

**CNYAPG
May 2022**



**Central New York Association
of Professional Geologists**

**Jon Fox, P.G.
(Fox Professional Geology)**

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- May Meeting Announcement
- President's Message
- Sponsor Recognition
- CNYAPG Crossword Puzzle
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18 May 2022- 6:00 PM Dinner, 6:45 PM talk

Mr. Jon Fox (Fox Professional Geology) will present:

Environmental Petrography Survey of Selected Upstate New York Bedrock Formations and Applications in Chemical Hydrogeology

Environmental petrography is used to characterize the mineralogy, chemistry, texture, structure, and porosity of geological materials using petrographic evaluation techniques including optical microscopy, x-ray powder diffraction (XRPD), scanning electron microscopy (SEM), energy dispersive spectroscopy (EDS), or electron probe microanalysis (EPMA). Environmental petrographic examination can assist environmental investigation and remediation efforts for contaminated environmental media including soil, sediment, bedrock, and groundwater. Several studies in the published literature over the past two decades have documented the occurrence of several minerals that can facilitate the abiotic natural attenuation (ANA) of chlorinated organic compounds in environmental media under certain geochemical conditions. A recent study by others has also documented the ANA of hexavalent chromium via reduction reactions. Petrographic evaluation and geochemical modeling can be used to characterize reactive minerals and local geochemical conditions as part of an evaluation of the potential of a site's geology to facilitate the in-situ degradation of these contaminants. Reactive minerals identified in the literature to date include a small number of iron sulfide, iron oxyhydroxide, phyllosilicate, or iron carbonate minerals. Samples of selected bedrock formations from across Upstate New York were collected and petrographically evaluated using polarized light microscopy, XRPD, SEM, and EDS. Elemental mapping was performed on several samples via EPMA with EDS and wavelength dispersive spectroscopy (WDS) to further evaluate and illustrate elemental and associated mineral distributions. The findings of our study document the occurrence of previously identified reactive minerals in several bedrock formations in Upstate New York and importantly also document the occurrence of additional minerals that are also likely to function as reactive minerals. A case study in Upstate New York involving an extensive plume of chlorinated organic compounds in bedrock groundwater is used to illustrate an application of petrographic evaluation and geochemical modeling to chemical hydrogeology, including the development and refinement of a hydrogeologic conceptual site model which illustrates upgradient, source area, and downgradient geochemical conditions and observed vertical and lateral trends.

This presentation will count for 1 NY PDH towards your NY-PG continuing education requirements

BOTH IN-PERSON and VIRTUAL options are available!

Virtual registrants will receive Zoom login instructions the morning of 5/18/22 and we look forward to seeing in-person registrants at the Spaghetti Warehouse!

Next dinner meeting - September 2022

CNYAPG Newsletter

The CNYAPG Newsletter is a monthly publication of the Central New York Association of Professional Geologists dedicated to sharing upcoming events, delivering regular articles of interest and providing the Membership a forum for discussion.

The newsletter is prepared by the Officers and Board of Directors of CNYAPG (listed below).

Officers:

Calvin Prothro, President
prothro@sunyocc.edu

Sean Pepling, Vice President
spepling@pwinc.com

Gerry Gould, Treasurer
ggould@gouldgw.com

Will Hackett, Secretary
WHackett@pwinc.com

Board of Directors:

Andrew Korik
andrew.korik@arcadis.com

Justin Stroup
justin.stroup@oswego.edu

Lewis McCaffrey
lewis.mccaffrey@dec.ny.gov

Bill McCune
William.mccune@arcadis.com

Nate Kranes
nkranes@trccompanies.com

Keith White
Keith.White@arcadis.com

Lynette Mokry
l.mokry@fpm-remediations.com



President's Message— May 2022

Yes, we have made it to May! The central New York weather is still trying to sort itself out and pick a season. Before we get into things, I just want to thank Dr. Paul Harnik of Colgate University for his excellent presentation on what marine shells can reveal about past ocean conditions and what they could indicate about future changes. It was a great presentation, and it was well attended. Thanks again, Paul.

This month, we had planned to close out the season with Dr. Rachel Lee of SUNY Oswego's Department of Atmospheric and Geological Sciences, but something came up and Rachel cannot make her presentation. However, Jon Fox, Environmental Consultant and visiting scholar at SUNY Oswego, has graciously stepped up and volunteered to give a talk entitled: "Environmental Petrography Survey of Selected Upstate New York Bedrock Formations and Applications in Chemical Hydrogeology." This sounds absolutely fascinating, and I am sure Jon will give us an engaging presentation. I hope you can all join us, and I hope Rachel can reschedule her presentation for some time next season.

