow signs for Interstate 35 to Minneapolis. Continue north for 30.7 miles and take exit 111B, US Hwy 30 west towards Ames and Iowa State University. After 3.5 miles, take the University Blvd exit (146) to Iowa State University. Turn left at the bottom of exit to check in at your hotel. For the Scheman Building, continue to the right (north) for 1.2 miles and turn left onto Center Drive. Drive to the parking on the north side and find the Scheman Building entrance.

From Outside the Ames Area

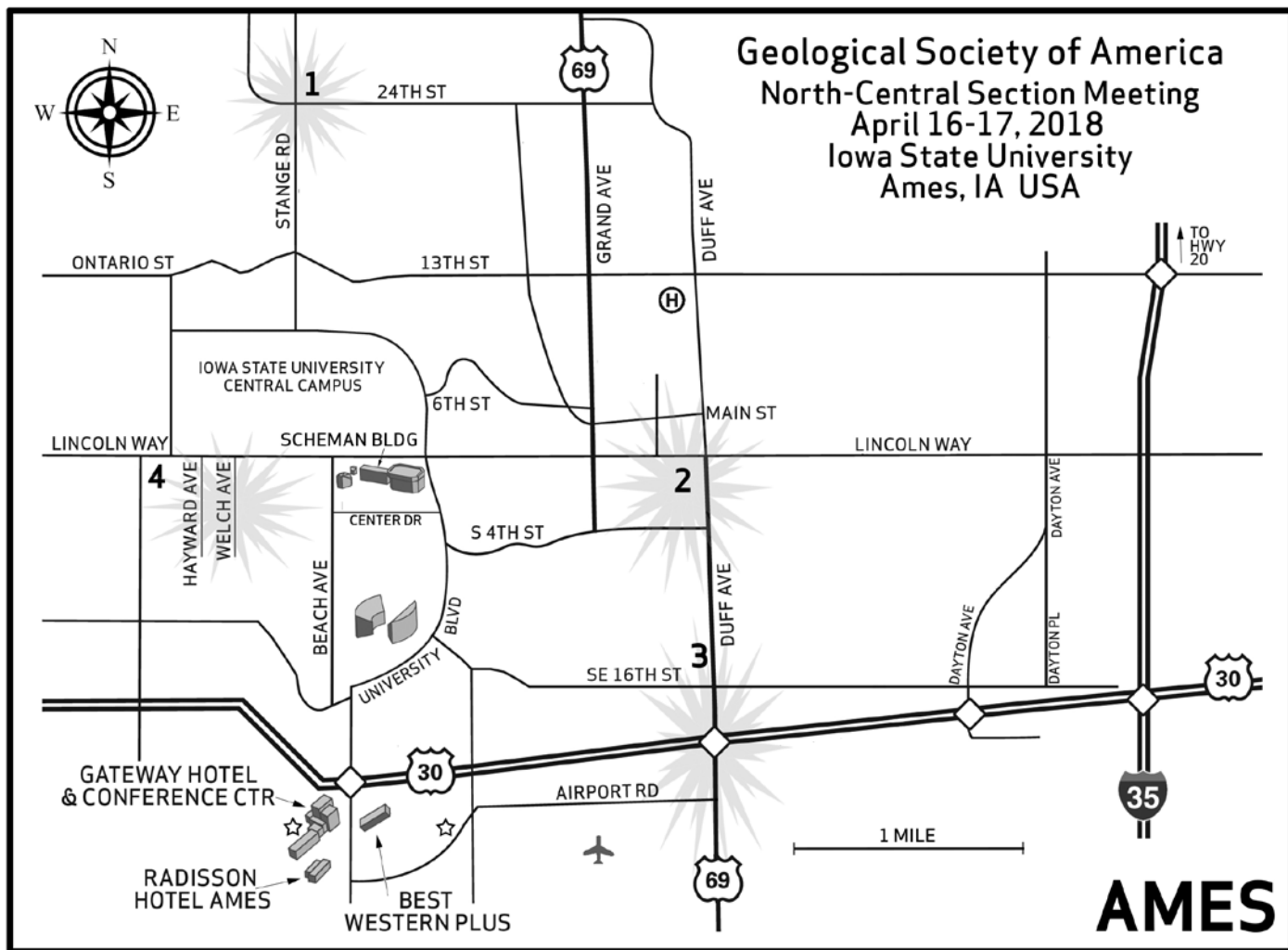
From I-35 north or south: Take exit 111B, US Hwy 30 west towards Ames and Iowa State University. Exit from Hwy 30 north to University Blvd, exit 146 and drive north to Center Drive.

From US Hwy 30 east or west: Exit from Hwy 30 north on University Blvd, exit 146 and drive north to Center Drive.

Parking

Parking is free in the area surrounding the Scheman Building.

Map of the Ames area (top), showing major roads leading to the Scheman Building at the Iowa State Center, the conference hotels, and dining options. Map in lower right shows the major highways feeding Ames and the location of the Des Moines International Airport.



DINING OPTIONS

ZONE 1

+39 Restaurant, Market/Cantina
Brick City Grill
El Azteca
The Cafe
Wallaby's Bar & Grille

ZONE 2

Ali Cakes
Aunt Maude's
Bar la Tosca
Buffalo Wild Wings
Cafe Diem Coffee House
Chick-fil-A
Chocolaterie Stam
Dairy Queen
Dutch Oven Bakery
Great Plains Sauce & Dough Co.
Hy-Vee Lincoln Center
Little Woods Herbs & Teas
McDonald's Restaurant
Olde Main Brewing Co.
PepperJax Grill
Perkins
The Spice
Wheatsfield Cooperative

ZONE 3

B-Bops
Dublin Bay Irish Pub & Grill
Hickory Park Restaurant Co.
Jethro's BBQ
Mucky Duck Pub
Red Lobster

ZONE 4

Arcadia Cafe
Cafe Beaudelaire
Dunkin' Donuts
Fighting Burrito
Fuzzy's Taco Shop
Jeff's Pizza
Pizza Pit Exchange
Potbelly Sandwich Shop
Stomping Grounds

★ ADDITIONAL LOCATIONS

IowaStater Restaurant
-inside the Gateway Hotel
Provisions Lot F
-just east of University Blvd
on Airport Road



Registration

Registration is required for anyone attending technical sessions, field trips, workshops or exhibits and badges must be displayed at all times during the meeting. The on-site registration booth is located on the second floor of the Scheman Building according to the following schedule:

Sunday, 15 April 4–8:30 p.m.

Monday, 16 April 7:30 a.m.–5:30 p.m.

Tuesday, 17 April 7:30 a.m.–noon

Fees

On-site registration fees presented below are in US dollars.

	Full Meeting	Single Day
Professional Member*	\$250	\$195
Professional Member 70 and older*	\$130	\$100
Professional Nonmember	\$295	\$205
Early Career Professional (ECP)	\$180	\$130
Student	\$110	\$70
Student Nonmember	\$135	\$90
K–12 Professional	\$85	\$70
Guest or Spouse**	\$60	\$60
Field Trip/Workshop Only**	\$50	

*Member fee applies to any current Professional OR Student/Early Career Professional (ECP) Member of GSA. Discount does not apply to guest registrants.

**Guest or Spouse and Field Trip/Workshop Only registration fee does not allow access to technical sessions.

Registration fees cover meeting materials, access to exhibits and oral and poster sessions, the Welcome Reception (complimentary light snacks; beverage ticket provided) and the Keynote Reception (complimentary hors d'oeuvres; beverage ticket provided).

Guest registration is intended for non-geoscientist spouses or friends and does not include attendance at technical sessions, field trips, or workshops. A registered professional, a student, or a K–12 professional must accompany guest registrants. Students and K–12 teachers must show a current ID at registration to obtain special rates.

Cancellations, Changes, and Refunds

Requests for additions, changes and cancellations must be received by GSA Headquarters by 12 March 2018. No refunds will be made on cancellation notices received after that date. Refunds will be mailed from GSA after the meeting; refunds for fees paid by credit cards will be refunded to the card identified on the registration form. GSA cannot provide refunds for on-site registration or event ticket sales.

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 download the app at <https://gsa.confex.com/gsa/2018NC/meetingapp.cgi>.

Continuing Education Credits (CEU)

The North Central 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. For Iowa professionals desiring CEUs, please contact Michael Anderson (michael.anderson@dnr.iowa.gov), Water Supply Engineering, Iowa Department of Natural Resources.

Accommodations

Rooms have been reserved at three hotels conveniently located adjacent to each other and south of the interchange of US Hwy 30 and University Blvd (Exit 146). They are approximately 1.5 miles south of the Scheman Building and two miles south of the Iowa State University campus (see map on page 5). The hotels are:

Best Western Plus University Park Inn and Suites, 2500 S University Blvd, Ames, IA 50010. For reservations, call +1-515-296-2500 and ask for the GSA Conference rate. US \$109 plus tax (includes a full hot breakfast).

Gateway Hotel and Conference Center, 2100 Green Hills Dr, Ames, IA 50014. For reservations, call +1-515-292-8600 and reference NC-GSA. US \$129 plus tax.

Holiday Inn Ames Conference Center, 2609 University Blvd, Ames, IA 50010. For reservations, call +1-515-268-8808 and ask for the NC-GSA block. US \$114.99 plus tax (note: starting April 1, this hotel will be listed under the Radisson Hotel Ames).

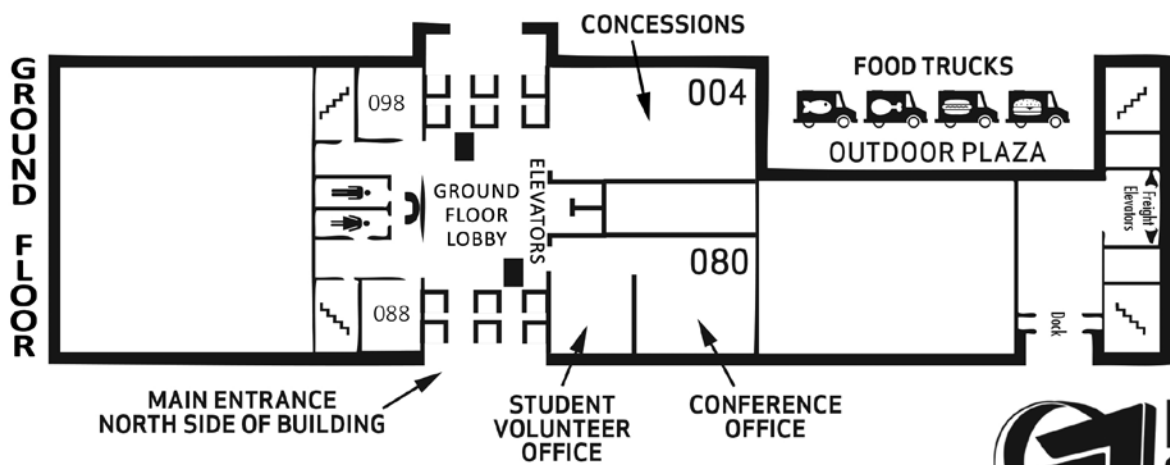
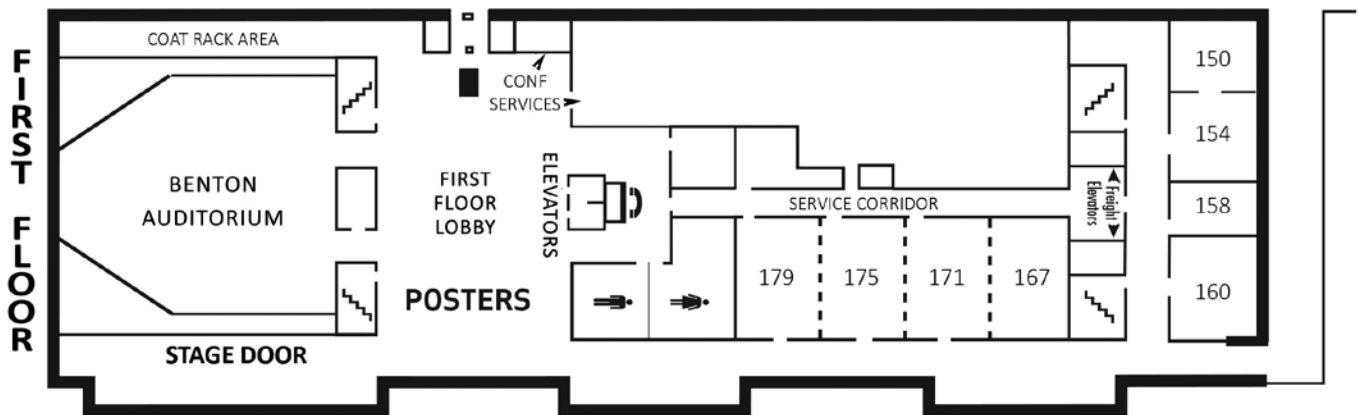
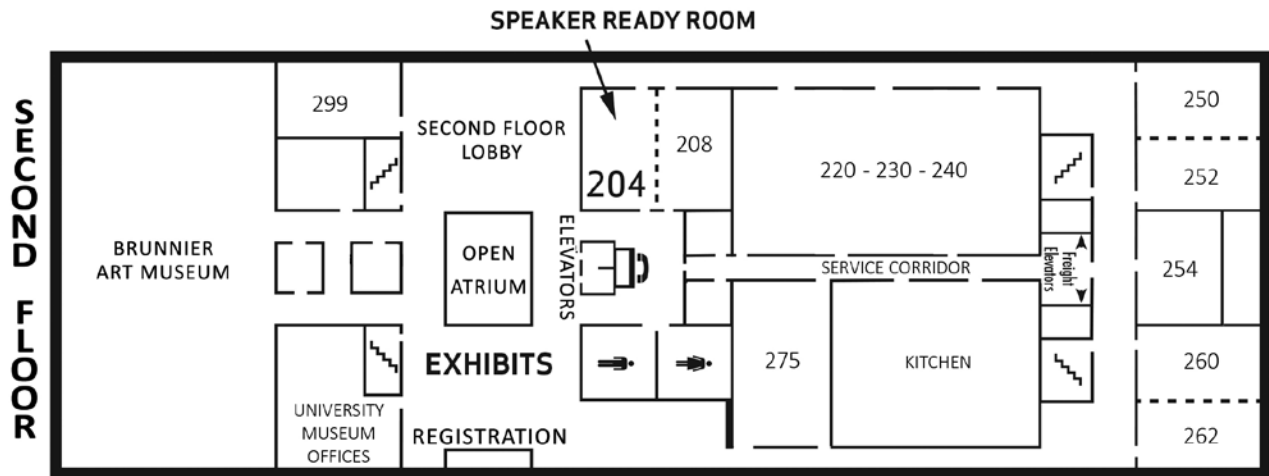
Shuttle Service

A transit bus will provide shuttle service between the three hotels on University Blvd at the beginning and end of each day during the meeting to the Scheman Building. Approximate times are provided below, but may alter slightly on meeting days. Check for updated schedule information at the registration desk. The bus leaves from the Scheman Building front (north) entrance.

Morning shuttle: Gateway-Radisson-Best Western roundtrip circulating service approximately every 20 minutes between 7:15 a.m. and 9 a.m., 16 and 17 April.

Evening shuttle: Gateway-Radisson-Best Western roundtrip circulating service approximately every 20 minutes from 5:30 p.m. to 8:30 p.m. on 16 April, and 4:45 p.m. to 6 p.m. on 17 April.

General floor plan of the Scheman Building with names of conference room numbers and location of conference registration and concessions.



Special Events and Activities

Sunday, 15 April



Welcome Reception, 6–8:30 p.m., Second Floor Lobby. Enjoy light snacks and complimentary beverages while connecting with your colleagues and browsing exhibits. *This event benefits from the generous support of the meeting sponsors.*



Lightning Talks, 7–8:30 p.m., 275 Scheman. Students, please join us for an informal lighting talk session during the Welcome Reception on Sunday night, 15 April. Lighting talks provide an opportunity to draw people to your poster or talk, or just to sharpen your presentation skills. The session is also a great opportunity to meet other students and learn about their research. Anyone may attend, but speakers must be undergraduate or graduate students. Questions? Contact Melinda Higley at mchigley@illinois.edu.

Monday, 16 April

Keynote Presentation by GSA President, Dr. Isabel Montañez, 5:45–6:45 p.m., Benton Auditorium (immediately follows the North-Central Section, All Members Business Meeting)

Deep-Time Insight into Earth's Future

At the current rate of global C emissions and without substantial mitigation efforts, atmospheric CO₂ is projected to increase by the end of this century to levels not previously experienced on Earth since the onset of our current glacial state. Although Earth has been an icehouse for the past 34 million years, warmer greenhouse conditions have been the 'typical' climate state of the past half billion years. Insight into how the Earth system will function in such an evolving and high CO₂ environment uniquely resides in the deep-time analogs of past climate and ecosystem response to greenhouse gas-forced warming of the magnitude comparable to that which we may ultimately face.

The deep-time geologic and paleontologic archive is a fully integrated record of how climate processes and ecosystems interact and feedback on one another, in particular under levels of radiative-forcing relevant to our future. This deep-time record documents past climate change that was at times far more dynamic than suggested by study of the more recent past revealing complex interactions and non-intuitive responses. Notably, climate models repeatedly fail to reconstruct surface environmental conditions of past warm periods suggested by proxy records suggesting that current climate projections may underestimate the magnitude and duration of future climate change and the CO₂ levels at which critical climate and ecological thresholds could be crossed. This presentation will present evidence for the robust atmospheric CO₂-climate coupling throughout Earth history and what it reveals regarding the Earth's sensitivity to CO₂-forcing. Three past climate events — abrupt greenhouse gas-forced warming of the Paleocene-Eocene Thermal Maximum (55 Ma) and Triassic-Jurassic boundary (200 Ma) and the turnover of the

penultimate icehouse to permanent greenhouse conditions (300 Ma) — will be used to illustrate how greenhouse-gas forced climate change has unfolded in the past and to characterize the fingerprints of change that herald climate and ecological thresholds.



Keynote Reception, 6:45–8 p.m., First Floor Lobby. Following President Montañez's presentation, enjoy hors d'oeuvres and a complimentary beverage, including a special brew from our local Alluvial Brewery, while browsing posters and exhibits. *This event benefits from the generous support of the meeting sponsors.*



Book Signing by Dr. William Alley, 7–8 p.m., First Floor Lobby. Dr. William (Bill) Alley, former Chief of the USGS Office of Groundwater and currently the Director of Science and Technology with the National Ground Water Association, will sign copies of his (and his spouse's) latest book, entitled "High and Dry: Meeting the Challenges of the World's Growing Dependence on Groundwater." Copies of the book will be available for purchase at a discounted price. Dr. Alley will also speak in Session T6 on Tuesday afternoon.

BUSINESS MEETINGS

Monday, 16 April

North-Central Section Management Board Meeting, 7–8:30 a.m., Board Suite 080 Scheman.

NAGT Luncheon, noon–1:30 p.m., 254 Scheman. Fee: \$25. Purchase lunch ticket during registration.

Great Lakes Section-SEPM (Society for Sedimentary Geology) Business Meeting, 5:15–5:30 p.m. SEPM Booth, Second Floor Lobby in Scheman.

GSA North-Central Section, All Member Business Meeting, 5:30–5:45 p.m., Benton Auditorium in Scheman. Open to all GSA North-Central Section members. Learn about future section meetings for 2019 and beyond and vote on Management Board recommendations for Section activities.

Tuesday, 17 April

North-Central Section, GSA Campus Representatives and Technical Advisory Board Meeting, 7–8:30 a.m., Board Suite 080 Scheman.

STUDENT OPPORTUNITIES

Geoscience Career Workshops

For more information about the Geoscience Career Workshops, please contact Jennifer Nocerino at jnocerino@geosociety.org.

Geoscience Career Workshop Part 1: Career Planning and Informational Interviewing. Monday, 16 April, 9–10 a.m., 150/154 Scheman. Your job-hunting process should begin with career planning, not when you apply for jobs. This workshop will help you begin the process and will introduce you to informational interviewing. This section is highly recommended for freshmen, sophomores, and juniors. The earlier you start your career planning the better.

Geoscience Career Workshop Part 2: Geoscience Career Exploration. Monday, 16 April, 10–11 a.m., 150/154 Scheman. What do geologists in various sectors earn? What do they do? What are the pros and cons of working in academia, government, and industry? Workshop presenters, and professionals in the field, will address these issues.

Geoscience Career Workshop Part 3: Cover Letters, Résumés, and CVs. Tuesday, 17 April, 9–10 a.m., 150/154 Scheman. How do you prepare a cover letter? Does your résumé need a good edit? Whether you are currently on the job market or not, learn how to prepare the best résumé possible. You will review numerous résumés to help you learn the important dos and don'ts of the process.

Roy J. Shlemon Mentor Program in Applied Geoscience. *Cosponsored by the GSA Foundation.* Monday, 16 April, noon–1:30 p.m., 150/154 Scheman. Jennifer Nocerino, jnocerino@geosociety.org. The Shlemon Mentors Program is designed to extend the mentoring reach of individual professionals from applied geology to undergraduate and graduate students attending GSA section meetings. Over free lunches, mentors and students discuss real-life issues including professional opportunities and challenges that await students after graduation. Space is limited; first come, first served.

John Mann Mentors in Applied Hydrogeology Program. *Cosponsored by the GSA Foundation.* Tuesday, 17 April, noon–1:30 p.m., 150/154 Scheman. Jennifer Nocerino, jnocerino@geosociety.org. The Mann Mentors Program presents mentoring opportunities for undergraduate and graduate students as well as recent graduates with a declared interest in applied hydrogeology as a career to interact and network with practicing hydrogeology professionals. This relaxed event features a free lunch for students and mentors. Space is limited; first come, first served.

Student Volunteers

Students previously accepted as meeting volunteers must check in at the Registration Desk (Sunday) or at the Student Volunteer and Conference Office, 080 Board Room (Monday and Tuesday). Please contact Student Volunteer Coordinator, Suzanne Ankerstjerne (ankerssm@iastate.edu), for more information.

Presentation Awards

Awards for the best graduate and undergraduate student posters and papers are supported by the GSA North-Central Section and by the Great Lakes Section–SEPM (Society for Sedimentary Geology). To be eligible, students must be lead authors and presenters, and should be capable of answering detailed questions about their research.

Concessions

Coffee and a variety of food items will be available for sale in 004 Scheman on the Ground Floor. In addition, food trucks will be stationed at the Outdoor Plaza during the lunch hour (noon to 1:30 p.m.) to provide food for those wishing to stay on site during that time.

Exhibits

Exhibits are located on the Scheman Second Floor Lobby and will be open

Sunday, 15 April 6–8:30 p.m.

Monday, 16 April 8 a.m.–8 p.m.

Tuesday, 17 April 8 a.m.–noon

Exhibitors

As of late February, the following businesses, organizations, and university departments will be exhibitors at the meeting.

2019 North-Central Section GSA Meeting (joint with South-Central and Rocky Mountain sections)

American Institute of Professional Geologists (AIPG)

Department of Geological and Atmospheric Sciences, Iowa State University

Department of Earth and Environmental Sciences, University of Iowa

Department of Geological Science and Engineering, Missouri University of Science and Technology

EA Consumables, Inc.

Geological Society of America Bookstore

Geological Society of America Foundation

Great Lakes Section - Society for Sedimentary Geology (SEPM)

Iowa Flood Center

Iowa Geological Survey

Iowa Water Center

LacCore/Continental Scientific Drilling Coordination Office

National Association of Geoscience Teachers Department of Earth and Atmospheric Sciences, University of Nebraska-Lincoln

National Association of State Boards of Geology (ASBOG)

U.S. Geological Survey

Technical Program

Oral Session Location and Format

Oral session rooms are located on the second floor of the Scheman Building. Sessions will consist of 20-minute presentations (17 minutes presentation; three minutes for questions and discussion). Presentations must be in PowerPoint or PDF format. Standard (4:3) and widescreen (16:9) formats are acceptable. One laptop computer with Windows7 (no Macs available) loaded with PowerPoint 2016, one LCD projector, and one screen are provided for all oral sessions. In addition, each room is equipped with a lectern, slide advancer, laser pointer, and a speaker timer. Speakers may not use their own laptops for presentation.

