

# Spring 2018 Newsletter



Ojashvi Rautela '19 and Alessandro Mauceri '20 taking a break before measuring paleocurrents beneath the snow on the Sedimentology and Stratigraphy field trip to southwestern Minnesota and South Dakota (April 2018).



## Greetings From the Chair

Hello again from Mac Geology! We hope that our Spring 2018 Newsletter finds you all happy and healthy! The end of another exciting academic year has arrived, graduation has passed us by, and the snow has finally melted. With the snow now seemingly finally banished from Minnesota for at least the next few months, we wanted to update you all on some recent happenings and highlights in the Geology Department.

As usual it was a busy year here on the first floor in old OLRI. Two faculty reviews came to very happy conclusions (thanks to all of our alums who wrote letters for the review files). Alan Chapman successfully navigated his third-year review in March. Alan will be on sabbatical leave next spring (2019), and he is very much looking forward to wrapping up some of his current research projects with his lab group (more on that below). Kristi Curry Rogers successfully navigated the full professor review in May (this is the final formal promotion in a professor's career). Kristi's next step is retirement, in about 25 years.

Our visiting professor Anna Lindquist had a great year covering classes for Karl while he was on sabbatical. Anna taught Mineralogy, an intro class on Soils and Sustainability, and an upper level course that focused on Soils and Magnetism. She has done a wonderful job for us and our students, and we are looking forward to next year when Anna will join us again while Kelly is on sabbatical.

Karl Wirth was on sabbatical during the 2017–2018 academic year. He resided in his lab with Otzi and the candy jar we have all grown addicted to, and managed Keck Consortium adventures on a

global scale. Karl will fill you in on his sabbatical adventures later in the newsletter – as you might expect, there was some travelling to exotic locales on other continents (and some diving too).

Kelly MacGregor taught a first-year version of Dynamic Earth and Global Change and Geomorphology in the fall, and this spring she taught Surface and Groundwater Hydrology to a full house. With the end of this academic year comes the end of Kelly's duties as Director of the Olin-Rice Science Center. Her sabbatical leave starts now!

I (Ray) also taught a first-year course in the fall (History and Evolution of Earth), along with the usual repertoire of History and Evolution of the Earth (open to any and all) and Sedimentology and Stratigraphy in the spring. Despite struggles with the snow, I was able to get both of my spring classes out for their field trips (the photo on the opening page captures a

view of two of our current majors relaxing on the snow-capped Sioux Quartzite).

Jeff Thole spent the year wrangling with teaching our intro labs, managing our work study crew, further perfecting his skills on the new micro-XRF, and running the show in the Keck Lab. He is also nearing completion of a fluorescent mineral display in the back hall. If all goes as planned, the display should be up and running next time you visit!

Kristine Spangard, our department coordinator, advanced the cause by facilitating various department social events, updating hall displays, and developing an intranet page for geology faculty and staff.

And finally, the main event – our 2018 graduates!

Meet Kelsee York (below), Nolan Ebner (bottom), and Rachel Surprenant (left).



## Our Graduates and Their Theses 2018



**Nolan Ebner**

*A Re-Examination of the 38.9 ka Ignimbrite at Fond St. Jean, Dominica (Karl Wirth, advisor)*



**Rachel Surprenant**

*Taphonomy of a Vertebrate Microfossil Bonebed in the Upper Cretaceous (Campanian) Two Medicine Formation of Montana - A Comparative Approach (Ray Rogers, advisor)*



**Kelsee York**

*Biogenic Silica as a Proxy for Paleoclimate: A Case Study of the Mid-Pleistocene Transition (Kelly MacGregor, advisor)*



