

THE IUP GEOSCIENCE ALUMNI NEWSLETTER

GEO TIDINGS

In this issue

**Jonathan Warnock
joins the IUP
Geoscience
Department**

**The end of an era:
professor John
Taylor retires after
four decades at IUP**

FALL 2015

Volume 7 Number 2

*Cover: Allie Berry '17
and Dom Affinito '16 in
Durango, Colorado*



Geoscience Department News

Dr. Jonathan Warnock joins the IUP Faculty

As I sit to write this note I have last year's GeoTidings open in front of me. Right on the top of page 3 is the announcement for the position I ultimately filled. It is hard to think that just a year ago I was writing an application, not a newsletter. Only a few months ago I was on campus interviewing, knowing that if I was offered the position I would jump on the chance. The faculty's philosophy of mutual success through cooperation and teamwork was apparent immediately, as was the level of interest and enthusiasm among the students.

So now that I'm here, I guess it's time for an introduction. I grew up in the Chicago 'burbs and unlike most kids who change answers to the classic question (What do you want to be when you grow up?), my answer has been paleontologist since I was two. My parents assure me that I could string out lists of dinosaur names while I was still in diapers.

Fast forwarding to high school, I was fortunate to be mentored by a biology teacher who knew the vertebrate paleontologist at nearby Northern Illinois University. I was sold, and started working in his lab freshman year. But it turns out college is expensive, so I started working in a paleoclimatology lab to earn some scratch. Before finishing undergrad I had the chance to dig in the Cretaceous of Montana and present my diatom-based paleoclimate work at a dozen meetings. Somehow, despite myself, when it came time for graduate school the diatoms won. I got my MS at the University of Illinois, Chicago working on Antarctic diatoms before returning to NIU for my PhD. My PhD work remained Antarctic, reconstructing the biogenic silica cycle on glacial/interglacial timescales by culturing Antarctic marine diatoms and sampling Antarctic sediment cores. And since I can't help myself, I started working with a colleague on Jurassic dinosaur ecology.

At IUP I've kept the diatoms and dinosaurs going, expanding my paleoclimate work to the Baltic Sea. In the Spring I will hopefully be further extending that research to the Holocene of Pennsylvania by coring Bear Meadows bog. I'm looking forward to bringing IUP undergrads to Utah this summer to get their feet wet in vertebrate paleontology, sedimentology, and stratigraphy. I've already got two students in the lab working up records of Antarctic marine nutrient cycles!



Dr. Jonathan Warnock (second from right) pitches in over the summer to help shovel out the talus over our favorite fossil collecting locality in Shelocta, PA. Note non-paleontologist Nick Deardorff directing the excavation.

Geoscience Department News

A Successful Five Year Program Review!

With lots of help from our alumni and current students, the IUP Geoscience Department passed our five-year program review with flying colors. At our recent reflection meeting, our college dean and members of the provost's office congratulated us on our new curriculum, student learning assessment program and on our efforts to reach out to the local geological community and find out what skills and coursework would help our students succeed in the rapidly changing workforce. Over the next five years, we hope to add new minors focused on energy and the environment as well as a new track in geotechnical geology to accompany IUP's broader goal of creating an interdisciplinary environmental engineering program.

Geological Society of IUP Update

By Austin Patch, Club President

For those alumni who remember our club mineral sale, I am pleased to announce that the Geologic Society of IUP has exceeded our goals in this year's annual mineral sale and profited over \$2000! None of this would of been able to happen without all of the dedicated efforts made by GSIUP officers, club members, and Geoscience majors alike. We will be using this money to fund GSIUP trips and purchase new GSIUP exclusive merchandise. We have decided to order embroidered buffalo check flannel shirts in Olive, Blue and Red colors. These flannels will be embroidered with "IUP Geoscience" above the pocket. Stay in touch with us through our [GSIUP Facebook page](#) as we finalize details and send out emails gauging interest after the first of the year!



GSIUP members Allie Berry, Wes Kamerer, Jonathan King and Savannah Irwin staffing the club sales booth in Weyandt Hall.

IUP Geoscience Alumni in the News

Sage Wagner '14

Sage not only spent his summer doing graduate research in the Amazon Basin, he also got to have the very first quote in an article for the American Association for the Advancement of Science online News website. The profile of Sage's advisor, Dr. Catherine Rigby, discusses the work they are doing at East Carolina University to determine how the Amazon Basin came to have a staggering diversity of different living organisms in it. You can read all about it at this site:

news.sciencemag.org/environment/2015/10/feature-how-amazon-became-crucible-life



Barb (Osgood) Kutchko '97

Dr. Kutchko, a research scientist with the DOE's National Energy Technology Laboratory made the news several times this past year. In January, her research on foamed cement was featured on the cover of the Journal of Petroleum Technology. In March, Dr. Kutchko was appointed by the Secretary of the Pennsylvania Department of Environmental Protection as one of the non-voting members on the Oil and Gas Technical Advisory Board (TAB). This board is authorized under the 2012 Oil and Gas Act to advise DEP in the formulation, drafting, and presentation stages of all regulations relating to unconventional oil and gas extraction.

Nicole Dawn Mountain '13

After teaching as a science specialist at the Science, Technology, Engineering, Arts and Mathematics (STEAM) Academy of Warren School, Nicole decided to make a major life change and applied for a position as a commissioned oceanographer with the US Navy. She was the only person selected in the United States to go into the OCEANO program this year. Community Manager Lt. Cmdr. Christi Montgomery of the Navy said, "Selection to a program leading to a commission in Naval Oceanography is very competitive. Upon commissioning, Officers can expect extensive classroom and on-the-job training in the operational and tactical application of the Meteorology and Oceanography disciplines, to include graduate education at the Masters level at the Naval Postgraduate School in Monterey, California."

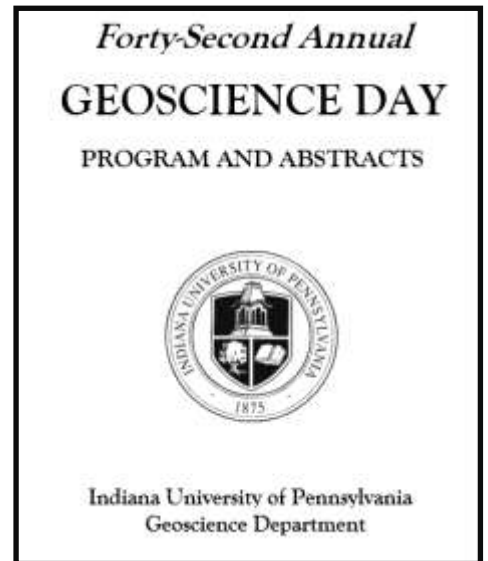


2016 Calendar of Events

April 29, 2016 — IUP Geoscience Day and Geoscience Banquet

The annual celebration of IUP Geoscience student research will be held on the traditional last Friday of April again this spring. We expect to have seventeen seniors presenting their capstone research projects during the morning and early afternoon, with a featured alumni presentation to follow.

