NAGT Geo2YC Division

FOUNDATIONS

NEWSLETTER OF THE GEO2YC DIVISION OF THE NATIONAL ASSOCIATION OF GEOSCIENCE TEACHERS
Volume VII, Issue II: June 2018

In this issue:

Join us at EER!

Geo2YC and the Geoscience Education Research division will be co-sponsoring a happy hour event at *McClain's Market* (located north right across the street from the Geography & Atmospheric Science building on KU's campus) from 5:30pm-7:30pm on Wednesday, July 18. Please join us for tasty treats and camaraderie!

President's Column

Summer is finally here, and the living is … *Earthy*.

by Callan Bentley
Northern Virginia Community College, Annandale, VA

Happy June, my Geo2YC friends! Geoscience hazards have been making headlines this month, with the second "1000 year flood" in two years in Ellicott City, Maryland, exceptional drought in the U.S. southwest, and of course the new set of fissure eruptions on the flanks of Kilauea on the southeast part of the big island of Hawaii. Each of these events is an attention-grabbing "teachable moment" for those of us engaged in geoscience education. They illustrate evocatively the relationship between people and the planet, or as Will Durant put it, between civilization and "geological consent, subject to change without notice."

The oceanographers among us doubtless appreciated *National Geographic*'s cover story this month is "Planet or Plastic?" -- part of a year long series examining the role of this uniquely human compound in the natural world. The statistics are

sobering but the accompanying images are jaw-dropping, and heart-breaking in some cases. If you haven't yet seen it, I strongly recommend you check it out.

A less visually striking form of pollution, the planet's carbon imbalance continues to accrue. The United States government has now decisively stepped away from a leadership role in terms of developing policy to address the geological-scale transfer of carbon atoms from sedimentary rocks into our atmosphere (and oceans). This issue isn't going away, and it is vital that it be addressed. Our students will be among the citizens who make decisions on the best way to address it (or to perpetuate the ignoring of the issue further). Our responsibilities as geoscience educators compel us to prepare them as best we can.

Now for some sad news. We've lost some friends of the division in the past couple of months. Sherry Oaks passed away in Denver, Colorado in April. Shortly after being elected *Geo2YC Foundations* newsletter editor last year, Sherry had to step away from the role for the health reasons that ultimately took her from us. (Fortunately, Suki Smaglik was willing and able to step into that role.) Also, this past week, Ron Schott died unexpectedly in Bakersfield, California, and Declan De Paor succumbed to cancer in Mallorca, Spain. The deaths of our valued colleagues is cause for a moment of contemplation and commemoration. Processing their deaths prompts me to think about my own mortality. What legacy will I leave behind? I suspect that you and I both contemplate our potential legacies principally in terms of the minds of our students. We are engaged in important work, expanding our students' understanding of their home planet, its resources and risks, its workings and dynamics. Sherry, Ron, and Declan all manifested a tremendous legacy of geoscience education, and the world is lessened by their passing, the cessation of that work. The rest of us are lucky enough to still be here, to be working and making a difference. We have our work cut out for us, and that's an exciting position to be in. We get to help nurture the next generation of geoscientists and geoscience-literate citizens. Our work is vital to society and humanity.

I'm looking forward to seeing many of you next month at the Earth Educators' Rendezvous in Lawrence, Kansas. Interacting with one another is essential at meetings like the Rendezvous, building up our networks of connectedness, planting the seeds of collaboration and support. Here's an item for your calendar: Geo2YC and the Geoscience Education Research division will be co-sponsoring a happy hour event at McClain's Market (located north right across the street from the Geography & Atmospheric Science building on KU's campus) from 5:30pm-7:30pm on Wednesday, July 18. Please join us for tasty treats and camaraderie!

Finally, if you haven't already, please cast your vote in NAGT's annual elections: https://nagt.org/nagt/membership/elections_2018.html In addition to the national-level officers who are standing for office, here in the Geo2YC division we have two positions coming open: we have Jackie Hams standing for Vice President (and President-Elect), and Suki Smaglik officially standing for the final two years of her editorial term.
Best wishes for a rejuvenating summer.

