

WINTER 2017-18

Colgate Geology

Department Newsletter



In Memoriam

Bruce W. Selleck '71

Thomas A. Bartlett Chair and Professor of Geology

September 30, 1949 - July 31, 2017

You are missed



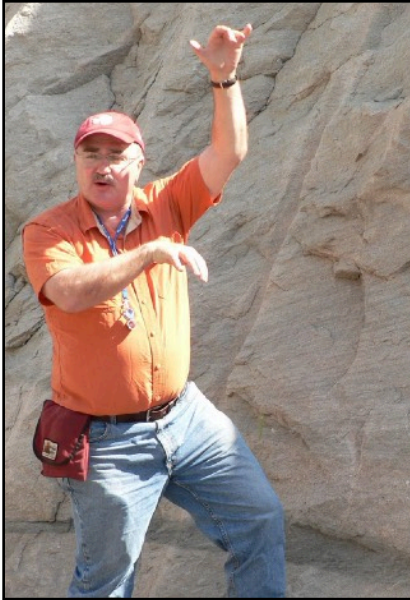
A note from the Chair: Martin Wong

By now, I am sure that all of you have heard the sad news that Bruce Selleck ('71) passed away this summer. As those of you who had the pleasure of taking a course with Bruce well know, he was an exceptional geologist and he loved studying the Earth and teasing out all of its secret histories. But perhaps even more so, he loved sharing his vast knowledge and passion for geology with students in the classroom and in the field. Bruce's enthusiasm for geology and skill in the classroom inspired countless students to continue to study geology in both academia and industry, so his legacy to our science is both large and long lasting. Bruce also was among the kindest people one could ever hope to meet and cared for each of his students as if they were a part of his family. I'm writing this following the on-campus celebration that we held for Bruce on October 14. It was a bittersweet event; sad to feel the loss of this wonderful person again, but wonderful to reconnect with so many department alumni and share great stories of how Bruce touched so many of our lives. We mourn the loss of this great geologist, teacher, friend, and mentor. Although we cannot hope to fill Bruce's shoes, we will strive to always improve our department, our work with students, and the science that he loved. News of our efforts on these fronts can be found in the newsletter articles that follow. I can think of no better way to honor his memory. He will be missed.

THIS ISSUE

Chair's Note	2
Bruce Selleck	3
New Faculty	6
Colgate Seismic Network	8
GEOL 420 Chile trip	10
Faculty/Staff News	12
The Off-Campus	20
Student Awards	22
Student Research	24
Linsley Museum	27
From the Rockpile	30
Geology Gatherings	39
Student Presentations	31
Gifts to Geology	33
Alumni News	35

A remembrance of Bruce



Bruce W. Selleck, Thomas A. Bartlett Chair and Professor of Geology, passed away unexpectedly but peacefully in his sleep on Monday, July 31. Bruce had deep ties to the upstate New York region, where he grew up on a small, rural dairy farm appropriately known as Sellecks Corners near Canton, NY on the western edge of the Adirondacks. Bruce also had deep ties to Colgate, receiving a BA in Geology in 1971. Bruce left Colgate to pursue his MA and PhD degrees at the University of Rochester before returning to his alma mater as a faculty member in 1974, a time span that he frequently referred to as the “inter-Selleckian period”, the only interruption of his 50-year association with Colgate.

Bruce was an expert on the geology of the upstate New York

region. His scholarship initially focused on sedimentary rocks in the area, with a focus on understanding what these archives revealed about ancient marine environments and how they had changed over time. As his career progressed, Bruce expanded his research areas to Alaska and Australia, and developed new expertise in geochemistry to help understand the histories of these regions. With longtime colleague and friend James McLelland (Charles A. Dana Professor of Geology, Emeritus), Bruce expanded the scope of his research to include understanding the tectonic development of the Adirondack Mountains. During the course of his career, Bruce published dozens of articles in top-tier scientific journals including the *Journal of Sedimentary Research*, *Geological Society of America Bulletin*, *American Journal of Science*, and *Geology*, to list a few. In recognition of his research, Bruce held appointments as the H.O. Whitnall Professor of Geology and was the current Thomas A. Bartlett Chair and Professor of Geology.