In the evening, the Geological Society of IUP will once again sponsor the annual Geoscience Banquet at which graduating seniors and other outstanding students will be honored with awards and scholarships. All alumni are welcome to attend!



October 7-9, 2016 — Field Conference of Pennsylvania Geologists

It's official — the 81st Annual Field Conference of Pennsylvania Geologists is going to be held right here in Indiana, PA. The conference will be chaired by Joan Hawk and will focus on both Energy and the Environment, with trips planned for both Cambria and Armstrong counties as well as throughout Indiana County. Be sure to keep an eye on the website if you're interested in attending, as these conferences tend to fill up very quickly once they open registration.

For more information, check out the FCOPG website: <http://fcopg.org/> throughout the year.



Alumni Spotlight: Dave Curry '91

David Curry was recently elected to become the next president of the Pennsylvania Earth Science Teachers Association (PAESTA), so we thought it would be a good time to catch up with him and hear what else he's been up to since leaving IUP in 1991.



1. Where have you been teaching since graduating from IUP?

After my December 1991 IUP graduation and a short stint as a daily substitute teacher outside Pittsburgh, I journeyed to the eastern region of the state where I taught ninth grade Earth/Space Science at Owen J. Roberts High School in Pottstown, PA. I remained teaching at the northern Chester County school for a decade, from 1992-2002. From the fall of 2002 through today, I have been teaching grade eight Earth and Space Science at Holland Middle School in the Council Rock School District, which is located in Bucks County about 20 miles north of Philadelphia near the PA/NJ border. I live just a few miles north of Doylestown, the county seat.

2. What made you want to run for the leadership of PAESTA?

The Pennsylvania Earth Science Teachers Association (PAESTA) is a relatively new organization, and once I got involved with them, I saw that it was a powerful statewide agent for progress in geoscience education. The current and past officers are truly experts in their fields and have built an amazing organizational framework. Much of their activity is still funded through an NSF outreach grant. One look at their website (paesta.psu.edu) and you can appreciate how far this group has come since first organizing in 2011. The website is very well done and could serve as a model for the right way to design effective online teacher resources. Definitely a group in which I wanted to take a leadership role.

Though Earth Science is required in the Pennsylvania K-12 state standards, not every school district in the state offers a standalone required course in Earth Science. I am hoping that we can change this over time. Some of the most pressing issues facing our state require a fundamental background in the Earth and Environmental Sciences. I felt that Pennsylvania needed a strong voice to advocate for the importance of Earth



Science and to expand the organization as a powerful resource for all science teachers. PAESTA is a rich and valuable collaborative organization and I hope to work closely with the board of advisors and past/present officers to make it an even better resource for all science teachers in Pennsylvania.

3. What are your goals for PAESTA in the next year or two?

One of our main goals is to expand our membership all across Pennsylvania. PAESTA has a strong membership base in the eastern part of the state around Harrisburg, Philadelphia, and Allentown, but our membership numbers in the western and northwestern parts of the state are not as high as we would like. There are incredible earth science teachers doing great things west of

Alumni Spotlight: Dave Curry '91

Altoona that could make rich contributions to our online database of geo-photos, digital libraries, lessons and activities. I hope during my tenure as president to grow our membership to more equally represent all parts of the commonwealth. Part of that mission will be to set up a table at the Franklin Institute the next time they have one of their educator's open house. I would also like to reach out to further encourage PAESTA participation by college and university faculty at the many institutions of higher education throughout the state. (Of course, including IUP!)



4. What other geological activities have you been involved in, for work or fun?

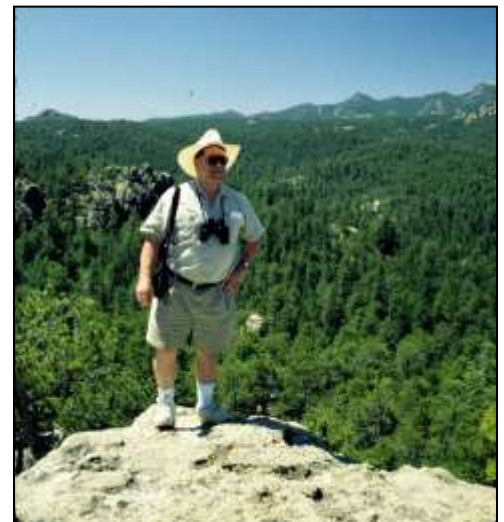
For most of my time while teaching at Owen J. Roberts, I took students and parents on annual weekend adventure of camping, rappelling and caving at Laurel Caverns just a few miles up the road from Uniontown, PA. In addition to the natural beauty that can be found there, part the wonder and draw to Laurel Caverns is that the owners still let you strap on a hard hat and knee pads and crawl around in small groups; exploring the miles of undeveloped passages in this the largest cave in Pennsylvania. It's a great trip. I

highly recommend staying in the Laurel Caverns Campground so you can get a full day of spelunking. Don't forget the Caver's Motto: Take nothing but pictures, leave nothing but footprints, kill nothing but time. Always carry three sources of light and never cave alone!

5. What is your fondest memory from your time in the IUP Geoscience Department?

I cannot say enough about the late 1980s outdoor geology lab sessions at IUP, where we rode the IUP Vans with Doc Taylor out to various road cuts and other geologic oddities. Great times! I still have some of my IUP trilobite fossils in my classroom and talk with my students about their long journey through time. I think of these field trips every time I take my students outside. When our IUP Structural Geology class with Dr. Hall (shown at right) came out east during our field study to Shamokin and examined the various coal folds, little did I know that I would be teaching just a few hours drive away. Wonderful times at IUP that helped shape my knowledge and style of teaching to this day.

Up near the top of the 'favorites' list would be the Carbonate Geology of Florida and the Bahamas and the incredible turquoise-blue waters of Andros Island. But I think my favorite class was from after I graduated when we hopped in the van for our Geology of the Northern Rockies course. Best field course I ever could have imagined. I'd love to go back and take it again. That kind of experiences that just need to be obtained out in the field.



IUP Student Research

Jonathan King '16 spends a summer studying Native American mounds for an NSF Research Experience for Undergraduates

After applying for this selective NSF summer program, eleven of us were selected to go on an interdisciplinary excavation of a Mississippian (900-1600AD) village in west central Illinois within the Illinois river valley, ~30 minutes outside of Springfield. Three of the selected undergraduates (including myself) were geology majors.

