

2022 PROGRAM

Vol. 54, No. 3



NORTHEASTERN SECTION

20–22 March

Lancaster, Pennsylvania, USA

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

Susquehanna River, southern Lancaster County

Photo by Emily Wilson

SPONSORS

We are grateful to the following sponsor who made a substantial contribution to help underwrite the costs of the meeting. To help promote the health & safety of GSA attendees, Bruker has provided hand sanitizers for this meeting. Be sure to thank them during the meeting.



Now fully online

NOTICE

By registering for this meeting, you have acknowledged that you have read and will comply with the GSA Code of Conduct for Events (full code of conduct listed on inside back cover). If you have any concerns about behavior that may violate the Code, please contact:

GSA Director for Geoscience Policy, Kasey White, kwhite@geosociety.org

GSA Ethics and Compliance Officer, Nan Stout, gsaeventscode@gmail.com

You may also stop by the GSA registration desk to have the named individuals directly contacted via phone.

Registration for the meeting requires full vaccination status, and booster shots are strongly advised. Additionally, masks are required for all indoor events associated with this meeting.

**FINAL PROGRAM
FOR
ABSTRACTS WITH PROGRAMS**

**57th Annual Meeting
NORTHEASTERN SECTION MEETING
GEOLOGICAL SOCIETY OF AMERICA
20–22 MARCH 2022
LANCASTER MARRIOTT AT PENN SQUARE
LANCASTER, PENNSYLVANIA, USA**

with

**Northeast Region, Association for Women Geoscientists
Eastern Section, Society for Sedimentary Geology
Eastern and New England Sections, National Association of Geoscience Teachers
Northeastern Section, Paleontological Society**

Hosted By

**Franklin & Marshall College
Lafayette College
Millersville University of Pennsylvania
Pennsylvania Geological Survey
Rutgers University
West Chester University of Pennsylvania**



Geoscience in a changed and changing world

Committee for the 2022 Meeting

General Co-Chairs Andrew de Wet, Christopher Williams
Technical Program Co-Chairs LeeAnn Srogi, Gail Ashley, Gale Blackmer, David Sunderlin
Field Trip Chair Jaime Tomlinson
K-12 Teacher Education Program Co-Chairs Lynn Marquez, Christopher Roemmele
Sponsorships Co-Chairs Tim Bechtel, Talor Walsh
Short Courses and Workshops Chair Rob Sternberg
Student and Volunteer Help Chair Emily Wilson
Coordination/Communications Chair Melissa Betrone

Northeastern Section GSA Officers for 2021–2022

Chair Sarah M. Principato
Vice Chair Howell Bosbyshell
Secretary - Treasurer David P. West, Jr.
Members at Large Amber T.H. Whittaker, Laurie D. Grigg
Past Chair Julie Brigham-Grette

General Information



The theme of the meeting is “*Geoscience in a changed and changing world.*” Lancaster is a vibrant, small city, noted for its historically significant architecture, urban parks, boutiques, galleries, museums, restaurants, and tree-lined streets. The meeting is at the Lancaster County Convention Center and Lancaster Marriott at Penn Square, in the heart of historic downtown Lancaster, Pennsylvania, just steps away from the oldest operating farmer’s market in the country.

Travel Directions

Queen Street then turn right on Duke Street and enter the garage immediately on the right. The garage provides direct, covered access to the Marriott/Convention Center.

By car from the Northwest: From Harrisburg, take U.S. 283 east to exit on PA 72 south (Manheim Pike). Merge right and follow PA 72 south to the eighth traffic light, where PA 72 turns right, changing to Prince Street as it crosses over the railroad bridge and joins U.S. 222 south. Follow Prince Street to the center of Lancaster, turn left on King Street, and proceed as indicated above.

By car from the South and West: Take I-83 north to York, then U.S. 30 east. Exit at Harrisburg Pike, PA 230. Turn right and stay on Harrisburg Pike through 8 traffic lights until it ends at Prince Street, U.S. 222 south. Turn right onto Prince Street, drive through 4 traffic lights to King Street at the fifth light and proceed as indicated above.

By plane:

By air: Lancaster has a small airport (LNS) with service between Washington Dulles airport (IAD) and between Pittsburgh (PIT), but it is served by relatively few flights by Southern Airways Express (iflysouthern.com). The best bets are Harrisburg (MDT) and Philadelphia (PHL). From Philadelphia airport, one can take a SEPTA airport express train to the 30th Street Amtrak Station then an Amtrak train to Lancaster (see above). This is likely to be the most cost-effective option for access to Lancaster by air.

Harrisburg airport is served by several airlines providing many flights and it is 35 miles from downtown Lancaster. Unless you know someone in the area who can pick you up, the options are to take a taxi/rideshare or to rent a car. There is no regular limousine service between Harrisburg and Lancaster.

By Train:

Lancaster is served by a relatively good train service that operates between Philadelphia and Harrisburg. Travel time is 65–75 minutes from Philadelphia. Trains run at approximately two-hour intervals from Philadelphia to Lancaster. Last train departs from Philadelphia at 10:59 p.m. on Saturday and Sunday. For schedules and fares, see www.amtrak.com/home. Take a taxi/rideshare (Uber and Lyft serve Lancaster) or walk 1.5 miles down Queen Street to Marriott/Convention Center.



The Lancaster Marriott at Penn Square is on the Southeast corner of the Square in the center of Lancaster. Address: 25 South Queen Street, Lancaster, PA 17603.

By car from the North and East: From the Pennsylvania Turnpike, take U.S. 222 south to U.S. 30 West. Exit onto U.S. 222 south (Fruitville Pike). Turn left and stay on U.S. 222 South, following signs marked Prince Street over the railroad bridge, then through 7 traffic lights to the center of downtown Lancaster. Turn left at the eighth light on King Street, pass Marriott/Convention Center on your right at the intersection with

Parking

Parking is available for those staying overnight at the Lancaster Marriott at Penn Square at a reduced price of \$10. Please note the garage has a 6’8” clearance so if you are coming to the meeting in a large van, you will need to park in a different garage. The Lancaster Parking Authority manages several other nearby garages that can accommodate larger vehicles. The East King Street Garage located at 150 East King Street has a clearance of 8’2” and is the closest to the convention center and hotel. See www.lancasterparkingauthority.com for more

information on garage locations and hourly and daily rates. Metered on street parking is also available.

Registration

Registration is required for anyone attending technical sessions, short courses, field trips or exhibits. On-site registration is located on Level 2 in the Commonwealth Pre-Function area of the Lancaster Marriott at Penn Square on the following schedule:

Saturday, 19 March 2:30–8 p.m.

Sunday, 20 March 7 a.m.–4:30 p.m.

Monday, 21 March 7 a.m.–4:30 p.m.

Tuesday, 22 March 7–11 a.m.

Fees

On-site registration fees are presented below in U.S. dollars:

Standard Rates	Full Mtg.	One Day
Professional Member	\$240	\$165
Professional Senior Member 70+	\$145	\$115
Professional Senior Member 65+	\$240	\$165
Professional Nonmember	\$265	\$200
Early Career Professional Member	\$200	\$180
Student Member	\$95	\$75
Student Nonmember	\$105	\$95
K–12 Professional	\$100	\$75
Guest or Spouse	\$80	\$75
Field Trip/Short Course Only	\$25	n/a

70 years of age or older, and a member for 30 or more years
65 years of age or older, and a member for 25 or more years

Tickets for special events may be purchased on site if available.

Guest registration is intended for non-geoscientists accompanying a registered professional, student or K–12 professional. Guest registration does not include attendance at workshops. All guests, volunteers, exhibitors, GSA staff, service providers and others in attendance are expected to abide by the GSA Events Code of Conduct, which outlines specific expectations for participants at GSA-supported events.

Cancellations, Changes and Refunds

All requests for additions, changes, and cancellations must have been made in writing to GSA headquarters and received by **22 February 2022**. There will be no refunds for cancellations received after this date.

Meeting App and Abstracts

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

Continuing Education Units (CEU)

The Northeastern 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.

Accommodations

We strongly encourage meeting participants to reserve rooms at the Lancaster Marriott at Penn Square, by calling the Lancaster Marriott at Penn Square at +1-888-850-6146 (toll free) or +1-717-239-1600 (local). Please be sure to mention that you are attending the GSA meeting. The Lancaster Marriott at Penn Square is ADA compliant. Mobility accessible rooms may be requested at time of booking.

The Meeting's Technical Program

The Meeting's Technical Program consists of Theme and Discipline Sessions arranged in oral and poster sessions as described below. The Technical Program begins at 8 a.m. and ends no later than 5:30 p.m. on Sunday, 20 March, and Monday, 21 March. On Tuesday, 22 March it begins at 8 a.m. and ends at noon.

Oral Sessions

Most oral sessions have 20 minutes per presentation (17 minutes, presentation; 3 minutes, question and discussion). Presentations must be prepared using PowerPoint or PDF formats, using a 16:9 screen ratio. One laptop with Windows 7 (no Macs available) with PowerPoint 2010, one LCD projector, and one screen is provided for all oral sessions. In addition, each room is equipped with a lectern, microphone, wireless computer mouse and PowerPoint advancer, and a speaker timer.

The Speaker Ready Room

All oral session presenters must visit the Speaker Ready Room in the Constitution Room before their scheduled presentation to ensure their PowerPoint or PDF file is properly configured and operating and load it on one of the laptops. Failure to do so may result in presentations being omitted from sessions.

Speaker Ready Room hours are as follows:

Saturday, 19 March 4–8 p.m.

Sunday, 20 March 7 a.m.–6 p.m.

Monday, 21 March 7 a.m.–6 p.m.

Tuesday, 22 March 7–10 a.m.

Each speaker must bring a PowerPoint or PDF presentation on a USB compatible flash drive (a.k.a. thumb drive or memory stick) to the Speaker Ready Room for checking and uploading to the correct session folder according to the deadlines below:

<i>For Presentation</i>	<i>Upload Not Later Than</i>
Sunday, 20 March, AM	8 p.m., Saturday, 19 March
Sunday, 20 March, PM	10 a.m., Sunday, 20 March
Monday, 21 March, AM	5 p.m., Sunday, 20 March
Monday, 21 March, PM	10 a.m., Monday, 21 March
Tuesday, 22 March, AM	5 p.m., Monday, 21 March

Session Chair Orientations

Each Session Chair is requested to attend a 15 minute "Session Chairs Orientation" held in the Commonwealth Salon 1 Room from 7–7:15 a.m. on the morning of the day on which your session is to take place. This meeting will include a review of session time management, AV procedures, and other

information affecting the conduct of the day's sessions.

Session chairs are asked to strictly adhere to the technical program schedule and to limit speakers to their allotted time. If a speaker does not appear for an assigned time slot, session chairs should call a break or discussion period and begin the following presentation at its scheduled time.

A student volunteer is assigned to each oral session. Session chairs are asked to meet with the assigned student volunteer before the start of the session. The volunteers are there to help the sessions run smoothly and to contact the AV Coordinator in the event of technical problems.

Poster Sessions

All Poster Sessions are in Freedom Hall A, on the Convention Center's lower level. Please check the program for specific times and topics. Poster presenters have one 4' by 6' horizontal (landscape) poster display surface. Numbers on these display surfaces correspond to the poster booth numbers listed in the Program. The poster boards accept push pins, and some pins are furnished for each poster.

FIELD TRIPS

All trips depart from Lancaster Marriott at Penn Square lobby. For additional information, please contact the field trip chair, Jaime Tomlinson, jaimet@udel.edu.

FT1. Accreted Forearc, Continental, and Oceanic Rocks of Maryland's Eastern Piedmont: The Potomac Terrane, Baltimore Terrane, and Baltimore Mafic Complex. Saturday, 19 March, 7 a.m. departure, 7 p.m. return. Cost: \$100. Trip leader; Rebecca Kavage Adams, Maryland Geological Survey, rebecca.adams@maryland.gov.

Description: This field trip follows a transect through three major tectonostratigraphic assemblages in the eastern Maryland Piedmont. We will cross from east to west through exposures of the Baltimore Mafic Complex, Baltimore Terrane, and Potomac Terrane, in the Patapsco River Valley west of Baltimore, Maryland.

FT2. Quaternary Evolution and Contemporary Fluvial Processes, White Clay Creek, Delaware–Pennsylvania. Saturday, 19 March, 8 a.m. departure, 5 p.m. return. Cost: \$80. Trip Organizer; Jim Pizzuto, University of Delaware, pizzuto@udel.edu.

Description: We will highlight deposits of the White Clay Creek and explore implications for contemporary fluvial processes. New data document Quaternary bedrock incision and a mix of colluvium, mill pond deposits, laterally and vertically accreted floodplains, pre-settlement gravel bars, wetland deposits, and nutrients and sediment loading derived from fluvial erosion.

FT3. The Piedmont and K–12 Pedagogy: How Geology Works and Why It Matters. *Endorsed by National Association of Geoscience Teachers (NAGT) Teacher Education Division (TED).* Saturday, 19 March, 8 a.m. departure, 6 p.m. return. Cost: \$105. Trip Leader: L. Lynn Marquez, Millersville University of Pennsylvania, Lynn.Marquez@millersville.edu.

Description: This trip to classic south-central Pennsylvania outcrops provides experience for K–12 educators to investigate rocks, geomorphology, and fluvial processes in the field. Each

stop will include active investigation of the outcrops, discussion of the geology and geologic history of the region, and discussion of how the field experiences can be translated to classroom lessons and activities.

FT4. Geology along the York County Heritage Rail Trail. Saturday, 19 March, 8:30 a.m. departure, 4:30 p.m. return. Cost: \$80. Trip leader: Jeri Jones, Jones Geological Services, jonesgeo@comcast.net.

Description: The York County Heritage Rail Trail is found in the Piedmont and runs 26 miles from north of York southward to the Mason-Dixon Line. The trail cuts across a number of sedimentary and metamorphic formations ranging in age from Lower Cambrian to the Ordovician. We will use stops to study the lithology and structural aspects.

FT5. Historical and Current Paleontological Collections at The Academy of Natural Sciences of Drexel University, Philadelphia. Friday, 18 March, 9 a.m. departure, 5 p.m. return. Cost: \$115 (including transportation from Lancaster). Trip Leader: Ted Daeschler, Academy of Natural Sciences of Drexel University, ebd29@drexel.edu.

Description: This field trip is a guided exploration of research collections at the Academy of Natural Sciences in Philadelphia. The collections document the early history of paleontology in North America, as well as active research on Late Devonian vertebrates from Pennsylvania, Nunavut, and Antarctica.

SHORT COURSES

For additional information, please contact the short course organizer, Rob Sternberg, rob.sternberg@fandm.edu.

SC1. Geo-philately—Earth Sciences on Postage Stamps. *Online course.* Saturday, 19 March, 9 a.m.–noon, EDT. Cost: \$10. Convener: Rob Sternberg, Franklin & Marshall College, rob.sternberg@fandm.edu.

Description: Many postage stamps of the world bear images related to the earth sciences. How can these be collected? What earth-science topics can be used as the basis for a collection? How might these stamps be used in education? What messages do the issuing countries convey with these stamps?

SC2. How to Create Your Own 3D Video-Game–Style Geologic Field Trip and Host it Online: Accessible, Immersive Data Visualization for Education and Research. Saturday, 19 March, 10 a.m.–5 p.m., Independence Room. Cost: \$50. Convener: Mattathias (Max) D. Needle, University of Washington, mneedle@uw.edu.

Description: Participants will create original, video-game-based field trips from their own (or provided) landscape/outcrop models to share through web browsers. Intended for researchers and educators looking for novel ways to interact with 3D models and interested in broadening access to field geology by generating virtual experiences (<https://www.virtualfieldgeology.com/> [accessed 2 July 2021]). Participants will need to bring a laptop with charger, and a mouse is highly recommended, to the course.

SC3. Contaminant Plume Modeling and Analysis for the Environmental Professional. Saturday, 19 March, 1–3 p.m.,

Conestoga Room. Cost: \$20. Convener: Charles McLane, McLane Environmental LLC, cmclane@McLaneEnv.com.

Description: Chemical constituents can dissolve into groundwater to form contaminant plumes that often require investigation and cleanup. This course provides an overview of the processes that govern plume formation and movement; data required for plume analysis; simple methods of analyzing plume movement and extent; and effects of source removal. Intended audience: This course is geared toward environmental professionals with a basic understanding of hydrogeology and contaminant fate and transport concepts. No prior computer modeling experience is required. Participants will need to bring a laptop to the course.

SC4. The Digital Geologic Map Schema (GeMS). *Online course.* Saturday, 19 March, 1–5 p.m., EDT. Cost: \$10. Convener: David Soller, U.S. Geological Survey, drsoller@usgs.gov.

Description: The Geologic Map Schema (GeMS) defines a standard database design for digital publication of geologic maps. This course is an overview of GeMS: getting started, documentation, tips and tricks, compliance validation, tools for converting from other schema. Intended for geoscientists who develop digital geologic maps as part of their work.

SC5. Teaching and Learning Geoscience in a Changed and Changing World. *Endorsed by National Earth Science Teachers Association; National Association of Geoscience Teachers (NAGT) Teacher Education Division (TED).* Sunday, 20 March, 9 a.m.–noon, Independence Room. Cost: \$25. Convener: Missy Holzer, National Earth Science Teachers Association, missy.holzer@gmail.com.

Description: We live on a planet that changes naturally and through human influences. What can we learn from our geologic past that can inform our decisions for the future? This active workshop connects the conference theme and field trip to K–12 instructional resources.

Special Events & Activities

Saturday, 19 March

Welcoming Reception: NEGSA, 2022. 5–7 p.m., Freedom Hall A. Visit with friends and colleagues as you enjoy the hospitality of the Lancaster Marriott at Penn Square. Exhibits are open. One complimentary drink, then cash bar.

Sunday, 20 March

GSA Campus Representative Appreciation Breakfast, 7–8:30 a.m., Federal Room. This complimentary breakfast for Campus Reps is held to say Thank You. If you are a campus representative or are interested in becoming one, please plan to attend this celebratory event.

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

GeoCareers Workshop Part 2: Geoscience Career Exploration, 10–11 a.m., Conestoga Room. What do geologists in various sectors earn? What do they do? What are the pros and cons to working in academia, government, and industry?

Workshop presenters and professionals in the field will address these issues.

NAGT Luncheon, noon–1:30 p.m. Federal Room. This is a ticketed event. Professional \$27.

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

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

Northeast Tectonics Reception, 5–7 p.m., Commonwealth Salon 4. Reception follows session “T4. Celebrating Allan Ludman’s First 56 Field Seasons in Maine” being held on Sunday in this same room. Join us at 5 p.m., for informal networking between students and faculty. We welcome anyone interested in tectonics research in the Appalachians and beyond. Cash bar non-ticketed event.

Eastern Section of the Society for Sedimentary Geology (ES-SEPM) Keynote Address, 6–8 p.m. Commonwealth Salon 3 Room. *SEPM President-Elect Liz Hajek (Associate Professor, Department of Geosciences, The Pennsylvania State University)* This is a non-ticketed event. A reception will immediately precede the keynote address.

LGBTQ Reception, 5:30–7 p.m., Commons on Vine.

Monday, 21 March

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

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

Northeastern Section Management Board Meeting, noon–1:30 p.m., Federal Room.

Keynote Talk, 5:30–6:30 p.m., Commonwealth Salon 3. Keynote Speaker: George I. Seney Professor of Geology at Wesleyan University, Professor Marty Gilmore, “Contemplating Earth-sized planets as we embark on our journey to Venus.”

Map Blast! 7:30–9 p.m., Freedom Hall A. Began in Portland in 1998, this annual event invites all meeting attendees to post and informally discuss newly published, and in progress geologic maps/digital images of all sorts. No abstract submission is required. Cash bar available.

Student Opportunities

Roy J. Shlemon Mentors Program in Applied Geoscience. Sunday, 20 March, noon–1:30 p.m., Commons on Vine. GSA student members will have the opportunity to discuss career prospects and challenges with applied geoscientists from various sectors over a FREE lunch. GSA student members will receive priority; any remaining space will be offered to student nonmembers on first come, first served basis.

John Mann Mentors Program in Applied Hydrogeology. Monday, 21 March, noon–1:30 p.m., Commons on Vine. GSA student members interested in applied hydrogeology or hydrology as a career will have the opportunity to network with professionals in these fields over a FREE lunch. GSA student members will receive priority; any remaining space will be offered to student nonmembers on first come, first served basis.

Geology Club Meet-Up. Sunday, 20 March, 2–3 p.m. Conestoga Room. Chat with other representatives about their activities, goals and accomplishments.

GeoCareers Workshops

For more information about GSA's Career Workshops, please contact Jennifer Nocerino at jnocerino@geosociety.org.

GeoCareers Workshop Part 1: Career Planning and Informational Interviewing. Sunday, 20 March, 9–10 a.m. Conestoga Room. Your job hunting process should begin with career planning, not when you apply to jobs. This workshop will help you begin this process and will introduce you to informational interviewing. This section is highly recommended for freshman, sophomores and juniors. The earlier you start your career planning the better.