On Saturday, April 9th several CNYAPG board members and former board members reviewed and judged 31 student research posters during the 2022 Central New York Earth Science Student Symposium. The symposium was hosted by the Syracuse University Geology Graduate Organization and was held in the Heroy Geology Laboratory building on the Syracuse University Campus. The board members and I were very impressed with the range and depth of inquiry of the student research being conducted. From Isotope studies of insect remains in Greenland to Neotectonics of the McGregor fault in New York State to studies on the North Pacific Subtropical Gyre during the Mid-Pleistocene, it was incredibly difficult to select the best poster. Using 9 different criteria, graded on a scale of zero to five, each poster was evaluated by each board member. When the scores were tallied it was determined that Syracuse University Graduate student McKenzie Brannon was the winner with her poster on her research, "Skaneateles Lake New York Nutrient Cycling, Sediment characteristics, and Harmful Algal Blooms." It was my honor and privilege to present McKenzie with a cash prize of \$250 on behalf of CNYAPG for her excellent work. Several images from the symposium are included in this newsletter. Thanks again to the volunteer judges.

CNYAPG is also holding elections for board members this month. If you are interested in serving on the board as President, Vice President, Treasurer, or as a director, please contact CNYAPG so you can be added to the ballot. Elections will be held this month, and yes, I am on the ballot seeking a second term as president. Please serve if you can, please vote as a member.

A few cool things before I sign off. Mission Specialist Dr. Jessica Watkins is currently on the International Space Station. She is slated to be an astronaut on one of the first Artemis missions to the Moon starting in 2024. If all goes as currently planned, she will be only the second geologist to walk on the Moon (Dr. Harrison Schmitt of Apollo 17 being the first). Also, Dr. Watkins is the only geologist astronaut on active flight status with NASA. Zena Cardman is the only other trained geologist (actually a geobiologist) currently awaiting flight assignment.

President's Message (Continued...)

As you enjoy the summer months and go on vacation, or go on hiking and camping trips, keep in mind the future will be different than the past. The future of the geosciences is in flux. As enrollments in colleges and universities across the country decline, geoscience departments are under increasing stress. Geoscience is being undervalued in public schools and in the not-too-distant future, this lack of investment in Geosciences will impact our ability to locate and explore the natural resources we will need to build the green energy economy we all hear so much about. The geology students of today are the economic and exploration geologists of tomorrow. Those freshmen geology majors beginning their college careers in September are the future new hires in the geotechnical and engineering firms that some of us work for today. They will be the ones helping to address and solve the environmental problems of tomorrow. If we want knowledgeable, technically savvy employees tomorrow, we need to all help encourage and support the geoscience students of today. For those of us who are or were privileged enough to help educate geoscience students, remember to impress upon them that geology is not just an academic pursuit, but has important real-world applications. So, encourage and support geoscience students and geoscience departments at every level (High School thru graduate programs).

To all of you, stay safe and stay involved. Please consider submitting interesting images of outcrops and hiking photos from central New York. If you come across research and scholarship opportunities for students, please post them or let us know so we can get the word out in our September Newsletter. Enjoy your summer and I look forward to seeing all of you on May 18th and in September for the start of the 2022-2023 Presentation Season.

Last quote of the season: "There are those who seek knowledge for the sake of knowledge; that is curiosity. There are those who seek knowledge to be known by others; that is vanity. There are those who seek knowledge in order to serve; that is love." Bernard of Clairvaux (1090 – 1153).