Bruce’s love of teaching and his affection for his students were legendary. Bruce taught a wide range of courses including Environmental Geology, Marine Environments, Hydrology and Surficial Geology and his signature course on Stratigraphy

and Sedimentation. Bruce was passionate about getting students into the field and frequently took students on trips around the country through the Off-Campus (O.C.) program and the Geology of America’s Parks course. Bruce treated his students as part of his extended family, both caring deeply for their academic and personal development while also expecting the best of them. His dedication to teaching and close relationships with students inspired countless Colgate graduates to pursue careers in geology in both academia and industry over the years, leaving an enduring legacy on the field of geology. Bruce received the Alumni Corporation Distinguished Teaching Award (1998), the AAUP Teacher of the Year Award (2006) and the Felten French Prize (2010) in recognition of his outstanding teaching.

Bruce was deeply committed to the Geology Department and to Colgate as an institution. Within the department, Bruce was a generous and inspirational mentor to many young faculty members as they began their teaching careers. Bruce took on many formal leadership roles including as chair of the Geology Department (1983-1986 and 2003-2006), Associate Dean of the Faculty (1988-1990), Dean of the Faculty and Provost

continued on page 4

A remembrance of Bruce

(1990-1994), and Interim Dean of the Faculty and Provost (2011-2012). In addition, he served as chair of the Promotion and Tenure Committee, Director of the Picker Institute for Interdisciplinary Science, and Director of the Upstate Institute, to list a few. Bruce was a significant contributor to Colgate's Study Groups, leading multiple trips to Wales and Australia and also served as an advisor to a range of sports teams, clubs, and Greek organizations. In addition to his extensive service to Colgate, Bruce was a strong believer in

contributing to the broader community, as shown by his service on the Town of Lebanon planning board as well as the boards of the Friends of Rogers Environmental Center and the Adirondack Research Consortium.

Bruce's wife Nancy Barlow Selleck '76 and his daughter's Caity and Elizabeth want to thank all those who have been in touch and shared their memories of Bruce. The family can be reached at nancyselleck@gmail.com. For those of you that were not able

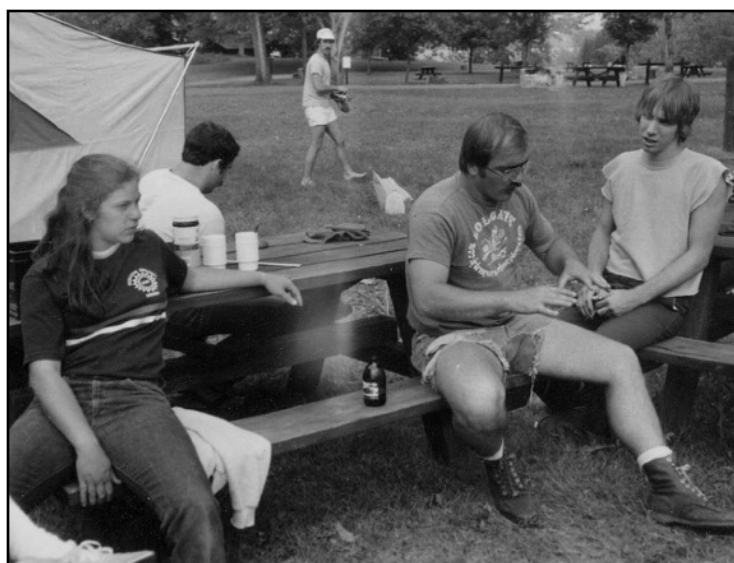
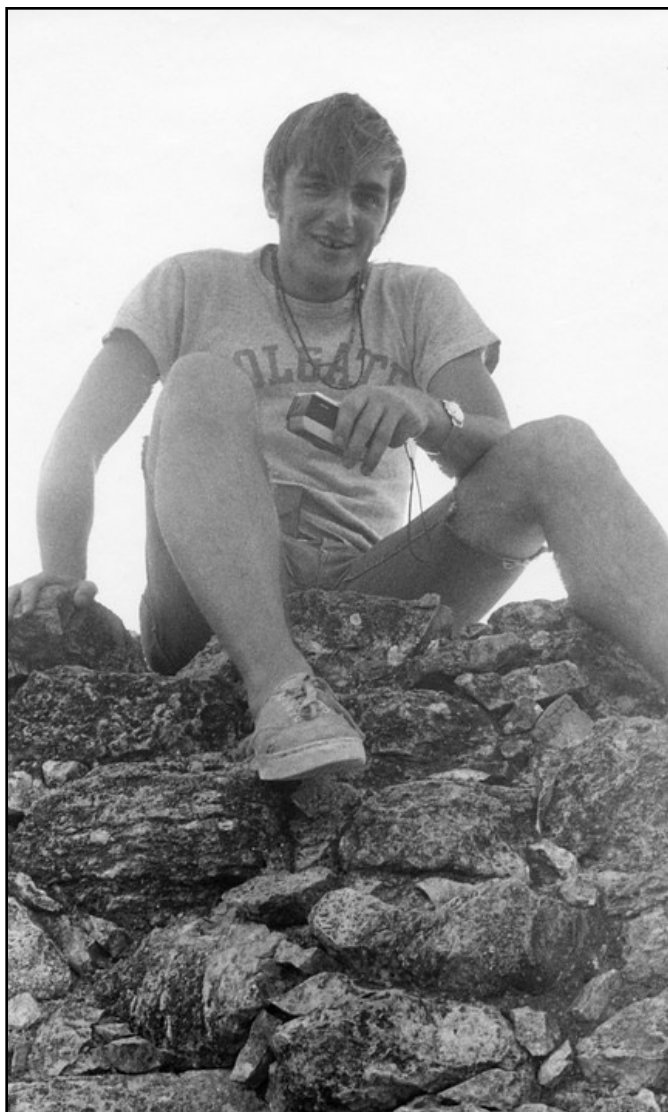
to join us for the celebration of Bruce's life on October 14th, you can view a video of the celebration at:

