GSA NORTH-CENTRAL SECTION MEETING
16–17 April
Iowa State University, Ames, Iowa, USA
www.geosociety.org/nc-mtg
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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Local Committee Chair ............................... William Simpkins
Local Committee Vice-Chair ................................ Alan Wanamaker
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Field Trip Co-chairs ............................... Franciszek Hasiuk and Aaron Wood
Sponsorships ........................................... Alan Wanamaker and William Simpkins
Short Course/Workshops ......................... Yuyu Zhou and Chris Harding
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
IT Liaison ............................................... Mark Mathison
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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Great Lakes Section, Society for Sedimentary Geology (SEPM)
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NOTECE

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.
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 website 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.
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

Registration fees presented below are in US dollars.

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<tr>
<th></th>
<th>Full Meeting</th>
<th>Single Day</th>
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<tbody>
<tr>
<td>Professional Member*</td>
<td>$250</td>
<td>$195</td>
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<td>Professional Member 70 and older*</td>
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<td>Early Career Professional (ECP)</td>
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<td>K–12 Professional</td>
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<td>Guest or Spouse**</td>
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<td>Field Trip/Workshop Only**</td>
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*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 (note: starting April 1, this hotel will be listed under the Radisson Hotel Ames).

- **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.
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. Lightning 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 CO$_2$ 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 CO$_2$ 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 CO$_2$ levels at which critical climate and ecological thresholds could be crossed. This presentation will present evidence for the robust atmospheric CO$_2$-climate coupling throughout Earth history and what it reveals regarding the Earth’s sensitivity to CO$_2$-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 Montanez’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.
stay on site during that time. hour (noon to 1:30 p.m.) to provide food for those wishing to
trucks will be stationed at the Outdoor Plaza during the lunch
sale in 004 Scheman on the Ground Floor. In addition, food
detailed questions about their research.
Sedimentary Geology. To be eligible, students must be lead
Section and by the Great Lakes Section–SEPM (Society for
posters and papers are supported by the GSA North-Central
information.
Suzanne Ankerstjerne (ankerssm@iastate.edu), for more
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,
and students discuss real-life issues including professional
opportunities and challenges that await students after gradu-
ation. Space is limited; first come, first served.

**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 advance, 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.–3:30 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.

<table>
<thead>
<tr>
<th>For Presentations On</th>
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<tr>
<td>Monday, 16 April a.m.</td>
<td>8:30 p.m., Sunday, 15 April</td>
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<td>Monday, 16 April p.m.</td>
<td>10 a.m. Monday, 16 April</td>
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<td>Tuesday, 17 April a.m.</td>
<td>5:30 p.m., Monday, 16 April</td>
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<td>Tuesday, 17 April p.m.</td>
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**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, selliott@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, pstack@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.

T19. Eolian Systems of the Midcontinent. Cospervised 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, jacobsp@uww.edu.

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

T21. Sediments, Landforms, and Chronology of the Laurentide Ice Sheet: Analog or Anomaly? Cospervised 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, lzoe@wisc.edu; Carrie Jennings, The Freshwater Society, cjennings@freshwater.org.

T23. Reconstructing Glacial Lakes in the Midwest and Great Lakes Regions. Cospervised 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, bcurr@illinois.edu.


T26. GIS Applications, LiDAR, and Digital Landscapes. Cospervised 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, FClubb@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. Cospervised 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. Cospervised 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. Cospervised by the GSA Mineralogy, Geochemistry, Petrology and Volcanology Division. Paul G. Spry, Iowa State Univ., ppmgpry@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, rhh@rider.com.

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

T35. Geoscience Outreach and Engagement. Cospervised 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. Cospervised by the Geosciences Division–Council on Undergraduate Research. Robert D. Shuster, Univ. of Nebraska, rshuster@unomaha.edu.


T38. Twenty-First Century Aggregates. Cospervised 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. Cospervised by the GSA Quaternary Geology and Geomorphology and GSA Sedimentary Geology Divisions. John Thomas, Hungry Canyons Alliance, john@goldenhillsrdc.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)

2018 GSA North-Central Section Meeting 11
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.

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 Cyclothsms 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.

Pre-Meeting

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; Cara 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 policymakers. 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

