

**IMPORTANT UPDATE:**

To help reduce exposure to COVID-19, The University of Akron has suspended face-to-face instruction through the end of the spring semester 2020. Geosciences faculty and staff are preparing for March 30, when online-only instruction begins. Our goal remains to deliver an outstanding education to every student in a safe environment. In these challenging times, your support is needed more than ever. Please see page 5 for ways to give and make a difference. Thank you!

NEWSLETTER - SPRING 2020  
FOR CALENDAR YEAR 2019  
Edited by Ira Sasowsky and Elaine Butcher

# G DEPARTMENT OF EOSCIENCES

BUCHTEL COLLEGE OF ARTS & SCIENCES

Dear Alumni and Friends,

2019 proved to be another year of change across campus and within the Department of Geosciences. The new President, Dr. Gary Miller, arrived on October 1st. He is a biologist by training and has a very strong academic background including time as a Chair, Dean, Provost and Chancellor. Early signs are promising. He reinstated the Provost position and brought in an external Interim Provost. The two of them immediately began meeting with Colleges and Departments to begin rebuilding trust that has been lost over the past few years. Additionally, they authorized the hiring of a permanent Provost and three Deans this academic year. One of those new Dean hires will be for the Buchtel College of Arts and Sciences. Closer to home, in the department, Verne Friberg decided he was going to fully retire at the end of last spring. He stepped in (post retirement) after we lost our mineralogist a few years ago. While we all know nobody can actually replace Verne, we were fortunate to find John Fox, a local expert, who came in to teach the mineralogy sequence. The department learned late last year we that we will be able to hire a full time (NTT) mineralogist who will begin this fall. On the geography side, all but one of the geography faculty members decided to accept the early retirement/separation program that was offered last year. As such, we will soon be saying farewell to Linda Barrett, Shanon Donnelly and Jeremy Spencer. Elaine Butcher and Nick Frankovits also decided it was time to retire. I encourage you to reach out to them this spring and express your best wishes for their future endeavors.

I briefly mentioned in a previous Chair's letter that plans were underway for a major renovation of Crouse Hall. Last year we worked closely with the facilities staff and an external architect to design that renovated space. As it currently stands, Crouse Hall will be completely gutted down to the support piers and concrete floors. The entire interior will be rebuilt. The east end of the building housing the geochemistry lab and large lecture classrooms will be torn down. Next door, Ayer Hall where the physics department is located, will be completely demolished to make room for an addition to Crouse Hall. The new addition is designed to accommodate 220 and 110 person lecture halls as well as some smaller classrooms. New geology and environmental science labs will be constructed on the first and second floors. Offices and smaller classrooms will be on the third floor that will also connect to the new addition. Physics teaching labs will be located on the fourth floor. During renovation, you will find us on the third floor of the old Central Hower High School.

Keep that in mind if you plan a visit to campus.

In preparation for the big move, we began the process of separating materials and equipment we will keep from that to be sent to surplus or discarded. We quickly learned that geoscientists are hoarders. It was truly an enlightening experience to open box after box of old field samples carefully wrapped in newspapers from the 1960's. I would say those papers were printed before I was born ... but I would be lying. Don't despair; we are keeping anything we think could be of value in the classroom or otherwise. Anyway, if you left something in Crouse Hall when you hastily left the building after graduation those many years ago – now is the time to come back and get it!

I thank you once again for your continued financial support. Your donations make a direct impact on our undergraduate and graduate students. Due to your generosity, last year we were able to award over \$8,000 in scholarships and awards to 22 students. That partially offset student costs for attendance at field camp and their travel to professional meetings. You can continue to support students by clicking the "Give online" button found on the bottom right side of our webpage ([www.uakron.edu/geology](http://www.uakron.edu/geology)). You can direct your donation to support scholarships, field camp, for general use or for a designation of your own choosing. Our students truly appreciate your expression of interest in their well-being through your generosity.

Remember to check out to our Facebook GeologyAlumni page. It is a great place to rekindle old acquaintances and make new contacts. Keep in touch; and I hope 2020 is going well for you. Again, I welcome your email updates, phone calls and visits if you are in the area. Feel free to contact me any time ([steer@uakron.edu](mailto:steer@uakron.edu); 330-972-2099).

## David Steer



Field Camp 2019

# Alumnus Report

## 40 YEARS LATER

By Richard Wiggins, BS Geology-Geophysics '80

I was delighted to read Janet DeVries' article in the last department newsletter and hear about the path her life has taken. As it happens I also attended the 1979 Field Camp in Casper Wyoming - my last class before graduating. How I got to that point was pretty convoluted but it was the best thing that could have happened to me.

My first exposure to the UA Geology (now Geosciences) Department was in 1973 during my senior year at Cuyahoga Falls High School. I was fortunate to be able to take Introduction to Physical Geology from Dr. Burford and Introduction to Historical Geology from Dr. Teeter that year. I had no intention of studying geology beyond those classes but I was taking every science course offered by my high school as preparation for college. I knew I wanted to study something in the sciences but I wasn't quite sure what.

My first year at UA didn't go as I had envisioned. When I started in the fall of 1974 I was planning to go to medical school. I took the requisite freshman biology and chemistry courses. By the end of that year I knew medicine was not in my future. I dropped out of school in order to figure out how to proceed.

In 1976 I was back at UA taking a mix of science and math courses as well as core courses but still unsure of where I was heading. During that year I became aware of the newly created geophysics option. Dr. Kunze had joined the department in 1974 and was responsible for creating this program. It required some geology, some chemistry, some physics, and some math. Because of the path I had taken, I was on schedule to graduate in five years under this option. It was kismet - fated to be.

The summer of 1977 was the real turning point in my life though. Because of my interest in geophysics, Dr. Kunze introduced me to Mark Mangun who was collecting data for his masters thesis. I was able to help him map the buried valley in the Cuyahoga Valley using a refractive seismology technique. We spent the summer driving the department's seismo trailer around the valley. Over and over we would pull along the roadside, set up the Bison six-channel seismograph, and drop a big wrecking ball from where it was hoisted on the trailer. We also made many stops at what is now the Winking Lizard in Peninsula.

A most fortunate coincidence was my taking Calculus IV that summer in order to get my math sequence back in sync. I met my long-time friend Kevin Walker in that class. When I told Kevin how Mark and I were using calculators to analyze the data we were collecting, he immediately said "You need to do this on the computer!" Before the summer was over I had an account on the University's mainframe computer and was learning to program in APL

(still one of my favorite programming languages) and constantly bothering Marge Dufala at the Computer Center with questions. That fall Kevin and I were invited to work as student assistants for the Computer Center. I was able to complete an APL program that assisted Mark in analyzing his seismic data. And I was hooked on programming!

For the next two years I completed my coursework, including several programming classes, and I worked as a student assistant. I was given additional responsibilities at the Computer Center working more closely with the full-time staff there, especially Gayle Seymour with whom I am still friends. I fondly remember those days.

When the summer of 1979 rolled around, I had one more required course - Field Camp. Since I did not have much field experience I was concerned about how I would do outside the classroom. Fortunately Dr. Kunze attended Field Camp that summer and we were able to combine the standard geology assignments with an opportunity to explore several geophysical techniques with which I was already somewhat familiar. I enjoyed my time in Wyoming much more than I had expected and have even gone back to Casper while vacationing out west.

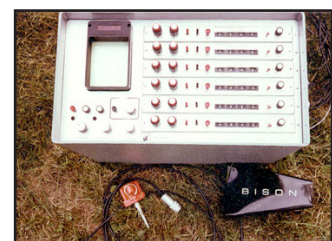
I returned from Field Camp in July 1979 and started as a full-time computer programmer for the UA Computer Center in August. I've worked in the private sector, including writing software to monitor nuclear power plants, and twice returned to academia - again at UA and then Kent State University. I now have my own computer-based business.

So, here we are 40 years later. All of my professional achievements were made possible because of my experiences at the University of Akron. I owe a great debt of gratitude to all of the people, many now gone, who were so influential in my education and setting me on my career path.

## Rick Wiggins



The seismograph trailer and Bison seismograph.

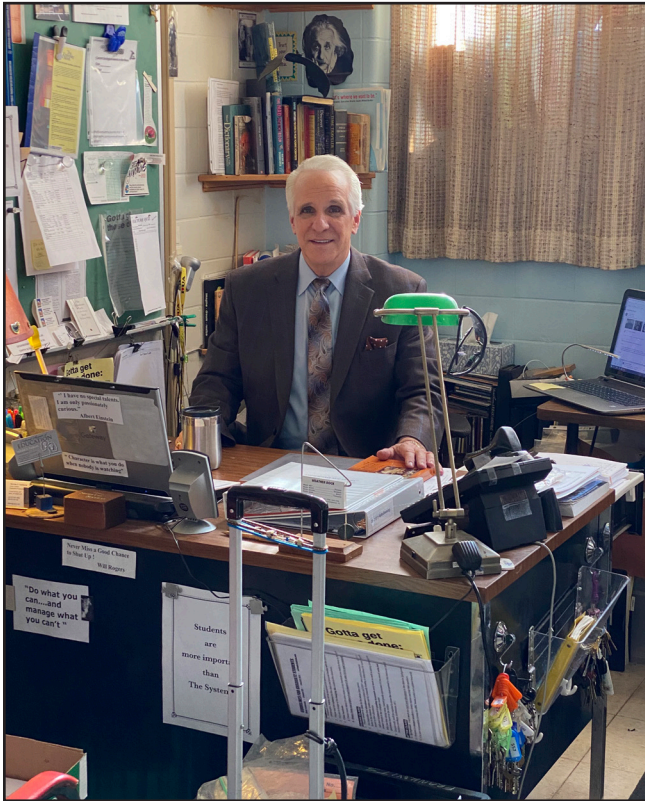




# Who's Retiring?

## WHAT A RIDE!

By Nick Frankovits, Senior Lecturer  
MS Geology-Earth Science '77



What a ride! After forty-five years in the sciences at The University of Akron, I'll be retiring at the end of the Spring 2020 semester. It has been a very rewarding and enlightening experience: both of impacting students and being impacted by them. I am grateful for the mentorship of peers, the friendships with colleagues, and for the thousands of wonderful students who have blessed and challenged me. And as I look back, I see keenly the changes in the University students in attitude and investment, reflecting societal changes in our country.