Speaker Ready Room (204 Scheman)

All oral session presenters must visit the Speaker Ready Room before their scheduled presentation to ensure their PowerPoint or PDF file is configured properly and to load it onto their session's folder on the meeting server. Each speaker must bring his or her PowerPoint or PDF presentation on a USB compatible flash drive (a.k.a. thumb drive

or memory stick) for uploading. Failure to do so may result in the omission of a presentation from the session sequence. The Speaker Ready Room is open for uploading and speaker assistance as follows:

Sunday, 15 April 4:30–8:30 p.m.
Monday, 16 April 7 a.m.–5:30 p.m.
Tuesday, 17 April 7:30 a.m.–noon.

The deadlines suggested below will ensure that your presentation will get to the laptop in the meeting room and on time for your session.

For Presentations On	Upload No Later Than
Monday, 16 April a.m.	8:30 p.m., Sunday, 15 April
Monday, 16 April p.m.	10 a.m. Monday, 16 April
Tuesday, 17 April a.m.	5:30 p.m., Monday, 16 April
Tuesday, 17 April p.m.	10 a.m., Tuesday, 17 April

Orientations for Session Chairs and Oral Session Student Volunteers (275 Scheman)

Session chairs and student volunteers staffing oral sessions are requested to attend a 15-minute “Oral Session Orientation” to review session time management, AV procedures, and other information affecting the conduct of the day’s sessions. These will be held from 7:15 to 7:30 a.m. on Monday, 16 April and again on Tuesday, 17 April in 275 Scheman.

Session chairs are asked to strictly adhere to the timing and order of the technical program and to limit speakers to their allotted time (20 minutes total, including questions). If a speaker does not appear for an assigned time slot, session chairs should call for a break or discussion period and begin the following presentation at its scheduled time. Session chairs should meet with the assigned student volunteer in the meeting room prior to the start of the session. Volunteers help the sessions run smoothly and can contact designated audio-visual and information technology personnel in the event of technical problems.

Poster Sessions

All poster sessions are located on the First Floor Lobby. Poster presenters will have one 4' by 8' horizontal (landscape) poster tent surface. Authors may bring their own pushpins, and some will also be provided. Numbers on the display surfaces will correspond to poster booth numbers listed in the Program. Authors will present either 9:30–11:30 a.m. or 3–5 p.m. and should check the program for their assigned day and time. Posters will be viewable all day and should be mounted in the morning starting at 7:45 a.m. regardless of presentation time. Authors presenting on 16 April are requested to leave their posters up for viewing until the end of the Keynote Reception (8 p.m.). Presenters on 17 April should take down their posters by 5:30 p.m.

Theme Sessions

T2. Fossil Insights into Paleoclimatic and Paleoenvironmental Change. *Cosponsored by the GSA Sedimentary Geology and GSA Limnogeology Divisions.* Aaron R. Wood, Iowa State Univ., awood@iastate.edu; Natalie Thompson, Iowa State Univ., nst27@iastate.edu. Poster only.

T3. Climate Reconstructions from Cave Deposits *Cosponsored by the GSA Karst and GSA Quaternary Geology and Geomorphology Divisions.* Rhawn Denniston, Cornell College, rdenniston@cornellcollege.edu; Jeffrey Dorale, Univ. of Iowa, jeffrey-dorale@uiowa.edu.

T4. Landlocked but Not Left Out: Contributions to Oceanography by Mid-Continent Scientists. *Cosponsored by GSA Sedimentary Geology, GSA Geobiology and Geomicrobiology, GSA Quaternary Geology and Geomorphology, and GSA Environmental and Engineering Geology Divisions.* Beth E. Caissie, Iowa State Univ., bethc@iastate.edu; Sally Zellers, Univ. of Central Missouri, szellers@ucmo.edu; Anna Nesterovich, Iowa State Univ., annanest@iastate.edu; Nina Whitney, Iowa State Univ., nwhitney@iastate.edu.

T6. Assessing Groundwater in the Midwestern U.S.—How Much, How Good, and for How Long? *Cosponsored by the GSA Hydrogeology Division; National Ground Water Association, Iowa Groundwater Association.* Bob Libra, blibra999@gmail.com; Michael Anderson, Iowa Department of Natural Resources, michael.anderson@dnr.iowa.gov.

T7. Agricultural Impacts on Hydrology and Water Quality in the Midwest. *Cosponsored by the GSA Hydrogeology and GSA Geology and Society Divisions; National Ground Water Association; Iowa Groundwater Association.* William Simpkins, Iowa State Univ., bsimp@iastate.edu; Michael Burkart, USDA-ARS (retired), mburkart@iastate.edu; Nathan Young, Iowa State Univ., nlyoung@iastate.edu.

T9. Pathogens and Other Contaminants of Concern in the Environment. *Cosponsored by the GSA Hydrogeology, GSA Geology and Health, and GSA Environmental and Engineering Geology Divisions; National Ground Water Association; Iowa Groundwater Association.* Claire Hruby, Iowa Department of Natural Resources, Claire.Hruby@dnr.iowa.gov; Sarah Elliott, U.S. Geological Survey, selliot@usgs.gov.

T10. Natural Contaminants in Groundwater Drinking Water Sources: When Natural Doesn’t Mean Healthy. *Cosponsored by the GSA Hydrogeology, GSA Geology and Health, and GSA Geology and Society Divisions. National Ground Water Association; Iowa Groundwater Association.* Melinda L. Erickson, U.S. Geological Survey, merickso@usgs.gov; Paul Stackelberg, U.S. Geological Survey, pestack@usgs.gov; Brandy Toner, Univ. of Minnesota, toner@umn.edu.

T11. Biogeochemistry of Water, Sediments, and Interfaces. *Cosponsored by the GSA Limnogeology, GSA Geobiology and Geomicrobiology, GSA Sedimentary Geology, and GSA Hydrogeology Divisions.* Elizabeth Swanner, Iowa State Univ., eswanner@iastate.edu; Chad Wittkop, Minnesota State Univ.-Mankato, chad.wittkop@mnsu.edu; Amy Myrbo, Univ. of Minnesota, LacCore, amyrbo@umn.edu.

T16. Applied Geology: Environmental, Engineering, Hydro, Geotechnical and Exploration Geophysics. *Cosponsored by the GSA Hydrogeology, GSA Engineering and Environmental Geology, and GSA Geophysics and Geodynamics Divisions.* Terry R. West, Purdue Univ., trwest@purdue.edu.

T19. Eolian Systems of the Midcontinent. *Cosponsored by the GSA Quaternary Geology and Geomorphology and GSA Sedimentary Geology Divisions and the GSA Soils and Soil Processes Interdisciplinary Interest Group.* Joe Mason, Univ. of Wisconsin-Madison, mason@geography.wisc.edu; Paul Hanson, Univ. of Nebraska Lincoln, phanson2@unl.edu; Peter Jacobs, Univ. of Wisconsin-Whitewater, jacobs@uww.edu.

T20. Slope Stability in the Midwest. *Cosponsored by the GSA Quaternary Geology and Geomorphology and GSA Environmental and Engineering Geology Divisions.* Lucas Zoet, Univ. of Wisconsin-Madison, lzoet@wisc.edu; Carrie Jennings, The Freshwater Society, cjennings@freshwater.org.

T21. Sediments, Landforms, and Chronology of the Laurentide Ice Sheet: Analog or Anomaly? *Cosponsored by the GSA Quaternary Geology and Geomorphology and GSA Sedimentary Geology Divisions.* Neal Iverson, Iowa State Univ., niverson@iastate.edu; Lucas Zoet, Univ. of Wisconsin-Madison, lzoet@wisc.edu; Carrie Jennings, The Freshwater Society, cjennings@freshwater.org.

T23. Reconstructing Glacial Lakes in the Midwest and Great Lakes Regions. *Cosponsored by the GSA Quaternary Geology and Geomorphology Division.* Kenneth E. Lepper, North Dakota State Univ., ken.lepper@ndsu.edu; Timothy G. Fisher, Univ. of Toledo, timothy.fisher@utoledo.edu; B. Brandon Curry, Illinois State Geological Survey, bcurry@illinois.edu.

T24. Geophysics in Glacial Landscapes: Methods, Applications and Innovations. *Cosponsored by the GSA Quaternary Geology and Geomorphology and GSA Geophysics and Geodynamics Divisions.* Jason Thomason, Illinois State Geological Survey, jthomaso@illinois.edu; Luke Zoet, Univ. of Wisconsin-Madison, lzoet@wisc.edu.

T26. GIS Applications, LiDAR, and Digital Landscapes. *Cosponsored by the GSA Quaternary Geology and Geomorphology Division.* Stephen Crabtree, Univ. of Minnesota Morris, crabt012@morris.umn.edu; Chris Harding, Iowa State Univ., charding@iastate.edu. Andrew Wickert, Univ. of Minnesota Twin Cities, awickert@umn.edu; Karen Gran, Univ. of Minnesota Duluth, kgran@d.umn.edu; Fiona Clubb, Univ. of Edinburgh, F.Clubb@ed.ac.uk; Andy Breckenridge, Univ. of Wisconsin-Superior, abrecken@uwsuper.edu; Stephen DeLong, United States Geological Survey, sdelong@usgs.gov.

T29. Structural Geology and Tectonics in a Quantitative World. *Cosponsored by the GSA Structural Geology and Tectonics Division.* Jacqueline Reber, Iowa State Univ., jreber@iastate.edu; Sven Morgan, Iowa State Univ., smorgan@iastate.edu.

T30. Compelling Cores from the North-Central Section: A Core-Poster Session. *Cosponsored by the GSA Sedimentary Geology Division.* Franek Hasiuk, Iowa State

Univ., franek@iastate.edu; Ryan Clark, Iowa Geological Survey, ryan-j-clark@uiowa.edu. Poster only.

T31. Economic Geology, Igneous and Metamorphic Petrology, Mineralogy. *Cosponsored by the GSA Mineralogy, Geochemistry, Petrology and Volcanology Division.* Paul G. Spry, Iowa State Univ., pgspry@iastate.edu; Kevin L. Shelton, Univ. of Missouri-Columbia, SheltonKL@missouri.edu.

T32. Geoscience in the Southeastern South Dakota, Southwestern Minnesota, Northeastern Nebraska, and Northwestern Iowa Area. Sarah Chadima, South Dakota Geological Survey, sarah.chadima@usd.edu; George Shurr, GeoShurr Resources, georgeshurr@gmail.com; Richard Hammond, Heine Electric & Irrigation, rhhhei@gmail.com.

T33. Collaborative Learning in Geoscience Classrooms and Labs: Examples, Demonstrations, Best Practices, and Assessment. *Cosponsored by the GSA Geoscience Education Division and the National Association of Geoscience Teachers.* Cinzia Cervato, Iowa State Univ., cinzia@iastate.edu; Charles Kerton, Iowa State Univ., kerton@iastate.edu; Theresa Halligan, Iowa State Univ., theresah@iastate.edu; Beth A. Johnson, Univ. of Wisconsin-Fox Valley, beth.a.johnson@uwc.edu.

T35. Geoscience Outreach and Engagement. *Cosponsored by the Geological Outreach at Museums, Parks, & Surveys Group and the GSA Geoscience Education Division.* Lisa Anderson, Michigan State Univ. Extension, ande1874@msu.edu; Peter Voice, Western Michigan Univ., peter.voice@wmich.edu.

T36. Undergraduate Research Poster Session. *Cosponsored by the Geosciences Division-Council on Undergraduate Research.* Robert D. Shuster, Univ. of Nebraska, rshuster@unomaha.edu.

T37. Current Developments in Paleozoic and Early Mesozoic Conodont Biostratigraphy, Systematics, and Paleocology: The 51st Pander Society Symposium. James (Jed) Day, Illinois State Univ., jeday@ilstu.edu; Jeffrey Over, SUNY Geneseo, over@geneseo.edu.

T38. Twenty-First Century Aggregates. *Cosponsored by the GSA Sedimentary Geology Symposium.* Franciszek Hasiuk, Iowa State University, franek@iastate.edu; Ryan Clark, Iowa Geological Survey, ryan-j-clark@uiowa.edu.

T39. Fluvial Adjustments in the Highly-Altered Agricultural Landscape of the Postglacial Upper Midwest. *Cosponsored by the GSA Quaternary Geology and Geomorphology and GSA Sedimentary Geology Divisions.* John Thomas, Hungry Canyons Alliance, john@goldenhillsrcl.org; Peter Moore, Iowa State University, pmoore@iastate.edu.

Discipline Sessions

Environmental Geoscience (Oral)
Environmental Geoscience (Posters)
Archeological Geology (Posters)
Geophysics (Posters)
Geoscience Education (Posters)
Paleontology (Posters)
Sedimentary Geology (Posters)

Field Trips

All trips depart from the north entrance of the Scheman Building. For additional information, please contact the field trip co-chairs Franciszek Hasiuk, franek@iastate.edu and Aaron Wood, awood@iastate.edu, or the field trip leaders.

During Meeting

FT1. Twenty-First Century Aggregates Field Trip. Associated with Theme Session 38. *Cosponsored by GSA Sedimentary Geology and GSA Engineering and Environmental Geology Divisions.* Mon. 16 April, 1 p.m.-5 p.m. Cost: \$50; includes guidebook, transportation, box lunch, and refreshments. Franciszek Hasiuk, Iowa State University, franek@iastate.edu; Ryan Clark, Iowa Geological Survey, ryan-j-clark@uiowa.edu.

Pre-Meeting

FT3. Geologic Controls on Surface and Groundwater Quality in the Cambrian-Ordovician Aquifer System of the "Driftless" Area of Southeastern Minnesota. *Cosponsored by GSA Hydrogeology, GSA Karst and GSA Environmental and Engineering Geology Divisions.* Sat. and Sun., 14-15 April, 7 a.m.-6:30 p.m. Cost: \$215; includes guidebook, transportation, 1 breakfast, 2 lunches, 1 dinner, lodging on Sat. April 14 (double occupancy), and refreshments. Robert Tipping, Minnesota Geological Survey, tippi001@umn.edu; Tony Runkel, Minnesota Geological Survey, runke001@umn.edu; Julia Steenberg, Minnesota Geological Survey, and01006@umn.edu; Andrew Retzler, Minnesota Geological Survey, aretzler@umn.edu.

FT4. Pennsylvanian Sandstones and Cyclothems of Central Iowa. *Cosponsored by GSA Sedimentary Geology Division and Great Lakes Section SEPM;* Sun., 15 April, 8:00 a.m.-5:30 p.m. Cost: \$60; includes guidebook, transportation, and refreshments. Lunch on your own. Philip Heckel, University of Iowa, philip-heckel@uiowa.edu; Emily Finzel, University of Iowa, emily-finzel@uiowa.edu; John Paul Pope, Northwest Missouri State University, jppope@nwmissouri.edu.

FT5. Geoscience in Your Backyard: A Field Trip for Educators. *Cosponsored by GSA Geoscience Education Division.* Sun., 15 April, 1 p.m.-5 p.m. Cost: \$35; includes guidebook, transportation, and refreshments. Collin Reichert, Ames Community Schools, collin.reichert@ames.k12.ia.us.

FT6. Hydrogeology of the Ames Aquifer and Its Award-Winning Drinking Water. *Cosponsored by GSA Hydrogeology and GSA Geology and Society Divisions.* Sun., 15 April, 8 a.m.-12 p.m. Cost: \$35; includes guidebook, transportation, and refreshments. William Simpkins, Iowa State University, bsimp@iastate.edu; Lyle Hammes, Ames Water and Pollution Control Department, lhammes@cityofames.org.

Post-Meeting

FT7. Cambrian-Ordovician Industrial Sand Resources and Stratigraphy of Iowa, Wisconsin, and Minnesota, USA. *Cosponsored by GSA Sedimentary Geology and Engineering and*

Environmental Geology Divisions; Great Lakes Section SEPM; Wednesday and Thursday, 18-19 April 7:00 a.m.-5 p.m. Cost: \$175; includes guidebook, transportation, 1 breakfast, 2 lunches, lodging on Weds. April 18 (double occupancy), and refreshments. Dinner Weds. April 18 on your own. Jay Zambito, Wisconsin Geological Survey, jay.zambito@uwex.edu; Bob Libra, blibra999@gmail.com; Tony Runkel, Minnesota Geological Survey, runke001@umn.edu.

FT8. Pipes, Pigs, and Peaks: Human and Animal Impacts on Hydrology, Water Quality, and Soils in Central Iowa. *Cosponsored by GSA Hydrogeology and GSA Geology and Society Divisions; GSA Soils and Soil Processes Interdisciplinary Interest Group.* Wednesday 18 April 8:00 a.m.-4 p.m. Cost: \$80; includes guidebook, transportation, lunch, and refreshments. William Simpkins, Iowa State University, bsimp@iastate.edu; Lee Burras, Iowa State University, lburras@iastate.edu; Kristie Franz, Iowa State University, kfranz@iastate.edu; Nathan Young, Iowa State University, nlyoung@iastate.edu; Katherine Taylor, Iowa State University

WORKSHOPS

W1. Geologic Mapping Using GIS. Sita Karki, GIS Coordinator, Michigan Geological Survey, sita.karki@wmich.edu. Sun., 15 April, 8 a.m.-12 p.m. Cost \$30; includes materials and refreshments. The short course will focus on making professional geological maps using the ArcGIS software. The course will be targeted for geologists (students, professionals, regulators) who have little or no GIS skills. Desktop computers, tutorials, GIS data, and lecture notes provided. Location: 248 Durham Center, ISU campus.

W2. 3D Printing of Terrain Models. Chris Harding, Iowa State Univ., charding@iastate.edu; Franciszek Hasiuk, Iowa State Univ., franek@iastate.edu. Sun., 15 April, 1 p.m.-5 p.m. Cost \$30; includes materials and refreshments. This short course will provide hands-on instruction for creating 3D terrain models suitable for 3D printing from public DEM raster data. Participants should bring a laptop with these free software tools installed: QGIS, Meshmixer, MeshLab and MakerWare. Practical examples will be provided to demonstrate use of 3D printed terrain models in the classroom and the field. Location: 1620 Howe Hall, ISU campus.

W3. Collecting Geological Field Data Using the StraboSpot Data System. Doug Walker, Univ. of Kansas jdwalker@ku.edu Sun., 15 April, 8 a.m.-5 p.m. Cost \$50; includes workshop book, box lunch, morning and afternoon refreshments. The aim of the short course is to introduce new users to StraboSpot Data System, which is designed to help collect data in the field and to integrate field data with laboratory measurements. Participants will help design and build projects for both research and teaching. Lectures and field data collection will be combined throughout the day. Location: 208 Scheman.

W4. Effective Science Communication for Geoscientists. Carol McCartney, University of Wisconsin-Madison, carol.mccartney@wgnhs.uwex.edu; Michael Dahlstrom, Iowa State University, mfd@iastate.edu; Dara Wald, Iowa State University, dwald@iastate.edu.

Mon, 16 April, noon–1:30 p.m. Cost \$30; includes box lunch. This workshop will provide a forum where geoscientists can learn about and discuss techniques of effective science communication with the public, peers, and policy-makers. The facilitators are all involved in science communication. Carol McCartney is the Outreach Manager for the Wisconsin Geological and Natural History Survey. Professors Dahlstrom and Wald are faculty members in the Greenlee School of Journalism at Iowa State University. Location: 208 Scheman.

W5. NSF's Portal to the Public: Partnering Researchers with Science Centers to Create Interactive Demonstrations to Bring Research to the Public. Renee Harmon, Science Center of Iowa, renee.harmon@sciowa.org. Tues, 17 April, noon–1:30 p.m. Cost \$30; includes box lunch. Are you interested in connecting your current research to public audiences? Join the staff of the Science Center of Iowa to experience and explore tools and strategies to engage your local community with your current science research. Location: 208 Scheman.

SPOUSE/GUEST TOURS

1. Coffee and Carillon. Visit Burgie's Coffee Roasting Lab, view Christian Peterson Museum and Morrill Hall, and climb the Carillon clock tower on the ISU campus and watch it being played (Monday, April 16, 9 a.m.–12:30 p.m.). Cost: \$35.

2. Ames Artisans. Learn the History of Chocolate at Chocolaterie Stam, see jewelry made at Gilger Designs, tour the Gallery at the Octagon Center for the Arts, and partake in a Self-Guided Wine Tasting at Della Viti Wine Bar (Monday, April 16, 1 p.m.–5 p.m.). Cost: \$35.

3. Butterflies and Blooms. Partake in guided tours of Reiman Gardens, highlighting the Christina Reiman Butterfly Wing, Conservatory, and Jones Rose Garden. Lunch from Hickory Park in Ames (Tuesday, April 17, 10 a.m.–2 p.m.). Cost: \$35.