<table>
<thead>
<tr>
<th>EVENT</th>
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<tbody>
<tr>
<td>FT3. Geologic Controls on Surface and Groundwater Quality in the Cambrian-Ordovician Aquifer System of the &quot;Driftless&quot; Area of Southeastern Minnesota (Field Trip)</td>
</tr>
<tr>
<td>SUNDAY, 15 APRIL</td>
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<tr>
<td>FT6. Hydrogeology of the Ames Aquifer and Its Award-Winning Drinking Water (Field Trip)</td>
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<tr>
<td>FT4. Pennsylvanian Sandstones and Cyclothsms of Central Iowa (Field Trip)</td>
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<tr>
<td>W1. Geologic Mapping Using GIS (Workshop)</td>
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<td>W3. Collecting Geological Field Data Using the StraboSpot Data System (Workshop)</td>
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<tr>
<td>Exhibits Set up</td>
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<tr>
<td>FT5. Geoscience in Your Backyard: A Field Trip for Educators (Field Trip)</td>
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<tr>
<td>W2. 3D Printing of Terrain Models (Workshop)</td>
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<td>Registration</td>
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<td>Speaker Ready Room</td>
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<td>Exhibits</td>
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<tr>
<td>Welcome Reception</td>
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<td>Lightning Talks</td>
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<td>MONDAY, 16 APRIL</td>
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<tr>
<td>North-Central Section Management Board Meeting</td>
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<td>Speaker Ready Room</td>
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<td>Orientations for Session Chairs and Oral Session Student Volunteers</td>
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<td>FT4. Pennsylvanian Sandstones and Cyclothsms of Central Iowa (Field Trip)</td>
<td>8 a.m.–5:30 p.m.</td>
<td>North Side Ground Floor</td>
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<tr>
<td>W1. Geologic Mapping Using GIS (Workshop)</td>
<td>8 a.m.–noon</td>
<td>248 Durham Center, ISU Campus</td>
</tr>
<tr>
<td>W3. Collecting Geological Field Data Using the StraboSpot Data System (Workshop)</td>
<td>8 a.m.–5 p.m.</td>
<td>Room 208</td>
</tr>
<tr>
<td>Exhibits Set up</td>
<td>noon–5 p.m.</td>
<td>Second Floor Lobby</td>
</tr>
<tr>
<td>FT5. Geoscience in Your Backyard: A Field Trip for Educators (Field Trip)</td>
<td>1–5 p.m.</td>
<td>North Side Ground Floor</td>
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<tr>
<td>W2. 3D Printing of Terrain Models (Workshop)</td>
<td>1–5 p.m.</td>
<td>1620 Howe Hall, ISU Campus</td>
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<tr>
<td>Registration</td>
<td>4–8 p.m.</td>
<td>Second Floor Lobby</td>
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<tr>
<td>Speaker Ready Room</td>
<td>4:30–8:30 p.m.</td>
<td>Room 204</td>
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<tr>
<td>Exhibits</td>
<td>6–8:30 p.m.</td>
<td>Second Floor Lobby</td>
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<tr>
<td>Welcome Reception</td>
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<tr>
<td>Lightning Talks</td>
<td>7–8:30 p.m.</td>
<td>Room 275</td>
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<tr>
<td>North-Central Section Management Board Meeting</td>
<td>7–8:30 a.m.</td>
<td>Board Suite 080</td>
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<tr>
<td>Speaker Ready Room</td>
<td>7 a.m.–5:30 p.m.</td>
<td>Room 204</td>
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<tr>
<td>Orientations for Session Chairs and Oral Session Student Volunteers</td>
<td>7:15–7:30 a.m.</td>
<td>Room 175</td>
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<tr>
<td>Registration</td>
<td>7:30 a.m.–5:30 p.m.</td>
<td>Second Floor Lobby</td>
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<tr>
<td>Exhibits</td>
<td>8 a.m.–8 p.m.</td>
<td>Second Floor Lobby</td>
</tr>
<tr>
<td>Guest Tour: Coffee and Carillon</td>
<td>9 a.m.–12:30 p.m.</td>
<td>North Side Ground Floor</td>
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<tr>
<td>Geoscience Career Workshop Part 1: Career Planning and Informational Interviewing (Workshop)</td>
<td>9–10 a.m.</td>
<td>Room 150/154</td>
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<tr>
<td>Geoscience Career Workshop Part 2: Geoscience Career Exploration (Workshop)</td>
<td>10–11 a.m.</td>
<td>Room 150/154</td>
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<tr>
<td><strong>Morning Oral Technical Sessions</strong></td>
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<tr>
<td>T3. Climate Reconstructions from Cave Deposits</td>
<td>8 a.m.–noon</td>
<td>Benton Auditorium</td>
</tr>
<tr>
<td>T7. Agricultural Impacts on Hydrology and Water Quality in the Midwest I</td>
<td>8 a.m.–noon</td>
<td>Room 250/252</td>
</tr>
<tr>
<td>T24. Geophysics in Glacial Landscapes: Methods, Applications, and Innovations</td>
<td>8 a.m.–noon</td>
<td>Room 275</td>
</tr>
<tr>
<td>T26. GIS Applications, LiDAR, and Digital Landscapes</td>
<td>8 a.m.–noon</td>
<td>Room 220</td>
</tr>
<tr>
<td>T31. Economic Geology, Igneous and Metamorphic Petrology, Mineralogy</td>
<td>8 a.m.–noon</td>
<td>Room 260/262</td>
</tr>
<tr>
<td>T37. Current Developments in Paleozoic and Early Mesozoic Conodont Biostratigraphy, Systematics, and Paleoecology: The 51st Pander Society Symposium</td>
<td>8 a.m.–noon</td>
<td>Room 299</td>
</tr>
<tr>
<td><strong>Poster Sessions</strong></td>
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<tr>
<td>D3. Geophysics (Posters)</td>
<td>8 a.m.–5:30 p.m.</td>
<td>First Floor Lobby</td>
</tr>
<tr>
<td>D4. Geoscience Education (Posters)</td>
<td>8 a.m.–5:30 p.m.</td>
<td>First Floor Lobby</td>
</tr>
<tr>
<td>T2. Fossil Insights into Paleoclimatic and Paleoenvironmental Change (Posters)</td>
<td>8 a.m.–5:30 p.m.</td>
<td>First Floor Lobby</td>
</tr>
<tr>
<td>T6. Assessing Groundwater in the Midwestern U.S.: How Much, How Good, and for How Long? (Posters)</td>
<td>8 a.m.–5:30 p.m.</td>
<td>First Floor Lobby</td>
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<tr>
<td>T11. Biogeochemistry of Water, Sediments, and Interfaces (Posters)</td>
<td>8 a.m.–5:30 p.m.</td>
<td>First Floor Lobby</td>
</tr>
<tr>
<td>T16. Applied Geology; Environmental, Engineering, Hydro, Geotechnical, and Exploration Geophysics (Posters)</td>
<td>8 a.m.–5:30 p.m.</td>
<td>First Floor Lobby</td>
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<tr>
<td>T30. Compelling Cores from the North-Central Section: A Core-Poster Session (Posters)</td>
<td>8 a.m.–5:30 p.m.</td>
<td>First Floor Lobby</td>
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<tr>
<td>T36. Undergraduate Research Poster Session I &amp; II (Posters)</td>
<td>8 a.m.–5:30 p.m.</td>
<td>First Floor Lobby</td>
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<tr>
<td>Roy J. Shlemon Mentor Program in Applied Geoscience</td>
<td>noon–1:30 p.m.</td>
<td>Room 150/154</td>
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<tr>
<td>NAGT Luncheon (Ticketed Event)</td>
<td>noon–1:30 p.m.</td>
<td>Room 254</td>
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<tr>
<td>W4. Effective Science Communication for Geoscientists (Workshop)</td>
<td>noon–1:30 p.m.</td>
<td>Room 208</td>
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<tr>
<td><strong>Guest Tour: Ames Artisans</strong></td>
<td>1–5 p.m.</td>
<td>North Side Ground Floor</td>
</tr>
<tr>
<td>FT1. Twenty-First Century Aggregates Field Trip (Field Trip)</td>
<td>1–5 p.m.</td>
<td>North Side Ground Floor</td>
</tr>
<tr>
<td>Great Lakes Section-SEPM (Society for Sedimentary Geology) Business Meeting</td>
<td>5:15–5:30 p.m.</td>
<td>Second Floor Lobby</td>
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<tr>
<td>GSA North-Central Section, All Member Business Meeting</td>
<td>5:30–5:45 p.m.</td>
<td>Benton Auditorium</td>
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<tr>
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<tr>
<td>Kenote Presentation by GSA President Isabel Montañez: <em>Deep-Time Insight into Earth’s Future</em></td>
<td>5:45–6:45 p.m.</td>
<td>Benton Auditorium</td>
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<tr>
<td>Keynote Reception</td>
<td>6:45–8 p.m.</td>
<td>First Floor Lobby</td>
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<tr>
<td>Book Signing, by Dr. William Alley</td>
<td>7–8 p.m.</td>
<td>First Floor Lobby</td>
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### Afternoon Oral Technical Sessions

