Ohio Section
American Institute of Professional Geologists
Chartered 1965
April 2023 Newsletter

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AIPG Ohio Section Spring Meeting

The Geology of Blendon Woods Metro Park and its Unique Stream Anticlines

Presenter: **Dr. Mohammad Fakhari**
Structural geologist at the Ohio Department of Natural Resources, Division of Geological Survey

Date: Tuesday, April 25, 2023

Location: Smokehouse Brewing Company,
1130 Dublin Rd, Columbus, OH 43215

Schedule: Social hour begins at 5:00 pm followed by
Dinner at 6:00 and Presentation at 7:00

Event Registration Payment: https://www.aipg-ohio.org/eventdetails.php

See Page 10 for event details

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Message from the President

Dave Follett, CPG- 12034

Greetings Fellow AIPG Ohio Section members,

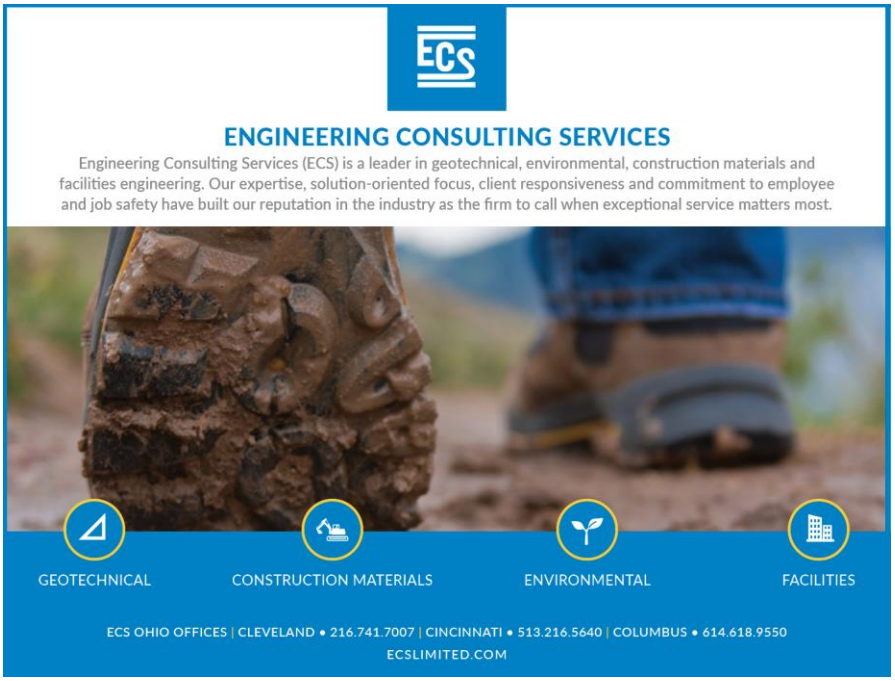
I am excited to announce that the Ohio Section will return to hold our Spring Quarterly Dinner Meeting on April 25, 2023 at Smoke House Company in Columbus. Our speaker will be Dr. Mohammad Fakhari, structural geologist at the Ohio Department of Natural Resources, Division of Geological Survey. Dr. Fakhari will be speaking on the Geology of Blendon Woods Metro Park and its Unique Stream Anticlines. More details on this meeting can be found on page 10 of this newsletter.

In addition, I am excited to announce that this year's Charity Golf Scramble will return to the Chapel Hill Golf Course in Mt. Vernon on June 16, 2023. It should be noted that the Charity Golf Scramble has raised over $8,500 over the past 4 years for our Student Chapters. Our start time will be at 9 AM and a late lunch of burgers and brats will provided by Chapel Hill. Money from this event will again go towards our Student Chapters currently located at the Ohio State University, Wright State University, and Youngstown State University. Registration will open soon. Those looking to be a sponsor for the scramble should contact our section Treasurer, Hugh Downer, at treasurer.aipgohio@gmail.com.

Lastly, I would like to provide a reminder that this year marks the AIPG National's 60th Annual Conference in Covington, Kentucky, September 15th through 19th. The theme of this conference is: Celebrating 60 years of professional geoscientists exchanging information and technology on the many facets of geoscience. We're excited that members of the Ohio Section will be leading two field trips during the conference. The schedule of the conference can be found at https://aipg.org/page/202360thAnniversaryConference along with sponsorship and exhibit opportunities. Nationals is still accepting abstracts for oral and poster presentation through May 1st. For those interested in presenting, more information can be found on page 9 of this newsletter.