<https://www.youtube.com/watch?v=po4ZAjAVzFw&feature=youtu.be>

Gifts in memoriam may be sent to the Institutional Advancement Office of Colgate University for the Bruce Selleck Memorial Fund or the Rich April-Bruce Selleck Endowed Fund for Geology Student Travel.



BRUCE IN THE FIELD



NEW FACULTY SPOTLIGHT

AUBREYA ADAMS



Hello alumni and friends. I have been part of the geology faculty for two and half years now - boy have they flown by! During this time, I've developed new classes and have established Colgate's first

geophysics and seismology laboratory, where my students and I work to image deep Earth structures and processes (down several hundred kilometers!) using seismic waves.

Originally from the Gulf Coast, I first ventured north for graduate school at the Pennsylvania State University, specializing in east African tectonics. After my PhD, I worked at Chevron as a development geophysicist in the Gulf of Mexico. While industry provided new and exciting challenges, I couldn't stay away from the classroom and earthquake research. After two years, I transitioned to Washington University in St. Louis (WashU) as a Postdoctoral

Researcher, and later as a Research Associate. At WashU, I continued to work on African tectonics (this time in western Africa) and pursued new interests in Antarctica and in the Tonga subduction zone.

I moved to Hamilton in the summer of 2015, where I've developed several new courses relating to geophysics. Environmental and Exploration Geophysics introduces geophysical techniques for studying the shallow subsurface. These techniques are often used in industry as well as in environmental consulting. *(continued on pg. 7)*

JOSEPH LEVY



I'm extremely excited to be joining the Geology department as a new assistant professor! From tumbling ice "rocks" to model erosion on Saturn's moon

Titan, to measuring stratigraphy in Antarctic paleolake deltas, to making drone-enabled topographic maps of field sites for the OC, I'm looking forward to bringing new tools and perspectives to the department gleaned from my winding road to Colgate.

After a PhD in geomorphology and planetary geology from Brown University in 2009, I spent two years as an NSF Polar Regions Research fellow at Portland State University. I was working with Antarctica's McMurdo Dry Valleys Long Term Ecological Research group to see if a better understanding of hydrology and permafrost

processes could help explain the biological response to climate change that the team is seeing in Earth's southernmost soil ecosystem (spoilers: even a tiny splash of briny meltwater can have a big impact in Antarctica's largest ice-free desert area). From Portland, I moved to the countryside of Oregon State University in Corvallis for two years to study how landscapes on Earth and Mars evolve in the near-total absence of surface runoff, which was definitely a lesson in contrasts since I was living in one of the rainiest places in the country. Embracing these climate contradictions, I've spent the last four years in *(continued on pg. 7)*

NEW FACULTY SPOTLIGHT

(ADAMS continued)

In spring 2018, Karen Harpp and I co-taught an exciting cross-disciplinary course on mantle plumes, including remote lectures from prominent scientists around the world, and teaching students about science through the process of proposal-writing and peer-review. I'm also delighted to participate in the Core, where I teach a course on the representation of natural disasters in movies and the news media. Through this course, in fall 2016 I co-led a Beyond Colgate trip to NYC, where students toured news studios and interviewed media professionals.