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<th>Location</th>
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<tbody>
<tr>
<td>T4.</td>
<td>Landlocked but Not Left Out: Contributions to Oceanography by Mid-Continent Scientists</td>
<td>1:30–5:30 p.m.</td>
<td>Room 220</td>
</tr>
<tr>
<td>T7.</td>
<td>Agricultural Impacts on Hydrology and Water Quality in the Midwest II</td>
<td>1:30–5:30 p.m.</td>
<td>Room 250/252</td>
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<tr>
<td>T9.</td>
<td>Pathogens and Other Contaminants of Concern in the Environment</td>
<td>1:30–5:30 p.m.</td>
<td>Benton Auditorium</td>
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<tr>
<td>T21.</td>
<td>Sediments, Landforms, and Chronology of the Laurentide Ice Sheet: Analog or Anomaly?</td>
<td>1:30–5:30 p.m.</td>
<td>Room 260/262</td>
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<tr>
<td>T29.</td>
<td>Structural Geology and Tectonics in a Quantitative World</td>
<td>1:30–5:30 p.m.</td>
<td>Room 275</td>
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<tr>
<td>T39.</td>
<td>Fluvial Adjustments in the Highly-Altered Agricultural Landscape of the Postglacial Upper Midwest</td>
<td>1:30–5:30 p.m.</td>
<td>Room 299</td>
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### TUESDAY, 17 APRIL

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<th>Session</th>
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<tbody>
<tr>
<td>North-Central Section, GSA Campus Representatives and Technical Advisory Board Meeting</td>
<td>7–8:30 a.m.</td>
<td>Board Suite 080</td>
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</tr>
<tr>
<td>Orientations for Session Chairs and Oral Session Student Volunteers</td>
<td>7:15–7:30 a.m.</td>
<td>Room 275</td>
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<tr>
<td>Registration</td>
<td>7:30 a.m.–noon</td>
<td>Second Floor Lobby</td>
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<tr>
<td>Speaker Ready Room</td>
<td>7:30 a.m.–noon</td>
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<tr>
<td>Exhibits</td>
<td>8 a.m.–noon</td>
<td>Second Floor Lobby</td>
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</tr>
<tr>
<td>Geoscience Career Workshop Part 3: Cover Letters, Resumes, and CVs (Workshop)</td>
<td>9–10 a.m.</td>
<td>Room 150/154</td>
<td></td>
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<tr>
<td>Guest Tour: Butterflies and Blooms</td>
<td>10 a.m.–2 p.m.</td>
<td>North Side Ground Floor</td>
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### Morning Oral Technical Sessions

