Bulletin

of the Eastern Section of the National Association of Geoscience Teachers

Volume 70, Issue 1: Winter 2020

JUNE NAGT-ES SECTION MEETING INFO & REGISTRATION IN THIS ISSUE!

And the Rockets' Red Glare: *HMS Terror* and *HMS Erebus*

by Tony K. Meunier,
EarthSpaceSciences.blogspot.com

Many Americans know our National Anthem celebrates the night Fort McHenry and our national Flag withstood British naval bombardment during the War of 1812, thereby saving the city of Baltimore, Maryland from destruction. Few Americans, however, realize how that night off the coast of Baltimore is linked in history with striking exploratory triumphs on the shores of Antarctica and with later tragic losses -- and 167+ years of mystery -- beneath the Arctic waters. The historical link is through *HMS Terror* and her sister warship and exploratory vessel *HMS Erebus*.

HMS (His or Her Majesty's Ship) Terror was one of the British warships in the battle for Baltimore throughout the night of September 13 to 14, 1814 (Figure 1). Operating in extremely close proximity to Fort McHenry, *HMS Terror* launched missiles and fired destructive mortar rounds at Fort McHenry, helping to provide "...the rockets' red glare, and bombs bursting in air..." memorialized in the words of our National Anthem. American

Figure 1. Model of *HMS Terror*. This ship was designed and built in 1814 for close-encounter mortar bombardment, especially of onshore targets. Its strong and massive frame, hull, and decks later suited it for Antarctic and Arctic exploration through sea ice (Credit: Wooden model & image from Ages of Sail/OcCre Company).

citizen Francis Scott Key had been detained on board one of the British ships in the engagement and so he observed the bombardment first hand and close up. Over the next few days Key wrote the poem, "Defense of Fort McHenry" which later became the lyrics of the National Anthem of the United States, "The Star-Spangled Banner."

Just constructed earlier in 1814, *HMS Terror* had been designed and built specifically for close-encounter, ship-to-shore mortar and rocket bombardment. In 1826 *HMS Erebus*, another mortar and rocket-bombardment warship was built. These two similarly built British ships were constructed with extremely thick, hardened, oak hulls and decks (which were double planked for strength). The heavily reinforced structures of these ships could withstand cannon fire in close-encounter battles and, because of this added structural integrity and mass, each ship could resist the recoil when firing the two powerful mortars that could lob bombs onto the enemy on the shore. (The fact that Fort McHenry survived the bombardment gives credence to reports that the shipboard mortar attacks were

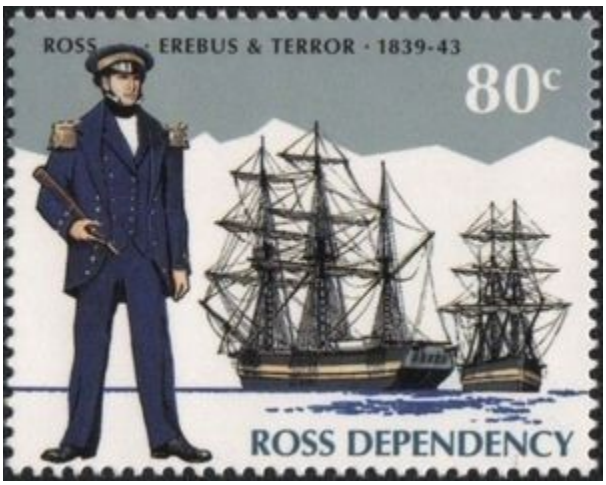


Figure 2. New Zealand postage stamp portraying Captain Ross and both *HMS Terror* and *HMS Erebus*, the sister ships that sailed together on a number of expeditions to the Antarctic and Arctic regions (Credit New Zealand Post)

relatively inconsequential if not ineffective.) These special features of *HMS Terror* and *HMS Erebus* were originally intended to provide unique roles in naval warfare, but these same features also made these ships among the few ships of the time capable of traveling through ocean ice.

Realizing the potential use of *HMS Terror* and her sister ship *HMS Erebus* in exploration, the British Admiralty sent these ships on an 1840-1841 voyage of discovery, including the search for the location of the South Magnetic Pole (Meunier, 1979, p.7, p.19 and p.A-4). Under the command of Captain James Ross (Figure 2), the expedition used these ships' mass and sturdiness to penetrate the ice pack surrounding what at that time was still an unexplored hypothetical Antarctic Continent. Once through the blocking outer edge of the ice pack, the expedition discovered an ice-free passage now called the Ross Sea in honor of Captain Ross. This discovery allowed the expedition to sail an additional 500 miles further south along the eastern shoreline of the Transantarctic Mountain Range to the furthest south, northern edge of Antarctica (Meunier, 2007, p. 3). There at 79° 09' South Latitude the ships encountered a barrier, preventing any further sailing to the south. The Ross Expedition discovered not just this massive, continent-size ice shelf (now known to be the largest such ice shelf on Earth) but also a chain of one-million-year old, Pleistocene Epoch, shield volcanic peaks. The largest of these shield volcanoes, named Mount Erebus by Captain Ross, dominates Ross Island (Figure 3) and has a perpetual, active lava lake (one of only five on earth) at 12,448 feet elevation above the Ross Sea. Another peak, also on Ross Island, was named Mount Terror by Captain Ross in honor of his other exploratory vessel (Alberts, 1995). Mount Terror has a peak elevation of 10,597 feet above the Ross Sea and is a dormant, shield volcano. It is fitting that these two specialized ships that opened Antarctica to exploration are remembered today by their geographic names and their depiction on New Zealand stamps (Figures 2 and 3.).

Currently, the United States' main logistical base for Antarctic research (a multi-billion-dollar installation) is on Ross Island at the base of Mount Erebus. Numerous other Antarctic Treaty nations also operate from bases located in the Ross Sea Sector of the Continent.

The tragic final chapter for *HMS Erebus* and *HMS Terror*, these sturdy sisters of 19th-century polar exploration, was written when the British sent the ships to the Arctic on the ill-fated 1845 John Franklin Expedition in search of a commercially and strategically important northern sailing passage from the Atlantic Ocean to the Pacific Ocean through the ice clogged sea passages in the Arctic. The ships were caught and frozen in place by the Arctic ice pack on September 12, 1846, and they were eventually abandoned in late April 1848. By 1849, all 126 men of the Franklin Expedition had perished. *HMS Erebus* and *HMS Terror* succumbed to the Arctic ice pack, and they both sank while entrapped in the drifting ice. During the next decade, 36 international search and rescue (SAR) missions were dispatched to locate any survivors (sadly there were none) or at least to solve the mystery of how the ships and all the men of the John Franklin Expedition had disappeared. This mystery remained largely unsolved for 167+ years, although over subsequent decades, some artifacts, graves, and notes in cairns (trail markers) were found and documented, supplemented by Inuit verbal histories (later proven to be accurate though summarily ignored at the time by search parties). Only relatively recent discoveries have given a more accurate account of the fate of the last 106 sailors during their final days. In 2015 and 2019, the expedition's final location and sunken wreckage

Figure 3. *HMS Erebus* portrayed on a New Zealand postage stamp with Mount Erebus, Antarctica in the background (Credit: New Zealand Post)

were discovered by marine archeologists using modern tools and methods to search the Canadian Arctic waters and seabed. The sunken *HMS Erebus* and *HMS Terror* were both found in shallow water and in relatively well-preserved states due to the cold, anaerobic environment of the Arctic waters where they still lie. Marine archeologists hope in the future to recover additional, preserved documents, artifacts and clues about how and why the ships sank, to fill in the remaining gaps of this sad but enduring nautical and historical mystery. In our 21st Century world today it is all too easy to underestimate the profound importance of the role of *HMS Terror* and *HMS Erebus* in global exploration. The unexpected discovery of the Ross Sea effectively opened Antarctica to exploration by making it possible to sail men, material and supplies almost to the center of the Continent on subsequent voyages for scientific, social, political, and economic purposes.