I look forward to seeing you at our Spring dinner meeting this month and our Charity Golf Scramble in June. If you have any questions or concerns about activities of the Ohio Section, please feel free to contact me.

Dave Follett, CPG- 12034
2023 AIPG Ohio Section
President



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Ohio Section 2023 Winter Meeting Recap

Feature Presentation: Hydrogeology of Flowing Artesian Wells in Northwest Ohio

Presented By: Mr. Curtis J. Coe

By Paul Chasco, CPG-12024

The Ohio Section of AIPG was pleased to host Mr. Curtis Coe, Hydrogeologist at Ohio Department of Natural Resources, Division of Soil and Water Resources, on February 22, 2023 at Smokehouse Brewing Company in Columbus Ohio. The event was sponsored by Alpha Analytical, ALS Environmental, Buckeye Elm Contracting, Environmental Remediation Contractors, Environmental Risk Information Services (ERIS) Ohio Soil Recycling, Industrial environmental and K3 Complete. Prior to the buffet-style dinner being served, President Dave Follett (CPG-12034), addressed the attendees with welcoming remarks. Dave provided a summary of the Ohio Section's planned events for 2023 which included the 5th annual Charity Golf Scramble schedule for June and the upcoming National meeting in Cincinnati in September.

Section President Follett thanking the meeting's sponsors

Mr. Coe presenting to the audience

Mr. Coe gave a presentation titled Hydrogeology of Flowing Artesian Wells in Northwest Ohio. Flowing wells are a type of artesian well where the hydrostatic pressure of the water is greater than the ground surface. This is caused when the aquifer is confined between two impermeable layers and the recharge area is at a higher elevation than the ground surface of the well.

Mr. Coe started off by displaying a map of flowing wells in Ohio. The flowing wells are distributed across the state and generally evenly split between sand and gravel aquifers (51%)

and bedrock aquifers (49%). The map also had a linear band of flowing wells located in Williams, Defiance, and Fulton counties in northwestern Ohio. This group of wells is in a band that is approximately 4 miles wide and trends northeast to southwest and continues into Michigan and Indiana.

This band of wells is located in sand and gravel outwash deposited by the melting Wisconsinan glaciers. The lower confining layer is the Mississippian Antrim shale. The Antrim Shale is part of the Michigan basin. The upper confining layer consists of lacustrine deposits from glacial Lake Erie. The groundwater flows from northwest to southeast. The groundwater flow is interrupted by the Cincinnati Arch which the Lower Devonian Dundee Limestone bedrock rises further to the southeast. The southeasterly flowing groundwater has nowhere to go at this intersection.

In addition, the aquifer has two recharge areas, one to the west is associated with sand and gravel deposits interbedded in the Williams End Moraine and one to the east associated with the Oak Openings Beach Ridge sand deposits. As a result, the ground water flow vectors in the sand and gravel aquifer converge under pressure.

Mr. Coe stated that the sand and gravel deposits are not continuous, and the band of flowing wells is actually several aquifers with similar geology. As a result, not all borings in this 4-mile wide band have flowing wells. Mr. Coe said the specific capacity is the key to well production and not all wells in this band produce significant amounts of water.

After providing an opportunity for Mr. Coe to answer questions, Section President Follett presented Mr. Coe with a decorative plaque adorned with the Ohio state fossil, Isotellus. Dave again thanked everyone in attendance, and especially the following sponsors of the event: ALS Environmental, Buckeye Elm Contracting, Environmental Remediation Contractors, Environmental Risk Information Services (ERIS) Ohio Soil Recycling, Industrial environmental and K3 Complete.

Section President Follett presenting Mr. Coe with a decorative plaque adorned with the Ohio state fossil, Isotellus

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Regional meeting hosted by the Pennsylvania Section in collaboration with the Northeast, Capitol Region, Virginias, and Ohio Sections

Mineral Resources in Pennsylvania Cradle to Grave Seminar (May 5th) and Field Trip (May 6th), 2023

Break Out Your Hammer and Get Your Boots On!
We Are Going On A Field Trip and Hosting A Seminar!