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

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<tr>
<td>D1.</td>
<td>Environmental Geoscience (Posters)</td>
<td>8 a.m.–5:30 p.m.</td>
<td>First Floor Lobby</td>
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<tr>
<td>D2.</td>
<td>Archaeological Geology (Posters)</td>
<td>8 a.m.–5:30 p.m.</td>
<td>First Floor Lobby</td>
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<tr>
<td>D5. Paleontology (Posters)</td>
<td>8 a.m.–5:30 p.m.</td>
<td>First Floor Lobby</td>
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<tr>
<td>D6. Sedimentary Geology (Posters)</td>
<td>8 a.m.–5:30 p.m.</td>
<td>First Floor Lobby</td>
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</tr>
<tr>
<td>T7. Agricultural Impacts on Hydrology and Water Quality in the Midwest (Posters)</td>
<td>8 a.m.–5:30 p.m.</td>
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<td>T21. Sediments, Landforms, and Chronology of the Laurentide Ice Sheet: Analog or Anomaly? (Posters)</td>
<td>8 a.m.–5:30 p.m.</td>
<td>First Floor Lobby</td>
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<td>T23. Reconstructing Glacial Lakes in the Midwest and Great Lakes Regions (Posters)</td>
<td>8 a.m.–5:30 p.m.</td>
<td>First Floor Lobby</td>
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<tr>
<td>T24. Geophysics in Glacial Landscapes: Methods, Applications, and Innovations (Posters)</td>
<td>8 a.m.–5:30 p.m.</td>
<td>First Floor Lobby</td>
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<td>T26. GIS Applications, LiDAR, and Digital Landscapes (Posters)</td>
<td>8 a.m.–5:30 p.m.</td>
<td>First Floor Lobby</td>
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<td>T29. Structural Geology and Tectonics in a Quantitative World (Posters)</td>
<td>8 a.m.–5:30 p.m.</td>
<td>First Floor Lobby</td>
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<tr>
<td>T31. Economic Geology, Igneous and Metamorphic Petrology, Mineralogy (Posters)</td>
<td>8 a.m.–5:30 p.m.</td>
<td>First Floor Lobby</td>
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<tr>
<td>John Mann Mentors in Applied Hydrogeology Program</td>
<td>noon–1:30 p.m.</td>
<td>Room 150/154</td>
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<td>Exhbits Tear Down</td>
<td>noon–4:30 p.m.</td>
<td>Second Floor Lobby</td>
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**Afternoon Oral Technical Sessions**

| 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 |
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

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.; Marrott, 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

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 Cleave, Daniel Martin*; Onac, Bogdan P.; Wynn, Jonathan G.; Forray, Ferenc; Ionita, Monica: BAT GUANO-DERIVED 813C AND 815N 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 KANGUIK 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

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
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

1-1 8:00 AM Thomason, Jason*; Larson, Timothy: ELECTRICAL GEOPHYSICAL METHODS TO CHARACTERIZE GLACIAL LANDFORMS OF THE LAKE MICHIGAN LOBE

1-2 8:20 AM Woodard, Jacob*; Zoet, Lucas; Iverson, Neal R.; Benediktsson, Ivar Örn; Finlayson, Andrew: INSIGHTS INTO DRUMLIN DEVELOPMENT AT MULAJÖKULL, ICELAND: A GEOPHYSICAL APPROACH

1-3 8:40 AM Mwakanyamale, Kiss E.*; Brown, Steven E.; Theuerkauf, Ethan J.: MODELING EROSION AND ACCRETION ALONG THE ILLINOIS LAKE MICHIGAN SHORE

1-4 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

1-5 9:20 AM Zoet, Lucas K.*; Muto, Atsuhiko; Rawling, J. Elmo: GEOPHYSICAL INVESTIGATION OF TUNNEL CHANNELS

1-6 9:40 AM Hansen, Doug*; 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

2-1 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

2-2 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

2-3 8:40 AM Higley, Melinda C.*; Conroy, Jessica L.: THE HYDROLOGICAL RESPONSE OF SURFACE WATER ON KIRITIMATI ISLAND, KIRIBATI TO RECENT CLIMATE VARIABILITY

2-4 9:00 AM Fields, Chad*: PROTECTING PRIVATE WELLS FROM ARSENIC USING GEOLOGY AND GIS

2-5 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

2-6 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

2-7 10:15 AM McDeid, Samuel M.*; Green, David I.S.; Crumpton, William: MORPHOLOGY OF DRAINED UPLAND DEPRESSIONS IN WATER AND SEDIMENT DISCHARGE OF THE MAINSTEM MISSISSIPPI RIVER IN THE ZUMBO 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

3-1 8:00 AM Lodge, Robert W.D.*; Zens, Zacharie A.; Jacobson, Regan E.: GEOLOGIC CONTROLS ON THE HYDROGEOCHEMICAL CHARACTERISTICS OF THE VOLCANIC SYSTEM HOSTING THE FLAMBEAU CU-ZN-AU DEPOSIT, NORTHWESTERN WISCONSIN

3-2 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

3-3 8:40 AM Rock, Marlena J.*; Frank, Mark R.: EXPERIMENTAL CONSTRAINTS ON LEAD-ZINC HYDROTHERMAL DEPOSITS

3-4 9:00 AM Ehlrich, Joshua J.*; Frank, Mark R.: UNDERSTANDING THE RELATIONSHIP BETWEEN GOLD, CHALCOPYRITE, BORNITE, AND PYRRHOTITE IN MAGMATIC-HYDROTHERMAL SYSTEMS

3-5 9:20 AM Frank, Mark R.*; Mann, Matthew; Bodnar, Robert J.: A POSSIBLE EXPLANATION FOR THE CORRELATION OF GOLD AND ARSENIC WITHIN PYRITE, ARSENIC PYRITE, AND ARSENOPYRITE

3-6 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

SESSION NO. 6
T32. Economic Geology and Volcanology (GSA Economic Geology and Volcanology Divisions)
8:00 AM, Scheman Building Room 210

4-1 8:00 AM Benson, Erin*; Ripley, Edward M.; Li, Chusi; Mann, Robert: MULTIPLE SULFUR ISOTOPE STUDY OF EAGLE EAST, MICHIGAN: UNDERSTANDING THE GENESIS OF NI-CU-PGE DEPOSITS