The discovery of this passage deep into Antarctic waters was a triumph and a turning point enabling the later quest by many nations to reach the Geographic and Magnetic South Poles during the Heroic Age of Exploration (from 1890 to the Great War of 1914). Success was achieved in the first quarter of the 20th Century. It is appropriate, also, to remember when we sing our National Anthem how vessels built for destruction with rockets and bombs were re-dedicated and re-purposed for the peaceful pursuit of knowledge of our Earth.

References cited:

Alberts, F.G., ed., 1995, Geographic names of the Antarctic, 2d ed.: Reston, VA, U.S. Board on Geographic Names, National Science Foundation Report No. NSF95–157, 834 p.

Meunier, Tony K., 2007, U.S. Geological Survey Scientific Activities in the Exploration of Antarctica: Introduction to Antarctica (Including USGS Field Personnel: 1946-59). Williams, R.S., Jr., and Ferrigno, J.G., eds.: U.S. Geological Survey Open-File Report 2006-1117. at: http://pubs.usgs.gov/of/2006/1117/pdf/2006-1117.pdf

Meunier, Tony K., 1979, Geography of Antarctica: Brockport, New York, State University of New York, College at Brockport, Master's dissertation, 120 p. (including 118 illustrations, 10 tables, 12 color and 71 black-and-white maps, photographs, bibliography (6 p.), appendixes and fold-out color map of Antarctica).

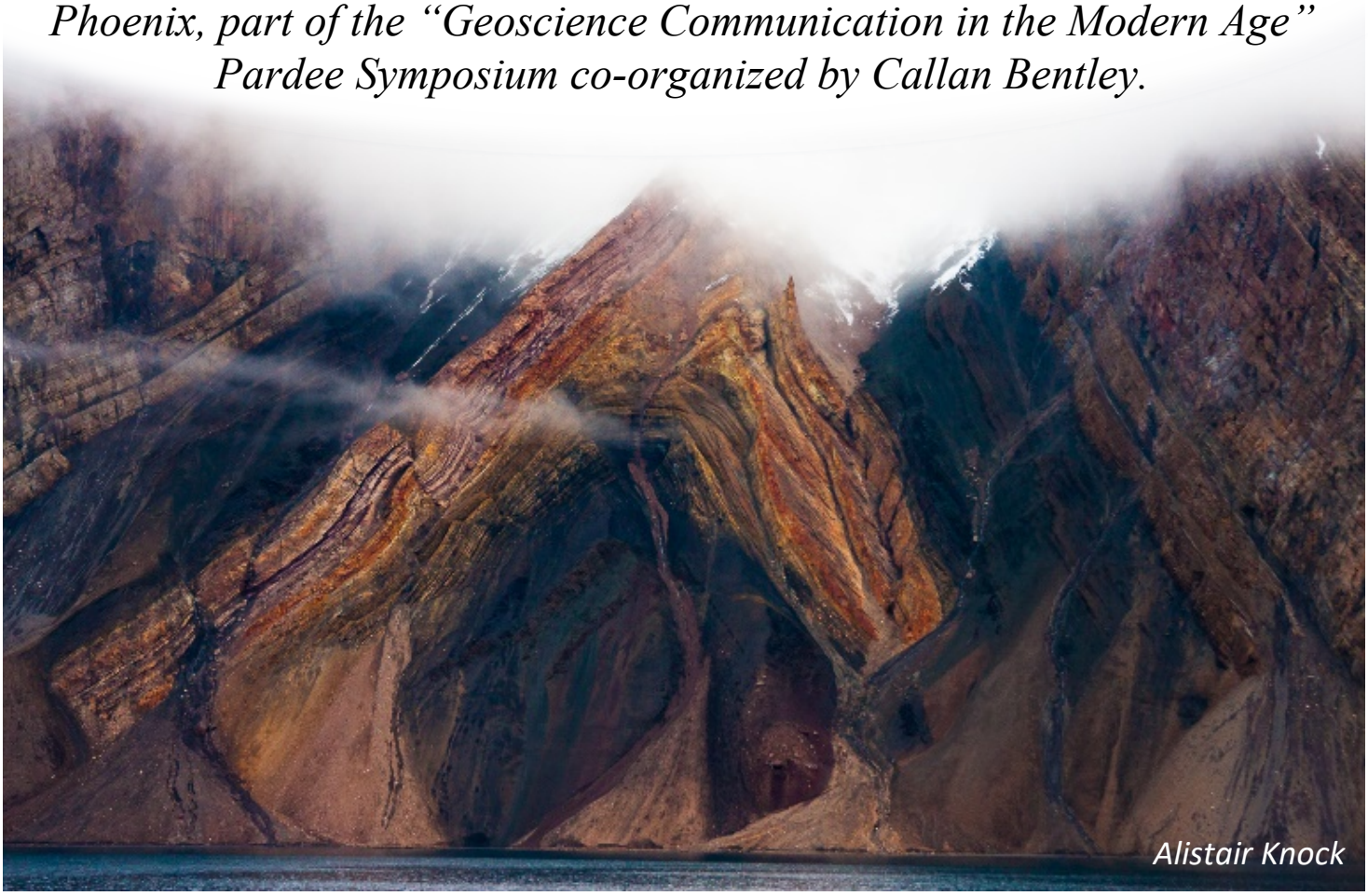
Technical review of this article as well as the author's previous article, Antarctica*: Myth, Discovery, Exploration and Science* in NAGT Eastern Section Bulletin, Winter 2019 issue, by David I. Donato, U.S. Geological Survey, is greatly appreciated.

Field Conference of Pennsylvania Geologists guidebooks available for download

Going all the way back to 1931, the FCOPG has made their entire oeuvre available for free download – a great resource for exploring Pennsylvania geology! Thanks to Randy Newcomer for the tip!
https://www.fcopg.org/download-guidebooks

Get excited for the **GeoAuction** at our June meeting! There will be 25 **poster-sized** works of geoscience art and visualization available for purchase.

Each of these pieces was donated by the artists who participated in the "Geoscience Visualization art show" at the 2019 GSA meeting in Phoenix, part of the "Geoscience Communication in the Modern Age" Pardee Symposium co-organized by Callan Bentley.



