



# Department of GEOSCIENCES



## The Boulder RUNdown - Spring 2015

### Major numbers...

We now have 36 Geoscience majors...

- 11 in Geology**
- 20 in Environmental Geoscience**
- 5 in Earth Science**

### Supporting faculty research...

Funds from the **James A. Madison Fund for Research** supported research projects involving 4 departmental faculty members this past year.

### Research experience...priceless!

7 undergraduate geoscience majors participated in faculty-student summer research projects last year.

### Check us out!

Visit our **Facebook page:**  <http://www.facebook.com/pages/DePauw-University-Geosciences/118662514879623> and our **website:** <http://www.depauw.edu/academics/departments-programs/geosciences/>

## Putting our noses on the outcrop...

The old geoscience adage "(s)he who sees the most rocks wins" is alive and well at the Department of Geosciences. Thanks to the Wahl Endowed Fund for Geosciences Field Trips, students experience geology firsthand through the numerous field trip opportunities offered by department faculty members. We can't think of a better way to promote student learning and engagement!

### SEDIMENTOLOGY, STRATIGRAPHY, GEOMORPHOLOGY, AND STRUCTURAL GEOLOGY OF THE APPALACHIAN MOUNTAINS IN MD AND WV

Fred Soster, Scott Wilkerson, & Tim Cope

Students visited classic locales in the central Appalachians of WV & MD, honing various types of skills. These include reading maps, interpreting depositional environments of sedimentary rocks, and using small-scale structures in the rocks to gain insight into the geometry & kinematics of large-scale geologic features.

### GEOLOGY OF BANCROFT, CANADA

Jim Mills

Students traveled to our northern neighbor Canada to study the mineralogy and petrology of Precambrian rocks exposed in and around Bancroft. Not only were they able to collect spectacular mineral specimens, but they also visited classic exposures of ancient rocks deformed during the Grenville Orogeny, including some excellent outcrops containing 1.5 billion-year-old pillow basalts and major crustal scale faults/shear zones.

### TWO BILLION YEARS OF EARTH HISTORY ALONG THE COLORADO RIVER CORRIDOR

Jim Mills & Fred Soster

The Colorado River has incised into the rock layers of the

Colorado Plateau, creating a wonderful natural laboratory to study nearly 2 billion years of Earth's history. Students on this May Term studied the diverse array of rocks and landforms exposed in Arches and Canyonlands NP, rafted the Colorado River to remote areas first explored by John Wesley Powell, and later hiked in the depths of the Grand Canyon to study the geologic history exposed there.



(clockwise from upper left) 1. Scott Wilkerson relating topographic map patterns to landforms seen on the MD-WV trip. 2. May Term group photo at Dead Horse Point SP, UT with an entrenched meander of the Colorado River in the background. 3. Extended Studies students pointing to the footwall of a fault in Death Valley, CA. 4. Group photo near Bancroft, Canada.

### ASSEMBLING CALIFORNIA

Tim Cope & Jim Mills

Students spent 3 weeks in the field in California as part of the new Extended Studies experience, developing important mapping skills, learning to identify rocks in outcrop, and gathering orientation data for their cross sections and geologic maps.

## Message from the Chair

Welcome to the 2015 edition of *The Boulder RUNdown*, the annual newsletter of the Department of Geosciences. Let me start off by offering a few thanks to two of my colleagues. First, a sincere thanks to Scott Wilkerson, who each year acts as “editor-in-chief” of the newsletter. Scott takes on the task of gathering most of the information in the newsletter and is responsible for the design and layout. As you can see, he assembles a professional-looking newsletter with a staff of one (himself). Second, thanks to Jim Mills who did a magnificent job as Chair of the department over the last six years. I’ve got big boots to fill.

It has been a very busy year in the Department of Geosciences. In late April, Scott Wilkerson and I led our traditional field trip, “*Sedimentology, Stratigraphy, Geomorphology, and Structural Geology of the Appalachian Mountains in Maryland and West Virginia.*” Ten students (who were taking either Sedimentology & Stratigraphy or Map Interpretation) and Tim Cope participated on the trip. I’m sure that many of you participated in some version of this trip when you were students. We visited outcrops at Roundtop and Pinto, MD, Greenland Gap, WV, North Fork Mountain, WV, and of course, Smoke Hole, WV. We stayed once again in the Thompson Motel, which unfortunately is approaching the status of “tear-down.” Thanks to the F. Michael and Dorothy W. Wahl Endowed Fund for Geosciences Field Trips, we were able to cover all of the students’ travel and lodging expenses, and also provided a group BBQ meal on the last night of the trip.