We spent a month in June out in the field excavating several features of the villages such as "house" structures (that appear as square anomalies on the magnetometry map). We also performed several minimally invasive analytical techniques on the ceremonial mounds (one of the several things that characterize Mississippian Culture) such as coring and GPR.

Each of us picked a project to work on in the field, lab and eventually present at the Midwest Archaeological Conference. Each of our projects entailed a number of analyses that gave a refined idea of what was occurring at the site. Some projects included: core analysis to find remnant river channels, mound cores to determine construction history, energetics, sustainability by looking at organics (i.e. seeds), sourcing exotics, and morphology of projectile points.

My project was looking at the micromorphology (soil thin sections) of a burnt structure. I was looking at subtle changes

in grain size, grain orientation, mineralogy, and pedogenic features that eluded to a specific mode of infilling. I found that the house basin was likely filled in anthropogenically (and quite rapidly) due to poor sorting of sediment, minimal development of pedogenic features (i.e. laminated clays) which indicates a young soil, and stark contrast between the living surface and the overlying soil. I was curious on the overarching idea of what processes go into site formation, or what happens to a site between abandonment and excavation. Once my project is complete, I will present it at a future conference as part of the REU experience.



IUP Student Research

Mike Barber '16 presents his lava flow research at the national Geological Society of America Conference in Baltimore



It is not common for an undergraduate student to give a talk at a national geological conference, but Mike Barber is not a traditional undergrad. Coming to IUP to major in Geoscience as a career change later in life, Mike has been doing volcanology research with Dr. Nick Deardorff for a couple of years now and had some exciting results to share.



At the national GSA conference held this fall in Baltimore, Mike presented his work mapping the Mokst Butte Lava Flow in Central Oregon. His research involved using Lidar reflection intensity data and field observations to characterize morphological and compositional variabilities throughout the flow. Mike plans to present his final results at Geoscience Day before graduating this spring and continuing his second career in geological research.



Alumni News: 1960 - 1980

Jane C. (Pochan) Jones '69

I have been retired for six years and still live in Chugiak, Alaska a small town 20 miles from Anchorage. My husband John and I have started a small business called Timeless Portals. We have made numerous trips to Europe and while there spend part of our time photographing the sites and peoples of the country we are visiting. Back at home, we use our previously hidden talents to enhance the images. My husband mats and frames our images. We also produce calendars and photo greeting cards to sell in the local area. Not a bad excuse to travel! Contact me at missjane@gci.net.

Brian Roth '73

Nancy and I moved from South Carolina to Dover, Delaware in April. Our daughter Karen is now working for Sikorsky Helicopter company in Connecticut and Nancy wanted to be closer to her since Karen is getting married in June. I'm semi-retired but still working part time for engineering company in Altoona. I enjoy the newsletters - hope they continue!

James Turner '75

Here is an image of my wife, Chris and me in the Dolomites near Cortina d'Ampezzo, Italy. The photo was taken in October of this past year.



We had a great time visiting the Paleontological Museum of Cortina where we viewed a spectacular collection of Mesozoic marine fossils originally deposited in the Tethys Sea.

Tom Moore '76

With the collapse in energy commodity prices and the resultant industrial torpidity has made consulting turn into something more like early retirement than I ever planned. "No, I'm not retired; just not working a whole lot." Although a good bit more insulated, myself, this time, it is hard to watch yet another bust as history repeats itself. (How many times, now?) I am looking forward to teaching another round of Geology of Oil and Gas for the Geoscience Department this Spring semester. Hopefully, that it will not be as painful for this batch of students as it was for the poor sods the last time.

Dave Brezinski '77 & Carla (Kertis) Brezinski '78

Our daughter, Laura, is a freshman at Stevenson University in Owings Mills, MD and is playing on their women's NCAA ice hockey team. David is recovering from his 2015 inasmuch as he was on the organizing committee for the GSA Annual Meeting in Baltimore. He also co-led two field trips, one with fellow IUP alumni John Taylor and John Repetski. He also co-edited the field trip guidebook for the Baltimore meeting. Carla is working in headquarters for the U.S. Department of Agriculture.

Pat Imbrogno '78

My latest activities included welcoming my new Granddaughter Aubrey! My son Kyle and his wife Racheal made us grandparents in October. My twin daughters Kara and Kayla will reunite with us this holiday season. My daughter Kara is returning from Australia and Kayla plans on taking some time off from her anesthesia work for sister time with us over the holidays.

Denise has remained busy with her Food Bank volunteer work while I have been dutifully trying to provide consulting services to the Energy Industry. My latest internal non client project is working on PA state wide horizontal feasibility studies of the historic conventional reservoirs. I have started with the Upper Devonian Oil sands but will continue with the Middle Devonian and Silurian reservoirs also.

Alumni News: 1980-2000

Pat Imbrogno '78 (continued)

Have to keep busy while the downturn in prices has slowed my client interests. Among my clients to come is a disposal well seismicity study among other disposal well projects. I was asked to participate in the IUP Advancement Council recently and attended the recent summit October 16th. Other than that I am following the IUP athletic seasons and post season Football activity. Go IUP!

I hope all is well with my fellow IUP alumni and wish everyone a healthy and happy holiday season.

Terry McConnell '80

It has been 35 years since my graduation from IUP (class of 1980). I spent my first 5 years after college in Colorado working as a wellsite geologist for Martin Oil Service. When the bottom fell out of the oil industry in the mid 1980's I found myself back in my hometown, Johnstown. Since then I have been employed by the University of Pittsburgh at Johnstown. The last 20 years I have worked as an adjunct instructor in the Energy and Earth Resources Department. I have taught over 2000 students Oceanography, Environment and Physical Geology. I have enjoyed almost every moment of it. I love teaching Geology and may never retire. Looking forward to going to "the land of fire and ice," a geologists paradise, Iceland, during Spring break 2016, with 6 students from UPJ. Thank you IUP for all the great memories and my wonderful professors at that time Granata, Clark, Hall and Park. Happy Holidays!

Tim Nuss '88

I am still at work for the State of New Jersey. I see Jamie (Camargo) Macblaine '89 at work now and again. She is married and has at least one child. I also see Bryan Emilius '89 on occasion. He and his wife get together with us for dinner whenever we can.

I am also keeping busy running all over the planet with my daughter and her softball team. This week we are in Binghamton New York. In a few weeks we head to Rock Hill, South Carolina for a tournament, then finally get to take our vacation at our house in the Outer Banks. Hopefully none of us gets eaten by a shark!