**The Celebratory Senior Dinner**  
Faculty and graduates convened for a feast and celebration at Buca di Beppo



## Awards, Scholarships, and Grad School Updates

Chris Dwyer '05	Chris was recently accepted into the master's program in the School of Freshwater Sciences at the University of Wisconsin--Milwaukee.
Lucy Andrews '14	Lucy has been accepted in the Ph.D. program at UC-Berkeley where she will study environmental science, policy, and management.
Alex Dolabi '16	Alex has been accepted in the master's program at Duquesne University, where he will study philosophy from the perspective of an earth scientist.
Hoai-Nam Bui '17	Hoai-Nam has been accepted in the Ph.D. program at McGill University in Montreal to investigate evo-devo and dinosaurs.
Brooke Hunter '17	Brooke has been accepted in the Ph.D. program at the University of Oregon, where she will study hillslope stability after catastrophic fires.
Rachel Surprenant '18	Hugh S. Alexander Endowed Prize (Geology Department Award). Rachel has been accepted in the master's program at the University of California, Riverside to study the taphonomy of Ediacaran animals in Australia.
Emily Dektar '18 (visiting post-baccalaureate researcher)	Emily has been accepted in the master's program at the University of Nevada, Reno to investigate the tectonic development of the North Cascades, Washington.
Kelsee York '18	Henry Lepp Award (Geology Department Award)
Nolan Ebner '18	Hugh S. Alexander Endowed Prize (Geology Department Award)
Alison Lange '21	NASA Scholarship
Gabriel Fisch '21	NASA Scholarship

### Study Away, Fall 2017-Michael Murphy

I spent my fall 2017 semester in Arusha as part of the ACM Tanzania program. We spent 2 months living with host families and taking classes in Ecology, Early Human Origins, Kiswahili, and Field Methods. We then got to apply those skills by traveling around the country including spending two weeks in Serengeti and Tarangire National Parks and Ngorongoro Conservation Area. Our ecology professor came with us into the field and had us identify and age large mammals along with visiting with other professionals. We spent time in Olduvai Gorge visiting the famous anthropology sites. We also spent three weeks at a field site outside of Tarangire NP working on independent student projects (ISP's). For my ISP I described a portion of Burko Volcano, a silica undersaturated composite volcano about 30 miles to the East. I described hand samples of the major rock units and drew strat columns (over 4000 ft of them!). There has been very little work done on Burko and it was really exciting to get up every morning and go out to see what I could find. Tanzania is an incredible country and it should be on every geologist's bucket list.

Right, top: Mt. Kilimanjaro

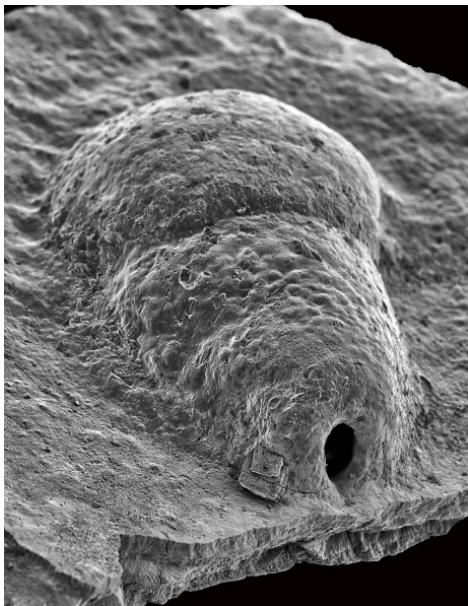
Right, bottom: Volcanoes at Engikarat, Tanzania Meru



## Updates From Faculty

### Ray

Things have been busy since my last update. In June I worked with Jahan Ramezani (MIT) out in Montana to collect the last few bentonites for our Campanian campaign (an NSF-funded project to gather new high-precision U-Pb ages for the Campanian strata throughout the Western Interior). In July, Kristi, Jeff, and I worked with four geology students (Rachel Surprenant '18, Sierra Swenson '17, Max Deckman '19, and Hoai-Nam Bui '17) on fossil-related projects out in the Judith River Formation in the Upper Missouri River Breaks National Monument (UMRBNM). While out in the UMRBNM we joined up with colleagues Mark Patzkowsky (Penn State) and Steve Holland (University of Georgia) and graduate students from institutions throughout the U.S. to teach the Cretaceous portion of the Stratigraphic Paleobiology Field Course (sponsored by the Paleontological Society). Later in August I drove up to Calgary with



An igloo (that hosted a nasty parasitic flatworm) on a Cretaceous clam shell.



Hoai-Nam, Sierra, Rachel, and Max in the field with Ray in Montana.

