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American Institute of Professional Geologists

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April 2021 Newsletter

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AIPG Ohio Section 2021 Virtual Spring Meeting

Berea and Beyond: Ohio's geology from the Upper Devonian through the Pennsylvanian

Presenter: Mr. Sam Hulett, Ohio Division of Geological Survey

Date: Tuesday, April 15, 2021

Time: 7:00 pm

Via Zoom: Link to be sent following registration.

Event Registration (The event is FREE, but registration is required): <https://www.aipg-ohio.org/eventdetails.php>

See Page 6 for event details

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Message from the President

Tom Jenkins, CPG-078922

It's the springtime of COVID. That time of year where you get fooled by a warm sunny day and wear shorts and a T-shirt. Then the weather changes and its windy and blowing snow. Or you leave your plants out and they get frosted bad and you have to start over. Same with COVID now, we are all tempted to just say aww chuck it and forget the mask, go to that big party. But then, cases are rising and it's still a threat. So, beware the frost and cold winds, and also the big gatherings. Soon it will be summer and the cold winds and COVID threat will be thing of the past, we hope.

There are rumblings of another effort at geologist's registration bill in Ohio. Not sure at all if this will go anywhere, but if any of you know of examples where geologic principals were overlooked and there was a cost or consequence, please let me know. I want to compile a collection of examples to demonstrate the importance of our work and the consequences of ignorance of it.

We have a Zoom spring meeting coming up on April 15th. Sam Hulett of the Ohio Division of Geologic Survey will give a talk titled Berea and Beyond: Ohio's geology from the Upper Devonian through the Pennsylvanian. Be sure to tune in, there will be lots of insights that relate to rock exposures commonly seen in Ohio. Details are provided on page 8. There will certainly be some tidbit you can bring out later to impress your friends when hiking at Old Man's Cave. There is also another golf outing set for June 11th sign up details will be coming out in the next couple weeks.

If you have any questions or comments (or examples of geology disregarded) please email me at tjenkins@eagoninc.com

Tom Jenkins, CPG 7892
2021 AIPG Ohio Section President

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Calendar of Upcoming Events	
April 15, 2021	AIPG Ohio Section Spring Virtual Meeting Speaker: Sam Hulett, Geologist, Ohio Division of Geological Survey.
April 24, 2021	Wright State University Tour of Ohio Caverns – See page 5 for details.
June 11, 2021	3 rd Annual AIPG Ohio Section Charity Golf Scramble - Pine Hill Golf Course More details to come
September 16th, 2021	AIPG Ohio Section 2021 Fall Meeting and Dinner Presentation –Streetsboro, Ohio Speaker: To be determined
October 23-26, 2021	AIPG National Meeting, Sacramento, CA
November 18, 2021	AIPG Ohio Section 2021 Annual Meeting – Speaker: To be determined.



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Tour of Ohio Caverns

Wright State/AIPG Tour of Ohio Caverns

2210 East State Rt. 245
West Liberty, Ohio 43357



Meet
at
**Ohio Caverns for 11am
tour Saturday, April 24**

Friends & Family are welcome:
Ohio Section of AIPG is providing admission for
WSU students.

Ticket price includes guided cavern tour.

Please RSVP to Lilly Holmes:
holmes.107@wright.edu by **April 16** to reserve
your spot.

Jackets are suggested as cavern will be chilly

Ohio Section 2021 Virtual Winter Meeting Recap

Feature Presentations: Pre-Stack Inversion and AVO Attributes as Hydrocarbon Indicators in Carbonate Rocks: A Case Study from the Illinois Basin

By Mr. Jacob Murchek, MS Candidate, Wright State University

The Valvata Genus of North American Freshwater Snail as a Supplemental Climate Proxy for Crystal Lake, Ohio