Outstanding Adjunct Faculty Award: Call for nominations

If you have a colleague who inspires you to try new teaching strategies, who shares innovative classroom assignments, who makes a difference in your department, or who simply does an amazing job of encouraging their students and community to engage with geoscience, please nominate them for recognition at: http://nagt.org/nagt/divisions/2yc/oafa_nomination.html.

If you would be interested in serving on the award committee, please contact Karen Layou at klayou@reynolds.edu for more information.

Introducing TREX (Tree-Ring Expeditions)

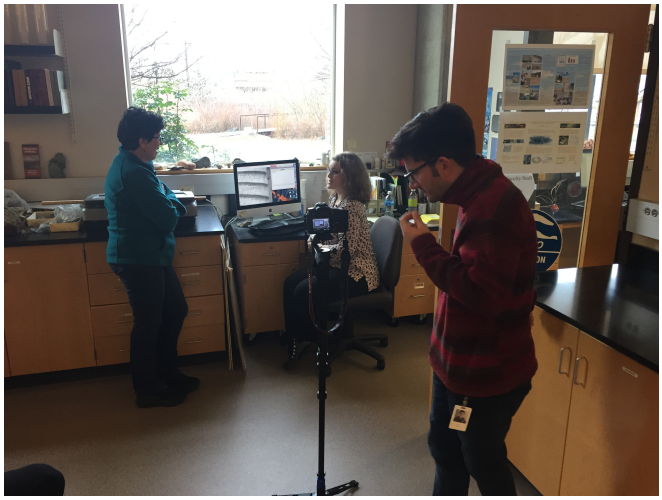
by Pat Pringle
Centralia College
Centralia, WA

Dendrochronologists commonly conduct fieldwork in remote regions of the world to locate slow-growing, long-lived trees that record local climate and environmental conditions in their growth rings. By studying these trees as well as subfossil trees, scientists can learn about conditions hundreds-to-thousands of years in the past. For example, scientists have used trees from such sites to reconstruct temperature variability of the past two thousand years in the Northern Hemisphere, to place exact calendar dates on ancestral pueblos in the U.S. Southwest, to reconstruct streamflow estimates for the Colorado River, and to date prehistoric geologic events or study geomorphic processes and history. Because the basic premise of dendrochronology is so easily understandable, non-expert audiences can see climate variability through time with the naked eye by looking at tree cores. Tree rings provide a wonderful window into how scientists do science and why they do it and provide students with the opportunity to generate and evaluate relevant geoscience data and research.

Quinn Moran sanding a large wedge sample from an old-growth Douglas-fir that had been on display at the Pacific Science Center and was originally cut for display at the 1962 Seattle World's Fair.

Via an NSF-TUES grant, we have created five publically available labs that are geared for community college and undergraduate instructors and that enable their students to tap into the excitement of launching an expedition while at the same time introducing them to groundbreaking tree-ring studies that have had important societal impact. Tree-Ring Expeditions (TREX) immerses students in the field of dendrochronology and allows them to experience science as a process, as a scientist would who works within a scientific community to advance our understanding of the natural world.

We have a small dendrochronology lab at Centralia College and had been asked by Science Center staff for assistance in modifying the tree exhibit to bring it up to date and incorporate tree-ring information in the revised exhibit. This led us to get the wedge sample from the large display slab, measure it using image analysis, and interpret interesting marker rings that show the trees response to climate changes, such as the very cold summer of 1601 that had resulted from the 1600 eruption of Huaynaputina volcano in Peru. In the photo to the lower left our research student, Quinn Moran, is polishing it so we can scan it for measurement of the tree rings using image analysis.



Quinn being interviewed by Science Center Exhibit Development Coordinator Felicia Maffia about how she helped polish the slab and measure the rings using the public domain image analysis software ImageJ that was developed by NIH (shown on computer).