GeoCareers Workshop Part 2: Geoscience Career Exploration. Sunday, 20 March, 10–11 a.m., Conestoga Room. What do geologists in various sectors earn? What do they do? What are the pros and cons to working in academia, government, and industry? Workshop presenters and professionals in the field will address these issues.

GeoCareers Workshop Part 3: Cover Letters, Résumés and CV's. Monday, 21 March, 9–10 a.m., Conestoga Room. 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 examples to help you learn important résumé do's and don'ts.

Student Volunteers—Work opportunities may earn free registration. Students interested in volunteering must contact Emily Wilson at Emily.wilson@fandm.edu

Exhibits

Exhibits are located in Freedom Hall A in the hotel's lower level.

Set up: Saturday, 19 March, 8 a.m.–4 p.m.

Open: Saturday, 19 March 5–7 p.m.

Open: Sunday, 20 March, 9 a.m.–5 p.m.

Open: Monday, 21 March, 9 a.m.–5 p.m.

Open: Tuesday, 22 March, 9 a.m.–11:30 a.m.

Tear down: Tuesday, 22 March, noon–3 p.m.

Exhibitors (as of late December)

2023 GSA Northeastern Section

Geological Society of America Bookstore

GSA Foundation

GSA Mineralogy, Petrology, and Volcanology MGPV
Division

In-Situ Inc.

Mineralogical Society of America

University of Pittsburgh at Johnstown Geology Club

Temple University - Dept of Earth and Environmental
Science

Cultural and Recreational Amenities

The newly renovated Lancaster Marriott at Penn Square offers an indoor swimming pool, whirlpool, and a 24-hour fitness center. Jogging trails, golf, and even fly-fishing is available at varying distances within the county. For more details, visit: <https://www.marriott.com/hotels/hotel-information/fitness-center/lnsmc-lancaster-marriott-at-penn-square/>

Lancaster Central Market (<https://centralmarketlancaster.com>). Said to be the country's oldest farmers' market still operating, it occupies a striking red brick building in Romanesque Revival style, diagonally across the square from the Lancaster Marriott at Penn Square Hotel. Open during the meeting on Friday, Saturday and Tuesday 6 a.m. –3 p.m. Specialty foods and Amish textiles and novelties are available, as well as a wealth of traditional market goods.

Lancaster Southern Market (<https://southernmarketlancaster.com>) Built as a farmers market in 1888, Lancaster's Southern Market is slated to be open in January 2022. Located diagonally across Queen St from the Convention Center, the market will host a modern, world-class food hall featuring at least 10 different vendors offering specialty fare.

The Fulton Theatre, a professional regional theatre and a National Historic Landmark is located one block west of the Convention Center and will be featuring the *Sound of Music* on Saturday, 19 March, and Sunday, 20 March. See <https://thefulton.org/shows/the-sound-of-music/> for information and to order tickets.

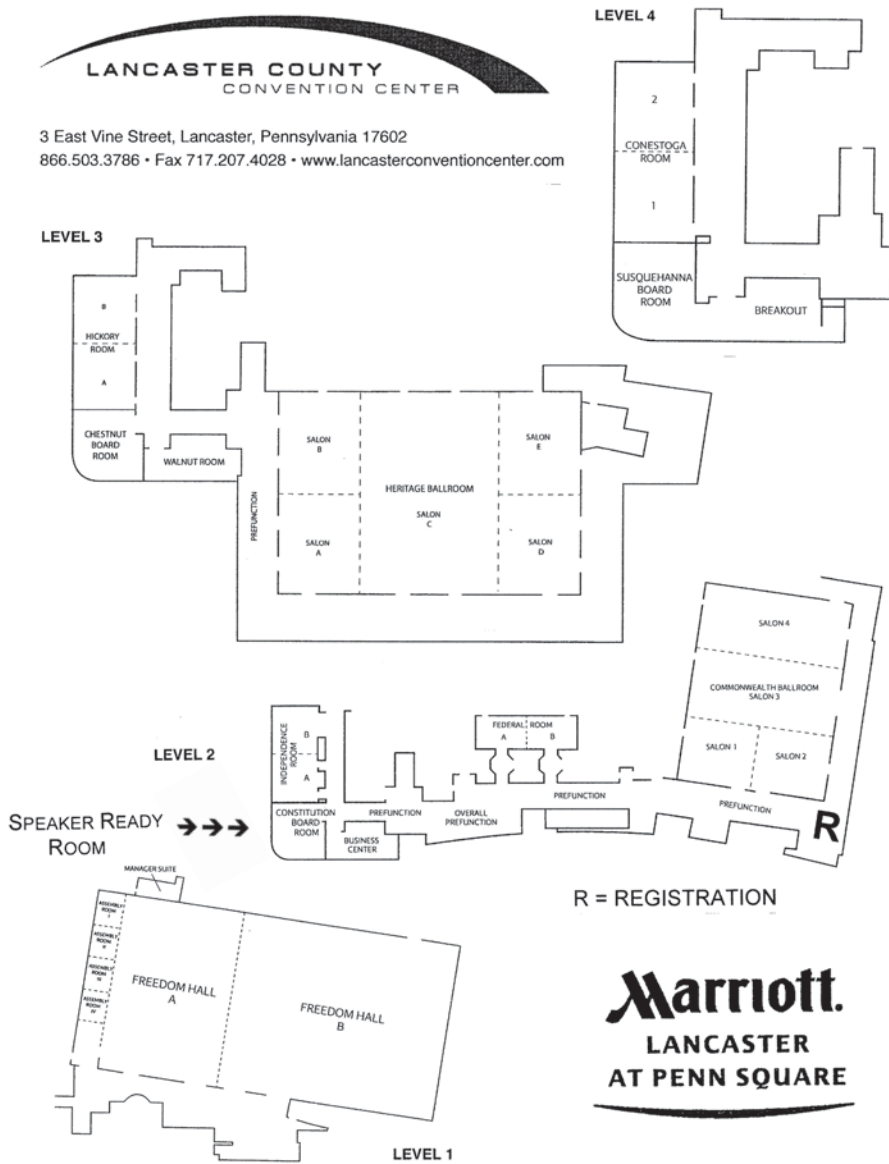
The Demuth Museum (<https://www.demuth.org>). This small museum occupies the family home of painter Charles Demuth (1883–1935) adjacent to the family business, the Demuth Tobacco Shop, that largely supported him. Intimate and engaging, the museum offers a lively introduction to Demuth's life, his delicate and innovative work, and his interactions with Alfred Steiglitz, Georgia O'Keefe, Marsden Hartley and Marcel Duchamp. Located a block from the Lancaster Marriott at Penn Square Hotel at 120 East King Street. Open Tues–Sat, 10 a.m.–4 p.m.; Sunday, 1–4 p.m.

Wheatland and Lancaster Campus of History (<https://www.lancasterhistory.org>). The fine Federal-style home of Pennsylvania's only President, President James Buchanan and the award winning Lancaster History Museum are adjacent to one another at 230 North President Avenue, Lancaster, PA 17603, a mile WNW of the Convention Center. LancasterHistory.org is an important center for historical research. It offers informative permanent and occasional exhibits and tours of Wheatland. Open during the meeting Saturday, 9:30 a.m.–5 p.m.

North Museum of Natural History and Science (<https://northmuseum.org>). The museum holds varied and regionally important collections, notably in archaeology, mineralogy, paleontology and ornithology. Impressive mineral displays incidentally document the time, in the 19th Century, when Lancaster County was an important source of Ni, Cr, Zn, Pb as well as iron ore. The museum is at 400 College Avenue, a mile NW of the Convention Center. Open during the meeting on Saturday and Sunday, 10 a.m.–3 p.m.

Lancaster Marriott and Convention Center Floor Plans


LANCASTER COUNTY
 CONVENTION CENTER
 3 East Vine Street, Lancaster, Pennsylvania 17602
 866.503.3786 • Fax 717.207.4028 • www.lancasterconventioncenter.com



Schedule of Events

EVENT	TIME	LOCATION
FRIDAY, 18 MARCH		
FT5. Historical and Current Paleontological Collections at The Academy of Natural Sciences of Drexel University, Philadelphia Check In (Field Trip)	8:30–9 a.m.	Lancaster Marriott at Penn Square Lobby
SATURDAY, 19 MARCH		
FT1. Accreted Forearc, Continental, and Oceanic Rocks of Maryland's Eastern Piedmont: The Potomac Terrane, Baltimore Terrane, and Baltimore Mafic Complex Check In (Field Trip)	6:30–7 a.m.	Lancaster Marriott at Penn Square Lobby
Exhibitor Set Up	8 a.m.–4 p.m.	Freedom Hall A
FT2. Quaternary Evolution and Contemporary Fluvial Processes, White Clay Creek, Delaware–Pennsylvania Check In (Field Trip)	7:30–8 a.m.	Lancaster Marriott at Penn Square Lobby
FT3. The Piedmont and K–12 Pedagogy: How Geology Works and Why It Matters Check In (Field Trip)	7:30–8 a.m.	Lancaster Marriott at Penn Square Lobby
FT4. Geology along the York County Heritage Rail Trail Check In (Field Trip)	8–8:30 a.m.	Lancaster Marriott at Penn Square Lobby
SC1. Geo-philately—Earth Sciences on Postage Stamps. ONLINE ONLY (Short Course)	9 a.m.–noon	Online Platform Link will be Provided to Registered Attendees
SC2. How to Create Your Own 3D Video-Game–Style Geologic Field Trip and Host it Online: Accessible, Immersive Data Visualization for Education and Research (Short Course)	10 a.m.–5 p.m.	Independence Room
SC3. Contaminant Plume Modeling and Analysis for the Environmental Professional (Short Course)	1–3 p.m.	Conestoga Room
SC4. The Digital Geologic Map Schema (GeMS) ONLINE ONLY (Short Course)	1–5 p.m.	Online Platform Link will be Provided to Registered Attendees
Registration	2:30–8 p.m.	Commonwealth Pre-Function
Speaker Ready Room	4–8 p.m.	Constitution Room
Exhibits Open	5–7 p.m.	Freedom Hall A
Welcoming Reception: NEGSA, 2022	5–7 p.m.	Freedom Hall A
SUNDAY, 20 MARCH		
Session Chair Orientation	7–7:15 a.m.	Commonwealth Salon 1
Registration	7 a.m.–4:30 p.m.	Commonwealth Pre-Function
Speaker Ready Room	7 a.m.–6 p.m.	Constitution Room
GSA Campus Representative Appreciation Breakfast	9–10 a.m.	Federal Room
Exhibits Open	9 a.m.–5 p.m.	Freedom Hall A
SC5. Teaching and Learning Geoscience in a Changed and Changing World (Short Course)	9 a.m.–noon	Independence Room
GeoCareers Workshop Part 1: Career Planning and Informational Interviewing (Workshop)	9–10 a.m.	Conestoga Room

EVENT	TIME	LOCATION
GeoCareers Workshop Part 2: Geoscience Career Exploration	10–11 a.m.	Conestoga Room
Morning Oral Technical Sessions		
D2. Recent Advances in Geosciences	8 a.m.–noon	Commonwealth Salon 2
T4. Celebrating Allan Ludman's First 56 Field Seasons in Maine I: What Do We Know of Northern Appalachian Geology and What Questions Remain?	8 a.m.–noon	Commonwealth Salon 4
T13. Current Research in Coastal and Nearshore Processes	8 a.m.–noon	Commonwealth Salon 3
T22. Applied Research at Northeastern State Geological Surveys	8 a.m.–noon	Commonwealth Salon 1
Morning Poster Sessions: (authors will be present 10 AM to noon)		
D4. Paleoclimatology and Paleoceanography (Posters)	8 a.m.–noon	Freedom Hall A
D5. Paleontology (Posters)	8 a.m.–noon	Freedom Hall A
D6. Quaternary Geology (Posters)	8 a.m.–noon	Freedom Hall A
D7. Sedimentology and Stratigraphy (Posters)	8 a.m.–noon	Freedom Hall A
D8. Precambrian Geology (Posters)	8 a.m.–noon	Freedom Hall A
D9. Limnogeology (Posters)	8 a.m.–noon	Freedom Hall A
T17. Pleistocene to Modern Landforms and Change: Using Field and High-resolution Topographic Data to Unravel Landscape History and Quantify Change (Posters)	8 a.m.–noon	Freedom Hall A
NAGT Luncheon (Ticketed Event)	noon–1:30 p.m.	Federal Room
Roy J. Shlemon Mentors Program in Applied Geoscience	noon–1:30 p.m.	Commons on Vine
Afternoon Oral Technical Sessions		
D1. Geoscience Education	1:30–5:30 p.m.	Commonwealth Salon 1
S1. Devonian of New York I: A New, Extensive Volume on The North American Standard Section	1:30–5:30 p.m.	Commonwealth Salon 3
T4. Celebrating Allan Ludman's First 56 Field Seasons in Maine II: What Do We Know of Northern Appalachian Geology and What Questions Remain?	1:30–5:30 p.m.	Commonwealth Salon 4
T17. Pleistocene to Modern Landforms and Change: Using Field and High-resolution Topographic Data to Unravel Landscape History and Quantify Change	1:30–5:30 p.m.	Commonwealth Salon 2
Afternoon Poster Sessions: (authors will be present from 3:30 to 5:30 PM)		
D1. Geoscience Education (Posters)	1:30–5:30 p.m.	Freedom Hall A
D10. Economic Geology and Geochemistry (Posters)	1:30–5:30 p.m.	Freedom Hall A
D11. Structural Geology and Tectonics (Posters)	1:30–5:30 p.m.	Freedom Hall A
D12. Geology and Health (Posters)	1:30–5:30 p.m.	Freedom Hall A
T4. Celebrating Allan Ludman's First 56 Field Seasons in Maine: What Do We Know of Northern Appalachian Geology and What Questions Remain (Posters)	1:30–5:30 p.m.	Freedom Hall A
T13. Current Research in Coastal and Nearshore Processes (Posters)	1:30–5:30 p.m.	Freedom Hall A
T22. Applied Research at Northeastern State Geological Surveys (Posters)	1:30–5:30 p.m.	Freedom Hall A
Geology Club Meet-Up	2–3 p.m.	Conestoga Room

EVENT	TIME	LOCATION
Northeast Tectonics Reception	5–7 p.m.	Commonwealth Salon 4
LGBTQ Reception	5:30-7 p.m.	Commons on Vine
Eastern Section of the Society for Sedimentary Geology (ES-SEPM) Keynote Address. SEPM President-Elect Liz Hajek	6–8 p.m.	Commonwealth Salon 3
MONDAY, 21 MARCH		
Session Chair Orientation	7–7:15 a.m.	Commonwealth Salon 1
Registration	7 a.m.–4:30 p.m.	Commonwealth Pre-Function
Speaker Ready Room	7 a.m.–6 p.m.	Constitution Room
Exhibits Open	9 a.m.–5 p.m.	Freedom Hall A
GeoCareers Workshop Part 3: Cover Letters, Résumés and CVs (Workshop)	9–10 a.m.	Conestoga Room
Morning Oral Technical Sessions		
D3. Recent Advances in Environmental and Surficial Geology	8 a.m.–noon	Commonwealth Salon 1
S1. Devonian of New York II: A New, Extensive Volume on The North American Standard Section	8 a.m.–noon	Commonwealth Salon 2
S3. Adapting to Global Climate Disruption at Multiple Scales	8 a.m.–noon	Commonwealth Salon 3
T9. Tectonic Evolution of Eastern North America: Insights from Geology and Geophysics	8 a.m.–noon	Commonwealth Salon 4
Morning Poster Sessions: (authors will be present 10 AM to noon)		
D13. Geophysics and Geodynamics (Posters)	8 a.m.–noon	Freedom Hall A
T1. Leaving Footprints, Changing Landscapes: Advances in Ichnological and Zoogeomorphological Research (Posters)	8 a.m.–noon	Freedom Hall A
T16. Glacial Geology and Proxy Records in Northeastern North America and Beyond (Posters)	8 a.m.–noon	Freedom Hall A
John Mann Mentors Program in Applied Hydrogeology	noon–1:30 p.m.	Commons on Vine
Northeastern Section Management Board Meeting	noon–1:30 p.m.	Federal Room
Afternoon Oral Technical Sessions		
T1. Leaving Footprints, Changing Landscapes: Advances in Ichnological and Zoogeomorphological Research	1:30–5:30 p.m.	Commonwealth Salon 2
P4. Latest Science Results and Updates in Planetary Science Research, Programs, and Flight Projects I	1:30–5:30 p.m.	Commonwealth Salon 3
T10. Tectono-Metamorphic Processes at Convergent Boundaries: Insights from the Grenville Orogen, Northeastern North America, and Beyond	1:30–5:30 p.m.	Commonwealth Salon 4
T16. Glacial Geology and Proxy Records in Northeastern North America and Beyond	1:30–5:30 p.m.	Commonwealth Salon 1
Afternoon Poster Sessions: (authors will be present from 3:30 to 5:30 PM)		
D14. Hydrogeology (Posters)	1:30–5:30 p.m.	Freedom Hall A
D15. Soils (Posters)	1:30–5:30 p.m.	Freedom Hall A
D16. Geoarchaeology (Posters)	1:30–5:30 p.m.	Freedom Hall A

EVENT	TIME	LOCATION
D17. Igneous Petrology and Volcanology (Posters)	1:30–5:30 p.m.	Freedom Hall A
T11. North Atlantic Arcs, Rifts, and Plumes: Ordovician to Today (Posters)	1:30–5:30 p.m.	Freedom Hall A
T14. Soil Processes and Biogeochemical Interactions (Posters)	1:30–5:30 p.m.	Freedom Hall A
Keynote Talk: Contemplating Earth-sized planets as we embark on our journey to Venus	5:30–6:30 p.m.	Commonwealth Salon 3
Map Blast!	7:30–9 p.m.	Freedom Hall A
TUESDAY, 22 MARCH		
Session Chair Orientation	7–7:15 a.m.	Commonwealth Salon 1
Speaker Ready Room	7–10 a.m.	Constitution Room
Registration	7–11 a.m.	Commonwealth Pre-Function
Exhibits Open	9–11:30 a.m.	Freedom Hall A
Morning Oral Technical Sessions		
S4. Latest Science Results and Updates in Planetary Science Research, Programs, and Flight Projects II	8 a.m.–noon	Commonwealth Salon 2
T11. North Atlantic Arcs, Rifts, and Plumes: Ordovician to Today	8 a.m.–noon	Commonwealth Salon 3
T15. In Cahoots: Interdisciplinary Studies of Climate Change Impacts to Archaeological Resources	8 a.m.–noon	Commonwealth Salon 4
T24. Implementing the U.S. Geological Survey National Cooperative Geologic Mapping Program's U.S. GeoFramework Initiative: Constructing a Seamless, National 2D/3D Geologic Framework Model of the U.S.	8 a.m.–noon	Commonwealth Salon 1
Morning Poster Sessions: (authors will be present 10 AM to noon)		
D18. Geomorphology (Posters)	8 a.m.–noon	Freedom Hall A
D19. Geoinformatics (Posters)	8 a.m.–noon	Freedom Hall A
D20. Environmental Geology (Posters)	8 a.m.–noon	Freedom Hall A
T9. Tectonic Evolution of Eastern North America: Insights from Geology and Geophysics (Posters)	8 a.m.–noon	Freedom Hall A
T10. Tectono-Metamorphic Processes at Convergent Boundaries: Insights from the Grenville Orogen, Northeastern North America, and Beyond (Posters)	8 a.m.–noon	Freedom Hall A
Exhibitor Tear Down	noon–3 p.m.	Freedom Hall A

Technical Sessions

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



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

NOTICE

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



NOTE INDEX SYSTEM

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

* denotes speaker

SUNDAY, 20 MARCH 2022

MORNING ORAL TECHNICAL SESSIONS

SESSION NO. 1

D2. Recent Advances in Geosciences

8:00 AM, Lancaster Marriott at Penn Square, Commonwealth Salon 2

Ryan Mathur and Bosiljka Glumac, Presiding

- 1-1 8:00 AM Harris, Thomas*; Davias, Michael: **LIDAR-MAPPED GIANT SAND BLANKET AND ABLATED TEKSTITES SUGGEST SAME SOURCE**
- 1-2 8:20 AM Brehm, Sarah*; Lange, Rebecca A.: **EVIDENCE OF RAPID MAGMA MIXING DURING ASCENT ALONG FRACTURES FROM PERIDOTITE-BEARING HAWAIIITES OF THE CIMA VOLCANIC FIELD, CA**
- 1-3 8:40 AM Crist, Cody*; Solar, Gary S.: **PINKHAM NOTCH MIGMATITE, NEW HAMPSHIRE: EVIDENCE OF HIGH MELT PERCENTAGE DEFORMATION DURING DIATEXIS, AND THE TRANSITION FROM STROMATIC MIGMATITE TO DIATEXITE**
- 1-4 9:00 AM Matt, Peter*; Peck, William H.; Mathur, Ryan; Hurtgen, Mary R.; Godfrey, Linda: **ZINC ISOTOPE CONSTRAINTS ON THE FORMATION OF SEDIMENTARY EXHALATIVE (SEDEX) ORE DEPOSITS: NEW EVIDENCE FROM THE FRANKLIN, NJ MINING DISTRICT**
- 1-5 9:20 AM Mathur, Ryan*; Burns, Jonathan: **FINDING FORT ROBERDEAU**
- 9:40 AM **Break**
- 1-6 9:55 AM Jackson, Elliott*: **STRUCTURAL CONTROLS ON THE DEPOSITION AND STRATIGRAPHY OF THE CANADAWAY GROUP (UPPER DEVONIAN) IN CHAUTAUQUA COUNTY, WESTERN NEW YORK STATE**
- 1-7 10:15 AM Glumac, Bosiljka*; Boardman, Miriam; Weirens, Sierra; Curran, H. Allen; Griffing, David: **PRELIMINARY SEDIMENTOLOGICAL AND STRATIGRAPHIC ANALYSIS**