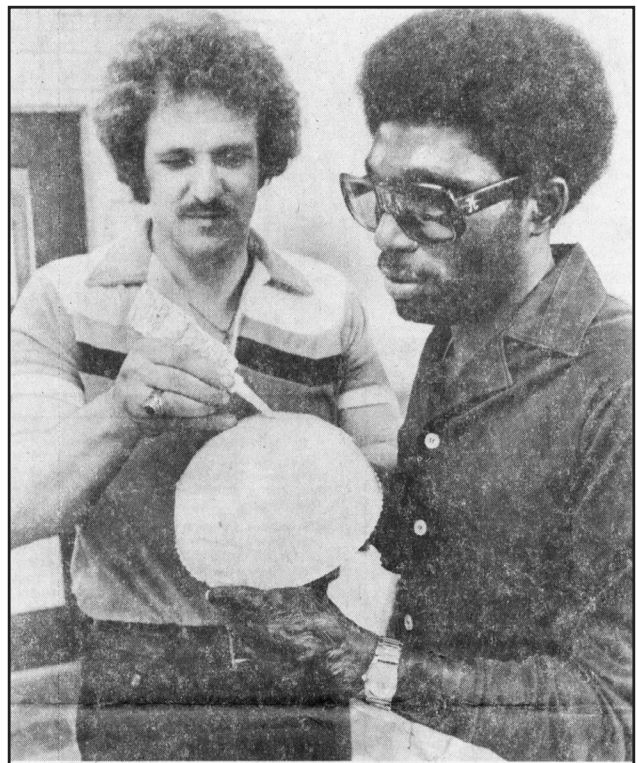
As a graduate student in 1974, I was pleased to participate in the development of the "Learning Resource Center" (LRC) as the early precursor of the GRC. Dr. Jim Jackson and I began building the first "self-directed" classes in introductory levels of physical and historical geologies. As independent studies, students used rock and mineral samples, walked "field trips" around campus, and listened to lectures on the advanced technology of cassette tapes, film strips, and carousel slide projectors. (Some of you may have to Google those!)

I began to understand that learning works best when students could see and experience science for themselves. So I tried to do "hands on" activities with each class, creating handmade models and structures that could demon-

strate scientific principles. Would you believe that my one lone locker for storage has grown to eighty-eight lockers full of demonstrations? Those of you that know me probably will not be surprised that I also have 251 notebooks of overhead transparencies. But it has been the students who have fueled this passion and the shared delight of discovery! It has been a joy and a privilege to share this unique University experience and to present many of these ideas in conferences throughout the U.S.

One of my favorite stories is of a young man who was working very hard at a job while trying to complete his coursework at the University. I had assigned a walking field trip of the campus and downtown Akron to observe structures and to classify rocks and minerals. Because of his heavy workload, he ended up trying to complete this assignment at midnight one night. Using a small flashlight, he was crawling on a large limestone lion which flanks the doorway to the Summit County Courthouse. Examining the surface closely, he was startled by two uniformed officers of the Akron Police Department. It was some discussion later, after he produced the class assignment pamphlet, that the officers finally believed his science story and let him go on his way.

I was faced with a new challenge in 1979 when George Brunnell stopped by my office and asked to enroll in my class. George is a Vietnam veteran who lost his eyesight during the war. The earth sciences have always been very difficult to teach to the blind because they have been conventionally taught as visual sciences. But I explained that if he was willing to work with me and test my models, I was sure he would be able to learn. At this point, we began



Nick Frankovits (left) and George Brunnell use silicone caulk to form Braille lines. - Akron Beacon Journal photo



exchanging roles: sometimes I was the teacher and he was the student; and other times he became the teacher and I the student. Our first dilemma surfaced when we began studying igneous rocks and students were to distinguish between intrusive versus extrusive. We began the search for a means of labeling that a blind student would be able to use and we settled on a tube of bathtub silicone caulking. This became the tool which allowed quick communication between us. It adhered to practically all materials so we were able to use this "liquid Braille" to outline contour lines on maps, label many models and even trace diagrams from overhead transparencies. George and I came up with dozens and dozens of methods of learning through the five senses and I have continued to use them each year to help students of all abilities.

I am so proud of George Brummell and he has been a huge highlight in my teaching career! He set the bar in his class for effort and engagement in learning. He was only one of three students in a class of fifty-four who earned an "A" in the class. He completed his Bachelor's Degree in social work and during his career of thirty years became the National Field Service Director of the Blinded Veterans Association. He has published three books and is an inspiring public speaker. I spoke with him recently and we reminisced about our time together in class. He said, "Everything I have attained began with the University of Akron." Please visit his website if you would like more of his story: <http://georgebrummell.com>

Students in my Oceanography classes built life-sized whales that could be used to teach school children. In addition to creating the walk-through models, they developed teaching curriculum that could be distributed to teachers. We started with the instructions and expert help from Mike Williamson of WhaleNet.org, sponsored by Wheelock College and then were able to design our own. We completed full-sized versions of Humpback, Blue, and Killer Whales and were pleased to set up one for Akron's First Night celebration! You can view videos and more online at <http://facebook.com/OceanographyWhaleProject>

I am grateful to the forward-thinking insight of Dr. Ira Sasowsky to develop an environmental studies class. This



*Students in my Oceanography classes built life-sized whales that could be used to teach children.*

brainchild became very successful! Students had the opportunity to complete lead, mercury and radon testing both in and out of the classroom. They also had extensive experience with other diagnostic equipment to analyze various environmental parameters. This blossomed into many sections of this class because of the hands-on element.

I am also grateful to Dr. Luis Proenza who reached out through the University to connect with the National Museum of Education. For several years, Dr. Proenza hosted part of the Induction ceremonies for the National Gallery for America's Young Inventors. In connecting with the best and brightest student scientists from the US, the University offered a warm welcome and an opportunity to share our diverse experiences. I will be continuing to work with the Museum in the coming years and we will be honoring the 25th year of Inductees soon! You are invited to explore their amazing accomplishments at <http://nmoe.org>

Many, many thanks to my advisor, the late Dr. Jim Teeter. And thank you especially to my wife Monna, whom I met at The University of Akron and married in 1978. Thank you to each of you for being a part of this important chapter in my life and for the impressions you have left with me. I am truly grateful to my alma mater and the people who have walked beside me at The University of Akron. My sincerest best wishes to each of you in the Department of Geosciences for your continued academic success.

## *Nick Frankovits*



*Nick is also an artist! See his portfolio at: <https://art-by-ndf.weebly.com/portfolio.html>*



## ALSO "GONE FISHIN'!"

By Elaine Butcher

After 20 years at UA, I am retiring May 2020. As I look back over my tenure here, I have many treasured memories and I have had the pleasure of serving with many outstanding members of the Department, both students and faculty.

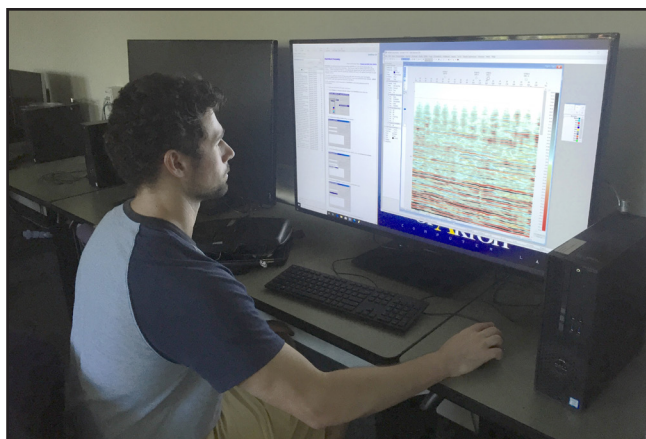
I have seen off 19 groups of field campers and heard some pretty entertaining stories upon their return; seen countless students graduate, start fulfilling careers, get married and start families; been here to "mother" students – laughing with, comforting and encouraging them through setbacks; celebrating successes; and even threatening them with bodily harm if they didn't finish their thesis! It has been interesting watching folks move past their college years. I stay in contact with many of you through social media.

I have seen the campus undergo major building campaigns, and several UA Presidents and College Deans come and go. We, as a community, have enjoyed some good times as well as weathered the bad. I am confident that the Department will continue to grow and thrive.

I leave you with a traditional Irish goodbye and blessing. Urban Dictionary defines the Irish goodbye as "leaving quietly out the side door of a party or bar without saying goodbye to anyone", most likely because you're too drunk to stay there.

*"May the road rise to meet you, the wind  
always be at your back, and the rains fall softly on  
your fields. May God hold you gently in the palm of  
his hand."*

*Elaine Butcher*



Grad student, Michael Rebar using the LMKR software GeoGraphix

## Department receives software

In summer of 2019 the Department received a grant for use of the LMKR software GeoGraphix. This specialized software is an integrated suite of products designed to support petroleum exploration and production, and contains tools for handling well, map, and cross section data, log analysis, geophysical interpretation, and geomodelling. Access to these products will allow students in geology and geophysics classes to get hands-on experience with real-world datasets, and permit graduate students to undertake research projects that would otherwise be impossible. The software will be primarily used on the GIS lab computers. In support of this, the Department has upgraded computer memory, and purchased 3 ultra-wide (42-inch) monitors, for use in certain applications. The software grant was received under LMKR's Academic Program, has 15 licenses, and has a value of \$5,496,165. Founded in 1994, LMKR is a petroleum technology company focused towards lowering the risk associated with exploration and production of conventional and unconventional resource plays.

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## PLEASE SUPPORT STUDENTS

Your gift is important and makes a difference! In these challenging times, many of our students are facing unexpected hardships, especially with loss of wages and emergency travel expenses. Please help us ensure that all students can return in the fall to continue or complete their studies.

### THREE WAYS TO GIVE:

- Online at [www.uakron.edu/giving/geo](http://www.uakron.edu/giving/geo)
- Text **GEO** to **41444** on your mobile device
- **Mail a check** (payable to the UA Foundation) using the postage-paid envelope provided in this newsletter

To read more about what your gift to Geosciences supports, please see page 28.



*Field Camp, 2019*

## PART TIME FACULTY DURING 2019

The following part-time faculty taught courses during calendar year 2019, and their contributions are greatly appreciated.

Dr. Robert Barrett      Mr. Nick Frankovits  
Mr. John Fox              Dr. Ronald Runeric

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## Faculty News



**LINDA R. BARRETT, PH.D.**

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Linda's teaching in 2019 was directed primarily towards making sure the last few GIS majors and MS students were able to complete their programs. In Spring Semester 2019 Linda taught Advanced GIS as well as a Special Topics course on the subject of "GIS and Time". In the fall she taught Remote Sensing, Research Methods in Geography and Planning, and a graduate seminar on the topic of land cover change. One different course, new to her, was that in Summer 2019 she taught an on-line section of Geology of Energy Resources.

She also had a chance to do some traveling, including to San Francisco to visit her children and to Michigan to visit with her parents, in-laws and other relatives, and also to do some camping in northern Michigan. In December she and Bob traveled by plane to Tucson to visit her parents and brother, then drove from Tucson to San Francisco (encountering rain in the Southern California desert and snow in Joshua Tree National park), and then took the train back from San Francisco to Cleveland.

Meanwhile, she continues to work with colleagues in Archaeology and Chemistry to explore applications of shallow subsurface soil spectroscopy ("S4") to archaeological and/or forensic investigations. This includes analysis of data collected at an archaeological site in Kansas and a "body farm", where donated cadavers are left to decay in order to study the decomposition process for forensic purposes, in southern Florida.