Matt Stebbins '99

As a part of my hobbies I like to train horses in my free time. Here's a picture showing me with one of my recent trainees.



Hope all is well.

Yvonne Branan '01

The last year afforded my family and I an opportunity to make it to a new area we had never been - Florida. My daughter's obsession with alligators led us there, but I was thrilled to add a few more National Parks under my belt during the trip. Personal experiences are hard to beat when it comes to teaching Geology of the National Parks!



Yvonne's daughter Kiley and son Finn at the entrance to Everglades National Park.

Alumni News: 2000-2010

Yvonne Branan '01 (continued)

We visited both Everglades and Biscayne National Parks. Both were wonderful, but perhaps my favorite stop was during our excursion down through the Keys where we found Windley Key Fossil Reef Geological State Park. While it's just a tiny blip on the map, this spot was amazing! An old quarry awaited us and fascinated the adults and kids both. The amount of information here was extremely impressive. A highly recommended a stop for anyone traveling through the Keys.

As the semester winds down and the temperatures are dropping, I find myself longing for another visit!

Sammi Jo Cooper '05

I am currently teaching 8th grade Earth & Space science in Montgomery County, Maryland (entering my 11th year teaching this coming year). I am married now and have two children, a little boy age 19 months and little girl age 7 months. They are wonderful and definitely keep me busy!

Jeff Dereume '08

I continue to work for EQT Corporation in Pittsburgh, PA as the geology team leader for our West Virginia shale assets. It has been an exciting year at EQT with our continued development in the Marcellus and new ventures into the Utica. This past summer EQT hired two IUP alumni, Sierra Davis and Samantha Ritzer. EQT continues to be impressed with the intern performance by the IUP students, and we look forward to a continued partnership. We again interviewed students at IUP in October, and it was great to see the progress and health of the department and University.

Outside of work, I have been busy with school work. Enrolled at Robert Morris University, I am a part time student in their MBA program, and have finished about half of the program thus far. It took a little refresher to get back into the swing of bookwork and studying, but it has been a great experience thus far, and very helpful to apply business concepts to the geology discipline.

I think when we talked last I had just got married to my wife Kathryn who I met at IUP. Since then, we bought a home in the Lawrenceville neighborhood of Pittsburgh, which we share with our Wheaten Terrier Loki. This February we'll be vacationing in Tucson Arizona during the Arizona Mineral and Fossil Show, which should be interesting.

Kalin McDannell '08

I am currently in the throes of finishing my PhD at Lehigh. I'm applying to jobs both faculty and industry. I'm also putting for some post-docs. I have 3 papers in prep. for journal submission and another in collaboration with another graduate student and my advisor on the Kohistan region of Pakistan. I'm also working on writing an NSF proposal (resubmitting it) as a post-doc researcher with joint appointment between Lehigh and Brown with Karen Fischer. That is tentative though.

I'll be out at AGU in a week presenting my work on helium diffusion behavior during continuous heating experiments addressing the often over-dispersed nature of U-Th-He data, which is recognized and attributed to many different factors, but not a whole lot of work has actually tried to quantify the root causes on an individual sample basis and assess if the dispersion can be removed via quantification of multiple gas components in a sample (i.e. good radiogenic portion and cut out the bad excess portion).



In personal news I just got married in September. :)

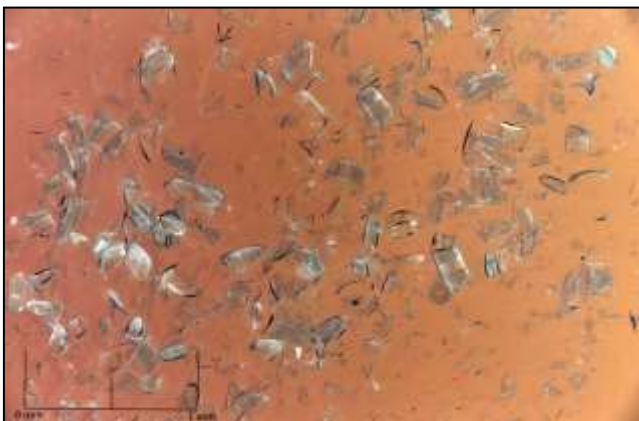
Alumni News: 2011-2012

Dan Saftner '11

I am currently working with Dr. Alexandra Lutz at the Desert Research Institute at the University of Nevada at Reno. She has been conducting research on groundwater sustainability as related to climate change in West Africa and Nevada. My work will be to determine the temporal and spatial trends in the chemistry of ~5,000 groundwater samples collected from Mali, Niger and Ghana. I will go to Ghana next summer to sort out some coordinates, the community names that accompany them, etc. Dr. Lutz is also working on a big project in the Great Basin that is bringing together climate, soil, water, geology, etc. I will get to contribute to this study as well, but don't know the specifics yet. Great stuff!

Mark Smith '11

Currently, I am the co-founder, owner and principal at [Macroscopic Solutions, LLC](#), which is a small business made up of scientific researchers and photographers that specialize in the development of high resolution imaging techniques and technologies for STEM related industries and research professionals. I founded the company with fellow geologist and IUP alum, Daniel Saftner, who is now a M.S. Student at the University of Nevada, Reno studying groundwater problems in Africa.



Diatoms captured at 20x magnification with the Macropod Pro. Paging Dr. Warnock!

My current business partner and fiancé, Annette Evans, is a PhD student in the Ecology and Evolutionary Biology department at the University of

Connecticut. I earned my M.S. in Geosciences from the Center for Integrative Geosciences at the University of Connecticut in 2013 during the same year I founded Macroscopic Solutions. Annette and I are getting married on January 8th, 2016 in New Zealand and I can't wait!

Patrick Boyle '12

A lot has happened for me since my last update. In May of 2014 I graduated from the Sedimentary Systems Research Group at Virginia Tech with my Masters of Geoscience. After graduation I took a few months off, and was fortunate to have the opportunity to travel to China, Thailand, Malaysia, and Singapore with Steve Norair '12. While Steve and I were in Malaysia we met up with Surinder Tara '10, and were lucky to spend a few weekends traveling with him.



Patrick Boyle '12, Stephen Norair '12 and Surinder Tara '10 adventuring together in Malaysia.

In July of 2014 I moved to Houston, Texas and began a role as a Geologist with ConocoPhillips working conventional Permian Basin assets. After six years of school I am adjusting well to professional life, and am enjoying applying my education to real-world problems.