Commencement 2014 brought the close of the academic year, and we sent 12 geoscience majors off to either graduate school or their first jobs. I am happy to report that we have kept in touch with many of them, and it appears that their investment in a DePauw education is paying extremely high dividends!

After commencement, activity in the department kicked into high gear. Jim Mills and I led a May Term trip, “*Two Billion Years of Earth History Along the Colorado River Corridor,*” out to the Colorado Plateau. Jim Mills provides a description of this trip in his section of



**Whitewater rafting on the Colorado River during May Term 2014. “The river gets a little angry down here.” –Rafting Guide**

the newsletter. Tim Cope, Jeane Pope, and Jim Mills all conducted field-based summer research that involved geoscience majors. Tim returned to China with three students to continue his NSF-funded work on the Yanshan fold-thrust belt, Jeane continued her Faculty Fellowship project on water quality in a Putnam County watershed with two students, and Jim worked with two students on outcrops in southeastern Missouri. Scott and I “held down the fort”, spending most of the summer in our offices. Scott was asked by the administration to be a part of a summer working group that was tasked with producing a Department Chairs Manual, and so he spent most of his time on that activity. I finished up a manuscript, which was submitted to the *Journal of Great Lakes Research*.



**May Term 2014 group photo at Canyonlands NP.**

During the Fall Term, Jim Mills led a “not-so-uneventful” Fall Break field trip with 13 students to Bancroft, Canada to collect minerals (see his written note for details). Once again, the Wahl Fund covered the majority of student expenses.

The Department of Geosciences will graduate 17 geoscience majors this May, the highest number of graduates in the history of the department. We have all been busy writing letters of recommendation to support graduate school and employment applications, and the entire department is anxiously awaiting responses to their applications. I appreciate the e-mails from many of you alerting us to employment opportunities. Alumni contacts remain a very important component of our placement strategy, so continue to send me any opportunities that may arise at your places of employment. Some of our seniors are still looking for entry-level positions. We also have a strong group of rising juniors and seniors, so if you have any internship possibilities (semester or January Term) or summer job opportunities, send those along as well, and I will pass them along to interested students.

Now, a short review of my activities during the year. In addition to the field trip activities described above, I had a full teaching load in both Spring Term 2014 and Fall Term 2015. In the spring, I taught Earth & the Environment and a new course in the department, Energy and the Environment, which enrolled 34 students. I taught Earth & the Environment and Introduction to Environmental Science in the fall. The “Energy” course was a lively class because the energy landscape is changing very rapidly, the energy future is quite uncertain, and the effects of climate change are beginning to become more apparent on several fronts. As the students begin to realize that all of this will considerably impact their lives, they start asking a lot of questions about the future that don’t have easy answers. It’s a challenging, but fun course to teach. I am teaching it again this semester to another 33 students and enthusiasm for the subject is once again very high.

On the research front, I finished “*Potential Impact of Chironomus plumosus Larvae on Hypolimnetic Oxygen in the Central Basin of Lake Erie*” and submitted it to the *Journal of Great Lakes Research*. The external reviews were excellent with only minor revisions suggested. It is presently in press and should be published in March or April. My plate is now clean of previous research projects, and I am in the process of deciding what to do next.

At home, things are really quiet with both kids out of the house. Erica graduated from IUPUI with a master’s degree and is now employed as a genetic counselor at St. Vincent Hospital in Indianapolis. Frederick is a sophomore at DePauw University, is a member of Delta Upsilon fraternity, and (get ready for this) is majoring in Environmental Geoscience (...a chip off the old rock). Jennifer really enjoys her work in the School of Music as Assistant to the Dean and Special Projects Liaison. She enjoys working closely with the music students and faculty, and had her hands full coordinating the logistics for the four ensembles invited to perform for the White House Holiday Tour in December. I’m finally going to see Glacier National Park and the Canadian Rockies as Jennifer and I have a three-week trip planned for June this summer.

I hope you all had a good year. By all means, keep in touch and be sure to alert us if you plan to visit campus (at the very least we can get together for a short visit). If you have more time, we can have you talk to our current students about your career path after DePauw.

