WISCONSIN AIPG SECTION UPDATE
Fall 2023

Wisconsin

President's Message

It has been a dry year here in Wisconsin. The U.S. Drought Monitor currently reports over 80% of the state showing moderate to extreme drought conditions. On one hand, construction projects have had fewer delays and are proceeding along. On the other hand, I seem to be watering gardens all the time and commenting on low water levels everywhere I go. Worrisome trends in a state with a strong agriculture base and many communities and individuals dependant on groundwater supplies.

The theme this year for the Wisconsin Section is student outreach. For the second year, WI-AIPG has helped sponsor an undergraduate summer internship with the Wisconsin Geological and Natural History Survey. This year the intern, an undergraduate from UW-Madison, is working with WGNHS staff on a mapping project in Mill Bluff State Park. The Wisconsin section also sponsored student attendance at the 2023 meeting of the Institute of Lake Superior Geology, where I took part in a round table discussion of careers in geology. The Wisconsin Section is providing funding for a student from UW-Eau Claire to present at the 2023 National AIPG conference. We also have Wisconsin members helping with the 2023 National AIPG Conference – Student Career Day and have advertised this workshop to Wisconsin student members.

There can be nothing more rewarding than training and mentoring your replacement.

Regards,
Paula Leier-Engelhardt

2023 Wisconsin
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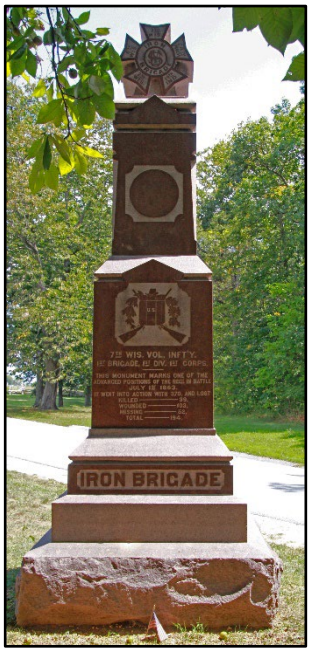
Far from Boring, And Not Even Thinking About Staying Close to Home

By Paula Leier-Engelhardt, P.G., C.P.G.

After 41 years of marriage to a geologist and unwittingly becoming the best sample Sherpa ever, my husband knows there is no hope in dissuading me from any geology-related project I cook up. So, when I announced that as a long-term goal, I was going to collect a rock from each Wisconsin county (there are 72, in case you were wondering), he put his head in his hands and said, "When do you want to start?"

What neither of us counted on was finding hidden treasures that the average Wisconsinite may not realize exist in the state. So, allow me to introduce you to some of the places we have discovered, and some of the people we have met along the way.



Monuments commemorating the Iron Brigade at Gettysburg National Military Park Photos: Steve Engelhardt

Marquette County – So tell me again, who is buried in Grant's Tomb?

In August 2019 we visited Gettysburg National Military Park in Pennsylvania and toured the battlefield. It is sobering being in such places, imagining what may have happened on the soil where you stand. When you go to Gettysburg, you can approach the battle from a variety of perspectives, such as the civilians living in the area, or how the topography and geography shaped the battle, the decisions of the officers, or the history of a particular military unit. We decided to learn about and follow the Iron Brigade, made up of units from Wisconsin, Indiana, and Michigan, known for their tenacity and unflinching courage in battle.

And when we visited the now quiet granite quarry in Montello, I realized this was not the first time I had seen this stone. It is at Gettysburg, appropriately honoring the men described by General George B. McClellan as, "They must be made of iron."

The City of Montello in Marquette County is about 25 miles southeast of Redgranite in Waushara County, and the granophyric granite quarried in Redgranite extends into Marquette County. Just like the rock in Redgranite it is Proterozoic, 1.75 Ga, younger than the Penokean orogeny (1.85-1.9 Ga) but older than the Wolf River Batholith (1.5 Ga). Chemically, these granites are related to rocks of the Penokean orogeny. While the granite quarried near Redgranite was used mostly for paving stone, the granite quarried at Montello was used as a monument stone. These granites were emplaced during the waning stages of the Penokean orogeny, and the stone quarried at Montello cooled slowly. It was prized for its lack of fractures and joints; its deep and even red coloring; and its consistent grain size throughout. In 1971, red granite was officially made the state rock of Wisconsin.