Passing of Bob Matson

Shared by **Larry Matson**, and condensed from the obituary posted at https://ness-sibley.com/matson-lawrence-rorbert-bob/ *[sic]*

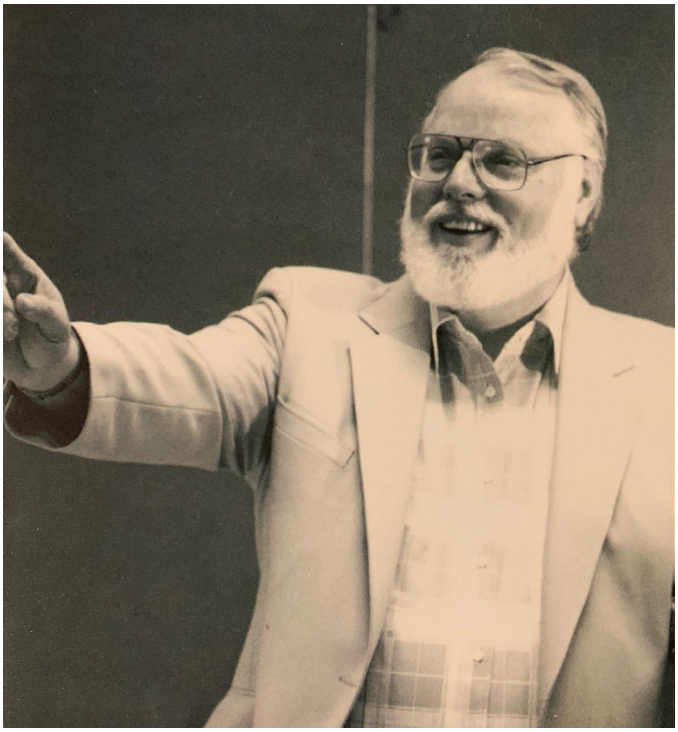
Lawrence Robert "Bob" Matson passed away peacefully on Saturday, November 2, 2019, at the age of 79.

Bob was a devoted husband, father, and grandfather, as well as a caring educator. He loved the outdoors, whether looking at rocks or the stars, or hunting or fishing, and could give directions for roadways he'd traveled only once, 50 years earlier. Certainly not least, Bob was a passionate Yankees fan with an encyclopedic memory for facts and statistics, rarely missing a game on the radio. Those who met him found him to be a kind, generous man of integrity.

Bob was born in Cortland on February 9, 1940, son of the late Lawrence and Ona (Record) Matson. Following high school, he earned BA and MS degrees at SUNY Cortland, and an MS degree at Case Western Reserve University.

His long career as an educator included teaching at middle and high schools, and a 28-year career as Professor of Earth Sciences and Astronomy at SUNY Ulster and SUNY New Paltz. He was a born educator with a love of science and a commitment to helping students appreciate the wonders of the earth and sky, engaging them in field trips far and wide (often incorporating family vacations), and in astronomical observations. To enrich his teaching, he was a lifelong learner, attending and hosting conferences, researching mineralogy for the iron-mining industry in Michigan, and conducting Landsat investigations for NASA at Goddard Space Flight Center in Greenbelt, MD. For many years, he enjoyed sharing his knowledge with guests and employees at Mohonk Mountain House, where he worked part-time for many years.

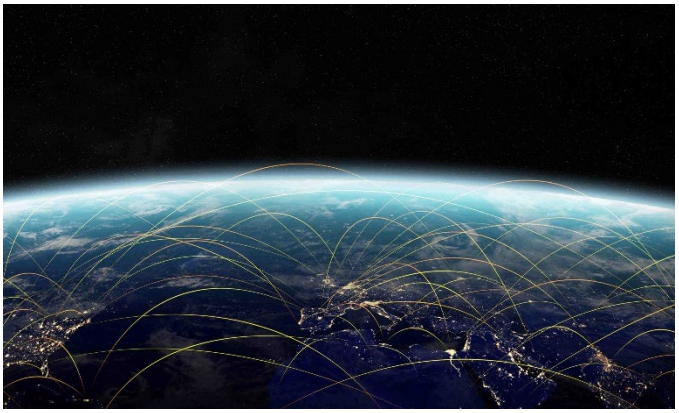
Service to the community was very important to Bob. He was a member of the Rondout Valley Lion's Club for more than 25 years, and, as a member of Accord Fire Department, was named



Fireman of the Year. Bob also served as Constable for the Town of Rochester, and was a youth group leader for the Rochester Reformed Church in Accord, NY. Bob was a member of the Geological Society of America, and was a recipient of the Distinguished Service Award from the National Association of Geoscience Teachers, Eastern Section. He also served as President of NAGT-ES. For many years, he served as coach for Indian Valley Little League, as instructor for driver's education, and was a member of the Wawarsing Rod and Gun Club. He served as president of the SUNY Ulster Faculty Association.

Bob is survived by his wife of 55 years, Susan Matson; his three children, Lawrence (Patricia) Matson, Robert (Marsha) Matson, and Edward (Melissa) Matson; his much-loved five grandchildren, Amanda, Nicole, Elizabeth, Catherine, and Sarah; brother Gary (Jean); and several nieces, nephews, and cousins. In addition to his parents, Bob was preceded in death by his sister, Carol Roys, and two infant sisters, Joann and Beverly.

The family asks those who would like to make a donation in Bob's memory to kindly consider the Professor Lawrence Matson Scholarship at SUNY Ulster, Stone Ridge, NY 12484; Little Ones Learning Center, 5142 Route 209, Accord, NY 12404; or Rondout Valley Lions Club, P.O. Box 104, Stone Ridge NY 12484.



New book on teaching climate change

with contributions from NAGT-ES members **Eric Pyle** and **Don Haas**:

Teaching Climate Change in the United States | Taylor & Francis Group

This book highlights best practices in climate change education through the analysis of a rich collection of case studies that showcase educational programs across the United States.

Framed against the political backdrop of a country in which climate change denial presents a significant threat to global action for mitigation and adaptation, each case study examines the various strategies employed by those working in this increasingly challenging sociopolitical environment. Via co-authored chapters written by educational researchers and climate change education practitioners in conversation with one another, a wide range of education programs are represented. These range from traditional institutions such as K-12 schools and universities, to the contemporary learning environments of museums and environmental education centres. The role of mass media and community-level educational initiatives is also examined. The authors cover a multitude of topics, including the challenge of multi-stakeholder projects; tensions between indigenous knowledge and scientific research; education for youth activism; and professional learning.

By telling stories of success and failure from the field, this book provides climate change researchers and educators with tools to help them navigate increasingly rough and rising waters.

NSTA Elections are happening!

The National Science Teaching Association is holding elections for its Board of Directors and Council. If you are an NSTA member, you should have received your ballot by email. Visit NSTA's website to find out more about the nominees.

You may also submit up to three names of members to consider for nomination on the 2021 ballot when you vote.

Voting Deadline: 11:59pm Eastern Standard Time, February 10, 2020.