Seminar Details: **Friday, May 5, 2023, 1 PM to 4 PM**
Pennsylvania Geological Survey Learning Center
3240 Schoolhouse Road
Middletown, PA

Speakers and Topics:

Gail Blackmer, PGS Director	Update of Pennsylvania Geological Survey
Bobby Hughes, EPCAMR	Update on Acid Mine Drainage Regulation
Jaret Gibbons, ARIPPA	Waste Coal to Energy
Edward Tester, New Enterprise	Quarry Operation in PA
Joseph Sassaman, PA DEP	Bureau of Abandoned Mine Reclamation Example
Todd Kantorczyk, Manko, Gold, Katcher & Fox LLP	Update on Marcellus Shale Regulation in PA

The Speaker Program Is Preliminary and Subject to Confirmation, Professional Development Hours Offered through AIPG

Networking Opportunity Following the Seminar

Field Trip Details: **Saturday, May 6, 2023, 9AM to 4PM**
Meet at PA Geological Survey

Field Trip Stops:
Quarry Visit
Waste Coal Power Plant
Coal Mine
BAMR Reclamation Site

Fees:
$50 Members
$75 Non-members

Register: **A payment registration link can be found on the Northeast Section's website at https://ne-aipg.org/meetinginfo.php**

Lodging: We have a group rate at Comfort Inn and Suites Harrisburg Airport - Hershey South – 1589 West Harrisburg Pike, Middletown, PA 17057. The group rate is $159/night +tax&fee Rates are good for May 5th and May 6th. Must reserve room before April 15th. Contact Kelly at info@ne-aipg.org for the group rate code or online registration link.

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AIPG 60th Anniversary Conference

The Many Facets of Geoscience

Call for Abstracts

AIPG is currently accepting abstracts for oral presentations and poster presentations for the 60th American Institute of Professional Geologists' Anniversary Conference that will be held in Covington, KY, September 16-19, 2023.

The geosciences - earth, atmospheric, and ocean sciences - are critical to ensuring a thriving healthy society and economy by providing the raw materials and expertise necessary for the production and resilience of food, water, energy, and infrastructure. Presentations are needed that demonstrate how people, technology and the planet interact, and how geoscience research and technology can guide solutions to growing environmental, health, and safety challenges. How is your geoscience discipline working on these challenges?

The national conference provides opportunities to present and learn from experts in various geology and geoscience fields, with networking opportunities throughout the conference. Earn CEUs/PDHs too!

Student Poster Contest

Students can submit an abstract for a poster presentation and enter the poster contest to win cash prizes! The two categories and prizes for poster contest are:

Undergraduate Cash Prize - 1st Place: $500, 2nd Place: $200, 3rd Place: $100
Graduate Cash Prize -1st Place: $600, 2nd Place: $250, 3rd Place: $100

Deadline May 1, 2023

More information on submitting an abstract or participating in the poster contest can be found at: https://aipg.org/page/202360thAnniversaryConfCallforAbstracts

Ohio Section 2023 Spring Meeting

Feature Presentation: The Geology of Blendon Woods Metro Park and its Unique Stream Anticlines

Presented By: Dr. Mohammad Fakhari

The Ohio Section of AIPG is pleased to host Dr. Mohammad Fakhari at the Section's Winter Meeting presentation, which will take place Tuesday, April 25, 2023 at Smokehouse Brewing Company, in Columbus. Dr. Fakhari will be presenting: The Geology of Blendon Woods Metro Park and its Unique Stream Anticlines. This event is sponsored by Alpha Analytical, ALS Environmental, Buckeye Elm Contracting, Environmental Remediation Contractors, Environmental Risk Information Services, Industrial Environmental, K3 Complete, and Ohio Soil Recycling.

The event begins at 5:00 pm with social hour, followed by dinner at 6:00, and the feature presentation at 7:00. The cost is $25 for members and guests or $5 for students. Please preregister and submit payment for the event via the AIPG Ohio Section website https://www.aipg-ohio.org/payment.php. Registration closes on at end of business on April 23, 2023.

The Geology of Blendon Woods Metro Park and its Unique Stream Anticlines

Dr. Mohammad Fakhari

ABSTRACT

Blendon Woods Metro Park is located in northeastern Columbus, Ohio. Much of the park is covered by Quaternary-age alluvial deposits and glacial till sediments. However, Devonian-age Ohio Shale and Bedford Shale are exposed along the creeks and nearby steep slopes. The horizontal uppermost layers of the Ohio Shale are exposed only at the western end of the park's creeks. Above the Ohio Shale, the Bedford Shale is observable in the creeks where glacial tills have eroded away.