A visit to many cemeteries in Wisconsin and the Midwest will highlight its widespread use as a headstone. Some of the national monuments where it was used include not only Gettysburg, but also Chickamauga, Tennessee; a memorial to soldiers interred in the Ft. Keogh Military Cemetery near Miles City, Montana (these remains and the monument were later moved to the Custer National Cemetery at the Little Big Horn Battlefield); several buildings in Chicago, and. . .

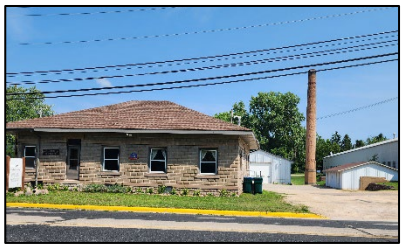
. . . wait for it. . .

. . . Grant's Tomb. To be more specific, the sarcophagi for Ulysses S. Grant and his wife, Julia Dent Grant.

The quarry in Montello operated from 1880 until 1977. Although these igneous rocks are found elsewhere in the county, this quarry, located smack dab in the middle of town, is really the only one that thrived, likely because the deposit is huge (a boring completed by the WGNHS found granite still at 900 feet below the ground surface) and the town was located on a rail line and the Fox River, facilitating shipping. Today, the quarry has been repurposed into Daggett Memorial Park.


The quarry in the middle of Montello is flooded, now part of Daggett Memorial Park. Irv Daggett was the last owner of the quarry and gave these parcels to the city. Photos: Paula Leier-Engelhardt

A walking tour of the town highlights historic buildings from the days when the quarry was the largest employer in the area.



In the foreground is the granite company office built in 1919. To the right of the chimney is the polishing shed of the granite company. Today, the 70 ft. chimney is used by migrating chimney swifts as a roost. Photos: Paula Leier-Engelhardt

To keep up your strength before you begin your tour, you best stop at Mama's Café for breakfast https://mamas.cafe/. Don't worry, Mama will take good care of you. Tell her we said hi.

Granite is the core of many of the high points in Marquette County. The highest point in the county, Observatory Hill, is a porphyritic rhyolite, believed to have erupted as a variable ash-flow tuff, surviving as a roof pendant within the granite as it continued to rise.

Humans are drawn to the high points of our landscape, and they become important points of reference and honor. Evidence of that in Marquette County include:

- The Montello High School sport teams are known as The Hilltoppers.
- Petroglyphs are found at Observatory Hill, believed to have been pecked into the rock over 5,000 years ago during the Archaic culture. There are also glacial striations at the top, indicating the Green Bay Lobe overrode his point 12,000-14,000 years ago.
- John Muir – yes, *that* John Muir, the father of our National Park System.

John Muir and his family emigrated from Scotland to settle in Marquette County in 1849. The family built a home along Fountain Lake, now called Ennis Lake. In his books, he talks

about spending many a pleasant afternoon on Observatory Hill during his growing-up years.

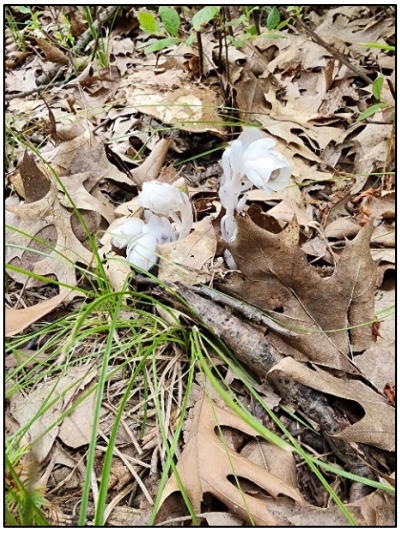
To commemorate the 150th anniversary of John Muir's birth, the John Muir Memorial Park was established on Ennis Lake, preserving the location of his boyhood home. Check out the John Muir app (https://muirboyhoodhome.stqry.app/1) to learn more about his time in Wisconsin and those places in Marquette County that meant so much to him.