Alumni News: 2013-2014

Joy Keefer '13

This past school year I had the opportunity to be an Earth Science and Environmental Science teacher in Maryland. Despite the many distractions of being a first year teacher, after a mentor told me about the Western Michigan University (WMU) Hydrogeology Field Course I was intrigued. I applied to WMU's M.S. in Geosciences program and was very fortunate to not only be admitted but also awarded a teaching assistant position. While I was hesitant to leave my high school teaching position, after visiting WMU I informed the high school administration within the required time frame that I would not be returning after the summer vacation.



Joy Kiefer '13, Ellen Lamont '12, and Renee Heldman '12. This picture was taken at Dan O'Hara '14 and Ellen Lamont's beautiful wedding this past summer.

I love teaching and am grateful for my experience teaching last year. I left knowing that this offer from WMU is an amazing opportunity and I that after graduating I may return to teaching in the 7-12 classroom. For my graduate research project, I will be applying pumping data from monitoring wells in Michigan to hydrologic equations. I am excited about the environmental applications of this research and the many hydrology classes I will have the opportunity to take, including the highly respected WMU Hydrogeology Field Course which first caught my attention.

I could never say enough about the IUP Geoscience faculty. Not only did they provide a great education,

they have also mentored and encouraged me since day one. I'm convinced that if it wasn't for the IUP Geoscience department I wouldn't be where I am today, and I'm in a good place. I'm so grateful that I had the opportunity to take classes and complete undergraduate research with Dr. John Taylor. Dr. Taylor, you have had such a big impact on my life. I want to wish you a very happy retirement, although knowing you I doubt that you will be "taking it easy" any time soon.

Erin McGowan '13

Since graduation, the majority of the past two years has been spent working toward my masters at Colorado State University focused on sedimentology, which I completed this past summer. My thesis focused on the lacustrine Elko Formation in Nevada, working with Noble Energy. During the summer of 2014, I interned with Apache Corporation in Houston with the Gulf of Mexico shelf team, which lead to a full-time geologist position upon graduation. Currently, I'm working in the Improved Recovery group in Houston, developing fields in the Western Desert, Egypt. Along the way, I've had some great experiences and field trips in the Rockies, parts of West Texas/New Mexico, and more recently Egypt.

Zach Tolbert '14

For 3 months I worked with a crew of 4 under the guidance of the fire and vegetation departments of Bryce Canyon National Park. There were two main goals between the departments: fuels reduction and invasive weed species control. For fuels reduction we cut down White Firs at Rainbow Point (the highest part of the park) and piled them into piles that will be burned in the winter of 2016/17. For invasive control we sprayed herbicides on Smooth Brome and Cheat Grass along the roads and inside the meadows of the park. Other work we did was bull thistle monitoring, where we hiked in burn areas to find where the Summer 2015 crews sprayed and collected data on a GPS to be used for a report/map at the end of the season. We also collected various native seeds from different areas of the park (meadow, shady, sunny, etc) and later spread/planted the seeds in disturbed areas of the park.

Alumni News: 2015

Megan Barlow '15

I am now in graduate school at the University of Wisconsin at Milwaukee. My research is in terroir. Terroir refers to an environment where specific grape varieties flourish. I intend to analyze a plethora of physical aspects, specifically, geological influences. The goal in my research is to understand



how wine is influenced by its geology. We hope to travel to the Marche region of Italy (Spring 2016) and work on the verdicchio grape.

The picture is of me visiting the National Aviary in Pittsburgh right before beginning graduate school.

Sierra Davis '15

Shortly after graduation (May 2015), I began interning at EQT over the summer. My project there involved a geological evaluation of the Cisco/Canyon Sandstone in the Conger Field (Permian Basin, Texas). Within that project, I presented promising locations for shale and sand plays within the Cisco/Canyon. I found the experience extremely valuable and educational.

After interning with EQT, I moved to Rhode Island to begin a Master's degree at the University of Rhode Island's Graduate School for Oceanography, focusing on geological oceanography. My experience here started off with a week long research expedition on the R/V Endeavor. Currently, I am focusing on my first semester of



coursework before I begin my thesis project which will involve using LiDAR to monitor beach geomorphology along the Southern Rhode Island coast. As part of my assistantship, I survey Rhode Island beaches bi-weekly using levelling techniques.

Tim Kennelly '15

I started working for an environmental company (Field and Technical Services) in Carnegie about a month after graduation. I've been there for about 6 months now and during my time with them I have traveled to Houston, Baltimore, Jacksonville and many places all over the US to conduct groundwater sampling. The job is hard work but it is giving me some great experience in the environmental field. I've included a photo of me during my HAZWOPER Training. I'm excited for the newsletter to see how everyone else is doing.



Jeremiah Thomas '15

I am waiting on an official job offer (unofficially I have been told to be ready for it) from the Naval Oceanographic Office. The position is through the DON Pathways Recent Graduate Program and will be based out of Stennis Space Center in Mississippi, with up to 50% of the time spent conducting oceanographic research on Naval survey vessels around the globe. USA Jobs is a good place to start looking for the departments next wave of graduate who are looking for a job. My contact at the Oceanographic Office told me there would be more federal positions opening up at this level. Aside from that, I presented my senior/internship research at GSA in Baltimore and was able to catch up with several members of the department.

Faculty News — John Taylor

After caroming all over North America on fieldwork, field trips, and conferences over the previous five years, feeling like the ball in a pinball machine, John stayed close to home in 2015 and let every-

one else come to him. As a member of the organizing committee (stop laughing!) for the 12th International Symposium on the Ordovician System (ISOS), hosted by James Madison University in June, John found himself trying to keep more balls in the air than possible through the first five months of the year, as the 24(!) students in Sedimentation & Stratigraphy can attest. It was the general consensus that one stood a better chance of getting a lab exercise returned with helpful comments by putting it in a paper shredder than by turning it in to the babbling lunatic in 129 Weyandt. May and early June passed in a blur with countless hours invested in 1) assembly of a presentation and short paper on basal Ordovician faunas from Alaska, coauthored by IUP undergrads Tyler Allen ('15) and Savannah Irwin and fellow alumnus John Repetski ('69), 2) construction of a poster on Ordovician trilobites from the El Paso Group, with Savannah Irwin and Jim Loch ('83), and 3) logistics and preparation of the guidebook for a 5-day, post-meeting excursion through the lower Paleozoic of the central Appalachians for which he'd agreed to serve as primary trip leader.

The symposium was an unqualified success, and the post-meeting trip was well received

by an enthusiastic large group of delegates that included 30 individuals and represented 11 different countries. IUP Geoscience was well represented with department alumni serving as three of the five trip leaders (Taylor, Repetski, and Loch) and one of the other five chapter coauthors (Bryan Sell, '01) who helped to provide the international group of Ordovician specialists a memorable tour of the Cambrian-Ordovician successions of the Shenandoah Valley, Cumberland Valley, and Nittany Arch.