Schedule of Events

EVENT	TIME	LOCATION
SATURDAY, 14 APRIL		
FT3. Geologic Controls on Surface and Groundwater Quality in the Cambrian-Ordovician Aquifer System of the "Driftless" Area of Southeastern Minnesota (Field Trip)	7 a.m.–11:55 p.m.	North Side Ground Floor
SUNDAY, 15 APRIL		
FT6. Hydrogeology of the Ames Aquifer and Its Award- Winning Drinking Water (Field Trip)	8 a.m.–noon	North Side Ground Floor
FT4. Pennsylvanian Sandstones and Cyclothems of Central Iowa (Field Trip)	8 a.m.–5:30 p.m.	North Side Ground Floor
W1. Geologic Mapping Using GIS (Workshop)	8 a.m.–noon	248 Durham Center, ISU Campus
W3. Collecting Geological Field Data Using the StraboSpot Data System (Workshop)	8 a.m.–5 p.m.	Room 208
Exhibits Set up	noon–5 p.m.	Second Floor Lobby
FT5. Geoscience in Your Backyard: A Field Trip for Educators (Field Trip)	1–5 p.m.	North Side Ground Floor
W2. 3D Printing of Terrain Models (Workshop)	1–5 p.m.	1620 Howe Hall, ISU Campus
Registration	4–8 p.m.	Second Floor Lobby
Speaker Ready Room	4:30–8:30 p.m.	Room 204
Exhibits	6–8:30 p.m.	Second Floor Lobby
Welcome Reception	6–8:30 p.m.	Second Floor Lobby
Lightning Talks	7–8:30 p.m.	Room 275
MONDAY, 16 APRIL		
North-Central Section Management Board Meeting	7–8:30 a.m.	Board Suite 080
Speaker Ready Room	7 a.m.–5:30 p.m.	Room 204
Orientations for Session Chairs and Oral Session Student Volunteers	7:15–7:30 a.m.	Room 175
Registration	7:30 a.m.–5:30 p.m.	Second Floor Lobby
Exhibits	8 a.m.–8 p.m.	Second Floor Lobby
Guest Tour: Coffee and Carillon	9 a.m.–12:30 p.m.	North Side Ground Floor

EVENT	TIME	LOCATION
Geoscience Career Workshop Part 1: Career Planning and Informational Interviewing (Workshop)	9–10 a.m.	Room 150/154
Geoscience Career Workshop Part 2: Geoscience Career Exploration (Workshop)	10–11 a.m.	Room 150/154
Morning Oral Technical Sessions		
T3. Climate Reconstructions from Cave Deposits	8 a.m.–noon	Benton Auditorium
T7. Agricultural Impacts on Hydrology and Water Quality in the Midwest I	8 a.m.–noon	Room 250/252
T24. Geophysics in Glacial Landscapes: Methods, Applications, and Innovations	8 a.m.–noon	Room 275
T26. GIS Applications, LiDAR, and Digital Landscapes	8 a.m.–noon	Room 220
T31. Economic Geology, Igneous and Metamorphic Petrology, Mineralogy	8 a.m.–noon	Room 260/262
T37. Current Developments in Paleozoic and Early Mesozoic Conodont Biostratigraphy, Systematics, and Paleoecology: The 51st Pander Society Symposium	8 a.m.–noon	Room 299
Poster Sessions		
D3. Geophysics (Posters)	8 a.m.–5:30 p.m.	First Floor Lobby
D4. Geoscience Education (Posters)	8 a.m.–5:30 p.m.	First Floor Lobby
T2. Fossil Insights into Paleoclimatic and Paleoenvironmental Change (Posters)	8 a.m.–5:30 p.m.	First Floor Lobby
T6. Assessing Groundwater in the Midwestern U.S.: How Much, How Good, and for How Long? (Posters)	8 a.m.–5:30 p.m.	First Floor Lobby
T11. Biogeochemistry of Water, Sediments, and Interfaces (Posters)	8 a.m.–5:30 p.m.	First Floor Lobby
T16. Applied Geology: Environmental, Engineering, Hydro, Geotechnical, and Exploration Geophysics (Posters)	8 a.m.–5:30 p.m.	First Floor Lobby
T30. Compelling Cores from the North-Central Section: A Core-Poster Session (Posters)	8 a.m.–5:30 p.m.	First Floor Lobby
T36. Undergraduate Research Poster Session I & II (Posters)	8 a.m.–5:30 p.m.	First Floor Lobby
Roy J. Shlemon Mentor Program in Applied Geoscience	noon–1:30 p.m.	Room 150/154
NAGT Luncheon (Ticketed Event)	noon–1:30 p.m.	Room 254
W4. Effective Science Communication for Geoscientists (Workshop)	noon–1:30 p.m.	Room 208
Guest Tour: Ames Artisans	1–5 p.m.	North Side Ground Floor
FT1. Twenty-First Century Aggregates Field Trip (Field Trip)	1–5 p.m.	North Side Ground Floor
Great Lakes Section-SEPM (Society for Sedimentary Geology) Business Meeting	5:15–5:30 p.m.	Second Floor Lobby
GSA North-Central Section, All Member Business Meeting	5:30–5:45 p.m.	Benton Auditorium

EVENT	TIME	LOCATION
Kenote Presentation by GSA President Isabel Montañez: <i>Deep-Time Insight into Earth's Future</i>	5:45–6:45 p.m.	Benton Auditorium
Keynote Reception	6:45–8 p.m.	First Floor Lobby
Book Signing, by Dr. William Alley	7–8 p.m.	First Floor Lobby

Afternoon Oral Technical Sessions

T4. Landlocked but Not Left Out: Contributions to Oceanography by Mid-Continent Scientists	1:30–5:30 p.m.	Room 220
T7. Agricultural Impacts on Hydrology and Water Quality in the Midwest II	1:30–5:30 p.m.	Room 250/252
T9. Pathogens and Other Contaminants of Concern in the Environment	1:30–5:30 p.m.	Benton Auditorium
T21. Sediments, Landforms, and Chronology of the Laurentide Ice Sheet: Analog or Anomaly?	1:30–5:30 p.m.	Room 260/262
T29. Structural Geology and Tectonics in a Quantitative World	1:30–5:30 p.m.	Room 275
T39. Fluvial Adjustments in the Highly-Altered Agricultural Landscape of the Postglacial Upper Midwest	1:30–5:30 p.m.	Room 299

TUESDAY, 17 APRIL

North-Central Section, GSA Campus Representatives and Technical Advisory Board Meeting	7–8:30 a.m.	Board Suite 080
Orientations for Session Chairs and Oral Session Student Volunteers	7:15–7:30 a.m.	Room 275
Registration	7:30 a.m.–noon	Second Floor Lobby
Speaker Ready Room	7:30 a.m.–noon	Room 204
Exhibits	8 a.m.–noon	Second Floor Lobby

Geoscience Career Workshop Part 3: Cover Letters, Resumes, and CVs (Workshop)	9–10 a.m.	Room 150/154
Guest Tour: Butterflies and Blooms	10 a.m.–2 p.m.	North Side Ground Floor

Morning Oral Technical Sessions

D1. Environmental Geoscience	8 a.m.–noon	Room 275
T10. Natural Contaminants in Groundwater Drinking Water Sources: When Natural Doesn't Mean Healthy	8 a.m.–noon	Room 260/262
T16. Applied Geology: Environmental, Engineering, Hydro, Geotechnical, and Exploration Geophysics	8 a.m.–noon	Room 220
T23. Reconstructing Glacial Lakes in the Midwest and Great Lakes Regions	8 a.m.–noon	Room 250/252
T32. Geoscience in the Southeastern South Dakota, Southwestern Minnesota, Northeastern Nebraska, and Northwestern Iowa Area	8 a.m.–noon	Room 230/240
T33. Collaborative Learning in Geoscience Classrooms and Labs: Examples, Demonstrations, Best Practices, and Assessment	8 a.m.–noon	Room 299

Morning Poster Sessions

D1. Environmental Geoscience (Posters)	8 a.m.–5:30 p.m.	First Floor Lobby
D2. Archaeological Geology (Posters)	8 a.m.–5:30 p.m.	First Floor Lobby

EVENT	TIME	LOCATION
D5. Paleontology (Posters)	8 a.m.–5:30 p.m.	First Floor Lobby
D6. Sedimentary Geology (Posters)	8 a.m.–5:30 p.m.	First Floor Lobby
T7. Agricultural Impacts on Hydrology and Water Quality in the Midwest (Posters)	8 a.m.–5:30 p.m.	First Floor Lobby
T21. Sediments, Landforms, and Chronology of the Laurentide Ice Sheet: Analog or Anomaly? (Posters)	8 a.m.–5:30 p.m.	First Floor Lobby
T23. Reconstructing Glacial Lakes in the Midwest and Great Lakes Regions (Posters)	8 a.m.–5:30 p.m.	First Floor Lobby
T24. Geophysics in Glacial Landscapes: Methods, Applications, and Innovations (Posters)	8 a.m.–5:30 p.m.	First Floor Lobby
T26. GIS Applications, LiDAR, and Digital Landscapes (Posters)	8 a.m.–5:30 p.m.	First Floor Lobby
T29. Structural Geology and Tectonics in a Quantitative World (Posters)	8 a.m.–5:30 p.m.	First Floor Lobby
T31. Economic Geology, Igneous and Metamorphic Petrology, Mineralogy (Posters)	8 a.m.–5:30 p.m.	First Floor Lobby
John Mann Mentors in Applied Hydrogeology Program	noon–1:30 p.m.	Room 150/154
Exhibits Tear Down	noon–4:30 p.m.	Second Floor Lobby

Afternoon Oral Technical Sessions

T6. Assessing Groundwater in the Midwestern U.S.: How Much, How Good, and for How Long?	1:30–5:30 p.m.	Room 260/262
T11. Biogeochemistry of Water, Sediments, and Interfaces	1:30–5:30 p.m.	Room 250/252
T19. Eolian Systems of the Midcontinent	1:30–5:30 p.m.	Room 220
T20. Slope Stability in the Midwest	1:30–5:30 p.m.	Room 275
T35. Geoscience Outreach and Engagement	1:30–5:30 p.m.	Room 230/240
T38. Twenty-First Century Aggregates	1:30–5:30 p.m.	Room 299

WEDNESDAY, 18 APRIL

FT7. Cambrian-Ordovician Industrial Sand Resources and Stratigraphy of Iowa, Wisconsin, and Minnesota, USA (Field Trip)	7 a.m.–11:55 p.m.	North Side Ground Floor
FT8. Pipes, Pigs, and Peaks: Human and Animal Impacts on Hydrology, Water Quality, and Soils in Central (Field Trip)	8 a.m.–4 p.m.	North Side Ground Floor

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

MONDAY, 16 APRIL 2018

MORNING ORAL TECHNICAL SESSIONS

SESSION NO. 1

T3. Climate Reconstructions from Cave Deposits (GSA Karst Division; GSA Quaternary Geology and Geomorphology Division)

8:00 AM, Scheman Building Benton Auditorium

Rhawn F. Denniston and Jeffrey A. Dorale, Presiding

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|-----|---------|---|
| 1-1 | 8:00 AM | Denniston, Rhawn F.*; Houts, Amanda N.; Asmerom, Yemane; Wanamaker, Alan D.; Haws, Jonathan A.; Polyak, Victor J.; Thatcher, Diana L.; Altan-Ochir, Setsen; Borowske, Alyssa; Breitenbach, Sebastian; Ummenhofer, Caroline; Regala, Francisco; Benedetti, Michael M.; Bicho, Nuno: STALAGMITE RECORDS FROM WEST-CENTRAL PORTUGAL TEST LINKS BETWEEN NORTH ATLANTIC PALEOCEANOGRAPHY AND IBERIAN CONTINENTAL CLIMATE OVER THE PAST TWO GLACIAL CYCLES |
| 1-2 | 8:20 AM | Thatcher, Diana L.; Wanamaker, Alan D.*; Denniston, Rhawn F.; Asmerom, Yemane; Ummenhofer, Caroline; Polyak, Victor J.; Hasiuk, Franciszek; Haws, Jonathan A.; Gillikin, David P.: CHANGES IN HYDROCLIMATE IN IBERIA IN THE LAST 1200 YEARS: INSIGHTS FROM SPELEOTHEM RECORDS FROM WESTERN PORTUGAL |
| 1-3 | 8:40 AM | Thatcher, Diana L.*; Wanamaker, Alan D.; Denniston, Rhawn F.; Asmerom, Yemane; Ummenhofer, Caroline; Polyak, Victor J.; Hasiuk, Franciszek; Haws, Jonathan A.; Gillikin, David P.: STALAGMITE LAMINAE AS A CLIMATE PROXY: DECODING 1200 YEARS OF IBERIAN CLIMATE |
| 1-4 | 9:00 AM | Dorale, Jeffrey A.*: A HIGH-RESOLUTION RECORD OF FLOODING FROM CREVICE CAVE, MISSOURI DURING THE TIME OF MARINE ISOTOPE STAGE 5 |
| 1-5 | 9:20 AM | Batchelor, Cameron J.*; Orland, Ian J.; Marcott, Shaun A.; Slaughter, Richard; Edwards, R. Lawrence: A HIGH-PRECISION U-TH CHRONOLOGY OF CALCITE DEPOSITION AT CAVE OF THE MOUNDS, WISCONSIN, |

AND ITS IMPLICATIONS FOR CLIMATE AND PERMAFROST IN THE LATE PLEISTOCENE

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| 1-6 | 9:40 AM | Romero Gelvez, Juan Carlos*; Wanamaker, Alan D.: A MULTI-PROXY STALAGMITE INVESTIGATION OF EL NIÑO/ SOUTHERN OSCILLATION VARIABILITY DURING THE HOLOCENE FROM THE EASTERN COLOMBIAN ANDES |
| 1-7 | 10:00 AM | Cleary, Daniel Martin*; Onac, Bogdan P.; Wynn, Jonathan G.; Forray, Ferenc; Ionita, Monica: BAT GUANO-DERIVED $\delta^{13}\text{C}$ AND $\delta^{15}\text{N}$ PROXY OF WINTER AND SUMMER PRECIPITATION: NW ROMANIA |
| 1-8 | 10:20 AM | Ross, Jeffrey Bryce*; Ludvigson, Greg A.; Schroder-Adams, Claudia J.: HIGH LATITUDE METEORIC OXYGEN ISOTOPE COMPOSITIONS FROM THE CENOMANIAN LOWER KANGUK FORMATION, AXEL HEIBERG ISLAND, CANADIAN ARCTIC ARCHIPELAGO |

SESSION NO. 2

T7. Agricultural Impacts on Hydrology and Water Quality in the Midwest I (GSA Hydrogeology Division; GSA Geology and Society Division; National Ground Water Association; Iowa Groundwater Association)

8:00 AM, Scheman Building Room 250/252

William W. Simpkins, Michael Burkart and Nathan L. Young, Presiding

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| | 8:00 AM | INTRODUCTORY REMARKS |
| 2-1 | 8:05 AM | Stowe, William G.*: AGRICULTURAL IMPACTS ON HYDROLOGY AND WATER QUALITY IN THE MIDWEST |
| 2-2 | 8:25 AM | Davis, Caroline A.*; Jones, Christopher S.: IOWA'S STATEWIDE WATER QUALITY SENSOR NETWORK: QUANTIFYING IOWA'S N EXPORTS 2016-2017 |
| 2-3 | 8:45 AM | Burkart, Michael*: HYDROGEOLOGY IN SUPPORT OF LITIGATION: INFLUENCING POLICY WITH HYDROGEOLOGY |
| 2-4 | 9:05 AM | Kaiser, Kimberly A.*: NITRATE AND PESTICIDES IN MINNESOTA PRIVATE WELLS: PART 1 |
| 2-5 | 9:25 AM | Paddock, Jeff*: NITRATE AND PESTICIDES IN MINNESOTA PRIVATE WELLS: PART 2 |

- 9:45 AM **BREAK**
- 2-6 10:00 AM Runkel, Anthony*; Steenberg, Julia R.; Tipping, Robert G.; Retzler, Andrew J.: **GEOLOGIC CONTROLS ON GROUNDWATER AND SURFACE WATER NITRATE CONCENTRATIONS IN THE PALEOZOIC BEDROCK-DOMINATED LANDSCAPE OF SOUTHEASTERN MINNESOTA**
- 2-7 10:20 AM Baker, Anna*; Gran, Karen B.; Finlay, Jacques; Karwan, Diana L.; Engstrom, Daniel R.; Atkins, Walter S.C.; Muramoto-Mathieu, Megumi; Belo, Tessa: **THE ROLE OF SEDIMENT IN DRIVING PHOSPHORUS LOADING AND DYNAMICS IN THE HIGHLY ALTERED AGRICULTURAL LE SUEUR RIVER BASIN**
- 2-8 10:40 AM Gotkowitz, Madeline B.*; Krause, Jacob J.; Cardiff, Michael; Schachter, Laura: **ESTIMATING THE NITROGEN LOAD TO GROUNDWATER BENEATH AN AGRICULTURAL FIELD**
- 2-9 11:00 AM Lawrence, Nate C.*; Hall, Steven J.: **CROPPED POTHOLE DEPRESSIONS ARE HOTSPOTS OF NUTRIENT INFILTRATION**
- 2-10 11:20 AM Piske, Jacob*; Harris, F. Claire; Rutte, Monique M.; Sheffield, Nicolette A.; Peterson, Eric W.; Thayne, Jonathan: **CORRELATION OF CROP COVER AND NITRATE IN TWO AGRICULTURAL WATERSHEDS, A PRELIMINARY INVESTIGATION**
- 2-11 11:40 AM Tagne, G.*; Dowling, Carolyn B.: **LAND-USE CONTROL ON TOTAL INORGANIC NITROGEN IN KARST AQUIFERS IN THE CUMBERLAND PLATEAU (SOUTHEASTERN KENTUCKY) IN THE UPPER OHIO RIVER BASIN**

SESSION NO. 3

T24. Geophysics in Glacial Landscapes: Methods, Applications, and Innovations (GSA Quaternary Geology and Geomorphology Division; GSA Geophysics and Geodynamics Division)

8:00 AM, Scheman Building Room 275

Jason Thomason and Lucas Zoet, Presiding

- 3-1 8:00 AM Thomason, Jason*; Larson, Timothy: **ELECTRICAL GEOPHYSICAL METHODS TO CHARACTERIZE GLACIAL LANDFORMS OF THE LAKE MICHIGAN LOBE**
- 3-2 8:20 AM Woodard, Jacob*; Zoet, Lucas; Iverson, Neal R.; Benediktsson, Ívar Örn; Finlayson, Andrew: **INSIGHTS INTO DRUMLIN DEVELOPMENT AT MULAJÖKULL, ICELAND: A GEOPHYSICAL APPROACH**
- 3-3 8:40 AM Mwakanyamale, Kisa E.*; Brown, Steven E.; Theuerkauf, Ethan J.: **MODELING EROSION AND ACCRETION ALONG THE ILLINOIS LAKE MICHIGAN SHORE**
- 3-4 9:00 AM Burt, Abigail K.*; Biswas, Saurav; Crow, Heather; Dietiker, Barbara; Rainsford, Desmond R.B.: **THE CASE OF THE MISSING VALLEYS - BEFORE NIAGARA FALLS**
- 3-5 9:20 AM Zoet, Lucas K.*; Muto, Atsuhiko; Rawling, J. Elmo: **GEOPHYSICAL INVESTIGATION OF TUNNEL CHANNELS**
- 3-6 9:40 AM Hansen, Dougal*; Zoet, Lucas: **EXPERIMENTAL METHOD TO CONSTRAIN ENERGY DISSIPATION DURING SUBGLACIAL ABRASION**

SESSION NO. 4

T26. GIS Applications, LiDAR, and Digital Landscapes (GSA Quaternary Geology and Geomorphology Division)

8:00 AM, Scheman Building Room 220

Stephen Crabtree, Chris Harding, Andrew D. Wickert, Karen B. Gran, Fiona Clubb, Andy J. Breckenridge and Stephen B. DeLong, Presiding

- 4-1 8:00 AM Floyd, Corrie T.*; Hanson, Kevin J.; Johnson, Renee L.; Arends, Heather E.: **LIFE IN THE CLOUD: THE TECHNOLOGICAL EVOLUTION OF MAPPING AND THE CHANGE IN CONSTRUCTION AGGREGATE RESOURCE MAPPING METHODOLOGIES THAT FOLLOWED**

- 4-2 8:20 AM Kidanu, Shishay*; Anderson, Neil; Rogers, J. David: **USING GIS-BASED SPATIAL ANALYSIS TO DETERMINE FACTORS INFLUENCING THE FORMATION OF SINKHOLES IN GREENE COUNTY, MISSOURI**
- 4-3 8:40 AM Higley, Melinda C.*; Conroy, Jessica L.: **THE HYDROLOGICAL RESPONSE OF SURFACE WATER ON KIRITIMATI ISLAND, KIRIBATI TO RECENT CLIMATE VARIABILITY**
- 4-4 9:00 AM Fields, Chad*: **PROTECTING PRIVATE WELLS FROM ARSENIC USING GEOLOGY AND GIS**
- 9:20 AM **BREAK**
- 4-5 9:35 AM Gran, Karen B.*; Neitzel, Grant; Hall, Leah; Brown, Elizabeth: **UTILIZING REPEAT TERRESTRIAL LIDAR DATA TO TRACK BLUFF EROSION IN AND AFTER A MAJOR FLOOD EVENT**
- 4-6 9:55 AM DeLong, Stephen B.*; Wickert, Andrew D.; Gran, Karen B.; Breckenridge, Andy J.; DeLong, Whitney M.; Jennings, Carrie: **CHARACTERIZING LANDSCAPE RESPONSE TO AN EXTREME METEOROLOGICAL EVENT IN NORTHEASTERN MINNESOTA IN 2012 USING MULTITEMPORAL LIDAR**
- 4-7 10:15 AM McDeid, Samuel M.*; Green, David I.S.; Crumpton, William: **MORPHOLOGY OF DRAINED UPLAND DEPRESSIONS ON THE DES MOINES LOBE OF IOWA**
- 4-8 10:35 AM Kurak, Ethan*; Wickert, Andrew D.; Clubb, Fiona J.; Kuchta, Matthew; Beaulieu, Olivia P.: **EXPRESSION OF VARIATIONS IN WATER AND SEDIMENT DISCHARGE OF THE MAINSTEM MISSISSIPPI RIVER IN THE ZUMBRO RIVER TRIBUTARY, MN**

SESSION NO. 5

T31. Economic Geology, Igneous and Metamorphic Petrology, Mineralogy (GSA Mineralogy, Geochemistry, Petrology, and Volcanology Division)

8:00 AM, Scheman Building Room 260/262

Paul G. Spry and Kevin L. Shelton, Presiding

- 5-1 8:00 AM Lodge, Robert W.D.*; Zens, Zacharie A.; Jacobson, Regan E.: **LITHOGEOCHEMICAL CHARACTERISTICS OF THE VOLCANIC SYSTEM HOSTING THE FLAMBEAU CU-ZN-AU DEPOSIT, NORTHWESTERN WISCONSIN**
- 5-2 8:20 AM Shelton, Kevin L.*; Truesdale, Jon P.; Gregg, Jay M.; Hendry, James P.; Somerville, Ian D.: **FAULT-ASSOCIATED DOLOMITIZATION AND BASE-METAL SULFIDE VEIN FORMATION IN CARBONIFEROUS ROCKS OF THE NORTH DUBLIN COAST, IRELAND: THE INTERPLAY OF BASINAL- AND BASEMENT-INVOLVED FLUIDS**
- 5-3 8:40 AM Rock, Marlena J.*; Frank, Mark R.: **EXPERIMENTAL CONSTRAINTS ON LEAD-ZINC HYDROTHERMAL DEPOSITS**
- 5-4 9:00 AM Ehlich, Joshua J.*; Frank, Mark R.: **UNDERSTANDING THE RELATIONSHIP BETWEEN GOLD, CHALCOPYRITE, BORNITE, AND PYRRHOTITE IN MAGMATIC-HYDROTHERMAL SYSTEMS**
- 5-5 9:20 AM Frank, Mark R.*; Mann, Matthew; Bodnar, Robert J.: **A POSSIBLE EXPLANATION FOR THE CORRELATION OF GOLD AND ARSENIC WITHIN PYRITE, ARSENIAN PYRITE, AND ARSENOPYRITE**
- 5-6 9:40 AM Reo, George A.*; Frank, Mark R.: **PLATINUM, PALLADIUM AND NICKEL CONCENTRATIONS IN COEXISTING SULFIDE AND BASALTIC MELTS AS A FUNCTION OF SULFUR FUGACITY**
- 10:00 AM **BREAK**
- 5-7 10:15 AM Benson, Erin*; Ripley, Edward M.; Li, Chusi; Mahin, Robert: **MULTIPLE SULFUR ISOTOPE STUDY OF EAGLE EAST, MICHIGAN: UNDERSTANDING THE GENESIS OF NI-CU-PGE DEPOSITS**
- 5-8 10:35 AM Zweifelhofer, Grant; Kempton, Pamela D.*; Mathur, Ryan; Brueseke, Matthew: **CU-ISOTOPE HETEROGENEITY IN THE LITHOSPHERIC MANTLE: EVIDENCE FROM TYPE I AND**

TYPE II PERIDOTITE XENOLITHS FROM THE GERONIMO VOLCANIC FIELD, SE ARIZONA

- 5-9 10:55 AM Rader, Mikaela A.*; Kempton, Pamela D.; Möller, Andreas: **FIRST AGE CONSTRAINTS ON THE IN SITU LOWER CRUST OF SE ARIZONA: ZIRCON GEOCHRONOLOGY OF GRANULITE XENOLITHS FROM THE GERONIMO VOLCANIC FIELD YIELDS EVIDENCE FOR POST-LARAMIDE MAGMATIC UNDERPLATING IN THE SOUTHERN BASIN AND RANGE**
- 5-10 11:15 AM Brueseke, Matthew E.*; Downey, Anna C.; Dodd, Zachary C.; Hart, William K.; Adams, David C.; Benowitz, Jeffrey A.: **POST-CA. 5 MA EXTENSION-RELATED MAGMATISM IN THE UPPER WIND RIVER BASIN, WYOMING (USA), ASSOCIATED WITH THE YELLOWSTONE HOTSPOT TECTONIC PARABOLA**
- 5-11 11:35 AM Crabtree, Stephen; Sweidan, Bill*; Chute, Justin; Dahle, Jordan: **AN ANALYSIS OF PUMICE-BEARING SOIL HORIZONS NEAR PROSPECT, OREGON: IMPLICATIONS OF POTENTIAL TRANSPORT FROM MT. MAZAMA**

SESSION NO. 6

T37. Current Developments in Paleozoic and Early Mesozoic Conodont Biostratigraphy, Systematics, and Paleocology: The 51st Pander Society Symposium (GSA Sedimentary Geology Division)