By Ms. Jackie Manker, MS Candidate, Wright State University

Contributing author Robert Andrews, CPG-11975

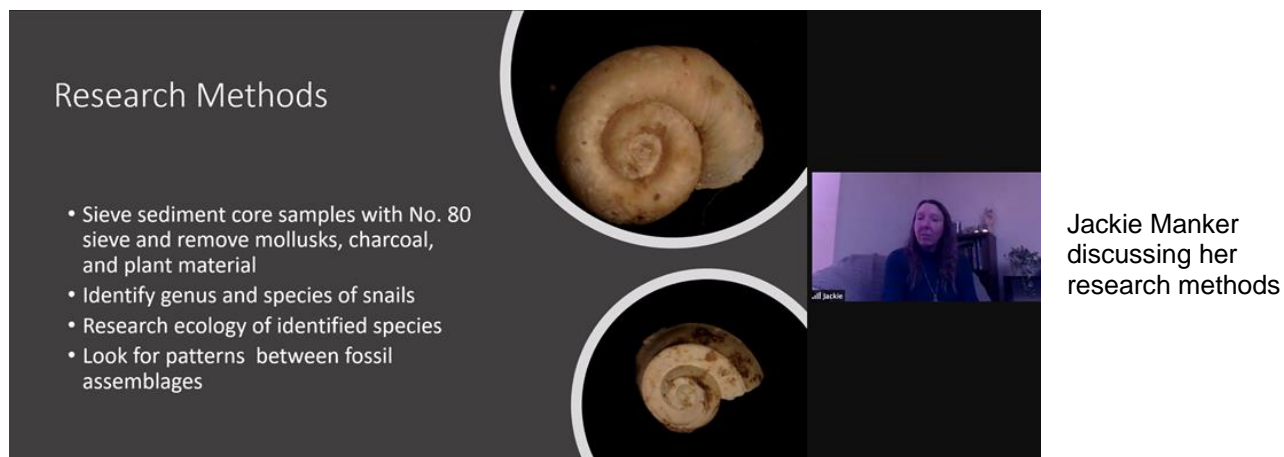
2021 Ohio Section Winter Meeting Summary

The Ohio Section held its 2021 Winter Meeting Virtually via Zoom on February 16, 2021. This on-line event was well attended with 29 viewers connecting throughout the evening.

Prior to our feature presentations, President Tom Jenkins (CPG-07892), addressed the attendees with welcoming remarks and outlined the events planned for 2021. In addition, Tom recognized the generous contributions of our meeting sponsors **Alpha Analytical, Environmental Remediation Contractors, Ohio Soil Recycling, and White Oak Environmental.**

The meeting then proceeded with two presentations by Wright State University graduate students. Each student was introduced by Dr. Stacey Hundley (MEM-2546), Wright State's Student Chapter Facility Representative.

The first presentation was by Ms. Jackie Manker, a second year Master of Science candidate. Her presentation was entitled *The Valvata Genus of North American Freshwater Snail as a Supplemental Climate Proxy for Crystal Lake, Ohio.*



Her presentation highlighted the various paleo ecological proxies found within a sediment core in Crystal Lake, Medway, Ohio. Crystal Lake is a privately owned natural kettle lake formed at the end of the Wisconsin glaciation that is currently surrounded by approximately 500 residential homes. Jackie indicated that there is an ongoing study of the past climatic changes of the lake in order to aid in modeling of how it may respond to future climate change. Jackie described the sediment core extracted from Crystal Lake in 2007, which was carbon dated to 18,000 years before present, that contains a complete sedimentary history from late Pleistocene to present. Jackie also described how previously completed loss on ignition and pollen data are helping to build a context for current research in the contribution of North American freshwater snails as paleo ecologic proxies of past aquatic habitats. While pollen and LOI data have shown a progression of vegetation through several stages from post glacial initial colonization to modern vegetative landscape, snail communities have remained relatively stable. Jackie concluded by stating that Crystal Lake appears to have remained a stable yet complex aquatic ecosystem despite climatic shifts and changes occurring outside of the lake. This suggests that natural lakes in southwestern Ohio may be less sensitive to climate change than expected.

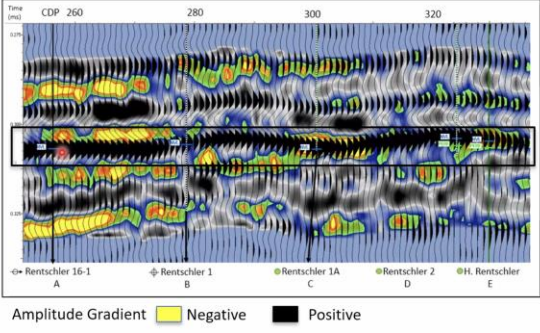
The second presentation was by Mr. Jacob Murchek, also a second year Master of Science candidate at Wright State. His presentation was entitled *Pre-Stack Inversion and AVO Attributes as Hydrocarbon Indicators in Carbonate Rocks: A Case Study from the Illinois Basin*.


His presentation described how two-D pre-stack seismic data were conditioned and interpreted to identify an amplitude variation with offset (AVO) attributes corresponding to the presence of hydrocarbons within the North Vernon Limestone interval in the Illinois Basin. According to Jacob, amplitude anomalies in pre-stack seismic data are used as a risk analysis tool when identifying hydrocarbons in the subsurface. AVO analysis is most often applied to poorly consolidated Tertiary rocks due to the compressibility of these strata when natural gas and porosity are present. Yet, well-lithified carbonate rocks are less prone to producing a pre-stack amplitude response due to the rigidity of their frame. From Jacob's study it was shown

WRIGHT STATE UNIVERSITY

Pre-stack seismic data contains information lost in post-stack seismic data

- Shows amplitude variation along target interval
- Aligns with pay zones
- Why is this significant?