**HAZEL A. BARTON, PH.D.**  
PROFESSOR (PRIMARY APPT. BIOLOGY)  
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It's been another busy year for the Barton Lab, with funding from the National Park Service (NPS), DARPA and the National Science Foundation (NSF). The NPS

funding was to develop a urine mitigation system that can be used for extended, multi-day cave exploration trips in caves such as Lechuguilla Cave (Carlsbad Caverns National Park) and Jewel Cave (Jewel Cave National Monument). The DARPA-funded work continues to look at calcium carbonate precipitation by bacteria and the group have been able to engineer *Escherichia coli* to produce carbonates such as dolomite. The NSF funding is a continuation of the project with Drs. Senko and Sasowsky looking at the processes that form iron ore caves in Brazil. Dr. Barton has been on sabbatical since August and has written a grant and is currently working on a book. She has also been taking time for cave exploration, having participated in two exploration and one science trip to Lechuguilla Cave, along with participating in the 2019 Mulu Caves Project in the giant caves of Borneo and the 2019 Greenland Caves Expedition, which spent a month exploring the coldest and most northerly (82°N) carbonate caves on the planet. All of these trips obtained data for future journal publications.



*Hazel in Stig Strikes Again Cave, Greenland. - Photo courtesy Robbie Shone.*



*Clearwater Cave, Borneo. - Photo courtesy Hazel Barton.*





**JOHN BELTZ**  
PROFESSOR OF INSTRUCTION  
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John started his 27th year of teaching at the University of Akron by continuing to instruct Historical Geology, Physical Geology, Earth Science, Introduction to the Oceans, Wetlands and Dinosaurs. He also continues to teach the Historical laboratory, because of the lack of sufficient graduate student numbers in the department. He finds that personally instructing the lab gives him a much better feeling for how well the students really understand the material covered in lecture.

Over the last three summers, John and Tom Quick have taught the Wetlands class. John teaches the sections covering wetland types and determination, wetland soils and basic plant identification, while Tom instructs sections covering the chemical analysis of wetland water and soil samples collected on two field trips. They continue to take the class to the Bath Nature Preserve as well as Tom's house. Tom's wetland has developed from an old pond, and they are looking for changes over time as it continues to transition. They plan to examine both of these sites again in the summer of 2020. With the department temporarily moving to the old Central Hower location for the next couple of years, it will be challenging to conduct the geochemical analysis part of the course, but John is sure Tom is up to it.

John continues to serve as secretary for the Department's faculty meetings after more than seventeen years. In his spare time, he continues to work on home improvements, sings in a choir and takes his kids on field trips around Ohio looking for abandoned places to explore. Fifteen-year-old Hollie and eleven-year-old Will enjoy long walks, geocaching and helping to cook dinner. Will likes math and science, doing experiments and watching YouTube videos of science demonstrations. Hollie is doing well in geometry and biology in high school and will be starting to drive in the not to distant future. Maybe she can be his spare driver for Historical field trips



**MEERA CHATTERJEE, PH.D.**  
PROFESSOR OF INSTRUCTION  
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Meera is on her 20th year of teaching at The University of Akron. She has been very active teaching multiple sections of Cultural Diversity, Introduction to Geography and World Regional Geography. Following the trend of increase demand of remote learning, she has worked on getting Introduction to Geography and Cultural

Diversity online (100%). These sections have attracted substantial numbers of students to take the courses. In 2019, she presented her outcomes of a Mini ITL Grant (University of Akron) received by her in 2018. She also served as one of the steering committee members for the NEXT conference in March 2019. The rising cost of textbooks was always a concern to her. Thus, she along with Jeremy Spencer applied for a grant to adopt Open Educational Resources (OER) for the course "Introduction to Geography". The project was selected for funding. The course is fully revamped and is being offered in Spring 2020.

She is glad to share that her daughter-in-law finished her graduate studies (Nursing) in May 2019 from University of Akron and is working as a NP with University Hospitals. Her son is busy finishing an MBA from Ohio State University. He is expected to graduate in May 2021. In a nutshell, it has been great year for her.



**SHANON DONNELLY, PH.D.**  
ASSISTANT PROFESSOR  
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Shanon expanded his teaching in GIS and unmanned Aerial systems (UAS) by co-teaching a course with the UA Field Station Manager, Dr. Roketenetz, on the idea of Land Ethic. Students from Geosciences, Biology, and Civil Engineering visited numerous locations around Northeast Ohio while reading a variety of perspectives on human-environment relations. Shanon continued his research on the impacts of shale gas development in the Utica and Marcellus while also collaborating on a project looking at these processes in northern British Columbia. The presentation of these projects at the annual AAG meeting led to the formation of a working group making cross-site comparisons in several other North American shale plays. Along with a team of faculty and students and at the request of park administrators, Shanon also completed a pilot study to examine social-ecological changes in Giant Sequoia groves in Sequoia and King's Canyon National Park.



*Students organized a public screening of a documentary and discussion about Aldo Leopold.*





*Research team in Sequoia National Park*



**CALEB HOLYOKE, PH.D.**  
 ASSISTANT PROFESSOR  
 CHOLYOKE@UAKRON.EDU

In 2019, Caleb taught Field Camp II, Structural Geology, Engineering Geology and Graduate Seminar and continued as the undergraduate advisor for the geology majors. He also received a NSF CAREER grant for \$512k to investigate how foliations and lattice preferred orientations affect the strength of rocks. This grant will support several undergraduate and graduate research projects. Casey Braccia (Dec. 2018 graduate) is working in the lab to complete additional analyses of experiments from her senior thesis and performing new experiments in order to publish this research. She was given the opportunity to give a talk at this Fall's AGU meeting. She is in the process of applying to graduate schools to start next fall. Jackie Curtis analyzed experiments to determine the strain partitioning between magnesite and olivine before graduating in May. Jacob Waller is analyzing shear zones that formed in the Scituate Granite, RI to determine the mechanisms that caused

them to form. In October, undergraduates Maria Razo and Nicole Wagner performed experiments at Argonne National Laboratory in order to determine how foliation orientation affects melt segregation at the source and begin to migrate towards Earth's surface. They will continue to work on these experiments in 2020. Two additional undergraduates, Megan Ryan and Leah Stanovich, have started to work with Caleb and Tom Quick on developing a portable rock deformation apparatus with motion sensors (seismometers) to take to area schools to educate students about how different properties of rocks can affect earthquake nucleation. A new M.S. student, JJ Kullberg, started to work in the lab and has completed test experiments for his project on how foliation orientation affects the strength of rocks deforming by plastic mechanisms.



*Students Andrew Steward, Hanneh Hope-Tagaoshi, Vang Lor, and Michael Rebar analyze cleavage and bedding at Harper's Ferry WV.*



*2019 Structural Geology class, fold near Cumberland, MD*



*During Field Camp II, we visited the Brunton Compass factory in WY and they made small repairs to the compasses!*

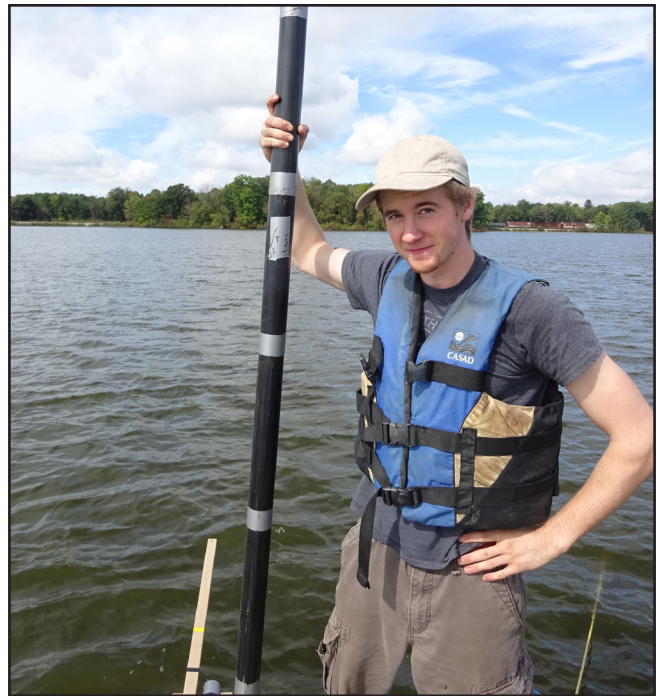
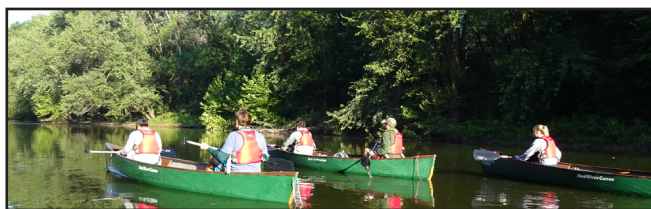




**JOHN PECK, PH.D.**  
**PROFESSOR**  
 JPECK@UAKRON.EDU

The highlights for 2019, as always, involved students. John went on many enjoyable field trips with students in order to teach Sedimentology-Stratigraphy, Physical Geology, Environmental Magnetism, Rivers Seminar, Independent Research and Field Camp. On these trips students are required to make measurements, interpret the results and often produce substantial written reports. Although these reports require much effort by everyone involved, the reports provide evidence of the student's abilities when they apply for graduate school or jobs. Several undergraduate students presented the research they completed under John's supervision. Sierra Swisher was able to provide new insight into the Younger Dryas climate reversal in NE Ohio by studying pollen preserved in kettle lake sediment. Brandon Kopfer assessed event stratigraphy related to a 1913 dam collapse that occurred during Ohio's Great Flood. John Marke documented the continued evolution of the middle Cuyahoga River following two dam removals. Nicole Wagner used the sediment transport flume to assess the reliability of shells as an up-direction indicator.

2019 was the 50th anniversary of the famous fire on the Cuyahoga River. This event and how the people of NE Ohio responded to it were important in starting the US environmental movement. The 50th anniversary also provided John with opportunities to spread the good word about UA geology. John presented the research he and UA students have done at the Akron Roundtable, Akron Hand-on-Sustainability, and the Gorge Dam Stakeholders meetings. He also participated in the Cuyahoga Valley National Park Wild and Scenic Rivers eligibility workshop. Geologic features were one of two categories that might meet the federal Wild and Scenic Rivers outstandingly remarkable values standards needed for part of the Cuyahoga River to be included in the National Scenic River System. How cool would that be! However, the presentation that stands out from all his prior presentations, including those made in Russia, Mongolia or Washington DC, was the one he made at the Ohio Federation of Soil & Water Conservation Districts 75th Annual Meeting in Columbus, OH. John's talk was introduced by his former MS student Kelly Shaw who is now well established and doing great things in a soil & water district. It does not get much better than being introduced by a former student!



*Undergrad student Gavin Demali with a sediment core he and John Peck collected from Wingfoot Lake. Gavin used this core for his Environmental Magnetism class research project.*



**TOM QUICK**  
**ASST. PROFESSOR OF INSTRUCTION**  
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Tom is continuing co-teaching the wetlands class with John Beltz during the summer where the class visits sites and collects water and soil samples to take back to the lab for testing. Each year we see how the site changes with the changing weather. Tom is also busy with his Online Earth Science classes for both Fall and Spring semesters as well as Summer. Instructional videos are always being updated to help the students with their assignments. Tom is on a search committee to evaluate software for web meetings used in online classes and other activities at the University.