Ennis Lake is a kettle lake located on the Ice Age Trail. The site is east of the major Johnstown and Milton moraines, with the ice margins pausing just long enough to leave masses of glacial ice buried in outwash deposits, forming a pitted outwash plain. The trail around Ennis Lake winds through restored mesic prairies, sedge meadows, oak savannahs, and three separate fens that feed the lake.

Muir truly said it best, *"The preservation of specimen sections of natural flora - bits of pure wildness - was a fond, favorite notion of mine long before I heard of national parks. When my father came from Scotland, he settled in a fine wild region in Wisconsin, beside a small glacier lake bordered with white pond-lilies ... and even if I should never see it again, the beauty of its lilies and orchids is so pressed into my mind I shall always enjoy looking back at them in imagination, even across seas and continents, and perhaps after I am dead."* (1895).

As one walks along the lake, you find yourself walking softly in Muir's footprints, daring not to disturb the magic, hoping to be worthy of such a place.

Then we spotted the Indian pipe, also called ghost pipe, emerging from the leaf litter on the forest floor. On that day, I like to think the elders found us worthy.



Indian pipe is a perennial flower and does not contain chlorophyll. Instead of generating food using the energy from sunlight, it is parasitic, and saps food from where the host fungi is connected to the photosynthetic trees. As it is not dependent on sunlight to grow, it can grow in very dark environments like in the understory of dense forests. Photo: Paula Leier-Engelhardt

WGNHS Summer Internship Program

The Wisconsin Section has partnered with the Wisconsin Geologic and Natural History Survey (WGNHS) to help fund a summer internship at WGNHS in 2022 and 2023. One of the goals of this internship is to promote geology as a career and recruit from underrepresented groups. We worked with WGNHS and personnel from UW-Milwaukee, where there are two programs currently in place to increase interest and recruit from underrepresented groups. One program is Go FoRWARD, a summer educational experience in the geosciences and newly funded by an NSF grant. The second program is called Let's Geo, and helps undergrads explore careers in the geosciences and develop necessary skills.

Last year Itai Bojdak-Yates from Lawrence University in Appleton, WI completed an 8-week internship in the Dells of Wisconsin River State Natural Area, working with WGNHS personnel to map the lithology and paleocurrent indicators of the Cambrian units and facies. He presented

findings from this work at a poster session for the 2022 Geological Society of America national meeting. The map and report of this work is in review by WGNHS co-authors Eric Stewart and Sarah Bremmer and will be published as a Wisconsin Open-File Report available on the WGNHS website.

Shayla Barrera-Skibinski from UW-Madison is the 2023 WGNHS summer intern. Her field area is in Mill Bluff State Park where she worked to define stratigraphic facies at two of the bluffs in the park. With an interest in rock mechanics and engineering applications, Shayla is hoping to focus on fracturing in the sandstone to determine if preferred fracture orientations are controlling bluff orientation.

The Wisconsin Section would like to recognize WGNHS geologists Sarah Bremmer (AIPG member) and Eric Stewart for their support, guidance, and hard work that helped make this internship program a great success.

Regulatory Updates

by Heather Hallett

Photo Credit: Heather Hallett

Wisconsin Regulatory Update

Wisconsin Board of Geologists -
Trevor Nobile, Wisconsin AIPG Executive Board member, has been elected Chair of the Examining Board of Professional Geologists, Hydrologists, and Soil Scientists in Wisconsin. They recently put together a scoping statement for continuing education for WI PGs which was approved by the Governor's office earlier this year and are now currently working on the draft rule changes and additions.

Wisconsin Drinking Water Report-
In July 2023, The Wisconsin Department of Natural Resources (DNR) published its 2022 Annual Drinking Water Report.

https://dnr.wisconsin.gov/sites/default/files/topic/DrinkingWater/Publications/DG045.pdf

The report shows that most public water systems met all the Safe Drinking Water Act regulations last year. This was accomplished while facing challenges from emerging contaminants, aging infrastructure, and nitrate contamination in some wells. The report also shows that more than 99% of Wisconsin's public water systems met all health-based contaminant standards.