Another student, Beverly Luke, and Quinn visited outcrops of ancient Mount Rainier lahar deposits upstream of the subfossil forests they had been studying to see if they could tie previously undated lahar deposits to their downstream trees.

Beverly Luke is excavating a peat layer that is below an undated Mount Rainier lahar deposit and above the Mount St. Helens Yn tephra (~3,500 yr BP) to look for datable material, namely seeds. She and Quinn found two seeds near the top of that peat layer that allowed them to establish a maximum age for the lahar deposit of about 2,400 yr BP.

Both Quinn and Beverly presented their research on the buried forests at the Northwest Scientific Association Annual Meeting in Olympia WA this past March.

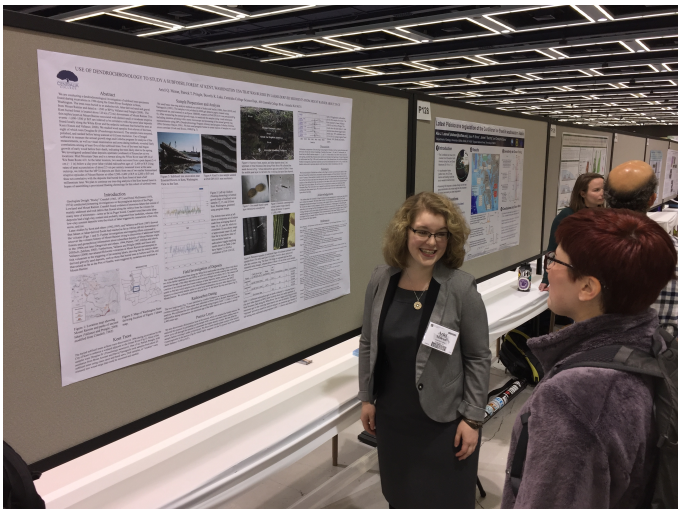
If you would like to explore the TREX modules, they are located at *https://serc.carleton.edu/trex/index.html*. You can also request access to the educator guides. (Davi N.; Pringle P.; Fiondella F.; Lockwood J.; Wattenburg F.; Greidanus I.; Fox S., 2018; **TREX: Tree-Ring Expeditions**)

From the website:

"…we provide Instructor Guides and a key for student worksheets for each of the five TREX labs. Each Instructor Guide includes a Summary and Key Questions section, as well as an Activity Overview and list of Teaching Materials, Printable Materials, some Teaching Notes and Tips. It also includes a Reference and Additional Resources section.

Each lab can be used as a stand-alone activity that can be inserted into the lab programs of a wide range of undergraduate courses, including those on introductory geology, environmental science and sustainability courses, or more advanced courses in research methods, hydrology, and climate change science. All five can be combined to offer students a wide-ranging view of how tree-ring science can be applied in different geographical, research and cultural settings."

We are still tweaking the website with minor edits, but it's fully functional. If you have questions or comments about the modules, contact Nicole Davi: Davin@wpunj.edu



Quinn Moran at the 2017 GSA in Seattle stationed at her poster about the tree-ring study of subfossil trees that had been killed by a Mount Rainier eruption and lahar about 530CE.

You can now follow us on **Twitter:**

@geo2yc

Readers' Geo2YC Pencil Photographs

If you have taken your Geo2YC pencil anywhere this past year, or even have a cool rock formation where you live or work that you can grab a photo of using the pencil as scale, please consider submitting it to the newsletter for publication. All we need is an approximate location. You are welcome to give coordinates if appropriate to do so. Please send a jpeg to the editor suki.smaglik@gmail.com. Please also include a caption for your image.

Thanks for the terrific response this month! Here are a few of the images; more to come in future editions.

If you do not yet have a pencil, look out for an NAGT booth at next year's **Earth Educators' Rendezvous**.