–Fred ([fsoster@depauw.edu](mailto:fsoster@depauw.edu))

## Scott Wilkerson

Hello all! This year has flown by amazingly fast...it is hard to believe that Spring is right around the corner (we hope....as I write this, we are having near record lows for February...).

This past year I taught Geology of America's National Parks and Map Interpretation in the spring, and Earth & the Environment and Environmental Geophysics in the fall. All of the courses integrate Google Earth to some degree, which really seems to help facilitate student learning/engagement. For example, students in the National Parks course conducted research projects on their favorite national park and then created an interactive Google Earth virtual field trip to that park; students in Map Interpretation utilized digital topographic maps draped over Google Earth's 3-D terrain to help interpret the landforms and features depicted in the area, and students in Earth & the Environment acquired additional insight regarding geologic features and processes by working with Google Earth Geotours. As Fred mentioned in his Message from the Chair, he and I co-led a field trip to the Appalachian Mountains of WV & MD. In addition to getting a "lithic fix", we were able to show the students some incredible outcrop and regional structures, the sedimentary expression of orogenic events that shaped the Appalachians, and the topographic map pattern of various landforms and geologic processes (e.g., water/wind gaps, plunging anticlines, stream capture, etc.). Environmental Geophysics continues to be a popular course...the latest iteration had 18 students! We continue to strike a balance between theory and applied field work with the class, frequently conducting field investigations to find depth to bedrock/water table, seismic velocities of unsaturated till/saturated till/bedrock, & dips of various interfaces between these layers (seismic refraction), the location, depth, & shape of buried metal objects (magnetics and GPR...the latter thanks to a loan from Pine Environmental in Indianapolis), etc. We also interpret seismic reflection, gravity, and electrical resistivity data as well. The students prepare their lab reports using various EPA-style report formats in order to gain experience in how to report their procedures/findings in a professional manner. The students find these applied approaches valuable (in fact, Rochelle Coffman '12 just wrote that she felt that this

course helped her obtain her present position with an environmental firm...see the Alumni News section). I'm hoping to eventually secure funding to purchase new/gently used seismic refraction and electrical resistivity equipment that will connect to modern laptops and analysis software, as the equipment that we have is a bit dated (> 20 years old).

My research this past year was placed somewhat on hold

while I chaired a summer working group tasked with writing a department chairs' manual and developing a web resource page for department chairs (*deptchairpedia: Practical advice for department chairs & program directors*; <http://www.depauw.edu/offices/academic-affairs/deptchairresources>). With that now off my plate, I will be juggling several different projects: writing a book/e-book using digital topographic maps in Google Earth to teach map interpretation and geomorphic landform analysis (3-year Faculty Fellowship), working on a second edition of my Geotours Workbook (sabbatical in Fall 2015), and wrapping up my research project with Kurt Burmeister and Steve Marshak on revising the geologic map and serial cross sections through the Hudson Valley fold-thrust belt near Rosendale, NY (summer 2015?). After completing the

latter project, Kurt and Steve are hoping that we might team up to write a manuscript describing the nature of deformation throughout the Hudson Valley fold-thrust belt. So, I continue to keep several "irons in the fire" on the research front.

On the home front, the highlight this past year for the Wilkerson family was a major road trip to celebrate our 25th wedding anniversary (I know that some of you are probably stunned that Beth could put up with me that long...). We had lots of quality windshield time together as we drove cross-country to California and then returned via a more northerly route through Idaho, Wyoming, and South Dakota. On the way out, we enjoyed the mountain scenery of the Colorado Rocky Mountains, the uplifts of the Colorado Plateau of Utah, and the Basin and Range topography of Nevada. We spent considerable time exploring various areas on the east side of the Sierras (e.g., Mono Lake, Devils Postpile, Obsidian Cliffs, etc.) before crossing Tioga Pass to enjoy the alpine scenery of the Tuolumne Meadows area (especially the hike up Lembert Dome). Our lodging in Yosemite was in El Portal, so we maximized our time in the valley by hiking many of the main trails to see the classic features exposed there. On our return trip, we visited Shoshone Falls, Craters of the Moon NM, and then Yellowstone NP. We wrapped up our adventure by sneaking up on prairie dogs at Devil's Tower NM and visiting the Mt. Rushmore and Crazy Horse memorials. With two regular cameras and four iPhones blazing, we hardly have any pictures...if you stop by Greencastle, we might be able to scrounge up one or two photos to show you.