Jacob Manker discussing pre-stack seismic data

that with appropriate pre-stack data conditioning, subtle AVO responses in the Illinois Basin carbonates may indicate the presence of hydrocarbons. Jacob’s study has been submitted to AAPG Bulletin and is currently under review.

After questions, President Jenkins thanked both Jackie Manker and Jacob Murchek for their presentations. Again, special thanks to **Alpha Analytical, Environmental Remediation Contractors, Ohio Soil Recycling, and White Oak Environmental** for sponsoring the event and continued support to the Ohio Section of AIPG.



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Ohio Section 2021 Virtual Spring Meeting Presentation

Feature Presentation: Berea and Beyond: Ohio's geology from the Upper Devonian through the Pennsylvanian

By Mr. Sam Hulett, Ohio Division of Geological Survey

The Ohio Section of AIPG is pleased to host Mr. Sam Hulett at the Section's Virtual Spring Meeting presentation, which will take place on Tuesday, April 15, 2021 via Zoom. Mr. Hulett will be presenting: Berea and Beyond: Ohio's geology from the Upper Devonian through the Pennsylvanian. This event is sponsored by **Alpha Analytical, Environmental Remediation Contractors, Ohio Soil Recycling, and White Oak Environmental.**

The event begins at 7:00 pm. The event is FREE, but registration is required. Register through the AIPG Ohio Section website <https://www.aipg-ohio.org/eventdetails.php>.

*Berea and Beyond: Ohio's geology from the Upper Devonian through the
Pennsylvanian
by Mr. Sam Hulett*

ABSTRACT

During the Upper Devonian through the Pennsylvanian periods, the Appalachian Basin was a highly dynamic system, experiencing multiple periods of basin filling and delta destruction related to both tectonic flexure and eustatic sea level change. This is recorded in central Ohio by a series of siliciclastic sequences. Beginning with the Devonian Bedford Shale and ending with the Pennsylvanian Sharon Sandstone, this succession shows the last pulses of the Acadian Orogeny in the Appalachian Basin. The talk will focus on mapping and interpretations from the last 25 years, with implications for oil and gas exploration, geologic carbon sequestration, and the deepest underground source of drinking water with respect to these geologic units. This will also include new subsurface interpretations of the Black Hand sandstone and implications for depositional environment and structure.

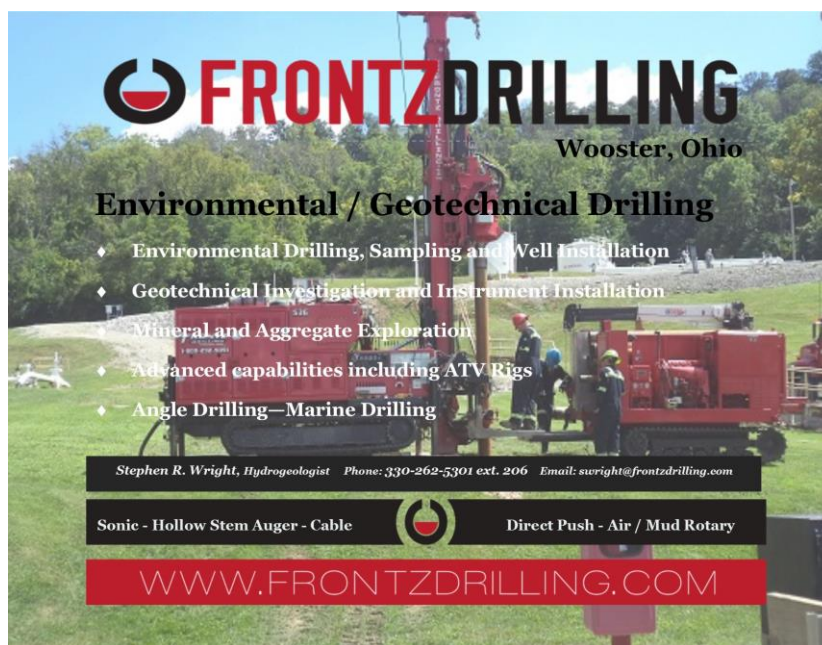
Bio: Sam Hulett received his bachelor's degree in geology in 2010 and his master's degree in geology from The Ohio State University in 2012. While studying geology at OSU he specialized in using detrital zircon data from Antarctic sandstones to determine provenance and infer current subglacial provinces. He went on to receive a second master's in isotope geochemistry from University of Notre Dame in 2015. He adapted and used boron isotope techniques on igneous carbonate rocks to trace crustal inputs to the mantle. Since graduating from Notre Dame, he is working as a geochemist for the ODNR, Ohio Geological Survey's Energy Resources Group. His current research interest is in studying Appalachian Basin geology, with special focus on mapping the Black Hand Sandstone unit in the subsurface.

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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.



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