

DEAR ALUMNI AND FRIENDS:

Hi, I am Dave Steer. I am happy to report that the Dean appointed me as the Chair of the Department of Geosciences in late fall 2017. For those of you who do not know me, I received my Ph.D. in Geophysics from Cornell University in 1996. After that, I worked as Post-Doctoral researcher on nuclear treaty monitoring before joining the department in 1999. I continued my nuclear treaty-related efforts for a few years before transitioning my focus to environmental applications using shallow geophysical methods. That change better fit the interests and needs of the students here at Akron. At the same time I became deeply involved in geoscience education research. In that vein, I headed the assessment team for a large, NSF-funded initiative called the Interdisciplinary Teaching about Earth for a Sustainable Future (In-TeGrate) project. I was appointed as Associate Dean of Natural and Social Sciences in the summer of 2014. Later, the Social Sciences were turned over to another Associate Dean, but I was given a variety of additional duties including Interim Chair for several other departments in the Natural Sciences Division. Those additional duties effectively took me away from the internal working of the Department of Geosciences. Moving forward, I still retain my Associate Dean position but my main focus will be within the Department of Geosciences. Before I update you on happenings in the College and the Department, it is appropriate to thank Dr. Steve Weeks for stepping in as Interim Chair during these past couple of transitional years – Thanks Steve!

First on a positive note, faculties continue to make an impact locally and nationally, undergraduate enrollments remain strong, and our graduate students continue to excel. If you take time to read through the faculty narratives, you will see our faculty continue to garner external research support from NSF and other similar agencies. Department faculties continued to publish their work in nationally recognized journals. While we have not been immune to UA enrollment drops, we have a stable cohort of new students this year. We presently have 11 freshman, 35 sophomores, 31 juniors and 14 seniors on the roles. While the freshman class may presently look small, we usually double that between the freshman and sophomore years as students transfer in from other departments. On the geology side, the degree option mix is pretty evenly split between geology and environmental science majors.

On the geography side, almost all are GIS majors. Rest assured we are continuing to produce high quality students and research here in the Department of Geosciences.

On a less positive note, the University is undergoing many changes due to the budget crisis driven by poor fiscal management and dropping enrollments. Those changes are certainly affecting our department. Perhaps most notably, except for a couple of continuing students, Geosciences will lose all of its funding for teaching assistants next year. There is little chance we will regain any funding in the future. As an alumni or friend of Geosciences, you know this is a serious blow to the Department. If you were an undergraduate here, I am sure you remember working with graduate students in labs and in the field. Perhaps you got your Masters here. If so, you recognize the time and effort you provided to students and faculty alike as you worked your way through the program. We made a valiant effort to communicate the important role of our teaching assistants in the field-based, hands-on approach required for our disciplines; in the end that did not matter. As you can imagine, moving forward, we are going to have to adapt what we do and how we do it in order to continue to provide the highest quality education possible. We are currently in the process of deciding how to best make those changes. Your feedback in that regard is highly valued.

We would love to hear from you. If you don't know, we have a Facebook page – the link is listed on page 13. That is a great place to keep us apprised of happenings in your life. We are also thinking about developing a LinkedIn page – stay tuned on that one. We think that forum could allow for better professional networking for you and our students about to graduate. It would also provide information we can use to further document the successes of our graduates to higher administrators. For the time being, you can email any contact information changes or updates to Elaine Butcher (butch@uakron.edu). We thank you for your support and interest in our future.

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; 330-972-2099).

David Steer

Alumnus Report

Dear Alumni and Friends of the Department,

“You can’t always get what you want. ...”

While I was never a fan of the Rolling Stones, their late 1968 hit song addressed major topics of the time – Love, Politics and Drugs. Wow! Here we are 50 years later and we return to a similar theme.

As stated in the summary in Wikipedia, the song captured the essence of the initial optimism and eventual disillusion followed by the resigned pragmatism. Now as I look back on my long and varied career in the Earth Sciences, and having heard it played over and over at Trump primary rallies (even though the Stones declared they did not support him and asked him to stop), it brings the journey into focus. Like the primaries, the Republicans were not going to get what they wanted, but got what they needed – a business man that could win.

So where was I when I first heard it? I was in the Army preparing to go to Vietnam. Following that year of hell, I was assigned to an Armored Cavalry unit guarding the “then” East-West Border in Germany, where I could observe firsthand the “Cold War” difference between the Communist dictatorship in the East and the democratic system in West Germany. Both of these military experiences (the Hot war and the Cold War) drove me to decide I wanted to get into Education and try to make the Earth a better place. The GI Bill was available to Veterans, so I decided to leave the service and return to college.

After graduating from Baldwin-Wallace College majoring in Earth Science Education, the University of Akron offered me a Graduate Teaching Assistant position. This fork in the road changed my life for the better. I was still single at the time, and was very impressed with all of the Geology Department staff where I had taken my first graduate courses and wonderful field trips during the summer prior to starting graduate school. Had I not had this opportunity, I would have likely taken a job in the Cleveland Metro area teaching at the secondary level. That would not have been bad for me, and I am sure it would have been consistent with my goal to make the Earth a better place, in this case by turning out students with a love and respect for the Environment.

When I see that this might be the last year that the Department hires Graduate Assistants, it nearly broke my heart. The field of the Earth Sciences needs so many individuals with advanced degrees, without the assistantship opportunities, many students will not be able to attend graduate school. My experience at the University of Akron as a Graduate Assistant was one of the highlights of my life, and I cannot imagine my life without it.

My next fork was whether to enter the job market or go on to get a PhD. I applied for and got a Research Assistance position at Ohio State in Hydrogeology, investi-

gating the Ground Water / Surface Water Interface in Ohio. Thanks to my major advisor at Akron, Dr. Jim Jackson, who got me interested in Environmental Geology and helped me with all my field work around the Medina and Mentor landfills, and directed my research and writing for my Thesis, I was the preferred candidate over many others that had applied.

I could not have afforded to go to Columbus if it had not been for my wonderful wife, Karen, who I had met at Akron, because she was the Department secretary. We married and headed to Columbus where she secured a position in the Department of Educational Administration.

Upon graduation, it would have been nice to get a University or College teaching position in Ohio, but all positions available at the time were on the distant East or West Coasts. We decided instead on a position in the Mine Reclamation Division at Argonne National Laboratories. They did not have a job description at the time for an Environmental Geologist, or Ground Water Hydrologist, so I was offered a position as an Assistant Environmental Systems Engineer, mainly because I had done my Dissertation on the Ground Water / Surface Water Interface in Ohio. The USEPA had just released regulations on Coal Mining, and the USDOE was interested in how small operators would comply and what the economic impacts would be. Our team investigated many different types of Eastern US surface coal mines, some as far away as Alabama.

After that I was offered a position in the Mining Division as a Project Hydrologist at the Morrison-Knudsen Construction Company headquarters in Boise, Idaho. Most of the work was on Coal Mine Permits that had just become necessary and were very arduous compared to the prior USEPA regulations. When all the permits were finished, all around the same time, the department was much too large, and the company started a cycle of layoffs, every quarter. The only projects included long temporary assignments distant from home with trips back only once a month. While I survived four quarters of layoffs, and loved living in Idaho, it seemed like going to a consulting firm with plenty of hazardous waste work in New Jersey was the place to go.

I then took a job all the way across the country in New Jersey with Woodward-Clyde Consultants, a large geotechnical firm that at the time was critically short of ground water scientists with advanced degrees who could stand toe to toe on behalf of clients with State and Federal Regulatory Agencies. That work lasted for a very long time (13 years!) but when a new Federal administration came in and decided that risk assessment for each site was not consistent, cleanup standards were established for almost all types of sites. That meant that a technician with a year or two of training could supervise cleanups to standards. The value of a PhD with 20+ years of experience was limited. The company had just been part of a team that won the Management and Operating Contract at the Yucca Mountain Project based in Las Vegas, Nevada. Again, while we loved Morristown and the depth of history going back to the Revolution, it seemed like it was time to move again.