As always, please let us know if you will be passing through the area as we'd love to hear from you! Take care.

-Scott ([mswilke@depauw.edu](mailto:mswilke@depauw.edu))



**Wilkerson family enjoying sunset at Glacier Point in Yosemite NP (Half Dome & Nevada Falls in the background).**



**Wilkerson family at DPU Nature Park.**

**Ben (13, l) & Zach (17, r) remain active with academic teams, music, and sports (soccer & basketball). Beth continues to support GIS at DePauw through numerous projects & activities.**

## Department Scholarship Awards

### **Ernest R. "Rock" Smith Memorial Scholarship**

*Emma Cooper '15, Stephen Dobbs '15, Forrest Kunkel '15, Erin Walsworth '15, & Nicholas Williams '15*

### **Charles L. Bieber Memorial Fund**

*Henry Binning '15, Elizabeth Dilbone '15, Tyler Donaldson '16, Kelsey Furman '16, Anna Urso '15, & Lauren Van Fleet '16*

### **Charles M. & Frances Wylie-Condit Science Scholarship**

*Alex Grissom '16 & Amelia Wilson-Wright '17*

### **H. Richard Gault Memorial Scholarship**

*Thomas Addaquay '16, Vanessa Gonzalez '17, & Carey Kunz '15*

Income from the **James A. Madison Fund for Research** and the **F. Michael and Dorothy W. Wahl Endowed Fund for Geosciences Field Trips** help subsidize Department of Geosciences faculty-student research activities and student field trip costs, respectively.

## Jeane Pope

Greetings everyone! I hope that the not-so-new-year finds you all well. 2014 was a busy one for me, both professionally and personally. Luna, my daughter, is now almost five years old, and so she has kept me hopping with soccer, dance class, swimming, gymnastics, and lots and lots of play dates. At work, my time is split between teaching, my responsibilities as the Faculty Sustainability Coordinator, and research. But it's all fun, and I wouldn't have it any other way! As for highlights from the year.....

Last summer I worked with two really great rising seniors: Emma Cooper '15 and Henry Binning '15. We continued the agricultural



**Emma Cooper '15 and Henry Binning '15 collecting water samples for their summer research project.**

research from 2012 and were able to further refine our sampling methods and locations, which added to our understanding of the water quality in the headwater region of the Big Walnut Creek Watershed. Fortunately, we weren't plagued by the drought that affected us in the previous field season and were able to obtain some interesting results. In essence, the students analyzed hundreds of water samples collected over the summer from two and a half dozen sites to begin to look for patterns that would indicate potential problem areas or zones. They were able to find that, although the concentrations of different dissolved constituents varied due to environmental

conditions like rain events, certain locations always had high concentrations of worrisome compounds like nitrate and phosphate as compared to other locations. These findings indicate that these might be "hot spots" of agricultural pollution. This work is especially important because agricultural runoff is consider a non-point source of pollution, and therefore, hard to regulate or remediate. However, when potential problem areas can be identified, there is an opportunity for the landowners in that area to take advantage of voluntary state programs that provide funding to improve water quality. This summer, a new team of geoscience majors and I will continue to collect and analyze data with the goal of further documenting these potential hot-spot zones. Incidentally, the homepage of DePauw's website featured a story about the value of undergraduate research that highlights our work (see <http://www.depauw.edu/news-media/latest-news/details/31052/>). Further evidence of the value of research is that Emma and Henry have both been accepted by excellent graduate programs and are now weighing their future options!

DePauw's sustainability program continues to grow and make improvements on campus. Over the summer, we hired two consulting firms that are doing a thorough audit of our energy and water systems, with the goal of outlining what DePauw needs to do to decrease our environmental footprint. At the same time, we are seeking opportunities to work with offices across campus to build a culture of sustainability. To that end, the Office of Sustainability launched a new initiative last fall called "Envisioning Zero Waste," which is a focused effort to change both environmental attitudes and practices. "Zero waste" is an ideal in which everything that could be reused, repurposed, recycled, or composted would be kept out of incinerators and landfills. Activities that are part of this initiative include guest

speakers, films, and campaigns. To learn more, please see the Office of Sustainability website (<http://www.depauw.edu/offices/sustainability/>). The Association for the Advancement of Sustainability in Higher Education (AASHE) conference last fall in Portland gave me the opportunity to highlight some of this recent work at a poster session and a workshop.