Have a Great Summer,

Calvin K. Prothro; P.G., CPG

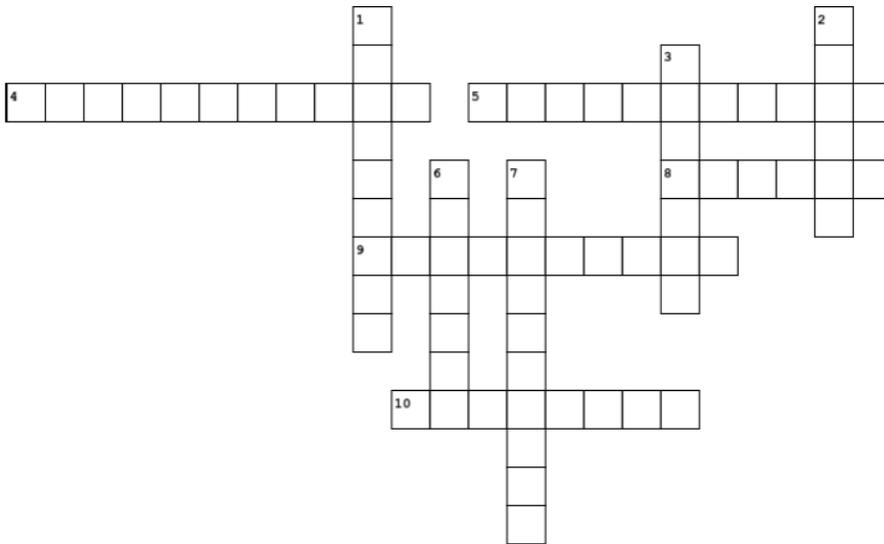


Syracuse University Graduate student McKenzie Brannon receives her award from Calvin Prothro, CNYAPG President, at the 2022 Central New York Earth Science Student Symposium

The CNYAPG was founded in 1993 to strengthen and advance the geological sciences. CNYAPG conducts regular meetings on the third Wednesday of each month from September to May. Meetings feature dinner and distinguished speakers whose presentations invite comment and discussion.



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Across

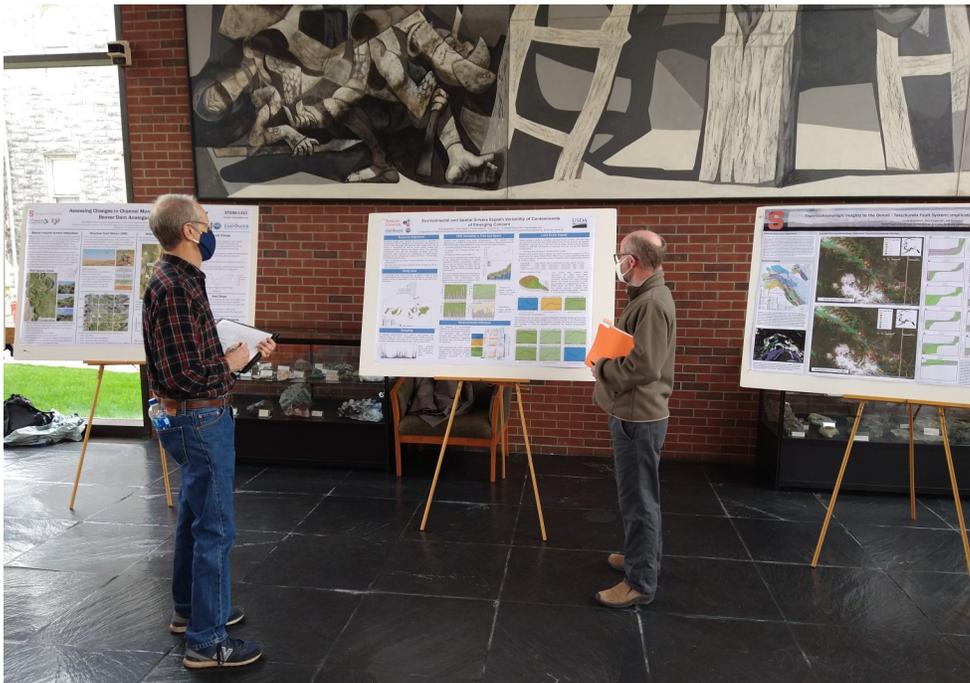
- 4. Starts with a wetland, ends with s'more
- 5. Baum's falls?
- 8. Brief and hot season in CNY
- 9. Precipitation caused by mountain range
- 10. Intermediate volcanic rock named for S American mountain range

Down

- 1. What you're solving now, and brief fit of anger
- 2. Lumberjack/jill, and a way to store environmental data
- 3. Pertaining to earthquakes, and major changes

Puzzle courtesy of Lewis McCaffrey

In response to reader request—the answers to the crossword will now be located at the end of the same issue in which the puzzle appears.