The Yucca Mountain Project was the largest Earth Science Project in the world at the time. Investigations were conducted by almost all of the USDOE National Laboratories, and many of the top experts in the United States were consultants to the project as well. The site, along with tens more, had been studied since 1978 and was designated by the Nuclear Waste Policy Act of 1987 (aka The Screw Nevada Act) as the only site of the three finalists to be studied as the first repository. The Act specified that at any time, if the site was found to be unsuitable, studies would stop immediately. I went in with an open mind. I had previously spent a short stint on the Eastern Granite "Second" Repository siting study and was convinced that granite would be the best option for nuclear waste isolation for hundreds of thousands of years. The problem was that most granite batholiths were excluded by the siting criteria, so the Granite program was suspended and relegated to the back burner.

At first it was daunting trying to get my arms around the scale of the investigations. Previously, I was dealing with projects in the thousands to maybe hundreds of thousands of dollars. Yucca Mountain individual investigations were often discussed in terms of millions. In my prior experience first water was normally encountered near surface or maybe tens of feet down. At the Mountain, the first water was 1,000 to more than 1,500 feet down. It took a while, but after a few years of working with the premiere scientists and engineers from the National Labs and many of the Universities, I also became convinced that this was the best possible solution for nuclear waste disposal in the US. Politics raised its ugly head again like it had throughout my career and the Administration closed the project two years after the License Application had been submitted for evaluation by the USNRC. The decision was political to repay the Senate Majority Leader (from Nevada) who had worked to get the President elected. Science be damned! Politics trumps science and engineering, so close down the project even though the USNRC review deemed the application complete and generated their own Safety Evaluation Report finding the site licensable, and was beginning the public litigation phase.

This time, with my sons either just finishing high school or in college in Las Vegas, we decided not to move to the places others from the project went – Richland, WA, Oak Ridge, TN or Savannah River, SC where major USDOE funded nuclear waste cleanups were underway. At least until my two sons were on their own, Las Vegas would be our home.

All of my jobs were very exciting and demanding, and all allowed me to feel like I was really making a difference. We moved way too often and had to re-establish working relationships with new teams each time. Starting new jobs and establishing new households for both me and my wife was trying at times, and often made us consider if we took the right pathway at any of the times.

The field of Earth Sciences can be cyclical. If you want to stay local and make a difference, you can. You can teach

at the secondary or junior college level, or take one of many positions in local, state or Federal Government. Otherwise, expect to travel and change jobs as the industry cycles.

From the chorus: *"You can't always get what you want. ... But if you try, sometimes you might just find, you get what you need."* As I look back pragmatically on my long and varied career in the Earth Sciences, I can see, I didn't always get what I would have preferred, but because of disruption by politics and my desire to make a difference on Earth, I found I got what I needed.

MISSION ACCOMPLISHED!

Roger J. Henning

PhD The Ohio State University, 1980

MS-Earth Science, The University of Akron, 1976



Part time faculty during 2017

The following part-time faculty taught courses during calendar year 2017, and their contributions are greatly appreciated.

Dr. Robert Barrett
Mr. Paul Becks
Dr. Annabelle Foos
Mr. Nicholas Frankovits
Dr. LaVerne Friberg
Dr. Ronald Runeric
Dr. Lee Thibodeaux

Faculty News



MEAGAN ANKNEY, PH.D.

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In Spring Semester 2017 Meagan taught Physical Geology and Silicate Mineralogy and Petrology. Just after the spring semester ended, she was offered and accepted a position at Northwestern University in Evanston, Illinois, where she is managing the Radiogenic Isotope Lab and working as a research associate. Meagan enjoyed her time at the University of Akron and leaves with many fond memories of her students and times spent with other faculty, staff, and graduate students. Of special note during her last semester at Akron an a trip to Shenandoah National Park with the Silicates class, where she and students delighted in examining the ancient metamorphic and igneous history of the region while soaking in beautiful mountain views.



↑↪ *The formation of the Appalachian Mountains created the appropriate conditions, and new minerals such as chlorite and epidote grew within the old basalt. These new minerals gave the rock a greenish color, so that today it is called greenstone, to distinguish it from unaltered basalt. Greenstones contain columnar jointing, a fracture pattern that forms as liquid basalt flows cool and solidify. The lava contracts as it cools, and under the right conditions will form very angular, polygonal cracks which can extend vertically for many tens of feet. - text modified from <https://www.nps.gov/shen/learn/nature/greenstone.htm>*



LINDA R. BARRETT, PH.D.

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In Spring Semester 2017 Linda taught both Advanced GIS and GIS Programming and Customization. In the fall she taught Remote Sensing, Research Methods in Geography and Planning, and a special topics course on Environmental Applications in GIS. Her summer course was Applications in Cartography and GIS.

Between the end of spring semester and the beginning of the second summer session when the Applications course was offered, Linda had some time to relax and do some travelling, which included a week at a church-related conference, some time at Bob's family's cottage on Lake Michigan, and a quick drive to Atlanta for a weekend reunion with her high school class. (And no, she did not attend high school in Atlanta, but it turned out to be a convenient location for the class to get together.)

Meanwhile, she continues to work with colleagues in Archaeology and Chemistry to explore applications of shallow subsurface soil spectroscopy ("S4") to archaeological investigations. Most recently, they have been working to test whether this could be used to help verify the location and extent of a Native American burial ground in Minnesota. They also continue to work with data collected last year at several archaeological sites in Kansas.

Linda's current research project is to reconstruct the forests of several counties in north central Ohio from the early 1800s using records from the original congressional survey of the area. The records, once incorporated into a GIS environment, can be related to the site characteristics (e.g., soil texture, drainage class, and slope). Other historical information with a spatial component, such as a map of farm woodlots from the mid-1800s, can also be related to these.





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It's been another busy year in Hazel's lab. The highlight of 2017 was being awarded, along with Drs. Senko and Sasowsky, a National Science Foundation grant from the Geobiology and Low Temperature Geochemistry program. This \$400,000 grant, which was based on the excellent work of PhD student Ceth Parker, will continue support our work on the Banded Iron Formation caves of Brazil, including a new Masters student, Kayla Capala. We've already published two papers on this project and hope to publish two or three more this year, in time for Ceth to graduate this summer.

Outside of the iron work, we continue our various cave projects, including the aquifer work in Wind Cave National Park. We have begun to collaborate with the Joint Genome Research Institute to understand the genetics of the really unusual microorganisms that are found in the aquifer, many of which are smaller than the theoretical size limit for life. We also continued the work that attempts to understand the formation of saltpeter deposits in caves, including whether microorganisms play a role in its formation. In support of this we received a permit from Mammoth Cave National Park to work in Mammoth Cave, and are working with a geochemist from the Department of Biology, Dr. Anne Wiley. Our initial findings suggest that nitrate accounts for as much as 4% of the total sediments! No wonder they used it to make gunpowder!

We had another new graduate student join the lab this year; Canadian caver Katey Bender will be working on antibiotic discovery in Lechuguilla Cave, and has already had her first eight day camping trip in the cave to collect samples.



Hazel Barton ascending out of Lechuguilla Cave after a week long expedition to the Western Branch of the cave.



JOHN BELTZ
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John will be starting his 25th year of teaching at the University of Akron by continuing to instruct Historical Geology, Physical Geology, Introduction to the Oceans, and Dinosaurs.

Last summer, John and Tom Quick took over the Wetlands class from Forrest Smith. John taught the sections covering wetland types, wetland determination and basic plant identification (Forrest returned for a day to assist with things botanical). Tom instructed new sections covering the chemical analysis of wetland water and soil samples collected on two field trips. Believe it or not, the mostly non-science students not only understood the chemistry involved, they enjoyed it. John and Tom will run the course again this summer, collecting more data from Tom's wetland. They hope to do this for several years to track its continuing evolution.

John continues to serve as secretary for the Department's faculty meetings after more than fifteen years. In his spare time, he hikes, works on improvements to his new house and takes his kids on field trips around Ohio. Thirteen-year-old Hollie and nine-year-old Will still enjoy long walks (they now have a field and a wooded area in their backyard), fossil collecting and geocaching with mom and dad. Will still wants to be a math teacher when he grows up, and Hollie excels in science, so John figures he must be doing something right.



Which way is up? Mammoth Cave field trip 2017.