OF CARBONATE DEPOSITS FROM A NEW CORE IN THE PLEISTOCENE GROTTO BEACH FORMATION AT THE GULF SITE, SOUTHERN COAST OF SAN SALVADOR ISLAND, BAHAMAS

- 1-8 10:35 AM Woolsey, Grace; Ullmann, Paul; Grandstaff, David; Terry, Dennis*: **THE EFFECTS OF TAPHONOMIC VARIABILITY ON THE PRESERVATION OF CELLS AND SOFT TISSUES IN FOSSIL BONES FROM BADLANDS NATIONAL PARK, SOUTH DAKOTA**
- 1-9 10:55 AM Gachetti, Anthony*; De Palma, Maurizia; Jiang, Shijun; Cui, Ying: **PALEOENVIRONMENT RECONSTRUCTION DURING THE PRE-ONSET EXCURSION PRIOR TO THE PETM THROUGH THE USE OF GEOCHEMICAL PROXIES**

SESSION NO. 2

T4. Celebrating Allan Ludman's First 56 Field Seasons in Maine I: What Do We Know of Northern Appalachian Geology and What Questions Remain? (GSA Structural Geology and Tectonics Division; Maine Geological Survey)

8:00 AM, Lancaster Marriott at Penn Square, Commonwealth Salon 4

David West Jr., Henry Berry and Chunzeng Wang, Presiding

- 8:00 AM Wang, Chunzeng*: **Welcome to the Honoree, Presenters, and Attendees**
- 2-1 8:05 AM Berry, Henry*; West, David; Wang, Chunzeng: **THE IMPORTANCE OF INCREMENTAL KNOWLEDGE EXPANSION (IKE) FROM A CENTRAL AND EASTERN MAINE PERSPECTIVE**
- 2-2 8:25 AM Wang, Chunzeng*; Marvinney, Robert; Whittaker, Amber H.; Pollock, Stephen G.; Putnam, David: **ADVANCES IN UNDERSTANDING THE COMPLEX AND PROTRACTED TECTONIC AND DEFORMATIONAL HISTORY OF THE MUNSUNGUN-WINTERVILLE BELT IN THE MAINE APPALACHIANS**
- 2-3 8:45 AM Devlin, William*; Wintsch, Robert P.; Burton, William: **NEW DEVELOPMENTS IN THE SILURIAN-DEVONIAN BELT OF WESTERN CONNECTICUT**

- 2-4 9:05 AM West, David*; Peterman, Emily: **CONTACT RELATIONSHIPS BETWEEN THE LIBERTY-ORRINGTON AND FREDERICTON BELTS IN THE BOOTHBAY REGION, MID-COASTAL MAINE**
- 2-5 9:25 AM Pollock, Stephen*: **STRATIGRAPHY, DEPOSITIONAL ENVIRONMENTS AND STRUCTURE OF SILURIAN FLYSCH DEPOSITS IN THE GREATER BANGOR AREA, CENTRAL MAINE**
- 9:45 AM **DISCUSSION: Approaches to Stratigraphy**
- 10:00 AM **Break**
- 2-6 10:15 AM Thompson, Margaret*; Crowley, J.L.: **GEOCHRONOLOGICAL UPDATES ON UNDIFFERENTIATED GABBROS AND DIORITES IN SOUTHEASTERN NEW ENGLAND, USA**
- 2-7 10:35 AM Wintsch, Robert*; McAleer, Ryan J.; Steinen, Randolph P.; Klang, Zachary; Devlin, William: **THE SYENITE AT SOUTHFORD FALLS: ANOTHER PERMIAN INTRUSION IN WESTERN CONNECTICUT**
- 2-8 10:55 AM Ghanem, Hind*; Bish, David L.; Kunk, Michael J.; Ludman, Allan; Wintsch, Robert P.: **THE HIDDEN WORLD OF K-FELDSPARS: DO WE REALLY KNOW WHAT WE ARE DATING?**
- 2-9 11:15 AM Ebel, John E*: **MODERN EARTHQUAKES AND THE NORUMBEGA FAULT: A TANTALIZING ENIGMA**
- 11:35 AM **DISCUSSION: Is All Geology Local Geology?**

SESSION NO. 3

T13. Current Research in Coastal and Nearshore Processes (GSA Marine and Coastal Geoscience Division)

8:00 AM, Lancaster Marriott at Penn Square, Commonwealth Salon 3

Bryan Oakley and Mark Borrelli, Presiding

- 8:00 AM **Introductory Remarks**
- 3-1 8:05 AM Kulynych, Anna; Buynevich, Ilya V.*: **HISTORIC AND GEOMORPHOLOGICAL LEGACY OF A FORMER WAVE-DOMINATED CRANBERRY INLET, NEW JERSEY**
- 3-2 8:25 AM Oakley, Bryan*: **CENTURY-SCALE (1886 – 2018) BLUFF EROSION: BLOCK ISLAND, RHODE ISLAND, USA**
- 3-3 8:45 AM Halsey, Susan*: **TEN YEARS POST-SUPERSTORM SANDY IN NORTHERN OCEAN COUNTY, NJ: WHAT DID WE LEARN?**
- 3-4 9:05 AM Low, Michael*; Borrelli, Mark: **QUANTIFYING RECENT MORPHOLOGIC CHANGE OF THE NAUSET BARRIER SYSTEM, CAPE COD, MA**
- 3-5 9:25 AM Cameron, Matthew D.*; Knuepfer, Peter L.K.: **HISTORIC SHORELINE CHANGE ALONG THE LAKE ONTARIO COAST IN NIAGARA AND ORLEANS COUNTIES, NEW YORK**
- 9:45 AM **Break**
- 3-6 10:00 AM Griswold, Frances*; Woodruff, Jonathan D.; Yellen, Brian C.; Baranes, Hannah; Cook, Tim; Autery, Molly; Hansen, Olivia; Wenzel, Stella: **SEDIMENT SOURCING AND ACCUMULATION ON NEW ENGLAND SALT MARSHES**
- 3-7 10:20 AM Turek, Bonnie*; Teng, Wenxiu; Yellen, Brian C.; Yu, Qian; Woodruff, Jonathan D.: **ESTIMATION OF TIDAL MARSH BLUE CARBON STORAGE USING A LIDAR AND OPTICAL REMOTE SENSING BASED MODEL**
- 3-8 10:40 AM Dwyer, Ian P.*; Swenson, Darci A.; Graffam, Molly; Wehrmann, Laura M.; Aller, Robert C.; Volkenborn, Nils: **SEASONALITY OF BIOIRRIGATION PATTERNS AND ASSOCIATED OXYGEN DYNAMICS IN PERMEABLE MARINE SEDIMENTS**
- 3-9 11:00 AM McCormack, Bryan*; Legare, Bryan; Borrelli, Mark: **SHALLOW WATER OBJECT DETECTION AND LOCALIZATION THROUGH ACOUSTIC BACKSCATTER FROM PHASE-MEASURING SIDESCAN SONAR**

- 3-10 11:20 AM Borrelli, Mark*; Legare, Bryan: **QUANTIFYING POSITIONAL ACCURACY OF SIDESCAN SONAR IMAGERY FOR NEARSHORE SHALLOW WATER SURVEYS**

SESSION NO. 4

T22. Applied Research at Northeastern State Geological Surveys

8:00 AM, Lancaster Marriott at Penn Square, Commonwealth Salon 1

Jonathan Kim, Richard Ortt and Gale Blackmer, Presiding

- 4-1 8:00 AM Klepeis, Keith A.; Kim, Jonathan*; Boyles, Julia; Robinson, Evan: **ANALYSIS OF ROCKFALL HAZARDS USING UNOCCUPIED AERIAL VEHICLE (UAV) AND FIELD SURVEY DATA AT THE WRIGHTSVILLE DAM SPILLWAY, CENTRAL VERMONT**
- 4-2 8:20 AM Andrews, William*; Pearson, Anna; Haneberg, William: **USING UAV-COMPATIBLE GAMMA RAY SPECTROMETRY TO MAP VARIABILITY OF SOIL RADIONUCLIDES**
- 4-3 8:40 AM Ebersole, Craig*; Behr, Rose-Anna: **REALIZED BENEFITS OF THE BUDGET-CONSCIOUS DRONE PROGRAM OF THE PENNSYLVANIA GEOLOGICAL SURVEY**
- 4-4 9:00 AM Kim, Jonathan*; Ryan, Pete; Memeger, Max; Boyles, Julia; Bradley, Grahame; Romanowicz, Edwin; Loewald, Anna; Casey, Patti: **DETERMINING THE INFLUENCE OF GROUNDWATER AND GROUNDWATER- SURFACE WATER INTERACTION ON PHOSPHOROUS LEVELS AND CYANOBACTERIA BLOOMS IN A SMALL EUTROPHIC LAKE USING A “CONTACT TRACING” APPROACH: NORTHERN VERMONT**
- 9:20 AM **Break**
- 4-5 9:35 AM Fehrs, Ellen*: **PENNSYLVANIA HYDROGRAPHY DATASET (PAHD) DERIVATION AND COMPILATION METHODOLOGY**
- 4-6 9:55 AM Keeley, Joshua*: **ELEVATION-DERIVED HYDROGRAPHY DEVELOPMENT IN NEW HAMPSHIRE**
- 4-7 10:15 AM Shonka, Nicholas*; Bush, Kathleen; Harris, Samuel; Rardin, Laurie; Susca, Paul: **NEW HAMPSHIRE PRIVATE WELL WATER DASHBOARD: A USER-FRIENDLY MAPPING TOOL PUTTING DATA INTO ACTION TO INCREASE PRIVATE WELL TESTING AND TREATMENT**
- 4-8 10:35 AM Hutsky, Andrew*: **VERTICAL AND LATERAL STRATIGRAPHIC VARIATIONS WITHIN THE UPPER DEVONIAN CATSKILL SHORELINE IN NORTH-CENTRAL PENNSYLVANIA**

MORNING POSTER TECHNICAL SESSIONS

SESSION NO. 5

D4. Paleoclimatology and Paleoceanography (Posters)

8:00 AM, Lancaster Marriott at Penn Square, Freedom Hall A

Authors will be present from 10 AM to 12 PM

- Booth #
- 5-1 1 King, Ada*; Haynes, Laura; Roehl, Ursula; IODP Expedition 378 Scientists, .: **FORAMINIFERA STABLE ISOTOPES AS INDICATORS OF WATER COLUMN TEMPERATURE AND CARBON CYCLING DURING THE EOCENE**
- 5-2 2 Mucha, Carter*; Haynes, Laura; Roehl, Ursula; IODP Expedition 378 Scientists, .: **USING BENTHIC FORAMINIFERA TO EVALUATE THE RELATIONSHIP BETWEEN EOCENE HOTHOUSE CLIMATE FLUCTUATIONS AND ORBITAL CYCLICITY**
- 5-3 3 Poniatowski, Elise*; Haynes, Laura; Roehl, Ursula; IODP Expedition 378 Scientists, .: **FORAMINIFERA POPULATION DYNAMICS IN THE SOUTHERN HEMISPHERE DURING THE EOCENE HOTHOUSE**

Sunday, 20 March 2022

- 5-4 4 Butler, Marcus; Lewis, Alexis; Pekar, Stephen F.*; Hess, Anya V.; Rosenthal, Yair: **INVESTIGATING THE MIDDLE MIOCENE CLIMATIC TRANSITION & CLIMATIC OPTIMUM (16-13 MA) ON ZEALANDIA: ISOTOPIC & MG/CA RATIO RECORDS FROM IODP SITE U1510**
- 5-5 5 Gomez, Sedalia*; Hernandez, Shay; Kasbohm, Jennifer; Jones, David: **MIOCENE CLIMATE OPTIMUM AND COLUMBIA RIVER BASALT ERUPTIONS: USING SEDIMENTARY HG TO DETERMINE IF VOLATILE RELEASE OCCURRED PRIOR TO ACTIVE ERUPTIONS AND TRIGGERED GLOBAL WARMING**
- 5-6 6 Cannato, Julianna; Godfrey, Linda*; de Wet, Carol; de Wet, Andrew; Mortlock, Richard: **HIGH RESOLUTION CLIMATE RECORDS OF THE MIO-PLIOCENE BASED ON GEOCHEMICAL SIGNATURES OF TWO STROMATOLITES FROM THE ATACAMA DESERT**
- 5-7 7 Fyfe, Erin*; Cullen, James L.; Churchill, Alyson; DeBellis, Korie; McManus, Jerry: **HIGH RESOLUTION RECORD OF ICE RAFTED DETRITUS IN CENTRAL NORTH ATLANTIC DEEP-SEA SEDIMENT CORE V30-100**

SESSION NO. 6

D5. Paleontology (Posters)

8:00 AM, Lancaster Marriott at Penn Square, Freedom Hall A

Authors will be present from 10 AM to 12 PM

Booth #

- 6-1 8 Hawkins, Andrew*: **MISS, POSSIBLE MISS, AND OTHER MICROBIAL STRUCTURES FROM THE LOWER CAMBRIAN ROME FORMATION OF EASTERN TENNESSEE AND SOUTHWESTERN VIRGINIA**
- 6-2 9 Gunderson, Lilian K.; Thomka, James*: **MULTIPLE FORMS OF BIOIMMURATION IN A CORAL-CRINOID-BRYOZOAN ASSOCIATION FROM THE MIDDLE DEVONIAN ONONDAGA FORMATION OF SOUTHERN ONTARIO**
- 6-3 10 Brett, Carlton; Feldman, Howard R.*; Graff, Eitel T.: **A CRINOID FAUNA AND A NEW SPECIES OF *PYCNOCRINUS* FROM THE MARTINSBURG FORMATION (UPPER ORDOVICIAN), LOWER HUDSON VALLEY, NEW YORK**
- 6-4 11 Blodgett, Robert; Feldman, Howard R.*; Ver Straeten, Charles; Bartholomew, Alex; Weiss, Leah: **BRACHIOPODS OF THE GLENERIE LIMESTONE IN NEW YORK**
- 6-5 12 Rose, Griffin*; Gerstler, Kaitlyn; Abbati, Emily; Gaudio, Sarah; Wittmer, Jacalyn; Michelson, Andrew: **AN INVESTIGATION OF DIATOM MORPHOMETRY AND POPULATION IN THE SEDIMENTARY ARCHIVE OF CONESUS LAKE IN WESTERN NEW YORK**
- 6-6 13 Nawaz, Manica*; Chamberlain, John: **HOLOCENE CONCRETIONS FROM THE NEW YORK BIGHT**

SESSION NO. 7

D6. Quaternary Geology (Posters)

8:00 AM, Lancaster Marriott at Penn Square, Freedom Hall A

Authors will be present from 10 AM to 12 PM

Booth #

- 7-1 14 Bierly, Aaron*; Ashworth, Allan C.; Peteet, Dorothy M.; Davis, Margaret A.; Culleton, Brendan J.: **PLEISTOCENE BEETLES AND PLANTS FROM NEAR SLIPPERY ROCK, PENNSYLVANIA, FROM THE TITUSVILLE INTERSTADE (MIS 3)**

SESSION NO. 8

D7. Sedimentology and Stratigraphy (Posters)

8:00 AM, Lancaster Marriott at Penn Square, Freedom Hall A

Authors will be present from 10 AM to 12 PM

Booth #

- 8-1 15 Dempsey, Caitlyn*; Sunderlin, David; Wilson, John: **MICROSTRUCTURAL ANALYSIS OF STROMATOLITE LAMINATIONS IN A LATE CAMBRIAN SHALLOW SEA,**

ALLETOWN FORMATION, PENNSYLVANIA & NEW JERSEY, USA

- 8-2 16 Thornburg, Jesse*; Peterson, Steve; Davis, Tim; Oest, Christopher; Seminack, Christopher T.: **SEDIMENTOLOGY FROM AFAR: USING A UAV TO ACCESS A STEEP ROAD CUT**
- 8-3 17 LeClair, Parker*; Thomka, James; Ellwood, Brooks B.: **RELATIONSHIPS BETWEEN MAGNETIC SUSCEPTIBILITY AND CARBONATE CONTENT IN METER-SCALE PERITIDAL RHYTHMS: UPPER ORDOVICIAN CROWN POINT FORMATION, NORTHEASTERN NEW YORK**
- 8-4 18 Loftus, Marissa*; Sewall, Jacob O.: **AN EARLY SILURIAN PATCH REEF IN THE ROSE HILL FORMATION OF CENTRAL PENNSYLVANIA**
- 8-5 19 Regan, Eric C.*; Fedorchuk, Nicholas; Cordie, David; Turner, Matt; Novichkov, Maria: **SEDIMENTOLOGY AND PALEO-WEATHERING OF THE DEVONIAN-MISSISSIPPIAN CATSKILL, SPECHTY KOPF, AND POCONO FORMATIONS, APPALACHIAN BASIN, PENNSYLVANIA**
- 8-6 20 Nutbrown, Kilee; Durling, Abigail; Drzewiecki, Peter*: **STRATIGRAPHIC FRAMEWORK OF THE TRACK-BEARING BEDS AT DINOSAUR STATE PARK, ROCKY HILL, CONNECTICUT**
- 8-7 21 Norville, R.*; McLaughlin, Peter: **THE STRATIGRAPHY OF THE MAGOTHY FORMATION IN THE NORTHERN DELMARVA PENINSULA: NEW DATA FROM THE BOHEMIA RIVER COREHOLE**
- 8-8 22 de Wet, Carol*; Caterham, Catherine; Godfrey, Linda: **GEOCHEMISTRY OF MIOCENE TRAVERTINE AS A REFLECTION OF GROUNDWATER AQUIFERS, ATACAMA DESERT, CHILE**
- 8-9 23 Negila, Allegra; DiFrancesco, Nicholas*; Ramparsad, Joshua: **PROPERTIES AND SOURCE REGION OF IGNEOUS AND METAMORPHIC GLACIAL SEDIMENT DEPOSITED IN CENTRAL NY**
- 8-10 24 Aguinaga, Edinson*; Lubash, Roy; Chang, Clara; Giles, Sarah: **EVALUATING THE APPLICATION OF USING LASER-DIFFRACTION GRANULOMETRY TO DETERMINE PROCESS CONTROLS ON GRAIN SIZE DISTRIBUTIONS IN MODERN RIVERS AND SUBMARINE CHANNELS**

SESSION NO. 9

D8. Precambrian Geology (Posters)

8:00 AM, Lancaster Marriott at Penn Square, Freedom Hall A

Authors will be present from 10 AM to 12 PM

Booth #

- 9-1 25 Lubash, Roy*; Aguinaga, Edinson; Giles, Sarah; Chang, Clara: **UTILIZATION OF SEDIMENT GRAIN SIZE ANALYSIS TO EVALUATE THE ORIGIN OF EDIACARAN PALEOCANYONS IN SOUTH AUSTRALIA AND EASTERN CALIFORNIA**

SESSION NO. 10

D9. Limnogeology (Posters)

8:00 AM, Lancaster Marriott at Penn Square, Freedom Hall A

Authors will be present from 10 AM to 12 PM

Booth #

- 10-1 26 McKinley, Kira*; Hubeny, Brad; Veresh, Renee: **THE TWENTIETH CENTURY'S LAMINATED SEDIMENTS OF SLUICE POND, LYNN, MA**
- 10-2 27 Gerstler, Kaitlyn*; Abbati, Emily; Rogerson, Julia; Rose, Griffin; Wittmer, Jacalyn; Michelson, Andrew: **A STUDY OF SEDIMENTATION RATE AND ELEMENTAL TRENDS IN THE NORTH AND SOUTH BASINS OF CONESUS LAKE, WESTERN NEW YORK**

SESSION NO. 11

T17. Pleistocene to Modern Landforms and Change: Using Field and High-resolution Topographic Data to Unravel Landscape History and Quantify Change (Posters)