Finally, I am particularly pleased to share that I was part of a successful team that will receive over \$230K from the GLCA to develop Environmental Dashboards (which are analytical displays of building energy and water use data) at DePauw

(here is a link to the press release about this grant: <http://www.depauw.edu/news-media/latest-news/details/31467/>).

Finally, this last semester, I was pleased to have the opportunity to team-teach a new course with Harry Brown in the English Department entitled "Environmental Crisis Narratives." This course explored the intersection of science, literary imagination, and the contemporary environmental crisis. As a 300-level literature course, most of the students weren't scientists, but enjoyed learning about the methods and language of science as they considered one of the most important problems facing society today. Further, I learned a lot about how the humanities approach environmentalism and about the value of artistic expression in motivating people to change how they think about the world around us. It was an enriching experience that shows the power of the liberal arts. Although our teaching and sabbatical schedules won't allow us to teach this again next year, Harry and I would like to offer this as a first-year seminar some time in the future.

So far, 2015 has gotten off to a great start, and so in our next newsletter, I look forward to updating you about a new Living Learning Course, my summer research, and my sabbatical plans. Hope you are all well; keep the updates coming!

Best wishes,  
-JKJ ([jpope@depauw.edu](mailto:jpope@depauw.edu))



**DePauw Team at AASHE (from l to r): Jennifer Everett (Associate Professor of Philosophy), Anthony Baratta (Director of Sustainability), Jeane Pope, Christopher Wells (Vice President of Student Life).**



**Luna the Unicorn at a Halloween party.**

## Jim Mills

Greetings from Reelsville! As of this spring, I am officially on sabbatical and back at work on a textbook for Earthquakes and Volcanoes. First, I just want to thank everyone for their support during my tenure as Department Chair, which Fred has graciously taken over beginning July 1st.

Since the last newsletter, it's been a very busy year. Fred, me, and 13 students participated on a May Term trip to the Colorado Plateau region starting right after commencement. We visited several different national monuments and parks in Colorado, Utah, and Arizona, including Colorado NM, Arches NP, Canyonlands NP, and Grand Canyon NP. We saw a lot of spectacular geology, hiked the Kaibab and Bright Angel trails, drove Polaris RZR's and mountain bikes through the desert, and ate mountains of pizza at Zak's. Probably one of the main highlights of the trip was rafting on the Colorado River during near-peak flow (~50,000 cfs!). The rapids were spectacular, everyone got soaked, and we had a blast!

Upon returning from the May Term trip, Tyler Donaldson '16, Nick McCreary '15, and I embarked on summer research in the St.



**Roadcut on Highway 67 in the St. Francois Mts. in MO. Tyler Donaldson '16 and Nick McCreary '15 interpreted these exposures as part of their summer research project with Jim Mills.**

Francois Mountains in Missouri. We dissected the geology of two of the newer roadcuts on Highway 67 and hope to present our results at the North-Central Geological Society of America meeting in May.

Tyler and Nick have done a great job interpreting the geologic

relationships exposed in these two roadcuts. In spite of a deliberate, well-focused attack by the "death rock" to my leg at Tyler's outcrop, we all survived.

Last fall, I ran another epic (perhaps an understatement) trip to Bancroft with 13 students. Let's just say I had some wonderful conversations with the Ontario Provincial Police and local tow truck drivers...

All in all, the trip actually went very well, Vito's welcomed us once again, and the rocks and minerals were spectacular. We also enjoyed marvelous evenings star gazing on Lake Albion at our cottage. But alas, no polar bears anywhere it sight. Must be that darn global warming...



**Bancroft field trip group pointing out the pillow basalts in the outcrop.**

This January, Tim and I ran the first iteration of an Extended Studies field methods class in southern California and Nevada. We stayed at the Desert

Studies Research Center in Zzyzx, California, utilizing the center as our 'base of operations'. We had 11 students that learned to map the old fashioned way...on topographic maps. Field areas included the Salt Spring Hills, the Marble Mountains, Little Cowhole Mountains, Clark Mountain, and Red Rock Conservation Area. Near the end of the class, we camped for four days in Death Valley and did a little geotourism. An added bonus this year were visits by Ali Barnes '09 and Will Joseph '14 – hi Ali and Will, it was a lot of fun seeing you both again!! Ali hung out with us for a few days while we were at Zzyzx, and Will tagged along with us in Death Valley for a couple of days. Our biggest surprise was who walked out of the desert sand dunes at Stovepipe Wells in Death Valley. Just as we were preparing to head back to camp, Andrea Huska '09

appeared like some mirage coalescing out of the setting desert sun on Tatooine with three of her colleagues from Brooklyn College. Bizarre. So hi, Andrea...thanks for the picture! It was great to see you again!