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Meera has been teaching multiple sections of Intro to Geography, Cultural Diversity and World Regional Geography. Due to an increased demand for remote learning, she has created 100% online sections of Intro to Geography and Cultural Diversity. These sections have already attracted an increased number of students.

She served on the steering committee and organized the New Explorations in Teaching (NEXT) conference in February 2017. This conference is an annual gathering at The University of Akron to share new ideas and explore topics that affect teaching in higher education.

The year had been extremely busy for her on the personal front too with the marriage of her son in June 2017.



SHANON DONNELLY, PH.D.
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Shanon was hired as an Assistant Professor in August 2013 and has been actively developing his research interest in Land Change Science and working with students in his geospatial research lab. Over the past years, he has enjoyed teaching a number of courses including GIS, Spatial Analysis, GIS database design, Field Research Methods, Open Source GIS, and Mapping with UAS (drones). Students have collaborated with a number of community partners on projects such as mapping the rapidly expanding local food production network in Akron, developing spatial data collection field protocols for the Metro Parks Serving Summit County, and creating spatial databases for the Cleveland Museum of Natural History.

His research has largely focused on measuring and modeling land change resulting from shale gas drilling in the region and the use of unmanned aerial systems, drones, in various vegetation mapping applications. Shanon tested new mapping methodologies using UAS at the Panzner Wetlands Wildlife Refuge and Bath Nature Preserve looking at fine scale vegetation and hydrology changes using computer vision approaches with multispectral imagery. Graduate students have worked on shale gas related projects using GIS and remote sensing approaches to measure land cover change and household surveys to understand impacts on residents. Shanon presented research and served on discussion panels for sessions focusing on land change and shale gas production at regional and national meetings in 2017.



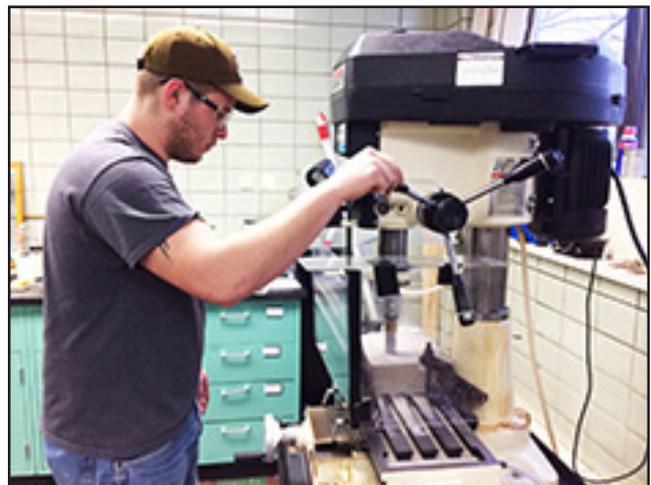
CALEB HOLYOKE, PH.D.
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In 2017 Caleb taught Field Camp II, Structural Geology, Advanced Structural Geology and Physical Geology. Caleb also continued as the undergraduate advisor for the geology majors.

The rock mechanics laboratory has been very active this past year. Three graduate students (Edward Poston, Albert Barbery and Paul Krasner) graduated and two new graduate students (Joseph Millard and Caleb McDaniel) started their experiments on the pressure and grain size dependence of magnesite strength and how these dependencies may contribute to nucleation of deep focus earthquakes. They performed high pressure (2-8 GPa) experiments at the Advanced Photon Source synchrotron at Argonne National Laboratory and low pressure (0.3-1.5 GPa) experiments in the rock mechanics laboratory at UA. Both Joe and Caleb presented their results at the Fall AGU meeting in New Orleans, LA.

Two undergraduates (Cole Blasko and Nicholas Jackson) also performed research projects on magnesite at APS and presented their results at the Northeast Geological Society of America Meeting in March 2017.

Two new undergraduate researchers (Danielle Anderson and Rebekah DiPuccio) started working in the rock mechanics laboratory this past summer. They are investigating how water content affects the strength of quartz and how foliation orientation affects the strength of rocks deformed by crystal plastic mechanisms, respectively. They will present their research at Northeast GSA meeting in Burlington VT in March 2018!



Grad Student Nick Wander coring Indiana Limestone for rock mechanics experiments. The rock was collected from the facade of Zook Hall during renovation last year.



Graduate Student RJ McGinnis contemplating the need for proper hydration at Badlands National Park, South Dakota, June 2017. - picture courtesy Caleb Holyoke



JOHN PECK, PH.D.
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Over the years, John has witnessed how incredibly hard MS Geology TAs work to enhance undergraduate education. Thus, the news of the elimination of future Geology TA funding is distressing. Could this be the first blow to the eventual demise of the department?

The highlights for 2017, as always, involved students. John went on many enjoyable field trips with students in order to teach Sedimentology-Stratigraphy, Physical Geology, Rivers Seminar, Independent Research and Field Camp I. On these trips students are required to make measurements, interpret the results and often produce substantial written reports. Rivers Seminar students canoed the Cuyahoga River to gather data for subsequent reports. Environmental Magnetism students each designed a research project, obtained samples, made numerous laboratory measures, wrote a substantial research paper and presented their findings to the class. Many fine projects, ranging from characterizing pollution to magnetically fingerprinting different sediment sources were completed. For outreach, John taught the public how to gauge the Cuyahoga River for a Summit Co. Metro Parks program and was interviewed for the outdoors issue of *Akron Life* magazine.

John continues a research program in sedimentology/environmental magnetism and provides research opportunities for students. Graduate student Julian Grochocki studied environment change as recorded in sediment cores from Brady Lake, OH. Julian also created the first bathymetric map of this lake. Graduate student Andrea Rocchio completed a comparative study of dam impoundments from an urban and a rural watershed. Both students earned their MS degrees in 2017. Undergraduate student Gabby Gromofsky completed a research project to assess the use of sediment magnetism as a pollution proxy in rivers. She won the outstanding graduating geology student in northern Ohio from the Northern Ohio Geological Society. John received contract funding for an environmental study and was able to hire undergraduate Nick Milkovich to help. Nick and John saw sunrise and sunset a few times while canoeing to the study site. A confidential technical reported resulted from the study.



Advanced Structure students taking a lunch break during field trip to analyze folded rocks in Hancock MD, 2017. - picture courtesy Caleb Holyoke



Advanced Structure students inside Devil's Eyebrow, Hancock MD, 2017 (L-R Back row: Joe Millard, Morgan Aebischer, Connor Emling, Connor Estes, David Campana, Nick Wander, Caleb McDaniel, Danielle Anderson. Front row L-R: Tim Schmucker, RJ McGinnis, Cole Blasko, Troy Bole). - picture courtesy Caleb Holyoke

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Rivers field trip 2017.



Sed Strat Field Trip 2017.



TOM QUICK
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Tom has started his second year in the department as an instructor teaching Online Earth Science. Just this past summer, Tom co-taught the Wetlands class with John Beltz. Tom's contribution was showing the students some analytical techniques in analyzing water and soil samples that were collected during class field trips. One such trip was at Tom's backyard where there was a natural wetland many years ago. The site shows the transition from wetland to farm pond then back to wetland again due to the collapse of a spillway back in the early 80's.

Tom still builds equipment for the department. His last device was a strain gauge amplifier used to amplify very small signals produced by tiny resistive gauges placed on rock samples during an experiment. Tom built several units and they are currently being used in class projects and student research.

Some of Tom's creations have had to go back to the drawing board. A recent example is the Disto-X calibrator. Tom worked in his shop and built a device to calibrate the Disto-X measuring device used in caving to quantify the dimensions of a passageway. The device showed promise in the lab but cracked up under field conditions. After studying the remains and a quick trip to the local Walmart to purchase a thick polyethylene cutting board normally used in the kitchen, Tom went to work. After some machine time, the cutting board was transformed into a durable calibrator for the Disto-X. As a side note, machining thick polyethene is quite an experience.