Kristi and Lucy to present some of our research at the annual Society of Vertebrate Paleontology (SVP) meeting. I presented two talks at the meeting, one on mass death and toxic algal blooms in Madagascar, and another with Kay Behrensmeyer (Smithsonian) on the "Tyranny of Transport" in paleoecological studies. Science magazine opted to feature my research related to Madagascar as

a news story, which was cool. Two of our students, Sierra Swenson and Hoai-Nam Bui, presented their paleo work at the same meeting.

My Macalester academic year began in the fall with a first-year version of History and Evolution of Earth. Sixteen unsuspecting students joined the course, and five have already declared their major in geology! During our field trip to Whitewater State Park in southeastern Minnesota we discovered the magic of grizzly bear sounds on an iPhone – what a great way to get students out of their tents in the morning in time for breakfast! Those of you who also lead field trips with undergrads should try it. My spring semester included another section of History and Evolution of Earth and Sedimentology and Stratigraphy. Field tripping was particularly challenging this snowy spring, but I was able to get both classes out in the field to explore the rocks and collect some fossils.

Things have been good on the research front. In October I traveled to Seattle to attend the Geological Society of America meeting, where I presented work on beauti-



Lea, Kelsee, and Sintra save the day by holding up the Sioux Quartzite in western Minnesota (sed strat field trip 2018).

ful little igloo-shaped structures on clam shells from the ancient lakes of the Judith River Formation. It turns out that these traces are the oldest evidence for trematode (flatworm) parasitism on clams in the fossil record. It pushes their record back 76 million years. In January I wrote a manuscript that describes the origin of the igloos. The report was published in *GEOLOGY* in March (Kristi, Jeff, and Jamie Goodin '17 joined me as co-authors on this manuscript). I am continuing work on issues related to Cretaceous stratigraphy in Montana and Alberta, and I am about to head out to Montana with two current Mac students to work out the details of some marine sequences in the Cretaceous record. For more research updates check out my webpage ([rogerslab.weebly.com](http://rogerslab.weebly.com)).

### Alan

The Chapman research group (Emily Dektar, Robert Grace, Michael Murphy, Ojashvi Rautela, and Izzy Ryde) continues to improve our understanding of the margins of continents. Emily is working on subduction-related rocks from Baja California, constraining the timing and mechanisms behind how these rocks were assembled. Emily, Robert, and Izzy are unraveling the processes that led to the construction of a ca. 100 million year old (now dead) continental arc, exposed over a wide range of paleodepths (~10-35 km), in central California. Ojashvi is working on a suite of xenoliths from central Arizona to improve our understanding of how tracts of lower crust and upper mantle at the edges of continents respond to collisions with oceanic plateaus. Michael is engaged in a similar pursuit, investigating xenoliths from the central Sierra Ne-

vada batholith to clarify the mechanisms by which a lower crustal root developed beneath the batholith. My research crew travelled to Flagstaff, Arizona in mid-May, 2018 to present our work at the joint Cordilleran-Rocky Mountain section meeting of the Geological Society of America (GSA).

Watch for Hartford and Chapman (2018), a paper written by Glen Hartford '17 on the origin of granitic clasts in the Franciscan subduction complex, which will appear (alongside two other papers I coauthored) in a GSA Special Paper later this year. Meghan Klapper '17, Jenny Grischuk '17, and I are poised to submit a paper on the Jurassic-Cretaceous development of the Klamath Mountains Province, northern California-southern Oregon. Outside of the realm of student authored papers, I published an invited review article on the Pelona-Orocopia-Rand schist (I love these rocks) in *International Geology Review*, a field guide to the northern Mojave-southern Si-

erra Nevada in *GSA Field Guides*, and a review article on the development of the Altiplano (Central Andes - South America) in *Annual Reviews of Earth and Planetary Sciences*. For more details on the exciting work being done by my research group, including our evolving body of published work, visit my webpage: [alandchapman.weebly.com](http://alandchapman.weebly.com).

I taught four courses this year, Dynamic Earth and Global Change and Tectonics (fall), and Structural Geology, plus a new Geohazards course (spring). These courses involved countless field trips to view exciting rocks in Minnesota (the Boundary Waters, North Shore, and karst country with a visit to Niagara Cave) and Wisconsin (the world famous Baraboo syncline—a gem of the Midwest). The long winter made spring field trips more challenging than usual, some involving hail, but we managed!