A granite outcrop on Kgale Hill in Botswana in May 2017. The photographer's daughter was attending the University of Botswana and they took a hike to this area. Photo by Mike O'Donnell, Lord Fairfax Community College, VA.

Our pencil on rhyolite and amygdaloidal basalt clasts along the shoreline at Hunter's Point Park along Lake Superior at Copper Harbor, MI. These materials are related to the Mid-Continent Rift Photo by Beth Johnson, University of Wisconsin-Fox Valley.

Sea hare from tidal pools at Cabrillo Beach, CA. Photo by Elizabeth A. Nagy-Shadman, Pasadena City College

Announcements & Items of Interest

If you have something interesting that you would like to share with your colleagues and their students, from awards, to new hires to death, please submit an announcement to the editor.

Sherry Oaks Memorial Fund

by Suzanne T. Metlay
President, NAGT Teacher Education Division, and the Morea family

Please consider giving to the **Sherry Oaks Memorial Fund** in memory of Sherry Diane Morea Oaks, Ph.D., who died unexpectedly of natural causes on 10 April 2018. Funds will be directed to travel grants for qualified candidates to participate in the 2019 Earth Educator Rendezvous. If you choose to donate, please go to https://nagt.org/nagt/membership/donate.html - select "Professional Development Fund", enter the desired amount, and write in the "Comments" box: *Sherry Oaks Memorial Fund*.

A memorial service for Sherry Oaks was held in Boulder, CO, in June.

She earned both her Master of Arts in History (1982) and her PhD in Geography (1987) from the University of Colorado at Boulder. Her doctoral research, titled *Historical Earthquakes in Salt Lake City, Utah,* was published as a U.S. Geological Survey professional paper and earned her a position as a national finalist for the Association of American Geographers Nystrom award.

Early in her career, Sherry served as a Congressional Science and Engineering Fellow in the Washington, DC, office of U.S. Representative George Brown, Jr. (CA). As an Earth System Science Fellow with Pennsylvania State University, she participated with United Nations University, Tokyo, on global climate change science and policy. At the U.S. Geological Survey, she researched the 1989 Loma Prieta (CA) earthquake and participated in research for the National Earthquake Hazard Reduction Program.

Sherry continued her focus on earthquakes, risk assessment, and natural hazard mitigation as a post-doctoral research fellow in the Center for Earthquake Engineering Research at State University of New York at Buffalo; an ISOP fellow at the University of California, Los Angeles, where she was a principal investigator for Hazard Mitigation and Coastal Zone Management in Mexico and Central America; and as an assistant professor at Colorado State University, Fort Collins, where she was a founding member of the Latin American Center for Science and Technology Cooperation and director of the Colorado Multi-Hazards Program.

When multiple sclerosis limited her ability to work full time, Sherry remained engaged in her profession. She consulted on academic products, on editing for journals and academic presses, including Columbia University Press, and on numerous peer-reviewed articles. She served as part-time faculty at the Metropolitan State College of Denver (now Metropolitan State University) and the University of Colorado at Denver.

More recently, Sherry was adjunct faculty at Front Range Community College (CO) and contracted with academic testing companies including Educational Testing Service (ETS), Pearson, and Measured Progress. She also privately tutored high school and college students, and served as a mentor and judge for the Colorado Space Grant Consortium. In 2015, Sherry presented at NAGT's first Earth Educator Rendezvous in Boulder.

By 2018, Sherry had her Colorado teaching license and a fulfilling vocation as a substitute teacher in the St. Vrain Valley School District. She actively engaged with NAGT's Geosciences for Two-Year Colleges (Geo2YC) Division and served on the Advocacy Committee at the time of her death. Her strong network of colleagues in the geosciences and education communities are mourning her loss.