The rest of the summer passed quickly, largely consumed by a nearly tardy annual report for his NSF grant, a really late (but thorough) review of a gigantic paleontological monograph for the *Palaeontographica Canadiana* series, and a brief vacation to the Delaware coast with the family. At which point it was back into the classroom, this time with 20 students who enrolled in Paleontology for the Fall 2015 semester. This group didn't have to wait quite so long for labs to be returned, because the guidebook for the pre-GSA field trip that Dave Brezinski ('77) strong-armed



Group photo from ISOS field trip in June 2015 at Dam #5 in the C&O Canal National Historic Park, Maryland. IUP Geoscience alumni among the trip leaders are John Taylor (B) and John Repetski (C). Photo taken by James Loch ('83).



Group photo of the pre-GSA field trip in November, 2015 in front of the Ore Hill Member of the Gatesburg Formation, Bedford County, PA. Taylor ('75) kneeling lower right, and Dave Brezinski ('77) kneeling center. Photo taken by John Repetski ('69).

Faculty News — John Taylor

Taylor, Repetski, and Loch into co-leading with him out of Baltimore had already been submitted before the semester began. As in June, good weather and an enthusiastic group made the Exxon-Mobil sponsored transect across the central Appalachian carbonate platform an enjoyable and worthwhile experience for all involved.

John thoroughly enjoyed the conference in Baltimore after the trip, decompressing and catching up with colleagues and a host of IUP alumni from across the country, surprising many with the news that this would be his last semester in the classroom. As of January 8, 2016, he will join the ranks

of the retired faculty and enjoy the luxury of working full-time on the many research projects not yet carried to completion (OK, that would be ALL of them).

Department chair Steve Hovan has assured John that he'll do everything possible to allow him to retain his office and continue his research there as long as Weyandt Hall remains standing. Knowing Steve like he does, John has already contacted Drs. Lewis and Coles for help in setting up a small seismometer in his office, just in case the real objective is to keep him working in his office until slightly after Weyandt Hall is demolished.

Faculty News — Karen Rose Cercone

After finalizing the department's five-year program review this past spring, Karen Rose has returned to her usual focus on teaching non-major courses and helping with the introductory majors sequences.

Along with new faculty member Dr. Jonathan

Warnock, she brought Historical Geology back into the majors core this past fall. Highlights of the revised course included afternoon field trips to Shelocta, Blairsville and a regional trip through the central Pennsylvania fold and thrust belt, including the old stand-by carbonate outcrops at Altoona's El Dorado quarry and Tyrone's Union Furnace as well as some new clastic outcrops near Entriken PA and near the top of Tussey Mountain.

Dr. Cercone has also been working closely with Dr. Greg Mount, IUP's new hydrogeologist, to obtain grant funds for an environmental education site near campus where students can measure groundwater flow and perform pump tests. Some funding has already been

awarded by PASSHE for this effort, and grants are also being considered by NSF and the Pennsylvania Water Resources Research Center. Many thanks go out to IUP alum Paul Hale '94, for his assistance with this effort. Dr. Cercone and Dr. Mount

are also preparing to lead a group of IUP students to the Florida Keys over the Winter Session to study modern carbonates and do geophysical research in the Everglades (El Nino permitting!)

As if all that wasn't enough, Dr. Cercone has also stepped back into a leadership role with the Pittsburgh Geological Society, serving as their secretary and newsletter editor. She invites all alums in the Pittsburgh area to come to a meeting and say hi!

In her (small amount of) spare time, Dr. Cercone trains her border collie Mica to complete in dog obedience and agility trials and manages to complete a few watercolor paintings each

month. She's hoping to get more practice with seascapes later in 2016, when she heads out to the Pacific Northwest for vacation.



Karen Rose at a watercolor show.

Faculty News — Jon Lewis

Dr. Jon Lewis has finally put the hard work of his former student Dan O'Hara together in a published paper in the *Journal of Geophysical Research* with Dan and collaborator, Ruey-Juin Rau from National Cheng Kung University in Tainan, Taiwan. Team Tecto graduate Dan, O'Hara is now in year two of his Ph.D. studies at the University of Oregon. Another recent, graduate, Ellen Lamont is also out that way in year one of her Ph.D. studies at Oregon State University.

Their schools are nearby, which is good because this summer they were married! Congratulations! Jon and his wife Lisa Borghesi were lucky to share in the wedding festivities, along with Drs. Cercone and Farnsworth, a wonderful group of our alumni, and Dr. Masilela and Connie Kugel from the IUP McNair Scholars Program.

Team Tecto graduate Mark Smith was spotted at the GSA meeting in November displaying his innovations at his company's booth, Macroscopic Solutions. He completed his M.S. at UConn and is now running Macroscopic Solutions full time. His founding partner in the company, Dan Saftner, has just started in graduate school at the University of Nevada at Reno.

Jon was also a minor contributor to another publication that stems from his offshore drilling work on the Nankai Trough Seismogenic Zone Experiment (NanTroSEIZE). This paper was published in *Tectonophysics*.

As promised, Jon and Steve Hovan successfully hosted a first-ever undergraduate-focused Integrated Ocean Drilling Program (IODP) School of Rock at IUP in Summer 2014. This convinced Jon to submit an NSF proposal to support a new model that

aims to broaden diversity and allow more communities of undergraduates to explore geoscience, a project he calls STEMSEAS (STEM Student Experiences Aboard Ships). He and his co-PI Sharon Cooper from the Lamont Doherty Earth Observatory (formerly at IODP in D.C.) were awarded \$198K for a 1-year proof-of-concept project. This November they held the project kickoff meeting with guests from across the country. Look for announcements

of the rollout soon on the IUP webpage. We aim to sail 3 cohorts of students from all over the U.S. on research ship transits this May, July and August. Jon and Sharon are keen to continue this project with 3 more years of NSF funding. Spread the word.