### Anna

2017-2018 was my first year at



Alan's Structure 2018 class photo in Devil's Lake State Park, Wisconsin.



Anna's students from Soil: Science and Sustainability (fall 2017) visit Common Harvest Farm and discuss soil with Dan Guenther (front, in hat)

Macalester. I have been filling in for Karl Wirth while he is on sabbatical, and have really enjoyed this year. In the fall, I taught Mineralogy to a fantastic group of students and piloted a new class called Soil: Science and Sustainability. In the spring, I taught Soil: Science and Sustainability again (to three times more students than the first offering!) and another class about Magnetic Methods in Soil Studies. Though I have studied and used soils over the years, I wanted to include an agricultural aspect to Soil: Science and Sustainability to help students appreciate the role of soils in their daily lives. Dan Guenther at Common Harvest Farm in Osceola, WI has been a fantastic resource for this aspect of the course. He has visited my class at

Macalester (when this cold spring prevented our visiting him), and he hosted us at his farm in the fall. The students have really enjoyed this practical look at farming practices and soil health. In the spring, Macalester awarded me a Beltman grant to do research with two students in summer 2018. The students will use a variety of magnetic measurements to study soil samples collected from a recently replanted prairie

(until recent decades, the land was a corn and soybean farm). The goal is to determine the degree to which iron oxides have formed in the upper soil horizons since the agriculture to prairie transition. The size and type of iron oxide tells us a lot about the local climate and soil formation. By characterizing the iron oxides, we hope to build a better understanding of how soils respond to sudden changes—both in soil use and in local climate.

Teaching this year at Macalester has been a joy. The faculty, staff, and students at Macalester have been very welcoming. I am looking

forward to next year, when I will be filling in for Kelly MacGregor while she is on sabbatical.

### Kristi

Last summer kicked off with a big trip to the Denver Museum of Science and Nature to study the sauropod fossils that have amassed as a part of the Mahajanga Basin Project over the last 20 years. It was incredibly fun to be surrounded by all those gorgeous huge dino bones! We also squeezed in a short trip to study Madagascar fossils at the Field Museum of Natural History, and managed to also take Lucy along so that she could see Hamilton (can you believe that even Ray could get behind that musical theater production!?). Once back in Minnesota, we underwent a big transition in the paleohistology lab as lab manager Zoe Kulik '16 headed off to a Ph. D. program at the University of Washington (Yay Zoe!). Hoai-Nam Bui '17 built upon the work of Rachel Karlov '14, and successfully defended a senior honors thesis in geology focused on some interesting pathological dinosaur bones from Madagascar before taking the reins for the histo



Anna's Mineralogy students in Ely with alum Gabe Sweet ('07, far right)



Kristi, Lucy, and SVP group in Calgary

lab from Zoe. In July I headed to the Upper Missouri River Breaks National Monument (UMRBNM) in Montana for field work with Ray, Jeff, and four geology students (Rachel Surprenant '18, Sierra Swenson '17, Max Deckman '19, and Hoai-Nam Bui '17). While there, we collected a bunch of vertebrate microfossil bonebeds, covered a lot of ground searching for new localities for the Bureau of Land Management, and discovered a juvenile dinosaur leg that we spent several days excavating (IMAGE). While out in the UMRBNM we met colleagues Steve Holland (University of Georgia), Mark Patzkowsky (Penn State), and about 15 graduate students from all over the U.S. to teach the Cretaceous portion of the Stratigraphic Paleobiology Field Course (sponsored by the Paleontological Society). We had a great time staying in the very fancy Winifred Hotel in tiny Winifred, Montana. Ask us sometime about my belated birthday celebration in "the Grecian Room!" I presented a talk on the bone histology and growth rates of

the earliest known dinosaurs from the Ischigualasto Formation at the Society of Vertebrate Paleontology (SVP) meeting in August.

The academic year began with my second-in-a-row first-year course in the Biology Department (Biodiversity and Evolution). Don't worry-I forced them to get down and dirty with a few fossils at the Science Museum of Minnesota and on the bluffs overlooking the Mississippi at the end of Summit Avenue. I also got to teach my Dinosaurs course this spring, which was full of fun-loving seniors. It was a great class with amazing projects (consider a Moonrise Kingdom homage to hadrosaurs in Minnesota). I'm really looking forward to the upcoming academic year, when I get to teach THREE courses in Geology! A first-year course, titled Flying Dinosaurs and Walking Whales, an upper level Vertebrate Paleobiology and Evolution seminar, and of course, Dinos!