8:00 AM, Scheman Building Room 299

James Day and D. Jeffrey Over, Presiding

- 6-1 8:00 AM Cramer, Bradley D.*; Bancroft, Alyssa M.; McAdams, Neo E.B.; Melchin, Michael; Devera, Joseph; Day, James: **CONODONT BIOSTRATIGRAPHY OF THE SCHLAMER #1 CORE AND REVISIONS TO THE SILURIAN CONODONT ZONATION FOR THE GEOLOGIC TIME SCALE 2020**
- 6-2 8:20 AM Kleffner, Mark A.*; Norby, Rodney D.; Kluessendorf, Joanne; Mikulic, Donald G.: **REVISED CONODONT BIOSTRATIGRAPHY OF LOWER SILURIAN STRATA OF SOUTHEASTERN WISCONSIN**
- 6-3 8:40 AM Barrick, James E.*; Kleffner, Mark A.; Sundgren, Joshua R.: **CONODONT FAUNAS ACROSS THE SILURIAN-DEVONIAN BOUNDARY AND THE KLONK ISOTOPE EVENT IN WESTERN TENNESSEE, AND THE APPEARANCE OF ENDEMIC EARLIEST DEVONIAN *ICRIODUS* SPECIES**
- 6-4 9:00 AM Day, Jed*; Zambito, James J.: **CONODONT BIOSTRATIGRAPHY AND CORRELATION OFF THE MIDDLE DEVONIAN (GIVETIAN) CEDAR VALLEY GROUP OF NORTHERN IOWA AND SOUTHERN MINNESOTA**
- 6-5 9:20 AM Hauf, Emily*; Chiarello, Josephine; Over, D. Jeffrey; Wallace, Jenelle; Algeo, Thomas J.; Over, Jin-Si R.: **CONODONTS AND UPPER DEVONIAN STRATA ON THE NORTHWEST MARGIN OF THE NASHVILLE DOME, CHATTANOOGA AND NEW ALBANY SHALES**
- 6-6 9:40 AM Chiarello, Josephine*; Bates, Michael; Hauf, Emily; Over, D. Jeffrey; Wistort, Zackery P.; Hagadorn, James W.; Soar, Linda K.; Bullocks, James: **LATE DEVONIAN CONODONTS AND FACIES FROM THE SHALLOW SHELF STRATA OF THE BROKEN RIB AND COFFEE POT MEMBERS, DYER FORMATION, CHAFFEE GROUP, CENTRAL COLORADO**
- 6-7 10:00 AM Godwin, Cory J.*; Puckette, James O.: **UPPER VISÉAN (MERAMECIAN-CHESTERIAN) CONODONT BIOSTRATIGRAPHY OF THE SOUTHWESTERN OZARKS OF NORTHEASTERN OKLAHOMA, SOUTHWESTERN MISSOURI, AND NORTHWESTERN ARKANSAS**
- 6-8 10:20 AM Heckel, Philip H.*; Witzke, Brian J.: **PRELIMINARY CONODONT-BASED CORRELATION OF LOWER CHEROKEE MARINE UNITS (ATOKAN-DESMOINESIAN, MIDDLE PENNSYLVANIAN) IN IOWA WITH THOSE OF THE TRADEWATER FORMATION IN THE ILLINOIS BASIN**
- 6-9 10:40 AM Hogancamp, Nicholas Jay*; Barrick, James E.: **THE APPLICATION OF GEOMETRIC MORPHOMETRIC**

ANALYSIS TO RESOLVE MORPHOLOGICAL VARIATION AND INTERPRET EVOLUTIONARY PATTERNS IN THE UPPER PENNSYLVANIAN 'ASYMMETRICAL IDIOGNATHODUS CLADE'

- 6-10 11:00 AM Golding, Martyn L.*: **EVALUATING TECTONIC MODELS FOR THE FORMATION OF THE CANADIAN CORDILLERA USING MULTIVARIATE STATISTICAL ANALYSIS OF CONODONT FAUNAS FROM THE QUESNEL AND STIKINE TERRANES IN BRITISH COLUMBIA**
- 6-11 11:20 AM Strachan, Sean*; Pope, John Paul; Nestell, Galina P.: **RADIOLARIANS AND CONODONTS FROM CALCAREOUS CONCRETIONS IN THE MIDDLE PENNSYLVANIAN EXCELLO AND LITTLE OSAGE SHALES IN MISSOURI AND ILLINOIS**

**POSTER
TECHNICAL SESSIONS**

SESSION NO. 7

D3. Geophysics (Posters)

8:00 AM, Scheman Building First Floor Lobby

Authors will be present from 3 to 5 PM

Booth #

- 7-1 1 Mickus, Kevin L.*: **GRAVITY ANALYSIS OF GEOTHERMAL FEATURES IN WESTERN YELLOWSTONE NATIONAL PARK**
- 7-2 2 Mickus, Kevin L.*: **THE GEOMETRY OF THE METHOW BASIN IN NORTH-CENTRAL WASHINGTON VIA A GRAVITY AND MAGNETIC ANALYSIS**
- 7-3 3 Ngho, Jean Daniel*; Mbarga, Théophile Ndougsa; Mickus, Kevin L.: **ESTIMATION OF CURIE POINT DEPTH (CPD) ACROSS THE PAN AFRICAN BELT IN NORTHERN CAMEROON FROM AEROMAGNETIC DATA**
- 7-4 4 Benco, James*; Carpenter, Philip J.: **HYDROSEISMICITY AND RECENT SMALL EARTHQUAKES OCCURRING WITHIN THE FOX RIVER VALLEY, ILLINOIS**
- 7-5 5 Duba, Kinzang*; Mickus, Kevin L.; Tobgay, Tobgay: **ANALYSIS OF GRAVITY DATA FOR LITHOSPHERIC STRUCTURE IN WESTERN AND CENTRAL BHUTAN**
- 7-6 6 Rasmussen, Joseph M.*; Skalbeck, John D.; Stewart, Esther K.: **MODELING THE PRECAMBRIAN TOPOGRAPHY OF COLUMBIA COUNTY, WISCONSIN USING TWO-DIMENSIONAL MODELS OF GRAVITY AND AEROMAGNETIC DATA AND WELL CONSTRUCTION REPORTS**

SESSION NO. 8

D4. Geoscience Education (Posters)

8:00 AM, Scheman Building First Floor Lobby

Authors will be present from 3 to 5 PM

Booth #

- 8-1 7 Bartley, Julie K.*; Hickson, Thomas A.: **LEARNING TO BE A SEDIMENTARY GEOLOGIST BY BEING A SEDIMENTARY GEOLOGIST**
- 8-2 8 Heinzel, Chad; Kelly, Elizabeth*; Streff, Morgan; Beck, Rachel; Janssen, James; Brockshus, Noah; Eades, Evan; Borchers, Blake; Matt, Pierce; Barron, Mike: **INTEGRATING DIVERSE TECHNOLOGY PLATFORMS INTO GEOLOGIC FIELD AND LABORATORY COURSES**
- 8-3 9 Conrad, Danielle N.; Gambill, Levi S.*; Woodard, Josh A.; Reams, Max W.: **RANKING MATTHIESSEN STATE PARK TRAILS BY HAZARD RATHER THAN DIFFICULTY**
- 8-4 10 Carabajal, Ivan G.*; Atchison, Christopher L.: **THE FIGHT FOR INCLUSION: UNDERSTANDING ACCESSIBILITY FROM THE PERSPECTIVES OF STUDENTS WITH DISABILITIES**

SESSION NO. 9**T2. Fossil Insights into Paleoclimatic and Paleoenvironmental Change (Posters) (GSA Sedimentary Geology Division; GSA Limnogeology Division)**

8:00 AM, Scheman Building First Floor Lobby

Authors will be present from 3 to 5 PM

- | | Booth # | |
|------|---------|--|
| 9-1 | 11 | Nash, Bailey*: OXYGEN ISOTOPIC ANALYSIS OF PEATLAND PLANT CELLULOSE AS A PROXY FOR HOLOCENE HYDROCLIMATE ON THE KENAI PENINSULA, ALASKA |
| 9-2 | 12 | Wierenga, Matthew Wayne*; Stearley, Ralph: PALEOECOLOGY AND TAPHONOMY OF THE GRASSY MOUNTAIN FORMATION |
| 9-3 | 13 | Shell, Ryan*; Ciampaglio, Charles N.: HYBODONT SHARKS AS LINKAGES BETWEEN TERRESTRIAL AND MARINE FOOD WEBS IN THE PERMIAN PERIOD |
| 9-4 | 14 | Dos Santos Ferreira, Leticia A.*; Wu, Kawai; Schmidt, D.R.; Halsey, Chris: OXYGEN ISOTOPIC ANALYSIS OF FOSSIL ENAMEL: PRELIMINARY INVESTIGATION OF EOCENE MAMMALIAN TAXA |
| 9-5 | 15 | Shohel, Mohammad*; Cramer, Bradley D.; Forbes, Tori Z.: STUDYING CRYSTALLINE STRUCTURE OF CONODONT MICROFOSSILS WITH X-RAY DIFFRACTION |
| 9-6 | 16 | Westgaard, John*; Korf, Jason J.; Thole, Jeffrey T.; Willging, Steve: POSSIBLE NEW OCCURRENCE OF PHOLAS SP. BIVALVE TO THE FAUNAL BIOTA OF THE COLERAINE FORMATION, LATE CRETACEOUS; HILL ANNEX MINE STATE PARK, CALUMET, MINNESOTA |
| 9-7 | 17 | Ruga, Mikaela R.*; Huntley, John Warren; Glascock, Michael: TRACE ELEMENT ANALYSIS OF TWO HOLOCENE BIVALVE TAXA, CYRENODONAX FORMOSANA AND POTAMOCORBULA AMURENSIS, AS PROXIES FOR TEMPERATURE AND PRODUCTIVITY IN THE PEARL RIVER DELTA, CHINA |
| 9-8 | 18 | Coker Gunnink, Sophia*; Baker, Richard G.: USING MACROFOSSILS FROM CLEAR CREEK TO RECONSTRUCT LANDSCAPES IN IOWA |
| 9-9 | 19 | Dendy, Sarah N.*; Conroy, Jessica L.; Grimley, David A.; Loope, Henry: REGIONAL PALEOCLIMATE INFERENCES FROM SUCCINEIDAE GASTROPOD STABLE ISOTOPE ANALYSIS IN LAST GLACIAL MAXIMUM LOESS: WARD QUARRY, PLAINFIELD AND CLAYTON SECTIONS |
| 9-10 | 20 | Brown, Sabrina R.*; Fritz, Sherilyn C.: HOLOCENE REGIONAL CLIMATE INFERRED FROM DIATOM ASSEMBLAGES OF YELLOWSTONE LAKE |
| 9-11 | 21 | Donnenfield, Jonas T.*; Palmer, Hannah M.; Hill, Tessa M.: RECENT PALEOCEANOGRAPHIC HISTORY OF THE SAN DIEGO MARGIN, CALIFORNIA: A BENTHIC FORAMINIFERAL PERSPECTIVE |
| 9-12 | 22 | Ruiz Marin, Eduardo*; Coenen, Jason; Scherer, Reed P.; Stansell, Nathan D.; Expedition 361 Scientists, The: BIOGENIC OPAL PRODUCTION IN THE AGULHAS CURRENT AND ITS CONNECTION TO ARIDIFICATION IN SOUTH AFRICA DURING THE MID-PLEISTOCENE |

SESSION NO. 10**T6. Assessing Groundwater in the Midwestern U.S.: How Much, How Good, and for How Long? (Posters) (GSA Hydrogeology Division; National Ground Water Association; Iowa Groundwater Association)**

8:00 AM, Scheman Building First Floor Lobby

Authors will be present from 9:30 to 11:30 AM

- | | Booth # | |
|------|---------|---|
| 10-1 | 23 | Finger, Emily M.*; Vang, Duabchi; Vitale, Sarah A.: ASSESSMENT OF LONG-TERM GROUNDWATER LEVEL RECORDS IN WISCONSIN FROM 1937-2017 |
| 10-2 | 24 | Lange, Jack*; Ng, G.-H. Crystal; Yourd, Amanda R.; Sandell, Chad; Wickert, Andrew D.: QUANTIFYING SURFACE WATER-GROUND WATER EXCHANGE USING TEMPERATURE PROFILE INVERSE MODELING IN A RIPARIAN WETLAND |

- | | | |
|------|----|--|
| 10-3 | 25 | Ehmke, Bryanna*; Tusa, Sabrina; Potter, Nicholas; Headley, Rachel: PIKE RIVER SOIL CLASSIFICATION AND HYDROLOGICAL IMPACTS |
| 10-4 | 26 | Shields, Sierra*; Hubbard, Dalton; Grote, Katherine: TEMPORAL WATER QUALITY VARIABILITY OF LOW ORDER STREAMS IN MID-MISSOURI |
| 10-5 | 27 | Heinzel, Chad; Dursky, Tyler*; Patten, Danika; Baish, Chris: GEOMORPHIC ANALYSIS OF THE DRY RUN CREEK WATERSHED, BLACK HAWK COUNTY (IOWA) |

SESSION NO. 11**T11. Biogeochemistry of Water, Sediments, and Interfaces (Posters) (GSA Limnogeology Division; GSA Geobiology and Geomicrobiology Division; GSA Hydrogeology Division; GSA Sedimentary Geology Division)**

8:00 AM, Scheman Building First Floor Lobby

Authors will be present from 9:30 to 11:30 AM

- | | Booth # | |
|------|---------|--|
| 11-1 | 28 | Robinson, Thomas*; Scherer, Michelle M.; Latta, Drew; Mattes, Timothy; Richards, Patrick; Neumann, Anke; Entwistle, James; Suchomel, Eric; Deeb, Rula; Kane, Lea: DEGRADATION OF TCE BY IRON MINERALS AND AQUIFER MATERIALS |
| 11-2 | 29 | Vall, Kathryn G.*; Steinman, Byron A.; Pompeani, David P.; Depasqual, Seth: RECONSTRUCTION OF PALEOENVIRONMENTAL CONDITIONS AND TEMPORAL PATTERNS OF ANCIENT MINING ON ISLE ROYALE USING BIOGEOCHEMICAL ANALYSES OF LAKE SEDIMENT |
| 11-3 | 30 | Collette, Zach*: ASSESSING BIOAVAILABILITY OF HEAVY METALS IN TURKEY CREEK, JOPLIN, MO |
| 11-4 | 31 | Trost, Jared J.*; Bekins, Barbara A.; Christy, Thomas M.: A DIRECT-PUSH FREEZING DRIVE SHOE FOR COLLECTING SEDIMENT CORE SAMPLES WITH INTACT PORE FLUID, MICROBIAL, AND SEDIMENT DISTRIBUTIONS |
| 11-5 | 32 | Sivapalan, Vinodhan S.*; Conroy, Jessica L.: BIOGEOCHEMICAL INSIGHTS INTO CONTROLS ON LACUSTRINE STABLE NITROGEN ISOTOPE RATIOS |
| 11-6 | 33 | Hernandez, Elisandra*; Obrist-Farner, Jonathan; Curtis, Jason H.: INFERRED ENVIRONMENTAL CHANGES FROM GEOCHEMICAL AND ISOTOPIC ANALYSIS: PRELIMINARY STUDY OF A SEDIMENT CORE FROM LAKE IZABAL, GUATEMALA |
| 11-7 | 34 | Brown, Nicholas C.*; Riemersma, Peter E.; Weinke, Anthony; Biddanda, Bopaiah A.: A BIOGEOLOGICAL ANALYSIS OF CARBONATE MICROBIALITE NODULES THAT FORM IN FISH LAKE, SOUTHWESTERN MICHIGAN |
| 11-8 | 35 | Lambrecht, Nicholas*; Swanner, Elizabeth; Wittkop, Chad; Sheik, Cody; Katsev, Sergei: MICROBIAL COMMUNITIES OF TWO ARCHEAN OCEAN ANALOGS |

SESSION NO. 12**T16. Applied Geology: Environmental, Engineering, Hydro, Geotechnical, and Exploration Geophysics (Posters) (GSA Environmental and Engineering Geology Division; GSA Hydrogeology Division; GSA Geophysics and Geodynamics Division)**

8:00 AM, Scheman Building First Floor Lobby

Authors will be present from 9:30 to 11:30 AM

- | | Booth # | |
|------|---------|---|
| 12-1 | 36 | Storey, Adam*; Chaudhary, Kuldeep: ANISOTROPY IN ELEMENT COMPOSITION AND PORE-SIZE DISTRIBUTION OF MUDSTONES |
| 12-2 | 37 | Braccia, Casey Marie*: SOIL MAGNETIZATION IN THE VICINITY OF THE EASTLAKE COAL POWER PLANT, LAKE COUNTY, OHIO |
| 12-3 | 38 | Cigrand, Charlie*: FLOOD-INUNDATION AND FLOOD-MITIGATION MODELING OF THE WEST BRANCH WAPSINONOC CREEK WATERSHED IN WEST BRANCH, IOWA |

- 12-4 39 Pinto Vilar, Rayla*; Hoang, Tung; Alleman, James; Cetin, Bora; Ikuma, Koaru: **BIOCEMENTATION OF SOILS THROUGH CALCIUM CARBONATE PRECIPITATION USING MICROBIAL CATALYSIS**

SESSION NO. 13

T30. Compelling Cores from the North-Central Section: A Core-Poster Session (Posters) (GSA Structural Geology and Tectonics Division)

8:00 AM, Scheman Building First Floor Lobby

Authors will be present from 9:30 to 11:30 AM

- Booth #
- 13-1 40 Clark, Ryan J.*; Liu, Huaibao P.: **FASCINATING IOWA CORES: RIFTS AND CRATERS**
- 13-2 41 Bergstrom, Stig M.*; Kleffner, Mark A.: **KATIAN (UPPER ORDOVICIAN) GLOBAL $\delta^{13}\text{C}$ CHEMOSTRATIGRAPHY: IMPLICATIONS OF THE DISCOVERY OF A COMPLETE ELKHORN EXCURSION IN ITS TYPE AREA IN WESTERN OHIO**
- 13-3 42 Rosenblume, Justin A.*; Grimm, Berkley; Finzel, Emily S.: **CHEMOSTRATIGRAPHY AND SEDIMENTOLOGY OF LOWER-MIDDLE PENNSYLVANIAN STRATA IN THE FOREST CITY BASIN, SOUTHERN IOWA**
- 13-4 43 Oborny, Stephan C.*; Bancroft, Alyssa M.; Brett, Carlton E.; Cramer, Bradley D.: **IMPROVING CHRONOSTRATIGRAPHIC CORRELATION OF WENLOCK-PRIDOLI (SILURIAN) STRATA OF THE APPALACHIAN FORELAND BASIN (VIRGINIA, WEST VIRGINIA, OHIO) THROUGH THE USE OF HIGH-RESOLUTION EVENT STRATIGRAPHY (HIRES)**
- 13-5 44 Hasiuk, Franciszek*; Dank, Rachael: **NATURAL GAS AND COMPRESSED AIR STORAGE FIELDS IN CENTRAL IOWA**

SESSION NO. 14

T36. Undergraduate Research Poster Session I (Posters) (Council on Undergraduate Research, Geosciences Division)

8:00 AM, Scheman Building First Floor Lobby

Authors will be present from 9:30 to 11:30 AM

- Booth #
- 14-1 45 Grober, Benjamin L.*; Bennett, Steve: **MODELING SURFACE RUNOFF OF SPRING LAKE WATERSHED**
- 14-2 46 Sparks, C. Renee; Jacques, Issac J.*: **CONTRIBUTIONS OF GROUNDWATER TO THE SURFACE WATER SYSTEM IN THE UPPER ULUA RIVER BASIN OF CENTRAL HONDURAS**
- 14-3 47 Theilen, Brittany M.*; Simpkins, William W.: **INVESTIGATION OF WATER-TABLE FLUCTUATIONS IN FRACTURED TILL USING MONTHLY, LONG-TERM (1996-2017) AND CONTINUOUS, SHORT-TERM MEASUREMENTS**
- 14-4 48 Rule, Shay*; Denniston, Rhawn F.: **INSTRUMENTAL RECORDS OF MODERN FLOODING EVENTS AT CAVE KNI-51, AUSTRALIAN TROPICS**
- 14-5 49 Polson, Danielle*; Denniston, Rhawn F.: **SEASONAL CHANGES IN ENVIRONMENTAL CONDITIONS AT THREE NORTHWESTERN AUSTRALIA CAVES**
- 14-6 50 Higginbotham, Jesse James*; Hardin, Zachary M.; Schulmeister, Marcia K.; Zhang, Qiyang: **PHYSICAL AND CHEMICAL PROPERTIES OF DREDGED, CONFINED DISPOSAL FACILITY SEDIMENTS AT JOHN REDMOND RESERVOIR, BURLINGTON, KANSAS**
- 14-7 51 Teresi, Joseph*; Reisner, Michael: **ANALYSIS OF SURFACE SOIL LEAD CONTAMINATION IN URBAN NEIGHBORHOODS OF DAVENPORT, IOWA**
- 14-8 52 Bruck, Victoria J.*; Mihindukulasooriya, Lorita; Ortiz, Joseph D.; Davis, Alexandra N.; Kern, Courtney M.: **TEMPORAL AND SPATIAL VARIATION OF ALGAL BLOOMS IN OLD WOMAN CREEK NATIONAL ESTUARY OF LAKE ERIE DURING THE SUMMER OF 2016, USING REFLECTANCE SPECTROSCOPY**
- 14-9 53 Braun, Katherine N.*; Theuerkauf, Ethan J.; Masterson, Andrew L.; Horton, Daniel E.: **QUANTIFYING THE ANNUAL CARBON**