The lower layers of the Bedford are composed of yellowish-gray, silty, clayey shale alternated with clayey siltstone beds. The middle layers, often described as the "red" Bedford, are red, silty, and clayey with less-defined bedding. The upper part of the Bedford is an alternation of grayish-yellow clayey shale and limited siltstone beds. The uppermost layers of the Bedford, exposed at the Ripple Rock Trail outcrop, are gray shale with more siltstone and some sandstone beds. Well-preserved ripple marks are noticeable on these sandstone layers.
Throughout the park, the upper grayish-yellow shales are frequently folded as stream anticlines and synclines. In contrast to typical tectonic anticlines, these stream anticlines are surficial folds developed in clayey shale layers at a very small scale. More than 30 anticlines have been recorded along the park's creeks. The wavelengths of the studied anticlines vary between 30 cm (12 in) and 5 m (16 ft). Their detachment depths range between 20 cm (8 in) and 4 m (13 ft) based on the sizes of their wavelengths.

These stream anticlines are folded in concentric or chevron geometry. The concentric folds are symmetric, asymmetric, or overturned. Folding of the layers is enabled by horizontal thrust faults in a clayey layer at the detachment horizon of the anticlines. In asymmetric folds, these faults extend to the "center of the curvature" of the folds.

Analysis of the wavelengths, detachment depths, orientation of the folds' axes, and XRD analysis of the clay minerals indicate that they were formed by the increasing volume and lateral expansion of the clayey layers by water absorption in clay minerals. The orientation of the folds' axes are slightly affected by inherited tectonic paleostress.

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Bio: Dr. Mohammad Fakhari is a structural geologist at the Ohio Department of Natural Resources, Division of Geological Survey, 2014–present. He served as Energy Group Supervisor from 2014–2017.

Received BS and MS degrees in geology in 1972 and 1977 from University of Tehran, and a PhD degree in structural geology from Azad University Science and Research Branch in 1996. Worked in Oil Service Company Consortium (OSCO) as paleontologist, well-site geologist, stratigrapher, and structural geologist from 1974 – 1979.

Headed Structural Geology Department in National Iranian Oil Company (NIOC) from 1979 to 2003.

From 2004 – 2007 served as a part-time Visiting Research Scholar in UCLA, "Department of Earth and Space Sciences".

Worked as part-time consulting geologist and hydrogeologist, and prepared geologic reports for 8 large earth-dams and over 75 industrial and civil projects.

Advised 21 structural geology graduate students.

Published 19 geological maps, numerous papers and abstracts in Tectonophysics, Tectonics, GSA, and Ohio Journal of Science.

Member of AAPG, AIPG, GSA, AGU, and OGS.

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Calendar of Upcoming Events	
April 25, 2023	AIPG Ohio Section Spring Meeting at Smokehouse Brewing Company in Columbus Speaker: Dr. Mohammad Fakhari https://www.aipg-ohio.org/eventdetails.php
June 16, 2023	5th Annual AIPG Ohio Section Charity Golf Scramble Chapel Hill Golf Course, Mt. Vernon
September 16-19, 2023	AIPG National Meeting - Covington, Kentucky
September 20, 2023	AIPG Ohio Section 2023 Fall Meeting Speaker: To be determined
November 16, 2023	AIPG Ohio Section 2023 Annual Meeting Speaker: To be determined.

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Letters to the Editor and Editorial Submittal Guidelines

The Ohio Section welcomes and encourages membership discourse via the Section newsletter on relevant geopolitical and geological topics, in accordance with our chartered purpose. Contributing authors are requested to abide by the following guidelines to ensure civility and professionalism.

1. Scientific interpretations should include accurate and effective references.

2. Opinion pieces should be presented with reasoning. Fellow members may choose to comment or challenge a submittal with their own contribution.

3. Authors must abide by the AIPG Code of Ethics. Any author who violates this code will not be published. Authors must be respectful to fellow members, all political parties, officials and candidates.

4. Letters to the Editor should be under one page in 12 pt. Arial font.

5. Member authors should provide their name and certification number.

6. The Ohio Section also welcomes and will consider relevant articles from non-members, provided contributions abide by the above stated guidelines.

Contributions to the Ohio Section newsletter do not necessarily reflect the opinion of the Ohio Section or the editor. We reserve the right to edit for clarity and space considerations.
Please send submittals to the editor at nnovak@eagoninc.com.