Neil Armstrong & the 50th Anniversary of Apollo 11

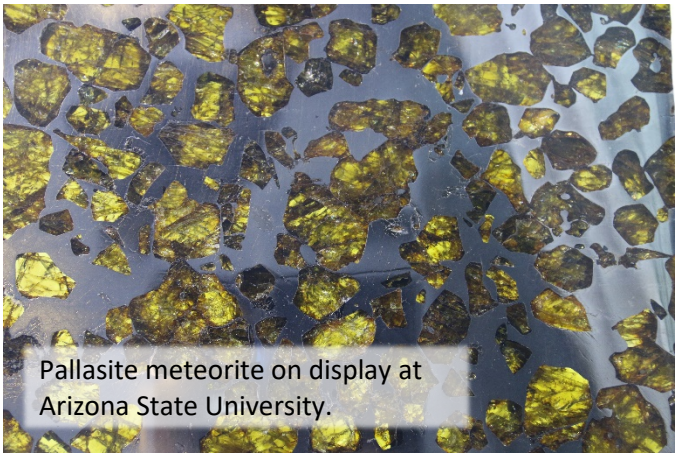
by Dave Ludwikoski
Community College of Baltimore County

Not long after being named a Solar System Ambassador earlier last year, I received a request from a local library in Maryland to give a talk about the 50th anniversary of the Apollo 11 moon landing. Since I was going to be away on the actual anniversary (July 19th), I asked the contact person if I could do a talk on Neil Armstrong on his birthday, which would be August 5th 2019.
He grew up in the town of Wapakoneta, OH, not far from my hometown of Toledo, so my wife and I went on a road trip in June to visit his home and the museum named after him to get some additional background information and pictures.
Even though I visited the museum as a kid and knew many things about Armstrong growing up, I was surprised to learn that his home had been turned in a historic site and that the museum (among other things) was established without his initial permission. Reading the book *First Man* also filled in some gaps, and that, along with the museum visit, really established why he was the best one to set foot on the Moon, based on his coolness under pressure several times in his illustrious career. Wapakoneta is definitely off the beaten path, but, if you can't visit, at least get a copy of the book.

Neil Armstrong's home in Wapakoneta, Ohio

Some geophotos from winter '19-'20 travels in Arizona

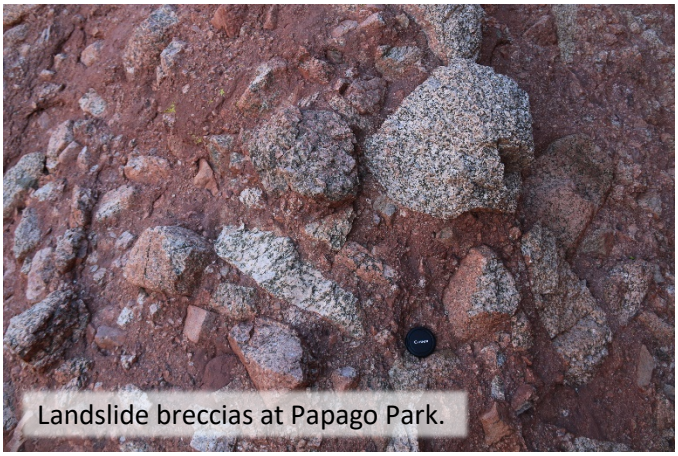
by **Callan Bentley**
Northern Virginia Community College



Pallasite meteorite on display at Arizona State University.

Pseudotacylyte veins in South Mountains granodiorite.

Metavolcanic breccia at Senita Basin, Organ Pipe Cactus National Monument.



Landslide breccias at Papago Park.

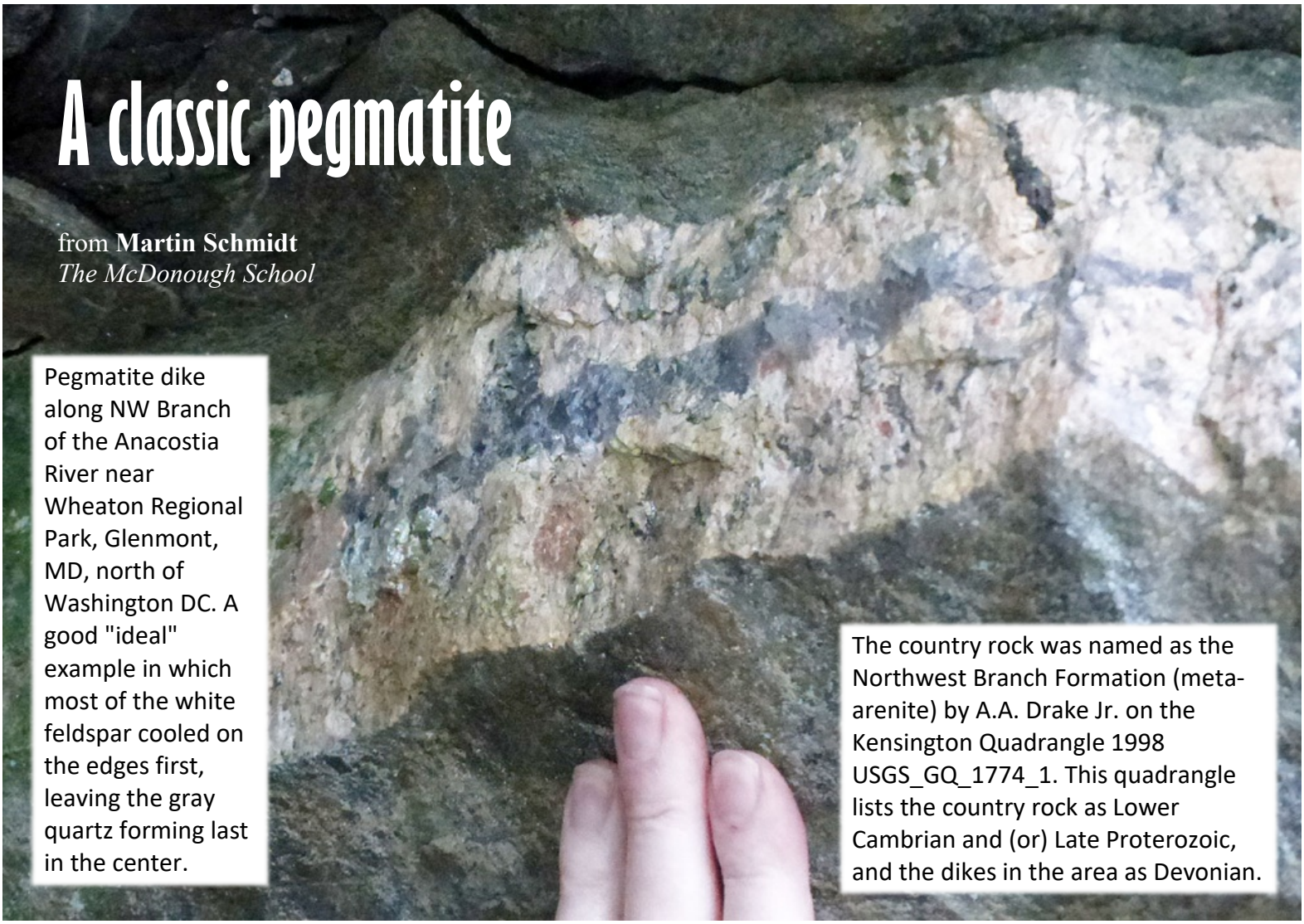
Sunset, Phoenix.

The new border wall under construction at Organ Pipe Cactus National Monument.

Arch, Ajo Mountains

A classic pegmatite

from **Martin Schmidt**
The McDonough School



Pegmatite dike along NW Branch of the Anacostia River near Wheaton Regional Park, Glenmont, MD, north of Washington DC. A good "ideal" example in which most of the white feldspar cooled on the edges first, leaving the gray quartz forming last in the center.