Tom has just started assisting students in their project to measure the response of samples as they fracture under pressure and graphing it in real time using the commercially available Arduino microprocessor. Tom is also putting together a logging system to measure rain drop fall in caves using commercially available sensors. Tom is also assisting in the move to our temporary location while our building is being renovated.

Tom is still doing the usual equipment maintenance in the department from repairing the plumbing on the ion chromatograph to troubleshooting problems with computers in the various labs.



**NITA SAHAI**  
PROFESSOR (PRIMARY APPT. POLYMER SCI)  
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I was on sabbatical in Fall 2018 and Spring 2019. I travelled a lot, including a fascinating trip to China and trips to India, Spain and Italy. I focused on writing proposals and manuscripts during my sabbatical. I also continued my service on the National Academy of Science’s Committee for Astrobiology and Planetary Science as well as service as Associate Editor for the journals, *Scientific Reports* and *Astrobiology*.

In Fall 2019, I returned to teaching and taught a graduate core curriculum course entitled “Introduction to Biomacromolecules” in the Dept. of Polymer Science.



**IRA SASOWSKY, PH.D.**  
PROFESSOR  
IDS@UAKRON.EDU

In spring semester 2019 Ira taught Groundwater Hydrology, and in fall he taught Geomorphology as well as an Honors Natural Science Colloquium titled “Water in our World”. The colloquium, which filled to capacity, explored a variety of topics related to water. Over the course of the semester they read and discussed the book *Water: The epic struggle for wealth, power, and civilization*, by Steven Solomon. They also had a field trip, various content lectures, and presentations by the students. In the Geomorphology class a greater emphasis is now being put on using digital approaches with Google Earth Pro and Global Mapper, which helps the students build directly marketable skills.

Two graduate students, Moe Slinger and Michael Rebar, began their thesis projects. They are collaborating with local petroleum geologist John Thomas to develop further understanding of a Trenton Platform play in northern Ohio. Much of the research is being done using Geographix software, which was granted as a 3-year license to the department in summer 2019 (value ~ \$5,500,000). In support of this work the department increased memory in all computers in the GIS lab, as well as purchasing two extra-large (42-inch) monitors. Former undergraduate Josh Novello had his study of the large sandstone sinkhole in Little Mountain, Geauga County, published in the *Journal of Cave & Karst Studies*. He continues in his pursuit of an MS degree at SUNY Binghamton. Former undergraduate Sarah Burgess went off to Indiana to pursue an MS degree. Undergraduate Geologic Aide Melissa Rego continues on with the Bath Bog monitoring.

Ira was invited to be the lead keynote speaker in June at a conference on karst hydrology in Slovenia, and had a great time there. He attended the fall GSA meeting in Phoenix also, and on a pre-conference field trip ran in to Sarah Burgess.

Ira continues as a reviewer of manuscripts for numerous journals, as well as publishing his own research results. He remains active with the Geological Society of America (serving on the Editorial Board for the journal *Environmental & Engineering Geoscience*), Cave Conservancy of the Virginias, and the Karst Waters Institute (serving as Secretary).

In January 2019 the old “Grad computer lab” across from the Dept. office debuted as a study space for students, courtesy of Ira & Dr. Steer. It is officially called the “Geoscience Collaboration Center”, but the students have dubbed it “Crouse House”. This has brought a nice spirit of community to the first floor of Crouse Hall.



**JOHN SENKO, PH.D.**  
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John taught Geology and Environmental Science Service Learning (Spring 2019), Introduction to Environmental Science (Spring and Fall 2019), and Geochemistry (Fall 2018). The Service Learning field trip over spring break of 2018 was the ninth sampling campaign to monitor the performance of several acid mine drainage (AMD) treatment systems in southeastern Pennsylvania and southwestern Ohio. Thus far, over one hundred students have participated in this course, which was initiated with support from the National Science Foundation (NSF).

Graduate students Bobby Miller (Ph.D. Integrated Biosciences) and Zach Santangelo (M.S. Geology) both graduated in 2019 – congratulations to them!

The Senko Lab currently has four Ph.D. students and six undergraduate students. Josh Davis (Integrated Bioscience Ph.D. student) working to isolate a variety of types of anaerobic bacteria from corroding natural gas transmission lines. Shagun Sharma (Integrated Biosciences Ph.D. student) is completing her exciting work to understand microbial communities in AMD-impacted and AMD-treatment systems. Melissa Mulford (Integrated Bioscience Ph.D. student) has made great progress on a project to understand how microbiological iron metabolism influences the solubility of Si in banded iron formation and iron ores that host unique caves in the “Iron Quadrangle” of Brazil. Grace Vilem (Integrated Biosciences Ph.D. student) started working in the lab in Fall 2019, and will be working on a project to use AMD-associated microbial activities as analogies for potential biogeochemical processes in the liquid ocean of the Jovian moon, Europa.



The work on iron formation caves is continuing on the NSF-funded project in collaboration with Hazel Barton and Ira Sasowsky that was initiated in 2017. The work on microbially influenced corrosion is new work on a US Department of Transportation's Pipeline and Hazardous Material Safety Administration-funded project in collaboration with Chelsea Monty-Bromer (UA Chemical and Biomolecular Engineering). We have published several papers with collaborators from The University of Akron, and presented our results at several national and international meetings.



**JEREMY SPENCER, PH.D.**  
 ASSIST. PROFESSOR OF INSTRUCTION  
 JSPENCER@UAKRON.EDU

Jeremy's focus through the prior academic year to the current semester is the adaptation of his classes to an open education model. This means that materials like textbooks are obtained from open sources and are free to students, helping to defray the costs of education. Dr. Spencer adapts these materials to his classes by editing them for content, clarity, and to better fit the course learning outcomes. The following courses taught by Dr. Spencer have been or will be moved to an open source education model- Climate Change, Earth's Atmosphere and Weather, Geographic Information Systems (GIS), and Introduction to Geography. The transition of Introduction to Geography to an open source model was supported by a grant from the University's Development Services under the Affordable Learning Initiative, and was undertaken by both Dr. Spencer and Dr. Meera Chatterjee, collectively. The development of Open Introduction to Geography also entailed the recording of Learning Glass video lectures for the online sections of the course.

Jeremy continues to review book chapters and journal articles for the topics of physical geography, climatology, and natural hazards. Additionally, he continues to perform geography and climate education outreach to local schools.



**DAVID STEER, PH.D.**  
 PROFESSOR  
 STEER@UAKRON.EDU

In 2019, Dr. Steer completed his second full year as Chair of the Department of Geosciences and his fifth year as Associate Dean for the Natural Sciences. Last spring, he took 15 students on a 10-day field experience course to the Colorado Plateau. Students studied Holocene volcanic

activity on the edge of the Colorado Plateau at Grants, NM. From there they explored Triassic depositional settings in the Painted Desert and Petrified Forest National Park. They then made a quick stop at Barringer Meteor crater before heading to study Grand Staircase exposures at the Grand Canyon, Zion, Arches and Canyonlands National parks. In the fall Dr. Steer taught a new course entitled "Contemporary Issues in Environmental Science." Students studied water sustainability, food security, environmental justice cases, lead in the environment and the critical zone. A major amount of Dr. Steer's Chair duties revolved around planning the temporary move from Crouse Hall to Central Hower and providing input for the redesign of Crouse Hall as described in the Chair's letter.



*Field Studies, spring 2019. Goblin Valley State Park, Green River, UT*



*Field Studies, spring 2019. Mesa Arch, Canyonlands National Park*



*Student presentation at the Petrified Forest. (L to R) Graduate Student Jorian Krob, BA Environmental Science major Carley Yontz and BS Geology student Nicole Wagner*





**JAMES THOMKA PH.D.**  
ASSIST. PROFESSOR OF INSTRUCTION  
JTHOMKA@UAKRON.EDU

Summer 2019 saw the departure of James from the University of Akron. He had hoped that his position would have a chance of conversion into a tenure-track line, but higher administration viewed this as a change not worth the expense. Instead, he is beginning a tenure-track position in the Center for Earth and Environmental Science at the State University of New York at Plattsburgh, on the shore of Lake Champlain and adjacent to the picturesque Adirondack Mountains. Here, he is responsible for teaching courses and supervising student research in sedimentary geology, paleontology, and marine ecology. James wishes his best to all students and faculty in the Department of Geosciences. He thanks them sincerely for their efforts, their support, and their companionship since 2014.



## Community Service



*Geosciences Club members at Gorge Cleanup, April 2019.*

## The "Crouse House"



*Faculty members transformed the old grad computer lab (above) to a student study/meeting area (below) using ingenuity and "found" furnishings. Students are loving it!*





# Alumni News

**Kyle Blauvelt, MS 2012.** After my time offshore with Schlumberger, I've been in Austin, Texas for just over 5 years now essentially doing the same thing professionally since moving. I was hired by a private company called Tolteq Engineering, where we designed directional drilling technology. During the 2015-16 downturn we were bought out by National Oilwell Varco (NOV). In this case, the buyout was a good thing. As one of the largest oil/gas equipment and technology companies in the world, we had some deeper pockets to weather the downturn. I work as a validation and integration engineer. I support the existing fleet of directional drilling tools, assist in the design of new products, and integrate the new products into the market. I've moved away from true geology, but it still feeds my geo heart since our products drill into fascinating formations all over the world. Since we were bought out, I've had the opportunity to travel the world delivering training courses for new customers. And these aren't your typical destinations. In the last two years I've been to Irkutsk Russia (Siberia); Batman, Turkey; Nizwa, Oman; Port Gentil, Gabon; and it's looking like Germany next month and potentially South Africa at the end of the quarter.

There's not a week that goes by that I don't encounter something that I feel U of A and the professors prepared me for. From writing, organizational management, prioritization, teaching (hugely helpful when delivering training), and overall geology trade-craft I have always felt ready for the next challenge. I will be forever thankful for my time at Akron. I've attached a few family photos from recent holidays. We had our second child last June, a little boy. We named him Crawford which is mine and my father's middle name. We call him Ford. So, now we have Finley (2 yrs) and Ford (7 months). After several months of absolutely no sleep, we're all falling into place, sleeping well, very happy, and healthy.



*The Blauvelt family.*

**Jennifer (Court) Howell, BS 2009.** Jen married Joe Howell in February.



*Jennifer and Joe Howell*

**Alex Dalla Piazza, MS 2016.** Still working at EQT in Pittsburgh (they bought Rice Energy in 2017 and kept me on, and now Rice took back over EQT in July of 2019 ... crazy!!) I currently work as their only Data Scientist and have been lucky enough to work on projects in every aspect of the business (Engineering, Geoscience, Finance, Commercial, Automation, etc.). Also, I am currently pursuing a second Master's degree in Computational Data Analytics at Georgia Tech (online campus).