8:00 AM, Lancaster Marriott at Penn Square, Freedom Hall A

Authors will be present from 10 AM to 12 PM

Booth #	
11-1	28 Hasbargen, Les*; Bartik, Olivia; Eaton, Carlene: HOW BIG WAS THE JULY 17, 2021 FLASH FLOOD IN MORRIS NEW YORK?
11-2	29 Siegel, Cameron*; Sauvageau, Simon; Merritts, Dorothy J.: HIGH-RESOLUTION TOPOGRAPHIC ANALYSIS OF X-TREME GEOMORPHIC FEATURES ON LATE GLACIAL MAXIMUM AGE STRATH TERRACES, SUSQUEHANNA RIVER, PENNSYLVANIA
11-3	30 Kita, Maya*; Carr, Julia; DeBiase, Roman A.: QUANTIFYING FLUVIAL AND STRUCTURAL CONTROLS ON BEDROCK AND CHANNEL WIDTH IN TAIWAN
11-4	31 White, Cheyenne; Pearson, Adam Jeffrey*: ASSESSING CORRELATION OF MID-CHANNEL ISLAND GEOMETRY WITH PRESENCE OF IN CHANNEL DAMS USING REMOTELY SENSED DATA
11-5	32 Vohra, David*; Ouimet, William B.: INVESTIGATING ANOMALOUSLY LOW-RELIEF TOPOGRAPHY IN TAIWAN'S CENTRAL RANGE
11-6	33 Lister, Alexandra*; Weinheimer, Nancy; Jonathan, Sarah; DiBiase, Roman A.: AN ACCURACY ASSESSMENT OF LIDAR-DERIVED HILLSLOPE BEDROCK EXPOSURE MAPPING TOOLS IN STEEP LANDSCAPES
11-7	34 Filo, Rachel M.*; Ashley, Gail: THE GEOMORPHIC HISTORY OF THE CENTRAL PASSAIC BASIN, INSIGHTS FROM LIDAR DEM

AFTERNOON ORAL TECHNICAL SESSIONS

SESSION NO. 12

D1. Geoscience Education (National Association of Geoscience Teachers (NAGT); GSA Geoscience Education Division)

1:30 PM, Lancaster Marriott at Penn Square, Commonwealth Salon 1

Lauren Neitzke Adamo, Ria Sarkar and Nancy A. Price, Presiding

12-1	1:30 PM Price, Nancy*: CHOOSING PRACTICE-CROSSCUTTING CONCEPT PAIRS IN LEARNING PERFORMANCE STATEMENTS FOR THE EARTH AND SPACE SCIENCES
12-2	1:50 PM Roemmele, Christopher*: USING CROSS CUTTING CONCEPTS AS THE FRAME FOR PHENOMENON-BASED SCIENCE INVESTIGATIONS AND SCIENCE METHODS INSTRUCTION
12-3	2:10 PM Zapletal, Mirka*; Boram, Wallis; Gerulskis, Jeanne: BRINGING THE UNIVERSE TO STUDENTS: THE MCAULIFFE-SHEPARD DISCOVERY CENTER AND CLASSROOMS
12-4	2:30 PM Sarkar, Ria*; Criscione, Julia; Neitzke Adamo, Lauren; Drews, Matthew: VIRTUAL "ASK A GEOLOGIST" PROGRAM DEVELOPED TO ENGAGE CHILDREN DURING SCHOOL CLOSURES
12-5	2:50 PM Neitzke Adamo, Lauren*; Criscione, Julia; Sarkar, Ria: USING TECHNOLOGY TO CREATE INCLUSIVE NATURAL HISTORY TOURS AND ACTIVITIES AT THE RUTGERS GEOLOGY MUSEUM
	3:10 PM Discussion
	3:20 PM Break
12-6	3:35 PM Solar, Gary S.; Williams, Kevin K.*: TEACHING 3-D SPATIAL COGNITION IN MINERALOGY AND STRUCTURAL GEOLOGY USING THE IMMERSIVE PLANETARIUM ENVIRONMENT

12-7	3:55 PM Meyer, Michael*: VR EARTH SCIENCE: IN THE 'FIELD' USING DIFFERENT VR TECHNOLOGIES AND METHODOLOGIES
12-8	4:15 PM Reese, Joseph*: THE ANTHROPOCENE: THROUGH THE ORBITAL PERSPECTIVE OF TIME-SERIES IMAGERY OF EARTH
12-9	4:35 PM May, Daniel*: DECIPHERING CHANGE RATES LOGARITHMICALLY
	4:55 PM Discussion

SESSION NO. 13

S1. Devonian of New York I: A New, Extensive Volume on The North American Standard Section (SEPM (Society for Sedimentary Geology); Paleontological Research Institution)

1:30 PM, Lancaster Marriott at Penn Square, Commonwealth Salon 3

Charles Ver Straeten, D. Over and Donald L. Woodrow, Presiding

13-1	1:30 PM Ver Straeten, Charles*; Over, D. Jeffrey; Woodrow, Donald L.: AN INTRODUCTION TO THE DEVONIAN OF NEW YORK
13-2	1:50 PM Ver Straeten, Charles*: CHAPTER 1. AN INTRODUCTION TO THE DEVONIAN PERIOD, AND THE DEVONIAN IN NEW YORK STATE AND NORTH AMERICA
13-3	2:10 PM Ebert, James R.*; Matteson, Damon K.: CHAPTER 2: LITHOSTRATIGRAPHY, MULTI-TAXA BIOSTRATIGRAPHY AND SEQUENCE STRATIGRAPHY OF THE HELDERBERG GROUP (P IDOLÍ – LOCHKOVIAN) IN NEW YORK STATE
13-4	2:30 PM Ver Straeten, Charles*: CHAPTER 3: THE PORT JERVIS, ORISKANY, ESOPUS, AND SCHOHARIE FORMATIONS, AND EQUIVALENTS: PRAGIAN AND EMSIAN STRATA OF NEW YORK
	2:50 PM Discussion
	3:10 PM Break
13-5	3:25 PM Ver Straeten, Charles*; Brett, Carlton; Baird, Gordon C.; Bartholomew, Alex J.; Over, D. Jeffrey: CHAPTER 4. LOWER MIDDLE DEVONIAN (EIFELIAN-LOWER GIVETIAN) STRATA OF NEW YORK STATE: THE ONONDAGA FORMATION AND MARCELLUS SUBGROUP
13-6	3:45 PM Brett, Carlton*; Bartholomew, Alex J.; Baird, Gordon C.; Zambito, James: CHAPTER 5: STRATIGRAPHY AND FACIES OF THE MIDDLE AND UPPER HAMILTON GROUP (MIDDLE DEVONIAN; GIVETIAN) IN NEW YORK STATE AND ADJACENT AREAS
13-7	4:05 PM Bartholomew, Alex J.*; Ver Straeten, Charles: CHAPTER 6: MIDDLE HAMILTON GROUP STRATA (LOWER GIVETIAN) OF THE EASTERN OUTCROP BELT IN NEW YORK STATE
	4:25 PM Discussion

SESSION NO. 14

T4. Celebrating Allan Ludman's First 56 Field Seasons in Maine II: What Do We Know of Northern Appalachian Geology and What Questions Remain? (GSA Structural Geology and Tectonics Division; Maine Geological Survey)

1:30 PM, Lancaster Marriott at Penn Square, Commonwealth Salon 4

David West Jr., Henry Berry and Chunzeng Wang, Presiding

	1:30 PM West, David*: Welcome to Part II
14-1	1:35 PM Kunk, Michael*; Horton, J. Wright; McAleer, Ryan: ARGON DATING CONSTRAINTS ON THE AGE AND COOLING HISTORY OF PRE-CRETACEOUS BASEMENT ROCKS BENEATH THE MID-ATLANTIC COASTAL PLAIN OF MARYLAND AND VIRGINIA
14-2	1:55 PM Malinconico, MaryAnn*: TRENDS OF VERY-LOW-GRADE METAMORPHISM IN THE AROOSTOOK-MATAPEDIA BELT OF NORTHEASTERN MAINE (AROOSTOOK COUNTY) USING GRAPTOLITE AND VITRINITE REFLECTANCE

Sunday, 20 March 2022

- 14-3 2:15 PM Duff, Patrick D.*; Shah, Anjana; Wang, Chunzeng; Whittaker, Amber H.; Slack, John F.; Marvinney, Robert; Dickson, Stephen: **NEW AIRBORNE GEOPHYSICAL DATA ILLUMINATE ORDOVICIAN VOLCANIC ARC SYSTEMS OF NORTHERN MAINE**
- 14-4 2:35 PM Ludman, Allan*; McFarlane, Christopher R.M.; Whittaker, Amber H.: **OLD QUESTIONS, NEW INSIGHTS, AND SOME REFRACTORY PROBLEMS**
- 2:55 PM **DISCUSSION: Interesting Remaining Questions**

SESSION NO. 15

T17. Pleistocene to Modern Landforms and Change: Using Field and High-resolution Topographic Data to Unravel Landscape History and Quantify Change

1:30 PM, Lancaster Marriott at Penn Square, Commonwealth Salon 2

Dorothy J. Merritts and Noah Snyder, Presiding

- 1:30 PM **Introductory Remarks**
- 15-1 1:35 PM DiBiase, Roman A.*; Fong, Brandon T.; Walter, Nicholas: **LARGE-SCALE MAPPING OF POST-WILDFIRE DRY SEDIMENT LOADING USING REPEAT AIRBORNE LIDAR IN SOUTHERN CALIFORNIA**
- 15-2 2:00 PM Bartik, Olivia*; Hasbargen, Les; Eaton, Carlene: **FLOOD SURGE RECONSTRUCTION IN BEDROCK REACHES FOR THE JULY 17, 2021 FLASH FLOOD IN MORRIS NEW YORK**
- 15-3 2:20 PM Eaton, Carlene*; Hasbargen, Les; Bartik, Olivia: **A COMPARISON OF THE JULY 17, 2021 FLASH FLOOD IN MORRIS NEW YORK TO PAST FLOODS OF RECORD IN ALLUVIAL REACHES OF MORRIS BROOK**
- 15-4 2:40 PM Nesbitt, Ian*; Smith, Sean; Campbell, Seth; Koffman, Bess; Arcone, Steven; Schild, Kristin: **POST-GLACIAL SEDIMENT DELIVERY CONTINUUM TO AN IMPOUNDED VALLEY REACH IN CENTRAL MAINE: A MULTI-DISCIPLINARY APPROACH**
- 15-5 3:00 PM Odom, William*; Burke, Caitlin E.; Doctor, Daniel: **MAPPING SURFICIAL MATERIALS IN THE DELAWARE RIVER BASIN USING A DEEP LEARNING MODEL APPLIED TO HIGH-RESOLUTION LIDAR DATA**
- 3:20 PM **Discussion**

AFTERNOON POSTER TECHNICAL SESSIONS

SESSION NO. 16

D1. Geoscience Education (Posters) (National Association of Geoscience Teachers (NAGT); GSA Geoscience Education Division)

1:30 PM, Lancaster Marriott at Penn Square, Freedom Hall A

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

- Booth #
- 16-1 1 Needle, Mattathias D.; Crider, Juliet G.*: **NEW WAYS OF LOOKING AT THE WHALEBACK ANTICLINE: A VIDEOGAME-BASED VIRTUAL FIELD EXPERIENCE TO ENHANCE ACCESS, LEARNING, AND SCIENTIFIC DISCOVERY**
- 16-2 2 Davis, Tim*; Thornburg, Jesse; Peterson, Steve: **EVALUATING GENERAL EDUCATION GEOLOGY STUDENT OUTCOMES IN THE RAPID TRANSITION TO ONLINE LEARNING**
- 16-3 3 Gajewska-Schaefer, Paulina*; McNeal, Peggy; Menon, Deepika: **MEASURING STUDENT CONCEPTIONS OF EARTH SCIENTISTS AS INTEGRAL TO UNDERSTANDING THE NATURE OF SCIENCE: THE DRAW AN EARTH SCIENTIST TEST**
- 16-4 4 DiFrancesco, Nicholas*; Negila, Allegra; Bratage, Kirsten: **A PATH FOR GEOSCIENCE OUTREACH: A GEOLOGY WALKING**

TRAIL FOR TEACHING LOCAL NATURAL HISTORY TO STUDENTS OF ALL AGES

- 16-5 5 Haynes, Laura*: **STUDENT EXHIBIT DESIGN IN AN ON-CAMPUS NATURAL HISTORY MUSEUM: ENGAGING UNDERGRADUATES IN REFLECTIVE SCIENCE COMMUNICATION**
- 16-6 6 McNeal, Peggy*; Petcovic, Heather L.; Moore, Joel; Reeves, Donald: **CHARACTERIZATION AND TRAINING OF SPATIAL SKILLS IN HYDROGEOLOGY TO IMPROVE THE PREPARATION OF HYDROGEOLOGISTS RESPONDING TO CHANGING WATER RESOURCES**

SESSION NO. 17

D10. Economic Geology and Geochemistry (Posters)

1:30 PM, Lancaster Marriott at Penn Square, Freedom Hall A

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

- Booth #
- 17-1 8 Miller, Catherine*; Delawder, Jensen; Emproto, Christopher R.; Gold, David; Simon, Adam C.; Mathur, Ryan: **TITANIUM ISOTOPE VARIATIONS IN MAGNETITE FROM ROCKS AND ORES IN THE BUSHVELD COMPLEX**
- 17-2 9 Ianno, Adam*: **ENERGY-EFFICIENT PURIFICATION AND ENHANCED RECOVERY OF TUNGSTEN FROM ORES, TAILINGS, AND WASTE THROUGH METHANOL- AND ETHANOL-INDUCED SUPERSATURATION CRYSTALLIZATION**
- 17-3 10 Fox, Jon*; DiFrancesco, Nicholas; Raymond, Casey; Fox, Jack; Thomas, Jay B.; Valentino, David; Stroup, Justin S.: **ENVIRONMENTAL PETROGRAPHY SURVEY OF SELECTED UPSTATE NEW YORK BEDROCK FORMATIONS AND APPLICATIONS IN CHEMICAL HYDROGEOLOGY**
- 17-4 11 O'Donnell, Emily*; Hopkins, Kristina G.; Bain, Daniel; Welty, Claire; Moore, Joel: **IMPACTS OF URBANIZATION ON STREAM WATER CHEMISTRY ACROSS LATITUDES**
- 17-5 12 Hurley, Kyle*; Moore, Joel: **QUANTIFYING FOUR DECADES OF CHLORIDE AND SODIUM INPUTS TO THE BALTIMORE CITY DRINKING WATER RESERVOIRS**
- 17-6 13 Alexander, Jane*: **ARE PROVENANCE INTERPRETATIONS FROM MAJOR, TRACE AND RARE EARTH ELEMENT DATA ACCURATE? RESULTS FROM FOUR ACTIVE MARGINS**

SESSION NO. 18

D11. Structural Geology and Tectonics (Posters)

1:30 PM, Lancaster Marriott at Penn Square, Freedom Hall A

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

- Booth #
- 18-1 14 Valentino, David*; Chiarenzelli, Jeffrey R.; Orndorff, William D.; Regan, Sean; Valentino, Joshua: **ADIRONDACK GRABEN AND HALF-GRABEN: COMPLEX HISTORY OF FAULTING AND SEDIMENTATION**
- 18-2 15 Taylor, Brendan*; Cooper Boemmels, Jennifer: **EXPLORING EVIDENCE FOR EARLY MESOZOIC FAULTING IN THE WESTERN ORANGE-MILFORD BELT OF CONNECTICUT**
- 18-3 16 Fleischer, Noah*; Kuiper, Yvette D.: **BEDROCK GEOLOGIC MAP AND STRUCTURAL ANALYSIS OF THE HONEY HILL FAULT AND ADJACENT TERRANES IN SOUTHEASTERN CONNECTICUT, 1:50,000 SCALE**
- 18-4 17 Murphy, Kelsey*; Madill, Evan; Marvin, Oliver; Haner, Matthew; Wiest, Logan: **EVALUATING THE ATTITUDE OF RATTLESNAKE ROCK FROM THE PINE CREEK GORGE, LYCOMING COUNTY, PENNSYLVANIA**

SESSION NO. 19**D12. Geology and Health (Posters)**

1:30 PM, Lancaster Marriott at Penn Square, Freedom Hall A

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

Booth

- 19-1 18 Veresh, Renee*; Hanson, Lindley S.; Veresh, Renee: **USING STABLE ISOTOPES TO IDENTIFY CRIMINAL SUSPECTS**
- 19-2 19 Guzman, Maite; Hanson, Lindley*; Veresh, Renee: **ISOTOPIC ANALYSIS OF HAIR: ITS APPLICATION IN IDENTIFYING INDIVIDUALS AND CHANGES IN DIET (BEFORE AND DURING PANDEMIC)**

SESSION NO. 20**T4. Celebrating Allan Ludman's First 56 Field Seasons in Maine: What Do We Know of Northern Appalachian Geology and What Questions Remain (Posters) (GSA Structural Geology and Tectonics Division; Maine Geological Survey)**

1:30 PM, Lancaster Marriott at Penn Square, Freedom Hall A

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

Booth

- 20-1 20 Frisa, Timothy*; Schoonmaker, Adam: **SHEAR SENSE MICRO-ANALYSIS OF MELANGE IN THE CAUCOMGOMOC INLIER, NORTHERN MAINE**
- 20-2 21 Kuiper, Yvette*; Barr, Sandra M.; Crowley, James L.: **ZIRCON GEOCHRONOLOGY AND GEOCHEMISTRY OF EARLY TO MIDDLE DEVONIAN GRANITIC AND VOLCANIC ROCKS FROM THE CENTRAL GULF OF MAINE**
- West, David*; Berry, Henry; Wang, Chunzeng: **T4 - OPEN FORUM. What Questions Remain in Northern Appalachian Geology?**

SESSION NO. 21**T13. Current Research in Coastal and Nearshore Processes (Posters) (GSA Marine and Coastal Geoscience Division)**

1:30 PM, Lancaster Marriott at Penn Square, Freedom Hall A

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

Booth

- 21-1 22 Chen, Eric*; McHugh, Cecilia; Asan, Jamie; Nitsche, Frank; Kenna, Timothy C.: **COASTAL AND ESTUARINE SEDIMENTARY ENVIRONMENTS OF EASTERN LONG ISLAND SOUND**
- 21-2 23 Zajac, Jessica; Wintersteen, Erika; Finkenbinder, Matthew*: **TEXTURAL ANALYSIS OF BEACH AND DUNE SEDIMENTS FROM THE LAKE ERIE SHORELINE IN NORTHWESTERN PENNSYLVANIA**
- 21-3 24 Shell, Christopher*; Points, Elisabeth; Cornell, Sean R.: **INVESTIGATION OF LATE PLEISTOCENE-HOLOCENE POLLEN ASSEMBLAGES FROM THE UPPER NASSAWADOX FORMATION AND ASSOCIATED PALEOSOL, SAVAGE NECK DUNES STATE NATURAL AREA PRESERVE, EASTERN SHORE, VIRGINIA**
- 21-4 25 Edris, Pamela*; Oakley, Adrienne; Cornell, Sean; Palkendo, Julie: **ASSESSMENT OF ACID LEACHATE FROM A CONFINED DISPOSAL FACILITY TO AN IMPAIRED SALT MARSH ON CHINCOTEAGUE BAY, VIRGINIA**
- 21-5 26 Hansen, Lucy*; Cook, Tim; Woodruff, Jonathan D.; Griswold, Frances; Autery, Molly: **EVALUATING THE ROLE OF POOLS IN THE SEDIMENT DYNAMICS OF A NEW ENGLAND SALT MARSH**
- 21-6 27 Autery, Molly*; Cook, Tim; Woodruff, Jonathan D.; Yellen, Brian C.; Griswold, Frances; Baranes, Hannah; Hansen, Lucy: **REGIONAL VARIABILITY OF ACCRETION RATES IN NORTHEASTERN USA SALT MARSHES IN RELATION TO UNVEGETATED TO VEGETATED RATIO (UVVR)**