**Jim Mills, Andrea Huska '09, and Tim Cope in Death Valley, California.**

Our only casualty on this trip was the driver-side window on my geovan. We strongly suspect a lone-wolf kamikaze desert tortoise was to blame as nothing else can explain the window shattering at 60 mph on a long, lonesome stretch of Kelbaker Road at 8:30 in the morning... But alas, we could not find any substantiating evidence to validate our hypothesis, so the mystery remains unsolved...

All in all, another great year! Next year, back to the Black Hills! Ben – will you be there?? I hope all of you have had a great year, and we look forward to hearing from you soon!

-Jim ([jmills@depauw.edu](mailto:jmills@depauw.edu))



**Extended Studies field trip group taking notes in the Marble Mountains, CA.**

## Tim Cope

Last semester, at one of our department lunches, I was reminded how long I have been at DePauw. The geoscience faculty all introduced themselves at this lunch by stating their names, the courses they teach, details about their research, and how long they have been with the department. When it came to be my turn, I stalled a bit on the last item...and then took a guess. "I've been at DePauw for ten years," I asserted. Jeane Pope went next, and she corrected me. "No Tim," she said "this is your twelfth year." When my jaw dropped (I thought I'd overestimated at ten), she counted them all out for me. Yeah, twelve years. She was right. Wow. That means that those of you who graduated early in my career are now well into your thirties. And I must be...older than that. I often wonder how life is treating some of you. Please drop me a line sometime. I keep in touch with many of you via Facebook, so "friend" me if you haven't already!

This past year has been a great one for me. This is the final year of my NSF-funded China project, and it has been very productive. Last summer, three students joined me on the final push to wring as much data as possible out of the rocks in the Yanshan belt northeast of Beijing. We spent our very first field day climbing an unreconstructed section of the Great Wall, and the subsequent week mapping along other unreconstructed segments of the wall, where they cross Jurassic thrust faults, Mesozoic and Proterozoic plutons, Jurassic volcanic rocks and boulder conglomerate, and Archean basement rock of North China. Steve Dobbs '15, Nick Williams '15, and Alexa Masters '15 worked with me on three different projects, all of which are significant pieces in the puzzle of Chinese tectonics. Nick is writing a senior thesis on a Carboniferous-Triassic sedimentary basin in North China, which we believe is a foreland basin that records arc-continent collision between North China and volcanic arc terranes in Mongolia. We've found the oldest recorded occurrence of Mongolian detrital zircons in this basin, signifying that Mongolian arc sources were supplying sediment to North China by the Middle Triassic. Steve is writing a senior thesis on the Late Jurassic-Early Cretaceous evolution of the Yanshan belt, in which he shows that these rocks are likely related to another collisional event between North China-Mongolia and Siberia. Alexa gathered carbonate samples from feathered dinosaur-bearing beds that may yield information (in the form of oxygen isotopes) about the paleoaltitude of North China during the Cretaceous, which in turn may have some bearing on why feathers were required to keep these critters warm during one of the warmest periods in the Phanerozoic. Still waiting on those data. We're hoping to get all of this submitted for publication by the end of the academic year. This summer, I'll take a year off from fieldwork to publish the rest of our data from the project.

I've also been busy developing new courses. In Fall 2014, I developed and taught a new first-year seminar on paleoclimate, a subject that has been of considerable interest to me lately. The students in that class worked with tree rings, temperature data, and isotopic data from polar ice



**Steve Dobbs '15, Nick Williams '15, and Alexa Masters '15 on an unreconstructed segment of the Great Wall at Gubeikou, China.**

sheets and deep-sea drilling to understand how the climate has changed in the past, and how it is changing now. By the end of the semester, each of them was able to research and understand a climate event that happened in Earth's past, and their papers were among the best I've ever read from a class composed of first-year students. I'm currently teaching a new class on isotope geology (I'll let you know how this goes in my next newsletter). Last winter term, Jim Mills and I led a new 0.5-credit Extended Studies course to California, in which students mapped and described several small field areas in the southern California desert. Jim will tell you more about that in his letter.