**Natasha (Demrovsky) Papuga, BA 1998, MS 2003.** I substitute teach at Highland Local Schools from K through 12. I also do some office work for my husband Misho's company, Top Grain Interiors, LLC. My kids are 16, 14, 12, 10, and 8. This past summer we also spent 7 weeks in Europe visiting family.



*Misho and Natasha Papuga*

**Anna Fyodorova, MS 1998.**

I started new job at McMillen Jacobs in Manhattan in January 2019. I've been doing geotechnical engineering for the past 20-odd years; that's my "bread-and-butter". My present company are the tunneling experts- so... I am doing geotech engineering that's tunnel-related- :). I did get a professional mug shot with these guys. We are waiting to close on the sale of our house in the next couple of weeks. Moving boxes, boxes, more boxes....



*Anna Fyodorova*

**Julie (Gouin) Bloxson, BS 2008.** After graduating from UA in 2008, I worked in an industrial lab as a chemistry technician at Matheson Tri-Gas, learning that the repetitive nature of industrial labs was a bit monotonous. Shortly after, I enrolled in graduate school at Kent State University, studying the Clinton Sands in Ashtabula County, OH with Dr. Joseph Ortiz. After graduating in 2012 with my master's, I went to Case Western Reserve University to work with Dr. Beverly Saylor on the Utica Shale and carbon sequestration here in Ohio. I used non-destructive methods to determine mineralogy in the Utica Shale and adjacent formations and extrapolated across the state using well logs and multi-variate clustering. In 2016, I started working for the Ohio Geological Survey in the Energy Group. There, I continued working on carbon sequestration by mapping Silurian through Devonian strata in eastern Ohio for potential reservoirs and seals for the Midwest Regional Carbon Sequestration Partnership. I also helped map units for the Appalachian Storage Hub initiative, and also for a new study on the Silurian Salts in Ohio. I graduated from CWRU in 2017 with my Ph.D., and in 2018 I accepted an assistant professor position at Stephen F. Austin State University in Nacogdoches, TX. I am currently in Texas, still studying Ohio subsurface to determine Precambrian structural controls on the deposition of strata throughout the Cambrian and Ordovician. I have also branched out and started to use handheld XRF on shales (Wolfcamp Formation, TX; Utica Shale, OH), and also on evaporite formations (Louann Salt, Gulf of Mexico; Salina Salt, OH). I am here with my husband, Ollie, who is studying computer science at SFASU, and daughter, Gabby, who is in kindergarten. Small town, southern life is much different than living in Northeast Ohio, but so far it has treated us well.



*Bloxson Family Ax'em. Ollie, Gabby, and Julie with their Axes up, showing SFASU pride (Note: We are the "Lumberjacks").*



*Undergrad Chance Robinson is working with Julie Bloxson to determine trace elements in the Silurian Salina Salt using the handheld XRF.*

**Selena (Walko) Kunze, BS 1999.** I started a new job back in June, after 16 years with Gully Greenhouse. I'm now a Park Technician I (horticulturist) with the City of Fort Collins. I work 20 hours at The Gardens on Spring Creek (northern Colorado's botanical garden) and 20 hours at a new park in southeast Fort Collins (Twin Silo Park) that has a fruit orchard and hydroponic array. I also help with the city's Community Garden Program. I'm really liking my new job!

My husband Matt is doing good. He's with Wyoming Department of Environmental Quality--water quality division--and does mine regulation. Maya is 9 years old now, 4th grade, and is an awesome kid! She plays soccer, is in Girl Scouts, and does her school's news reporting with a small team. We're still outdoor enthusiasts--camping, kayaking, paddleboarding, hiking, and hopefully will be doing more backpacking now that Maya is getting to the point of carrying more gear.

**Stephanie (Haney) Warino, BA 2002, MS 2004.** Is now working as Environmental Division Manager at The Thrasher Group, Fairmont, West Virginia. She was formerly with TetraTech. She has accepted an invitation to participate in the 2020 Class of Leadership West Virginia.

**Tom LaPlante, BS 1996.** Is the New Water Quality / Environmental Planner at the Northeast Ohio Four County Regional Planning & Development Organization (NEFCO) as of December 2019. He returns to NEFCO, where he worked from 1997 to 1999 as an environmental planner. He was most recently employed by Summit County Public Health (SCPH) where he worked in its water quality programs. NEFCO is a regional council of governments that was established by Portage, Stark, Summit and Wayne Counties in 1974, and in 1979 was designated under the federal Clean Water Act to perform areawide water quality



planning. Tom's primary duties at NEFCO include being the contact person for its Clean Water Plan, specifically those portions that deal with wastewater; updates of the 208 plan; and being the lead staff for its Environmental Resources Technical Advisory Committee (ERTAC).

**Craig Lass**, MS 1989. I did my masters with the late, great Dr. Chyi! Such a character! I was there in the late 80's. So many characters then - Burford, Corbett, Teeter, Kunze, etc., the list goes on. Here's a not too old photo. Doing my hobby (photography) while being a rock star, LOL.



*Craig Lass...Rock Star!*

**Kyle McDaniel**, MS 2019. The start of the year has been very busy for me. I recently accepted a Staff Geologist position at an environmental consulting firm, Hart & Hickman, PC, which is located in Charlotte, NC and am in the process of transitioning from my previous job at Acuity Environmental Solutions, LLC. I am looking forward to yet another new experience starting a new career and moving from IN to NC."

**Sydney Laubscher**, BA 2016. I just graduated in Fall 2019 with my M.S. degree in Geology from Kent. I did a greenhouse experiment where I measured plant uptake and leachate concentrations of Mn, and now I'm analyzing all of the data for my thesis question: What controls Mn uptake? Mineral dissolution kinetics or biological controls within the plants? If you have any good environmental scientist or consulting job leads, please pass them my way! I am also getting married this year in September.

**Keep UA up to date on your personal information and accomplishments/news, go to: [www.uakron.edu/postyourpride](http://www.uakron.edu/postyourpride)**

**Johnny Marke**, BS 2019. I finished my internship with Kinross Gold Corporation and then landed a job with Nevada Gold Mines as a Mine Geologist I. **Sierra (Swisher)** BA 2019) finished her internship with Gallo Wineries and landed a job with Nevada Gold Mines as an Environmental Engineer I. We live in the Elko, NV area and are loving it. We spend our weekends rockhounding and exploring the Nevada wilderness, as well as visiting National Parks. We also adopted a dog named Jasper.



*Johnny and Sierra*



*Jasper Marke-Swisher*

**Camron Miller, MS 2000.** I am currently the Lead Geologist-Western Hemisphere for Schlumberger's Asset Performance Solutions (APS) group. We have 4 major assets (3 in Ecuador and 1 in Canada) and manage just over 200,000 barrels of oil per day. I have oversight on field development planning within these assets, specific to subsurface work and well planning. Our group drilled just under 200 wells last year and plan to drill over 200 in 2020. The oil and gas industry is cyclical and very tough at times, but I've managed to survive 19 years so far! On the personal side, I have a very understanding wife, Janna, and 2 sons, Brett and Jace, ages 13 and 15! They are growing up fast, playing sports and doing great in school. I'm a very proud dad! We live in Katy, TX, which is approximately 30 miles west of Houston. In my spare time, I love cooking BBQ, watching my sons play sports and fishing.



*Camron Miller; Jace w/biggest fish, Brett peeking from behind.*

**Joshua Novello, BS 2017.** Josh got married last summer, and is working on an MS degree in Geology at SUNY Binghamton. He reports: "Things are going well here. I accepted a job in Houston upon graduation with Southwestern Energy, the company I interned with over the summer. Processing all of my thesis data from summer field work now, and it's coming together nicely. Looking on track to graduate in May 2020, so that's good!"

**Melissa Pierce, BA 2017.** About a year and a half ago, my husband and I sold our home and most of our posses-

sions. We packed up the rest in our cars and moved across the country to the Rockies. Since then, we have been living in Nederland, Colorado (about 15 miles west of Boulder in Northwestern Colorado). I work for GSI Family of Companies as an Environmental Scientist II. GSI works with the U.S. Army Corps of Engineers to remediate contaminated military sites all over the country. Last year, I attained a certification as a Construction Health and Safety Technician which qualifies me to lead field projects and oversee quality and safety for each project. I do a variety of tasks for multiple projects including authoring explosives and safety plans, performing quality control of reports and field documentation, and leading field projects. I have had the opportunity to travel to Martha's Vineyard and walk the beach with a metal detector to ensure that we removed all the practice bombs from WWII era; conducted groundwater sampling at Atlas Missile sites; complete landfill inspections at a site that dismantles old nuclear weapons; and led the removal of hazardous waste from a missile test facility in southern New Mexico. The photo I attached is from White Sands National Park, a perk of traveling for work is that I am able to see unique and beautiful places like this. The photo was taken in December 2019, the winter in the desert means that I enjoy 60+ degrees Fahrenheit each day!

Making the move to Colorado was a crucial step in my career because there are far more environmental consulting employers to provide a competitive atmosphere for employees. I had jobs to choose from in Colorado, compared to Ohio where I could find only one environmental firm that was open to hiring a fresh graduate. Besides that, the mountains are beautiful and adventure lurks around each corner. I volunteer for a local subaru offroad organization, Mtn Roo Colorado, leading trail rides and campouts. I've picked up new hobbies like backpacking and kayaking. The rocks are SO COOL!



*Melissa at White Sands National Park.*

**Patrick Pringle, BS 1973, MS 1982.** I retired from teaching in 2017. As Professor Emeritus, I am still doing tree-ring research to date past eruptions, landslides, and earthquakes and give public presentations on the geosciences. I'm currently collaborating with others to more precisely date the Bonneville landslide, Electron Mudflow, and Seattle Fault using radiocarbon and tree-ring techniques as well as working on the fourth edition of my Mount St. Helens roadside geology book. Amazing what the world of the Earth sciences has opened up for me!



**Bridget (Ring) Cutler, MS 2013.** I am at Arcadis working as an associate project manager on retail petroleum sites since I graduated! Time flies! It has been interesting and busy. Last year my husband, **Cameron (BS 2014)**, and I did some travelling to Glacier National Park and to China. I included a photo of the two of us on Mount Tai in China, one of the seven sacred mountains. We also just bought our second home in Rocky River, we are very excited!



*Bridget and Cameron at Mount Tai*

**David Shank, MS 2002.** After graduation I spent the next 11 years working in the mining industry as a consultant and corporate geologist. My duties were varied but were always focused on exploration, environmental/regulatory compliance and planning.

In 2011 I started a consulting firm with a colleague whom I met in undergraduate school in Potsdam, NY. Since then we have been busy with clients with operations throughout the US and Canada, but most of our work is close to home in NY and PA. However, we have had projects as far away as Alaska and western US.

In 2015 we entered the UAS (aerial drone mapping) service area to support our ground survey capabilities. We now have three drones which are used for aerial mapping including stockpile surveys, mine site surveys and construction applications.