IRA D. SASOWSKY, PH.D.
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In spring semester 2017 Ira taught the Caves module, along with Groundwater Hydrology and the Caves Field Trip. The field trip is usually run in West Virginia, where we stay at the WVACS Field station and visit many former grad and undergrad research sites. However, this time we decided to go to Mammoth Cave, Kentucky. This National Park holds the longest cave in the world (405 miles). We stayed at the Hamilton Valley Research Station, operated by the Cave Research Foundation, and Dr. Pat Kambesis served as our host and guide. We visited Hidden River Cave and the American Cave Museum on the first day. On subsequent days we toured Mammoth cave (off trail) as well as Lonestar Salt Peter Cave, and Neil's Cave. The lodging facilities were excellent, as were the creative meals. We only had a few "tick incidents". During fall 2017 Ira taught two of the Caves modules back-to-back, as well as Geomorphology, and Geoscience Information. Field trips to the Bath Tamarack Bog and the Ledges trail in CVNP were highlights for Geomorphology

Student research was very active this year. Kelsey Budahn continued her study on the origin of caves of the Iberian Range, Spain. She presented a paper at the 7th International Congress of Speleology, Sydney, Australia. Three graduate students proposed their thesis projects: Hunter Campbell: *Origin of Large Breakdown Rooms in Caves of the Greenbrier Valley, West Virginia*, Kyle McDaniel: *Origin of caves in Ohio, USA along Lake Erie and their record of lake level variation through petrologic analysis of speleothems*, and RJ McGinnis: *The role of exchange flow in a dual fracture system caused by asymmetric valley stress relief in the genesis of valley-aligned master conduits*. Kyle presented the preliminary results of his research at the Climate Change: The Karst Record VIII conference in Austin, Texas during May. Graduate student Ababu Gelaye, who had worked with Dr. Chyi some years ago, returned to

complete his degree under the advice of Ira. He defended and graduated in December 2017 - congratulations to him. Undergraduate Josh Novello carried out a study of a large sandstone sinkhole in Little Mountain, Geauga County. He made some great 3-d models using photogrammetric methods. And undergraduate Sarah Burgess installed an experiment in Scott Hollow Cave, West Virginia to evaluate possible aerosol deposition of manganese oxides.

Undergraduate Geologic Aides Alizabeth Christian, Sarah Burgess, and Christian Dadante continue to assist with numerous projects. Alizabeth focuses on the Bath Bog monitoring, and Sarah has been working on a 50-year history of the department, as well as creating a new display case called "The rocks beneath your feet". Christian is developing expertise in 3-d renderings of sinkholes for publications.

Ira continues as a reviewer of manuscripts for numerous journals. He remains active with the Geological Society of America, Cave Conservancy of the Virginias, and the Karst Waters Institute. He had to skip the fall GSA meeting this year; the first miss in many years.



Dr. Sasowsky and students Jesse Smith and Sarah Domanick water sampling at the Bath Bog. - picture courtesy Danny Paparella



JOHN SENKO, PH.D.

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John continued to teach Geology and Environmental Science Service Learning (Spring 2017), Geomicrobiology (Spring 2017), Introduction to Environmental Science (Fall 2017) and Geochemistry (Fall 2017). The Service Learning field trip over spring break of 2017 was the seventh 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). The "Senko Lab" currently has two Ph.D. students, four M.S. students, and three undergraduate students. Greg Martin completed his M.S. work in Biology and has moved on to pursue his Ph.D. at West Virginia University. Bobby Miller (Integrated Biology Ph.D. student) and Tim Schmucker (Environmental Science M.S. student) are continuing their research on microbially influenced corrosion, which is currently supported by the U.S. Department of Defense. Shagun Sharma (Integrated Biology Ph.D. student), Nick Wander (Geology M.S. student), and Zach Santangelo are working on projects to characterize the geochemistry and microbiological processes associated with several AMD-impacted systems, which has been funded by NSF and Ohio Department of Natural Resources. Finally, Tami Roberts (Biology M.S. student) has begun work to characterize sulfate reducing bacterial activities in flue gas "scrubbers" at coal-fired power plants, and how they stay alive in these physically and chemically extreme environments. Finally, we have started an NSF-funded project in collaboration with Hazel Barton and Ira Sasowsky to understand the roles of microbiological activities in the formation of banded iron formation- and iron ore-hosted caves. We've published several papers with collaborators from The University of Akron, and presented our results at several national and international meetings

Your donations to the Department help provide funding for students to gain the useful field experience illustrated in the pictures shown. We appreciate your support!



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Jeremy started his 5th year of teaching at The University of Akron in the fall of 2017. He has taught a variety of classes on both the Geography and Geology sides of the department during his time here, including Maps & Map Reading, Cartography, GIS, and Earth's Atmosphere & Weather. He is also advising undergraduate GIS students.

He continues to focus on refining active learning pedagogies as well as updating class assignments and projects to include recent data on a wide variety of topics. These assignments have included creating maps of the January 2018 Blizzard using weather station recorded snowfall; recent US Census data (Community Survey 2016) on languages spoken by census tract; and recreating a World War II naval battle in ArcGIS using primary data.

In addition to the projects outlined above, he was given the opportunity to work on a project seeking to digitize data collected by A.B. Williams, a naturalist from the Cleveland Metroparks during the 1930s. He has incorporated these data into his GIS classes, with students creating modern maps from AB Williams's older maps. He has continued to be active in incorporating active learning into climatology curriculum, contributing to an article published in the *Bulletin of the American Meteorological Society* in 2017 entitled: Enhancing the Teaching and Learning of Biometeorology in Higher Education. This article was based on a workshop he helped organize to teach inquiry-based teaching methods to fellow educators in climatology.



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 PROFESSOR
 STEER@UAKRON.EDU

In late 2017, Dr. Steer was appointed Chair of Geosciences even as he continued in his role as Associate Dean for Natural Sciences, Interim Chair of Computer Sciences and Interim Chair of Statistics. Fortunately, the Interim Chair positions were reassigned to another administrator at the end of the year. Last year, Dave's 6-year effort on the Interdisciplinary Teaching about Earth for a Sustainable Future project came to a close and he began work as co-PI on a newly awarded \$450,000 NSF IUSE grant. The focus of that grant is on increasing diversity and student success in STEM fields. In collaboration with faculty and students from the College of Engineering,

Chemistry, Mathematics and CAST, he is helping to develop academic-industry partnerships. Those partnerships place pre-selected students with professionals in the workplace one afternoon a week as a retention and recruitment tool. The plan involves linking academic coursework to real-work experiences, thus motivating students to excel.



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

This was James' 4th year as a faculty member in the Department. He taught over 500 students during 2017, distributed among Earth Science, Intro Physical Geology, Intro Historical Geology, Mass Extinctions, Paleobiology, and Field Camp I. The course on mass extinctions was particularly well-received, having been resurrected after an absence of more than 10 years.

James continued his research on Paleozoic echinoderms, invertebrate trace fossils, and cratonic sequence stratigraphy and cyclostratigraphy. He published four articles in 2017, including an invited paper summarizing the diversity and distribution of stalked echinoderms in the middle Silurian of North America and a description of the first crown material belonging to a crinoid known only from columnals since 1896. Other research include the first documentation of pits produced by parasitic organisms in rhombiferan "cystoids" from anywhere in the world and an invited presentation on the roles that amateur paleontologists play in facilitating research in active quarries. Honors student Marissa Tomin completed her research and finished her thesis on sea anemone burrows (*Conostichus* sp.) preserved in carbonate sedimentary rocks from Indiana. James and/or his students presented their findings in Iowa City, IA; Cincinnati, OH; Worcester, MA; Pittsburgh, PA; and Seattle, WA during 2017.

James received three campus-wide awards for teaching and service to students in 2017: the Alpha Sigma Phi Students' Choice Award, the Sigma Alpha Pi (National Society for Leadership and Success) Excellence in Teaching Award, and the National Residence Hall Honorary faculty member of the month award for May, for which he was further recognized as the winner of the Great Lakes region. He completed his term as chair of the North-Central Section of the Paleontological Society in October and was featured as the professional paleontologist for the FOSSIL Project's quarterly newsletter for spring as well as one of fossilguy.com's inaugural "Interviews with a Paleontologist" series. 2018 looks to be another exciting and productive year, with multiple projects already underway and a number of venues to showcase the innovative work of the department's students.

Alumni News

Kyle (MS '12) and Kristen **Blauvelt** welcomed Finley Grace into the world in July 2017!



