



Buffalo Association of Professional Geologists GEOGRAM



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tmorahan@mggroup.tech

Christopher Wood
Integral Consulting, Inc.
woodcr5@gmail.com

Message from the President

Happy spring! We've had some wonderful "true spring" weather recently and I hope you've been enjoying it. I'm sorry for the delay in getting this newsletter out to you, but hopefully you have seen our email blasts about our upcoming events discussed in this edition.

First, I'd like to thank our previous presenters, James Schuetz and Melanie Beck of Parsons, for their insightful presentation on geostatistical modeling. Personally, I've used Surfer for decades and hadn't given much



Continued on page 3...

2021 Annual Enrichment Seminar June 8—9, 2021

The Niagara Frontier Section of Air and Waste Management Association and Buffalo Association of Professional Geologists invite you to our virtual environmental enrichment seminar.

This seminar will be held on the mornings of June 8th and 9th and an in-person social hour will be held at the Hofbrauhaus Buffalo (190 Scott St, Buffalo, 14204).

This will be a virtual seminar and your registration must be paid in full before the seminar begins.

Seven (7) PDH credits and two (2) CLE credits will be available to registrants.

Please see the Updated Seminar Brochure at the end of this newsletter.

[Register Here](#)

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2021 Virtual BAPG Geology Scholarship Event

Presenters: Will Russo (UB) and Eric Cicero (UB)

"Application of three-dimensional basis-constrained electrical resistivity tomography to visualize field-scale saline tracer."

Accurate imaging of groundwater contaminant plumes is necessary for environmental remediation efforts as well as protecting the public from contamination. Conventional direct sampling methods for tracking contaminant plumes involve drilling wells and sampling the groundwater for contamination. While direct sampling methods provide ground-truth concentration data at specific well locations, the data are spatially limited resulting in incomplete understanding of plume extent. Direct sampling methods are also invasive and can be cost prohibitive. To obtain spatially continuous data, we interpolate data from dense network of wells, which tends to disturb the very system we seek to investigate and poses contaminant mobilization risk. In contrast, indirect geophysical methods, such as electrical resistivity tomography (ERT) provide inexpensive spatially continuous data in a non-invasive manner.

Due to limited and noisy data, the reconstruction of contaminant plumes from ERT data requires prior constraints to stabilize the solution. The traditional Tikhonov inversion method has been shown from tracer test experiments to under-predict total mass of plumes and over-predict spatial distribution due to lack of process-based information in the prior constraints. The basis-constrained inversion method was developed to incorporate physics-based a priori information about the geologic setting and plume shape from training images to aid in reconstruction. The goal of this project is to use the basis-constrained inversion to reconstruct ERT data collected from a controlled field experiment at the Massachusetts Military Reservation in Cape Cod. To assess improvements in plume mass and morphology estimations, we will compare the results to reconstruction of the same plume using the traditional Tikhonov inversion method.

"Detection of Firn Aquifer Draining Crevasses in Southeast Greenland."

In the near future, the massive amount of water stored as ice in Greenland Ice Sheet will have a significant impact on sea level rise. Understanding glacial hydrology is therefore critical to predicting the contribution the Greenland Ice Sheet will have. One aspect of glacial hydrology is firn aquifers. Firn aquifers are large stores of liquid water found in the porous firn layer some tens of meters below the surface of some glaciers. They are created when spring meltwater percolates down into the glacier and is kept liquid by high snowfall rates which insulate it from cold winter temperatures. With regards to the Greenland Ice Sheet, these conditions are predominantly found in its southeast region, with smaller firn aquifers found elsewhere along the coast. The water stored in these aquifers moves downstream, in the direction of ice flow, before eventually forcing its way to the bed through crevasses. This input of firn aquifer water to the bed is thought to affect how fast the glaciers will flow. It lubricates the ice sheet bed and hastens the glaciers' flow to the sea. However, the spatial distribution of the crevasses which drain the firn aquifers and how these aquifers evolve over time is still relatively unknown.

Using a tool in GHub, a new online repository of datasets, tools, and supercomputing resources for ice sheet science, we analyzed data from the Airborne Topographic Mapper (ATM) gathered by NASA's Operation IceBridge (OIB) from 2013 - 2018. Specifically, we find significant anomalies in the glacier surface elevation, that signify the presence of crevasses, and detect the apparent depths, widths, and locations of crevasses near known firn aquifers. We use our results to determine the spatial relationship between firn aquifers and wide crevasses may indicate surface-to-bed hydrofractures, along with how these crevasses change year to year.