Jon now has four students working on his Taiwan projects and one student that is building on recent graduate Eric Peroli's



From left to right; Josh Master '17, Dom Affinito '16, Jake Brown '16, Allie Berry '17, Leslie McConnell '15 and Jon Lewis. This picture was taken at ~12,500' above sea level during the during our "day off" hike to Ice Lakes Basin.

work on volume changes in the Bellefonte Formation near Water Street Pennsylvania. Allie Berry and Chaz Cavallotti continue to work with data they collected during their January 2014 field campaign with Jon, and to integrate these with existing data sets. Allie is trying to understand why normal faults are so abundant in the southern Central Range and Chaz is trying to understand the nature of an aseismic zone on the east flank of the Central Range. In fact, Chaz submitted an abstract for the Fall 2015 AGU meeting and he was asked to give a talk, not a poster! His talk is on Friday December 18. New Taiwan Team member Jarad Trout aims to add to our understanding of the seismotectonics of the Coastal Range, work that builds on analyses that Dan O'Hara did when he was a Taiwan International Graduate Program Summer Undergraduate Fellow some years back. Our most recent addition to the

Faculty News — Jon Lewis

Taiwan Team is Cate Bressers, who is doing a dual degree in Computer Science and Geoscience. She automated our sandbox and has added particle-tracking capabilities. Her poster at the GSA meeting this November in Baltimore resulted in an invitation to collaborate with Dr. Karen Leever at GFZ in Potsdam, Germany. Jon will be writing a small proposal for internal funds to support a trip there in July 2016 with Cate. Dr. Leever has access to some of the most sophisticated analog modeling equipment available. Stay tuned.

Jon is also going to be on sabbatical in Spring 2016 and he was awarded a PASSHE Faculty Professional Development Council grant to help cover expenses. He will start at the University of Connecticut where he will work with digital elevation data from his current NSF grant to plot out field work. He will then spend most of the spring semester in Taiwan at Academia Sinica, National Cheng Kung University and in the southern Central Range doing field work.

Faculty News — Steve Hovan

Steve Hovan continued work with ocean sediments as he and students Adam Caliguiri and Brennan Ferguson sampled ocean cores collected the previous year and now housed at the University of Rhode Island. These cores will provide a nice record of evolving climates in the subtropical deserts of northern Africa during and after the onset of northern hemisphere glaciation. In addition, they'll give a glimpse into the trade wind history of the Atlantic Ocean.

In addition to the ocean sediment work, Hovan and some colleagues have begun on a project to map a large tract of private land for the location of natural gas pipelines and test for methane leakage throughout the gathering system. This project will involve a huge number of faculty and students from multiple departments across campus, but when completed, it should give us a pretty good estimate of how much natural gas escapes accidentally during the early phase of production and delivery.



Steve Hovan (back left) and Jon Lewis (second from left in front) with the American Southwest field workshop.

Last summer, Hovan was gone most of the time traveling for work (and a few days of vacation too!). He started with a trip to Northern Colorado University where he met with faculty and students then gave a lecture about “Responding to the Marcellus Oil and Gas Boom: Developing Research and Academic Programs at IUP”. Later he traveled to College Station, Texas where he helped lead a workshop on using ocean cores to teach about Earth Science, part of a proposal funded by the NSF to help minority serving institutions learn how to utilize the wealth of information available from ocean drilling.

After Texas, he headed overseas to Brittany, France where he participated in a panel meeting to evaluate science proposals sub-

mitted to the International Ocean Discovery Program. Finally, he returned to Colorado with Jon Lewis in late summer to co-teach the regional field course in Durango and Silverton regions of the southern Rockies.

Faculty News — Ken Coles

Ken Coles is preparing to offer the Newfoundland Field Workshop with Prof. Nick Deardorff in 2016. They made a scouting trip to easternmost Canada in August to plan some new stops involving igneous rocks. The lower Paleozoic sedimentary rocks will also continue to be a focus of the trip. While Prof. Taylor is officially retired by 2016, he is threatening to appear during the 2016 trip.

What could be better than three faculty holding forth at once, unless you are one of the lucky students in the audience?

Between January and April Ken spent several icy and snowy nights sitting outdoors with senior Luke Tatarko recording 20 MHz radio emissions from Jupiter. The radio telescope is sensitive enough to detect the same activity seen by larger, permanent installations. Many thanks to Prof. Ron Freda of the IUP Physics Department for letting us set up in his back yard all winter. This year we are experimenting with additional locations to minimize interference from local radio noise.

After a six-year hiatus, the Stellar Astronomy class (GEOS 342) was able to use one of the large radio telescopes at the National Radio Astronomy Observatory in Green Bank, WV. Once again, the class agreed that this was a worthwhile trip. Watch for the research results in your local astronomy journal! The biennial student planetarium presentations for the public included using the sky as a clock, Norse mythology, and following Peter Pan through the stars.



Darlene Richardson and Ken Coles, Honolulu, June 2015

Having spent several years studying Mars has led to a number of invitations to give lectures on the current understanding of Mars, including the Central Pennsylvania Consortium at Dickinson College and the Amateur Astronomers Association of Pittsburgh at Carnegie Science Center, both in April, and the Tri-State Astronomers in Hagerstown, MD in December. Several students are interested in individual projects studying Mars; we hope to have results to report in next year's Geotidings.

The Mars Atlas project (which Ken hopes is nearly finished!) was presented in June at the Planetary Geologic Mappers conference in Hawaii. While in the 50th state, Ken made a point of visiting with Prof. Emerita Darlene Richardson, who took a break from her week-long duties at the Public Library book sale to catch up on the news from IUP. It was great to see her



Ken Coles at the summit caldera (Mokuaweoweo) of Mauna Loa volcano, June 2015.

again. Of course, no geologist can visit Hawaii without going to the volcanoes on the big island. While the East Rift eruption is not currently accessible, Halemaumau crater at the summit of Kilauea is glowing with a lava lake, easily visible at night. In spite of advanced middle age, Ken also made a solo climb of 4000-meter Mauna Loa on a fine clear day. It does look a little like Mars up there!

Faculty News — Katie Farnsworth

Happy End of 2015! I just gave my last final exam of the semester and once I finish up grading and a few outstanding projects I am off to Nicaragua. I am looking forward to exploring the geology of the area from the hydrodynamics of the waves on the Pacific beaches of San Juan del Sur, exploring Las Isletas de Granada which are islands formed from a debris flow and of course checking out a bunch of volcanoes while also enjoying some quality time with family.



This summer was full of much travel throughout the Midwest and the chance to catch up with a bunch of alumni at the wedding of some former students. It was wonderful to hear what they were all up to and reminisce about rainy Taylor fieldtrips!



Above: Katie and colleagues on the CA rivers trip. Right: a field group examines spectacular coastal outcrops. Below: IUP students Kyle Potts '17 and Brennan Ferguson '18 measure a beach profile.

My year of sabbatical was wonderful including time for new research, continuing ongoing projects and also some down time to enjoy both the Pacific and Atlantic Coasts. I was happy to be back in Pennsylvania for Geoscience Day this past Spring to watch our graduating Seniors present their research and wish them well on graduation day.