- 21-7 28 Choe, Joanna J.; Kroeze, Nathan D.; Lynch, Alyse A.; Vidal, Kayla M.; Fogaren, Kristen E.; Snyder, Noah*; Tedesco, Lenore P.: **BIOGEOCHEMISTRY OF A BACK-BARRIER SALT MARSH TIDAL POND AND WATERWAY IN SOUTHERN NEW JERSEY**
- 21-8 29 Allen, Finnegan E.; Covelli, Gennaro; O'Hara, Ryan P.; Armstrong, Michael; Kineke, Gail C.; Ostojic, Aleksandra; Smith, S. Jarrell; Snyder, Noah*; Tedesco, Lenore P.: **SEDIMENTATION PROCESSES ON A SOUTHERN NEW JERSEY SALT MARSH ISLAND**
- 21-9 30 Alderete, Paul D.; Reineke, Sophia M.; Shim, Ebenezer K.; Snyder, Noah*; Tedesco, Lenore P.: **SPATIOTEMPORAL ANALYSIS OF CHANGES IN A SOUTHERN NEW JERSEY SALT MARSH ECOSYSTEM**
- 21-10 31 Rosario, Korina*; Hubeny, Brad; Hanson, Lindley S.: **GEORADAR ANALYSIS FOR GEOMORPHIC EVIDENCE OF PREHISTORIC BREACHES AT NAHANT TOMBOLO, MASSACHUSETTS, USA**
- 21-11 32 Swenson, Darci A.*; Dwyer, Ian P.; Aller, Robert C.; Volkenborn, Nils; Heilbrun, Christina; Wehrmann, Laura M.: **BENTHIC IRON AND PHOSPHORUS FLUXES FROM PERMEABLE SEDIMENTS UNDER VARIABLE OVERLYING WATER COLUMN OXYGEN CONDITIONS**
- 21-12 33 Zanolli, Katherine*; Cornell, Sean: **SEM INVESTIGATION OF EXPERIMENTAL OCEAN ACIDIFICATION ON THE SHELL MICROSTRUCTURE OF THE COQUINA CLAM (*DONAX VARIABILIS*)**
- 21-13 34 Dunkelberger, Margaret*; Cornell, Sean; Joyce, Robert T.: **ANALYSIS OF LOBLOLLY PINE (*PINUS TAEDA*) TREE RING AND CLIMATE RECORDS OF ASSATEAGUE ISLAND AND CHINCOTEAGUE BAY REGION, VIRGINIA**

SESSION NO. 22**T22. Applied Research at Northeastern State Geological Surveys (Posters)**

1:30 PM, Lancaster Marriott at Penn Square, Freedom Hall A

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

Booth

- 22-1 35 Seaton, William*; Fillion, Evan; Green, Gillian; Wendling, Scott; Dodge, Clifford H.: **GEOPHYSICAL INVESTIGATION OF THE BROAD TOP COALFIELD AREA, SOUTHERN PENNSYLVANIA**

MONDAY, 21 MARCH 2022**MORNING
ORAL TECHNICAL SESSIONS****SESSION NO. 23****D3. Recent Advances in Environmental and Surficial Geology**

8:00 AM, Lancaster Marriott at Penn Square, Commonwealth Salon 1

P. Fleisher and Bobak Karimi, Presiding

- 23-1 8:00 AM Burke, Kevin*; Leng, Qin; Svård, Elin; Liang, Jiaqi; Yang, Hong: **ON THE SUNNY SIDE OF THE TREE: THE IMPACT OF LEAF ORIENTATION ON THE FRANKS MODEL FOR RECONSTRUCTING ANCIENT CO₂**
- 23-2 8:20 AM Svård, Elin*; Leng, Qin; Liang, Jiaqi; Burke, Kevin; Yang, Hong: **THE EFFECT OF ARCTIC LIGHT ON LEAF GAS EXCHANGE MODELS: CONNECTING GREENHOUSE, FIELD WORK, AND CLASSROOM**
- 23-3 8:40 AM Brandon, Ryan*; Seaton, William; Knittle, Roger; Anundson, Wade; Scheller, P. Rich: **USING GEOPHYSICS TO REDUCE**

- THE POTENTIAL OF INADVERTENT RETURNS IN HDD BORES: A CASE STUDY IN THRUST-FAULTED DEVONIAN STRATA, NORTH CENTRAL PENNSYLVANIA**
- 23-4 9:00 AM Epuna, Favour*; Shaheen, Samuel; Wen, Tao: **EVALUATING THE IMPACT OF UNCONVENTIONAL OIL AND GAS DRILLING ON GROUNDWATER QUALITY IN THE APPALACHIAN BASIN WITH MIXED LAND USES**
- 23-5 9:20 AM Withdrawn
- 23-6 9:40 AM Stegner, Sean; Chowdhury, Shafiul*: **NITROGEN ISOTOPE ANALYSIS TO EVALUATE LAND USE SIGNATURE ON STREAM WATER QUALITY**
- 10:00 AM **Break**
- 23-7 10:15 AM Sarikin Samari, Labib*; Cheng, Zhongqi; Olga, Vargas; McLaughlin, Kaitlin; Begum, Kohinoor; David, Seidemann; Engel-Dimauro, Salvado; Groffman, Peter; Shaw, Richard K.; Timchenko, Elena: **SOIL PROFILES IN BIOSWALE: IMPLICATIONS ON SOIL DEVELOPMENT AND BIOSWALE MANAGEMENT**
- 23-8 10:35 AM Fleisher, P*: **TOPOGRAPHIC PARADOX IN A BASIC GEOLOGIC SETTING, APPALACHIAN PLATEAU, CENTRAL NYS**
- 23-9 10:55 AM Kilgore, Susan*; Combs, Sarah; Clayton, William: **SURVEY AND CHARACTERIZATION OF RELICT SHORELINE SEDIMENTS IN THE LAKE SUPERIOR BASIN, GRAND PORTAGE NATIONAL MONUMENT, MINNESOTA**
- 23-10 11:15 AM Karimi, Bobak*; Lee, Rachel: **RISK ASSESSMENT OF A ROCK SLIDE ON THE SOUTHERN SLOPE OF THE SHICKSHINNY MOUNTAIN, LUZERNE COUNTY, PENNSYLVANIA**

SESSION NO. 24

S1. Devonian of New York II: A New, Extensive Volume on The North American Standard Section (SEPM (Society for Sedimentary Geology); Paleontological Research Institution)

8:00 AM, Lancaster Marriott at Penn Square, Commonwealth Salon 2

Charles Ver Straeten, D. Over and Donald L. Woodrow, Presiding

- 24-1 8:00 AM Baird, Gordon C.*; Zambito, James; Brett, Carlton: **CHAPTER 7: TULLY FORMATION AND PRE-FRASNIAN GENESSEE GROUP SUCCESSION**
- 24-2 8:20 AM Over, D.*; Baird, Gordon C.; Kirchgasser, William T.: **CHAPTER 8: THE FRASNIAN STRATA - LOWER UPPER DEVONIAN - OF NEW YORK STATE**
- 24-3 8:40 AM Bush, Andrew M.*; Beard, J. Andrew; Brisson, Sarah K.; Pier, Jaleigh Q.; Hren, Michael T.: **CHAPTER 9: STRATIGRAPHY OF THE FRASNIAN-FAMENNIAN BOUNDARY INTERVAL IN SHALLOW-MARINE PALEOENVIRONMENTS OF NEW YORK AND NORTH-CENTRAL PENNSYLVANIA (WISCOY-CANEADEA FORMATIONS, UPPER DEVONIAN)**
- 24-4 9:00 AM Jacobi, Robert*; Smith, Gerald: **CHAPTER 10: ON THE STRATIGRAPHY, SEDIMENTOLOGY AND STRUCTURE OF UPPER FRASNIAN TO FAMENNIAN DEVONIAN STRATA IN SOUTHWESTERN NEW YORK STATE**
- 9:20 AM **Break**
- 24-5 9:35 AM Baird, Gordon C.*; Harper, John A.; Over, D. Jeffrey; Hannibal, Joseph; McKenzie, Scott C.; Tesmer, Irving H.: **CHAPTER 11: CONNEAUT GROUP TO BASAL MISSISSIPPIAN STRATIGRAPHIC SUCCESSION AND GEOCHRONOLOGY, NEW YORK/PENNSYLVANIA BORDERLAND AND LAKE ERIE REGION**
- 24-6 9:55 AM Ver Straeten, Charles*: **CHAPTER 12: THE DEVONIAN TERRESTRIAL SYSTEM OF NEW YORK**
- 10:15 AM **Concluding Remarks**
- 10:35 AM **Discussion**

SESSION NO. 25

S3. Adapting to Global Climate Disruption at Multiple Scales (GSA Hydrogeology Division; GSA Geology and Society Division; GSA Environmental and Engineering Geology Division)

8:00 AM, Lancaster Marriott at Penn Square, Commonwealth Salon 3

Donald Siegel and Norman Levine, Presiding

- 25-1 8:00 AM Siegel, Donald*: **ANOTHER 'INCONVENIENT FACT': HUMANITY WILL NEED RAPID LARGE-SCALE ENGINEERING TO ADDRESS HUMAN INDUCED CLIMATE DISRUPTION**
- 25-2 8:20 AM Lautz, Laura*: **ADDRESSING THE GRAND CHALLENGE OF CLIMATE CHANGE THROUGH IMPROVED UNDERSTANDING OF THE CLIMATE SYSTEM, MITIGATION STRATEGIES, IMPACTS, RISK AND ADAPTATION**
- 25-3 8:40 AM Levine, Norman*; Knapp, Landon: **SCIENCE SUPPORTING THE DEVELOPMENT CLIMATE ADAPTATION STRATEGIES: LESSONS FROM THE SOUTH CAROLINA LOWCOUNTRY**
- 25-4 9:00 AM Shaw, George*; Kuhns, Roger James: **COST-EFFECTIVE CARBON CAPTURE WITH NATURAL PROCESSES**
- 9:20 AM **Break**
- 25-5 9:35 AM Lutz, Timothy*: **INNOVATIVE IDEAS FOR A CHANGING GEOSCIENCE: MOVING TOWARD A SUSTAINABLE WORLD BY ATTENDING TO ITS COMPLEXITY**
- 25-6 9:55 AM Yang, Hong*; Leng, Qin; Hofig, Dianne F.; Zhang, Yi Ge: **RISK ASSESSMENT AND ADAPTING STRATEGIES FOR POST-TIPPING POINT CLIMATE DISRUPTIONS: LESSONS FROM THE MIDDLE MIOCENE**
- 25-7 10:15 AM Epstein, Samuel*; Epstein, Peggy: **COASTAL MANAGEMENT RESPONSE TO SUPER STORM SANDY (2012), ROCKAWAY BEACH, QUEENS, NEW YORK**

SESSION NO. 26

T9. Tectonic Evolution of Eastern North America: Insights from Geology and Geophysics (GSA Structural Geology and Tectonics Division; GSA Geophysics and Geodynamics Division)

8:00 AM, Lancaster Marriott at Penn Square, Commonwealth Salon 4

Yvette Kuiper, Maureen Long, Allison Severson, Yantao Luo, David Lowe and Shawna White, Presiding

- 8:00 AM **Introductory Remarks**
- 26-1 8:05 AM van Staal, Cees*; Zagorevski, Alex: **PALEOZOIC TECTONIC EVOLUTION OF LAURENTIA'S APPALACHIAN MARGIN**
- 26-2 8:25 AM Waldron, John*; McCausland, Phil; Barr, Sandra M.; Schofield, David I.; Reusch, Douglas; Wu, Lei: **INTEGRATING DIVERSE DATA SETS FROM THE LAURENTIAN MARGIN AND ACCRETED TERRANES IN THE NORTHERN APPALACHIANS AND WESTERN CALEDONIDES**
- 26-3 8:45 AM White, Shawna*; Waldron, John: **ALONG-STRIKE VARIATIONS IN THE DEFORMED LAURENTIAN MARGIN IN THE NORTHERN APPALACHIANS: ROLE OF INHERITED MARGIN GEOMETRY AND COLLIDING ARCS**
- 26-4 9:05 AM Browning-Hanson, Joseph*; Viète, Daniel: **OROGEN-WIDE DETRITAL ZIRCON INVESTIGATION OF RODINIAN RIFT HISTORIES ALONG THE APPALACHIAN-CALEDONIAN SYSTEM**
- 26-5 9:25 AM Lowe, David*; Serna Ortiz, Santiago; Khatrine, Grace: **LATE EDIACARAN(?) SYN-DEFORMATIONAL FLUVIAL SEDIMENTATION IN WEST AVALONIA: THE LILLY UNCONFORMITY REVISITED**
- 9:45 AM **Break**
- 26-6 10:00 AM Crespi, Jean*; Rosen, Madison: **ALONG-STRIKE VARIATION IN PARTITIONING OF HORIZONTAL SHORTENING BETWEEN OUT-OF-SEQUENCE**

- THRUST FAULTS AND SLATY CLEAVAGE IN THE GIDDINGS BROOK THRUST SHEET OF THE TACONIC ALLOCHTHON, VERMONT AND NEW YORK**
- 26-7 10:20 AM Bosbyshell, Howell*: **THE ROSETTA STONE OF THE CENTRAL APPALACHIAN PIEDMONT IN PENNSYLVANIA: CHESTER CREEK TRAIL EXPOSURES**
- 26-8 10:40 AM Jackson, H. Ruth; Chian, Deping; Barr, Sandra M.*; Shimeld, John; White, Chris E.; Salisbury, Matthew: **CONTRASTS IN CRUSTAL CHARACTER BETWEEN MEGUMA AND AVALONIA BASED ON WIDE-ANGLE SEISMIC REFLECTION/REFRACTION PROFILES ALONG THE SCOTIAN MARGIN AND ACROSS NOVA SCOTIA, CANADA**
- 26-9 11:00 AM Severson, Allison*; Kuiper, Yvette D.; Long, Maureen; Pipkin, Jonese: **THE ALLEGHANIAN FRONT IN THE SOUTHEASTERN NEW ENGLAND APPALACHIANS: A COMPREHENSIVE ANALYSIS OF GEOCHRONOLOGY, STRUCTURAL GEOLOGY, AND GEOPHYSICAL DATA**
- 26-10 11:20 AM Kennedy, Rebekah*; McAleer, Ryan J.; Resor, Phillip; Wintsch, Robert P.: **THE ALLEGHANIAN TECTONIC SETTING OF THE ACADIAN HIGHLANDS OF WESTERN CONNECTICUT REVEALED BY PERMIAN INTRUSIVE FELSITES**
- 26-11 11:40 AM Klang, Zachary*; Resor, Phillip; Wintsch, Robert: **PROTRACTED EXHUMATION ALONG THE FOOTWALL OF THE EASTERN BORDER FAULT OF THE HARTFORD BASIN, CT USA**
- 28-3 5 Becker, Sean; Buynevich, Ilya V.*: **ASYMMETRIC BEAVER IMPACT ALONG A BEDROCK-CONTROLLED STREAM REACH, NEWTOWN CROSSING, PENNSYLVANIA**
- 28-4 6 Ankudovich, Evelyn A.; Faccenda, Jason; Hasan, Sarah M.; Komara, Laura E.; Wynter, Seande N.; Madill, Evan; Thacker, Hayden A.*; Buynevich, Ilya V.: **CASTORID DENDROGEOMORPHIC IMPACT ON CUTBANK STABILITY AND PLANT COMMUNITY COMPOSITION, SOUTHEASTERN PENNSYLVANIA**
- 28-5 7 Ankudovich, Evelyn A.*; Buynevich, Ilya V.; Mugnani, Maria Paula: **CONTRASTING BEDROCK-GEOMORPHIC SETTINGS CONTROL BEAVER IMPACT ALONG THE PENNYPACK CREEK, PENNSYLVANIA**
- 28-6 8 Destefano, Alexis; Buynevich, Ilya V.*: **REGIONAL ASSESSMENT OF RESURGENT BEAVER ACTIVITY IN SUBURBAN PHILADELPHIA COUNTIES**
- 28-7 9 Lynch, Colin J.; Yelverton-Robinson, Seraiah K.; Smith, Julianne C.; Mapes, Beau R.; Thacker, Hayden*; Buynevich, Ilya: **ASSESSMENT OF ZOOGEOMORPHOLOGICAL IMPACT OF SEMIFOSSORIAL RODENTS ALONG A WOODED SOUTHEASTERN PENNSYLVANIA STREAM**
- 28-8 10 Lynch, Colin J.; Buynevich, Ilya V.*: **FISH NESTS IN MIXED-SEDIMENT STREAMS, SOUTHEAST PENNSYLVANIA: INSIGHTS FROM TEXTURAL ANALYSIS OF POST-FLOOD BOTTOM SEDIMENT**
- 28-9 11 Alexander, Alisha; Leptuck, Sarah N.; Mullins, Chloe; Rodebaugh, Christian; Thacker, Hayden*; Buynevich, Ilya V.: **QUANTITATIVE ANALYSIS OF AN ICHNOASSEMBLAGE WITHIN A LEGACY-MUD CUTBANK, NESHAMINY CREEK (TYLER STATE PARK, PENNSYLVANIA)**
- 28-10 12 Johnson-Bey, Dustin K.; Snedeker, Aleah A.; Bertel, Rebecca; Hartley, Toni M.; Thomas, Hannah R.; Balzani, Peter; Thacker, Hayden*; Buynevich, Ilya V.: **WHITE-TAILED DEER AS A ZOOGEOMORPHIC AGENT ON A POST-FLOOD STREAM TERRACE, BUCKS COUNTY, PENNSYLVANIA**
- 28-11 13 Komara, Laura E.; Balzani, Peter*; Buynevich, Ilya V.: **COMPARATIVE AERIAL IMAGE ANALYSIS OF BISON WALLOWS IN NORTH AMERICA (YELLOWSTONE NP, WY, USA) AND EUROPE (BIAŁOWIE A NP, POLAND)**

MORNING POSTER TECHNICAL SESSIONS

SESSION NO. 27

D13. Geophysics and Geodynamics (Posters)

8:00 AM, Lancaster Marriott at Penn Square, Freedom Hall A

Authors will be present from 10 AM to 12 PM

Booth #

- 27-1 1 Needell, Caroline*; Holschuh, Nicholas: **CONSTRAINING THE HIGHEST PROJECTIONS OF FUTURE SEA LEVEL RISE: EVALUATING MODELS OF MARINE ICE CLIFF INSTABILITY AT CRANE GLACIER, ANTARCTICA**
- 27-2 2 Bowie, Mariah; Hartlove, Juliana; Helmke, Martin*; Spatafore, Joseph; Schultz, Gregory; Masters, Andrew: **AN EVALUATION OF REAL-TIME, ONBOARD IMPLEMENTATION OF GIS AND GROUNDWATER FLOW MODELING TO CONDUCT AUTONOMOUS SEARCH FOR ABANDONED PETROLEUM WELLS USING UAS MAGNETOMETRY**

SESSION NO. 28

T1. Leaving Footprints, Changing Landscapes: Advances in Ichnological and Zoogeomorphological Research (Posters) (SEPM (Society for Sedimentary Geology); GSA Sedimentary Geology Division; GSA Quaternary Geology and Geomorphology Division; Paleontological Society)

8:00 AM, Lancaster Marriott at Penn Square, Freedom Hall A

Authors will be present from 10 AM to 12 PM

Booth #

- 28-1 3 Weinberg, Sara*; Buynevich, Ilya V.: **IMPACT MAPPING OF INTENSE MULTI-SPECIES ZOOGEOMORPHIC ACTIVITY ALONG A HEAVILY DEVELOPED STREAM REACH, LANGHORNE, PENNSYLVANIA**
- 28-2 4 Schoenstein, Jennifer A.; Villari, Zachary; Bafna, Anisha; Buynevich, Ilya V.*; Weinberg, Sara: **HIGH-RESOLUTION SUBSURFACE (500 MHZ GEORADAR) CHARACTERIZATION OF A CREEK TERRACE WITH INTENSE ZOOGEOMORPHIC ACTIVITY, LANGHORNE, PENNSYLVANIA**

SESSION NO. 29

T16. Glacial Geology and Proxy Records in Northeastern North America and Beyond (Posters) (GSA Quaternary Geology and Geomorphology Division)

8:00 AM, Lancaster Marriott at Penn Square, Freedom Hall A

Authors will be present from 10 AM to 12 PM

Booth #

- 29-1 14 Mastro, Halley M.*; Principato, Sarah M.: **MORPHOMETRIC ANALYSIS OF ICE SCOUR LAKES IN NORTHERN ICELAND: A PROXY FOR ICE SHEET DYNAMICS**
- 29-2 15 Drebber, Jason*; Halsted, Christopher T.; Bierman, Paul R.; Corbett, Lee; Shakun, Jeremy D.; Davis, P. Thompson; Caffee, Marc: **INVESTIGATING ¹⁰BE/¹⁴C CHRONOMETER AGE DIVERGENCE IN SOUTHERN NEW ENGLAND TO ASSESS THE TIMING OF LAURENTIDE ICE SHEET DEGLACIATION**
- 29-3 16 O'Connor, Clare*; de Wet, Gregory; Weber, Lily; Young, Sabrina: **INVESTIGATING BRGDGT SOURCES AND SEASONALITY IN PARADISE POND**
- 29-4 17 Mahar, Isabelle*; Thomas, Elizabeth; Jensen, Britta; Castañeda, Isla S.; Cluett, Allison: **MULTI-PROXY ANALYSIS OF ALASKAN LOESS DEPOSITS THROUGH QUATERNARY INTERGLACIAL-GLACIAL CYCLES**
- 29-5 18 Gahwagy, Rana*; Maxwell, Vivienne; de Wet, Gregory; Stoudt, Sara: **TOWARDS A UNIVERSAL CALIBRATION MODEL TO PREDICT BIOGENIC SILICA AND ORGANIC CARBON PERCENTAGES IN LACUSTRINE SEDIMENT CORE SAMPLES**