We determined that wide crevasses which are thought to carry the aquifer water to the ice sheet bed are found near the downstream border of the established firn aquifers along all OIB flight lines studied. Additionally, we find that the crevasses are distributed in a pattern that seems to indicate that thinner, smaller crevasses upstream that don't reach the bed evolve over the years to become the wider firn aquifer draining crevasses.

This research will help us further constrain our models of how meltwater reaches the ice sheet bed in these settings and will allow us to understand in greater depth glacier flow and its contribution to future sea level rise. Better understanding of glacial hydrology will allow us to more accurately predict the rate of sea level rise and allow us to prepare for the impacts it will bring.

Virtual Presentation

Date: Wednesday, May 19, 2021

Time: 6:00—7:00 pm

Place: **Virtual webinar (link to be provided after registration)**

Cost: **Free; donations to support our scholarship awards are appreciated!**

[Register Here](#)

For reservations, please visit our website at BAPG.org and click Events. You can also email the [Vice President](#).

Payments are accepted online under event registration or make checks payable to "BAPG" and bring with you to event. If you have registered but cannot make it please notify the [Vice President](#) immediately as BAPG is responsible for all no shows.

Message from the President *continued from page 1*

thought to the underlying calculations and assumptions. You can bet that I'll be checking my variogram model the next time I contour some groundwater data!

Our Student Scholarship event is scheduled for May 19th. This year, we'll have two detailed presentations from undergraduate UB geology student, Eric Cicero, and graduate UB geology student, William Russo. Please mark this on your calendars and support our local geology students..

BAPG and AWMA (Air & Waste Management Association) are cosponsoring an annual professional enrichment seminar. The event will be virtual and hosted by a professional online event firm over two days, June 8—9, 2021. A copy of the seminar brochure is included in this newsletter. Register for the event at <https://awmanfs.wildapricot.org/event-4271422>.

Later this year, we're looking at several options for social and fun events possibly including a hike or equivalent and an anniversary celebration. Stay tuned for more information.

Be safe and well,

Rick Watt, P.G.

Calendar of Events

Date	Event	Location	The Scoop
May 19, 2021	BAPG Student Scholarship Presentation	Virtual Event	https://bapg.org/event-4296279
June 8—9, 2021	AWMA/BAPG Environmental Enrichment Seminar	Virtual event	https://awmanfs.wildapricot.org/event-4271422
March 19-20, 2022	Buffalo Geological Society Gem Mineral and Fossil Show	Hamburg Fair Grounds	2021 event canceled; Contact Jerry Bastedo at 716-864-2701 to sign up for 2022

BAPG MISSION STATEMENT

The **Buffalo Association of Professional Geologists** (BAPG) was founded in 1985 to strengthen and advance the geological sciences; provide an open forum for the exchange of ideas; foster the spirit of scientific research; disseminate information related to the geological sciences; and uphold the highest standards of professional conduct and ethics of geoscience professionals.

The BAPG conducts regular membership meetings on the third Wednesday of the month, January through June and September through November, featuring distinguished speakers whose presentations invite comment and discussion. Field trips and technical seminars sponsored by the BAPG encourage the exchange of scholarship and expertise. Inquiries regarding membership, publications or activities may be directed to:

Buffalo Association of Professional Geologists P.O. Box 179 Bowmansville, New York 14026-0179

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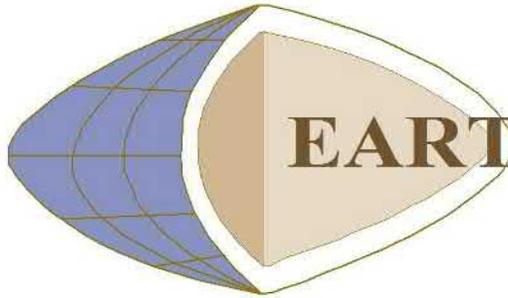
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In other news...

HMPGA Field Camp Scholarships

HMPGA is giving out up to two \$500 dollar scholarships for field camp to geology students in New York State. HMPGA is looking for students (graduate or undergraduate) and encourages anyone to apply who is considering field camp this year. Information and application form are available at hmpga.net.

Mandatory Continuing Education for Professional Geologists

In April 2021, the New York State Council of Professional Geologists (NYSCPG) presented a webinar hosted by Alpha Analytical on recent updates to mandatory continuing education requirements for professional geologists who are licensed in New York State. Thank you to Alpha Analytical for hosting this timely webinar.

Our panel described the content of the new continuing education law and outlined the future focus of the NYSCPG board. The presentation was recorded and is available for on the NYSCPG website (<https://nyscp.org/wildapricot.org/Webinars>). A list of frequently asked questions is also available on the NYSCPG website (<https://nyscp.org/wildapricot.org/FAQs>).