BUDGET FROM A RAPIDLY ERODING COASTAL FRESHWATER WETLAND USING FIELD AND MODEL DATA

- 14-10 54 Barrett, Madison*; Mihindukulasooriya, Lorita; Campbell, Alisha; Mabry, Brenna; Bruck, Victoria J.; Ortiz, Joseph D.: **DETERMINING THE SUMMER 2017 COMPOSITION OF ALGAL BLOOMS IN OLD WOMEN CREEK NATIONAL ESTUARY OF LAKE ERIE USING REFLECTANCE SPECTROSCOPY AND ALGAL CELL COUNTS**
- 14-11 55 Budde, Nicholas R.*; Tipping, Robert G.: **ANALYSIS OF STREAM TEMPERATURES IN EAST INDIAN CREEK, WABASHA COUNTY, MINNESOTA**
- 14-12 56 Hickie, Tray*; Krakow, Lucas; Beck, Kayla; Bishop, Nicole; Chao, Astoria; Herran, Juliana; Lashbrook, Michael; Male, Makenzie; Massey, Courtney; McMorran, Riley; Spurr, William; Wallin, Tami; Wayson, Jessica; Sebre, Joshua; Sedlacek, Alexa R.C.; Shen, Xinhua: **BIOGEOCHEMICAL EVOLUTION OF THE ATMOSPHERE: THE BETA PROJECT**
- 14-13 57 Maher, Ryan Michael*: **IDENTIFYING TRACE ELEMENT CHRONOLOGICAL MARKERS WITHIN UPPER MISSISSIPPI RIVER FLOODPLAIN-SEDIMENTS**
- 14-14 58 Mabry, Brenna S.*; Mihindukulasooriya, Lorita; Bruck, Victoria J.; Ortiz, Joseph D.: **DETERMINING THE COMPOSITION AND TRANSPORTATION OF SUMMER 2017 ALGAL BLOOMS IN OLD WOMAN CREEK ESTUARY OF LAKE ERIE USING REFLECTANCE SPECTROSCOPY**
- 14-15 59 Oswald, Sarah Elyse*: **TEMPORAL AND SPATIAL VARIATIONS OF ANTHROPOGENIC CONTAMINANTS IN MILL CREEK, KANE COUNTY, IL**
- 14-16 60 Tunnicliff, Philip Charles*: **LEAD CONTAMINATION ASSESSMENT OF DRINKING WATER IN DAVENPORT, IOWA**
- 14-17 61 Klein, Veronica J.*: **EFFECT OF OCEANIC CURRENT AND STORM SURGES ON FORAMINIFERAL DEATH ASSEMBLAGES OF SAN SALVADOR ISLAND, BAHAMAS**
- 14-18 62 Trembath, Matthew*; Cramer, Bradley D.: **SEARCHING FOR GEOCHEMICAL SIGNATURES OF STEP-WISE EXTINCTION LEVELS DURING THE IREVIKEN AND MULDE (SILURIAN) EXTINCTION EVENTS**
- 14-19 63 Lebel, Caitlin*; Grimley, David A.: **FOSSIL GASTROPODS FOR USE IN ESTIMATING PALEOCLIMATE AND PALEOECOLOGY IN LAST GLACIAL LOESS, SOUTHWESTERN ILLINOIS**
- 14-20 64 Stolfus, Brittany M.*; Clark, Ryan J.; Tassier-Surine, Stephanie A.; Day, James; Witzke, Brian J.; Cramer, Bradley D.: **REVISED CONODONT BIOSTRATIGRAPHY OF THE DEVONIAN CARBONIFEROUS BOUNDARY INTERVAL IN SOUTHEAST IOWA**
- 14-21 65 Crews, Garrett D.*; Caissie, Beth E.; Swanner, Elizabeth: **ASSESSING THE PREVALENCE OF SUB-ICE PRODUCTIVITY IN IOWA LAKES**
- 14-22 66 O'Connell, Bradley M.*; Gray, Kyle: **VARIATION IN BELIEFS HELD ABOUT THE NUMBER AND CAUSES OF MASS EXTINCTIONS BETWEEN SCIENCE AND NON-SCIENCE MAJORS**
- 14-23 67 Pease, Allison*; Gramsch, Stephen: **A COMPARISON OF THE RAMAN SPECTRA OF THE HUMITE MINERAL GROUP AT HIGH PRESSURES**
- 14-24 68 Pangerl, Mackenzie*: **FIELD MAPPING AND GEOLOGICAL HISTORY IN IGNEOUS ROCKS OF THE CENTRAL MINNESOTA BATHOLITH, WAITE PARK, MINNESOTA**
- 14-25 69 Shapley, Sarah*; Ehlich, Joshua J.; Frank, Mark R.; Bodnar, Robert J.: **GOLD AND COPPER PARTITIONING BETWEEN VAPOR AND BRINE AT MODERATE TO HIGH TEMPERATURES**
- 14-26 70 Astromovich, Julia*; Cerny, Trenton; Mitchell, Jacob; Vallad, Jordan; Kelso, Paul; Tikoff, Basil; Howes, Beau: **EMPLACEMENT OF THE MONO CREEK GRANITE BULGE, SIERRA NEVADA, CALIFORNIA: CONSTRAINTS ON TRANSLATIONAL, ROTATIONAL, AND STRETCHING COMPONENTS OF THE DISPLACEMENT FIELD**
- 14-27 71 Pashina, Abigail Ann*: **HOW IGNEOUS AND METAMORPHIC ROCK TYPE CONTROL THE RATE AT WHICH COBBLES ARE ABRADED**

SESSION NO. 15**T36. Undergraduate Research Poster Session II (Posters)**
(Council on Undergraduate Research, Geosciences Division)

8:00 AM, Scheman Building First Floor Lobby

Authors will be present from 3 to 5 PM

Booth #

- 15-1 72 Parcher, Sara*; Dere, Ashlee Laura Denton; Santini, Talitha: **INVESTIGATING THE ROLE OF MICROBIAL COMMUNITY COMPOSITION IN SOIL FORMATION WITHIN THE CRITICAL ZONE**
- 15-2 73 Ahumada, David*; Hartwig, Emily; Kosugi, Yoko; Mugavero, Domic; Olowoshile, Aishat; Leonard, Karl W.: **EXAMINING THE DEVELOPMENT OF LANDSCAPE AT THE MSUM REGIONAL SCIENCE CENTER (NORTHWESTERN MINNESOTA) THROUGH SEDIMENT ANALYSIS AND CORRELATION OF LOCAL BURIED SOIL HORIZONS**
- 15-3 74 Van Ess, Jory*; Peterson, Ginny: **EXPLORING METHODS TO DETERMINE THE STRAIN ELLIPSOID IN DUNITES TO PROVIDE CONTEXT FOR EBSD CPO PATTERNS**
- 15-4 75 Penafior, Gabrielle*; Niemi, Tina M.; Salgado Munoz, Valente O.: **FACIES ANALYSIS OF THE GYPSUM UNITS IN THE UPPER MIOCENE BOLEO FORMATION IN THE SANTA ROSALIA BASIN, BAJA CALIFORNIA SUR, MÉXICO**
- 15-5 76 Ngoma, Delph*; Brown, Ryan; Maher, Harmon: **COMPARISON OF BRULE FORMATION VS. ARIKAREE GROUP CHANNEL COMPLEXES, SOUTHERN SLIM BUTTES, SD**
- 15-6 77 McMorran, Riley*; Spurr, William; Shipley, Emma; Roach, Madeline; Herran, Juliana; Wayson, Jessica; Beck, Kayla; Lashbrook, Michael; Krakow, Lucas; Shen, Xinhua; Sebree, Joshua; Sedlacek, Alexa R.C.: **CARBON ISOTOPE STRATIGRAPHY OF THE LITTLE CEDAR FORMATION IN EASTERN IOWA**
- 15-7 78 Volpano, Chelsea A.*; Rawling, J. Elmo; Theuerkauf, Ethan J.: **EVALUATING POTENTIAL SEDIMENT TRANSPORT PATHWAYS ALONG THE SOUTHWESTERN LAKE MICHIGAN COAST THROUGH SEDIMENTOLOGIC, GEOCHEMICAL, AND STRATIGRAPHIC ANALYSES**
- 15-8 79 Frauhiger, Mason J.; Hartstein, Amanda Renee*; Carlson, John; Dattilo, Benjamin F.; Aucoin, Christopher D.; Freeman, Rebecca L.; Brett, Carlton E.; Kalakay, Micheal; Kline, Joseph: **PETROGRAPHIC CLUES TO THE RICHMONDIAN INVASION OF LIMESTONES FROM THE UPPER ORDOVICIAN (UPPER KATIAN) FROM THE MADISON, INDIANA AREA**
- 15-9 80 Michels, Abby*; Johnson, Luke; Niemi, Tina M.: **SYNTECTONIC DEPOSITION OF PLIO-QUATERNARY SEDIMENTS IN THE SANTA ROSALIA BASIN OF BAJA CALIFORNIA SUR, MEXICO**
- 15-10 81 Steele, Emma L.*; Dattilo, Benjamin; Ehrhart, Nathan: **PETROGRAPHY OF THE UPPERMOST ORDOVICIAN THROUGH LOWER SILURIAN IN A CORE FROM THE POE AGGREGATES QUARRY NEAR FORT WAYNE, INDIANA**
- 15-11 82 Samsen, Brian*; Luczak, Jonathan N.; Fisher, Timothy G.: **ESTIMATING PALEOFLOW THROUGH LAKE MAUMEE'S IMLAY CHANNEL**
- 15-12 83 Lloyd, Forrest W.*; O'Connell, Suzanne; Kaufman, Zachary; Spriggs, Noah; Centeno, Eduardo; Hollyday, Andrew; LaPan, Mark; Luna, Melissa R.; Ortiz, Joseph D.; Ptacek, Sophia: **SEDIMENT RECORDS OF ICE-SHEET INSTABILITY AT ODP SITE 697 (JANE BASIN), NW WEDDELL SEA, SOUTH ORKNEY MICROCONTINENT**
- 15-13 84 Butcher, Ryan*; Heinzel, Chad: **THE GEOLOGY AND NATURAL HISTORY OF COPPOCK PARK (MARSHALL CO., IOWA) AND IT'S ADJACENT LANDSCAPES**
- 15-14 85 Grassman, Evan*: **LITHOLOGIES AND PROVENANCE OF PEBBLES FOUND IN THE MORAINES OF WISCONSIN**
- 15-15 86 Boyce, C.M.*; Mattheus, C.R.; Houston, W.S.: **LATERAL CHANGES IN LAKE SUPERIOR BEACH SUBSURFACE ARCHITECTURE MAPPED USING GPR, GRAND MARAIS, MI**

- 15-16 87 Mühlenkamp, Quintin E.*; Zaleha, Michael J.: **SUBSURFACE VOID EVALUATION AND BEDROCK TOPOGRAPHY OF THE CEDARVILLE DOLOMITE (SILURIAN), WEST-CENTRAL OHIO, USING ELECTRICAL RESISTIVITY GROUND IMAGING (ERGI)**
- 15-17 88 Nacey, Kyle Michael*; Jazdzzyk, Madeline; Kelso, Paul; Medicine, Colleen: **MAPPING PAST TRIBAL CEMETERY USE AND POSSIBLE FUTURE DEVELOPMENT IN LAKE HURON SHORELINE SEDIMENTS USING GROUND PENETRATING RADAR**
- 15-18 89 Kruske, Montana Lynn*; Cockrell, Jay; Houston, W.S.; Mattheus, C.R.: **GPR EXAMINATION OF MULTI-YEAR SEASONAL STORM IMPACTS ON SUBSURFACE DEPOSITIONAL ARCHITECTURES ON A BEACH IN GRAND MARAIS, MI**
- 15-19 90 Lundine, Mark*: **OPTIMIZING UAV SURVEYS FOR COASTAL MORPHODYNAMICS: ESTIMATION OF SPATIAL UNCERTAINTY AS A FUNCTION OF FLIGHT ACQUISITION AND POST-PROCESSING FACTORS**
- 15-20 91 Grund, Denay Marie*; Osborn, Alan: **AN INVESTIGATION OF THE RELATIONSHIP BETWEEN SURFACE AND SUBSURFACE DISTRIBUTION OF CULTURAL ARTIFACTS**
- 15-21 92 Boyer, Alicia R.*; Vinke, Ali Jo; Goswami, Arghya: **RECALIBRATION OF THE SEDIMENT WEDGE MODEL (CONTINENTAL SHELF-SLOPE-RISE STRUCTURES) COMPONENT FOR THE OESBATHY V1.011**
- 15-22 93 Vinke, Ali Jo*; Boyer, Alicia R.; Goswami, Arghya: **OESBATHY V1.0 TO V1.011: IMPROVEMENTS INTEGRATED IN THE MODEL PARAMETERIZATIONS**
- 15-23 94 McNay, Haylee*; Jennings, Deserae L.; Möller, Andreas; Bidgoli, Tands S.; Walker, J. Douglas: **TESTING THE VIABILITY OF CONODONTS AS A U-PB GEOCHRONOMETER USING KANSAS CORE AND OUTCROP SAMPLES**

AFTERNOON ORAL TECHNICAL SESSIONS

SESSION NO. 16

T4. Landlocked but Not Left Out: Contributions to Oceanography by Mid-Continent Scientists (GSA Sedimentary Geology Division; GSA Geobiology and Geomicrobiology Division; GSA Quaternary Geology and Geomorphology Division; GSA Environmental and Engineering Geology Division)

1:30 PM, Scheman Building Room 220

Beth E. Caissie, Sarah D. Zellers, Anna Nesterovich and Nina Whitney, Presiding

- 16-1 1:30 PM Goswami, Arghya*; Vinke, Ali Jo; Boyer, Alicia R.: **OESBATHY V1.011: AN UPDATED METHODOLOGY FOR RECONSTRUCTING GLOBAL OCEAN BATHYMETRY WITH GENERALIZED CONTINENTAL SHELF-SLOPE-RISE STRUCTURE**
- 16-2 1:50 PM Coenen, Jason*; Scherer, Reed P.; LeVay, Leah J.; Stansell, Nathan D.; Goetz, Peter; Hemming, Sidney; Hall, Ian R.; Expedition 361 Scientists, The: **A RECORD OF BIOGENIC SILICA VARIABILITY ACROSS THE PLIOCENE M2 GLACIAL EVENT IN THE SOUTHWESTERN INDIAN OCEAN, IODP SITE U1475**
- 16-3 2:10 PM Harbour, Thomas A.*; Caissie, Beth E.: **FINE-SCALE ANALYSIS OF LAMINATED SEDIMENTS FROM MARINE ISOTOPE STAGE 11 (425 KA) IN THE BERING SEA, IODP EXPEDITION 323, SITE U1345**
- 16-4 2:30 PM Thompson, Natalie*; Caissie, Beth E.: **RECONSTRUCTING CHANGES IN SEA ICE COVER DURING MARINE ISOTOPE STAGE 11 FROM BERING SEA SEDIMENT CORES**
- 16-5 2:50 PM Caissie, Beth E.*; Zellers, Sarah D.; Cowan, Ellen A.; Müller, Juliane; Pratt, Jacob W.; Nesterovich, Anna: **SEA ICE AND PRIMARY PRODUCTIVITY IN THE GULF OF ALASKA**

DURING RETREAT OF BERING ICE STREAM FROM THE LAST GLACIAL MAXIMUM

- 16-6 3:10 PM Zellers, Sarah D.*; Cowan, Ellen A.: **OVERCOMING PITFALLS IN INTERPRETING PALEOENVIRONMENTS FROM GLACIATED MARGINS: EXAMPLES FROM RECORDS OBTAINED BY IODP EXPEDITION 341 IN THE GULF OF ALASKA**
- 16-7 3:30 PM Whitney, Nina M.*; Johnson, Beverly J.; Dostie, Philip T.; Griffin, Shelly M.; Lower, Erin; Luzier, Katharine; Kreutz, Karl J.; Introne, Douglas S.; Wanamaker, Alan D.: **USING BULK AND COMPOUND SPECIFIC STABLE ISOTOPES IN ARCTICA ISLANDICA SHELLS TO RECONSTRUCT WESTERN NORTH ATLANTIC OCEAN DYNAMICS**

SESSION NO. 17**T7. Agricultural Impacts on Hydrology and Water Quality in the Midwest II (GSA Hydrogeology Division; GSA Geology and Society Division; National Ground Water Association; Iowa Groundwater Association)**

1:30 PM, Scheman Building Room 250/252

William W. Simpkins, Michael Burkart and Nathan L. Young, Presiding

- 17-1 1:30 PM Valcu-Lisman, Adriana*; Gassman, Philip; Kling, Catherine; Arritt, Raymond; Arbuckle, J.; Panagopoulos, Yiannis; Roesch-McNally, Gabrielle; Herzmann, Daryl: **A NEW APPROACH FOR PREDICTING FARMERS ADAPTIVE BEHAVIOR AT THE LARGE WATERSHED SCALE: IMPLICATIONS FOR WATER QUALITY UNDER CLIMATE CHANGE**
- 17-2 1:50 PM Dziubanski, David Joseph*: **MODELING UNCERTAINTY ARISING FROM CO-EVOLVING HUMAN AND HYDROLOGIC SYSTEMS**
- 17-3 2:10 PM Young, Nathan L.*; Simpkins, William W.; Therrien, René; Horton, Robert; McLaren, Robert: **INTEGRATING TILL FRACTURES INTO NUTRIENT TRANSPORT MODELS AT PLOT AND WATERSHED SCALES: A DUAL CONTINUUM APPROACH**
- 17-4 2:30 PM Christianson, Evan G.*; Wilson, Greg: **COUPLED MODELING OF GROUNDWATER AND SURFACE WATER IN AN AGRICULTURAL WATERSHED TO GUIDE WATER RESOURCE MANAGEMENT**
- 17-5 2:50 PM Gentner, Tiffany M.*; Dehm, Dustin; Becker, Richard H.: **CLIMATE IMPACTS ON NUTRIENT LOADING IN LAKE ERIE**
- 17-6 3:10 PM Green, David I.S.*: **THREE-DIMENSIONAL SIMULATION OF THE TEMPERATURE AND RESIDENCE TIME DISTRIBUTION DYNAMICS OF A CONSTRUCTED AGRICULTURAL TREATMENT WETLAND**
- 3:30 PM **BREAK**
- 17-7 3:45 PM Crumpton, William*: **POTENTIAL OF TARGETED WETLAND RESTORATION TO REDUCE NITROGEN LOADS TO SURFACE WATERS IN IOWA**
- 17-8 4:05 PM Tomer, Mark D.; Schilling, Keith*; Cole, Kevin: **NITRATE-NITROGEN LOSSES FOLLOWING TALLGRASS PRAIRIE RECONSTRUCTION AT A WATERSHED SCALE: UPDATING THE WATER QUALITY RECORD AT THE NEAL SMITH NATIONAL WILDLIFE REFUGE (NSNWR) AFTER 22 YEARS**
- 17-9 4:25 PM Quinn, John J.*; Negri, M. Cristina; Zumpf, C.; Campbell, P.; Cacho, J.; Ssegane, H.: **MULTIFUNCTIONAL LANDSCAPES AND WATER QUALITY IN THE MIDWEST**
- 17-10 4:45 PM Schilling, Keith*: **GROUNDWATER RESPONSE UNITS: A NEW APPROACH TO EVALUATE NONPOINT SOURCE POLLUTANT LOADING AT A WATERSHED SCALE**
- 17-11 5:05 PM Dere, Ashlee Laura Denton*; Miller, Andrew; Parcher, Sara; Jackson, Christopher; Bettis, E. Arthur: **SOIL AND STREAM SOLUTE FLUXES FROM AGRICULTURAL AND RESTORED PRAIRIE LAND USE**

SESSION NO. 18**T9. Pathogens and Other Contaminants of Concern in the Environment (GSA Hydrogeology Division; GSA Geology and Health Division; GSA Environmental and Engineering Geology Division; National Ground Water Association; Iowa Groundwater Association)**

1:30 PM, Scheman Building Benton Auditorium

Claire Hruby and Sarah M. Elliott, Presiding

- 1:30 PM **INTRODUCTORY REMARKS**
- 18-1 1:35 PM Fields, Chad*: **SURVEILLANCE OF MICROCYSTIN IN IOWA'S DRINKING WATER**
- 18-2 1:55 PM Thompson, Darrin A.*; Kolpin, Dana W.; Hladik, Michelle L.; Barnes, Kimberlee K.: **IDENTIFICATION OF NEONICOTINOID INSECTICIDES IN IOWA GROUNDWATER**
- 18-3 2:15 PM Anderson, Anita C.; Borchardt, Mark A.; de Lambert, Jane R.; Firnstahl, Aaron D.; Gretsche, Stephanie R.; Rezanian, Lih-in W.; Soule, Richard G.; Spencer, Susan K.; Stokdyk, Joel P.; Walsh, James F.*: **PLACING MINNESOTA'S VIRAL OCCURRENCE DATA IN A GEOLOGIC CONTEXT**
- 18-4 2:35 PM Hruby, Claire*; Palmer, Jason A.; Borchardt, Mark A.; Firnstahl, Aaron D.; Spencer, Susan K.; Stokdyk, Joel P.; Schueller, Michael D.; Hall, Nancy: **ASSESSING THE OCCURRENCE OF VIRUSES AND BACTERIAL PATHOGENS IN UNTREATED WATER FROM MUNICIPAL WATER SUPPLY WELLS IN IOWA**
- 18-5 2:55 PM Borchardt, Mark A.*; Stokdyk, Joel P.; Kieke, Burney; Bonness, Davina; Firnstahl, Aaron D.; Hunt, Randall J.; Muldoon, Maureen A.; Spencer, Susan K.: **MICROBIAL CONTAMINATION OF PRIVATE WELLS IN THE DOLOMITE AQUIFER IN NORTHEASTERN WISCONSIN: ASSOCIATIONS WITH LAND USE, HYDROGEOLOGY, AND WELL CONSTRUCTION**
- 3:15 PM **BREAK**
- 18-6 3:30 PM Stokdyk, Joel P.*; Spencer, Susan K.; Anderson, Anita C.; Walsh, James F.; Firnstahl, Aaron D.; Borchardt, Mark A.: **OCCURRENCE OF *CRYPTOSPORIDIUM* IN GROUNDWATER WELLS WITH AND WITHOUT SURFACE WATER INFLUENCE**
- 18-7 3:50 PM Ahmed, Warish; Zhang, Qian; Lobos, Aldo; Senkbeil, Jacob; LaPara, Timothy; Sadowsky, Michael J.; Harwood, Valerie J.; Saeidi, Nazanin; Marinoni, Oswald; Ishii, Satoshi*: **EXTENT OF PATHOGENIC BACTERIA AND ANTIBIOTIC RESISTANCE GENES IN STORM DRAIN OUTFALLS**
- 18-8 4:10 PM Neher, Timothy Patrick*: **ANTIBIOTIC RESISTANT BACTERIA MONITORING IN THE BLACK HAWK LAKE WATERSHED, IOWA**
- 18-9 4:30 PM Palmer, Jason A.*; Hruby, Claire; Soupier, Michelle; Firnstahl, Aaron D.; Stokdyk, Joel P.; Spencer, Susan K.; Borchardt, Mark A.: **TOWARDS A BETTER UNDERSTANDING OF BACTERIAL IMPAIRMENTS AT PUBLIC BEACHES IN IOWA**
- 18-10 4:50 PM Ricke, Isabel*; Zhang, Qian; Ishii, Satoshi: **IMPACT OF MIGRATORY GEESE ON LAKE WATER QUALITY**

SESSION NO. 19**T21. Sediments, Landforms, and Chronology of the Laurentide Ice Sheet: Analog or Anomaly? (GSA Quaternary Geology and Geomorphology Division; GSA Sedimentary Geology Division)**

1:30 PM, Scheman Building Room 260/262

Neal Iverson, Lucas Zoet and Carrie Jennings, Presiding

- 19-1 1:30 PM Rovey, Charles W.*: **PRE-ILLINOIAN ADVANCES OF THE LAURENTIDE ICE SHEET**
- 19-2 1:50 PM Mickelson, David M.*: **AN OVERVIEW OF GLACIAL LANDFORMS AND POSTULATED SUBGLACIAL CONDITIONS OF THE LAURENTIDE ICE SHEET IN THE WESTERN GREAT LAKES AREA**

- 19-3** 2:10 PM Lowell, Thomas V.*; Curry, B. Brandon; Loope, Henry M.; Heath, Stephanie L.: **CHRONOLOGY OF THE GREAT LAKES LOBES: IMPLICATIONS FOR THE DYNAMICS OF THE LAURENTIDE ICE SHEET**
- 19-4** 2:30 PM Attig, John W.*; Rawling, J. Elmo; Carson, Eric C.; Zoet, Lucas K.: **DELAYED LANDSCAPE STABILIZATION FOLLOWING RECESSION OF ACTIVE ICE FROM THE WESTERN GREAT LAKES AREA: EVIDENCE, TIMING, AND IMPLICATIONS**
- 19-5** 2:50 PM Ceperley, Elizabeth G.*; Marcott, Shaun A.; Rawling, J. Elmo: **A 10BE BASED CHRONOLOGY FOR THE ARNOTT MORaine OF THE LAURENTIDE ICE SHEET, CENTRAL WISCONSIN**
- 19-6** 3:10 PM Zoet, Lucas*; Barrette, Nolan; Rawling, J. Elmo: **GREEN BAY LOBE DRUMLIN MORPHOLOGY AND SPACING**
- 19-7** 3:30 PM Iverson, Neal R.*; Day, Sarah E.; Zoet, Lucas: **A HYPOTHESIS FOR THE ABSENCE OF DRUMLINS BENEATH THE SURGE-TYPE DES MOINES LOBE**
- 19-8** 3:50 PM Wittkop, Chad*; Piper, Christian; Bartley, Julie K.; Krueger, Russell; Bouvier, Audrey; Georg, R. Bastian; Knaeble, Alan R.: **PROVENANCE, TEXTURE, AND RELATIVE AGE CONTROLS ON THE CHEMICAL INDEX OF ALTERATION (CIA) IN PLEISTOCENE TILLS, MINNESOTA USA**
- 19-9** 4:10 PM Heath, Stephanie L.*; Lowell, Thomas V.; Hall, Brenda L.: **AN UPDATED CHRONOLOGY OF THE JAMES LOBE, SOUTH DAKOTA AND IMPLICATIONS FOR LATE-GLACIAL FLUCTUATIONS OF THE SOUTHERN LAURENTIDE MARGIN**
- 19-10** 4:30 PM Headley, Rachel*: **ZIRCON GEOCHRONOLOGY FROM A LAKE MICHIGAN LOBE MORaine: CONNECTING PROVENANCE, TRANSPORT, AND DEPOSITION**
- 19-11** 4:50 PM Huot, Sebastien*; Caron, Olivier J.; Curry, B. Brandon: **APPLYING LUMINESCENCE DATING ON FLUVIOGLACIAL OUTWASH DEPOSITED AFTER THE LGM NEAR CHICAGO (USA)**
- 19-12** 5:10 PM Warbritton, Matthew J.*; Iverson, Neal R.: **STRAIN PATTERNS IN THE RUBJERG KNUDE GLACIOTECTONIC COMPLEX, DENMARK: A STUDY USING ANISOTROPY OF MAGNETIC SUSCEPTIBILITY**