Centralia College Welcomes New Geology Instructor

Michelle Harris is the newest geology professor at Centralia College. She took over the program from Pat Pringle who retired in fall. Michelle Harris is a Pacific Northwest native born and raised in Poulsbo, Washington. She attended Western Washington University for undergraduate and obtained a BS in Geology. After graduating, she worked for several years as an environmental consultant in the Las Vegas/Mountain Pass Mine area specializing in groundwater management and cleanup. Upon deciding to return to school, she spent the first year at the University of Auckland, New Zealand and finished her MS at Central Washington University with a focus on Igneous Petrology and Volcanism.

Michelle has spent the last 6 years working as an adjunct geology instructor for several community colleges in Oregon, including Linn Benton and Chemeketa, and is excited about returning to her home state of Washington. So far, Michelle has added a historical geology and surface processes class to Centralia's program and has plans for more. Michelle and her husband have a 2.5 year old daughter and a 10 month old son.

Michelle Harris and her family in front of Mt. St. Helens, Washington.

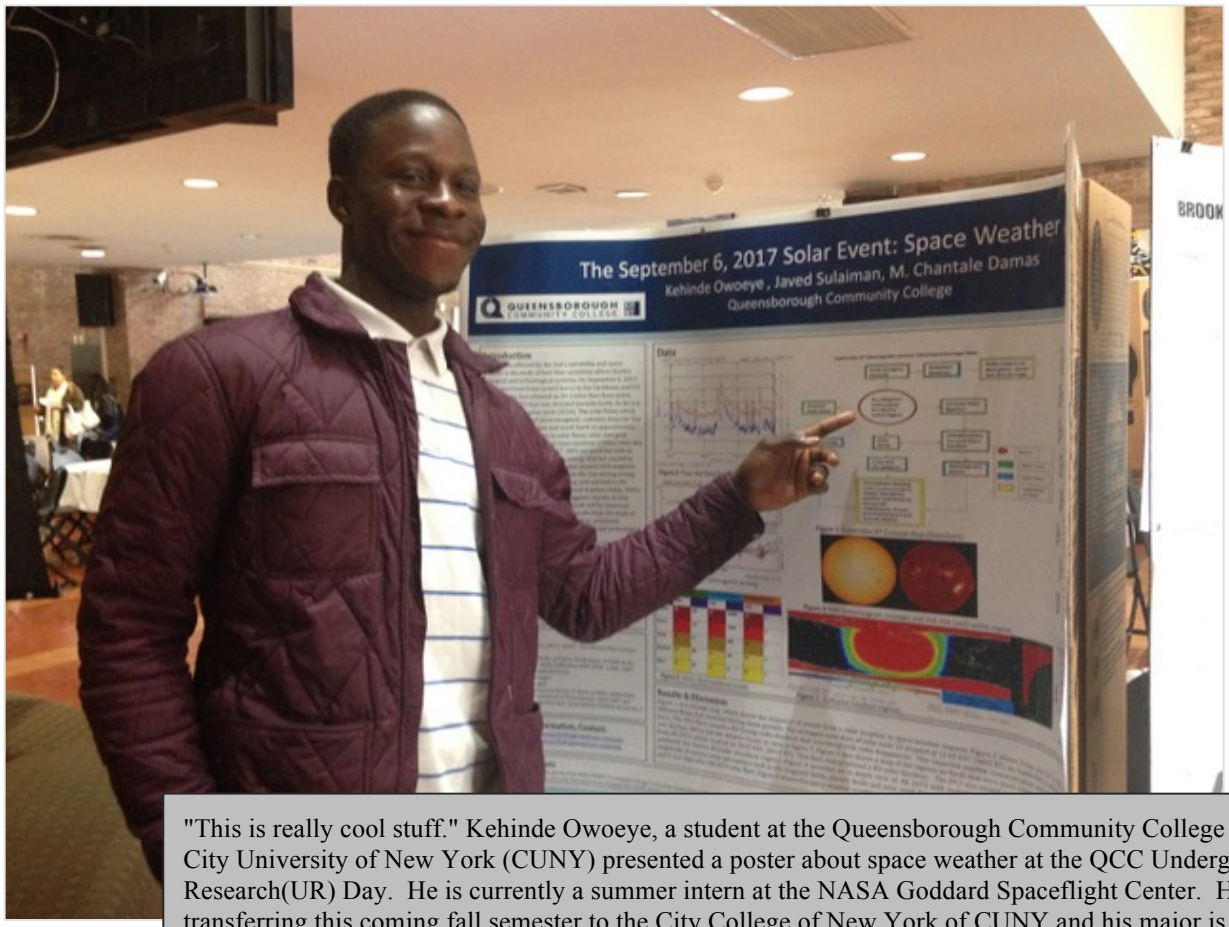
Geo2YC Gallery

The gallery is our creative space. Send a photo, poem, painting, etc. that you'd like to share, to the editor suki.smaglik@gmail.com. Please also include a caption for your image.

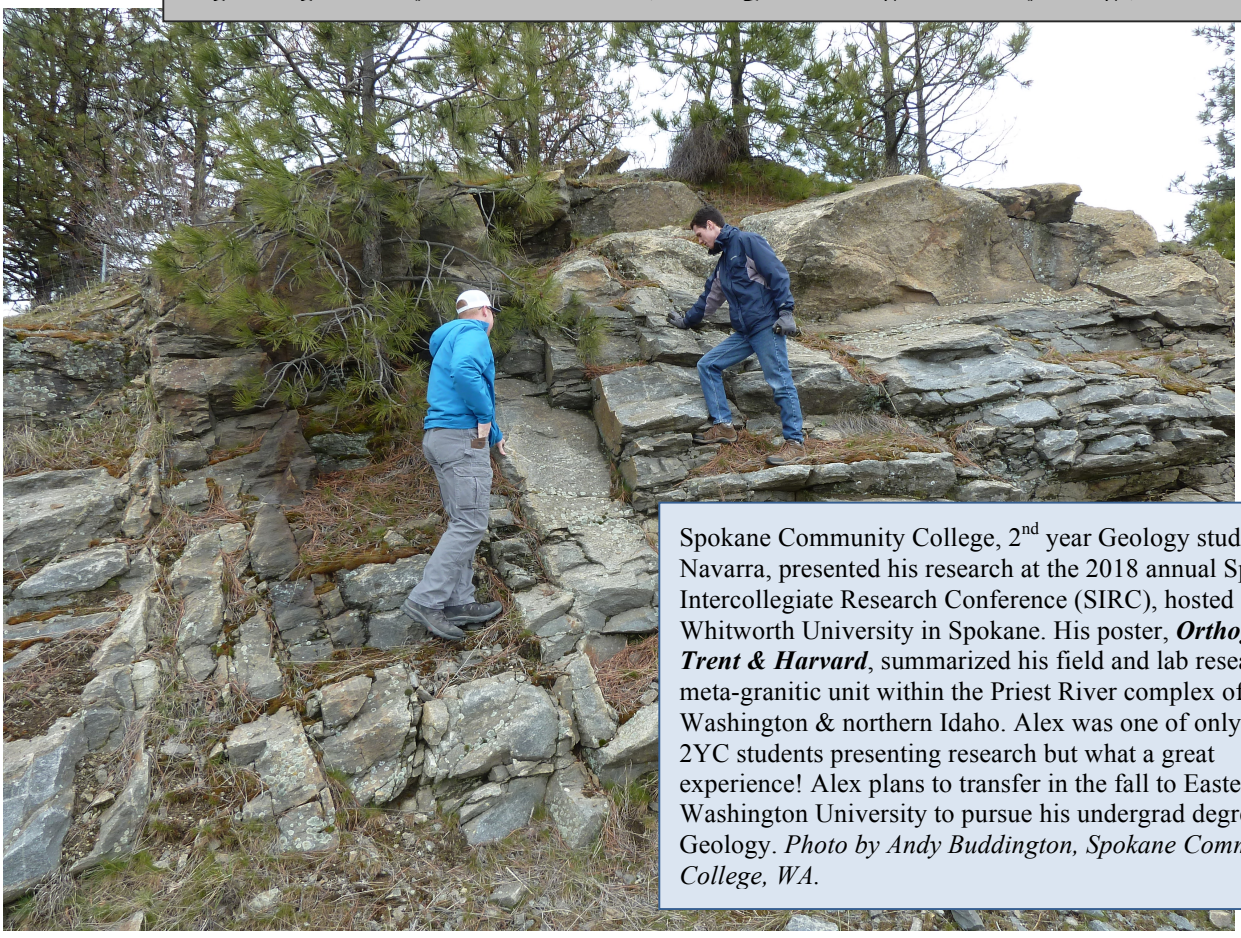
Students in Historical Geology at Orange Coast College learn to map folds in the Marble Mountains. Photo by Erik Bender, Costa Mesa, CA