Wisconsin has more public drinking water systems than any state in the country –more than 11,000 systems. The success of the DNR Drinking Water and Groundwater Program depends on teamwork between many partners to effectively manage the quality and availability of drinking water resources. Throughout 2022, the DNR worked with the U.S. Environmental Protection Agency (EPA), county health officials, community-based organizations and public water system owners and operators.

Groundwater Standards-
NR 140 Rulemaking is ongoing in Wisconsin, and you can find updates, timeline, and meeting announcements at this web address:

https://dnr.wisconsin.gov/topic/Groundwater/NR140.html

Federal Updates

Dust-lead Hazard Standards-
On August 1, 2023, the U.S. Environmental Protection Agency (EPA) published a proposal to revise the dust-lead hazard standards (DLHS) from 10 micrograms per square foot (µg/ft2) and

100 µg/ft2 for floors and window sills to any reportable level as analyzed by a laboratory recognized by EPA's National Lead Laboratory Accreditation Program (NLLAP), and to lower the dust-lead clearance levels (DLCL) from 10 µg/ft2, 100 µg/ft2 and 400 µg/ft2 for floors, window sills, and window troughs to 3 µg/ft2, 20 µg/ft2, and 25 µg/ft2, respectively.

EPA has also proposed other amendments to EPA's Lead-Based Paint Program, such as aligning the definition of target housing with the statute, among others. The DLHS and the DLCL were last updated in 2019 and 2021, respectively.

This action is being done in accordance with a May 2021 Ninth Circuit Court of Appeals opinion, which explains DLHS must be based solely on health factors, while the DLCL must consider the additional factors of safety, effectiveness, and reliability. The proposed rule aligns the DLHS and DLCL with the best available science, further strengthening EPA's efforts to protect children from lead hazards.

EPA is notifying states, territories, and Tribes with EPA-authorized programs for lead-based paint (LBP) activities (i.e., LBP inspections, risk assessments and abatements), as well as EPA-authorized programs for renovation, repair, and painting (RRP) activities, of the effect of this rule, if finalized as proposed, on their work. The proposed rule is currently out for public comment. The public comment period ends on October 2, 2023. As a reminder if this rule is finalized as proposed, any state, territory or Tribe with an EPA authorized LBP Activities program in effect would be required to demonstrate that its program is at least as protective as EPA's no later than two years after the final rule's effective date.
More information can be viewed at:
https://www.regulations.gov/

Federal PFAS Regulation Updates –
EPA is still reviewing comments for CERCLA designation of PFOA and PFOS as hazardous substances.

They also sent out an Advanced Notice of Proposed Rulemaking for CERCLA designation of PFBS, PFHxS, PFNA, PFBA, PFHxA, PFDA, and precursors as CERCLA Hazardous Substances (comment period ending April 13, 2023, and extended to August 11, 2023).

On March 14, 2023, EPA issued proposed National Primary Drinking Water Regulation for PFOA, PFOS, PFNA, HFPO-DA (GenX), PFHxS, and PFBS (i.e., establishing MCLs).

The comment period is now over, and EPA review is underway. The final rule is expected by the end of 2023. No update on final (was anticipated end of this year).

Early Career Professional Notes

by Rebecca Butcher

Photo Credit: Rebecca Butcher

ASBOG has introduced a new online preparatory course designed to aid candidates in their preparations for the ASBOG Fundamentals of Geology (FG) exam. The 8-hour modular program was developed by a distinguished panel of licensed academic professional geologists from across the nation. The course provides an overview of topics tied to FG exam domains as well as interactive quizzes. Participants will have the flexibility to select one of three course packages to best suit their individual needs. Options include the Full Course (including all eight study modules), or one of the more focused study courses - the Core Domain Bundle (including five study modules) or the Applied Domain Bundle (four study modules).