Kristen, Finley and Kyle Blauvelt celebrate Finley's first Christmas!

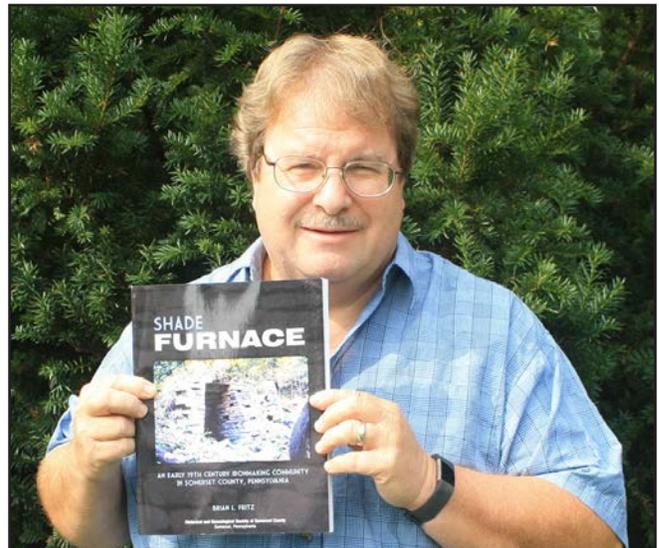
Brett and Theresa (McQuade) Egresi (MS '15) welcomed Ruby Mae into the world in March 2017!



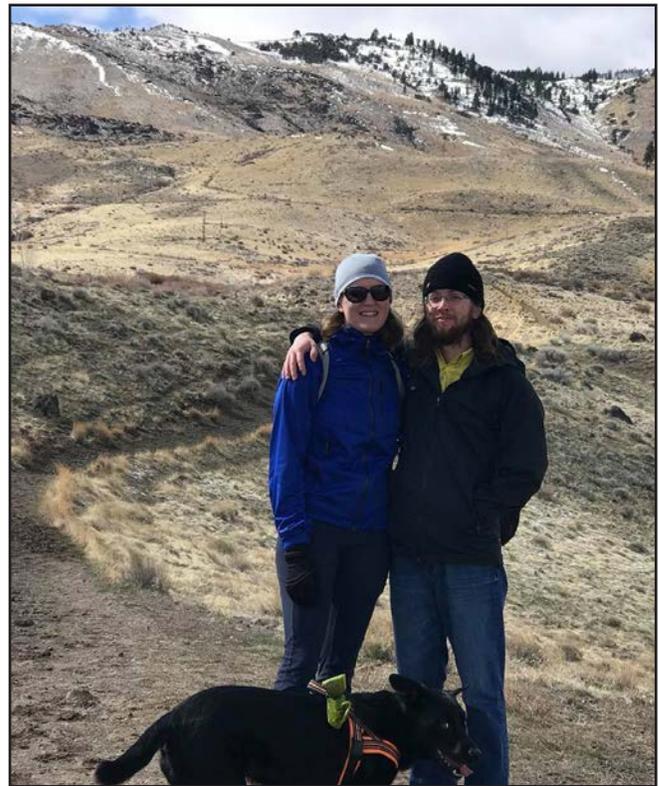
Theresa, Ruby Mae and Brett Egresi

Lauren Fissel (BS '14) writes: I recently passed my PE in geotechnical engineering, and I have my first larger project coming up at work - an extension/widening of ramps at an I-80 interchange due to growth of the Tahoe Reno Industrial Center. She also announced that she and Devon Wheeler were married in 2018 (no ceremony, with the exception of the "ceremony" you are required to have at the county clerk's office with a witness).

Brian Fritz (MS '11) was the recipient of a Leadership in History Award from the American Association for State and Local History (AASLH). He was recognized for his book *Shade Furnace: An Early 19th Century Ironmaking Community in Somerset County, Pennsylvania* at the annual AASLH meeting in Austin, Texas in 2017. The AASLH Leadership in History Awards, now in its 72nd year, is the most prestigious recognition for achievement in the preservation and interpretation of state and local history. Brian is the owner and Principal Archaeological Investigator of Quemahoning LLC, a cultural resources consulting firm



Brian Fritz with his award winning book!



Lauren Fissel and Devon Wheeler livin' the good life in Reno, NV!

While still a student, **Gabrielle Gromofsky** (BS '17) won the John F. Hall Senior Award from the Northern Ohio Geological Society for being the outstanding graduating geology student in northern Ohio. She received a monetary award at their annual meeting on May 5, 2017. In addition, she was one of three invited speakers who had their expenses paid to present their research at the recent Pittsburgh Geological Society meeting.



Gabby collecting sediment from the Tuscarawas River for her study assessing sediment magnetism as a proxy for heavy metal pollution.

Steve Gronow (BS '16) is working in the household sewage and small flow onsite sewage systems permitting program, which includes performing site & soil evaluations (soils identification, etc.) for new and replacement sewage treatment systems. Steve worked for Stark County Health Department before being hired by Summit County Public Health.

Tyler McIlvaine (MS '10) writes: I just wanted to let you know that I have experienced quite a change in my career. I am now a water rights analyst for the Wyoming State Engineer's Office in Cheyenne. I commute from Fort Collins, Colorado every day and pass antelope, buffalo and camels on my way to work. It's awesome. I process all applications for surface water rights for the entire state. Pretty soon, I'll be processing groundwater rights, as well. It's such a cool job. I've got my hands on original documents from the present all the way back to when Wyoming was just a United States territory. The job involves a great deal of historical research, capacity and flow rate computation, reservoir design knowledge, dam construction knowledge, water rights law and GIS analysis. There is so much variety in a single day's work that the day just flies by. So it looks like the work I did on my thesis has come full circle! Just for fun, I have attached a water rights permit application for a ditch designed by Buffalo Bill Cody. The permit was signed in 1899, and his signature is present on the bottom of the permit. So cool!

Mike Naymik (BA '16) also works for Summit County Public Health and will be reviewing and issuing well construction and alteration permits and performing final inspections and sample collections under those permits. He'll also be inspecting wells and septic systems before any residential property with such in Summit County can transfer title. Inspecting licensed small commercial wastewater treatment systems will also be his responsibility, in addition to other sewage maintenance program responsibilities.

Andrea Rocchio (MS '17) reports: "Greetings from the Hampton Roads/ Norfolk area! I wanted to let you all know that I just started my new position as the Science Educator at the Mariners' Museum and Park in Newport News, VA!

I'm still learning the ropes, and I've already been introduced to a million people it feels like, but it's very exciting to be working here. The museum is pretty extensive with maritime artifacts and boats from around the world. You would enjoy a tour!"

Kevin Zoller (MS '14) writes: "Look who I found while on an Engineers Without Borders trip in Honduras."



Kevin and Dr. John Szabo, July 2017. - photo courtesy Kevin Zoller.



Professor Emeritus Roger Bain stopped by to help grad student Kyle McDaniel with a speleothem from Crystal Rock Cave.

GOOD BYE GRC AND TA's

It is with sadness in our heart that we report the demise of our beloved "GRC". Initially established as the Geology Resource Center, and later re-christened the Geoscience Resource Center, this large room on the 2nd floor of Crouse Hall was a focus of learning and community for the department for several decades. Majors, graduate students, and non-majors simply taking a class could drop in to get advice, use computers, pickup materials, study for exams, and use various resources. It was an important tool for student success, and a survey indicates that it benefitted all students in many ways. Unfortunately, with the decrease (and current elimination) of graduate Teaching Assistant budgets, we have been unable to staff this room. So, beginning Fall 2017 the GRC has been closed. If at some time in the future significant funding for Assistantships is restored, we will try to bring back this important part of the Department. We are sorry that current students need to continue their studies without it.



The last of the TAs: Front L-R, Jori Krob, Kyle and Caleb McDaniel, Back L-R Zach Santangelo, Nick Wander, Hunter Campbell and RJ McGinnis.



Dr. Ira Sasowsky shares knowledge with students at Bolich Middle School.



Student Gabby Gromofsky "auditioning" for the Caves field trip by traversing the squeeze box built by Tom Quick.



Student Josh Novello examines an astomoses in Mammoth Cave.

Let's Party!