The family is doing great. My kids are trying a lot of new things. Zoe is 6 now, and Tess is 4. Zoe is in first grade. She wants to take piano lessons, play soccer, and is already in ballet classes. She absolutely loves learning. Tess is in ballet classes too, and at four years old she is already quite a graceful dancer! We had two new additions to our family last year, in the form of kittens named Roscoe and Hector. The kids love them. The parents feed and clean up after them.

Finally, ever since we got our new kitchen, Kate has been experimenting with baked goods. She is exceptionally good at baking, and is currently looking for a perfect space in which to open her own bakery in town. If things work out, then the next time you visit Greencastle you may want to pick up a loaf of bread, or stop by for a sandwich, or breakfast....

-Tim ([tcope@depauw.edu](mailto:tcope@depauw.edu))



**Steve Dobbs '15 mapping the Gubeikou thrust fault and footwall conglomerate from a Great Wall watchtower near Gubeikou, China.**

## Alumni News

**Doug Trout '52** resides in Lewes, DE with his wife Adele. Doug has had many wonderful experiences since leaving DePauw, including serving in the Army, becoming a Presbyterian pastor, and obtaining a PhD at Michigan St in Higher Education Administration. He later served as president of Tusculum College in Greeneville, TN and then he traveled the world for many years consulting with various small colleges and churches. Doug still shares his geology expertise and collection with others in the Lewes, DE area.

**Tim Davis '84** has become a geological consultant in the New Ventures group with Marathon Oil in Houston, TX.

**Chris Herin '84** works for Geosyntec Consultants, Inc. in FL as a principal hydrogeologist. Thanks for contacting us with a possible job opportunity for our students...we hope that they can help remedy the lack of DPU grads in your organization!

**Connie Dicken '99** continues to be active with GIS projects for the USGS and recently made it back to IN for a conference. She passed along that the USGS is transferring/selling engraving plates from the various USGS topographic map series.

**Julie (Kasi) Wood '99** and her family are moving to the Atlanta, GA area where she will teach 11th and 12th grade earth science and astronomy.

**Nic Brissette '00** noted that while shooting a 3-D seismic survey in Fisher County, TX, they were able to see the April 1, 2014 Chilean earthquake with their wireless geophones recording passively.

**Ben Olszewski '00** writes that he recently took a position as manager of environmental services at Rose Rock Midstream in Oklahoma City, OK. He has *"three daughters 8, 6, and 3 years old and am married to a DePauw grad Amanda Woodward."* He has a hunch that his 6 year old may turn out to be a geologist...send her our way!

**Katy (Adank) Ward '05** has been busy! James and Katy welcomed the arrival of Paul Roger Ward in July, and then she passed her Practice of Geology exam in October and received her P.G. license in December. Congratulations on all counts!

**Audrey Gehlhausen '06** continues to guide rafting expeditions on the Middle Folk of the Salmon River in Idaho and on the Colorado River in the Grand Canyon. She also guides cross-country skiing in the Yellowstone area during the winters.

**Ben Clement '07** sounds incredibly busy with all kinds of environmental remediation projects for Burns & McDonnell out of St. Louis, MO (including *"implementing some in-situ chemical oxidation at a former dry-cleaning facility using aqueous sodium permanganate gravity fed to an array of injection wells screened in a fractured basalt"* in Twin Falls, ID!). In his spare time, he has participated in some sprint triathalons.

**Bill Alward '08** writes that he has been transferred to XTO Energy (ExxonMobil's unconventional/US production arm) in Fort Worth, TX. *"XTO is almost entirely focused on unconventional, and so I get the chance to both build some breadth there, but also get some really strong operational experience by getting much closer to the bit."* Bill and his new bride Rebecca are busy settling in to life in Fort Worth.

**Beth Drewes '08** continues to be work as a Geology teacher at the Swiss Semester school in Zermatt, Switzerland (with occasional side trips to Venice, Italy...sounds rough!).

**Ali Barnes '09** met up with Tim and Jim during their January Extended Studies field trip (see Jim's note). She remains with the National Park Service for now, but may explore something in the education field in the future.