I also led a fieldtrip for students from UC San Diego this past Spring to examine rivers and water issues within California. I have led trips like this for years, but this year with the extent of the drought it was extremely eye opening. I look forward in two years to leading this trip again and taking IUP students along.

I have continued playing the Ukulele since my return from the West Coast. Playing here and with groups in Altoona and Pittsburgh has been great, but I sure miss playing Saturday mornings on the beach in Santa Cruz with 30+ others. We are in the planning stages of forming a community Ukulele club here in Indiana – so if you are in the area and want to join us, let me know! Beginners welcome!



This Fall it was a bit hard getting back into the swing of things after being gone a year, but the chance to once again teach the Coastal Geology and Processes course always makes for a good semester. Our fieldtrip to the beaches of Delaware in late October was a highlight due to large beach nourishment projects this past summer combined with some large storms passing through. This provided us with some amazing examples of beach accretion in some areas and extensive erosion in others.

Faculty News — Nick Deardorff

It seems like each year goes faster and faster here at IUP and the last year feels like a blur. This may partially be due to the fact that my wife and I welcomed our second child, Colin, to the family in October. My eyes are drooping even now as I write this as he is not allowing us much sleep at night. But we are very excited and his older brother, Braden (soon to be 3 years old), is currently tolerating having a little brother. Although he has increased his mischief-making at least three-fold since Colin was born.



Undergraduate students Mike Barber and Drew Yetter set up the Leica terrestrial lidar scanner in order to scan the surface of the Mokst Butte lava flow in central Oregon.

Over the course of the last year I have continued my usual harassment of mineralogy students with memorizing formulas, mineral ID, optical microscopy, etc., and plagued students in intro geology courses with topo maps, rock petrogenesis, surface processes, etc. You know... the usual. Daily student pestering is as important to me as a strong cup of coffee in the morning. It's what keeps me going.

This summer I was fortunate enough to take two students into the field in central Oregon for some field work and data collection working on lava flows, thanks to a PASSHE Faculty Professional Development grant. Our main focus was using a terrestrial lidar scanner (TLS) to scan lava surfaces to produce 3D digital topographies which can then be used to quantify surface features. This requires hauling the

(expensive) scanner over very rough terrain (trying not to turn a knee or ankle) and scanning an area from multiple locations. The scans are then stitched together back at IUP using specialized software and can be used to quantify things like block sizes and surface roughness and determine how they vary at different parts of the lava flow.

Because of the difficulty of transporting TLS equipment over lava flows I am also playing with Structure-from-Motion software which allows you to create similar 3D point clouds of topography using only digital photos taken with a standard digital camera. This cuts down on the

weight in the field significantly, and so far I am quite optimistic about my preliminary results. I hope to acquire a drone soon to collect aerial photos which will allow surveys of larger areas with fewer shadows, which create holes in the data.

In addition to my Oregon trip, I also spent a week abroad in Newfoundland, Canada with Dr. Ken Coles scouting out potential outcrops and project locations for our upcoming summer field course in 2016. It was a whirlwind tour covering a significant portion of the island in such a short time, but our plans are coming together nicely. Look for photos and a summary of the trip in next year's GeoTidings newsletter. It's going to be a great trip!

Faculty News — Greg Mount

If you are reading this I made it through my first winter in a solid 10 years. That's quite an accomplishment, even though people got used to seeing me in a sweater and a wool hat between September and May. I tried to embrace the cold. I went skiing, snowshoeing and hibernated. Frequent trips down south kept me thawed out.

Professionally, I participated in the Cutting Edge workshop sponsored by the NSF and NAGT that introduces early career professors to active learning techniques. This should bring back memories of gallery walks and jigsaw activities and how they were used in your classes.

I adopted some of these in my lectures and labs, but I really tried to include a practical approach to student learning. My environmental geophysics class was exposed to GPR, Terrain Conductivity, Resistivity and Magnetometry, and were required to use all that equipment in the field and present a completed group research project.

In terms of research, I have completed another field season in Florida, and am looking forward to the students on the Carbonate Field Trip this winter helping with more data collection in Everglades National Park. Locally, I have been collaborating with other early career faculty on new and established projects that I am looking forward to involving our students in.

Work continues on the application of geophysical methods to Pennsylvania's abandoned and orphaned well and natural gas gathering systems.



Lower left: students carry out geophysical research around Indiana PA. Above and right: clearly bent on world domination, Dr. Mount's plan is to turn everyone in the department into a ski-hat-wearing geophysicist.



We were able to recruit Dr. Hovan to come out and help us with surveys.

To assist in our work, we have acquired a Geometrics G-859-AP magnetometer, and I am patiently awaiting the arrival of the first Wi-Fi enabled ground penetrating system operating in the United States, if not the World.

IUP students map the Colorado Rockies

Travel delays and altitude sickness, cold weather and environmental disasters were all taken in stride by a group of fourteen IUP students and two professors who travelled to the Durango and Silverton area this past August to study field geology. Led by our structural geologist, Dr. Jon Lewis, with the able assistance of department chair, Dr. Steve Hovan, the students mapped structures and strata as old as the Proterozoic and witnessed events as recent as the EPA spill of contaminants into the Animas River. Months after coming back to IUP, we over-hear one student telling another, “I think that trip was the best experience of my life” - sounding just like our distinguished earth science teacher Dave Curry who traveled to the Rockies nearly 25 years ago with Dr. Frank Hall. This is what outstanding earth science education looks like!



Chair’s Note: we try to offer field workshop classes each summer and are adding new trips to in warm locations such as Florida in the winter term as well. In today’s economy, however, many IUP students would be unable to afford to take these trips if they weren’t also supported by the IUP Geoscience Foundation. We are especially grateful to have received extra support from one generous alum who has underwritten our Next Generation Field Geology Fund to allow Geoscience students to pursue outstanding field opportunities when they arise.

Please Stay in Touch

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Geological Society of IUP

Facebook updates for student
club projects such as t-shirts.

Thanks for Your Support!

Your gifts have helped IUP students conduct field work and attend professional conferences including national meetings of the American Association of Petroleum Geologists, the Geological Society of America and the American Geophysical Union. Alumni gifts will also support next summer's research field workshop in the Southern Rocky Mountains so more of our hard-working geoscience majors can afford to go.

If you have the ability and desire to continue supporting IUP students, you can make year-end donations to any of the following special funds in the IUP Foundation:

- Geoscience General Fund 224530
- Joseph C. Clark Research Scholarship 630545
- Walter Granata Memorial Fund 224784
- Paul Prince Memorial Fund 224783
- Next Generation Field Geology Fund 224789

Photo: IUP students around a campfire in the Colorado Rockies, Summer 2015.