SESSION NO. 20**T29. Structural Geology and Tectonics in a Quantitative World (GSA Structural Geology and Tectonics Division)**

1:30 PM, Scheman Building Room 275

Jacqueline E. Reber and Sven S. Morgan, Presiding

- 20-1** 1:30 PM Evans, Kevin Ray*; Dogwiler, Toby; Faulkner, Douglas J.; Jacobs, Peter M.; Kenning, Brett; Lecce, Scott A.; Pavlowsky, Robert T.: **LATE HOLOCENE RAISED SHORE PLATFORMS IN SOUTHWESTERN JAMAICA**
- 20-2** 1:50 PM Welker, Avery Joseph*; Eckert, Andreas; Hogan, John P.: **UNRAVELING GEOMETRY: TAKING THE CONES OUT OF PERICLINES**
- 20-3** 2:10 PM Liu, Chao*; Hogan, John P.; Eckert, Andreas; Welker, Avery Joseph: **TECTONIC DEFORMATION IN THE MID-CONTINENT OF THE UNITED STATES: EVIDENCE FOR PERICLINAL BUCKLE FOLDING IN THE OZARK PLATEAU**
- 20-4** 2:30 PM Smith, Nicole L*; Burberry, Caroline M.: **CRITICAL WEDGES AND PENETRATIVE STRAIN: HOW DOES PENETRATIVE STRAIN ALTER THE CONCEPT OF A CRITICAL WEDGE?**
- 20-5** 2:50 PM Wu, Yuxing*; Eckert, Andreas: **THE ROLE OF FLEXURAL SLIP IN THE DEVELOPMENT OF MULTILAYER CHEVRON FOLDS**
- 20-6** 3:10 PM Chandonia, William*; Hogan, John P.; Eckert, Andreas: **LEADING EDGE RAMP FORMATION BY ROTATION OF EARLY FORMED FLANK THRUSTS ALONG THE KANARRA FOLD, SEVIER THRUST BELT, SW UTAH**

- 20-7** 3:30 PM Randolph-Flagg, Jeremy*; Reber, Jacqueline E.: **EXPERIMENTAL ANALYSIS OF THE EFFECT OF GRAIN SIZE DISTRIBUTION ON STICK-SLIP AND CREEP BEHAVIOR**
- 20-8** 3:50 PM Burberry, Caroline M.*: **INVESTIGATION OF THE DAMAGE ZONE AROUND A MEGASPLAY FAULT, WITH IMPLICATIONS FOR FLUID FLOW AND SEISMIC ACTIVITY**

SESSION NO. 21**T39. Fluvial Adjustments in the Highly-Altered Agricultural Landscape of the Postglacial Upper Midwest (GSA Quaternary Geology and Geomorphology Division; GSA Sedimentary Geology Division)**

1:30 PM, Scheman Building Room 299

John Thomas and Peter Moore, Presiding

- 21-1** 1:30 PM Cullen, Cecilia*; Anders, Alison; Druhan, Jennifer: **GROUNDWATER ROUTING AS A CONTROL ON STREAM NETWORK DEVELOPMENT FOLLOWING CONTINENTAL GLACIATION**
- 21-2** 1:50 PM Jennings, Carrie*; Shapley, Mark D.; Stefanova, Ivanka: **CHANGE IN SEDIMENT ACCUMULATION IN THE LOWER MINNESOTA RIVER**
- 21-3** 2:10 PM Thomas, John T.*; Papanicolaou, Thanos; Wilson, Christopher; Bettis, E. Arthur; Elhakeem, Mohamed: **KNICKPOINT MIGRATION IN WESTERN IOWA STREAMS**
- 21-4** 2:30 PM Isenhardt, Tom; Kovar, John; Moore, Peter L.; Noonan, Brian; Williams, Forrest F.*: **CHANNEL EVOLUTION AS PHOSPHORUS AND SEDIMENT SOURCES IN CENTRAL IOWA**
- 21-5** 2:50 PM Beck, William*; Moore, Peter L.; Schilling, Keith; Wolter, Calvin; Isenhardt, Tom: **FLOODPLAIN SEDIMENTATION TRENDS AND IMPLICATIONS FOR WATERSHED SEDIMENT AND PHOSPHORUS EXPORT, WALNUT CREEK, IOWA**
- 21-6** 3:10 PM Joyce, Judith*; Cherry, Shane: **RECONNECTING THE FLOODPLAIN TO RESTORE FLOOD STORAGE: A "DIAGNOSE AND TREAT" APPROACH**

TUESDAY, 17 APRIL 2018**MORNING
ORAL TECHNICAL SESSIONS****SESSION NO. 22****D1. Environmental Geoscience**

8:00 AM, Scheman Building Room 275

Yuyu Zhou, Presiding

- 8:00 AM **INTRODUCTORY REMARKS**
- 22-1** 8:05 AM Li, Xuecao*; Zhou, Yuyu: **MAPPING URBAN EXPANSION FROM LOCAL TO GLOBAL SCALES USING SATELLITE OBSERVATIONS**
- 22-2** 8:25 AM Meng, Lin*; Zhou, Yuyu; Li, Xuecao: **SPATIOTEMPORAL CHANGE OF SPRING PHENOLOGY UNDER URBANIZATION**
- 22-3** 8:45 AM Liang, Bingqing*: **USING VERY HIGH RESOLUTION HYPERSPECTRAL AND THERMAL IMAGERY TO MAP URBAN MATERIALS IN CEDAR FALLS, IOWA**
- 22-4** 9:05 AM Wagner, Zachary C.*; Steinman, Byron A.; Abbott, Mark B.: **RECONSTRUCTION OF HOLOCENE PALEOCLIMATE IN THE NORTHERN ROCKY MOUNTAINS, ALBERTA, CANADA, USING OXYGEN ISOTOPE ANALYSIS OF LACUSTRINE CARBONATE SEDIMENT**

- 22-5 9:25 AM Honings, Joseph*: **CLIMATE IMPACTS ON SURFACE INFLOW AND TILE DRAINAGE IN THE MACKINAW RIVER WATERSHED, CENTRAL ILLINOIS**
- 9:45 AM **BREAK**
- 22-6 10:00 AM Swanner, Elizabeth*; Harding, Chris; Wittkop, Chad: **THE ELEMENTAL CONSEQUENCES OF LAKE STRATIFICATION AND IMPLICATIONS FOR URBAN LAKES IN THE UPPER MIDWEST**
- 22-7 10:20 AM Potter, Nicholas*; Tusa, Sabrina; Ehmke, Bryanna; Headley, Rachel: **IMPACTS OF CHANNELIZED CAMPUS DRAINAGE ON THE PIKE RIVER'S WATER QUALITY AND FLOW**
- 22-8 10:40 AM Reeves, Donald M.*; Parashar, Rishi; Pham, Hai; Smith, Kenneth D.: **INVESTIGATING FAULT INTERCONNECTIVITY AND STRESS CONTROLS ON REGIONAL-SCALE FLUID FLOW AT PAHUTE MESA, NEVADA NATIONAL SECURITY SITE**
- 22-9 11:00 AM Gura, Colleen M.*; Kempton, Pamela D.; Datta, Saugata: **GEOCHEMISTRY IN THE CRITICAL ZONE: LIMESTONE-SHALE AND KIMBERLITE WEATHERING IN THE FLINT HILLS, KANSAS, USA**
- 22-10 11:20 AM Patterson, Jeremy R.*; Cardiff, Michael; Wang, Herb F.; Feigl, Kurt L.; Team, PoroTomo: **THERMAL ENERGY EXTRACTION FROM A GEOTHERMAL RESERVOIR: NUMERICAL AND ANALYTICAL MODELING ANALYSIS**

SESSION NO. 23

T10. Natural Contaminants in Groundwater Drinking Water Sources: When Natural Doesn't Mean Healthy (GSA Hydrogeology Division; GSA Geology and Health Division; GSA Geology and Society Division; National Ground Water Association; Iowa Groundwater Association)

8:00 AM, Scheman Building Room 260/262

Melinda L. Erickson, Paul E. Stackelberg and Brandy M. Toner, Presiding

- 8:00 AM **INTRODUCTORY REMARKS**
- 23-1 8:05 AM Dunshee, Aubrey J.*; Ng, G.-H. Crystal; Kent, Douglas B.; Repert, Deborah A.; Smith, Richard L.; LeBlanc, Denis R.; Toner, Brandy M.: **USING A REACTIVE TRANSPORT MODEL TO EVALUATE TEMPERATURE-DEPENDENT ARSENIC RELEASE DOWNGRADE OF NUTRIENT-RICH SURFACE WATER SYSTEMS**
- 23-2 8:25 AM Berquist, Emily*; Malenda, Helen Fitzgerald; Erickson, Melinda L.: **ARSENIC CONCENTRATION VARIABILITY IN NEWLY CONSTRUCTED DRINKING WATER WELLS IN MINNESOTA, USA**
- 23-3 8:45 AM Erickson, Melinda L.*; Malenda, Helen F.; Berquist, Emily: **GEOCHEMICAL EVOLUTION OF GROUNDWATER AFTER DRINKING WATER WELL INSTALLATION: EFFECTS ON GEOGENIC ARSENIC MOBILIZATION**
- 23-4 9:05 AM von Qualen, Frieda M.*; Scher, Deanna: **PROTECTING PRIVATE WELL USERS' HEALTH: RESULTS FROM A MINNESOTA SURVEY OF HOUSEHOLDS WITH ELEVATED ARSENIC IN THEIR PRIVATE DRINKING WATER WELLS**
- 9:25 AM **BREAK**
- 23-5 9:40 AM Westrop, Jeffrey P.*; Nolan, P.J.; Healy, Olivia M.; Bone, Sharon; Bargar, John R.; Snow, Daniel; Weber, Karrie A.: **MOBILIZATION OF NATURALLY OCCURRING URANIUM FOLLOWING THE INFLUX OF NITRATE INTO AQUIFER SEDIMENTS**
- 23-6 10:00 AM Stackelberg, Paul E.*; Szabo, Zoltan; Jurgens, Bryant C.: **RADIUM MOBILITY AND THE AGE OF GROUNDWATER IN PUBLIC-DRINKING-WATER SUPPLIES FROM THE CAMBRIAN-ORDOVICIAN AQUIFER SYSTEM**
- 23-7 10:20 AM Mathews, Madeleine*; Ginder-Vogel, Matthew; Gotkowitz, Madeline B.: **RADIUM SOURCES AND MOBILITY IN DISCRETE HYDROSTRATIGRAPHIC UNITS WITHIN THE MIDWESTERN CAMBRIAN-ORDOVICIAN AQUIFER**

- 23-8 10:40 AM Schumacher, J.G.*; Price, Peter, T.: **RADIONUCLIDES IN PUBLIC-SUPPLY WELLS IN MISSOURI**
- 23-9 11:00 AM Wilson, Jordan L.*; Schumacher, J.G.: **ELEVATED LEAD IN GROUNDWATER: NATURAL OR ANTHROPOGENIC?**
- 11:20 AM **DISCUSSION**

SESSION NO. 24

T16. Applied Geology: Environmental, Engineering, Hydro, Geotechnical, and Exploration Geophysics (GSA Environmental and Engineering Geology Division; GSA Hydrogeology Division; GSA Geophysics and Geodynamics Division)

8:00 AM, Scheman Building Room 220

Terry R. West, Presiding

- 8:00 AM **INTRODUCTORY REMARKS**
- 24-1 8:05 AM Gutierrez, Melida*: **FRACTIONATION OF METALS IN CONTAMINATED SEDIMENTS WITHIN THE TRI STATE MINING DISTRICT**
- 24-2 8:25 AM Pankratz, Hannah Gayle*; Backhaus, Karl J.; Sauck, William A.: **INVESTIGATIONS OF ASYMMETRIC AND INVERTED RESPONSES OF THE EM-31 SYSTEMS**
- 24-3 8:45 AM Christenson, Catherine*; Hart, David J.; Cardiff, Michael: **INFERRING LAKE AND WETLAND SEDIMENT CONDUCTIVITY VARIATIONS FROM EM31 DATA AT THE WAUBESA WETLANDS NEAR MADISON, WI**
- 24-4 9:05 AM Brookfield, Andrea E.*; Wilson, B. Brownie; Bohling, Geoffrey C.: **INCORPORATING RESERVOIR MANAGEMENT INTO WATERSHED MODELS**
- 24-5 9:25 AM McDanel, Joshua J.*; Miller, Bradley A.; Moore, Peter L.: **IDENTIFYING NONCONTRIBUTING AREAS OF WATERSHEDS BY UTILIZING SOIL INFORMATION: A NEW AND REPEATABLE APPROACH**
- 9:45 AM **BREAK**
- 24-6 10:00 AM Franz, Kristie J.*; Madsen, Tyler J.: **EVALUATION OF WATERSHED SCALE AND DATA RESOLUTION ON PERFORMANCE OF A DISTRIBUTED MODEL**
- 24-7 10:20 AM Zhou, Ruisong*; Best, James L.; Monson, Charles C.: **CHARACTERIZING GEOLOGIC FEATURES AT THE CONTACT OF PRECAMBRIAN BASEMENT AND THE OVERLYING MT. SIMON SANDSTONE, AND IMPLICATIONS FOR CO₂ STORAGE**
- 24-8 10:40 AM West, Terry R.*; Desta, Belayneh: **EVALUATION OF D-CRACKING FAILURE OF CONCRETE PAVEMENTS CONTAINING CARBONATE AGGREGATES**

SESSION NO. 25

T23. Reconstructing Glacial Lakes in the Midwest and Great Lakes Regions (GSA Quaternary Geology and Geomorphology Division; GSA Limnogeology Division; GSA Sedimentary Geology Division; The Great Lakes Section of SEPM)

8:00 AM, Scheman Building Room 250/252

Kenneth Lepper, Timothy Fisher and B. Brandon Curry, Presiding

- 25-1 8:00 AM Baclawski, Diane K.*: **FRANK LEVERETT, IOWA'S FAVORITE SON AND PREMIER GLACIALIST: SOME NEW INSIGHTS**
- 25-2 8:20 AM Phillips, Andrew C.*; Loope, Henry; Curry, B. Brandon; Grimley, Dave A.; Lebel, Caitlin: **SLACKWATER LAKE RECORD OF SOUTHERN WABASH TRIBUTARY INDICATES ENIGMATIC CA. 40 KA GLACIATION**
- 25-3 8:40 AM Carson, Eric C.*; Rawling, J. Elmo; Attig, John W.; Ceperley, Elizabeth G.: **LOCAL RESPONSE TO LATE-GLACIAL CONDITIONS ALONG THE KICKAPOO RIVER, SOUTHWEST WISCONSIN**
- 25-4 9:00 AM Curry, B. Brandon*; Wang, Hong; Lowell, Thomas V.; Bates, Benjamin; Norris, Nathaniel; Conroy, Jessica L.: **LAST GLACIAL LOESS DEPOSITION IN CENTRAL ILLINOIS ABRUPTLY SLOWS AT CA. 18,750 CAL YR BP IN RESPONSE TO THE KANKAKEE TORRENT**

- 25-5 9:20 AM Caron, Olivier J.*; Curry, B. Brandon: **GENESIS AND MINIMUM AGES OF ICE-MARGINAL LAKES AND ICE-WALLED LAKES PLAINS ON THE VALPARAISO MORAINIC SYSTEM IN WILL COUNTY, ILLINOIS. (USA)**
- 9:40 AM **BREAK**
- 25-6 9:55 AM Dilworth, John*; Krantz, David; Fisher, Timothy G.; Stierman, Donald: **ANALYSIS AND CHRONOLOGY OF GLACIAL LAKE ARKONA IN THE WESTERN LAKE ERIE BASIN, USA**
- 25-7 10:15 AM Krantz, David E.*; Dilworth, John R.: **GEOMORPHIC COMPARISON OF THE LAKE WHITTLESEY AND LAKE ARKONA PALEO-SHORELINES IN THE LAKE ERIE BASIN**
- 25-8 10:35 AM Lepper, Kenneth*; Fischer, Jenna; Olson, Trent; Gibbs Schnucker, Sara; Marston, Haley; Clark, Logan: **THE VEXING CHRONOLOGY OF LAKE AGASSIZ'S TINTAH SHORELINE**
- 25-9 10:55 AM Breckenridge, Andy J.*; Lowell, Thomas V.; Peteet, Dorothy M.: **THE AGE AND SIGNIFICANCE OF THE RED CLAY BAND WITHIN THE GLACIAL LAKE AGASSIZ VARVES OF NORTHWESTERN ONTARIO AND NORTHERN MINNESOTA**

SESSION NO. 26

T32. Geoscience in the Southeastern South Dakota, Southwestern Minnesota, Northeastern Nebraska, and Northwestern Iowa Area

8:00 AM, Scheman Building Room 230/240

Sarah Chadima, George Shurr and Richard Hammond, Presiding

- 26-1 8:00 AM Korus, Jesse T.*; Joeckel, R.M.: **AIRBORNE GEOPHYSICS RESOLVES STRATIGRAPHIC AND HYDROGEOLOGIC COMPLEXITY AT THE EASTERN BOUNDARY OF THE GREAT PLAINS IN NEBRASKA**
- 26-2 8:20 AM Guthrie, Kris*; Filina, Irina; Searls, Mindi; Burberry, Caroline M.: **EARTHQUAKE DATABASE FOR NEBRASKA AS A CONSTRAIN FOR MIDCONTINENT RIFT RELATED FAULTS**
- 26-3 8:40 AM Ludvigson, Greg A.*; Moller, A.; Joeckel, R.M.; Upchurch, G.R.; Smith, Jon J.: **SCIENTIFIC INVESTIGATIONS ON CRETACEOUS (ALBIAN-TURONIAN) STRATA FROM THE ROSE CREEK ESCARPMENT (RCE) ALONG THE NEBRASKA-KANSAS BORDER, CRATONIC MARGIN OF THE WESTERN INTERIOR BASIN**
- 26-4 9:00 AM Smith, Jon J.*; Turner, Elijah; Möller, Andreas; Joeckel, R.M.; Tucker, Shane T.; Otto, Rick E.: **DISCOVERY OF ZIRCONS IN THE ASHFALL FOSSIL BEDS AND GROVE LAKE VOLCANIC DEPOSITS OF NORTHEASTERN NEBRASKA: U-PB AGES AND SUCCESSFUL SAMPLING STRATEGIES**
- 26-5 9:20 AM Olm, Rachel M.*: **THE MISSOURI RIVER WATERSHED ONE WATERSHED, ONE PLAN: USING INNOVATION TO GUIDE LOCAL PLANNING EFFORTS**
- 26-6 9:40 AM Sweeney, Mark R.*; Cowman, Tim: **SEDIMENT SOURCES OF THE LEWIS AND CLARK LAKE DELTA, MISSOURI RIVER**
- 26-7 10:00 AM Shurr, George*: **EMULATING THE EARTH: LANDSCAPE ELEMENTS PRESERVED IN ARCHAEOLOGICAL SITES**
- 26-8 10:20 AM Scofield, N.I.*; Joeckel, R.M.; Divine, D.P.: **SURFICIAL GEOLOGIC MAPPING IN THE MISSOURI NATIONAL RECREATIONAL RIVER IN NEBRASKA AND LANDSCAPE EVOLUTION AT THE EASTERN MARGIN OF THE GREAT PLAINS**

SESSION NO. 27

T33. Collaborative Learning in Geoscience Classrooms and Labs: Examples, Demonstrations, Best Practices, and Assessment (GSA Geoscience Education Division; National Association of Geoscience Teachers)

8:00 AM, Scheman Building Room 299

Cinzia Cervato, Charles Kerton, Theresa Halligan and Beth A. Johnson, Presiding

- 27-1 8:00 AM Aiken, James S.*; Eidem, James M.; Gaffin, Sara L.: **PREPARING THE NEXT GENERATION OF GEOLOGISTS FOR CAREERS IN ENVIRONMENTAL CONSULTING**

- 27-2 8:20 AM Reeves, Donald M.*; Howe, Thomas; Kneeshaw, Tara; Stegink, David A.; Werkema, Dale; Yordy, Brock: **COMPLEMENTING PRACTICAL APPLICATION WITH RECENT TECHNOLOGICAL ADVANCES IN THE WMU FIELD HYDROGEOLOGY COURSE**
- 27-3 8:40 AM Cervato, Cinzia*; Halligan, Theresa; Kerton, Charles; Thatcher, Diana L.; Thompson, Natalie: **WHERE DOES RAIN GO? A MULTIPHASE LAB EXERCISE ON WATER AND SOIL EROSION**
- 27-4 9:00 AM Headley, Rachel*: **GOOGLE EARTH PRO AS THE GIS TOOL FOR GLACIAL GEOLOGY PROJECTS**
- 27-5 9:20 AM Thatcher, Diana L.*; Cervato, Cinzia; Halligan, Theresa; Harding, Chris; Kerton, Charles; Thompson, Natalie: **ATMOSPHERIC RADIATION BUDGETS AND CLIMATE: AN ADAPTED AND UPDATED LAB ACTIVITY TO TEACH ABOUT CLIMATE**
- 27-6 9:40 AM Gray, Kyle*: **USING INTERACTIVE ONLINE RESOURCES TO ASSESS NATURAL HAZARDS: A COLLABORATIVE LABORATORY PROJECT FOR INTRODUCTORY GEOLOGY**
- 10:00 AM **BREAK**
- 27-7 10:15 AM Kerton, Charles*; Cervato, Cinzia; Halligan, Theresa; Thatcher, Diana L.; Thompson, Natalie: **AN INQUIRY-BASED EARTH AND SPACE SCIENCE LAB COURSE FOR ELEMENTARY EDUCATION MAJORS**
- 27-8 10:35 AM Jordan, Brennan T.*; Fromm, Jeanne M.: **LEVERAGING PLANETARY ROVERS AS ROBOTIC GEOLOGISTS TO TEACH ABOUT EARTH AND PLANETARY SCIENCES IN THE K-12 CLASSROOM: A MODULE INCLUDING PORTABLE X-RAY FLUORESCENCE SPECTROMETRY**
- 27-9 10:55 AM Halligan, Theresa*; Cervato, Cinzia; Kerton, Charles; Thatcher, Diana L.; Thompson, Natalie: **PLAYING THE DATING GAME IN LAB: RELATIVE AND ABSOLUTE AGE DATING IN AN EARTH AND SPACE SCIENCE LAB DESIGNED FOR PRE-SERVICE ELEMENTARY TEACHERS**
- 27-10 11:15 AM Rossbach, Thomas J.*; Nelson, Jennifer A.; Davis, Jessica G.: **SUSTAINABILITY: THRIVING COMMUNITIES, THRIVING PLANET – AN UNDERGRADUATE FRESHMAN THEMED LEARNING COMMUNITY**
- 27-11 11:35 AM Halligan, Theresa*; Cervato, Cinzia: **ASSESSING SCIENCE LITERACY GAINS IN A FLIPPED INTRODUCTORY PHYSICAL GEOLOGY COURSE: PRELIMINARY RESULTS**

POSTER TECHNICAL SESSIONS

SESSION NO. 28

D1. Environmental Geoscience (Posters)