Orange Coast College students complete a field mapping assignment in the Marble Mountains where they learn to take strikes and dips with a Brunton compass, draw contacts between rock units on a topographic map, complete a geologic cross-section and interpret the geologic history of the area. It's a great experience for the students, especially since the majority of them have never been out of the Los Angeles/Orange County area! *Photo by Erik Bender, Costa Mesa, CA*

Several students from Santa Monica College recently took a weekend field trip to the UCSB Santa Cruz Island Reserve to observe firsthand the geologic structures and rocks they had learned to identify that semester. The students also installed an air sensor to monitor particulate pollution. Data from sensors installed on SMC's main campus and on the island will be used in future classes to examine the impacts of population on particulate pollution patterns. The trip was generously funded by the SMC Foundation's Drescher Chair of Excellence which Professor Lisa Collins currently holds. *Photo by Lisa Collins, Santa Monica, CA.*



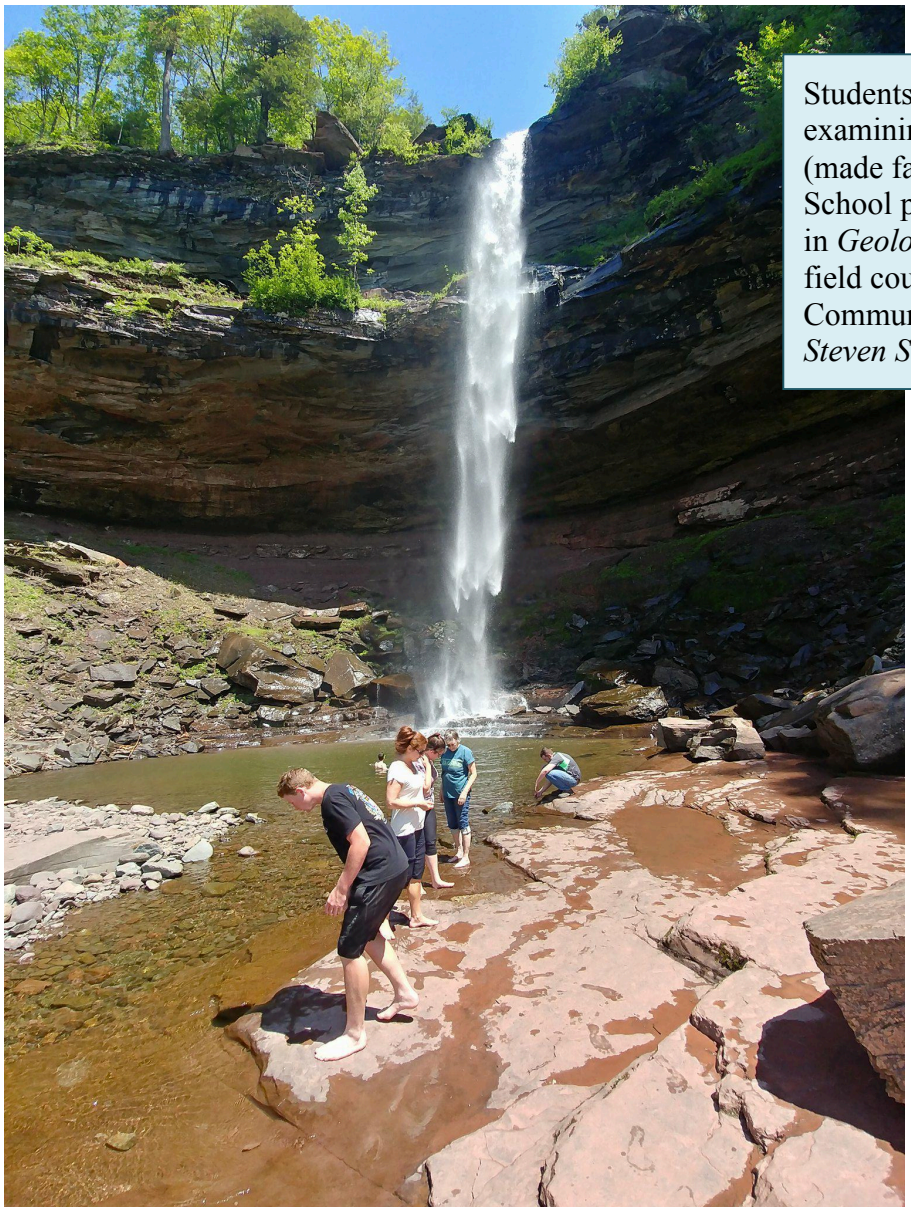
"This is really cool stuff." Kehinde Owoeye, a student at the Queensborough Community College (QCC) of the City University of New York (CUNY) presented a poster about space weather at the QCC Undergraduate Research(UR) Day. He is currently a summer intern at the NASA Goddard Spaceflight Center. He's transferring this coming fall semester to the City College of New York of CUNY and his major is Electrical Engineering. *Photo by M. Chantale Damas, CUNY/Queensborough Community College, NY.*