I squeezed research in here and there and was excited to contribute to Ray's paper on the igloos, as

well as getting a paper submitted to the *Journal of Vertebrate Paleontology* on Rapetosaurus growth rates (with Zoe Kulik as a co-author). That paper was just accepted! A big chunk of my year was spent developing a file for my full-professor review. That's probably the most exciting news for me this year! I passed the review - this is GREAT, in part because it means Ray can no longer call me his "junior colleague." Thanks to all of you who wrote letters of support and contributed to the review process. I couldn't have done it without you!

Finally, I had fun socializing with a few Mac geo alums this year. Tom Tobin '08 joined us in the field in Montana last summer, and then I got to see him and Emily Tompkins '08 when I headed to the University of Alabama (ROLL TIDE!) for a talk in their Allele speaker series. Tom and Emily took me to homecoming and I had a blast. We also got a chance to see Josh Miller here in Minnesota just a few weeks ago over beers. Make sure to let us know when you're in town - and if you ever need a dinosaur talk, you know who to call.

Roll Tide! with Tom Tobin and Emily Tompkins





**Jeff**

It seems like I just finished writing for our last newsletter. As usual the year flew by and it was full of interesting field trips, alumni visits, and outreach events. Last summer included another trip to Montana to continue work with Ray, Kristi, Lucy, and their students in the Upper Missouri River Breaks National Monument. We were fortunate to be joined by Tom Tobin '08 who is now an Assistant Professor at the University of Alabama.

Last January included a trip to Cedros and San Benito Islands in Baja, Mexico, with Alan Chapman, Emily Dektar, and Ojashvi Rautela '19. The trip featured epic hikes (I didn't know my Fitbit could go that high), abundant marine wildlife and birds (including Elephant seals), and fantastic food. The trip back to the mainland included quite a few extra pounds of rocks and mentioning you have them to border officials does seem to impede your progress through customs we found out.

Another favorite trip this year had to be the spring break trip to New Mexico with Emma '19 (Computer Science) and Charlie '21 (Mathematics). We made stops at

a number of national monuments, including Capulin Volcano, White Sands, El Malpais, and Great Sand Dunes National Park in Colorado. We also visited the Very Large Array National Radio Astronomy

Observatory followed by a stop in Pie Town on Pi day (3/14). The pies and people were lovely at Pie-O-Neer Pies and it is definitely worth a stop if you are in the area.

Each summer I host a field trip to Macalester for a group of third and fourth grade students participating in "Rock World." The class is one of many offered by Summer Academy, a summer enrichment class for high potential youth from around the Twin Cities. The students really get a kick out of seeing rocks, minerals, and bugs under the scanning electron microscope. I also hosted another Geological Society of Minnesota Lab this past February with help from some of our great students. The lab activities focused on identifying common rocks and minerals but the highlight was using our new micro-XRF to make some surprising (and some not so surprising) discoveries about mostly jewelry pieces that members brought along.

Don't hesitate to stop by if you



Jeff, Charlie '21, and Emma '19 at White Sands National Monument, New Mexico, spring break, March 2018.

happen to be in the area or want to give a talk to our GeoClub or even the department. We are always on the lookout for interesting speakers and topics. Have a great summer.

**Kelly**

2017-18 has been an exciting year! During summer 2017 I did collaborative research with four awesome students – Mac Doherty '19 (Geology), Lea Davidson '18 (Biology, Geology minor), Hayley Stutzman '18 (Environmental Studies), and Laura Gould '18 (Biology) on a re-



At Baker Monument in the Upper Missouri River Breaks National Monument last summer with Jim Mitchell (BLM-retired) and alum Tom Tobin '08.



Alan Chapman, Emily Dektar, and Ojashvi Rautela '19 at the highest point on Cedros Island, January 2018.