8:00 AM, Scheman Building First Floor Lobby

Authors will be present from 3 to 5 PM

Booth #

- 28-1 1 Alhaj, Abdullah*; Anderson, Neil; Torgashov, Evgeniy: **THE APPLICATION OF MASW FOR GEOTECHNICAL INVESTIGATIONS: STRENGTHS AND LIMITATIONS**
- 28-2 2 Bishop, Nicole*; Shipley, Emma; Seabee, Joshua: **IN SITU PHOTO-KINETICS AND SPECTROSCOPY OF ORGANIC AEROSOLS**
- 28-3 3 Klein, Talia*; Dogwiler, Toby: **QUANTIFYING THE EFFECT OF CEDAR REVETMENT TO MITIGATE BANK EROSION IN RICEFORD CREEK, MINNESOTA, USING HIGH-RESOLUTION UAV IMAGERY**
- 28-4 4 Larsen, Ashley K.*; Hanson, Paul R.; Jol, Harry M.: **DUNE FORMATION SOUTH OF THE NIOBRARA RIVER VALLEY, NORTH-CENTRAL NEBRASKA SAND HILLS**

- 28-5** 5 Ibrahim, Mostafa*; Thompson, Michael: **WHAT SOIL PROPERTIES REGULATE RESPIRATION RATE AS AN INDICATOR OF SOIL HEALTH?**
- 28-6** 6 Poppenhagen, Chase Glen*; Gran, Karen B.: **PREDICTING LANDSLIDE HAZARDS IN THE GREATER DULUTH AREA NORTH TO THE KNIFE RIVER ALONG THE NORTH SHORE OF LAKE SUPERIOR**
- 28-7** 7 Feitl, Melina*; Fritz, Sherilyn C.; Benito Granell, Xavier; Steinitz-Kannan, Miriam: **CHARACTERIZING SHORT-TERM (1970-PRESENT) LAKE CHANGE IN THE HIGH-MOUNTAIN TROPICS AND AMAZON OF ECUADOR**
- 28-8** 8 Perello, Melanie*; Bird, Broxton W.; Lei, Yanbin; Polissar, Pratigya J.; Thompson, Lonnie G.; Yao, Tandong: **INFERRED HOLOCENE MONSOON RAINFALL AND LAKE LEVELS IN EASTERN TIBETAN LAKES**
- 28-9** 9 Caples, Stephanie Michelle*; Niemi, Tina M.: **COMPARING HURRICANE MATTHEW (2016) AND HURRICANE JOAQUIN (2015) BOULDER TRANSPORT ON SAN SALVADOR ISLAND, THE BAHAMAS**
- 28-10** 10 Haj, Adel*: **MAPS OF PROPERTIES OF QUATERNARY SEDIMENTS AND AQUIFERS IN THE GLACIATED CONTERMINOUS UNITED STATES**
- 28-11** 11 Rogers, David Brian*; Havens, Victoria; Grote, Katherine: **PREDICTING SALINE GROUNDWATER OCCURRENCE IN WESTERN AND NORTHERN MISSOURI**
- 28-12** 12 Cascarano, Ryan N.*; Reeves, Donald M.; Henry, Mark: **CHARACTERIZING FLUXES AT THE GROUNDWATER-SURFACE WATER INTERFACE USING DYE TRACERS**
- 28-13** 13 Irwin, Michael*; Iqbal, Mohammad: **COMPARING HYDROLOGIC CHARACTERISTICS BETWEEN URBAN LAKES AND STREAMS IN A SMALL WATERSHED IN NORTHEAST IOWA**
- 28-14** 14 Ayawah, Prosper*; Grote, Katherine: **INVESTIGATION OF WATER CHEMISTRY AFTER GROUNDWATER DRAWDOWN IN SOUTH-CENTRAL MISSOURI**
- 28-15** 15 Liu, Honglei*; Lin, Yu-Feng Forrest; Stumpf, Andrew J.; Kumar, Praveen; Sargent, Steve: **SPATIAL AND TEMPORAL PATTERN MONITORING ON GROUNDWATER AND SURFACE WATER INTERACTIONS USING FIBER-OPTIC DISTRIBUTED TEMPERATURE SENSING**
- 28-16** 16 More, Priyanka R*; Gomezdelcampo, Enrique; Roberts, Sheila J.: **SHALLOW GROUNDWATER LEVELS IN A WET PRAIRIE: USING MACHINE LEARNING TO PREDICT WATER LEVEL CHANGES IN NORTHWEST OHIO**
- 28-17** 17 Oware, Prince K.*; Maas, Benjamin J.; Peterson, Eric W.; Honings, Joseph; Oberhelman, Andrew H.; Watson, Andrew L.; Rusthoven, Ian R.: **KARST SUSCEPTIBILITY TO ANTHROPOGENIC INFLUENCES IN THE DRIFTLESS AREA OF NORTHWEST ILLINOIS**
- 28-18** 18 Day, Erik*; Simpkins, William W.: **APPLICATION OF THE USGS SOIL-WATER-BALANCE (SWB) MODEL TO ESTIMATE GROUNDWATER RECHARGE IN CENTRAL IOWA**
- 28-19** 19 Martinez-Sacristan, Hernando*: **PREPARING A HYDROGEOLOGICAL MAP OF THE PRIVATE SECTOR: FAR FROM RHETORIC, CLOSER TO REALITY**

SESSION NO. 29**D2. Archaeological Geology (Posters)**

8:00 AM, Scheman Building First Floor Lobby

Authors will be present from 3 to 5 PM

Booth #

- 29-1** 20 Heinzl, Chad; LaPlant, Paige*: **AN ARCHAEOLOGICAL ANALYSIS OF IRON AGE CERAMICS, WESTERN SICILY**
- 29-2** 21 Sipola, Maija*: **FLUVIAL DEPOSITION OF THE NGANDONG HOMO ERECTUS SITE IN CENTRAL JAVA, INDONESIA**

SESSION NO. 30**D5. Paleontology (Posters)**

8:00 AM, Scheman Building First Floor Lobby

Authors will be present from 3 to 5 PM

Booth #

- 30-1** 22 Dattilo, Benjamin*; Freeman, Rebecca L.; Aucoin, Christopher D.; Brett, Carlton E.; Frauhiger, Mason J.: **DISAPPEARANCE OF PHOSPHATIC MICROFOSSILS IN THE UPPER CINCINNATIAN (UPPER ORDOVICIAN, LATE KATIAN): WATER MASS CHANGES OR FACIES TRACKING?**
- 30-2** 23 Frazer, C.J.*: **INVESTIGATION OF LOCAL PALEOCLIMATE CHANGES THROUGH TIME AND SPACE**
- 30-3** 24 Gangidine, Andrew*; Czaja, Andrew D.; Havig, Jeff: **TRACE ELEMENTS AS A NOVEL BIOSIGNATURE FOR LIFE ON EARLY EARTH AND MARS**
- 30-4** 25 Hoenig, Matthew M.J.*; Shell, Ryan; Ciampaglio, C.N.: **ADDITIONAL VERTEBRATES FROM THE CARBONIFEROUS BURLINGTON-KEOKUK BONE BED OF THE ILLINOIS BASIN**
- 30-5** 26 Haire, Scott A.*; Hanks, H. Douglas; Erickson, Bruce R.: **INSECT FOSSILS FROM THE LATE PALEOCENE (BULLION CREEK FORMATION) OF WANNAGAN CREEK, NORTH DAKOTA**
- 30-6** 27 Peterman, David*; Ciampaglio, Charles N.; Barton, Christopher C.: **THE HYDROSTATICS OF PALEOZOIC ORTHOCONIC CEPHALOPODS (NAUTILOIDEA) WITH IMPLICATIONS FOR EARLY COLONIZATION OF THE PELAGIC ZONE**
- 30-7** 28 Hegna, Thomas*; Czaja, Andrew D.; Rogers, D. Christopher: **RAMAN SPECTROSCOPIC ANALYSIS OF THE COMPOSITION OF CLAM SHRIMP (LAEVICAUDATA, SPINICAUDATA, CYCLESHERIDA) CARAPACES: IMPLICATIONS FOR THE FOSSIL RECORD**
- 30-8** 29 Young, Sawyer N.*; Schmidt, D.R.; Halsey, Chris; Roth, Rebecca: **GROUND AND AERIAL SURVEY OF FOSSIL EOCENE BONE BED IN OGLALA NATIONAL GRASSLANDS, NEBRASKA**
- 30-9** 30 Thomka, James R.*; Brett, Carlton E.: **MORPHOLOGY AND OCCURRENCE OF A SPHAERONITID DIPLOPORITAN (ECHINODERMATA) ATTACHMENT STRUCTURE IN THE MIDDLE SILURIAN OF SOUTHEASTERN INDIANA**
- 30-10** 31 Schmidt, D.R.*; Bolen, M.J.; Mooney, C.P.: **AN OLIGOCENE FOSSIL TORTOISE AND THE CHALLENGE OF DETERMINING SEX**
- 30-11** 32 Hegna, Thomas*: **THE FOSSIL RECORD OF LARGE BRANCHIOPOD CRUSTACEANS**
- 30-12** 33 Elsea, Paige K.*; Voigt, Sebastian; Hegna, Thomas: **ALMATIUM SP. FROM THE MIDDLE TO LATE TRIASSIC MADYGEN FORMATION, SW KYRGYZSTAN AND THE PHYLOGENETIC STRUCTURE OF THE CALMANOSTRACA**
- 30-13** 34 Hester, Dean A.*; Brochu, Christopher A.: **A REVIEW OF THE PALEOGENE EUSUCHIAN CROCODYLIFORM BOREALOSUCHUS WILSONI BROCHU 1997 FROM WESTERN NORTH AMERICA**
- 30-14** 35 Hirst, Kristen*; Schmidt, D.R.; Mooney, Chris: **TAXONOMIC ASSIGNMENT OF TWO EOCENE ENTELODONT MANDIBLES FROM THE OGLALA NATIONAL GRASSLANDS**
- 30-15** 36 Czaja, Andrew D.*; Gangidine, Andrew; Perfetta, Cory J.: **LARGE, COCCOIDAL FOSSIL CYANOBACTERIA FROM SHALLOW-WATER STROMATOLITES OF THE NEOARCHEAN GAMOHAAN FORMATION, SOUTH AFRICA**

SESSION NO. 31**D6. Sedimentary Geology (Posters)**

8:00 AM, Scheman Building First Floor Lobby

Authors will be present from 3 to 5 PM

Booth #

- 31-1** 37 Voice, Peter J.*; Harrison, William B.: **TRAVERSE GROUP RESERVOIRS IN THE MICHIGAN BASIN: A SECOND LOOK**

- 31-2** 38 Stebing, Joanna*; Santiago-Torres, Alejandra; Dattilo, Benjamin; Prezbindowski, Dennis; Havens, Jonathan J.; Grammer, Michael: **A PROPOSED MODEL OF SILURIAN REEF DEVELOPMENT WITH IMPLICATIONS OF EARLY CEMENTATION AND SUBSEQUENT DIAGENESIS AT PIPE CREEK JUNIOR QUARRY**
- 31-3** 39 Nadhim, Zaid Naseer*; Kaczmarek, Stephen: **A STATISTICAL APPROACH FOR CONSTRAINING FACIES VOLUMES IN THE NIAGARAN PINNACLE REEFS, MICHIGAN BASIN, USA**
- 31-4** 40 Ives, Libby R.W.*; Isbell, John L.: **PRELIMINARY SEDIMENTOLOGICAL AND STRATIGRAPHIC ANALYSIS OF THE BASAL GLACIGENIC WYNYARD FORMATION (WYNYARD, TASMANIA, AUSTRALIA)**
- 31-5** 41 Duarte, Edward*; Obrist-Farner, Jonathan: **FACIES DISTRIBUTION ANALYSIS IN A RIVER-DOMINATED DELTA, LAKE IZABAL, GUATEMALA: EXPLORING A UNIQUE EXAMPLE WITH SEDIMENT CORE DATA**
- 31-6** 42 Henning, Clint D.*; Finzel, Emily S.: **USING DETRITAL ZIRCON U-PB AGES AND IMAGE J SOFTWARE TO DEVELOP A PROCEDURE TO QUANTIFY THE SHAPE OF GRAINS TO ANALYZE FOR POTENTIAL PATTERNS**
- 31-7** 43 Yang, Wan; Ju, Ziyue*; Shi, Hui; Wang, Zhongnan; Lu, Yiran; Luo, Xiaorong: **PRELIMINARY RESULTS ON HETEROGENEITY OF LACUSTRINE SANDSTONE RESERVOIRS AND ITS DEPOSITIONAL AND DIAGENETIC CONTROLS, CHANG-6 UNIT OF UPPER TRIASSIC YANCHANG FORMATION, ORDOS BASIN, CHINA**
- 31-8** 44 McAdams, Neo E.B.*; Cramer, Bradley D.; Bancroft, Alyssa M.; Melchin, Michael; Devera, Joseph; Day, James: **STRATIGRAPHIC REVISION AND HIGH-RESOLUTION CHRONOSTRATIGRAPHIC CORRELATION OF THE SILURIAN BAINBRIDGE GROUP, ILLINOIS BASIN**
- 31-9** 45 Kenning, Brett M*; Evans, Kevin Ray; Dogwiler, Toby; Pavlowsky, Robert T.; Faulkner, Douglas J.: **STRATIGRAPHY AND DISTRIBUTION OF THE COASTAL GROUP, ST. ELIZABETH PARISH, SOUTHWESTERN JAMAICA**
- 31-10** 46 Al Musawi, Mohammed A.*; Kaczmarek, Stephen: **APPLICATION OF HIGH RESOLUTION ED-XRF DATA TO ESTABLISH A SEQUENCE STRATIGRAPHIC FRAMEWORK OF HOMOGENEOUS CARBONATE ROCKS, MICHIGAN BASIN, USA**

SESSION NO. 32

T7. Agricultural Impacts on Hydrology and Water Quality in the Midwest (Posters) (GSA Hydrogeology Division; GSA Geology and Society Division; National Ground Water Association; Iowa Groundwater Association)

8:00 AM, Scheman Building First Floor Lobby

Authors will be present from 9:30 to 11:30 AM

Booth #

- 32-1** 47 Guenther, Gregory*; Hart, David J.: **CORRELATION BETWEEN OBSERVED LAND USE AND PRESENCE OF HUMAN INDICATORS IN GROUNDWATER IN SPRINGFED WETLANDS OF DOOR COUNTY, WISCONSIN**
- 32-2** 48 Kalkhoff, Stephen J.*; Lee, Casey J.; Terrio, Paul J.; Garrett, Jessica D.: **CHANGE IN NUTRIENT TRANSPORT FROM THE UPPER AND MIDDLE MISSISSIPPI BASINS SINCE THE BASELINE PERIOD (1980-1996)**
- 32-3** 49 Perry, McKenzie*; Triplett, Laura D.; Westfield, Jacob; Clause, Caitlin; Smith, Connor: **TSS AND NITRATE MONITORING IN SEVEN MILE CREEK, MN, TO INSPIRE INCREASED BEST MANAGEMENT PRACTICES**
- 32-4** 50 Sehr, Christina*; Steffen, Taylor; Grote, Katherine: **WATER QUALITY IN PRISTINE STREAMS IN SOUTHEASTERN MISSOURI: ESTABLISHING A BASELINE**

SESSION NO. 33

T21. Sediments, Landforms, and Chronology of the Laurentide Ice Sheet: Analog or Anomaly? (Posters) (GSA Quaternary Geology and Geomorphology Division; GSA Sedimentary Geology Division)

8:00 AM, Scheman Building First Floor Lobby

Authors will be present from 9:30 to 11:30 AM

Booth #

- 33-1** 51 McDanel, Joshua J.; Miller, Bradley A.*; Moore, Peter L.; Sockness, Brian; Gran, Karen B.; Cullen, Cecilia; Anders, Alison: **A HARMONIZED MAP OF GLACIAL LANDFORM REGIONS IN THE CENTRAL LOWLANDS OF NORTH AMERICA**
- 33-2** 52 Thompson, Anna C.*; Iverson, Neal R.; Zoet, Lucas K.: **A RELATIONSHIP BETWEEN SLIDING SPEED AND EFFECTIVE PRESSURE BASED ON OBSERVATIONS OF DEGLACIATED BEDROCK**
- 33-3** 53 Kerr, Phillip J.*; Tassier-Surine, Stephanie A.; Bettis, E. Arthur; Woida, Kathleen; Quade, Deborah J.: **TIMING OF TWO MIDDLE WISCONSIN GLACIAL ADVANCES INTO NORTH CENTRAL IOWA**
- 33-4** 54 Anders, Alison*; Bettis, E. Arthur; Grimley, Dave A.; Stumpf, Andrew J.; Kumar, Praveen: **CRITICAL ZONE STRUCTURE IN THE GLACIATED INTERIOR LOWLANDS, USA: A CONCEPTUAL MODEL FROM THE INTENSIVELY MANAGED LANDSCAPE CRITICAL ZONE OBSERVATORY**
- 33-5** 55 Tassier-Surine, Stephanie A.*; Kerr, Phillip J.; Bettis, E. Arthur; Woida, Kathleen; Quade, Deborah J.: **REDEFINING THE MIDDLE WISCONSIN SHELTON CREEK BOUNDARY IN NORTH CENTRAL IOWA**
- 33-6** 56 Boswell, Carter W.*; Syverson, Kent M.: **GIS ANALYSIS OF EVIDENCE FOR A LATE WISCONSIN CALVING EMBAYMENT IN THE PENOBSCOT RIVER VALLEY REGION NEAR BANGOR, MAINE**
- 33-7** 57 McCarville, Katherine*: **IOWA'S MEGAFLOOD? A CIRCUMSTANTIAL CASE FOR FORMATION OF THE IOWAN SURFACE LANDFORM REGION**

SESSION NO. 34

T23. Reconstructing Glacial Lakes in the Midwest and Great Lakes Regions (Posters) (GSA Quaternary Geology and Geomorphology Division; GSA Limnogeology Division; GSA Sedimentary Geology Division; The Great Lakes Section of SEPM)

8:00 AM, Scheman Building First Floor Lobby

Authors will be present from 9:30 to 11:30 AM

Booth #

- 34-1** 58 Luczak, Jonathan N.*; Fisher, Timothy G.; Samsen, Brian: **SEDIMENTOLOGY AND CHRONOLOGY OF FILL IN LAKE MAUMEE'S IMLAY CHANNEL**
- 34-2** 59 Towell, Amy*; Valachovics, Thomas R.; Dehm, Dustin; Samsen, Brian; Breitner, Sean; Fisher, Timothy G.; Krantz, David E.; Stierman, Donald: **GEOPHYSICAL INVESTIGATION OF A SPIT COMPLEX IN GLACIAL LAKE MAUMEE**

SESSION NO. 35

T24. Geophysics in Glacial Landscapes: Methods, Applications, and Innovations (Posters) (GSA Quaternary Geology and Geomorphology Division; GSA Geophysics and Geodynamics Division)

8:00 AM, Scheman Building First Floor Lobby

Authors will be present from 9:30 to 11:30 AM

Booth #

- 35-1** 60 Graham, Grace*; Hart, Dave; Gotkowitz, Madeline B.: **ESTIMATING THE UNCERTAINTY OF PASSIVE SEISMIC DATA FOR A DEPTH TO BEDROCK MAP IN BAYFIELD COUNTY WI**
- 35-2** 61 Reimers, Alexander*; Laabs, Benjamin: **CLIMATE CHANGE DURING DEGLACIATION INFERRED FROM NUMERICAL GLACIER MODELING IN THE RUBY MOUNTAINS, NEVADA**

- 35-3 62 Armstrong, Eric*; Stierman, Donald: **GEOPHYSICAL INVESTIGATION OF BOUNDARIES AND UPLIFTED RIM STRATA OF A POSSIBLE IMPACT CRATER IN NORTHWEST OHIO**
- 35-4 63 Finnegan, John P.*; Krantz, David E.: **GEOPHYSICAL ANALYSIS OF OTTAWA LAKE AND RELATIONSHIP TO GLACIAL LAKE ARKONA, MONROE COUNTY, MICHIGAN**

SESSION NO. 36**T26. GIS Applications, LiDAR, and Digital Landscapes (Posters) (GSA Quaternary Geology and Geomorphology Division)**

8:00 AM, Scheman Building First Floor Lobby

Authors will be present from 9:30 to 11:30 AM

Booth #

- 36-1 64 Crabtree, Stephen*; Chute, Justin; Dahle, Jordan: **A MAPPING, PETROGRAPHY, AND GEOCHEMISTRY-BASED STUDY OF VOLCANIC UNITS IN THE SOUTHERN OREGON CASCADES**
- 36-2 65 Sodeman, Alexander D.*; Fisher, Timothy G.; Becker, Richard H.: **EVIDENCE FOR TUNNEL CHANNELS FROM HURON-ERIE LOBE IN NORTHEASTERN INDIANA**
- 36-3 66 Carullo, Sally*; Moore, Peter L.; Schultz, Richard: **IMPACT OF FORESTED RIPARIAN AREAS ON STREAM MORPHOLOGY USING AERIAL LIDAR**
- 36-4 67 Phillips, Andrew C.*; Keefer, Donald A.; Casler, Nathan: **SUPERCOMPUTING EXPERIMENTS TOWARDS MULTISCALE MACHINE-ASSISTED LANDFORM IDENTIFICATION FROM LIDAR DATA**
- 36-5 68 Heinzl, Chad; Foy, Clifton*: **DEVELOPING A GEODATABASE OF MAQUOKETA'S (IOWA) QUATERNARY GEOLOGY**
- 36-6 69 Hostens, Daniel S.*; Dogwiler, Toby: **DETERMINING THE EFFECT OF MISSION DESIGN AND FLIGHT PATTERN ON THE QUALITY AND ACCURACY OF DEMS AND ORTHOPHOTOS DERIVED FROM UAV IMAGERY**
- 36-7 70 Zivkovic, Vladimir B.*: **USING JMARS TO SURVEY AN ANCIENT FLUVIAL CHANNEL AT MADLER IMPACT CRATER, MARS**

SESSION NO. 37**T29. Structural Geology and Tectonics in a Quantitative World (Posters) (GSA Structural Geology and Tectonics Division)**

8:00 AM, Scheman Building First Floor Lobby

Authors will be present from 9:30 to 11:30 AM

Booth #

- 37-1 71 Pipes, Grace*; Titus, Sarah; Reber, Jacqueline E.: **PHYSICAL MODELING OF CREEPING-TO-LOCKED BEHAVIOR TRANSITION ALONG A STRIKE-SLIP FAULT**
- 37-2 72 Ladd, Christopher R.*; Reber, Jacqueline E.: **FORCE DISTRIBUTION IN A TWO-PHASE MEDIUM DURING SIMPLE SHEAR**
- 37-3 73 Birren, Thomas*; Reber, Jacqueline E.: **EXPERIMENTAL ANALYSIS OF SEMI-BRITTLE RHEOLOGY: IMPLICATIONS FOR STRAIN TRANSIENTS**
- 37-4 74 Liu, Jianbo*; Eckert, Andreas; Hogan, John P.: **ORIGIN AND STRUCTURAL GEOMETRY OF FOLDING IN THE EUREKA-HOUSE SPRINGS STRUCTURE**
- 37-5 75 Helmer, Kelly Elizabeth*; Maher, Harmon: **ANALYSIS OF DEFORMATION BANDS AT SLIM BUTTES, SOUTH DAKOTA**
- 37-6 76 Nso, Peter*; Eckert, Andreas: **NUMERICAL EXPERIMENTS OF FRACTURE PATTERNS AND FAULTING ADJACENT SALT FLANKS IN CONTRACTIONAL AND EXTENSIONAL SETTINGS**

SESSION NO. 38**T31. Economic Geology, Igneous and Metamorphic Petrology, Mineralogy (Posters) (GSA Mineralogy, Geochemistry, Petrology, and Volcanology Division)**