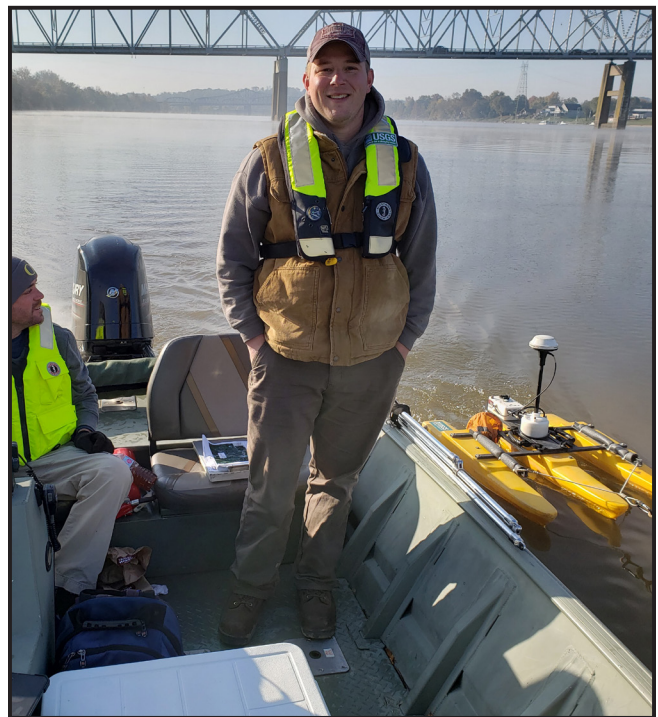
*Lilyann (8), Katie (4) and Levon (6) Shank.*

As for the family, Julie and I have three kids aged 8, 6 and 4! It's the greatest challenge of my life and has proved to be the most rewarding.

Since I haven't seen lots of my friends from Akron in many years, this is a chance to say "thank you" for all that you did for me. I'll never forget the experience and education which has been an important factor in the success I have enjoyed. Hopefully the students who are lucky enough to find themselves in the Department make the most of the opportunity. Your hard work will pay off but don't forget to enjoy life.

**Gayle (Suppa) Harman, MS 2012.** I work at Northrop Grumman, an aerospace and defense company. There, I work as a technician in the chemical laboratory in the areas of quality control and research and development. Prior to that I was working for the Department of Environmental Protection Mining and Reclamation State of WV as an Environmental inspector.

**Nick Wander, BS 2016.** I have been with USGS now for 7 months and have loved every minute of it. I spent most of the summer in Monroe County, WV running dye tracer tests to define drainage basin boundaries, and also measuring/mapping out depth to groundwater throughout the county. Additionally, I have been maintaining a few partial record surface water sites (primarily discharge measurements), and a groundwater site. Currently I have been working on a project in the Ohio River alluvial aquifers. We are collecting surface and ground water samples to understand the susceptibility of the Ohio River to infiltrate the aquifers.



*Nick on the Ohio river making a discharge measurement using a acoustic Doppler current profile (ADCP).*

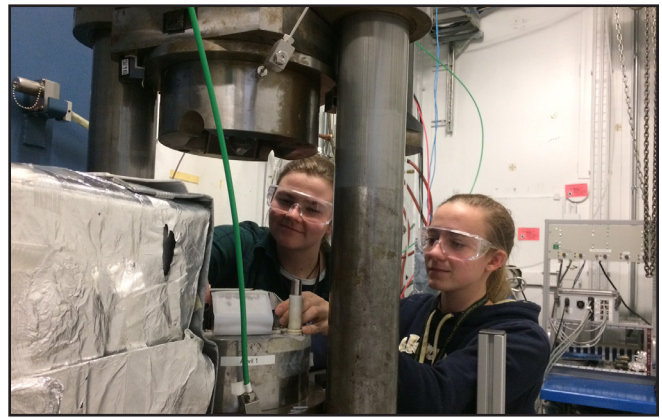


**Adrienne (Watts) Arney, BS 2014.** Adrienne and Jason Arney were married in June 2019.



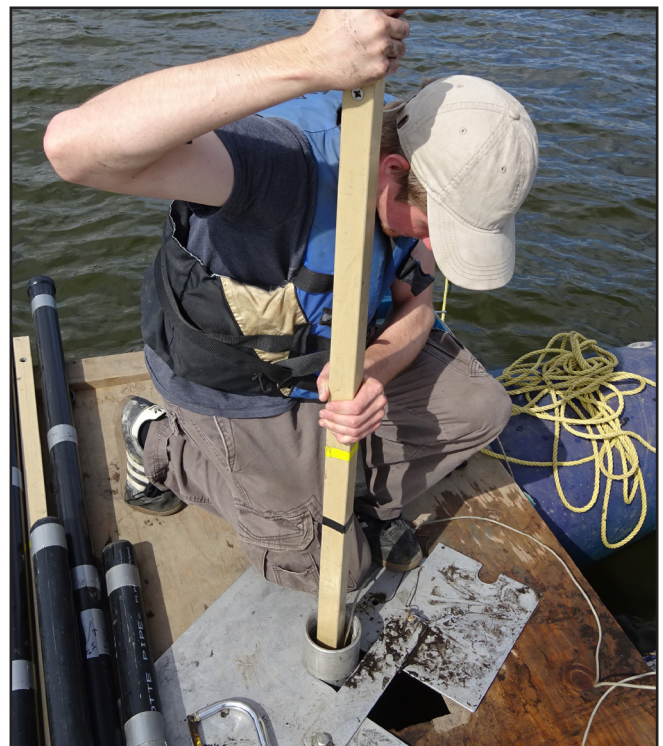
*Adrienne and Jason Arney*

**David R. Wunsch, MS 1982.** Continues to serve as Director and State Geologist for the Delaware Geological Survey, a position he has held since 2011. He has had numerous posts throughout his career, including at the National Ground Water Association (NGWA), where he served as the Director of Science and Technology, and as the State Geologist of New Hampshire from 2000 to 2010. He was recently elected as President of the American Geosciences Institute.



*Geoscience undergraduates Maria Razo (right) and Nicole Wagner (left) recently performed experiments to determine how granites form using a high pressure/temperature deformation apparatus at the X-ray synchrotron in the Advanced Photon Source at Argonne National Laboratory in Lemont, IL. They are investigating how the orientation of layering (foliation) and fraction of melt in rocks affects the formation of melt migration pathways, the first step of magma migration toward Earth's surface. Ms. Razo and Ms. Wagner used the X-rays generated by the synchrotron to image and determine pressure applied to the partially molten rocks during the experiments. These experiments are part of a National Science Foundation-funded project supervised by Dr. Holyoke. The students also had the opportunity to meet 2018 Nobel Physics Prize winner Donna Strickland of the University of Waterloo.*

## Students Do Research!



←↑ *Student researchers collecting sediment cores from Wingfoot Lake to study environmental magnetics.*



## UA Geology Students Excel!



Spring, 2019, geology majors Nicole Wagner (L), and Gavin DeMali (R), each received a \$1,000 academic award from the Ohio Oil & Gas Energy Education Program for outstanding geologic academic performance. Vanessa Hamilton (center), executive vice president of business development for Utility Pipeline Ltd., presented the awards.



April, 2019, Geoscience majors (left to right) Nicole Wagner, Brynne Burgy, John Marke, Sierra Swisher, Brandon Kopfer, and Zach Santangelo each made excellent research presentations at the UA Research Symposium and three won awards!

At the Stark County Ohio Gem and Mineral Club's July meeting the 2019 Stark County Ohio Gem and Mineral Club \$1500 scholarship winner, Megan Ryan was the guest speaker.

## Field Camp Fun (this never gets old)!

UA field campers Jacki Curtis (below), Stormy Eshelman (R bottom) and Jake Waller (R top) continue the long standing tradition of dinosaur riding while refueling on the road in North Platte, Nebraska, the lunch stop on the way back to Akron.





# 2019 Course Field Trips

Faculty and students went on many enjoyable field trips in order to teach Sedimentology-Stratigraphy, Physical Geology, Environmental Magnetism, Rivers Seminar, Structural Geology, Geochemistry, Independent Research and Field Camp. On these trips students are required to make measurements, interpret results and often produce substantial written reports. Although these reports require much effort by everyone involved, the reports provide evidence of the student's abilities when they apply for graduate school or jobs. Your generous donations make these trips possible! Thank you!



*Rivers Seminar*



*Sedimentology-Stratigraphy*



*Rivers Seminar*



*Structural Geology*



*Sedimentology-Stratigraphy*



*Structural Geology*



# Field Camp 2019

## WE HIT THE ROAD...



## WE PRACTICED OUR SKILLS...



## WE HIKE..A LOT!



## WE SAW THE SITES...







**WE CONQUERED...**



**WE TIRED!**



**WE CHECKED OUT THE FLORA...**



**WE MET THE LOCALS...**

## **In Memoriam**



### **EDWARD HARRY BOLLINGER**

1926-2019

*Condensed from Akron Beacon Journal*

Edward Harry Bollinger, 92, died August 7, 2019. He was the only surviving child of Harry William and Arlisle Roberts Bollinger. He was born in Milwaukee, Wisconsin on August 30, 1926. He lived his early years in Sharon and Menomonee Falls, Wisconsin. He attended grade school in Milwaukee, junior high school in Leavenworth, Kansas, and Wiley High School in Terre Haute, Indiana.

Ed enlisted in the Naval Reserve in 1943 and was assigned to the Navy college V-12 program at Purdue University and then at the University of Oklahoma receiving a degree in naval science and was commissioned as an Ensign in the USNR in 1946. He served one year aboard the aircraft carrier Valley Forge.

In 1949 he received a BS in Chemical Engineering from Rose Polytechnic Institute and in 1951 a MS in Chemical Engineering from the University of Illinois. While employed at the Battelle Memorial Institute he attended the graduate school at the Ohio State University where he earned a PhD in Chemical Engineering in 1958.

He married Mary Louise Moyse in April 1956 in Columbus Ohio. BF Goodrich employed him for 30 years in various divisions including Chemical Engineering Research, Aerospace, Corporate New Products, Aerospace Research, Tire Company, and Corporate Research.



Ed was a long time member of the American Institute of Chemical Engineers serving as Chairman of the Akron Section and was named their Chemical Engineer of the year in 1990. He was elected a Fellow of AIChE in 1999. He remained active in the Naval Reserve serving in NRRC 4-6 in Columbus and NRRC 4-8 in Cleveland. He served as CO of NRRC 4-8. He retired with the rank of Commander.

Ed was involved in the affairs of Fairlawn-West United Church of Christ serving at various times as the Senior Deacon, Chairman of the Board of Trustees, and Moderator. He was a member of the Summit County Taxpayers Association, Chairman of the Cuyahoga River Basin Water Quality Committee, and Chairman of the Akron Panel on Water Quality.

After retirement he remained active with volunteer work including the Summit County Energy Conservation Task Force, The AARP Tax Aid Program and he worked for the US Census in 1990 and 2000.

As a lifelong learner he was a participant in the 60+ program at the University of Akron taking courses in geology, history, political science, economics, physics, and chemistry.