**Andrea Huska '09** continues to work on her Ph.D. at the City University of New York Graduate Center on the source of Bronze Age fluvial tin deposits in western Serbia (when she is not strolling around Stovepipe Wells Mesquite Dune Field in Death Valley bumping into Jim and Tim). Her Masters work was featured in *Geoarchaeology* (<http://onlinelibrary.wiley.com/doi/10.1002/gea.21488/abstract>). Congratulations!

**Jay Wellik '10** stopped by Greencastle this past summer before beginning his work as the field and lab coordinator for the Earth Observatory of Singapore. He later wrote to say that they've ordered

the [Geotours Workbook](#) as a reference for their undergrad courses there.

**Maggie Baber '11** was pleased to report that material from her Master's thesis was published in a Geology article (<http://geology.gsapubs.org/content/early/2014/04/14/G35421.1.abstract?sid=70440e29-5589-4993-92d6-f8742c5ebce8>). Congratulations!

**Julia (Shaw) Sessions '11** has left Horizon Well Logging and Geosteering in Tulsa, OK and has enrolled in the geology graduate program at the University of Tulsa. She writes *"I am happy to report that a geology degree from DePauw prepared me very well for graduate school. I like to think of it in terms of a "mini" or "pre" Master's program after hearing about some of my classmates' undergraduate experiences...I am the only student in my class who has made (or in my case, attempted to make) a thin section...I am also one of the only students with any optical mineralogy background....So, I would like to send a hardy "thank you" to you and the rest of the department for all of your hard work in teaching and pushing students."* Julia is working on a stable isotope project for her graduate work and is employed part-time with a small petroleum company in Tulsa.

**Rochelle Coffman '12** is working for Arcadis in Indianapolis on various geophysical surveying projects and is really enjoying her work. She writes *"Besides my academic achievements and DePauw education, I believe my environmental geophysics class I took with you helped secure this job. I was able to talk about what I did in the classroom and describe how hands-on it was. I am so thankful for this job and can't wait to talk about it to you next time I'm in Greencastle."* And the added bonus is...**Lauren Werkenthien '10** is transferring to the same office. Congrats to you both!

**Chloe Lawson '12** has switched jobs and now works as project geologist with Prism Science & Technology, LLC (an environmental/ecological consulting firm in St. Joe, MI).

**Melissa Penfold '12** is now a geologist in Odessa/Midland, TX with Apache Corporation....congratulations!

**Bryant Kosanovich '13** has accepted a geological technician position with ChemEOR, an oilfield enhancement company in Denver, CO. He writes that he'll be *"...gathering and compiling well data/logs/info to narrow down where their newest flood/treatment product will work best."*

**Jordan Thomas '13** now works for Environmental Analysis, Inc., a Chicago firm that focuses on *"industrial hygiene, asbestos, soil sampling, and environmental site assessments"*.

**Mackenzie Cremeans '14** is working on her Masters at the University of Kansas. She came by the department and shared a document from one of her Kansas profs that *"Reminded me of your emphasis on presentation of work, so I thought I'd forward it along as another example that presentation does, indeed, matter."*

**Will Joseph '14** is enjoying his graduate work at the University of Nevada, Las Vegas. He is planning on working on an igneous petrology project at Mono Lakes/Inyo Craters this summer.

**Katherine Shover '14** is happy to report that she will be a summer intern this summer with ExxonMobil. She is currently working on her Masters at the University of Texas, Austin.

**Ali Sullivan '14** writes that she had a neat camping trip to Devil's Lake (Baraboo, WI area) and *"wished I had been there with a structural geologist because I was a little rusty on my knowledge, but I did manage to give a little structure/tectonics lecture to my friends I went camping with :-)".* Perhaps you can meet up with us when the Structure class goes there in late April...

# Photo Gallery



**WV-MD field party at a small fault-related fold in the Silurian Kefer Sandstone just west of Franklin, WV.**

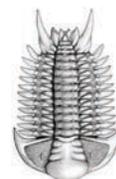


**Evidence that "Ben (Clement '07) was here!". Here being the Snake River canyon near Twin Falls, ID. You may not understand this, but Ben will.**



**Paul Roger Ward (son of Katy (Adank) Ward '05). He must be smiling because mom told him about her GEOS 220 Field Experiences field trip to Utah!**

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