Candidates interested in the Prep Course can view a free comprehensive overview video of the FG Prep Course contents at: https://www.youtube.com/watch?v=KKOxWXxrsRo&t=183s

Additional early career professional advice and resources can be found at: https://www.asbog.org/candidates/candidates.html

Future Events

Chris Lilek – WI and Shanna Schmidt – MN are both co-chairing the 2023 National AIPG Conference in Covington, KY (across the river from Cincinnati, OH). It's a Midwest effort and we are inviting you to save the date and make plans to participate in some way!

Invitation to the 2023 American Institute of Professional Geologists (AIPG) Conference

The American Institute of Professional Geologists (AIPG) will be hosting its 60th Annual Conference in the Greater Cincinnati Area (specifically Covington, KY) with activities **from September 15 through 19, 2023**. We invite you to participate in any part of the conference that seems helpful and interesting to you.

We have in-person and ***virtual options!***

All registered attendees will receive a link to the conference recordings to play back until December 31, 2023.

https://aipg.org/page/202360thAnniversaryConference

This conference will be celebrating 60 years (Our Diamond Anniversary) of professional geoscientists exchanging information and technology on the *many facets* of geoscience and AIPG will be showcasing how geoscience professionals (like YOU!) are helping to solve environmental and economic challenges all over our country and world.

Check Out Our Field Trips!

Our Annual Conference Field trips get you safely "up close and personal" to all the local geoscience features of the conference area: Indiana, Ohio, and Kentucky. The field trips are led by professional geologists to give you the knowledge you need for your profession, but they are also family and guest friendly. Everyone is welcome on our field trips.

Guests of full registrants who want to only attend field trips do not have to pay daily registration fees. In addition, there is special pricing for children 4-12 year of $50 or a free ticket for an infant 0-3 years. Contact the AIPG HQ office to add field trips for guests or children.

All field trips will depart and return to the Radisson Hotel Cincinnati Riverfront, 668 West 5th Street, Covington, KY 41011, (859) 777-0008.

If you are unable to travel, we are offering registration on a ***virtual field trip*** that takes you through your computer to many of the areas we will be visiting in person! *See page: 9*

Check out our guidebooks!
In addition, the professional printed guidebooks for many of the field trips are available for purchase for use during the field trip or if you can't attend the field trip you can purchase the guidebook and enjoy reading all about the areas explored during the field trip on your own. Purchase as many as you need. Costs range from $21 – $30.

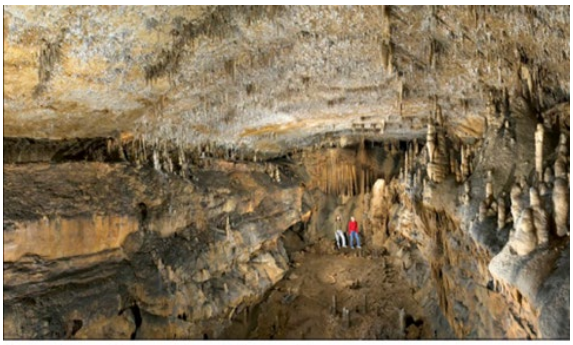
A short summary of the field trips being offered during the conference are listed below. Please visit our registration webpage for more details.

FRIDAY, SEPTEMBER 15, 2023
Exploring Ancient Worlds at the Cincinnati Museum of Natural History and Science
1:00 pm - 6:00 pm

Cost: $70
The Museum of Natural History and Science at Cincinnati Museum Center offers a world of science, history and nature through interactive exhibits and amazing artifacts. The tour will be led by the Museum Paleontologist and includes an OMNIMAX Theater Future Feature.

SUNDAY, SEPTEMBER 17, 2023

Karst Geology of the Mitchell Plateau, South-Central Indiana
7:30 am - 5:00 pm
Cost: $170
Field trip stops will include various karst topographic features developed on prime farmland, a road cut of the typical strata, and a guided tour of Marengo Cave, a U.S. National Landmark.


Crystal Cave, photo courtesy of Marengo Caverns.