2022 Central New York Earth Science Student Symposium

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Jon S. Fox, P.G.
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(315) 935-5467
jon.fox@jonfoxpg.com
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- ❖ X-Ray Powder Diffraction
- ❖ Scanning Electron Microscopy
- ❖ Electron Probe Microanalysis
- ❖ Energy and Wavelength Dispersive Spectroscopy

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- ❖ Graphical Data Analysis/Mapping
- ❖ Geochemical Calculations/Modeling
- ❖ Statistical Analysis

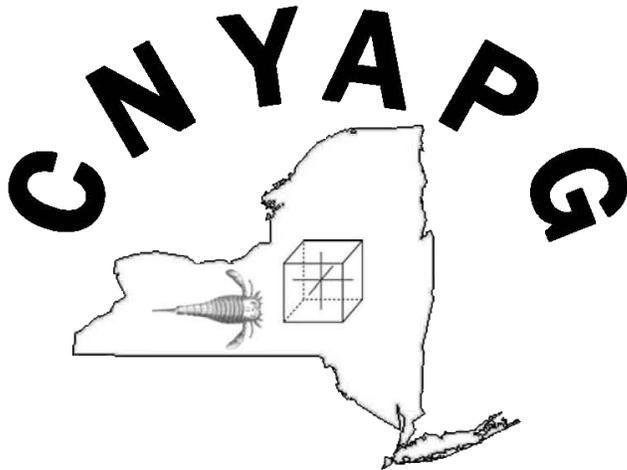


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Get Involved in CNYAPG



Central New York Association of Professional Geologists

CNYAPG is looking for interested parties to serve on the Board of Directors for the coming term. The time commitment is minimal with one board meeting (held virtually) each month.

The following positions are up for election in May:

-President

-Vice President

-Treasurer

-Several Director positions

Please contact Will Hackett- WHackett@PWInc.com if you are interested in serving.

A link to the virtual ballot will be sent out on 5/17/22 with voting open through 5:00 PM 5/20/22.

For those who prefer to vote in-person, this can be done at the 5/18/22 dinner meeting.

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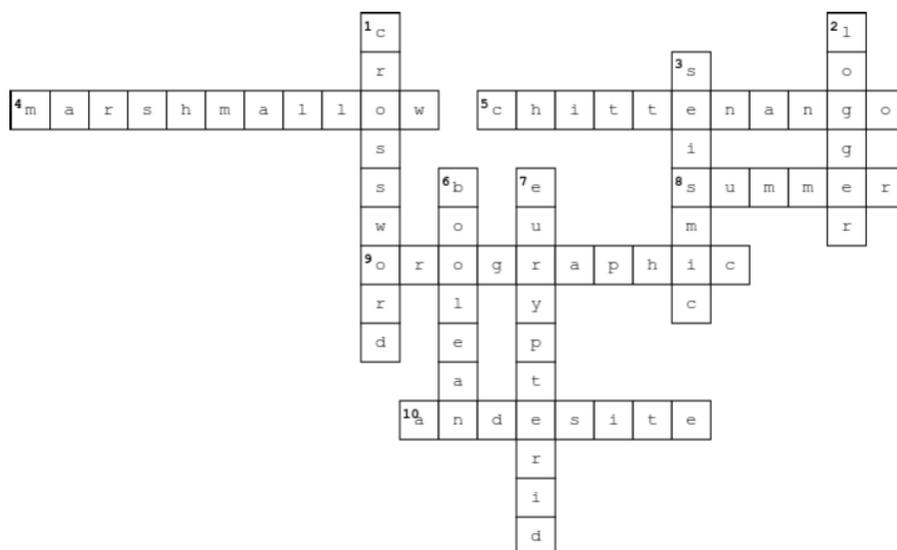
Upcoming Events

May 18, 2022 6:00 PM– CNYAPG– *Environmental Petrography Survey of Selected Upstate New York Bedrock Formations and Applications in Chemical Hydrogeology*

Mr. Jon Fox– Fox Professional Geology

Dinner Meeting– www.cnyapg.org

CNYAPG Crossword



Across

4. Starts with a wetland, ends with s'more
5. Baum's falls?
8. Brief and hot season in CNY
9. Precipitation caused by mountain range
10. Intermediate volcanic rock named for S American mountain range

Down

1. What you're solving now, and brief fit of anger
2. Lumberjack/jill, and a way to store environmental data
3. Pertaining to earthquakes, and major changes
6. A system of algebraic notation used to represent logical propositions
7. NY state fossil

May 2022 Crossword Answer Key

CNYAPG Governance

Membership Renewal

CNYAPG's membership period follows the CNYAPG meeting year from September through August. Renewals are due in September. To renew or become a new member, simply complete the membership form, available on our website at www.cnyapg.org. Membership is only \$25 per year and all money received is used in support of our organization.

Join CNYAPG at our social networking groups on [Facebook](#) and [LinkedIn](#). These sites (always under development) will provide online forums for discussion, as well as another way to inform our members and networking opportunities. For more information about our social media sites e-mail us at admin@cnyapg.org.

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