The country rock was named as the Northwest Branch Formation (meta-arenite) by A.A. Drake Jr. on the Kensington Quadrangle 1998 USGS_GQ_1774_1. This quadrangle lists the country rock as Lower Cambrian and (or) Late Proterozoic, and the dikes in the area as Devonian.

Boudinage in pegmatite

from **Marli Miller**
The University of Oregon

Martin's contributed photo reminded me of *another* pegamatite photo, reproduced here from the Marli Miller's geology photography website. If you haven't seen it, you should check out https://geologypics.com/ for all kinds of **free** photos that Marli makes available for you to use in your teaching. -*CB*

Results of the survey regarding our annual conference & awards banquet

by Michael O'Donnell
Blue Ridge Community and Technical College
NAGT Eastern Section President

Greetings to everyone in the Eastern Section of NAGT! I hope the winter for all is going well. So far, here in West Virginia we have not really had a winter, but there is still several months to go!
In the fall of 2019, I asked the membership to participate in a survey about our sections annual conference.

The leadership has noticed a downturn in attendance over the past several years, and I was hoping to find out why. In this newsletter I will reveal the results of this survey. The questions I asked where ones I developed based on experiences of mine over the years. I had support and input from the officers of our section, but the responsibility is all mine. There were only 60 respondents out of our total membership, so I leave it to you to determine the statistical significance. However, this does show that there are at least 60 of us out there that are taking an interest in our section. I will say that overwhelmingly the response to my questions was neither likely nor unlikely. Also, as you will see, June still seems to be the most popular month in which to hold our meeting.

At the end, I have copied and pasted several of the comments from the survey. In no way is this an exhaustive explanation, but I hope it generates continued discussion so that we always seek to improve our organization.

We are here to try and serve the needs of the membership and I hope this opens a dialogue that continues into the future. If you have particular questions, feel free to email me at modonnel@blueridgectc.edu.

Q1 Making the conference a 1-day event (Currently, the annual meeting runs Thursday evening through Sunday morning): would this make it likely for you to attend?
42 % answered neither likely nor unlikely
25 % answered likely

Q2 Increasing the number of workshops (Workshops are typically held in a classroom setting and run approximately 30 minutes to 1 hour in length. They are concurrent with typically 4 sessions)
50 % answered neither likely nor unlikely
33 % answered likely

Q3 Increasing the number of or amount of time of field trips (Currently field trips consist of 1/2 day on Friday and a full day Saturday. Depending on the venue, there may be several choices of trips.)
57 % answered neither likely nor unlikely
25% answered likely

Q4 Having planned family activities concurrent with conference activities (These activities are dependent on the conference site for the particular year)
55 % answered neither likely nor unlikely
31 % answered very unlikely or unlikely

Q5 Availability of childcare (Currently, childcare is not offered.)
50 % answered neither likely nor unlikely
38 % answered very unlikely or unlikely

Q6 Place the following blocks of time in order from most preferred to least preferred time for the annual conference. (Meetings in the past have been held in April, May and June)

March	**15 %**
April	**9 %**
May	**24 %**
June	**43 %**
July	**2 %**
August	**6 %**

Q7 Referring to the above choice, please provide comments/explanations for your number one and number two choices (e.g. applying for leave, applying for funds to pay for the conference) and

specific days within your choices that best fit your schedule.

"June - college classes are over;"
"April - may be able to bring college students with me; not too close to finals (finals are usually early - mid May for us)"
"March weather still very variable, ice, snow..June always an issue with public school teachers taking time at end of year...but I feel still best choice. Early May might work too.."
"March and May are simply easier times to plan for than the other months. There's less conferences during this time."
"In the K12 environment, these are the months where there is the least going on. Waiting until the 2nd or 3rd week of the month is best."

Q8 If you have never attended a conference or have not attended in a long time, please provide some feedback as to why. (Be thoughtful in your reply, not just "I don't have time")
"Cost - I don't have any way of paying for it except out of pocket. There is a great deal of competition for such limited funds, of course, including bills and family. This is my greatest limitation toward attending, but I also realize that meetings cost $$."
"It seems the meeting is either too close to the end of my semester. Or I have another meeting or family event on the calendar."
"our funds are good, we might consider a reduced rate for 1st time attendees....half price conference.."
"I have not attended one in the past. For me, I just didn't know that the workshops existed."
"District will not pay for event"

Q9 Please provide any suggestions that would increase your chance of attending the annual meeting.
"1) Reduced cost 2) Childcare availability 3) Field focus"
"I need to be aware of the date early. Otherwise, another activity takes that slot."
"our funds are good, we might consider a reduced rate for 1st time attendees....half price conference.."
"More reminders about the workshop"

Q10 Finally, comment on how the Eastern Section can better serve you as a member.
"Childcare and/or family activities would be a huge plus!"
"I haven't been active in a long time."
"It is such a large geographic area."
"I don't feel like I really know anyone."
"Resources to support collaborations - Zoom meetings, sharing instructional materials and coordinating reciprocal peer reviews of instructional materials."

Thanks very much to all who shared their perspectives!

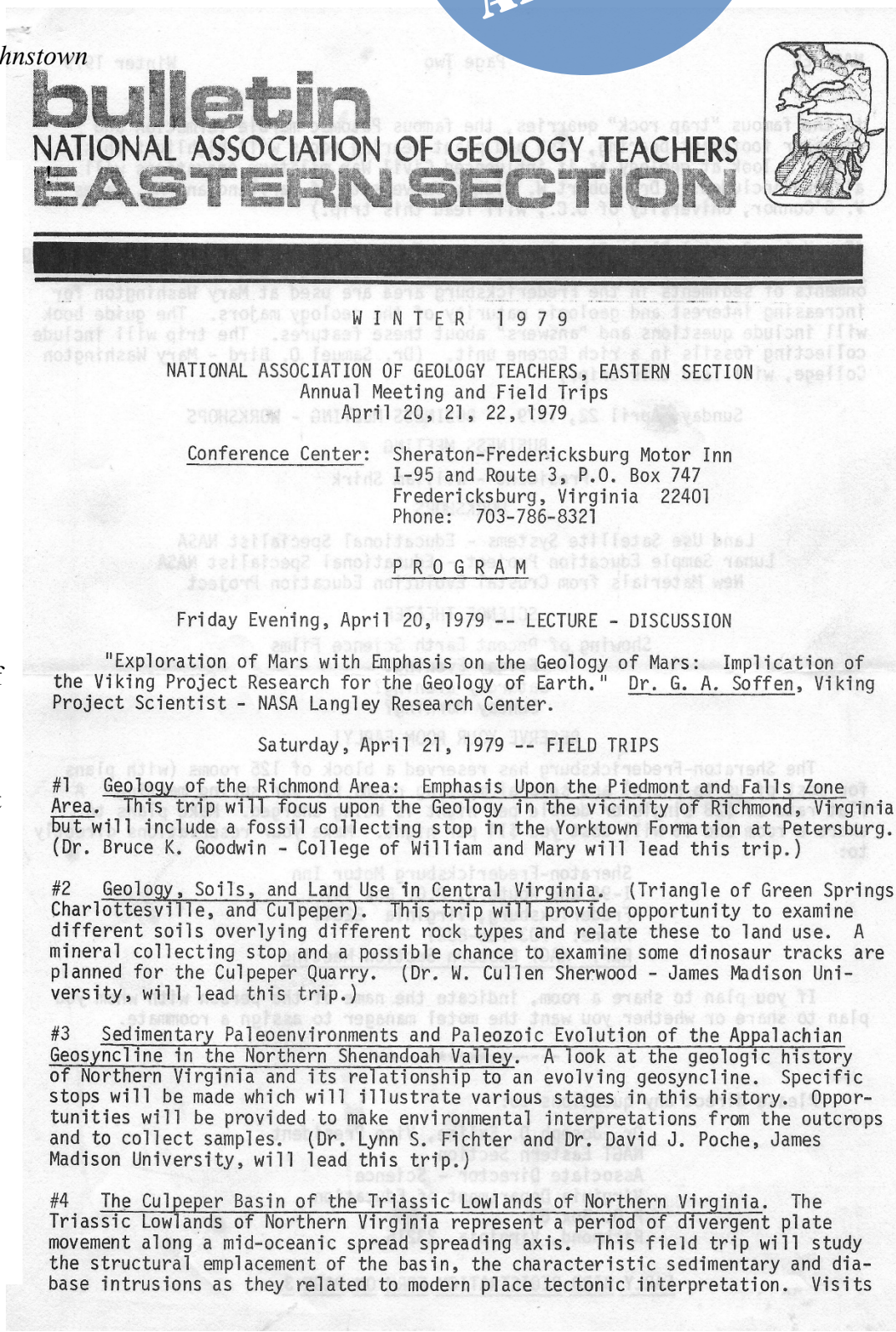
NAGT eastern and northeastern sections will be represented at the Geological Society of America joint NE/SE section meeting being held in Reston, Virginia on March 19-22, 2020. We have partnered with the North east section to share the cost of the exhibit booth space. NAGT National is supplying us with booth backdrops and NAGT materials to distribute. Stop by the main exhibit hall and pick up some NAGT materials; brochures, bookmarks and membership forms. We'll also have some special geological items for "give-aways."
Hope to see you at GSA in March!