NYSCPG's Legislative and Continuing Education Committees are currently working with the New York State Educated Department (NYSED) and the Board of Engineers, Land Surveyors, and Geologists to lobby for the forthcoming continuing education regulations, and they are investigating what it will take to provide accreditation for courses. Both committees are seeking volunteers to help NYSCPG meet their initiatives. If you are a member and/or are interested in joining a committee, please email us at nyscouncilpg@gmail.com.

James J. Janora, P.G., NYSCPG Legislative Committee Chair

Peter B. O'Connell, Esq., NYSCPG Lobbyist

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Geochemistry/Chemical Hydrogeology

We emphasize evaluation techniques focused on the chemical properties of water and its interactions with geological materials as a compliment to standard hydrogeology techniques, which often focus primarily on the physical properties and/or available quantity of water (i.e., flow paths and/or flow rates)

- ❖ Chemical Extraction
- ❖ Mapping/Graphical Data Analysis
- ❖ Geostatistical Analysis
- ❖ Geochemical Modeling



NIAGARA FRONTIER SECTION

**AIR & WASTE MANAGEMENT
ASSOCIATION**

2021 ANNUAL ENRICHMENT SEMINAR

June 8 - 9, 2021
On-Line Seminar



**KEYNOTE
SPEAKER**

U.S. House of
Representatives

**Brian
Higgins**

U.S. Representative for New York's
26th Congressional
District

**REGISTER
TODAY**

By clicking [HERE](#)



This On-Line, 2-day seminar will feature a series of presentations and discussions with a focus on today's leading edge topics in the environmental industry. PDH and CLE credits will be available. We thank you for your support and look forward to your attendance.



PROGRAM SCHEDULE

Tuesday, June 8 Program

8:15 – 8:20 Welcome & Opening Remarks

8:20 — 9:00 Key Note Speaker

KEYNOTE ADDRESS *

**U.S. Congress 26th District
Congressman Brian Higgins**

9:00 – 10:00 SESSION I *

“18-Mile Creek Superfund Investigation Update”

Marcia Galloway, Project Manager,
Senior Lead Chemist, WSP

10:00 – 11:00 SESSION II *

“Indoor Air Quality in the Age of COVID”

Jeff Pluta, Industrial Hygiene
Community Practice Leader, Arcadis

11:00 - 11:20..... Break - Sponsor Networking

11:20 – 12:20 SESSION III *+

“Introduction to Environmental, Social, & Governance Principles”

Michael Hecker, Partner, Hodgson Russ LLP
Alicia Legland, Associate, Hodgson Russ LLP

12:20 – 1:20 SESSION IV *

“Practical Applications to Manage Liabilities with Community Soil Remediation Projects”

Richard Watt, P.G., Project Manager,
Principal Geologist, WSP

1:20 – 1:25 Session Closing Remarks

Wednesday, June 9 Program

8:25 – 8:30 Welcome, Day 2 Opening Remarks

8:30 – 9:30 SESSION V *

“Climate Leadership & Community Protection Act Implementation Update”

Suzanne Hagell, Climate Policy Analyst,
Office of Climate Change, NYSDEC

9:30 - 10:00..... Break - Sponsor Networking

10:00 – 11:00 SESSION VI * +

“Ethical Considerations for Licensed Professionals”

Aaron M. Saykin, Senior Associate, Hodgson Russ LLP
Douglas M. Gatrell, Engineering Leader, GHD

11:00 – 12:00 SESSION VII *

“Achieving Remedial Goals at Challenging Sites in WNY”

Maureen Dooley, Director of Strategic Projects,
Regenesis
Lori Riker, P.E., Sr. Project Manager, Benchmark Civil/
Environmental Engineering & Geology PLLC

4:30 - 5:30 Social Hour

Sponsored by: Alpha Analytical Laboratories, Inc.



190 Scott Street, Buffalo, NY



* 1.0 Professional Development Hour (PDH) will be awarded for Attendees of this Presentation - Total of 7 PDHs Possible
+ 1.0 Continuing Legal Education (CLE) will be awarded for attendees of this Session (2 CLEs available at Seminar)

There will be a \$25.00 processing fee for those registering for CLE credits (except for the first 10 attorneys to register)

Registration Information

\$65 Individual Registration*

\$45 Retirees, Government Employees, and Full Time Students*

*The first 10 attorneys applying for CLE credits will be sponsored by:
There will be an additional \$25 processing fee per person registering for CLE credits. Click [HERE](#) to register now.



2021 Annual Seminar

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e-mail: Patrick_Martin@Golder.com

Michael Hecker, Seminar Committee:
Phone: (716) 848-1599
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