THE FALL PICNIC

In spite of it all, the Department of Geosciences still knows how to party! Since the retirement of Dr. Verne Friberg, the Fall picnic has moved to Dr. Caleb Holyoke's house; and the grilling duties (previously the domain of Tom Quick and then Mary Friberg) have been passed on to the next generation of Master Grillers! Thank you, Caleb for hosting this annual event!



Dr. Shanon Donnelly keeps a watchful eye on the new Grillmaster, Dr. Caleb Holyoke, making sure he "doesn't mess it up!"



A perfect day for a picnic in the sunshine, relaxing, making memories with good food and good friends!

THE SPRING PICNIC



The spring picnic was held inside due to weather, but it didn't dampen anyone's spirit!



L-R - Research Asst. Annie Hartwell, Grad Students, Lindsay Starr and Kelsey Budahn, and Dr. Meagan Ankney enjoy the festivities.

Scholarly Activities

(Geosciences students are in italics and Geosciences faculty are in bold print)

PAPERS

- Brett, C.E., and **Thomka, J.R.**, 2017, Fossil echinoderms of the middle Silurian in North America: An age of crinoids and “anachronistic” faunas: *Mid-American Paleontological Society Exposition Digest*, v. 40, p. 97-126.
- Budahn, K.E.*, **Sasowsky, I.D.**, Gutiérrez, F., and Gisbert, M., 2017, Evaluation of possible ongoing upwards condensation corrosion in Cueva del Pastor (Iberian Chain), Spain. In: Moore, K., and White, S. (eds.): Proceedings of the 17th International Congress of Speleology, Australian Speleological Federation, Sydney, v. 2, p. 249-253.
- Burwick, J.E.*, Menge, C., Sharma, S., **Senko, J.M.**, 2017. The influence of O₂ availability and Fe(III) mineralogy on Fe metabolism by an acidophilic bacterial culture. *Chemical Geology*. 457:107-117.
- Csuka, P., Juhász, V., Kohári, S., Filip, A., Varga, A., Sátorhelyi, P., Bencze, L.C., **Barton, H.A.**, Paizs, C. and Poppe, L. 2017 *Pseudomonas fluorescens* strain R124 encodes three different MIO-enzymes. *ChemBioChem* 19:1-9
- Deline, B., and **Thomka, J.R.**, 2017, The role of preservation on the quantification of morphology and patterns of disparity within Paleozoic echinoderms: *Journal of Paleontology*, v. 91, p. 618-632.
- Donnelly, S.**, *Cobbinah Wilson, I*, and *Odoro Appiah, J.*, 2017. Comparing Land Change from Shale Gas Infrastructure Development in Neighboring Utica and Marcellus Regions, 2006 – 2015. *Journal of Land Use Science*. 12(5) 338-350.
- Hayes, J. and **Donnelly, S.**, 2017. Spatial Clustering of Valley Oak (*Quercus lobate*, Nee) Associated with Shifts in Recruitment Establishment Sites in Southern California. *International Journal of Plant Sciences*. 178(3) 230-240.
- Kronenberg, A.K., Hasnan, H.F.B., **Holyoke, C.W.**, Law, R.D., Liu, Z., Thomas, J.B., 2017. Synchrotron FTIR imaging of OH in quartz mylonites, *Solid Earth*, v. 8, p. 1025-1045, DOI: 10.5194/se-8-1025-2017.
- Kumar, H., Kumar, S., Gan, H.M., Tan, M.H., Wei, W., Eng, H., **Barton, H.A.**, Savka, M.A. 2017 Genomic characterization of eight *Ensifer* strains isolated from pristine caves and a whole genome phylogeny of *Ensifer* (*Sinorhizobium*). *Journal of Genomics* 5:12-15.
- Maciejewska, M., Delphine, A., Naome, A., Martinet, L., Tenconi, E., Calusinska, M., Delfosse, P., Hanikenne, M., Baurain, D., Compère, P., Carnol, M., **Barton, H.** and Rigali, S. 2017. Assessment of the Potential Role of *Streptomyces* in Cave Moonmilk Formation. *Frontiers in Microbiology* 8:1181.
- Mankoci, S., Kaiser, R., Sahai, N., **Barton, H.A.** and Joy, A. 2017. Bactericidal peptidomimetic polyurethanes with remarkable selectivity against *Escherichia coli*. *ACS Biomaterials Science & Engineering* 3(10):2588–2597
- McCluskey, K., Barker, K.B., **Barton, H.A.**, Boundy-Mills, K., Brown, D.R., Coddington, J., Cook, K., Desmeth, P., Dias, M., Duke, C., Geiser, D., Glaeser, J.A., Greene, S., Kang, S., Lomas, M.W., Melcher, U., Miller, S., Nobles, D., Reichman, J., Schindel, D., da Silva, M., Wertz, J., Whitworth, C. and Smith, D. 2017. The US Culture Collection Network responding to the requirements of the Nagoya Protocol on Access and Benefit Sharing. *mBIO* 8(4):e00982-17.
- Mifflin, R., Kim, C., Park, J.E., Lee, M., Shriver, L., **Barton, H.A.**, and Lee, Y.K. 2017. Mechanisms of amelioration of NASH development by deletion of the orphan nuclear receptor SHP: interaction between bile acid and gut microbiota. *The FASEB Journal* 31(Supplement 1):887.15
- Parker, C.W., Auler, A.S., Barton, M.D., **Sasowsky, I.D.**, **Senko, J.M.**, **Barton, H.A.**, 2017. Fe(III) reducing microorganisms from iron ore caves demonstrate fermentative Fe(III) reduction and promote cave formation. *Geomicrobiology Journal*. 35:311-3222
- Peck, J.A.** and *Milkovich, N.*, 2017. Magnetic intensity mapping of the Cuyahoga River adjacent to the Jaite Mill Site, Cuyahoga Valley National Park, Ohio. Confidential Report to DCR Services and the Cuyahoga Valley National Park, 118 pp.
- Roketenetz, L., **Donnelly, S.**, Weeks, S., and J. Duff, 2017. Phytogeographic characterization of genetic variation in the biological control agent Milfoil Weevil (*Euhrychiopsis lecontei*) throughout North America. *American Midland Naturalist*. 177(2).
- Thomka, J.R.**, and Brett, C.E., 2017, Insights into the taxonomy and paleoecology of the ‘bead bed’ crinoid (Echinodermata: Crinoidea) based on new material from the lower Silurian Brassfield Formation of east-central Kentucky: *Palaios*, 32: 762-768.
- Thomka, J.R.**, and Brett, C.E., 2017, The holdfast of *Finitoporus boardmani* (Echinodermata: Diploporita) in the Silurian Massie Formation of the Cincinnati Arch region, USA: *Swiss Journal of Palaeontology*, 136: 365-368.

BOOK

- McConnell, D.A. and **Steer, D.N.**, 2018 copyright. *The Good Earth: An Introduction to Earth Science* 4th ed., McGraw-Hill, Dubuque, IA., 17 chapters, 536 pp.

ABSTRACTS AND ORAL PRESENTATIONS

- Alhasani, M.*, *Kpienbaareh, D.* and **Donnelly, S.**, 2017. Using GIS Methods to Connect Commercial Food Waste and Community Gardens in Akron, OH. Presented at American Association of Geographers Annual Meeting.