Retirement opened the door for travel and adventure with his wife Mary. They traveled to many National Parks, Hawaii, Germany, Switzerland, Bermuda, Jamaica, and Caribbean cruises. He was elected a Republican Precinct Committeeman and a member of the Republican Central Committee. Ed was a blood donor was active in many civic and social groups including The Revere Village Civic Association, The Franklin Club, and Goodrich retiree groups. He loved the outdoors and the Summit County MetroParks. He was proud to have completed over 40 Fall Hiking Sprees. He enjoyed a lifelong interest in history, astronomy, and stamp collecting.



## **RANDALL SCOTT HARTONG**

1960 - 2019

*Condensed from Akron Beacon Journal*

Our beloved Randy was suddenly called to his heavenly home on November 26, 2019, at the age of 59 years. Randy was born on September 8, 1960, in Barberton, Ohio, to Wilbur James Hartong, Jr., and Monna Mae Hartong. He was raised in Green, Ohio, at a time when it was rural, and fertile farming fields dominated the landscape. He came

from a sturdy stock of German farmers via the Pennsylvania Dutch country on his father's side, and the Walker family who farmed in nearby Greentown, Ohio, on his mother's side. With the exception of one year spent milking cows for his family in Carrollton, Ohio, Randy attended Kleckner Elementary School through 6th grade, and graduated from Green High school in the class of 1978. Randy was an inexhaustible and successful participant in Junior Achievement, wielded his baritone horn with verve and precision in the marching band, and took the lead in many school plays with his baritone singing voice and boisterous thespian skills. Randy was affectionately known as the "heart" of his high school class, from which he maintained numerous close friendships for the next 40 years.

He graduated from the University of Akron in 1984, with a Bachelor's of Arts degree in Geology and went on to become a Senior Certified Industrial Hygienist and Health, Safety and Training Manager, first in Barberton, Ohio, for BWXT, then in Idaho also for BWXT, a contractor at the Naval Reactors Facility. Randy loved life, nature, and especially people . . . everything God had provided him. He was an artist at heart, able to discern the beauty in all of God's creations, and enjoyed "getting lost" on Sunday afternoon drives, "going on an adventure" as Randy would say, into the mountains, forests, along the rivers and landscapes of the Rocky Mountain region. He learned to fly fish in the Henry's Fork of the Snake River, hiked in the Teton, Sawtooth and Bitterroot Ranges, and loved to hop the border into Montana for a day.

He could just as easily be great company at the jigsaw puzzle table as he could be laying an outside deck for a neighbor, or attending a "coach's meeting" at the local pub. One could say that to be in the presence of Randy Hartong and his giant personality was, in and of itself, a grand adventure.

As a bachelor at age 50, Randy re-discovered his good friend Becky Radovic from junior high school, they fell in love, and became husband and wife on October 15, 2011, at the O'Neil House in Akron, Ohio. Suffice it to say, wherever Randy trod, his "family" grew. This gentle and gracious giant was deeply loved and respected by all who knew him. He was an incredibly loving, caring, Godly man with a beautiful soul. He was a divine gift as a husband, and a patient, kind and loving step-father to Daisy, Henry and Caroline. He proved himself a Special Olympics cheerleader and supporter extraordinaire.

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## **Grants Received**

2019-2024, NSF Geosciences, PI-Holyoke, CAREER: Experimental Investigation of Viscous Anisotropy of Foliated Rocks: Implications to the Strength of the Mid to Lower Continental Crust, \$512,045

2019-2022, NSF EAR (Earth Sciences) Geobiology and Low-Temperature Geochemistry Program: Mechanism of mineral-promoted RNA polymerization. P.I. N. Sahai. \$ 516,341.

# Scholarly Activities

(Current or past Geosciences students are in italics and Geosciences faculty are in bold print)

## PUBLICATIONS

- Behrendt, L., Trampe, E.L., Nord, N.B., Nguyen, J.K.T., Kühl, M., Lonco, D., Nyarko, A., Dhinojwala, A., Hershey, O.S., **Barton, H.A.** 2019. Life in the dark: Far-red absorbing cyanobacteria extend photic zones deep into terrestrial caves. *Environmental Microbiology* (in press).
- Chen K., Ustriyana, P., Moore, F. and **Sahai, N.** 2019. Biological response of and blood plasma protein adsorption on Silver-doped hydroxyapatite. *ACS Biomat. Sci. Engg.* 5, 561-571.
- Crafton, E., *Pritchard, C.*, Guo, L., **Senko, J.M.** and Cutright, T.J., 2019. Dynamics of Mn removal in an acid mine drainage treatment system over 13 years after installation. *Environmental Earth Sciences* 78:10.
- Dalai, P. and **Sahai, N.** 2019. Protocell emergence and evolution. In *Handbook of Astrobiology*, ed. Vera Kolb. CRC Press, Boca Raton, FL., Chapter 7.2. INVITED.
- Engelhardt, S., Vogel, J., Duirk, S.E., Moore, F.B. and **Barton, H.A.** 2019. Assessment of urea hydrolysis as a pretreatment strategy to improve total nitrogen rejection from urine using aquaporin-based membranes in forward osmosis. *Water Research* 34:101135.
- Engelhardt, S., Vogel, J., Duirk, S.E., Moore, F.B. and **Barton, H.A.** 2019. Urea and ammonium rejection by an aquaporin-based hollow fiber membrane. *Journal of Water Process Engineering.* 32:100903
- Gan, H.M., Wengert, P.C., **Barton, H.A.**, Hudson, A.O. and Savka, M.A. 2019. Whole-genome sequencing of five Proteobacteria isolated from Lechuguilla Cave, New Mexico, USA: Insight into taxonomy and quorum-sensing. *Microbial Resource Announcements* 8 (40):e00913-19.
- Hochella, M.F., Jr., Mogk, D.W., Ranville, J., Allen, I.C., Luther, G.W., Marr, L.C., McGrail, P., Murayama M., Qafoku, N.P., Rosso, K.M., **Sahai N.**, Schroeder, P.A., Vikesland, P., Westerhoff, P. and Yang, Y. 2019. Emerging understanding of anthropogenic and natural nanoparticle impacts on Earth systems. *Science* 363, eaau8299. Review paper, INVITED.
- Iverson, E., **Steer, D.**, Gilbert, L., Kastens, K., O'Connell, K. and Manduca, C. 2019. Measuring literacy, attitudes, and capacities to solve societal problems, in AESS Interdisciplinary Environmental Studies and Science, D. Gosselin, A. Egger and J. Taber editors, Springer, Basel, Switzerland.
- Leitholf, A.M., Fretz, C.E., Mahanke, R., Santangelo, Z.* and **Senko, J.M.**, 2019. An integrated microbiological and electrochemical approach to determine distributions of Fe metabolism in acid mine drainage-induced "iron mound" sediments. **PloS one** 14:e0213807
- Mankoci, S., Ewing, J., Dalai, P., **Sahai N., Barton H.A.** and Joy, A. 2019. Bacterial membrane selective antimicrobial peptide mimetic polyurethanes: A study of their structure-property relationships and mechanisms of action. *Biomacromolec.* DOI: 10.1021/acs.biomac.9b00939.
- Novello, J.A.* and **Sasowsky, I.D.**, 2019. Formation mechanisms for the largest sandstone sinkhole in Ohio: *Journal of Cave and Karst Studies*, v. 81, no. 1, p. 44-56.
- Oduro Appiah, J., Opio, C.* and **Donnelly, S.**, 2019. Quantifying, comparing, and contrasting forest change pattern from shale gas infrastructure development in the British Columbia's shale gas plays. *International Journal of Sustainable Development & World Ecology.* 1-15.
- Oduro Appiah, J., Opio, C.* and **Donnelly, S.**, 2019. Measuring forest change pattern from shale oil and gas land use dynamics in northeastern British Columbia, 1975 to 2017. *Environmental Monitoring and Assessment.*192:24.
- Sahai, N.** and Schoonen, M.A. (2019) Accuracy of thermodynamics databases for hydroxyapatite dissolution constant. *Astrobiology.* doi.org/10.1089/ast.2019.2158
- Steer, D.**, Iverson, E., Egger, A., Kastens, K., Manduca, C. and McConnell, D. 2019. The InTeGrate materials development rubric: A framework and process for developing curricular materials that meet ambitious goals, in: AESS Interdisciplinary Environmental Studies and Science, D. Gosselin, A. Egger and J. Taber editors, Springer, Basel, Switzerland.
- Wasman, W., Beatman, T., **Donnelly, S.**, Flinn, K., **Spencer, J.** and Trimbath, R., 2019. Branching Out: Using Historical Records to Connect with the Environment. *The Journal of Interactive Technology and Pedagogy.* 14
- Wisshak, M., **Barton, H.A.**, Bender, K.E., and DuChene, H.R. 2019. Active growth of non-hydrothermal subaqueous and subaerial barite (BaSO<sub>4</sub>) speleothems in Lechuguilla Cave (New Mexico, USA). *International Journal of Speleology* 48(3):305-319

## ABSTRACTS AND ORAL PRESENTATIONS

- Barrett, Linda R.**, 2019. Forest-site relationships in north-central Ohio as determined from General Land Office survey notes. Presented at the annual meeting of the American Association of Geographers, Washington, DC, April 5, 2019.
- Braccia, C., Holyoke, C.W.*, 2019. Transient Effects of a Pre-existing Lattice Preferred Orientation on the Strength of a Foliated Quartzite, Abstract T41A-07 presented at 2019 Fall Meeting, AGU, San Francisco, CA, 09-13 Dec.
- Calapa, K., Mulford, M.K., Parker, C., **Senko, J., Sasowsky, I.D., Barton, H.A.**, 2019. Column experiments show facilitation of Fe mass transport by rock-breathing microbes, AGU Fall Meeting December 2019, San Francisco, CA.
- Holyoke, C.W., Millard, J.W., Wells, R.K., Blasko, C., Kronenberg, A.K., Raterron, P., Braccia, C., McDaniel, C., Tokle, L., Jackson, N.**, 2019. Pressure dependence of magnesite creep, Abstract MR41B-0059 presented at



2019 Fall Meeting, AGU, San Francisco, CA, 09-13 Dec.

Kosič Ficco, K. and **Sasowsky, I.D.**, 2019. A unified interdisciplinary approach for the protection of karst aquifers: *Program of the 2019 National Cave and Karst Management Symposium*, 7 – 11 October 2019, Bristol, Virginia, p. 33.

Kopfer, B. and **Peck, J.A.**, 2019. A record of anthropogenic environmental impacts from the sediments of Nesmith Lake, Ohio. *Geological Society of America Abstracts with Programs*. doi: 10.1130/abs/2019NE-328591

Marke, J. and **Peck, J.A.**, 2019. Continued Monitoring of the Geomorphological and Sedimentological changes to the Middle Cuyahoga River, Ohio as a Result of Two Dam Removals. *Geological Society of America Abstracts with Programs*. doi: 10.1130/abs/2019NE-327965

Monty-Bromer, C., Miller II, R., **Senko, J.**, Stevenson, B., Crookes-Goodson, W., 2019. Electrochemical screening techniques towards the microbial role in corrosion of biofuel storage tanks, 7th International Symposium on Applied Microbiology and Molecular Biology in Oil Systems, June 2019 Halifax Nova Scotia.