Significance of Pleistocene Fluvial Systems and Glaciations on the Landscape Evolution of Northern Kentucky
8:00 am - 5:00 pm
Cost: $150
Attendees will visit various excellent and significant examples of Pleistocene fluvial features and deposits in Boone County, Kentucky. Anticipated stops include Boone Cliffs State Nature Preserve, Split Rock Conservation Park, and Big Bone Lick State Park.

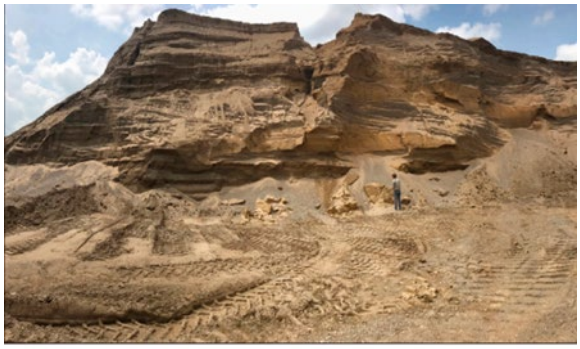


Photo courtesy of William Andrews.

Upper Ordovician and Lower Silurian Facies, Cycles, and Sequences in Southern Ohio: A Field Guide and Core Workshop
8:00 am - 5:00 pm
Cost: $150
This will be a single-day field and subsurface study of new reinterpreted Ordovician and Silurian successions. Facies include gray and red shales, fossiliferous limestones and dolostones, patch reefs, and minor ironstones.

Boat Trip: Dixieland Jazz Brunch Cruise
11:00 am - 2:00 pm) boarding starts at 11:00 am
Cost: $100 adults, $50 4-12 yrs, Free 0-3 yrs

MONDAY, SEPTEMBER 18, 2023

Industrial Mineral Production and Quarry Operations in Northern Kentucky
8:00 am - 4:30 pm
Costs: $160
Participants on this field trip will visit an active sand and gravel quarry, a limestone quarry and several roadcut(s) of bedrock exposed in the region. Stockpile sample collecting!

Exploring the Type Cincinnatian Series (Upper Ordovician) and its World-Famous Fossils at Hueston Woods State Park
8:00 am - 5:00 pm
Cost: $150
In the morning, participants will visit to the Karl E. Limper Geology Center and view rare and exceptionally well-preserved fossils. After lunch, participants will be introduced to local geology

and paleontology and then collect marine fossils at Hueston Woods State Park.

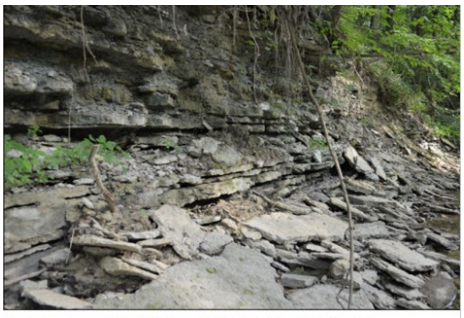


Photo Courtesy of Mark E. Peter, ODNR Division of Geological Survey.

TUESDAY, SEPTEMBER 19, 2023

Revisiting the Wisconsin Depositional History of the Southernmost Extent of the Scioto Sublobe
8:00 am - 5:00 pm
Cost: $150
Field trip participants will view stratigraphic evidence for glacial processes at natural and man-made outcrops. Analytical results from recent mapping projects will be discussed at field trip stops to provide further context to the interpreted glacial history.

Organic-Rich Gas Shales and Related Rocks Near the Devonian-Mississippian Boundary
8:00 am - 5:00 pm
Cost: $150
This trip will examine classic exposures of Devonian/Mississippian, organic-rich, gas shales in northeastern Kentucky, including the Ohio and Sunbury shales, and associated deltaic sediments from the Bedford Shale and Borden Formation. Important stratigraphic intervals will be examined.