- Boston, MA.
- Awad, A., Gilbert, L., Iverson, E., Manduca, C., **Steer, D.** 2017. Using InTeGrate materials to develop interdisciplinary thinking for a sustainable future, Abstract ED53E-0198 presented at the 2017 Fall Meeting, AGU, San Francisco, Calif., 3-7 Dec.
- Barrett, L.R.** and **Barrett, Robert P.** 2017. Reconstructing nineteenth century farm woodlots in Richland County, Ohio. Presented at the annual meeting of the Association of American Geographers, Boston, MA, April 5-9, 2017.
- Blasko, C., Holyoke, C.W., Jackson, N., Raterron, P., Tokle, L., Kronenberg, A.,* 2017. Pressure dependence of magnesite and dolomite aggregates, *Geological Society of America Abstracts with Programs*, v. 49, no. 2, DOI: 10.1130/abs/2017NE-290661
- Campbell, H.J., Sasowsky, I.D., Guerrero, J., Gutiérrez, F., and Gisbert, M,* 2017, Age of Cueva del Muerto and an incision rate for streams on the Eastern margin of the Iberian Chain, Spain: *Geological Society of America Abstracts with Programs*, v. 49, no. 2, doi: 10.1130/abs/2017NE-290316
- Donnelly, S.,* 2017. Unmanned Aerial Systems at the University of Akron. 2017 Unmanned Systems Academic Summit. Presented at National UAS Training and Certification Center. Dayton, OH.
- Donnelly, S.,* 2017. The Role of Land Ownership Patterns in the Land Change Impacts of Shale Oil and Gas Pipelines in the Utica Shale. Presented at American Association of Geographers Annual Meeting. Boston, MA.
- Estes, C.D. and Peck, J.A.,* 2017. Continued monitoring of the effects of two dam removals on the middle Cuyahoga River, Ohio. *Geological Society of America Abstracts with Programs*. v. 49, no. 2 DOI: 10.1130/abs/2017NE-290157.
- Gilbert, L., Iverson, E., Kastens, K., Awad, A., McCauley, E., Caulkins, J., **Steer, D.**, Czajka, D., McConnell, D., and Manduca, C., 2017. Explicit focus on system thinking in InTeGrate materials yields improved student performance, *Geological Society of America Abstracts with Programs*, v. 49, no. 6, DOI: 10.1130/abs/2017AM-304783.
- Grochocki, J. and Peck, J.A.,* 2017. Late Holocene Environmental Variability as Recorded in the Sediment of a Northeastern Ohio Kettle Lake. *Geological Society of America Abstracts with Programs*. v. 49, no. 2 DOI: 10.1130/abs/2017NE-290082.
- Gromofsky, G.A. and Peck, J.A.,* 2017. Assessing sediment magnetism as a proxy for heavy metal pollution in a northern Ohio fluvial system. *Geological Society of America Abstracts with Programs*. v. 49, no. 2 DOI: 10.1130/abs/2017NE-290297.
- Jackson, N., Holyoke, C.W., Blasko, C., Raterron, P., Tokle, L., Kronenberg, A.,* 2017. Grain size dependence on the plastic strength of magnesite, *Geological Society of America Abstracts with Programs*, v. 49, no. 2, DOI: 10.1130/abs/2017NE-290651
- Kpienbaareh, D., Alhasani, M. and Donnelly, S.,* 2017. Closing the Loop: Using GIS to Route Food Waste to Community Garden Compost Sites in Akron, OH. Presented at American Association of Geographers Annual Meeting. Boston, MA.
- Martin, G., and **Senko, J.M.** Microbial activities in wet flue gas desulfurization units. *Microbe* 2017. June 2017. New Orleans, LA.
- McDaniel, C.A., Millard, J.W., Holyoke, C.W., Raterron, P., Kronenberg, A.K., Tokle, L.,* 2017. Effects of grain size on the strength of magnesite aggregates deforming by low temperature plasticity, Abstract MR21B-0445 presented at 2017 Fall Meeting, AGU, New Orleans, LA., 11-15 Dec.
- McDaniel, K.A., Sasowsky, I.D., Loewy, S.L., Banner, J.L., and Norrocky, M.J.,* 2017, Speleothem record and potential Lake Erie inundation from Crystal Rock Cave, Ohio: Preliminary report, in: Johnson, K., and Banner, J. (eds.), Scientific Program and Abstracts (of): Climate Change: The Karst Record, 8th International Conference, #KR8, Austin, Texas, May 21-24, 2017, p. 79.
- Millard, J.W., McDaniel, C.A., Holyoke, C.W., Raterron, P., Kronenberg, A.K., Tokle, L.,* 2017. Pressure dependence of magnesite strength, Abstract MR21B-0453 presented at 2017 Fall Meeting, AGU, New Orleans, LA., 11-15 Dec.
- Miller II, R.B., Monty, C.N., **Senko, J.M.**, Stevenson, B.S., Crookes-Goodson, W.J. Determining the mechanisms of carbon steel corrosion by *Byssochlamys* sp. in biodiesel. DoD-Allied Nations Technical Corrosion Conference. August 2017. Birmingham, AL.
- Newman, J., Wells, R.K., Holyoke, C.W., Wotjal, S. F.,* 2017. Cyclic Stable-Unstable Slip Preserved along an Appalachian Fault, Abstract MR33B-0470 presented at 2017 Fall Meeting, AGU, New Orleans, LA., 11-15 Dec.
- Novello, J.A. and Sasowsky, I.D.,* 2017, Pseudokarst sinkhole in the Sharon conglomerate cannot have formed solely by sliding or slumping processes: *Geological Society of America Abstracts with Programs*, v. 49, no. 2, doi: 10.1130/abs/2017NE-289997
- Parker, C.W., Senko, J., Sasowsky, I.D., Auler, A., and Barton, H.A.,* 2017, Can fermenting bacteria drive speleogenesis in Fe(III)-rich rocks. In: Moore, K., and White, S. (eds.): Proceedings of the 17th International Congress of Speleology, Australian Speleological Federation, Sydney, v. 1, p. 399-400.
- Parker, C.W., Auler, A.S., Barton, M.D., Sasowsky, I., Senko, J.M., Barton, H.A.* The role of fermentative iron-reducing bacteria in iron ore cave formation .Great Lakes Bioinformatics Conference. May 2017. Chicago, IL.
- Rocchio, A. and Peck, J.A.,* 2017. A comparison of rural and urban fluvial systems as a function of land cover changes in Summit County, Ohio. *Geological Society of America Abstracts with Programs*. v. 49, no. 2 DOI: 10.1130/abs/2017NE-290058
- Sadek, A., Miller II, R.B., **Senko, J.M.**, Monty, C.N. In-

fluence of *Shewanella oneidensis* on corrosion of low carbon steel UNSG10180 in a dynamic environment. Corrosion 2017. March, 2017. New Orleans, LA.

- Sharma, S., Lee, M., Pritchard, C.S., Cutright, T.J., **Senko, J.M.** Tracking the distributions of microbial communities and activities associated with acidic coal-mine drainage in Appalachia, USA. Great Lakes Bioinformatics Conference. May 2017. Chicago, IL.
- Thomka, J.R.**, 2017, Significance of paleopathological deformation of a crinoid column in the Upper Ordovician Grant Lake Formation: *Ohio Academy of Science Annual Meeting Abstracts*, v. 117, p. A36.
- Thomka, J.R.**, 2017, The critical roles of avocational paleontologists in active quarry settings: An example from the Napoleon quarry of southeastern Indiana: *Geological Society of America Abstracts with Programs, Northeastern/North-Central Section*, v. 49.
- Thomka, J.R.**, and Eddy, D.B., 2017, Repeated regeneration of pirasocrinid crinoid spines in the Upper Pennsylvanian Ames Limestone, east-central Ohio: *Geological Society of America Abstracts with Programs, Northeastern/North-Central Section*, v. 49.
- Thomka, J.R.**, Bantel, T.E., and Brett, C.E., 2017, Incomplete and imperfectly preserved specimens and their important roles in echinoderm paleoecology and taphonomy: Examples from the Silurian of southeastern Indiana: *Abstracts of the 8th North American Echinoderm Conference*, p. 23.
- Thomka, J.R.**, Brett, C.E., and Bissett, D.L., 2017, Parasitic embedment structures (*Tremichnus* spp.) in hemicosmitid rhombiferans: Implications for host specificity and echinoderm paleoecology: *Geological Society of America Abstracts with Programs*, v. 49.