- 29-6 19 Schaefer, Lindsey; Bakich, Melissa; Cohen, Samuel; Cropper, Miranda; Dennis, Emily; Copenheaver, Wesley; Vornlocher, Jamie R.; Mark, Samuel; Sinon, Hailey; Shelef, Eitan; Abbott, Mark*: **A SEDIMENT RECORD OF ENVIRONMENTAL CHANGE SPANNING THE TRANSITION FROM THE LATE GLACIAL TO THE HOLOCENE FROM THE UPPER BLACKWATER RIVER BASIN, WEST VIRGINIA**
- 29-7 20 Briner, Jason*; Thomas, Elizabeth; Prince, Karlee; Guild, Gavin; Roop, Heidi: **PRELIMINARY ANALYSIS OF A HIGH-RESOLUTION LAKE-SEDIMENT RECORD SPANNING THE PAST 6400 YEARS FROM SOUTHWEST GREENLAND**
- 29-8 21 Brazo, Julia*; Licciardi, Joseph M.; Lesnek, Alia J.: **USING ¹⁰BE SURFACE EXPOSURE DATING TO RECONSTRUCT THE LATE PLEISTOCENE HISTORY OF ICE SHEET RETREAT AND RELATIVE SEA-LEVEL CHANGES IN THE SEACOAST REGION OF NEW HAMPSHIRE**
- 29-9 22 Lombardo, Carly*; Daniels, William; Castañeda, Isla S.; Brigham-Grette, Julie: **BURNING IN BERINGIA – GLACIAL-INTERGLACIAL WILDFIRE VARIABILITY AT LAKEEL'GYGYTGYN**
- 29-10 23 Krohl, Sara L.*; Stroup, Justin S.; Mosher, Hayley; Frieman, Richard A.: **AN ANALYSIS OF GRAIN SIZE CHANGES IN THE UPPER FIVE UNITS OF THE SEARLES LAKE, CA STRATIGRAPHY**
- 29-11 24 Kotulak, Arielle*; Licciardi, Joseph M.: **USING GLACIAL STRIATIONS ON BEDROCK TO DETERMINE ICE FLOW BEHAVIOR DURING THE LAST DEGLACIATION IN THE NEW HAMPSHIRE SEACOAST REGION**
- 29-12 25 Sugiura, Ibuki*; de Wet, Gregory; Lise-Pronovost, Agathe; Fletcher, Michael-Shawn; Cooley, Sarah: **RECONSTRUCTING PAST TEMPERATURE FROM LAKE SEDIMENTS IN DARWIN CRATER, TASMANIA, AUSTRALIA USING THE BRGDGT BIOMARKER PROXY**
- 29-13 26 Nishimoto, Michelle*; Calderon, Anna; Monecke, Katrin; Brabander, Daniel J.; Hubeny, Brad; McCarthy, Francine: **LANDSCAPE CHANGES AND MASS WASTING EVENTS AS RECORDED IN THE SEDIMENTS OF SLUICE POND, MASSACHUSETTS**
- 29-14 27 Chase, Brooke M.*; Prince, Karlee; Briner, Jason P.: **A SEDIMENT RECORD FROM A KETTLE BOG ON THE LAKE ESCARPMENT MORaine, WESTERN NEW YORK**
- 29-15 28 Drebber, Jason*; Baker, Abigail M.; Choquette, Evan S.; Hogan, Cate J.; Farkas, Caitlin O.; Farrell, Remy; Mistur, Ryan J.; Vanderlan, Will W.; Wright, Stephen F.: **MAPPING SURFICIAL GEOLOGY AND INTERPRETING THE GLACIAL HISTORY OF THE BROOKFIELD QUADRANGLE IN NORTH-CENTRAL VERMONT**
- 29-16 29 Rubin, Calen*; Licciardi, Joseph M.; Lesnek, Alia J.; Palace, Michael: **COSMOGENIC ³⁶CL DATING OF THE GRANITE CANYON MORaine COMPLEX IN THE TETON RANGE TO DETERMINE FAULT OFFSET RATES AND THE INFLUENCE OF VALLEY HYPSONETRY ON GLACIER BEHAVIOR**
- 29-17 30 Seaton, William*; Filion, Evan; Wendling, Scott; O'Brien, Rachel: **CHARACTERIZATION OF SUBSURFACE GLACIAL SEDIMENTS IN NORTHWEST PENNSYLVANIA USING NON-INTRUSIVE GEOPHYSICAL METHODS**
- 29-18 31 Farkas, Caitlin O.*; Farrell, Remy; Mistur, Ryan J.; Vanderlan, Will W.; Drebber, Jason; Choquette, Evan S.; Hogan, Cate J.; Wright, Stephen F.: **MAPPING SURFICIAL GEOLOGY AND INTERPRETING THE GLACIAL HISTORY OF THE NORTHERN HUNTINGTON RIVER VALLEY, WESTERN GREEN MOUNTAINS, VERMONT**
- 29-19 32 Lindberg, Kurt R.*; Thomas, Elizabeth K.; Rosenheim, Brad E.; Firesinger, Devon F.; Sepúlveda, Julio; Miller, Gifford H.: **USING RAMPED PYROLYSIS OXIDATION TO ASSESS BULK SEDIMENT RADIOCARBON GEOCHRONOLOGY AND CARBON CYCLING IN AN ARCTIC LAKE CATCHMENT**

AFTERNOON ORAL TECHNICAL SESSIONS

SESSION NO. 30

S4. Latest Science Results and Updates in Planetary Science Research, Programs, and Flight Projects I (GSA Planetary Geology Division)

1:30 PM, Lancaster Marriott at Penn Square, Commonwealth Salon 3

Michael Kelley and Mitchell Schulte, Presiding

- 1:30 PM **Introductory Remarks**
- 30-1 1:45 PM Glaze, Lori*: **NASA'S PLANETARY SCIENCE DIVISION: KEY EXPLORATION EVENTS IN 2022**
- 30-2 2:15 PM Schulte, Mitchell*: **THE MARS 2020 PERSEVERANCE ROVER MISSION**
- 30-3 2:45 PM Kelley, Michael*; Viotti, Michelle A.; Davis, Richard M.; Haltigin, Timothy; Usui, Tomohiro; Mugnuolo, Raffaele; Lavagna, Michèle; Plaut, Jeffrey: **PROGRESS AND PLANS FOR THE INTERNATIONAL MARS ICE MAPPER MISSION**
- 3:15 PM **Break**
- 30-4 3:30 PM Prakash, Medha*; Simkins, Lauren; McKenzie, Marion; Smith, Jacob; Limaye, Ajay: **MORPHOLOGY AND PROCESS-BASED IMPLICATIONS OF MARTIAN RIDGES AND TERRESTRIAL ESKERS**
- 30-5 3:50 PM Piatek, Jennifer*; Allen, Zachary: **RE-ANALYSIS OF MARTIAN CRATER EJECTA CHARACTERISTICS IN THE THERMAL INFRARED**
- 30-6 4:10 PM Yingst, R.*; Bartley, Julie; Cohen, Barbara A.; Hynek, Brian; Kah, L.C.; Archer, Richard; Lotto, Michael; Mooney, Jennifer Tuggle; Wang, Justin; Wogsland, Brittan: **USING ROVER-ANALOGOUS INSTRUMENTATION TO DISCRIMINATE BETWEEN VOLCANIC AND SEDIMENTARY PROCESS IN SUCCESSIONS DOMINATED BY IGNEOUS CHEMISTRY: THE TJÖRNES, ICELAND EXAMPLE**
- 30-7 4:30 PM Hottendorf, Kiersten*; Gregg, Tracy: **ROCK CORRAL BUTTE, IDAHO: AN INFLATED FLOW FIELD IN THE EASTERN SNAKE RIVER PLAIN**
- 4:50 PM **Discussion**
- 5:00 PM **Concluding Remarks**

SESSION NO. 31

T1. Leaving Footprints, Changing Landscapes: Advances in Ichnological and Zoogeomorphological Research (SEPM (Society for Sedimentary Geology); GSA Sedimentary Geology Division; GSA Quaternary Geology and Geomorphology Division; Paleontological Society)

1:30 PM, Lancaster Marriott at Penn Square, Commonwealth Salon 2

Ilya V. Buynevich, Stephen Hasiotis, Logan Wiest and Hayden Thacker, Presiding

- 1:30 PM **Introductory Remarks**
- 31-1 1:40 PM Metz, Robert*: **TRACE FOSSILS IN FLUVIAL DEPOSITS OF THE UPPERMOST STOCKTON FORMATION (LATE TRIASSIC), WEST-CENTRAL NEW JERSEY**
- 31-2 2:00 PM Szajna, Michael*; Ellis, Kathleen O'Brien: **DINOSAUR TRACKS AND ASSOCIATED ICHNOFAUNA IN THE LATE TRIASSIC GRATERS MEMBER OF THE PASSAIC FORMATION, SOUTHEASTERN PENNSYLVANIA**
- 31-3 2:20 PM Drzewiecki, Peter*; Hyatt, James A.: **DISTINGUISHING TRUE TRACKS FROM UNDERTRACKS AND OVERTRACKS THROUGH INTEGRATION OF MORPHOLOGICAL, SEDIMENTOLOGICAL, AND PHOTOGRAMMETRIC MODELLING, DINOSAUR STATE PARK, ROCKY HILL, CONNECTICUT**

2:40 PM **Break**

- 31-4 2:55 PM Thacker, Hayden A.*; Buynevich, Ilya V.; Balzani, Peter: **HIGH-RESOLUTION GEORADAR IMAGING OF SIMULATED AND POST-EMERGENCE SEA TURTLE NESTS: IMPLICATIONS FOR PALEOICHOLOGY AND CONSERVATION**
- 31-5 3:15 PM Johnson-Bey, Dustin K.; Thacker, Hayden*; Buynevich, Ilya V.; Balzani, Peter: **TEXTURAL AND MAGNETIC SUSCEPTIBILITY TRENDS IN AEOLIAN RAMP DEPOSITS ASSOCIATED WITH SEA TURTLE NESTING SITES ON THE MID-ATLANTIC COAST**
- 31-6 3:35 PM Balzani, Peter*; Buynevich, Ilya V.: **NEOICHOLOGY OF BISON: IMPLICATIONS FOR (PALEO-) ZOOGEOMORPHOLOGY OF SAND-DOMINATED LANDSCAPES**
- 31-7 3:55 PM Buynevich, Ilya V.*; Freestone, Amy; Toran, Laura; Caplan, Joshua; Bonfim, Mariana; Grabosky, Jason; Weinberg, Sara: **RAPID-RESPONSE BIOGEOGEOGRAPHY: ASSESSMENT OF PERTURBATIONS RESULTING FROM RECORD FLOODING AND TORNADOES IN SE PENNSYLVANIA (IDA, 2021)**

SESSION NO. 32**T10. Tectono-Metamorphic Processes at Convergent Boundaries: Insights from the Grenville Orogen, Northeastern North America, and Beyond**

1:30 PM, Lancaster Marriott at Penn Square, Commonwealth Salon 4

Adrian Castro, Wentao Cao, Emily Peterman and Greg J. Walsh, Presiding

- 1:30 PM **Introductory Remarks**
- 32-1 1:35 PM George, Freya*; Viète, Daniel; Burgess, Jerry: **CONDITIONS, RATES, AND TIMING OF METAMORPHISM IN BALTIMORE CITY: A CORRELATIVE RECORD OF ACADIAN OROGENESIS BETWEEN CENTRAL AND NORTHERN APPALACHIA?**
- 32-2 1:55 PM Walsh, Gregory*; Valley, Peter; Merschat, Arthur J.; Aleinikoff, John N.: **NEW BEDROCK GEOLOGIC MAPPING IN THE ADIRONDACK HIGHLANDS, NORTHERN NEW YORK**
- 32-3 2:15 PM Valley, Peter*; Matthews, Jessica A.; Walsh, Gregory: **RELATIVE TIMING AND METAMORPHISM OF LATE-STAGE, TRANSTENSIONAL SHEAR ZONES IN THE EASTERN ADIRONDACK HIGHLANDS**
- 32-4 2:35 PM Peck, William H*; Regan, Sean; Timothy, Samuel C: **GEOCHRONOLOGY OF SKARNS AND ANORTHOSITE IN THE ADIRONDACK HIGH PEAKS, AND IMPLICATIONS FOR AGE AND EMPLACEMENT DEPTH OF THE MASSIF**
- 32-5 2:55 PM Adsit, Aaron*; Carter, Matthew; Nachlas, William O.; Verbeek, Earl R.: **INTERDIFFUSION OF ZN-MN-FE IN PYROXENE, SPINEL, AND GARNET DURING GRENVILLE GRANULITE FACIES METAMORPHISM AT STERLING HILL, NJ**
- 3:15 PM **Break**
- 32-6 3:30 PM Koran, Isabel*; McKanna, Alyssa; Schoene, Blair: **MAGNETITE-APATITE MINERALIZATION IN THE NEW JERSEY HIGHLANDS: APATITE AS COUPLED GEOCHRONOMETER AND GEOCHEMICAL INDICATOR**
- 32-7 3:50 PM Nagurney, Alexandra*; Caddick, Mark: **HOW DOES GARNET CRYSTALLIZE DURING METAMORPHISM?**
- 32-8 4:10 PM Castro, Adrian*; Yao, Jannitta; Wolfe, Oliver M.: **SOME LIKE IT HOT: REEVALUATING THE EXTENT OF ANATEXIS IN THE NASHOBA TERRANE, EAST-CENTRAL MASSACHUSETTS**
- 32-9 4:30 PM Guevara, Victor*; Smye, Andrew J.; Caddick, Mark; Searle, Michael P.; Olsen, Telemak; Whalen, Lisa M.; Han, Angelina; Kylander-Clark, Andrew; Jercinovic, Michael J.; Waters, David J.: **A MODERN PULSE OF PLATE-VELOCITY EXHUMATION AND DIACHRONOUS CRUSTAL MELTING IN THE NANGA PARBAT MASSIF**
- 4:50 PM **Discussion**

SESSION NO. 33**T16. Glacial Geology and Proxy Records in Northeastern North America and Beyond (GSA Quaternary Geology and Geomorphology Division)**

1:30 PM, Lancaster Marriott at Penn Square, Commonwealth Salon 1

Gregory de Wet and Sarah Principato, Presiding

- 1:30 PM **Introductory Remarks**
- 33-1 1:35 PM Thomas, Elizabeth*; Prince, Karlee; Briner, Jason: **CONSTRAINING RAPID CLIMATE CHANGE IN THE LAURENTIAN GREAT LAKES REGION, FIRST STEPS: TUNING A LAKE WATER PROXY SYSTEM MODEL FOR QUANTITATIVE PALEOCLIMATE INTERPRETATIONS**
- 33-2 1:55 PM Prince, Karlee*; Briner, Jason P.; Walcott, Caleb K.; Kozłowski, Andrew L.: **EVIDENCE OF EXTENSIVE PERMAFROST BETWEEN DEGLACIATION AND 15,000 YEARS AGO IN WESTERN NEW YORK, USA**
- 33-3 2:15 PM Wright, Stephen*: **INTERTWINED HISTORIES OF GLACIAL LAKE HITCHCOCK AND GLACIAL LAKE WINOOSKI IN THE BROOKFIELD QUADRANGLE, NORTH-CENTRAL VERMONT**
- 33-4 2:35 PM Stanford, Scott*: **TUNNEL CHANNELS AND LACUSTRINE FANS IN NEW JERSEY**
- 2:55 PM **Discussion**
- 3:00 PM **Break**
- 33-5 3:15 PM McKenzie, Marion*; Slawson, Jacob; Simkins, Lauren; Wang, Shujie; MacKie, Emma: **INFLUENCE OF BED HIGHS ON ICE FLOW AS DETERMINED BY BEDFORM MORPHOLOGY**
- 33-6 3:35 PM Daniels, William*; Castañeda, Isla S.; Lombardo, Carly; Waldmann, Nicolas: **CLIMATIC AND ECOLOGIC CHANGES DURING THE WOOLLY MAMMOTH EXTINCTION AT ST. PAUL ISLAND IN THE CENTRAL BERING SEA**
- 33-7 3:55 PM Ramirez, Briana*; Castañeda, Isla S.; Salacup, Jeff; Johnson, Thomas: **AN ABRUPT TEMPERATURE AND HYDROCLIMATE TRANSITION IN EASTERN AFRICA DURING TERMINATION V (~430 KA)**

**AFTERNOON
POSTER TECHNICAL SESSIONS****SESSION NO. 34****D14. Hydrogeology (Posters)**

1:30 PM, Lancaster Marriott at Penn Square, Freedom Hall A

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

- Booth #
- 34-1 1 Miller, Joseph*; Geddes, Donald: **SODIUM AND CHLORIDE MIGRATION IMPACTS TDS IN TWO CARBONATE BEDROCK WELLS**
- 34-2 2 Ndlovu, Wayne*; Rhodes, Amy; Guswa, Andrew; Kreutzer, Hannah; Grilliot, Helena; Wetzel, Paul: **DETERMINING CONDITIONS FOR STORAGE AND RELEASE OF ROAD SALT POLLUTION IN A CALCAREOUS FEN: A HYDROLOGICAL AND GEOCHEMICAL ANALYSIS OF KAMPOOSA BOG, STOCKBRIDGE AND LEE, MA**
- 34-3 3 Rockwell, Lauren*; Fredrick, Kyle: **ASSESSING WATER QUALITY IMPACTS IN THE PIKE RUN WATERSHED, WASHINGTON COUNTY, PA**
- 34-4 4 McRee, Erin; Walsh, Kiera*; Balogh-Brunstad, Zsuzsanna: **RESPONSE OF NUTRIENT AND SEDIMENT CONCENTRATIONS TO RAIN EVENTS IN THE CHARLOTTE CREEK WATERSHED, NEW YORK**

34-5 5 Fengler, Stephen*; Jayawickreme, Dushmantha: **EXAMINING THE EFFECTS OF URBANIZATION AND CLIMATE ON A SMALL NEW ENGLAND COASTAL WATERSHED**

SESSION NO. 35

D15. Soils (Posters)

1:30 PM, Lancaster Marriott at Penn Square, Freedom Hall A

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

Booth #

35-1 6 Begum, Kohinoor*; Cheng, Zhongqi; Muth, Theodore; Groffman, Peter; Gimenez, Daniel; Hirmas, Daniel; Pizarro, Geraldine Vega; Vega, Milton; Velazquez, Joxelle; Parizek, Donald; Shaw, Richard K.: **DEVELOPMENT OF SOIL SURVEY METHODS FOR URBAN AREAS**

SESSION NO. 36

D16. Geoarchaeology (Posters)

1:30 PM, Lancaster Marriott at Penn Square, Freedom Hall A

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

Booth #

36-1 7 McCreary, Elizabeth M.; Key, Marcus*: **GEOARCHAEOLOGY OF THE COLONIAL ERA STONE STEPS AT STRATFORD HALL, VIRGINIA**

36-2 8 Tripp, Kahlan*; Frieauf, Kurt; Newlander, Khori: **A CORRELATIVE MICROSCOPIC STUDY OF JASPER FROM SOUTHEASTERN PENNSYLVANIAN NATIVE AMERICAN JASPER QUARRIES: FINDING PERSISTENT CHARACTERISTICS OF STONE FOR TRACKING PREHISTORIC TRADE ROUTES**

36-3 9 Fortino, Alexandra*; Glumac, Bosiljka: **FLESH-EATING OR FALLACY?: INSIGHTS INTO THE MYSTERIOUS PROPERTIES OF LAPIS SARCOPHAGUS STONE FROM A 40-DAY EXPERIMENT INVOLVING DECOMPOSITION OF CHICKEN WINGS**

SESSION NO. 37

D17. Igneous Petrology and Volcanology (Posters)

1:30 PM, Lancaster Marriott at Penn Square, Freedom Hall A

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

Booth #

37-1 10 Ballow, Alexandra*; Mistriner, Mitchell A.; Piotrowski, Lindsay A.; Solar, Gary S.; Tomascak, Paul B.: **COMPARISON OF GRANITES IN THE SEBAGO PLUTON, ITS CONTACT ZONE, AND IN THE ADJACENT MIGMATITE-GRANITE COMPLEX, SOUTHERN MAINE**

37-2 11 Zulli, Louis*; Severs, Matt: **AN UNUSUAL MAFIC DIKE IN EASTON, PENNSYLVANIA**

37-3 12 Fallin-Hornsberger, Sawyer; Ocasio, Natasha; Krol, Michael*; Campbell, Jessica: **GEOCHEMICAL ANALYSIS OF THE MEDFORD DIABASE DIKE, MIDDLESEX FIELDS, MASSACHUSETTS: IMPLICATIONS FOR THE TIMING AND TECTONIC ENVIRONMENT OF EMPLACEMENT IN THE EASTERN AVALON TERRANE**

37-4 13 Walters, Sydney; Frey, Holli M.*; Manon, Matthew; Christopher, Thomas E.; Barclay, Jenni; Cole, Paul D.: **CHARACTERIZATION OF THE INITIAL EXPLOSIVE PHASES OF THE 2021 ERUPTION OF LA SOUFRIÈRE, ST. VINCENT**