Kelly's Hydrology students wading in Minnehaha Creek.

search project with Dan Hornbach (Environmental Studies & Biology). Our three year project, funded through the Legislative-Citizen Commission on Minnesota Resources, is examining the effects of river sediment on native freshwater mussels. We spent the summer wearing wetsuits and weight belts, and searching for mussels and measuring bed sediment properties in several rivers around Minnesota. Highlights included higher than expected river flow levels, ticks and mosquitos, and some wonderful small town diners!

This year I got to teach fantastic students in Geomorphology in the fall. As always I had a fun mix of sophomores, juniors, and seniors in the group. Wading around Minnehaha Creek at bankfull flows was a highlight. In addition, I taught a first-year course (Dynamic Earth and Global Change), and we had a great field trip up to the North Shore and Soudan Mine—for many students, their first camping experience!

For the first time in 4 years I taught Surface and Groundwater Hydrology in the spring! The mix of Geography, Environmental Studies, and Geology students made

discussions really lively. We had several amazing alumni come and talk about their work in the class, and give advice about careers in hydrology—including Lucy Andrews '14 and David Livermore '82. A highlight was Doug Connell '81 (Barr Engineering) bringing the class on a hydrology field trip. We ended the morning at Surly Brewery after talking about surface and groundwater challenges at redevelopment sites in St. Paul and Minneapolis!



Kelly's hydrology field trip ending at Surly Brewery.

This past year was my second year as the Director of the Olin-Rice Center (with a great acronym –DORC). As the number of STEM majors has climbed over the past 5-10 years, we are outgrowing our building space and in need of additional faculty and staff support. Working with chairs of the science departments, we completed some significant interior space renovations in summer 2017, with several additional changes planned in summer 2018 and 2019. This includes moving the Geology/Physics office just a bit, which will give us a windowed department office –progress! We also have a new office in the building, the Olin-Rice Hub, that is a collaboration between the Science Division and the Career Development Center; it provides support for students and alumni as they consider and explore careers in the sciences.

I'm happy to be continuing research this summer in Glacier National Park through a Keck Geology Consortium grant, and then will be on sabbatical the following year (2018-19).

### Karl

During 2017-18 I was on sabbatical leave, and it was a very different kind sabbatical at that. Most of my time and energy during the past year has been focused on Keck Geology Consortium programs. With a grant from the National Science Foundation in early 2017, Cam Davidson (Carleton College) and I are the new co-directors of the Consortium and entrusted with developing and implementing the new programs of the four-year grant. With a focus on broadening participation in the earth sciences, our project involves new Gateway research experiences for rising sophomores, as well as new pro-

professional development programs for Keck researchers at all levels. During 2018-19, the Consortium is hosting six projects, three of which will be directed by Macalester alums and one by a current Mac Geology faculty member! Zeb Page '99, will co-direct a Gateway project with Jade Star Lackey (Pomona) on "Using Garnets To Explore The Beginning Of Subduction" on Catalina Island. Colin Robins '01 is directing an Advanced project on "Paleoenvironmental Analysis Of Ancient (Petro)Calcic Soil Horizons: Disentangling Climatic, Geomorphic, And Biological Records In The Mojave Desert." Brady Forman '04 is co-directing a project with Ellen Currano (University of Wyoming) on "Assessing Vegetation And Fluvial Responses To The Paleocene-Eocene Thermal Maximum In The Hanna Basin (Wyoming, U.S.A.)." Kelly MacGregor is also directing a Gateway project (with Amy Myrbo, University of Minnesota and LacCore) on "Landscape And Environmental Change In Glacier National Park, Montana." Go Macalester Geo! Kelly and I had a chance to spend some time with Zeb, Colin, and Brady just a few weeks ago when they all came to campus for a Keck Directors meeting. Last summer, I also visited Nolan Ebner '18 (just graduated!) during his Keck field project in Dominica. While there, I assisted Nolan in examining a section of relatively unstudied ignimbrite deposits. During the following year I also served as his thesis advisor as he used geochemistry to study the origin and evolution of this enigmatic deposit.