8:00 AM, Scheman Building First Floor Lobby

Authors will be present from 9:30 to 11:30 AM

Booth #

- 38-1 77 Bergbower, Josh N.*; Dietsch, Craig; Singer, Jared W.; Rakovan, John: **TRACE AND RARE EARTH ELEMENT ANALYSIS OF FLUORITE FROM THE ILLINOIS-KENTUCKY FLUORSPAR DISTRICT AND ITS IMPLICATIONS FOR THE ORIGINS OF MINERALIZING FLUIDS**
- 38-2 78 Conn, C. Dakota*; Spry, Paul G.; Koenig, Alan E.: **THE GENETIC RELATIONSHIP BETWEEN THE NAIRNE PYRITE MEMBER AND METAMORPHOSED SEDIMENT-HOSTED CU-AU AND PB-ZN-AG DEPOSITS, KANMANTOO GROUP, SOUTH AUSTRALIA**
- 38-3 79 Peate, David W.*; Cukierski, Daniel O.; Ukstins, Ingrid; Foster, C. Tom: **TEXTURAL AND COMPOSITIONAL CHARACTERISTICS OF METALLIC SPHERULES IN IMPACT MELT FROM MONTURAQUI CRATER, CHILE**
- 38-4 80 Siebach, Jacob A.*: **ESTIMATING MAGMATIC TEMPERATURES AND SOURCE LITHOLOGIES FOR OFF-AXIS ALKALINE MAGMAS – IN SNAEFELLSNES, WESTERN ICELAND**
- 38-5 81 Moleski, Nicholas Michael*: **INQUIRY INTO THE SULFUR ISOTOPE COMPOSITION OF THE VMS DEPOSITS IN THE PENOEKAN VOLCANIC BELT**
- 38-6 82 Elkins, Lynne J.*; Marzoli, Andrea; Bizimis, Michael; Callegaro, Sara; Meyzen, Christine; Sorsen, Nathan; Lassiter, John C.; Ernesto, Marcia: **MANTLE SOURCES FOR CENTRAL ATLANTIC MAGMATIC PROVINCE BASALTS FROM HF ISOTOPES**
- 38-7 83 Horst, Lucy M.*; Lodge, Robert W.D.: **THE REDISCOVERY AND REVIVAL OF THE CRANDON VOLCANOGENIC MASSIVE SULFIDE DEPOSIT, NORTHEASTERN WISCONSIN**
- 38-8 84 Blotz, Kaelyn E.*; Fredrickson, Eli T.; Lodge, Robert W.D.: **CHARACTERISTICS OF ORE AND ALTERATION MINERAL ASSEMBLAGES AT THE FLAMBEAU VOLCANOGENIC MASSIVE SULFIDE DEPOSIT, NORTHWESTERN WISCONSIN**
- 38-9 85 Zambito, James*; Mauel, Stephen W.; Haas, Lisa D.; Batten, William: **BEDROCK GEOLOGIC MAPPING AND GEOCHEMISTRY OF TREMPLEAU COUNTY, WISCONSIN**
- 38-10 86 Maruszczak, Alex D.*; Peate, David W.: **GEOBAROMETRY OF OFF-AXIS BASALTIC GLASSES FROM THE SNAEFELLSNES PENINSULA, ICELAND**
- 38-11 87 Byars, Brooke E.*; Peate, David W.; Coulthard, Daniel A.: **A PETROGRAPHIC AND COMPOSITIONAL STUDY OF PLAGIOCLASE IN THE ALKALINE OFF-RIFT BÚÐAHRAUN LAVA FLOW, SNAEFELLSNESS, ICELAND**
- 38-12 88 Torcivia, Michael A.*; Neal, Clive R.: **LUNAR SAMPLE 60025: A STORY OF MULTIPLE LITHOLOGIES**
- 38-13 89 Burney, D.*; Neal, C.R.: **MODERATELY VOLATILE ELEMENTS (MVES) IN THE MARTIAN AND LUNAR MANTLES**
- 38-14 90 Cronberger, Karl*; Neal, Clive R.: **KREEPY MOON ROCKS: KREEP BASALT PETROGENESIS**
- 38-15 91 Gawronska, A.J.*; Cronberger, K.; Neal, C.R.: **IMPLICATIONS OF BIMODAL OLIVINE COMPOSITIONS IN VHK BASALTS**
- 38-16 92 Cross, Joseph S.D.*: **GEOCHEMICAL AND THIN SECTION ANALYSIS OF RING MOUNTAIN SERPENTINITE**

AFTERNOON ORAL TECHNICAL SESSIONS

SESSION NO. 39

T6. Assessing Groundwater in the Midwestern U.S.: How Much, How Good, and for How Long? (GSA Hydrogeology Division; National Ground Water Association; Iowa Groundwater Association)

1:30 PM, Scheman Building Room 260/262

Bob Libra and Michael Anderson, Presiding

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|-------|---------|--|
| | 1:30 PM | INTRODUCTORY REMARKS |
| 39-1 | 1:35 PM | Anderson, Michael K.*; Simpkins, William W.: TRENDS IN GROUNDWATER USE AND ETHANOL PRODUCTION IN IOWA (2004-16) |
| 39-2 | 1:55 PM | Hadley, Daniel R.*; Abrams, Daniel B.: REVISITING ONE OF THE LARGEST AQUIFER TESTS IN HISTORY: IMPLICATIONS FOR FAULT ZONE HYDROGEOLOGY AND THE DECLINING GROUNDWATER SUPPLY IN NORTHEASTERN ILLINOIS |
| 39-3 | 2:15 PM | Witt, Alyssa; Simpkins, William W.*; Blum, Justin; Trost, Jared J.; Berg, Andrew; Stark, James: SPATIAL VARIABILITY IN THE VERTICAL CONNECTIVITY OF TILL CONFINING BEDS: EXAMPLES FROM THE NEW ULM FORMATION IN CENTRAL MINNESOTA |
| 39-4 | 2:35 PM | Maier, Anna-Turi*; Simpkins, William W.; Witt, Alyssa; Trost, Jared J.; Berg, Andrew; Stark, James: HYDROGEOLOGIC INVESTIGATION OF GROUNDWATER FLOW IN TILL CONFINING BEDS OVERLYING GLACIGENIC AQUIFERS IN SOUTH-CENTRAL AND NORTH-CENTRAL MINNESOTA |
| 39-5 | 2:55 PM | Trost, Jared J.*; Feinstein, Daniel T.; Simpkins, William W.; Witt, Alyssa; Stark, James: EVALUATING THE SUSTAINABILITY OF GROUNDWATER WITHDRAWALS FROM CONFINED GLACIAL AQUIFERS |
| | 3:15 PM | BREAK |
| 39-6 | 3:30 PM | Divine, Dana P.*; Joeckel, R.M.; Olafsen Lackey, Susan: CHARACTERIZING THE AQUIFER PROPERTIES OF THE CRETACEOUS NIOBRARA FORMATION IN EASTERN NEBRASKA |
| 39-7 | 3:50 PM | Alley, William*: COMMUNICATING ABOUT GROUNDWATER DEPLETION |
| 39-8 | 4:10 PM | Greer, John C.*; Christianson, Evan G.; LeMon, Brian; Osweiler, Todd: ROCHESTER, MINNESOTA WATER SOURCE SUSTAINABILITY STUDY |
| 39-9 | 4:30 PM | Hart, David J.*; Muldoon, Maureen A.; Bradbury, Kenneth: MONITORING WELL DESIGN IN FRACTURED SILURIAN DOLOMITE IN DOOR COUNTY, WI |
| 39-10 | 4:50 PM | Runkel, Anthony*; Steenberg, Julia R.; Retzler, Andrew J.; Meyer, Jessica R.; Pehme, Peeter E.; Parker, Beth L.; Tipping, Robert G.: FRACTURE STRATIGRAPHY LINKED TO MULTILEVEL BOREHOLE MONITORING IN LOWER PALEOZOIC BEDROCK OF THE CENTRAL MIDCONTINENT, NORTH AMERICA |
| 39-11 | 5:10 PM | Meyer, Jessica R.*; Parker, Beth L.; Ribeiro, Lucas A.F.S.; Morgan, Chris A.; Runkel, Anthony C.: HIGH RESOLUTION HEAD PROFILES REVEAL NEW INSIGHTS ABOUT AQUITARD MECHANISMS IN SEDIMENTARY ROCKS |

SESSION NO. 40

T11. Biogeochemistry of Water, Sediments, and Interfaces (GSA Limnogeology Division; GSA Geobiology and Geomicrobiology Division; GSA Hydrogeology Division; GSA Sedimentary Geology Division)

1:30 PM, Scheman Building Room 250/252

Elizabeth Swanner, Chad Wittkop and Amy Myrbo, Presiding

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| 40-1 | 1:30 PM | Notini, Luiza*; Latta, Drew; Neumann, Anke; Pearce, Carolyn I.; Sassi, Michel; N'Diaye, Alpha; Rosso, Kevin M.; Scherer, Michelle M.: THE ROLE OF DEFECTS IN Fe(II) - GOETHITE ELECTRON TRANSFER |
| 40-2 | 1:50 PM | Zhou, Zhe*; Latta, Drew; Scherer, Michelle M.; Thompson, Aaron: IRON ELECTRON TRANSFER AND ATOM EXCHANGE IN FERRIHYDRITE-NOM PRECIPITATES AND THE EFFECT ON CARBON STABILITY |
| 40-3 | 2:10 PM | Dunshee, Aubrey J.*; Andrews, Robert S.; Akob, Denise M.; Hayes, Sarah M.: INVESTIGATING Fe(III)-REDUCING MICROBIAL ACTIVITY UNDER 100% CARBON DIOXIDE HEADSPACE |
| 40-4 | 2:30 PM | Kneer, Marissa L.*; Ginder-Vogel, Matthew: IMPACTS OF SEDIMENT GEOCHEMISTRY ON MERCURY SPECIATION AND METHYLATION IN A FRESHWATER ESTUARY |
| 40-5 | 2:50 PM | Hackenmueller, Melissa A.*; Mueller, Carly A.; Wiest, Adam C.; Mahoney, J. Brian; Vitale, Sarah A.; Mc Ellistrem, Laurel J.: SOURCE TO SINK TRACING OF PHOSPHORUS CONTAMINATION PATHWAYS IN SURFACE WATER AND GROUNDWATER OF WESTERN WISCONSIN |
| 40-6 | 3:10 PM | Wilkinson, Grace*; Albright, Ellen; Fleck, Rachel: SPATIAL VARIABILITY OF SEDIMENT PHOSPHORUS FRACTIONS IN EUTROPHIC SHALLOW LAKES |
| 40-7 | 3:30 PM | Leung, Tania*; Swanner, Elizabeth: THE ROLE OF BENTHIC IRON DURING CYANOBACTERIAL HARMFUL ALGAL BLOOMS (CYANOHABS) OCCURRENCES |
| 40-8 | 3:50 PM | Havig, Jeff R.*; Hamilton, Trinity L.: POTENTIAL EFFECTS OF EUTROPHICATION-INDUCED CYANOBACTERIAL BLOOMS AND INVASIVE MUSSEL SPECIES ON CARBON CYCLING AND BURIAL IN GREAT LAKES REGION LAKES AND RESERVOIRS |

SESSION NO. 41

T19. Eolian Systems of the Midcontinent (GSA Quaternary Geology and Geomorphology Division; GSA Sedimentary Geology Division; GSA Soils and Soil Processes Interdisciplinary Interest Group)

1:30 PM, Scheman Building Room 220

Joseph A. Mason, Paul Hanson and Peter M. Jacobs, Presiding

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| 41-1 | 1:30 PM | Mason, Joseph A.*; Johnson, William C.; Miao, Xiaodong: BIMODAL GRAIN SIZE OF LOESS IN THE CENTRAL GREAT PLAINS AND THE ENVIRONMENT OF THE LAST GLACIAL-INTERGLACIAL TRANSITION |
| 41-2 | 1:50 PM | McKeehan, Kevin G.*; Mason, Joseph A.: EVIDENCE OF THE ORIGINS OF PEORIA LOESS FROM A MASS-BALANCE ANALYSIS APPROACH |
| 41-3 | 2:10 PM | Grimley, David A.*; Lebel, Caitlin; Dendy, Sarah; Conroy, Jessica L.; Loope, Henry M.: PALEOENVIRONMENTAL AND PALEOCLIMATE INFERENCES FROM GASTROPOD ASSEMBLAGES IN LAST GLACIAL LOESS: ILLINOIS, INDIANA, AND KENTUCKY |
| 41-4 | 2:30 PM | Kasmerchak, Chase*; Nyland, Kelsey; Kamoske, Aaron; Breeze, Victoria; Bomber, Michael; Schaetzl, Randall: "SILTY-SAND" EOLIAN SEDIMENT IN THE LEE OF LARGE DUNES IN MICHIGAN'S UPPER PENINSULA |
| 41-5 | 2:50 PM | Schaetzl, Randall*: FACTORS AFFECTING THE SPATIAL PATTERNING OF LOESS IN WESTERN WISCONSIN |

- 41-6** 3:10 PM Rawling, J. Elmo*; Hanson, Paul R.; Larsen, Ashley K.; Carson, Eric C.: **USING HIGH RESOLUTION LIDAR-DERIVED DEM'S TO INTERPRET EARLY HOLOCENE DUNES AND THEIR REACTIVATION AROUND 4000 YRS AGO, NORTHWEST WISCONSIN**

SESSION NO. 42

T20. Slope Stability in the Midwest (GSA Quaternary Geology and Geomorphology Division; GSA Environmental and Engineering Geology Division)

1:30 PM, Scheman Building Room 275

Lucas Zoet and Carrie Jennings, Presiding

- 42-1** 1:30 PM Idarraga, Alexander J.P.; Zoet, Lucas; Krueger, Russell*: **THE USE OF STRUCTURE FROM MOTION TO GENERATE HIGH RESOLUTION TERRAIN MODELS**
- 42-2** 1:50 PM Mickelson, David M.*: **HAS ANOTHER PERIOD OF BLUFF INSTABILITY BEGUN ON WISCONSIN'S LAKE MICHIGAN BLUFFS?**
- 42-3** 2:10 PM Krueger, Russell*; Zoet, Lucas; Rawling, J. Elmo: **MODELLING SHORELINE BLUFF STABILITY IN OZAUKEE COUNTY, WI**
- 42-4** 2:30 PM Jennings, Carrie*; Kurak, Ethan: **LANDSLIDE INVENTORY AND CATEGORIZATION FOR HENNEPIN COUNTY, MINNESOTA**
- 42-5** 2:50 PM Brown, Elizabeth R.*; Gran, Karen B.: **MONITORING BLUFF EROSION RATES USING TERRESTRIAL LASER SCANNING AND STRUCTURE-FROM-MOTION PHOTOGRAMMETRY ON MINNESOTA'S NORTH SHORE STREAMS**
- 42-6** 3:10 PM Beaulieu, Olivia P.*; Wickert, Andrew D.; Witte, Elizabeth: **MAGNITUDE-FREQUENCY DISTRIBUTION OF LANDSLIDES IN A PHYSICAL EXPERIMENT**

SESSION NO. 43

T35. Geoscience Outreach and Engagement

1:30 PM, Scheman Building Room 230/240

Lisa Anderson and Peter J. Voice, Presiding

- 43-1** 1:30 PM Veatch, Steven Wade; Elick, Benjamin Hayden*: **INTEGRATING REPEAT PHOTOGRAPHY WITH GEOSCIENCE EDUCATION, OUTREACH, AND ENGAGEMENT**
- 43-2** 1:50 PM Maher, Harmon*: **BRINGING TO LIGHT GEOLOGY IN THE ART AND STONE OF JOSLYN ART MUSEUM, OMAHA: A SERVICE LEARNING PROJECT**
- 43-3** 2:10 PM Kaczmarek, Stephen; Voice, Peter J.*; Petcovic, Heather L.; Harrison, William: **BRIDGING THE GAP: USING GEOCHEMICAL DATA TO INTEGRATE GEOLOGY AND CHEMISTRY IN K-12 CLASSROOMS**

- 43-4** 2:30 PM Crabtree, Stephen*: **FIVE YEARS OF GEOSCIENCE OUTREACH AT ELEMENTARY SCHOOL STUDENTS IN RURAL, WESTERN MINNESOTA: MORE THAN SHOW-AND-TELL**

- 43-5** 2:50 PM Westgaard, John*; Korf, Jason J.; Willging, Steve: **HILL ANNEX PALEONTOLOGY PROJECT: A YEAR IN TRANSITION**

SESSION NO. 44

T38. Twenty-First Century Aggregates (GSA Sedimentary Geology Division)

1:30 PM, Scheman Building Room 299

Franciszek Hasiuk and Ryan J. Clark, Presiding

- 44-1** 1:30 PM Taylor, Peter C.*: **AGGREGATES IN CONCRETE**
- 44-2** 1:50 PM Lundy, Sherman*: **AGGREGATE PROPERTIES AND AGGREGATE USES. AN OVERVIEW OF QUALITIES, TESTS, AND APPLICATIONS**
- 44-3** 2:10 PM Schnoebelen, Adriana Reyes*: **APPLIED CONSTRUCTION GEOLOGY TO MAXIMIZE PAVEMENT PERFORMANCE**
- 44-4** 2:30 PM Hasiuk, Franciszek*: **AGGREGATE ROCK TYPING: STATE OF THE ART**
- 44-5** 2:50 PM Rinderknecht, Chase J.*; Hasiuk, Franciszek: **MICRO-PORE SYSTEMS: A KEY COMPONENT IN CHARACTERIZING CARBONATE FACIES USED IN CONCRETE AGGREGATE EXPLORATION AND PRODUCTION**
- 44-6** 3:10 PM Orso, Joseph Francis*; Hasiuk, Franciszek; Dawson, M. Robert: **A NEXT-GENERATION "IOWA PORE INDEX" TEST DEVICE FOR CHARACTERIZING COURSE AGGREGATE PORE SYSTEMS USING WATER INTRUSION**
- 44-7** 3:30 PM Hussey, Evelyn K.*; Hasiuk, Franciszek; Dawson, M. Robert: **A PRELIMINARY STUDY OF THE EXTENT OF DIAGENETIC ALTERATION IN THE SPRING GROVE MEMBER OF THE WAPSIPINICON FORMATION (MIDDLE DEVONIAN, IOWA, USA)**
- 44-8** 3:50 PM Ishutov, Serg*: **COMPUTED TOMOGRAPHY ANALYSIS OF AIR VOID SYSTEM IN IOWA PAVEMENTS CREATED FROM AGGREGATE DETERIORATION**
- 44-9** 4:10 PM Adams, Conner J.*; Haughton, Andrea L.; Hasiuk, Franciszek; Ishutov, Sergey: **PORE CONNECTIVITY IN AIR VOID SYSTEM OF MODERN AND DECADES OLD IOWA PAVEMENTS**
- 44-10** 4:30 PM Lundy, Sherman*: **PARAMETERS FOR ESTABLISHING AND DEVELOPING A QUARRY**
- 44-11** 4:50 PM Clark, Ryan J.*: **IMPLICATIONS FOR DETAILED GEOLOGIC MAPPING ON THE AGGREGATE INDUSTRY IN IOWA**
- 44-12** 5:10 PM Heinzl, Chad*; Lundy, Sherman; Olson, Randy: **UNI, THE IOWA LIMESTONE PRODUCERS ASSOCIATION AND IOWA'S TEACHERS - A MATCH MADE IN STONE**



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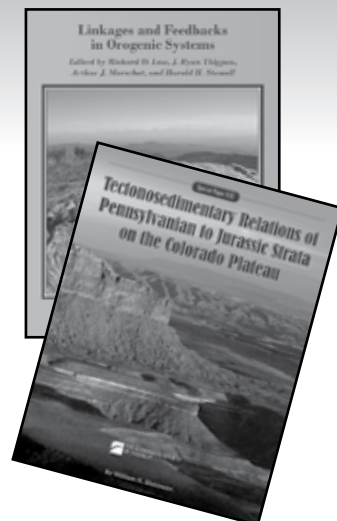
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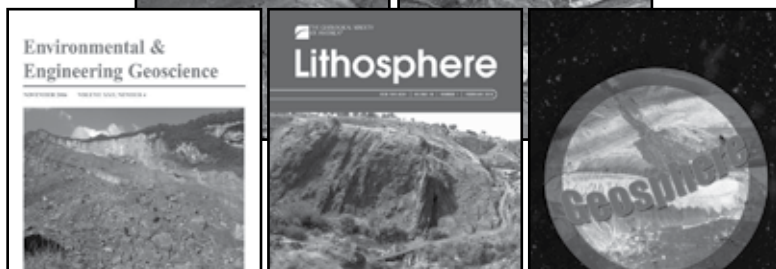
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CODE OF CONDUCT AT GSA EVENTS



GSA is a premier, international scientific society whose goals and mission are to advance geoscience research and discovery, to provide service to society and to promote stewardship of Earth, within and beyond the geosciences profession. In fulfilling its goals and mission, and in keeping with its Diversity Position Statement, GSA meetings foster the exchange of scientific ideas, through open and respectful dialogues at oral and poster sessions, field trips, short courses, mentorships and other GSA-supported programs. GSA promotes, provides, expects and endorses a professional and respectful atmosphere and values a diversity of views and opinions.

All registrants, guests, volunteers, exhibitors, GSA staff, service providers, and others in attendance are expected to abide by this GSA Events Code of Conduct, which outlines specific expectations for participants at GSA-supported events and is in addition to the provisions of the GSA Code of Conduct.

Expected Behavior

All registrants, guests, volunteers, exhibitors, GSA staff, service providers, and others in attendance are to:

- Be treated with respect and consideration.
- Be considerate, collegial, and collaborative.
- Communicate openly, with civil attitudes, critiquing ideas rather than individuals.
- Avoid personal attacks directed toward other registrants, guests, volunteers, exhibitors, GSA staff, service providers, and others in attendance.
- Obey the rules and policies of the meeting venue, hotels, GSA contracted facility, or any other venue where your meeting badge and GSA affiliation is likely to be displayed.
- Alert meeting security personnel, GSA staff, or GSA leadership if you notice someone in distress, or perceive a potentially dangerous situation, or witness a dangerous situation.

Procedures to be followed in an emergency situation:

- Evaluate the situation and if appropriate call 911 or activate a local fire alarm.
- Do not endanger yourself. Follow the directions of building security, law enforcement, fire department, military personnel, or GSA staff.
- Initiate first aid if appropriate, so trained and necessary.
- Be as observant as possible in order to communicate to emergency staff.

Unacceptable Behavior includes but is not limited to:

- Harassment, intimidation, or discrimination.

- Physical or verbal abuse of any registrant, guest, volunteer, exhibitor, GSA staff, service provider, or other attendee.
- Disruption of presentations at oral or poster sessions, in the exhibit hall, on field trips, or at other events organized by GSA at the meeting venue, hotels, or other GSA-contracted facilities.
- Audio and video recording, or taking images of an individual's oral presentation without the presenters' permission, is expressly forbidden. Images of posters taken without permission are not allowed. Images of posters may be taken with the explicit consent of the presenter, and images may be acquired only in the presence of the presenter.

Examples of unacceptable behavior include but are not limited to:

- Verbal comments related to gender, sexual orientation, disability, physical appearance, body size, race, religion, national origin or any other identified characteristic outlined in the GSA Diversity Position Statement .
- Inappropriate use of nudity and/or sexual images in public spaces or in presentations.
- Intentional, uninvited physical contact of any form.
- Threats (implied or real) of, physical, professional or financial harm.
- Stalking registrants, guests, volunteers, exhibitors, GSA staff, service providers, or others in attendance.

Consequences of Unacceptable Behavior

- Anyone requested to stop unacceptable behavior is expected to immediately cease and desist.
- GSA staff, leadership, security, or law enforcement personnel shall take action(s) deemed necessary and appropriate. Actions may include immediate removal from the meeting or field trip without warning or refund.
- GSA reserves the right to prohibit attendance at any future GSA meeting or other GSA-sponsored event.

Reporting Unacceptable Behavior

If you are being harassed, notice that someone else is being harassed, or have any other concerns, please locate a GSA Staff Member or GSA Leader (see page 3) with a GSA RISE button. You may also email GSA at gsa-eventscode@gmail.com.

Always remember that if it is a life-threatening emergency, dial 9-1-1. If you are within the meeting venue or hotel, it is helpful to have someone notify a staff member or building employee if possible to avoid delays with emergency responders.

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