37-5 14 Cozine, Rosemary M.; Brunstad, Keith*: **USING CRYSTAL AND GLASS FORENSICS TO DECIPHER THE MAGMA PROCESSES ASSOCIATED WITH THE TIETON ANDESITE, CASCADES OF WASHINGTON STATE**

SESSION NO. 38

T11. North Atlantic Arcs, Rifts, and Plumes: Ordovician to Today (Posters) (GSA Mineralogy, Geochemistry, Petrology, and Volcanology Division)

1:30 PM, Lancaster Marriott at Penn Square, Freedom Hall A

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

Booth #

38-1 15 Greger, Gianna*; Carley, Tamara; Garber, Joshua M.; Reimink, Jesse; Sunderlin, David; Hinchey, Aidan; Gold, David: **THE MILLBRIG ASH IN CONTEXT OF PRECEDING ERUPTIONS: PRELIMINARY U-PB AND TRACE-ELEMENT ANALYSIS OF ZIRCON IN ORDOVICIAN PENNSYLVANIA BENTONITES**

38-2 16 Cox, Riley S.*; Banik, Tenley; Dodd, Justin P.: **INVESTIGATION OF OXYGEN ISOTOPES IN ICELANDIC ROCKS TO UNCOVER RHYOLITE FORMING PROCESSES**

38-3 17 Essex, Cameron*; Banik, Tenley; Carley, Tamara: **UNDERSTANDING MAGMA FORMATION AT PINGMÚLI (THINGMULI) VOLCANO, ICELAND BASED ON ZIRCON ANALYSES**

38-4 18 Gulya, Matthew*; Castle, Evan; Severs, Matt: **INVESTIGATING THE ORIGIN OF LAMPROPHYRES IN THE CORTLANDT-BEEMERVILLE COMPLEX**

38-5 19 Kopellas, Ava*; Mana, Sara: **DISTINGUISHING THE NAHANT GABBRO AND SALEM GABBRO-DIORITE BASED ON THEIR PETROLOGY AND GEOCHEMICAL SIGNATURE**

38-6 20 Kopellas, Ava*; Mana, Sara: **PETROLOGY, GEOCHEMISTRY, AND TECTONIC SIGNIFICANCE OF CROSSCUTTING DIKES IN NAHANT, MA**

38-7 21 Rigby, Elizabeth*; Patwardhan, Kaustubh; Vollmer, Frederick; Mutti, Laurel: **IMAGE ANALYSIS AND 3D RECONSTRUCTION OF PILLOW STRUCTURES AND LAVA FLOW DIRECTION IN THE TALCOTT BASALT, HARTFORD BASIN, CONNECTICUT**

38-8 22 Mulligan, Colleen A.*; Buchanan, Michael E.; Johnson, Elizabeth A.; Lukens, William E.: **PETROLOGIC AND GEOCHEMICAL INVESTIGATION OF CAMP DIKES FROM THE BLUE RIDGE AND VALLEY AND RIDGE IN CENTRAL VIRGINIA**

SESSION NO. 39

T14. Soil Processes and Biogeochemical Interactions (Posters) (GSA Soils and Soil Processes Division; GSA Hydrogeology Division; GSA Geobiology and Geomicrobiology Division)

1:30 PM, Lancaster Marriott at Penn Square, Freedom Hall A

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

Booth #

39-1 23 Idec, Eli*; Fenton, Lori; Metzger, Steve; Dorn, Taylor C.; Nagel-Myers, Judith: **DIFFERENTIAL SURFACE HEATING AND ITS POTENTIAL EFFECTS ON DUST DEVIL FORMATION**

39-2 24 Matney, Mila*; Hayhow, Claire; Calderon, Anna; Jim, Rebecca; Lively, Martin; Brabander, Daniel: **AN INVESTIGATION OF COMPOST AS A UNIQUE REMEDIATION TOOL FOR HEAVY METALS: A COMMUNITY INITIATED STUDY IN THE TAR CREEK WATERSHED, OTTAWA COUNTY, OK**

39-3 25 Volz, Samantha*; Ravi, Rumya; Prestegard, Karen: **IDENTIFYING OPPORTUNITIES TO ENHANCE SOIL ORGANIC CARBON IN MANAGED SUBURBAN LANDSCAPES**

39-4 26 Richardson, Justin*; Mischenko, Ivan C.; Butler, Mark J.: **FOREST SOIL ACCUMULATION AND SUSPENDED SEDIMENT TRANSPORT OF HG IN THE CONNECTICUT, MERRIMACK, AND THAMES RIVER WATERSHEDS**

39-5 27 Richardson, Justin*: **DOES SOIL DEVELOPMENT CONTROL SOURCING OR RELEASE OF TOXIC (CD, PB) AND POTENTIALLY TOXIC METALS (CU, NI) FROM GREY SHALE-DERIVED SOILS?**

39-6 28 Sparacio, Christopher A.*; Hren, Michael T.; Chang, Queenie; Smolen, Jonathan: **MOUNTAINS, RIVERS AND CARBON:**

CATCHMENT INTEGRATION OF ORGANIC MATTER AND ISOTOPIC RECORDS OF PALEOELEVATION

- 39-7 29 Benton, Joshua R.*; Schreiber, Madeline E; McGuire, Kevin J.: **VARIABILITY IN GROUNDWATER FLOW DIRECTION WITHIN SOILS OF A MOUNTAIN HEADWATER CATCHMENT**
- 39-8 30 Balogh-Brunstad, Zsuzsanna*; Drapaniotis, Vasiliki; Smith, Tarrah Skye; Clements, Jordan: **EVALUATING THE EFFECTIVENESS OF FORESTED RIPARIAN BUFFER ZONES ON NITRATE REMOVAL FROM THE SUBSURFACE**
- 39-9 31 Vazquez, Diego*; Pope, Gregory; Li, Xiaona: **FOREST FIRE IMPACTS ON SOIL CHEMISTRY IN AN APPALACHIAN FOREST: FACTORS OF TEMPERATURE, MOISTURE, AND ORGANIC MATTER**
- 39-10 32 Walsh, Kiera*; McRee, Erin; Balogh-Brunstad, Zsuzsanna: **A SURVEY OF LEAD AND CADMIUM CONTENT OF SOILS FROM URBAN GARDENS IN THE CITY OF ONEONTA, NEW YORK**
- 39-11 33 Smolen, Jonathan D.*; Sparacio, Christopher A.; Hren, Michael T.: **PRESERVATION POTENTIAL OF SEDIMENTARY ORGANIC BIOMARKERS IN THE PRESENCE OF CLAY MINERALS**
- 39-12 34 Yang, Chansie*; Hayhow, Claire; Andrews, Danielle; Brabander, Daniel: **A DECADAL STUDY OF MUNICIPAL WASTE MANAGEMENT COMPOST PROGRAM: GEOMOBILE LEAD AND THE CONSEQUENCES FOR URBAN AGRICULTURE**
- 39-13 35 Douglass, Angela*; Langridge, Suzanne: **RESTORATION FROM THE GROUND UP: APPLYING SURFACE RUNOFF PROCESSES TO INFORM RESTORATION OF MEADOWS ON THE WELLESLEY COLLEGE CAMPUS IN WELLESLEY, MA**

TUESDAY, 22 MARCH 2022

MORNING ORAL TECHNICAL SESSIONS

SESSION NO. 40

S4. Latest Science Results and Updates in Planetary Science Research, Programs, and Flight Projects II (GSA Planetary Geology Division)

8:00 AM, Lancaster Marriott at Penn Square, Commonwealth Salon 2
Michael Kelley and Mitchell Schulte, Presiding

- 40-1 8:00 AM Shapiro, Casey*; Brandon, Christine M.: **IMPLICATIONS FOR THE TECTONIC HISTORY OF MARS**
- 40-2 8:20 AM Mckeeby, Benjamin*; Ramsey, Michael: **A NEW APPROACH TO QUANTIFY CENTIMETER-SCALE SURFACE ROUGHNESS USING THERMAL INFRARED ORBITAL DATA**
- 40-3 8:40 AM Flynn, Ian*; Ramsey, Michael: **HOW DO CHANNELIZED LAVA FLOWS PROPAGATE IN THE VENUSIAN ENVIRONMENT?**
- 40-4 9:00 AM Buczkowski, Debra*; Fattaruso, Laura; McGowan, Eileen M.; McGill, George: **IDENTIFYING GEOMORPHIC FEATURES ON VENUS IN THE SAR DATA GORES**
- 40-5 9:20 AM Herman, Gregory*: **IMPACT TECTONICS; BEYOND THE CRATERS**
- 40-6 9:40 AM Harris, Thomas*: **NEW RESULTS FROM APOLLO PROGRAM SCIENCE**
- 10:00 AM **Discussion**

SESSION NO. 41

T11. North Atlantic Arcs, Rifts, and Plumes: Ordovician to Today (GSA Mineralogy, Geochemistry, Petrology, and Volcanology Division)

8:00 AM, Lancaster Marriott at Penn Square, Commonwealth Salon 3

Tamara Carley, Tenley Banik, Martha O. Withjack, LeeAnn Srogi and MaryAnn Malinconico, Presiding

- 8:00 AM **Introductory Remarks**
- 41-1 8:05 AM Mazza, Sarah*; Ruppert, Caroline: **SOLVING THE MYSTERY OF BERMUDA: VOLATILE RICH MELTS FROM THE MANTLE TRANSITION ZONE**
- 41-2 8:25 AM Lepow, Anne*; Mazza, Sarah: **ANALYSIS OF SILICA-UNDERSATURATED LAVA FROM BERMUDA: INSIGHTS INTO ERUPTIVE AND POST-ERUPTIVE HISTORY**
- 8:45 AM **Discussion**
- 41-3 8:55 AM Shuck, Brandon*; Van Avendonk, Harm; Bécel, Anne: **A NEW MODEL FOR CONTINENTAL BREAKUP AND INCIPIENT SEAFLOOR SPREADING ALONG THE EASTERN NORTH AMERICAN MARGIN**
- 41-4 9:15 AM Foster-baril, Zachary*; Stockli, Daniel; Hinshaw, Emily: **PROVENANCE AND PALEODRAINAGE EVOLUTION DURING CONTINENTAL BREAKUP ALONG THE EASTERN NORTH AMERICAN MARGIN, USA**
- 41-5 9:35 AM Hanafi, Bari*; Withjack, Martha O.; Schlische, Roy W.; Durcanin, Michael A.: **UNRAVELING THE COMPLEX INTERPLAY AMONG BASEMENT-INVOLVED FAULTING, SALT DEPOSITION, AND DETACHED DEFORMATION DURING RIFTING: AN EXAMPLE FROM THE SALT-RICH ORPHEUS RIFT BASIN, OFFSHORE SOUTHEASTERN CANADA**
- 41-6 9:55 AM Olsen, Paul*; Kent, Dennis; Reichgelt, Tammo; Kinney, Sean; Chang, Clara; Slibeck, Bennett B.: **MAPPING THE GETTYSBURG TRIASSIC-JURASSIC RIFT BASIN (PENNSYLVANIA, USA): IMPLICATIONS OF PRELIMINARY OBSERVATIONS ON STRATIGRAPHY, FACIES, AND CYCLICITY TO TECTONIC DEVELOPMENT OF EASTERN NORTH AMERICAN RIFTS**
- 10:15 AM **Discussion**
- 10:25 AM **Break**
- 41-7 10:40 AM Withjack, Martha*; Srogi, LeeAnn: **THE MORGANTOWN INTRUSIVE COMPLEX: ITS 3D GEOMETRY AND EVOLUTION**
- 41-8 11:00 AM Srogi, LeeAnn*; Withjack, Martha O.; Lutz, Timothy; Pollock, Meagen: **MAGMA RESERVOIR DEPTHS AND MAGMA TRANSPORT IN THE CENTRAL ATLANTIC MAGMATIC PROVINCE OF EASTERN NORTH AMERICA, WESTERN NEWARK BASIN, PENNSYLVANIA, USA, ASSOCIATED WITH RIFTING OF PANGAEA**
- 41-9 11:20 AM Naslund, H. Richard*; Haddad, James: **GEOCHEMICAL MODELS FOR THE DIFFERENTIATION OF THE PALISADES SILL, USA, BY SLURRY INJECTION, ROOF TO FLOOR THERMAL TRANSFER, IN-SITU CRYSTALLIZATION, AND INTERSTITIAL MELT MIGRATION**
- 11:40 AM **Discussion**
- 11:50 AM **Concluding Remarks**

SESSION NO. 42

T15. In Cahoots: Interdisciplinary Studies of Climate Change Impacts to Archaeological Resources

8:00 AM, Lancaster Marriott at Penn Square, Commonwealth Salon 4

Alice Kelley, Heather Wholey and Carole Nash, Presiding

- 8:00 AM **Introductory Remarks**
- 42-1 8:10 AM Nash, Carole*: **MASS WASTING RECURRENCE AND ARCHAEOLOGICAL SITE VULNERABILITY IN THE VIRGINIA BLUE RIDGE MOUNTAINS**

Tuesday, 22 March 2022

- 42-2 8:30 AM Burgoyne, Rachael*; Nikitina, Daria; Wholey, Heather: **GEOARCHAEOLOGICAL APPROACHES TO CULTURAL RESOURCES MANAGEMENT IN THE MURDERKILL WATERSHED: DELAWARE BAY, MID-ATLANTIC USA**
- 42-3 8:50 AM Maurer, Joanna*; Wholey, Heather; Nikitina, Daria; Heckert, Megan; Marciniak, Joshua: **DOWN BY THE BAY: AN INTERDISCIPLINARY NARRATIVE OF CLIMATE CHANGE, CULTURAL RESOURCES, AND THE FUTURE OF OUR PAST**
- 42-4 9:10 AM Kelley, Alice*; Newsom, Bonnie D.: **WORKING TOGETHER TO PRESERVE MAINE'S COASTAL INDIGENOUS CULTURAL HERITAGE**
- 9:30 AM **Break**
- 42-5 9:45 AM Rakes, Eden E.*; Grothe, Pamela R.; Palmo, Cheyenne M.; Patterson, William P.; Westerfield, Kara; Naron, Lyssa Cousineau: **SCHLEROCHRONOLOGY AND OXYGEN-18 ANALYSIS OF 18TH CENTURY *CRASSOSTREA VIRGINICA* SHELLS FROM THE CHESAPEAKE BAY: SIGNIFICANCE FOR ARCHAEOLOGY AND PALEOCLIMATE**
- 42-6 10:05 AM Dowling, Katherine*; Nikitina, Daria; Wholey, Heather; Sullivan, Jacob: **CULTURAL RESOURCES ON A PLEISTOCENE DUNE IN EAST POINT PENINSULA, NEW JERSEY**
- 42-7 10:25 AM Gontz, Allen*; Miller, Glen; Stewart, Lisa; McCallum, Adrian: **WALKING TO K'GARI – ANCIENT ABORIGINAL PATHWAYS TO THE WORLD'S LARGEST SAND ISLAND – INITIAL THOUGHTS**
- 42-8 10:45 AM Patalano, Robert*; Hu, Jing; Leng, Qin; Liu, Weiguo; Wang, Huanye; Roberts, Patrick; Storozum, Michael; Yang, Lin; Yang, Hong: **DESICCATED ORGANIC MATERIALS FROM THE ANCIENT GREAT WALL OF CHINA AS CLIMATE ARCHIVES: ENVIRONMENTAL CHANGE AND ARCHAEOLOGICAL CONSERVATION IN NORTHWESTERN CHINA**
- 11:05 AM **Concluding Remarks**
- 11:15 AM **Discussion**

SESSION NO. 43

T24. Implementing the U.S. Geological Survey National Cooperative Geologic Mapping Program's U.S. GeoFramework Initiative: Constructing a Seamless, National 2D/3D Geologic Framework Model of the U.S.

8:00 AM, Lancaster Marriott at Penn Square, Commonwealth Salon 1

Jenna Shelton, David R. Soller and Donald Sweetkind, Presiding

- 8:00 AM **Introductory Remarks**
- 43-1 8:10 AM Pitts, Alan D.*; Doctor, Daniel: **NEW REFERENCE SECTIONS IN VIRGINIA AND WEST VIRGINIA OF THE UPPER DEVONIAN FOREKNOBS FORMATION NEEDED FOR SEAMLESS MAPPING ACROSS STATE AND QUADRANGLE BOUNDARIES IN THE CENTRAL APPALACHIAN BASIN**
- 43-2 8:30 AM Orndorff, Randall*; Parker, Mercer: **CAMBRIAN-ORDOVICIAN STRATIGRAPHY OF THE SOUTHERN CHAMPLAIN VALLEY, NEW YORK AND VERMONT: RECONCILING GEOLOGIC MAPPING OF FORMATIONS**
- 43-3 8:50 AM Dodge, Clifford H.*: **REVISED PENNSYLVANIAN LITHOSTRATIGRAPHY OF THE BROAD TOP COALFIELD, SOUTH-CENTRAL PENNSYLVANIA**
- 43-4 9:10 AM Doctor, Daniel*; Odom, William; Burke, Caitlin E.: **SURFICIAL GEOLOGIC MAP COMPILATION WITHIN THE DELAWARE RIVER BASIN IN SUPPORT OF THE U.S. GEOFRAMEWORK INITIATIVE**
- 43-5 9:30 AM DiGiacomo-Cohen, Mary*; Rethelford, Brandi M.; Walsh, Gregory; Medalie, Laura: **MAPPING NEW ENGLAND'S TOP OF ROCK**

- 43-6 9:50 AM Andrews, William*; Hickman, John B.; Pearson, Anna; Robinson, Devan; Koirala, Dibya; Whitt, Nolan: **RAPID COMPILATION OF BEST-AVAILABLE GEOFRAMEWORK INFORMATION AT THE KENTUCKY GEOLOGICAL SURVEY AND FOUNDATION OF FUTURE THREE-DIMENSIONAL SUBSURFACE MAPPING**
- 10:10 AM **Discussion**

MORNING POSTER TECHNICAL SESSIONS

SESSION NO. 44

D18. Geomorphology (Posters)

8:00 AM, Lancaster Marriott at Penn Square, Freedom Hall A

Authors will be present from 10 AM to 12 PM

Booth #

- 44-1 1 DeLong, Lauren*; Dovin, Tyler; Cox, Shawn; Workman, Noah; Hand, Lukas; Sewall, Jacob O.; Sherrod, Laura: **PALEOCHANNELS IN THE KUTZTOWN UNIVERSITY RONALD R. RHEIN ENVIRONMENTAL STUDY AREA**
- 44-2 2 Germanoski, Dru*; Brandes, David; Nomura, Naoki; Dempsey, Caitlyn; Bowsher, Andrew; Willet, Amanda; Conklin, Riley: **NATURAL CHANNEL DYNAMICS IN A GRAVEL BED STREAM IN EASTERN PA AS REVEALED BY PRE-DAM REMOVAL BASELINE MONITORING**

SESSION NO. 45

D19. Geoinformatics (Posters)

8:00 AM, Lancaster Marriott at Penn Square, Freedom Hall A

Authors will be present from 10 AM to 12 PM

Booth #

- 45-1 3 Englehart, Meghan*; Horton, Roger; Karimi, Bobak: **USING PERSISTENT HOMOLOGY TO CREATE A LANDSLIDE INVENTORY FOR LUZERNE COUNTY, PENNSYLVANIA, USA**

SESSION NO. 46

D20. Environmental Geology (Posters)

8:00 AM, Lancaster Marriott at Penn Square, Freedom Hall A

Authors will be present from 10 AM to 12 PM

Booth #

- 46-1 4 Cepin, Emily*; De Palma, Maurizia; Benjamin, Samantha; Calderón Convers, Liliana; Cui, Ying: **BLACK CARBON ISOTOPES FROM THE EASTERN TETHYS ACROSS THE PALEOCENE-EOCENE THERMAL MAXIMUM (PETM)**
- 46-2 5 Kasten, Sadie*; Inoa, Mateo; Keller, Dianne; Peck, William: **WEATHERING AND CARBON SEQUESTRATION AT NEW YORK WOLLASTONITE MINES**
- 46-3 6 Timchenko, Elena*; Cheng, Zhongqi; Groffman, Peter; Sarikin Samari, Labib; Pasackow, Ezra; Vargas, Olga; McLaughlin, Kaitlin; Kohler, Clare; Shaw, Richard K.: **CARBON STORAGE BY URBAN SOILS UNDER DIFFERENT LAND USE AND MANAGEMENT AT SNUG HARBOR CULTURAL CENTER & BOTANICAL GARDENS, NEW YORK CITY**
- 46-4 7 Stocks, Lee*: **BUILDING A REGIONAL TREE-RING MASTER CHRONOLOGY FOR NORTHCENTRAL PENNSYLVANIA**
- 46-5 8 Andreoli, Alana*; Jenner, Cheyenne; Karimi, Bobak; McMonagle, Julie; Klemow, Kenneth: **A FOUR-YEAR EVALUATION OF THE FORESTRY RECLAMATION APPROACH (FRA) FOR THE AVONDALE, PA RECLAMATION PROJECT**
- 46-6 9 Lanier, Jack*; Clark, Elyse; Odhiambo, Ben K.: **SPATIAL ANALYSIS OF DAM SEDIMENT AND METAL CONTAMINATION IN THE NORTHERN NASHUA RIVER BASIN, MASSACHUSETTS USA**