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

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 IN WATER AND SEDIMENT DISCHARGE OF THE MAINSTEM MISSISSIPPI RIVER IN THE ZUMBO TRIBUTARY, MN

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 ZUMBO TRIBUTARY, MN
### SESSION NO. 6

**T37. Current Developments in Paleozoic and Early Mesozoic**

**Conodont Biostratigraphy, Systematics, and Paleoecology: The 51st Pander Society Symposium (GSA Sedimentary Geology Division)**

*8:00 AM, Scheman Building First Floor Lobby*

**Authors will be present from 3 to 5 PM**

#### Booth #

**7-1** Mickus, Kevin L.: *GRAVITY ANALYSIS OF GEOTHERMAL FEATURES IN WESTERN YELLOWSTONE NATIONAL PARK*

**7-2** Mickus, Kevin L.: *THE GEOMETRY OF THE METHOW BASIN IN NORTH-CENTRAL WASHINGTON VIA A GRAVITY AND MAGNETIC ANALYSIS*

**7-3** Ngoh, 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** Biscoe, James*: Carpenter, Philip J.: *HYDROSEISMICITY AND RECENT SMALL EARTHQUAKES OCCURRING WITHIN THE FOX RIVER VALLEY, ILLINOIS*

**7-5** Duba, Kinzang*: Mickus, Kevin L.; Tobgay, Tobgay: *ANALYSIS OF GRAVITY DATA FOR LITHOSPHERIC STRUCTURE IN WESTERN AND CENTRAL BHUTAN*

**7-6** Rasmussen, Joseph M.: Skalsby, 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*

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**SESSION NO. 7**

**D3. Geophysics (Posters)**

*8:00 AM, Scheman Building First Floor Lobby*

**Authors will be present from 3 to 5 PM**

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**SESSION NO. 8**

**D4. Geoscience Education (Posters)**

*8:00 AM, Scheman Building First Floor Lobby*

**Authors will be present from 3 to 5 PM**

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**SESSION NO. 9**

**D5. Geology (Posters)**

*8:00 AM, Scheman Building First Floor Lobby*

**Authors will be present from 3 to 5 PM**

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**SESSION NO. 10**

**D6. Geology (Posters)**

*8:00 AM, Scheman Building First Floor Lobby*

**Authors will be present from 3 to 5 PM**

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**SESSION NO. 11**

**D7. Geology (Posters)**

*8:00 AM, Scheman Building First Floor Lobby*

**Authors will be present from 3 to 5 PM**

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**SESSION NO. 12**

**D8. Geology (Posters)**

*8:00 AM, Scheman Building First Floor Lobby*

**Authors will be present from 3 to 5 PM**

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**SESSION NO. 13**

**D9. Geology (Posters)**

*8:00 AM, Scheman Building First Floor Lobby*

**Authors will be present from 3 to 5 PM**

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**SESSION NO. 14**

**D10. Geology (Posters)**

*8:00 AM, Scheman Building First Floor Lobby*

**Authors will be present from 3 to 5 PM**

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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 CELLULOSIE AS A PROXY FOR HOLOCENE HYDROCLIMATE ON THE KENAI PENINSULA, ALASKA

9-2 12 Wierenga, Matthew Wayne*; Starley, Ralph: PALEOCOLOGY AND TAPHONOMY OF THE GRASSY MOUNTAIN FORMATION

9-3 13 Shell, Ryan*; Ciampilgo, Charles N.: HYBDONT SHARKS AS LINKAGES BETWEEN TERTRESTIAL 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 Shoehl, Mohammad*; Cramer, Bradley D.; Forbes, Tori Z.: STUDYING CRYSSTALLINE STRUCTURE CONDONOT MICROFOSSILS WITH X-RAY DIFFRACTION

9-6 16 Westgaard, John*: Korf, Jason J.; Thole, Jeffrey T.; Willing, Steve: POSSIBLE NEW OCCURRENCE OF PHOLLUS SP. BIVALVE TO THE FAUNAL BIOTA OF THE COLERANI FORMATION, LATE CRETACEOUS; HILL ANNEX MINE STATE PARK, CALUMET, MINNESOTA

9-7 17 Ruga, Mikaela R.*; Huntley, John Warren; Glasscock, Michael: TRACE ELEMENT ANALYSIS OF TWO HOLOCENE BIVALVE TAXA, CYRENODONAX FORMOSIANA 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.; Grinmley, David A.; Loope, Henry: REGIONAL PALEOClimatic ANALYSIS FROM SUCCESSIVE 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


9-12 22 Ruiz Marin, Eduardo*; Coenen, Jason; Scherer, Reed P.; Stansell, Nathan D.: Expedition 361 Scientists, The: BIENOGENIC OPAL PRODUCTION IN THE AGUHAS CURRENT AND ITS CONNECTION TO ARIDIFICATION IN SOUTH AFRICA DURING THE MID-PLEISTOCENE

SESSION NO. 10

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*; Tusab, 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 Heinzl, 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; Erntwistle, James; Suchomel, Eric; Deeb, Rula; Kane, Lea: DEGRADATION OF TCE BY IRON MINERALS AND AQUFER MATERIALS

11-2 29 Vai, 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, Vinodhna S.*; Conroy, Jessica L.: BIOGEOCHEMICAL INSIGHTS INTO CONTROLS ON LACUSTRINE STABLE NITROGEN ISOTOPE RATIOS