The sabbatical leave also provided opportunities for me to attend a number of conferences and give workshops. During August 2017 I co-presented a paper on self-assessment at the American



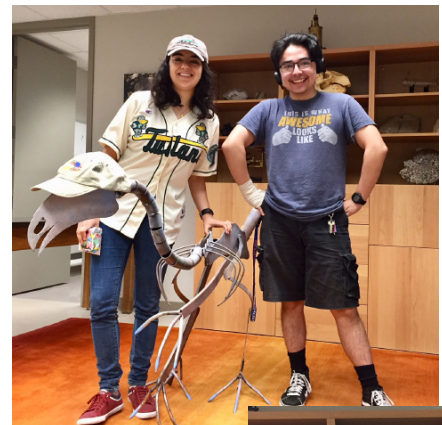
Karl ice diving in January.

Psychological Association meeting in Washington, D.C. In September I travelled to South Africa where I consulted to faculty and graduate students in education at Nelson Mandela University and at North West University in Potchefstroom. October was a busy month, with a visit to the ACM Tanzania program in Arusha, where I met with Michael Murphy '19 to discuss his independent project on a nearby volcano, and I met with current (Arusha) and former (Dar es Salaam) program staff. I also gave workshops and presented papers on academic advising at Southwestern University (Texas) and the annual meeting of the National Academic Advising Association in St. Louis. On the way to the GSA meeting in Seattle I gave a keynote lecture and series of workshops at the United States Airforce Academy as part of their 9th Annual USAFA SoTL (Scholarship of Teaching and Learning) Forum.

This coming summer I will be collaborating with Sarah Baumann '16 on a manuscript resulting from her senior thesis for a special issue of the *Journal of Geoscience Education* that will focus on diversity in the geosciences. I am also collabo-

rating with several others on a second submission to this volume that will focus on knowledge surveys.

The sabbatical leave also provided opportunities for underwater photography in California, Mexico, Indonesia, and the tropical waters of Minnesota.



Excellent student office assistants  
2017-18:  
Didi Abboud '20,  
Ramon Molina '19 (Physics), and  
Rachel Surprenant '18





### Study Away, Fall 2017- Max Deckman

Fall 2017 semester I studied abroad in the “Earth and Environment in Italy,” program, in Coldigioco, Italy. The 12-week program specialized in field-based learning. We travelled to amazing geologic sites including Tuscany, the Dolomites, and Croatia, where we learned about the past 250 Myr of geologic history of the region and the environmental impacts human put on it today. The amount of field work was a huge draw to the program because it provided an opportunity to learn about geology by observing, not just studying. My favorite excursion on the program was to the Dolomites. The geologic structures in northeastern Italy are incredibly beautiful and interesting. An amazing opportunity I had while on the program was attending the 2017 Penrose Conference in Apiro, Italy, only three miles from Coldigioco. The program’s students met over a hundred geologists who study Italy and processes common in the Italian region. Amazingly, we were able to listen to a talk by, and then meet, Walter Alvarez, the researcher who discovered the iridium anomaly linked to the asteroid that wiped out the dinosaurs. The students actually went to the site in Gubbio and saw where Professor Alvarez essentially “discovered” the impact.

### Scenes from the Dept

We are excited to introduce the new Geology Department logo, which combines the well-known Macalester tartan shield with crossed rock hammers. The debut of our new Mac Geology logo came in the form of embroidered flannel shirts, which were made for us right here in St. Paul by Rebel Ink Printing. In April we gave all of our current majors (n=30) a shirt to wear around campus and beyond, and in the photo they are proudly wearing them at our spring picnic (Lacuna Bajada).



We want to thank Larry Pancoast '73 for a generous gift to the department that got the ball rolling. Our plan is to make flannels with the Mac Geology logo available for purchase to all of our alums, with the goal of generating funds that make the shirt give-away to current students sustainable. We are working out the details with the Geology Club – stay tuned!



**Thanks Larry!**

## Congratulations, Professor Curry Rogers!

Congratulations to Kristi who ascended the ranks to full professor on 2 May 2018 with the traditional Macalester bagpipe ceremony! Her adoring geology students lined the balcony hallway to fete her with flowers and, of course, proud husband/fellow professor Ray beamed away! )



## Study Away, Fall 2017-Izzy Ryde

I studied away in Quito, Ecuador on the SIT: Comparative Ecology and Conservation program. This program was an environmental studies and biology focused program, but between the 23 people in my class, we represented 15 different college majors ranging from computational biology to history to geology. Throughout the program, we went on four week-long excursions to different ecosystems throughout the country, including an unforgettable trip to the Galápagos Islands. Back in Quito, we lived with host families and learned to navigate Quito's sprawling public transit system as we commuted to the study away center every morning. My highlight of the program was the Independent Study Project, where we got to develop a research project

and spend a month at different private reserves scattered throughout the country performing the research. I studied macroinvertebrates as bioindicators of water quality in a mountaintop stream and used hydrology to determine the stream's source of water and potential contaminants. From my time in Ecuador, I learned Spanish slang, ecosystem diversity statistical tests, the names of tropical fruits, and how to teach basic geology to my curious biologically minded classmates. It was a semester of new and diverse experiences that I am excited to incorporate into my life at Mac.