- 46-7 10 Fiorentino, Angela*; Whitman, Brandon; Karimi, Bobak; Whitman, Brian: **MAPPING THE SUBSURFACE FLOW PATHWAYS OF NANTICOKE CREEK, NANTICOKE, LUZERNE COUNTY, PENNSYLVANIA**
- 46-8 11 Benimoff, Alan*: **A GIS STUDY OF THE FLOODING FROM HURRICANE IDA ON STATEN ISLAND, NY**
- 46-9 12 Graham, Livia G.; McCallum-Green, Charlie A.; Mitchell, Sara*: **MICROPLASTICS CONCENTRATIONS IN THE UPPER BLACKSTONE RIVER WATERSHED, MASSACHUSETTS, USA**
- 46-10 13 Allen, Douglas*; Allen, Douglas E.: **USING WATER QUALITY DATA AND PARTICULATE MATTER CHEMISTRY TO INVESTIGATE LOW DISSOLVED OXYGEN CONCENTRATIONS IN THE FOREST RIVER WATERSHED, SALEM MA**
- 46-11 14 Dubuque-McManus, Demitra*; Allen, Douglas E.: **EUTROPHICATION IN THE IPSWICH RIVER, ESSEX COUNTY, MASSACHUSETTS**
- 46-12 15 Schuckers, Daniel*; Nagel-Myers, Judith: **USING ACIDITY DIFFERENCES IN NORTHERN NEW YORK RIVERS TO EXAMINE POROSITY CHANGES IN FRESHWATER CLAM SHELLS**
- 46-13 16 Zuniga, Petra*; Yellen, Brian; Reyes, Francisco; Mueller, Mathew; Vale, Jon; Martini, Anna: **ASSESSING THE EFFECTIVENESS OF FLOODPLAIN RECONNECTION IN THE POST-GLACIAL NORTHEASTERN US**
- 46-14 17 de Wet, Andrew*; Siegel, Cameron; Levins, Sydney: **STREAM CHANNEL DYNAMICS IN THE FISHING CREEK WATERSHED, SOUTHERN LANCASTER COUNTY**
- 46-15 18 Thomas, Benjamin*; de Wet, Andrew; Shetty, Alaekya: **STREAM CHANNEL DYNAMICS IN THE LITTLE BEAVER CREEK WATERSHED, SOUTHERN LANCASTER COUNTY**
- 46-16 19 Shetty, Alaekya*; de Wet, Andrew; Thomas, Benjamin: **STREAM DYNAMICS OVER TIME AT WALNUT RUN, LANCASTER COUNTY**
- 46-17 20 Pichler, Lacie; Whisner, Jennifer*: **CHECKING FOR ATMOSPHERIC DEPOSITION NEAR EAST BRANCH FISHING CREEK, SULLIVAN COUNTY, PA**
- 46-18 21 Kerstetter, Lindsey; Diehl, Jared; Whisner, Jennifer*: **REVISITING THE GEOCHEMISTRY OF RESIDENTIAL WATER WELLS, COLUMBIA COUNTY, PA**
- 46-19 22 Aucker, Grifffin; Gonzales, Braeden; Lancenese, Morgan; Whisner, Jennifer*: **GEOCHEMICAL INVESTIGATION OF LOWER HEMLOCK CREEK, COLUMBIA COUNTY, PA**
- 46-20 23 Acosta, Andrea; Pichler, Lacie; Whisner, Jennifer*: **GEOCHEMICAL AND SEDIMENT ANALYSIS OF UPPER HEMLOCK CREEK, COLUMBIA COUNTY, PA**
- 46-21 24 Tapsak, Stephen; Jorgenson, Hannah; Whisner, Jennifer*; Liddick, Mitchell: **REVISITING SCARLIFT 15: GEOCHEMICAL ANALYSIS OF AN ACID MINE DRAINAGE REMEDIATION SITE NEAR RANSHAW, PA**
- 46-22 25 Frace, Johnathan*; Renn, Jacob; Whisner, Jennifer: **GEOCHEMICAL ANALYSIS OF SHAMOKIN CREEK IN NORTHEMBERLAND COUNTY, PA**

SESSION NO. 47

T9. Tectonic Evolution of Eastern North America: Insights from Geology and Geophysics (Posters) (GSA Structural Geology and Tectonics Division; GSA Geophysics and Geodynamics Division)

8:00 AM, Lancaster Marriott at Penn Square, Freedom Hall A

Authors will be present from 10 AM to 12 PM

Booth #

- 47-1 26 Espinal, Kimberly*; Long, Maureen; Levin, Vadim; Karabinos, Paul M.; Masis Arce, Roberto; Li, Yiran; Luo, Yantao: **LITHOSPHERIC STRUCTURE ABOVE THE NORTHERN APPALACHIAN ANOMALY FROM RECEIVER FUNCTION ANALYSIS: CONSTRAINTS FROM THE NEST EXPERIMENT**

- 47-2 27 Masis Arce, Roberto*; Luo, Yantao; Espinal, Kimberly; Li, Yiran; Levin, Vadim; Long, Maureen; Karabinos, Paul: **A CLOSER LOOK AT THE OFFSET IN CRUSTAL THICKNESS BENEATH NORTHWESTERN MASSACHUSETTS**
- 47-3 28 Luo, Yantao*; Masis Arce, Roberto; Espinal, Kimberly; Li, Yiran; Long, Maureen; Levin, Vadim; Karabinos, Paul M.; Kuiper, Yvette D.: **TECTONIC IMPLICATIONS OF LITHOSPHERIC STRUCTURE BENEATH SOUTHERN NEW ENGLAND RESOLVED BY MULTIPLE SEISMIC IMAGING TECHNIQUES**
- 47-4 29 Li, Yiran*; Hillenbrand, Ian; Masis Arce, Roberto; Luo, Yantao; Espinal, Kimberly; Nikulin, Alex; Levin, Vadim; Long, Maureen; Karabinos, Paul: **EXPLORING THE ORIGINS OF SHALLOW MANTLE BOUNDARIES BENEATH NEW ENGLAND**
- 47-5 30 Spatz, Andrew*: **DETRITAL ZIRCON CONSTRAINTS ON PROVENANCE AND WATERSHED INTEGRATION: IMPLICATIONS FOR US EAST COAST ATLANTIC CONTINENTAL DRAINAGE DIVIDE DEVELOPMENT**
- 47-6 31 Glodek, Steven*; Cornell, Sean; Frieauf, Kurt; Mathur, Ryan; Marr, Paul G.: **SEM ANALYSIS OF SILURIAN CLINTON IRONSTONE FROM BELL FURNACE, PENNSYLVANIA: PRELIMINARY ASSESSMENT OF MINERALIZATION AT A LEGACY JUNIATA IRON MINE SITE**
- 47-7 32 Evans, Mark*: **THE STRUCTURAL EVOLUTION OF THE PENNSYLVANIA SALIENT: A NEW MODEL**
- 47-8 33 Viète, Daniel*; Becker, Naomi; Burgess, Jerry; Junkin, William; George, Freya; Holder, Robert: **THE BALTIMORE MAFIC COMPLEX: KEY RECORD OF EARLIEST CONVERGENCE IN THE CENTRAL APPALACHIANS**

SESSION NO. 48

T10. Tectono-Metamorphic Processes at Convergent Boundaries: Insights from the Grenville Orogen, Northeastern North America, and Beyond (Posters)

8:00 AM, Lancaster Marriott at Penn Square, Freedom Hall A

Authors will be present from 10 AM to 12 PM

Booth #

- 48-1 34 Becker, Naomi*; George, Freya; Guice, George; Viète, Daniel: **EVIDENCE OF SUBDUCTION INITIATION RECORDED IN THE DADEVILLE COMPLEX OF ALABAMA**
- 48-2 35 Gaouette, Valerie*; Toraman, Erkan: **PETROLOGY, GEOCHEMISTRY, AND TECTONIC SIGNIFICANCE OF MAFIC DIKES IN SALEM, MA**
- 48-3 36 Yao, Jannitta*; Brunet, Isabella M.; Castro, Adrian; Wolfe, Oliver M.; Kuiper, Yvette; Hepburn, J. Christopher: **SYNTHESIZING PETROGRAPHIC ANALYSIS AND MODERN THERMODYNAMIC MODELING TO DETERMINE THE P-T CONDITIONS OF METAMORPHISM IN THE NASHOBA TERRANE, EAST-CENTRAL MA**
- 48-4 37 Zizka, Eliza L.; Van Scoy, Emma; Brunet, Isabella; Erwin, Maggie C.; Yao, Jannitta*; Castro, Adrian; Tailby, Nicholas D.: **SEARCHING FOR THE SUTURE: APPLYING GEOCHEMICAL TECHNIQUES TO UNRAVEL THE NATURE OF CAMERON'S LINE IN CENTRAL PARK, NYC**
- 48-5 38 Han, Angelina*; Guevara, Victor; Caddick, Mark; Jercinovic, Michael J.; Smye, Andrew J.; Searle, Michael P.; Waters, David J.: **EXHUMATION RATE AND REACTION HISTORY OF PLEISTOCENE MIGMATITES FROM THE WESTERN HIMALAYA: INSIGHTS FROM CHEMICAL ZONATION IN GARNET**
- 48-6 39 Martello, Dominique*; Cao, Wentao; Liang, Xiao: **PRESSURE-TEMPERATURE EVOLUTION OF GARNET-BEARING BLUESCHIST IN CENTRAL QIANGTANG BLOCK, NORTHERN TIBETAN PLATEAU**
- 48-7 40 O'Leary, Sarah*; Cao, Wentao: **METAMORPHIC CONDITIONS OF A GARNET-BEARING GNEISS FROM THE HIGH-PRESSURE BELT, WESTERN GRENVILLE PROVINCE**

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- 48-8** 41 Toraman, Erkan*; Chiarenzelli, Jeffrey; Love, Tiarra; Lagor, Samuel: **U-PB ZIRCON GEOCHRONOLOGY OF CORONITIC METAGABBROS IN THE ADIRONDACK HIGHLANDS**
- 48-9** 42 Mccaffery, Kyle*; Toraman, Erkan; Chiarenzelli, Jeffrey R.: **NEW CONSTRAINTS ON FORMATION OF ORTHOGNEISS IN SOUTHERN ADIRONDACKS USING INTEGRATED PETROLOGY, ZIRCON U-PB GEOCHRONOLOGY, HF-IN-ZIRCON, AND WHOLE ROCK GEOCHEMISTRY**
- 48-10** 43 Cole, Banner*; Chiarenzelli, Jeffrey R.; Cady, Carol; Brehm, Sarah: **APPLYING LIDAR AND GEOSPATIAL TOOLS TO IDENTIFY**

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- 48-11** 44 Price, Nancy*: **CONJUGATE STRUCTURES AT THE NORTHERN MARGIN OF THE MARCY MASSIF, ADIRONDACK MOUNTAINS, NEW YORK, USA**
- 48-12** 45 LeClair, Fredric*; Childs, Katia; Peck, William: **SEDIMENTARY PROTOLITHS OF ADIRONDACK GRAPHITE DEPOSITS**

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The second number (following the dash) indicates the presentation order of the paper within its session.

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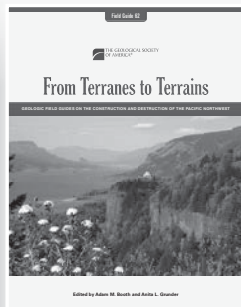
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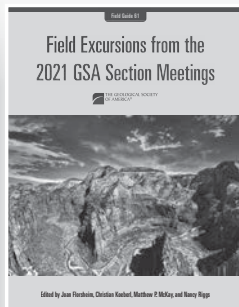
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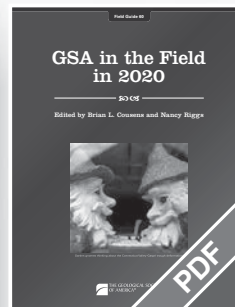
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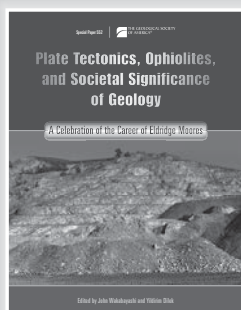
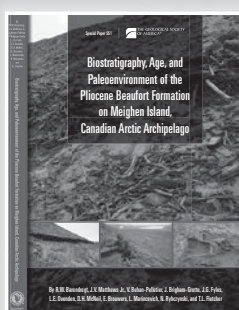
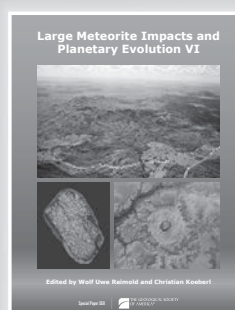


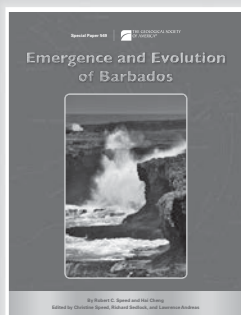
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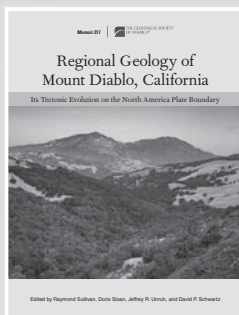
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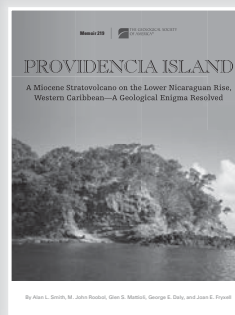
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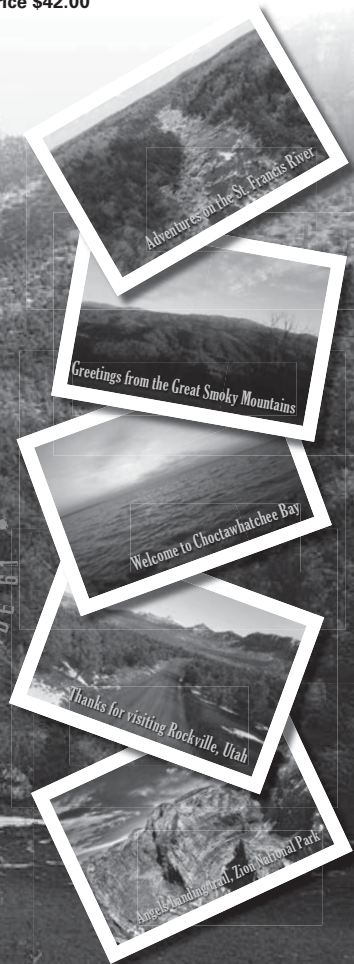
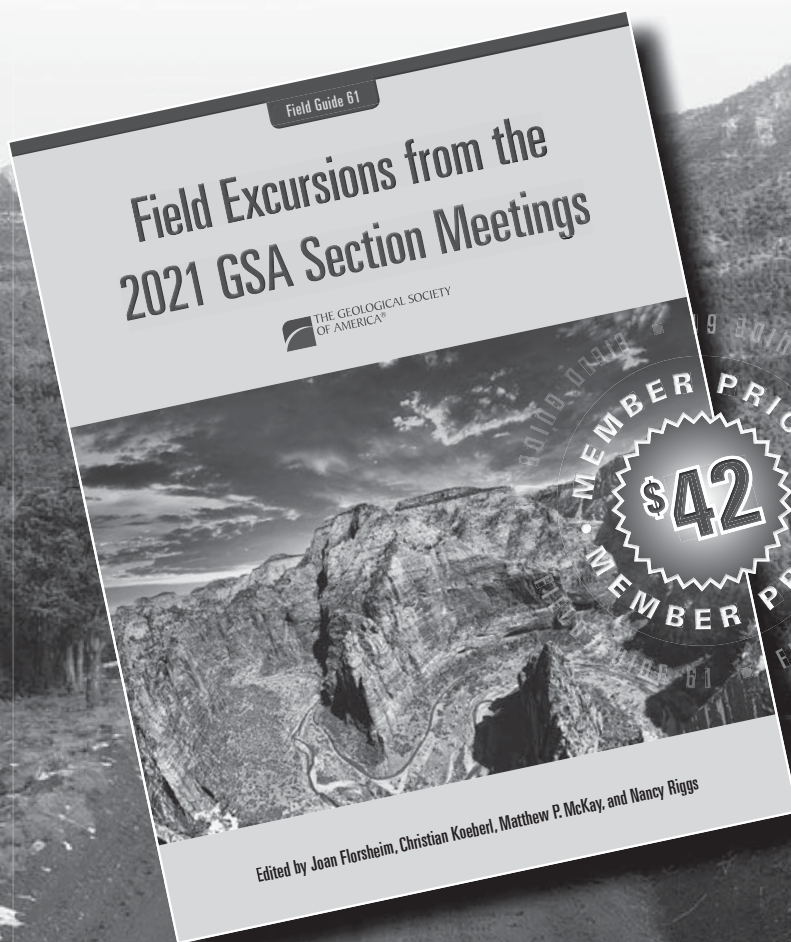


Field Excursions from the 2021 GSA Section Meetings

Edited by Joan Florsheim, Christian Koeberl, Matthew P. McKay, and Nancy Riggs

The 2021 GSA Northeastern, Southeastern, joint North-Central/South-Central, and Cordilleran Section Meetings were held virtually in spring 2021 during continued restrictions on travel and large gatherings due to COVID-19. Eleven groups put together field guides, taking participants on treks to states from Connecticut to Nevada in the United States, to Mexico, and to Italy, and covering topics as varied as bedrock geologic mapping, geochemistry, paleodrainage, barrier islands, karst, spring systems, a southern Appalachian transect, Ordovician and Mississippian stratigraphy, high-energy events, Cretaceous arc granites and dextral shear zones, and Mesoproterozoic igneous rocks. This volume serves as a valuable resource for those wishing to discover, learn more about, and travel through these geologically fascinating areas.

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CODE OF CONDUCT AT GSA EVENTS



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

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

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- Be treated with respect and consideration.
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- Communicate openly, with civil attitudes, critiquing ideas rather than individuals.
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- Obey the rules and policies of the meeting venue, hotels, GSA contracted facility, or any other venue where your meeting badge and GSA affiliation is likely to be displayed.
- Alert meeting security personnel, GSA staff, or GSA leadership if you notice someone in distress, or perceive a potentially dangerous situation, or witness a dangerous situation.

Procedures to be followed in an emergency situation:

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

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

Examples of unacceptable behavior include but are not limited to:

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

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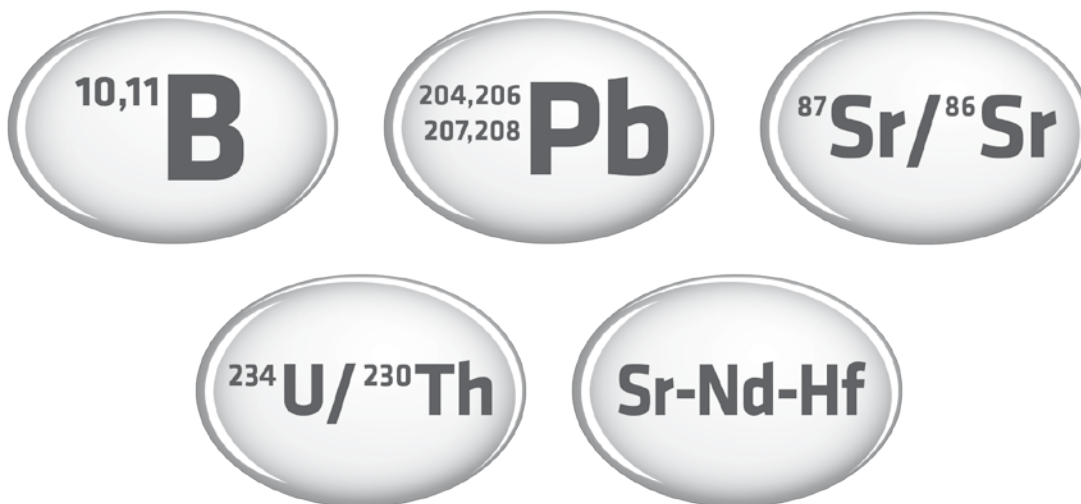
- Anyone requested to stop unacceptable behavior is expected to immediately cease and desist.
- GSA staff, leadership, security, or law enforcement personnel shall take action(s) deemed necessary and appropriate. Actions may include immediate removal from the meeting or field trip without warning or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

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If you are being harassed, notice that someone else is being harassed, or have any other concerns, please locate a GSA Staff Member or GSA Leader (see page 2) with a GSA RISE button.

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