11-6 33 Hernandez, Elisandra*: Obrist-Farmer, Jonathan; Curtis, Jason H.: INFERNED 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, Bopaih A.: A BIOGEOCHEMICAL ANALYSIS OF CARBONATE MICROBILITE NODULES THAT FORM IN FISH LAKE, SOUTHWESTERN MICHIGAN

11-8 35 Lambrecht, Nicholas*: Swanner, Elizabeth; Wittkop, Chad; Sheik, Cody; Kates, 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 POR-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 WAPSNONOC CREEK WATERSHED IN WEST BRANCH, IOWA
12-4 39 Pinto Vilar, Rayla*; Hoang, Tung; Allemann, 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 813C 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 PENNSYLVIANIAN STRATA IN THE FOREST CITY BASIN, SOUTHERN IOWA
13-4 43 Oborn, Stephan C.*; Bancroft, Alyssa M.; Brett, Carlton E.; Cramer, Bradley D.: IMPROVING CHRONOSTRATIGRAPHIC CORRELATION OF WENLOCK-PRIDIL (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 ULA RIVER BASIN OF CENTRAL HONDURAS
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, Alexa; 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 Buulde, 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; Sebree, Joshua; Sedlacek, Alexa R.C.; Shen, Xinhuia: 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 Tunncliff, 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 PALEOCeology IN LAST GLACIAL LOESS, SOUTHWESTERN ILLINOIS
14-20 64 Stoflus, 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.*; Caisse, 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*; Ethich, 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: EMLACEMENT 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 ABRATED
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, Domico; Olowsoshile, Aishaat; 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 DUNELANDS TO PROVIDE CONTEXT FOR EBSO CPO PATTERNS

15-4  75 Penafior, Gabrielle*; Niemi, Tina M.; Salgado Munoz, Valente O.: FACES ANALYSIS OF THE GYPSUM UNITS IN THE UPPER MIocene BOLEO FORMATION IN THE SANTA ROSALIA BASIN, BAJA CALIFORNIA SUR, MEXICO

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, J. Elmo; Shipley, Emma; Roach, Madeline; Herran, Julian; Wayson, Jessica; Beck, Kayla; Lashbrook, Colleen;

15-7  78 Volpano, Chelsea A.*; Rawling, J. Elmo; Theuerkauf, Ethan J.: EVALUATING POTENTIAL SEDIMENT TRANSPORT PATHWAYS ALONG THE SOUTHWESTERN LAKE MICHIGAN COAST THROUGH SEDIMENTOLOGICAL, 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, Michael; Kline, Joseph: PETROGRAPHIC CLUES TO THE RICHMONDIAN INVASION OF LIMESTONES FROM THE UPPER ORDOVICIAN (UPPER KATIAN) FROM THE MADISON, INDIANA AREA


15-10  81 Steele, Emma L.*; Dattilo, Benjamin; Ihrhart, 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*; Luccaz, Jonathan N.; Fisher, Timothy G.: ESTIMATING PALEOFLOW THROUGH LAKE MAUWEES 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 687 (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 Muhlenkamp, Quintin E.*; Zaleha, Michael J.: SUBSURFACE VOID EVALUATION AND BEDROCK TOPOGRAPHY OF THE CEDARVILLE DOLOMITE (SLURIAN), WEST-CENTRAL OHIO, USING ELECTRICAL RESISTIVITY GROUND IMAGING (ERGI)

15-17  88 Nacey, Kyle Michael*; Jazdzyk, Madeline; Kelso, Paul; Medicine, Colleen: MAPPING PAST TRIBAL CEMETERY USE AND POSSIBLE FUTURE DEVELOPMENT IN LAKE HURON SHORELINE SEDIMENTS USING GROUND PENETRATING RADAR

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. Caisse, Sarah D. Zellers, Anna Nesterovich and Nina Whitney, Presiding

16-1  1:30 PM Goswami, Arghya*: Vinke, Ali Jo; Boyer, Alicia R.: OESBATHY V1.0 TO V1.011: IMPROVEMENTS INTEGRATED IN THE MODEL PARAMETERIZATIONS

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 VIABILITY ACROSS THE PLIOCENE M2 GLACIAL EVENT IN THE SOUTHWESTERN INDIAN OCEAN, IODP SITE U1475

16-3  2:10 PM Harbour, Thomas A.*; Caisse, 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*: Caisse, Beth E.: RECONSTRUCTING CHANGES IN SEA ICE COVER DURING MARINE ISOTOPE STAGE 11 FROM BERING SEA SEDIMENT CORES

16-5  2:50 PM Caisse, Beth E.*; Zellers, Sarah D.; Cowen, Ellen A.; Müller, Julian; Pratt, Jacob W.; Nesterovich, Anna: SEA ICE AND PRIMARY PRODUCTIVITY IN THE GULF OF ALASKA

MONDAY, 16 APRIL

2018 GSA North-Central Section Meeting 23
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.; 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, Schenman Building Benton Auditorium
Claire Hruby and Sarah M. Elliott, Presiding
William W. Simpkins, Michael Burkart and Nathan L. Young, Presiding

17-1 1:30 PM Valcu-Lisman, Adriana*; Gassman, Philip; Kling, Catherine; Arrit, 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

17-7 3:30 PM Break

17-8 3:45 PM Crompton, William*: POTENTIAL OF TARGETED WETLAND RESTORATION TO REDUCE NITROGEN LOADS TO SURFACE WATERS IN IOWA

17-9 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 (NSNWRI) AFTER 22 YEARS