## Alumni Happenings GSA in Denver

Karl, Alan, and Ray had a great time visiting with 21 alums at the annual Geological Society of America meeting in Seattle, October 2017. They convened at the Pine Box Public House. Thanks to all who came out to say hi.



Top right photo: Zeb Page '99, Josh Miller '00, David Farris '00, Michelle Casey '02, Liz Hajek '02, Brady Foreman '04, Tom Tobin '08

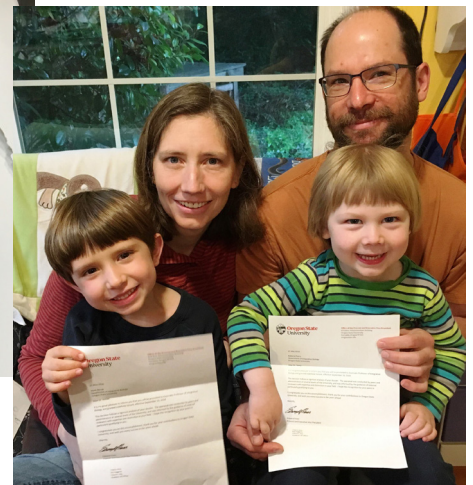
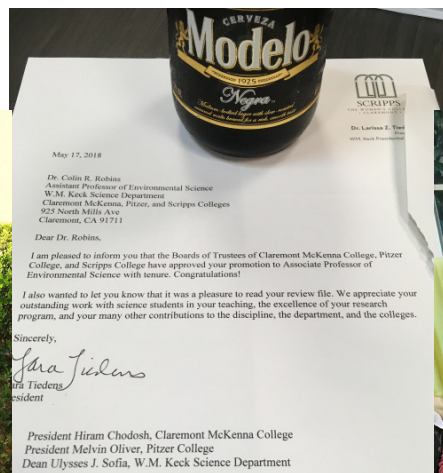
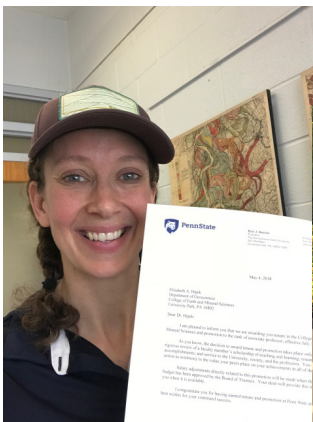
Lower right photo: Brady Foreman '04, Kovas Zygus '16, Jessie Shields '15



## Tenure Quartet, plus one

Congratulations to our four alums who were just granted tenure and promoted to Associate Professors! Liz Hajek '02 (Penn State University, below far left), Mara Brady '05 (California State University-Fresno, below center left--on the left), Colin Robins '01 (Claremont McKenna College, below center right), and Rebecca Terry '01 (Oregon State University, below far right).

Another alum, Magaly Perez '14 (also center left photo, on the right) just completed her master's degree with Mara at Fresno.



## Dr. Who Convention

Ray and Kristi visited the Dr. Who Convention at the Mall of America/ Airport Hilton, Minneapolis in May 2018 whose theme was “Dinosaurs in Space,” where they met geo alum Donald Kaiser ‘78 and presented a talk on dinosaurs.



## Passing the GeoClub Torch

Graduating GeoClub leaders Rachel Surprenant ‘18 and Nolan Ebner ‘18 hand over the GeoClub reins to Max Deckman ‘19 and Michael Murphy ‘19.



## We would like to know more about you

We love hearing from our Geology alumni. Please email us about what you’ve been up to. [geology@macalester.edu](mailto:geology@macalester.edu)

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