"FROM THE ARCHIVES" Winter 2020 edition

by Steve Lindberg
University of Pennsylvania at Johnstown
NAGT-ES Archivist

The winter 2020 edition of our regular feature "From The Archives" is taken from the Lower Paleozoic Era of the eastern section history (winter 1979) Bulletin newsletter. The 1979 annual meeting of the section was held in Fredericksburg, Virginia on April 20-22.

The Friday evening activities included a lecture by Dr. G. A. Soffen of the NASA Langley Research Center on the Viking Mars project. Saturday included a generous offering of field trip options with the conference concluding on Sunday with workshops and the section business meeting. It is interesting to compare the cost of attending the 1979 conference to the present day expenses of attending the meeting. Rooms at the Sheraton were priced at $28.00 per night; and although I did not include the registration form here, the basic registration fee was $2.00 per person and the field trip was $7.50 per person. I had to look this up, but the average cost of gas in 1979 was $0.86 a gallon!



bulletin
NATIONAL ASSOCIATION OF GEOLOGY TEACHERS
EASTERN SECTION

WINTER 1979

NATIONAL ASSOCIATION OF GEOLOGY TEACHERS, EASTERN SECTION
Annual Meeting and Field Trips
April 20, 21, 22, 1979

Conference Center: Sheraton-Fredericksburg Motor Inn
I-95 and Route 3, P.O. Box 747
Fredericksburg, Virginia 22401
Phone: 703-786-8321

PROGRAM

Friday Evening, April 20, 1979 -- LECTURE - DISCUSSION

"Exploration of Mars with Emphasis on the Geology of Mars: Implication of the Viking Project Research for the Geology of Earth." Dr. G. A. Soffen, Viking Project Scientist - NASA Langley Research Center.

Saturday, April 21, 1979 -- FIELD TRIPS

#1 Geology of the Richmond Area: Emphasis Upon the Piedmont and Falls Zone Area. This trip will focus upon the Geology in the vicinity of Richmond, Virginia but will include a fossil collecting stop in the Yorktown Formation at Petersburg. (Dr. Bruce K. Goodwin - College of William and Mary will lead this trip.)

#2 Geology, Soils, and Land Use in Central Virginia. (Triangle of Green Springs, Charlottesville, and Culpeper). This trip will provide opportunity to examine different soils overlying different rock types and relate these to land use. A mineral collecting stop and a possible chance to examine some dinosaur tracks are planned for the Culpeper Quarry. (Dr. W. Cullen Sherwood - James Madison University, will lead this trip.)

#3 Sedimentary Paleoenvironments and Paleozoic Evolution of the Appalachian Geosyncline in the Northern Shenandoah Valley. A look at the geologic history of Northern Virginia and its relationship to an evolving geosyncline. Specific stops will be made which will illustrate various stages in this history. Opportunities will be provided to make environmental interpretations from the outcrops and to collect samples. (Dr. Lynn S. Fichter and Dr. David J. Poche, James Madison University, will lead this trip.)

#4 The Culpeper Basin of the Triassic Lowlands of Northern Virginia. The Triassic Lowlands of Northern Virginia represent a period of divergent plate movement along a mid-oceanic spread spreading axis. This field trip will study the structural emplacement of the basin, the characteristic sedimentary and diabase intrusions as they related to modern place tectonic interpretation. Visits

to the famous "trap rock" quarries, the famous Potomac marble formation and dinosaur footprint bearing, fish and plant bearing rocks will highlight this trip. A look at geology as it influenced Civil War military operations will also be included. (Dr. Robert W. Ridky, University of Maryland and Mr. James V. O'Connor, University of D.C., will lead this trip.)

#5 Using Coastal Plain Stratigraphy near Fredericksburg, Virginia, as a Teaching Tool. Faults, facies relationships, formational contacts and depositional environments of sediments in the Fredericksburg area are used at Mary Washington for increasing interest and geologic maturity of the geology majors. The guide book will include questions and "answers" about these features. The trip will include collecting fossils in a rich Eocene unit. (Dr. Samuel O. Bird - Mary Washington College, will lead this trip.)

Sunday, April 22, 1979 -- BUSINESS MEETING - WORKSHOPS

BUSINESS MEETING

President - William Shirk

WORKSHOPS

Land Use Satellite Systems - Educational Specialist NASA
Lunar Sample Education Project - Educational Specialist NASA
New Materials from Crustal Evolution Education Project

SCIENCE THEATER

Showing of Recent Earth Science Films
Friday Evening?
Saturday Evening?
Sunday Morning?

FROM THE ARCHIVES

RESERVE YOUR ROOM EARLY!

The Sheraton-Fredericksburg has reserved a block of 125 rooms (with plans for most of us to share) and several meeting rooms for our spring meeting. A flat rate of $28 single or double per night is being charged. Make plans to share a room and it will cost you $14 per night. Make your reservations directly to:

Sheraton-Fredericksburg Motor Inn
I-95 and Route 3, P.O. Box 747
Fredericksburg, Virginia 22041
Phone: 703-786-8321
REF: NAGT Eastern Section Meeting

If you plan to share a room, indicate the name of the person with whom you plan to share or whether you want the motel manager to assign a roommate.

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Please direct any questions to:

Dr. Joseph D. Exline, Vice President
NAGT Eastern Section
Associate Director - Science
Virginia Department of Education
P.O. Box 60
Richmond, Virginia 23216

EARLY BIRD REGISTRATION FORM ON PAGE 3.