17-10 4:25 PM Quinn, John J.*; Negri, M. Cristina; Zumpf, C.; Campbell, P.; Cacho, J.; Stegeane, H.: MULTIFUNCTIONAL LANDSCAPES AND WATER QUALITY IN THE MIDWEST

17-11 4:45 PM Schilling, Keith*: GROUNDWATER RESPONSE UNITS: A NEW APPROACH TO EVALUATE NONPOINT SOURCE POLLUTANT LOADING AT A WATERSHED SCALE

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, Schenman Building Benton Auditorium
Claire Hruby and Sarah M. Elliott, Presiding

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.; Gretsch, Stephanie R.; Rezania, 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

18-6 3:15 PM Break

18-7 3:30 PM Stokdyk, Joel P.*; Spencer, Susan K.; Anderson, Anita C.; Walsh, James F.; Firnstahl, Aaron D.; Borchardt, Mark A.: OCCURRENCE OF CRYPTOSPORIDIIUM IN GROUNDWATER WELLS WITH AND WITHOUT SURFACE WATER INFLUENCE

18-8 3:50 PM Ahmed, Warish; Zhang, Qian; Oian; Lobos, Aldo; Senkbeil, Jacob; LaPara, Timothy; Sadowsky, Michael J.; Harwood, Valerie J.; Saedi, Nazoni; Marinoni, Oswald; Ishii, Satoshi*: EXTENT OF PATHOGENIC BACTERIA AND ANTIBIOTIC RESISTANCE GENES IN STORM DRAIN OUTFALLS

18-9 4:10 PM Neher, Timothy Patrick*: ANTIbIOTIC RESISTANT BACTERIA MONITORING IN THE BLACK HAWK LAKE WATERSHED, IOWA

18-10 4:30 PM Palmer, Jason A.*; Hruby, Claire; Soupir, 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

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, Schenman 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
TUESDAY, 17 APRIL

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


19-5 2:50 PM Ceperley, Elizabeth G.; Marcott, Shaun A.; Rawling, J. Elmo: A 10BE BASED CHRONOLOGY FOR THE ARNOTT MORaine OF THE LAURENTIDICE ICE SHEET, CENTRAL WISCONSIN

19-6 3:10 PM Zoet, Lucas*: Barrette, Nolan; Rawling, J. Elmo: GREEN BAY LOBE DRUMLIN MORPHOLOGY AND SPACING


19-8 3:50 PM Wittkop, Chad*; Piper, Christian; Bartley, Julie L.; Krueger, Russell; Bouvier, Audrey; Georg, R. Bastian; Knaebel, 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 LAURENTIDICE 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.*; Iversion, Neal R.: STRAIN PATTERNS IN THE RUBJERG KNUDE GLACIOTECTONIC COMPLEX, DENMARK: A STUDY USING ANISOTROPY OF MAGNETIC SUSCEPTIBILITY

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: KNOCKPOINT MIGRATION IN WESTERN IOWA STREAMS

21-4 2:30 PM Isenhart, 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; Isenhart, 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

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 HYSPERSPECTRAL 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 PALEOCURRENTS IN THE NORTHERN ROCKY MOUNTAINS, ALBERTA, CANADA, USING OXYGEN ISOTOPE ANALYSIS OF LACUSTRINE CARBONATE SEDIMENT
TUESDAY, 17 APRIL

22-5  9:25 AM  Honings, Joseph*: **CLIMATE IMPACTS ON SURFACE INFLOW AND TIE 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; Ehmk, 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; Kant, 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 DOWNGRADIENT OF NUTRIENT-RICH SURFACE WATER SYSTEMS**

23-2  8:25 AM  Bergquist, 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.; Bergquist, 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.: **RADIONUCLIDE AND THE AGE OF GROUNDWATER IN PUBLIC-DRINKING-WATER SUPPLIES FROM THE CAMBRIAN-ORDOVICIAN AQUIFER SYSTEM**

23-7 10:20 AM  Matthews, Madeleine*: Ginder-Vogel, Matthew; Gotkowitz, Madeline B.: **RADION SOURCES AND MOBILITY IN DISCRETE HYDROSTRATIGRAPHIC UNITS WITHIN THE MIDWESTERN CAMBRIAN-ORDOVICIAN AQUIFER**

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**


24-8  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

8:00 AM  INTRODUCTORY REMARKS

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: **BLACKWATER 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**
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.; Möller, 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 ASHFOSSIL 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 DELTA, MISSOURI RIVER

26-7  10:00 AM  Shurr, George*; EMULATING THE EARTH: LANDSCAPE ELEMENTS PRESERVED IN ARCHEOLOGICAL SITES


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

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; Sebree, 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 NIOBRA RIVER VALLEY, NORTH-CENTRAL NEBRASKA SAND HILLS
SESSION NO. 30

D5. Palaeontology (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.; Aucin, Christopher D.; Brett, Carlton E.; Frauhiger, Mason J.: DISAPPEARANCE OF PHOSPHATIC MICROFOSSILS IN THE UPPER CINCINNATIAN (UPPER ORDOVICIAN, LATE KATIAN): WATER MASS CHANGES OR FACES 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, CYCLUSTERIDA) 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 ECCENE BONE BED IN OGLALA NATIONAL GRASSLANDS, NEBRASKA

30-9 30 Thornka, James R.*; Brett, Carlton E.: MORPHOLOGY AND OCCURRENCE OF A SPAHERONITID 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 Elisea, 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 EUUSCHIAN CROCODILIFORM BOREALOSUCHUS WILSONI/BROCHU 1997 FROM WESTERN NORTH AMERICA