Virtual Field Trip - $60

Made possible by a grant from the Foundation of the AIPG. Can be purchased with your registration or separately. The link will be provided in September 2023.
360 Degree Virtual Field trip of Cincinnati, Ohio, Indiana, and Northern Kentucky's Unique Geological Locations

The virtual field trip includes 360 Degree interactive photos, maps, and figures of the unique geologic features of the Cincinnati, Ohio and Northern Kentucky area. Commentary is provided by the Ohio Geological Survey and State Park experts with links to additional audio and visual materials for each location.

The virtual field trip is segmented into short videos (10 – 15 minutes) that you can watch sequentially or spread out at times convenient for you.

Film locations include:

Big Bone Lick State Historic Site, Union, Boone County, KY – The "Birthplace of American Vertebrate Paleontology" showcases the fossilized remains of giant mastodons, wooly mammoths, ground sloths and many more fossilized remains.

Clifty Falls State Park, Madison, Jefferson County, IN – The home to fossiliferous cliff gorges, canyons and waterfalls along the Ohio River. The canyons and gorges are up to 300 feet in depth and individual waterfalls up to 83 feet high and feature views of ancient layers of foundation rock.

Ohio River Overlooks from Cincinnati, OH, and Covington, KY – Scenic vistas and overlook areas of the downtown Cincinnati waterfront and skyline include unique fluvial and lacustrine features and historical and innovative public works and recreational areas.

Caesar Creek State Park, Waynesville, Warren County, OH – Showcases abundant and diverse invertebrate fossils from thin bedded, shaly limestone. Park displays provide an overview of the stratigraphy and invertebrate paleontology of the entire region.

Fort Ancient State Memorial, Oregonia, Warren County, OH – Features North America's largest ancient hilltop enclosure earthwork built

sometime between 1000 to 1750 AD years ago by the Fort Ancient Culture. On-site museum exhibits and displays are included in this segment.

Technical Presentations

Our Annual Conference presentations provide technical expertise and project examples of implementation for a wide variety of topics including:

Technical Session Topics:

- Conceptual Site Models
- Digital Tools and Modeling
- Diversity, Equality, and Inclusion
- Emerging Energy Needs
- Environmental Microbiology
- Ethics & Professional Standards
- Geophysical Methods
- Green and Sustainable Infrastructure
- Hydro-Geological Studies
- In-Situ Methods for Industrial Sites
- Karst Geology
- Limnology
- LNAPL Assessment and Remediation
- Mineral Resources
- PFAS Sampling, Distribution, Treatment
- Source Zone Treatment Methods
- Vapor Intrusion

Plenary and Keynote Presentations

Our Plenary opening presentations and panel on Monday, September 18, 2023, will feature geological survey representatives from Indiana, Kentucky, and Ohio.

Geological Survey Presentations
Geologic Survey presentations will include highlights of new:

- Research findings,
- Publications,
- Maps,
- Data bases and
- Answers to frequently asked questions

For the oil & gas, coal & mineral mining, land and water resource, hazard identification and mitigation industry companies and staff.

Lunch Time Keynote Speakers

Monday, September 18, 2023
Dr. Amy Townsend-Small, Professor, University of Cincinnati presenting: Community Engaged Research, Teaching, and Service in the Earth and Environmental Sciences

Tuesday, September 19, 2023
Mayor Joseph U. Meyer, City of Covington, KY presenting: Covington: Transformed!

Student/Early Career Professionals Day

Saturday, September 16, 2023
Workshop from 8 am to 5 pm

Lunch with professional attendees included!

Workshop includes:
• mentoring opportunities
• ASBOG exam tips
• professional licensing and certification options and benefits
• resume, career building, and interview tips
• mock interviews with real companies and agencies
• demonstration of in-field analysis equipment
• hands-on activity measuring strike & dip, trend & plunge on rock samples with different models of transits

Celebration reception for students and early career professional to network with industry professionals will be held after workshop.

There is a $70 registration fee for Student/Early Career Professional in-person attendance and ***only $20 for remote attendance!***

Student scholarships available for in-person attendance only.

Earn CEUs!

You can earn continuing education credits by attending the technical presentations and workshops either in-person or during live streaming.

Registration for all these conference activities can be found at:

https://aipg.org/page/202360thAnniversaryConference

Please join us in some way!