Eastern Section Awards Nominations are still open.

Nominate someone deserving, including *YOURSELF!*

OUTSTANDING EARTH SCIENCE TEACHER

The OEST Awards program was adopted by NAGT in 1971. Its purpose to honor pre-college teachers of earth science, their excellence and commitment to teaching and teaching earth science

DIGMAN AWARD FOR EXCELLENCE IN GEOSCIENCE EDUCATION

The Digman Award is designed to recognize an individual who works to bring geoscience to the general public. We look for individuals who are not teachers, but work in a capacity that educates the general public in areas of the geosciences. Museum directors, curators and assistants, state survey employees, mine and quarry public relations people would all qualify for this award. The nomination information for this award is also on our section website.

JAMES O'CONNOR MEMORIAL FIELD CAMP SCHOLARSHIP

The James O'Connor scholarship is given to a college geology or earth science major who is attending a geologic field camp course (typically over the summer) as part of their college degree program. The $500 scholarship assists the student in covering the expenses of their field camp. Nominate a student currently enrolled in your geology program. Nomination information appears on the section website.

DISTINGUISHED SERVICE AWARD FOR THE EASTERN SECTION

The Distinguished Service Award is given to a member of the Eastern Section (still actively teaching or retired) who has, over the years, contributed to the growth and activities of the Eastern Section. This person should have a history of continued service to the Eastern Section. Nomination information appears on our website.

JOHN MOSS AWARD FOR OUTSTANDING COLLEGE TEACHING

The John Moss award is reserved for instructors and professors who, at the college level, model and promote outstanding teaching in the geosciences. Nomination information appears on section website.

NAGT Eastern Section annual meeting and awards banquet

June 4-6, 2020 at West Chester University of Pennsylvania
Proposed/Planned Schedule (as of Feb 6, 2020)
Meeting organized by ***Christopher Roemmele***

Thursday, June 4

5:00-7:00 Registration, light refreshment (Merion Science Center, WCU)

7:00 Welcome, Announcements
Keynote: Dr. **Dorothy Merritts**, Franklin and Marshall College: "Reflections on 30 plus years of her evolution as a teacher and scientist and how to engage teachers in academia/research and faculty and students in outreach."

Friday, June 5

8:00 Registration, coffee and… (Merion Science Center, WCU)

9:00 – 11:30 Breakouts:
A) Promoting Argument-Driven Explanations in Earth and Environmental Science: Model-Evidence Link, Claim-Evidence-Reasoning, NGSS and 3-dimensional teaching and learning. Leader: Dr. **Margaret Holzer**, Chatham NJ HS and Rutgers University
B) Meteorology based session: led by Dr. **Joby Hilliker**, West Chester University, and **Drew Anderson**, on-camera meteorologist for several PA news stations
C) Oceanography/Remote Sensing and Climate Change based session: Dr. **Yong-Hoon Kim**, West Chester University

11:45 – 12:45 Lunch

1:00 – 4:15 Breakouts:
A) Geoscience education with drones, led by Dr. **Martin Helmke**, West Chester University (short walk to south campus to operate and fly drones)
B) Piedmont geology at West Chester University campus, led by Dr. **Lee Ann** Srogi and Dr. **Tim Lutz**, West Chester University: campus building tour and nature walk through Gordon Natural Area on WCU campus to discuss geology, stormwater management, invasive species
C) Soils: soil classification, formation, and landscape formation, drainage and water management, natural and anthropogenic influences on soils. (short walk to south campus and working in test pits) led by **Russ Losco**, West Chester University and Lanchester Soil Consultants.


Dorothy Merritts

4:30 – 5:00 Light refreshment back at Merion
5:00 – 6:00 Live planetarium show at Mather Planetarium, WCU, led by Dr. **Karen Schwarz**, planetarium director
6:00 Dinner on your own

Saturday, June 6
8:00 – 4:30 Field trip (box lunch)
Piedmont and southeastern PA geology – metamorphics and ultramafics of the Wissihickon included, led by Dr. **Howell Bosbyshell**, WCU

6:00-9:00 Dinner, awards, 2nd Keynote: Dr. **Daria Nikitina** and Dr. **Heather Wholey**, WCU – "Impact of Sea Level Rise on Heritage Resources in the Delaware Bay; Geoarcheological Applications"


Daria Nikitina (left) and Heather Wholey

The Bulletin is edited by Callan Bentley, Northern Virginia Community College. Get in touch with your ideas & feedback at cbentley@nvcc.edu.

Registration Form

National Association of Geoscience Teachers Eastern Section 2020 meeting
June 4 - 6, 2020 – West Chester, PA

Each participant must submit a registration form via US mail. Most conference events will be at Merion Science Center on the north campus of West Chester University.

Mail registration form along with a check made out to NAGT-ES to:
Christopher Roemmele, Dept of Earth and Space Sciences, Merion Science Center, West Chester University, West Chester, PA 19383

Name (as you want it to appear on the nametag):

_____

Institutional affiliation (school or organization):

_____

Email: _____

Mailing Address: _____

_____

Phone: Cellular: _____ Home/Work: _____

2019 OEST Award winners attend free! Indicate if you are last year's winner on your form.
Please **circle** the appropriate selection(s) below:

Full Conference Registration

NAGT member (prior to May 15, 2020)	*$140*
NAGT member (after May 15, 2020)	*$160*
OEST winner from 2019	*$0*
Spouse/Significant other	*$100*
Student	*$80*
Non-member	*$160*
Printed program	*$25*

Friday afternoon drone breakout (limited to 25 participants)
Indicate your planned participation in this session by checking here ☐

Friday Registration Only

NAGT member	*$75*
Non NAGT member	*$85*
Student	*$40*
Business Lunch only	*$20*

(Drone session limited to first 25 registrants)

Saturday Registration Only

NAGT member	*$65*
Non NAGT member	*$75*
Student	*$40*
Dinner only	*$30*

Accommodation arrangements:

Accommodation will be available in West Chester University residential halls (either Brandywine, Allegheny, or Commonwealth Halls).
Pricing will be $40/single, $30/person for double ($60 total), plus $15 for linen option. Bathrooms are located right in the rooms. To get more information and view these rooms, visit http://www.ushcommunities.org/. Indicate your choice below.

Blocks of rooms are currently being arranged at two different hotels within 5-10 minute drive to campus (with on-site parking). Information on pricing will be forthcoming soon via email.