Spokane Community College, 2nd year Geology student Alex Navarra, presented his research at the 2018 annual Spokane Intercollegiate Research Conference (SIRC), hosted at Whitworth University in Spokane. His poster, ***Orthogneiss at Trent & Harvard***, summarized his field and lab research on a meta-granitic unit within the Priest River complex of NE Washington & northern Idaho. Alex was one of only two 2YC students presenting research but what a great experience! Alex plans to transfer in the fall to Eastern Washington University to pursue his undergrad degree in Geology. *Photo by Andy Buddington, Spokane Community College, WA.*

JCCC geology students measure the dissolved oxygen content in sample of water from Cedar Creek on a cold day in April. *Photo by Lynne Beatty Johnson County Community College Overland Park, KS*

Central Wyoming University, Ellensburg, WA, held geology transfer recruitment weekend field trip to Frenchman Coulee, hosted by Nick Zentner in April. Students from several Washington community colleges, including Centralia College and Everett Community College in attendance. *Photo by Michelle Harris*



Students taking a break after examining rocks at Kaaterskill Falls (made famous by Hudson River School painters like Thomas Cole) in *Geology of the Hudson Valley*, field course at SUNY Ulster County Community College. *Photo by Steven Schimmrich.*

Thanks for all of the terrific photo submissions, for the gallery and well as the pencil. Not all could be used this time, but they will be shared in future editions. Please keep it up! Also, remember the gallery is a space for other creative endeavors such as artwork and poetry. Send your submissions to the editor suki.smaglik@gmail.com. Please include a descriptive caption for your work.

Deadlines for future *Foundations* issues. Submit your stories, experiences, experiments, photos, awards, etc. to the editor sukismaglik@gmail.com anytime prior to each deadline.

- Friday, Sept. 8
- Friday, December 8
- Friday, March 2

Foundations, Vol. VII, 2018 editor:
Suki Smaglik, Yakima Valley College, Yakima, WA