GRANTS

- Hazel Barton** 2017 National Park Service: Cooperative Agreement. Forward osmosis system for urine filtration in Lechuguilla Cave. 4/11/2017-9/30/2018. \$14,000.
- Hazel Barton** 2017 Sherwin-Williams CIGA: Bio-regeneration of self-maintaining paint surfaces. 01/01/17 - 12/31/17. \$20,000.
- Hazel Barton** 2017 Norbert Thompson Undergraduate Research Award. Ghatpande, A. The growth of *Deinococcus* within Lechuguilla Cave, New Mexico. \$500
- Hazel Barton** 2017 Norbert Thompson Undergraduate Research Award. Danford, D. Resistance of *Corynorhinus townsendii virginianus* to White-nose Syndrome. \$500
- Hazel Barton, John Senko, Ira Sasowsky** 2017 NSF Geobiology and Low Temperature Geochemistry: Microbial Iron Reduction in the Formation of Iron Ore Caves. 08/15/17 – 7/31/2020 \$400,000.
- John Peck** Magnetic Intensity Mapping of the Cuyahoga River. \$4000. Sponsor DCR Services and the Cuyahoga Valley National Park.
- David Steer** 2017 NSF IUSE Zip to Industry: A first-year corporate-STEM connection program. \$450,000

Degrees Awarded

Spring 2017

Almuteur, Ashweq	MS Geog/GIS - Non-Thesis
Kpienbaareh, Daniel	MS Geog/GIS - Non-Thesis
Odekunle, Solomon O	MS Geog/GIS - Non-Thesis
Barbery, Albert M	MS Geology
Krasner, Paul	MS Geology
Poston, Edward J	MS Geology
Starr, Lindsay D	MS Geology
Grochocki, Julian L	MS Geology - Enviro Sci
Rocchio, Andrea M	MS Geology - Enviro Sci
Blasko, Cole	BS Geology
Bole, Troy A	BS Geology
Gromofsky, Gabrielle A	BS Geology
Hamilton, Miles D	BS Geology
Stofan, Amanda M	BS Geology
Tomin, Marissa J	BS Geology
McAllister, Travis C	BA Geology - Earth Sci
Bodnar, Michael P	BA Geology - Enviro Sci
Breedlove, Kaitlynn R	BA Geology - Enviro Sci
Diehl, Cheyanne P	BA Geology - Enviro Sci
Johnson, Corrie C	BA Geology - Enviro Sci
McConnell, Torii	BA Geology - Enviro Sci
Musick, Aaron J	BA Geology - Enviro Sci
Pierce, Melissa E	BA Geology - Enviro Sci
Redick, Daniel J	BA Geology - Enviro Sci
Rudolph, David A	BA Geology - Enviro Sci
Sand, Jaid L	BA Geology - Enviro Sci
Smith, Jesse F	BA Geology - Enviro Sci
Vizmeg, Greta K	BA Geology - Enviro Sci
Weibel, Rachel L	BA Geology - Enviro Sci

Summer 2017

Mannava, Ravi Teja	MS Geog/GIS - Non-Thesis
Cowling, John J	BST Geog/GIS
Hood, Christopher A	BST Geog/GIS
Kinney, Mason M	BS Geology
Novello, Joshua A	BS Geology
Powers, Daniel P	BS Geology
Rieman, Justin D	BS Geology
Trace, Rachel E	BS Geology
Hood, Christopher A	Minor - Geology
Jager, Christina N	BA Geology - Enviro Sci
Tetrick, Leslie R	BA Geology - Enviro Sci

Fall 2017

Alaamry, Ahmed T	MS Geog/GIS - Non-Thesis
Gelaye, Ababu Abie	MS Geology - Enviro Sci
Bolaney, Robert C	BST Geog/GIS
Campana, David M	BS Geology
Emling, Connor S	BS Geology

Peters, Kelsie M	BS Geology
Riley, Mason D	BS Geology
Aebischer, Morgan A	BA Geology - Earth Sci
Conard, Lauren H	BA Geology - Enviro Sci
Stangelo, Sarah M	BA Geology - Enviro Sci
Waldsmith, Matthew J	BA Geology - Enviro Sci

Donations received in 2017

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JAMES F. FITZGRALD JR. MEMORIAL SCHOLARSHIP FUND

Mr. Thomas J. Quick

Geoscience Program Awards

GEOGY ALUMNI SCHOLARSHIP (\$500)

Burgess, Sarah
 Phillips, Jonathan
 Phillips, Joshua
 Powers, Daniel
 Wadsmith, Matthew

GEOLOGY ALUMNI MEMORIAL SCHOLARSHIP (\$200)

Anderson, Danielle
 Christian, Elizabeth
 Dipuccio, Rebecca
 Estes, Connor
 Hood, Christopher (Geography)
 Milkovich, Nicholas
 Mireku, Franchesca (Geography)
 Novello, Joshua
 Powers, Daniel

PAUL C. FRANKS ENDOWED SCHOLARSHIP IN RESOURCE GEOLOGY (\$750)

Anderson, Danielle
 Christian, Elizabeth
 Dipuccio, Rebecca
 Estes, Connor
 Milkovich, Nicholas
 Novello, Joshua
 Powers, Daniel

JAMES FITZGERALD MEMORIAL SCHOLARSHIP (\$1000)

Blasko, Cole

OUTSTANDING GRADUATE STUDENT AWARD (\$100)

Budahn, Kelsey

THE HSIN KWUNG CHEN ENDOWED FELLOWSHIP (\$400)

Asare-Bediako, Felix
 Mannava, Ravi Teja



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GEOLOGY FUNDS

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.) and enrolled in the Buchtel College of Arts and Sciences at The University of Akron. 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 FITZGERALD MEMORIAL SCHOLARSHIP FUND (637285)

Established in 1980, this endowed scholarship honors the memory of James F. Fitzgerald, Jr. of Canton, Ohio, a 1970 geology graduate who was killed during the eruption of Mount St. Helens volcano. He was engaged in doing field work for his doctoral dissertation as a graduate student at The University of Idaho at the time of the tragedy. This endowed scholarship is awarded to an outstanding geology senior selected by the faculty of the Department.

This \$500 awarded is given to the outstanding senior graduating within the current academic year. In addition to having at least a 3.5 GPA, responsibility, integrity, industry, originality, ability to communicate and professional attitude are considered.

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.

GEOGRAPHY FUNDS

GEOGRAPHY AND PLANNING ALUMNI FUND (636670)

Established in 2006, this fund provides support for graduate and undergraduate student activities outside of the classroom context and for department sponsored student-centered events. The fund is designed to provide financial assistance for travel to professional conferences, attendance at workshops, participation in field trips, and other similar activities.

THE HSIN KWUNG CHEN ENDOWED FELLOWSHIP FUND (639457)

Established in 1992 to benefit a worthy graduate student in the area of Geography. The graduate student will be chosen by the Department.



**IN MEMORY OF
DR. JIM LESLIE JACKSON**

April 26, 1936 - May 26, 2017

Jim L. Jackson passed away peacefully at home on Friday evening, May 26, 2017. He is survived by his wife of 58 years, Inez Jackson; children Renée Jackson (Don Sloan); Leslie Jackson (Roger Smith); Jimmy Leslie Jackson, Jr. (Amy); Tim Jackson (LeighAnn), and eight grandchildren. He was preceded in death by his brother Robert Jackson (Florence).

He was born in Akron, Ohio to Nellie Gertrude Lee Jackson and Leslie Wilbur Jackson. He graduated from Southeast High School in Ravenna, Ohio in 1954. His education included a B.S. from Kent State University in chemistry, an M.S. from Case Western Reserve University in geology, and Ph.D. From The Ohio State University in science education.

Jim Jackson taught in the geology department at the University of Akron for 26 years, and began and ran the Center for Environmental Studies in the Cuyahoga valley. The year he retired, he was recognized with the Outstanding Teacher award at the University of Akron. Prior to that, he taught science and mathematics at Davey Junior High School in Kent, and served as a lay minister for the Atwater Congregational Church. He served on many boards, including stints as President of the Ohio Academy of Science, the Phyllis Wheatley Association, the Northern Ohio Geological Society, and was twice moderator of the Kent United Church of Christ.

Jim was a kind friend and teacher to all who knew him. He loved knowledge, and enjoyed sharing his expertise with others. He was an avid, creative bridge player, and an enthusiastic golfer. His love of animals, especially his dogs and granddogs, was legendary, and they all adored him in return.

A Celebration of Life service was held on Saturday, June 17th, 2017, at the Kent United Church of Christ, 1400 E. Main St., Kent, Ohio, 44240. Donations in Jim's memory may be sent to the Kent United Church of Christ or Kent Social Services.

The University of Akron is an equal education and equal employment institution.