30-14 35 Hirst, Kristen: Schmidt, D.R.; Mooney, Chris: TAXONOMIC ASSIGNMENT OF TWO ECCENE 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 Gamboa Formation, South Africa

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 ARCHAEOMETRIC 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. 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
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


32-3 49 Perry, McKenzie*; Trippett, 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 Sehrt, 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 McDaniel, 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.*; Iversen, 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 SHELDON CREEK BOUNDARY IN NORTH CENTRAL IOWA

33-6 56 Boswell, Carter W.*; Syverson, Kent M.: GIS ANALYSIS OF EVIDENCE FOR A LATE WISCONSINAN CALVING EMBAYMENT IN THE PENOBSCOT RIVER VALLEY REGION NEAR BANGOR, MAINE

33-7 57 McCarrville, Katherine*: IOWA'S MEGAFOOD? 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.; Dehn, Dustin; Samsen, Brian; Breitner, Sean, Fisher, Timothy G.; Krantz, David E.; Sterman, 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
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

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 RIFIAN 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 Heinzle, Chad; Foy, Clifton*: DEVELOPING A GEODATABASE OF MAJOKETA’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 JMAERS 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

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 Nao, Peter*; Eckert, Andreas: NUMERICAL EXPERIMENTS OF FRACTURE PATTERNS AND FAULTING ADJACENT SALT FLANKS IN CONTRACTUAL 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

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


38-3 79 Peate, David W.; Cukierski, Daniel O.; Uktins, Ingrid; Foster, C. Tom: TEXTURAL AND COMPOSITIONAL CHARACTERISTICS OF METALLIC SPHERULES IN IMPACT MELT FROM MONTURAGU CRATER, CHILE

38-4 80 Siebach, Jacob A.*: ESTIMATING MAGMATIC TEMPERATURES AND SOURCE LITHOLOGIES FOR OFF-AXIS ALKALINE MAGMAS – IN SNAEFELSNES, WESTERN ICELAND

38-5 81 Molecki, Nicholas Michael*: INQUIRY INTO THE SULFUR ISOTOPE COMPOSITION OF THE VMS DEPOSITS IN THE PENOKEAN VOLCANIC BELT

38-6 82 Elkins, Lynne J.; Marzoli, Andrea; Bizimis, Michael; Callegaro, Sara; Meyzen, Christine; Sorsen, Nathan; Laslser, 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 VOLCANOCENOC 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 VOLCANOCENOC MASSIVE SULFIDE DEPOSIT, NORTHEASTER WISCONSIN

38-9 85 Zamblito, James*: Mauel, Stephen W.; Haas, Lisa D.; Batten, William: BEDROCK GEOLOGIC MAPPING AND GEOCHEMISTRY OF TREMEPELEAU COUNTY, WISCONSIN

38-10 86 Maruszczak, Alex D.*; Peate, David W.: GEOBAROMETRY OF OFF-AXIS BASALTIC GLASSES FROM THE SNAEFELSNES PENINSULA, ICELAND

38-11 87 Byars, Brooke E.*; Peate, David W.; Coullard, Daniel A.: A PETROGRAPHIC AND COMPOSITIONAL STUDY OF PLAGIOCLASE IN THE ALKALINE OFF-RIFT BUDAHAU LAVA FLOW, SNAEFELSNES, 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 (MVE) IN THE MARTIAN AND LUNAR MANTLES

38-14 90 Cronberger, Karl*; Neal, Clive R.: KREEPY MOON ROCKS: KREEP BASALT PETROGENESIS


38-16 92 Cross, Joseph S.D.*: GEOCHEMICAL AND THIN SECTION ANALYSIS OF RING MOUNTAIN SERPENTINITE
SESSION NO. 39


1:30 PM, Scheman Building Room 260/262

Bob Libra and Michael Anderson, Presiding

1:30 PM INTRODUCTORY REMARKS


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 Maher, 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.*; Jocelk, R.M.; Olafsen Lackey, Susan: CHARACTERIZING THE AQUIFER PROPERTIES OF THE CRETACEOUS NIÖBRARA 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.; Rietzler, 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


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

40-1 1:30 PM Notini, Luiza*; Latta, Drew; Neumann, Anke; Pearce, Carolyn I.; Sasii, 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 ATMOM EXCHANGE IN FERRHYDRITE- 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 Elistrem, 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 Sedimentology Interest Group)

1:30 PM, Scheman Building Room 220

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

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.*; Tipping, Robert G.: THE EFFECT ON CARBON STABILITY EXCHANGE IN FERRIHYDRITE-NOM PRECIPITATES AND IRON ELECTRON TRANSFER AND ATOM

41-4 2:30 PM Kneer, Marissa L.*; Ginder-Vogel, Matthew: THE ROLE OF BENTHIC IRON DURING CYANOBACTERIAL HARMFUL ALGAL BLOOMS (CYANOHABS) OCCURRENCES

41-5 2:50 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. 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 PHOTограмmetry 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.*; Petcovitch, Heather L.; Harrison, William: BRIDGING THE GAP: USING GEOCHEMICAL DATA TO INTEGRATE GEOLOGY AND CHEMISTRY IN K-12 CLASSROOMS

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 Schoenebelen, 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; Dawson, M. Robert: A NEXT-GENERATION “IOWA PORE INDEX” TEST DEVICE FOR CHARACTERIZING MICRO-PORE SYSTEMS A KEY COMPONENT IN CHARACTERIZING CARBONATE FACIES USED IN CONCRETE AGGREGATE EXPLORATION AND PRODUCTION

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