WCU Residential Hall accommodation (please indicate which option with check or X)

Single $40 _____

Double $30/person $60 total for 2 _____

(indicate intended roommate if separate registration) _____

Linen service $15 _____

Saturday Box Lunch (includes sandwich, chips, cookies, bottled water) (please check or X)

_____ Turkey/Swiss

_____ Roast Beef/Cheddar

_____ Greek Salad/Veggie Wrap

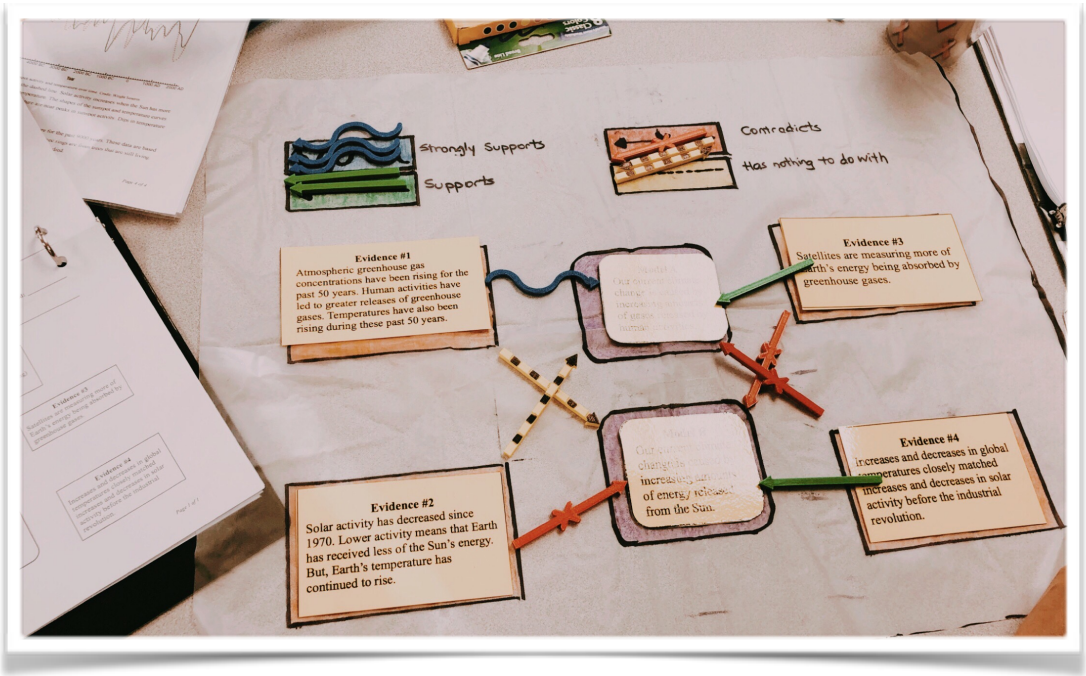
TOTAL ENCLOSED _____

EARTH AND ENVIRONMENTAL SCIENCE EDUCATORS' INSTITUTE

CONNECTING MODELS AND EVIDENCE

THE MEL PROJECT

Apply Jan 1 - Mar 9, 2020



The Institute will provide professional development in use of Model-Evidence-Link (MEL) activities centered on Earth, Environmental, Ecological, and Space science topics. These 3-dimensional (disciplinary core ideas, scientific practices, cross cutting concepts) instructional tools scaffold challenging concepts in science by facilitating:

- CRITICAL THINKING
- EVIDENCE BASED REASONING
- SCIENTIFIC EXPLANATIONS
- COLLABORATIVE ARGUMENTATION

Duke Farms

Hillsborough, NJ

June 24-26

$750 STIPEND

25 Hours of PD

APPLICATION LINK FOR MIDDLE AND HIGH SCHOOL TEACHERS

EASTERN SECTION NAGT

Officers

President: Mike O'Donnell, Blue Ridge Community and Technical College, 13650 Apple Harvest Dr, Martinsburg, WV 25403;
< MODONNEL@blueridgectc.edu or modonnell@lfcc.edu>

Vice-President: Christopher Roemmele; Department of Earth and Space Sciences, 225 Merion Science Center, West Chester University, West Chester, PA 19383610-436-2108; <CROEMMELE@wcupa.edu>.

Treasurer: Renee Aubry, 1179 Glen Rd., Shrub Oak, NY 10588; email <raubry@otunet.com>.

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2nd Vice-President: Deb Hemler, Coordinator of Geoscience Education, Fairmont State University, 1201 Locust Avenue, Fairmont, WV 26554; 304-367-4393; email <dhemler@fairmontstate.edu>.

Secretary: Rosemarie Sanders, 914-721-0948; email <Rose.Sanders@me.com>.

Publicity Chairperson: Vacant; volunteers welcome.

NAGT Geo2YC Division Representative: Rich Gottfried; Dept. of Science, Frederick Community College, 7932 Opossumtown Pike, Frederick, MD 21702; 301-846-2581(W), 540-822-5561(H); email <RGottfried@frederick.edu>.

Award Chairperson

All awards currently handled by Christopher Roemmele; 610-436-2108; email <CROEMMELE@wcupa.edu>.

Awards listing:

- Distinguished Service Award
- John Moss Award
- Outstanding Earth Science Teacher Award
- Ralph Digman Award
- James O'Connor Memorial Geology Field Course Scholarship

Eastern Section NAGT web site addresses:
<http://sites.google.com/site/nagtes>
or just <**www.nagtes.org**>.

State Councilors' years of office are in brackets; terms begin and end at the spring section meeting.

State Councilors

Delaware

Lawrence Matson, Dept of Natural Resources & Environmental Control, 88 Kings Highway, Dover, DE 19901; 302-739-9403; email <Lawrence.Matson@state.de.us> [14-17].

Maryland

Martin F. Schmidt, Jr., 2718 Applesauce Rd., Finksburg, MD 21048; (H) 410-526-6085; (W) 443-544-7483; Fax: 410-581-7038; email <mschmidt@umbc.edu> [15-18].

Rich Gottfried; contact info in Geo2YC Representative listing above [13-16].

New Jersey

Margaret (Missy) Holzer, Chatham High School, 255 Lafayette Ave., Chatham, NJ 07928; (W) 973-635-9075; (H) 732-868-0901; email <mholzer@monmouth.com> [15-18].

Michael Passow, 296 Central Ave., Englewood, NJ 07631-1658; 201-871-0846 (H); 201-519-1071 (C); email <michael@earth2class.org> [14-17].

New York

Renee Aubry, Port Chester HS, Port Chester, NY 10573; 914-934-7952(W), 914-245-9661(H) email <raubry@portchesterschools.org> or <raubry@otunet.com> [15-18].

Don Duggan-Haas, Paleontological Research Institution, 1259 Trumansburg Rd., Ithaca, NY 14850; 607-821-0910; email <dugganhaas@museumoftheearth.org> [14-16].

Ontario

No Councilors at present; volunteers welcome!

Pennsylvania

Randy Newcomer, Randy's Books, PO Box 2141, Akron, PA 17501; 717- 823-0579 (C); email <randy@randysbooks.com>; <www.pageology.info> [13-16].

Jason Petula, Millersville University, 221 Stayer Hall, 51 Lyte Street, Millersville, PA 17551 (717) 872-3422; <jpetula@millersville.edu> [14-17].

Virginia

Callan Bentley, Northern Virginia Community College, 8333 Little River Turnpike, Annandale, VA 22003; (W)703-323-3276; email <cbentley@nvcc.edu> [15-18].

Eric J. Pyle, Department of Geology and Environmental Science, James Madison University, MSC 6703, Harrisonburg, VA 22807; 540-568-7152(W); email <pyleej@jmu.edu> [15-18].

West Virginia

Angela A. McKeen, St. Mary's Catholic School, Clarksburg, WV 26301; (C) 304-288-1419; email <amckeen71@gmail.com>. [13-16].

Deb Hemler; contact info in 2nd Vice President listing above [15-18].

ALL THESE NEED TO BE UPDATED: CONTACT PRESIDENT MIKE O'DONNELL WITH YOUR WILLINGNESS TO SERVE.