Mulford, M., **Senko, J.**, Mukherjee, A., Calapa, K., Kawaichi, S., **Barton, H.A.**, 2019. Coupling Microbial Iron Redox Reactions to Iron and Silicate Mobilization in Banded Iron Formations, AGU Fall Meeting December 2019, San Francisco, CA

**Peck, J.**, 2019. Sediment studies of environmental change in NE Ohio: Implications for watershed management. Ohio Federation of Soil & Water Conservation Districts 75th Annual Meeting Columbus, OH.

Prakash, A., **Holyoke, C.W.**, Kelemen, P.B., Lamb, W.M., Kirby, S.H., Kronenberg, A.K., Raterron, P., 2019. Localized Shear and Thermal Softening of Magnesian Carbonates in Downgoing Slabs: A New Model for Intraslab Earthquakes, Abstract S13C-0461 presented at 2019 Fall Meeting, AGU, San Francisco, CA, 09-13 Dec.

**Sasowsky, I.D.**, 2019. Human influenced sediments in karst systems: *Geological Society of America Abstracts with Programs*, v. 51, no. 5, doi: 10.1130/abs/2019AM-340506.

**Sasowsky, I.D.**, 2019. Karst hydrogeology: Who, what, why, where, when, and how (Abstract for invited lead keynote lecture), in: Blatnik, M., Gabrovšek, F., Kogovšek, B., Mayaud, C., Petrič, M., and Ravbar, N. (eds.), Abstracts and Guidebook for the 27th International School "Classical Karst": Karst Hydrogeology – Research Trends and Applications, Karst Research Institute, Založba ZRC, Scientific Research Centre of the Slovenian Academy of Sciences and Arts, p. 124.

**Sasowsky, I.D.**, 2019. Magnetism of Cave Sediments, in: White, W.B. Culver, D.C., and Pipan, T. (eds.), Encyclopedia of Caves, 3rd ed., Elsevier-Academic Press, Chennai, India, p. 658-664.

Swisher, S.E. and **Peck, J.A.**, 2019. A deglacial pollen record from the sediments of Silver Lake, Summit County, Ohio. *The Ohio Journal of Science*, vol. 119, no. 1, page A-10, Abstracts.

Swisher, S.E. and **Peck, J.A.**, 2019. A pollen record of the Younger Dryas from the sediments of Silver Lake, Summit County, Ohio. *Geological Society of America Abstracts with Programs*. doi: 10.1130/abs/2019NE-328336

## Degrees Awarded

### Spring 2019

Paul, Rachael B	MS Geography - Non-thesis
Battaglia, Zachary A	BS Geography - GIS
Green, Lucas D	BS Geography - GIS
Turney, Cameron B	BS Geography - GIS
Keogh, Brian V	BS Geology
Marke, Jonathan D	BS Geology
Mercier, Joshua K	BS Geology
Popovich-Martin, Kailyn	BS Geology
Thomas, Christopher D	BS Geology
Bercsik, Emily A	BA Geology - Earth Science
Christian, Elizabeth C	BA Geology - Earth Science
Pastore, Annamaria M	BA Geology - Earth Science
Russ, Logan J	BA Geology - Earth Science
Benko, Blake A	BA Geology - Enviro Science
Burgy, Brynne E	BA Geology - Enviro Science
Smith, Jhenna A	BA Geology - Enviro Science
Swisher, Sierra E	BA Geology - Enviro Science
Weber, Alex A	BA Geology - Enviro Science

### Summer 2019

Paudyal, Pramila	MS Geography - Thesis
Schneider, Robert A	BS Geography - GIS
Santangelo, Zachary C	MS Geology
Januzi, Andrew E	BS Geology
Kloecker, Katherine J	BS Geology
Kopfer, Brandon M	BS Geology
Smith, Hannah K	BS Geology
Young, Steven A	BS Geology
Curtis, Jacqueline T	BA Geology - Earth Science
Pettit, Mia J	BA Geology - Earth Science
Barreto, Juan C	BA Geology - Enviro Science
Eshelman, Stormy L	BA Geology - Enviro Science
Johnsen, Bryan A	BA Geology - Enviro Science

### Fall 2019

Lambur, Michael A	MS Geography - Non-Thesis
Duffy, Lawrence K	MA Geography
Minor, Chase A	BS Geography - GIS
Newell, Joshua J	BS Geology
Schertz, Matthew R	BA Geology - Earth Science
Dargay, Matthew J	BA Geology - Enviro Science
Knapp, Samantha M	BA Geology - Enviro Science
Paul, Brielle K	BA Geology - Enviro Science
Reiman, Tyler D	BA Geology - Enviro Science
Sawicki, Stephanie K	BA Geology - Enviro Science

## Donations received in 2019

Thanks to the following individuals, charitable funds and corporate matching funds, we received a total of \$25,330 in 2019. Thank you so much for your generosity!

### DEPARTMENT OF GEOSCIENCES

Mr. Michael P. Angle  
Mr. James V. Bikun  
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Mrs. Rebecca A. Clotts  
Mr. James D. Coffman  
Mr. and Mrs. Glenn C. Cranston  
Kerry and Elaine Estes  
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Mr. Thomas J. Tobias  
Mrs. Valerie J. Woodward

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Mary Ann and Bruce E. Archinal Charitable Fund  
W C Beck Incorporated  
Benevity Fund  
Richard Lorson Family Charitable Foundation  
Lubrizol Foundation

### ENVIRONMENTAL MAGNETICS LAB

Mr. Gary M. Harris

### ARTHUR E. BURFORD ENDOWED SCHOLARSHIP

Dr. Judythe A. Hummel  
Mr. and Mrs. William Landin

### GEOLOGY ALUMNI MEMORIAL SCHOLARSHIP

Mr. Philip A. Fox

### GEOSCIENCES FIELD EXPERIENCES

Mr. Charles E. Gross  
Ms. Dominique M. Poncelet

### DR. PAUL C. FRANKS ENDOWED SCHOLARSHIP

Mr. Frank A. Marsek  
Dr. Ira D. Sasowsky

### GEOSCIENCES VAN MAINT. & REPLACEMENT

Mr. and Mrs. Kevin D. McVey

### DONATION IN KIND RECEIVED

LMKR GeoGraphix software, value ~ \$5,500,000.

## Geoscience Program Awards

### GEOLOGY ALUMNI SCHOLARSHIP (\$500)

Krob, Jorian

### GEOLOGY ALUMNI MEMORIAL SCHOLARSHIP (\$200 OR \$400)

Kahn, Alexandra (\$200)  
Paul, Brielle (\$200)  
Januzzi, Andrew (\$400)  
Kloecker, Katherine (\$400)

### PAUL C. FRANKS ENDOWED SCHOLARSHIP IN RESOURCE GEOLOGY (\$400)

Alexander, Zachary    Smith, Hannah  
Curtis, Jacqueline    Waller, Jacob  
DeMali, Gavin        Young, Steven  
Romesberg, Emma

### JAMES F. FITZGERALD, JR. MEMORIAL SCHOLARSHIP (\$500)

Alexander, Zachary  
Swisher, Sierra

### THE HSIN KWUNG CHEN ENDOWED FELLOWSHIP (\$500)

Paudyal, Pramila

### GEOLOGY FIELD CAMP AWARD (\$100)

Eshelman, Stormy  
Palte, Joseph  
Pettit, Mia  
Schertz, Matthew

### ROGER P. AND KATHLENE SNOBLE ENDOWED SCHOLARSHIP (\$500)

Green, Lucas  
Schneider, Robert

### ARTHUR E. BURFORD ENDOWED SCHOLARSHIP (\$500)

Wagner, Nicole



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Gifts from alumni and friends are vital to the success of Geosciences – both the program and the students! Each year, donor support makes it possible for deserving, hardworking students to attend field camp or afford tuition; for labs to be updated; and for programming to be enriched – all of which results in an outstanding academic experience. Your gift is tax deductible and 100 percent is used toward the designation of your choice. Please see the enclosed envelope for areas of greatest need or designate your gift to one of the following scholarships. Thank you for your consideration!



*Field Camp, 2019.*

### **ARTHUR E. BURFORD ENDOWED SCHOLARSHIP FUND (638035)**

Established in 2018, this scholarship will be awarded to full-time Geology students with demonstrated scholastic achievement, with an emphasis towards degree completion, as well as superior character and leadership. The scholarship is renewable provided recipients remain in good academic standing.

### **PAUL C. FRANKS ENDOWED SCHOLARSHIP FUND (637303)**

The scholarship was established in 2010 in memory of Dr. Paul C. Franks to support geology majors interested in the resource side of geology (minerals, oil, gas, etc.). Preference is given to students from Northeast Ohio who are attending Geology Field Camp.

### **GEOLOGY ALUMNI MEMORIAL SCHOLARSHIP FUND (637348)**

Established in 1991 with the express purpose of assisting eligible students to participate in the Geology Field Camp. This endowed fund provides support for a geology major with a 3.0 GPA or better who has completed at least 15 credits in geology. The student must have promise as a geologist and demonstrate enthusiasm, participation, interest and knowledge. Scholarship awards will be distributed each year from the fund's accumulated interest.

### **GEOLOGY ALUMNI SCHOLARSHIP FUND (636263)**

This fund supports student attendance at Geology Field Camp as well as the Outstanding Graduate Student award. Students must be a currently enrolled, major having completed 21 credits of science, engineering, or math courses, have at least 8 credits in Geosciences and have a 3.3 GPA or higher.

### **JAMES F. FITZGERALD, JR. MEMORIAL SCHOLARSHIP FUND (637285)**

Established in 1980, this scholarship honors the memory of James F. Fitzgerald, Jr., a 1970 geology graduate killed during the eruption of Mount St. Helens volcano while engaged in field work for his doctoral dissertation as a graduate student at The University of Idaho. This scholarship is awarded to an outstanding geology senior selected by the faculty of the Department and is given to the outstanding senior graduating within the current academic year who has at least a 3.5 GPA, responsibility, integrity, industry, originality, ability to communicate and professional attitude.

### **GEOSCIENCES VAN MAINTENANCE AND REPLACEMENT FUND (639516)**

This fund allows the Department to maintain and periodically replace our fleet of two vans and pickup truck used for field trips and Field Camp.

### **GEOSCIENCES FIELD EXPERIENCES FUND (639572)**

This fund helps to defray student costs for field-based experiential learning activities.



## Giving to Geosciences

Support from alumni and friends – like YOU – is vital to the Department of Geosciences at The University of Akron. When you support scholarships and field camp, you make it possible for talented, deserving students to focus on their studies and reach graduation. When you make an unrestricted gift, you provide important funding to update labs and enrich programming.

Most importantly, this is an extraordinary and challenging time for our students, many of whom work in the service industry and are experiencing unexpected financial hardships. Your gift today can help ensure that ALL Geosciences students return to UA in the fall to continue or complete their degrees. ***Whether this is your first gift or your annual gift, please join with us and support our students. We are in this together.***