On the research side, I am continuing my interests in African tectonics. Jonny Miller ('17) and I have recently found evidence from surface waves for a previously unrecognized region of Archean lithosphere in

southeastern Africa. As I am writing to you, I am preparing for a short expedition to Tanzania to install a seismometer at Ol Doinyo Lengai, the Maasai "Mountain of the Gods," with Monica Dimas ('19).

I am also collaborating with other NY scientists to build a network of seismometers in the Adirondack Mountains to investigate the tectonic history and sources of uplift. Several students have been involved with this effort, including Tayshaun Jin (physics/eng.-'20), Monica Dimas ('19), Isabel Dove ('19), and Sean Corrigan (astrogeo '19).

Finally, I am a primary investigator on the Alaska Amphibious Community Seismic Experiment, a roughly \$5million multi-institution project to study the variability observed along

the Alaskan subduction zone. Field work in the remote regions of the Alaskan peninsula begins this summer – and I'll be taking a Colgate student with me! For more information on this project, visit our homepage on the GeoPRISMS website.

When I'm not in class or studying the insides of the Earth, I am reaping the benefits of a liberal arts environment. I especially appreciate learning about history and languages. Having been bitten by the travel bug, I love to travel and explore, even in my "spare time". (I've been to all seven continents!) When at home, I enjoy playing trivia at the Colgate Inn, hiking or snowshoeing on local trails, and cuddling with my two cats, Lani and Luna. I also adore listening to good stories, so I hope you'll stop by to visit and tell me about yourself when you are next on campus!

(LEVY continued)

Austin at the University of Texas Institute for Geophysics where I've been studying debris covered glaciers in Alaska and Wyoming, building up a new LiDAR map of Antarctica's ice-free valleys, and teaching courses like "Field Methods in Polar and Planetary Geology" and "Intro to the Cryosphere" in an effort to beat the heat! So it's a tremendous pleasure to be joining the faculty in Geology

and to start exploring the glacial landform wonderland around Colgate with students and new colleagues. I'm excited about helping implement the recent revisions to the Geology curriculum by teaching a new Sedimentology and Surface Processes course this fall focused on the intersections between rock, water, climate, and time. In the lab, I'm bringing along some new NASA research grants to analyze Mars

satellite observations, which will give students a chance to bend their geological interpretation skills to a completely new planet (and to work in a "virtual field site" when there's too much snow on the ground in Hamilton to see the rocks outside).

Outside of the classroom, I'm looking forward to settling in to our new home in Hamilton with my spouse (Dr. Alison Koleszar, a fellow Earth scientist who will

NEW FACULTY SPOTLIGHT

be teaching in the department and the Scientific Perspectives Core, as well as helping expand geochemistry research opportunities in the department for students and faculty), our three-year-old son, and our intrepid traveling dog and cat (Barley and Mafic, respectively—yes, of course Mafic is a black cat). I'm looking forward to meeting more students and alumni this fall and in the coming years. If you're around the hill or down in the village and see a gaggle of students peering intently at a stream bed or measuring slopes on the old ski hill (or if you just want to wander by the lab to see the latest giant images downloaded from Mars orbiters or relax to the rattle of sieves sorting sands), please drop in and say hello and see what kinds of exciting new adventures we're having!



Collecting thermokarst pond bank sediments in Garwood Valley, Antarctica, with undergraduate research assistant Logan Schmidt. Some Garwood ponds have nearly doubled in depth since 2001, making Garwood one of the fastest changing environments in Antarctica.

COLGATE'S NEW SEISMIC NETWORK!

Contributed by:
AUBREYA ADAMS

When you think of the geology of the state of New York, earthquakes might not immediately come to mind. Yet every year, sensitive seismometers measuring ground motion detect a couple dozen earthquakes in New

York. But – there's no need to worry! While these earthquakes occasionally cause mild to moderate property damage, the vast majority pass by without drawing the attention of even their nearest neighbors. These small magnitude earthquakes can, however, provide important insights into the regional geologic history. Small

intraplate earthquakes often occur along ancient faults, reactivated by far-field stresses, and thus can help us identify deep crustal structures created during the assembly of the eastern North American margin.

In Colgate's new geophysics lab, Aubreya Adams and students are working with

regional collaborators to better understand New York's earthquakes – both as geologic hazards and as indicators of the region's geologic history. In December 2015, we installed an on-campus seismometer near the Foggy Bottom Observatory.

This seismometer, or seismic station, measured the motion of the ground 100 times per second and transmitted the data in real time to a regional network to aid in the rapid detection of earthquakes in the northeast. The station detected ground motion as small as 10 nanometers – picking up waves from local earthquakes, large earthquakes on the other side of the globe, and even from the

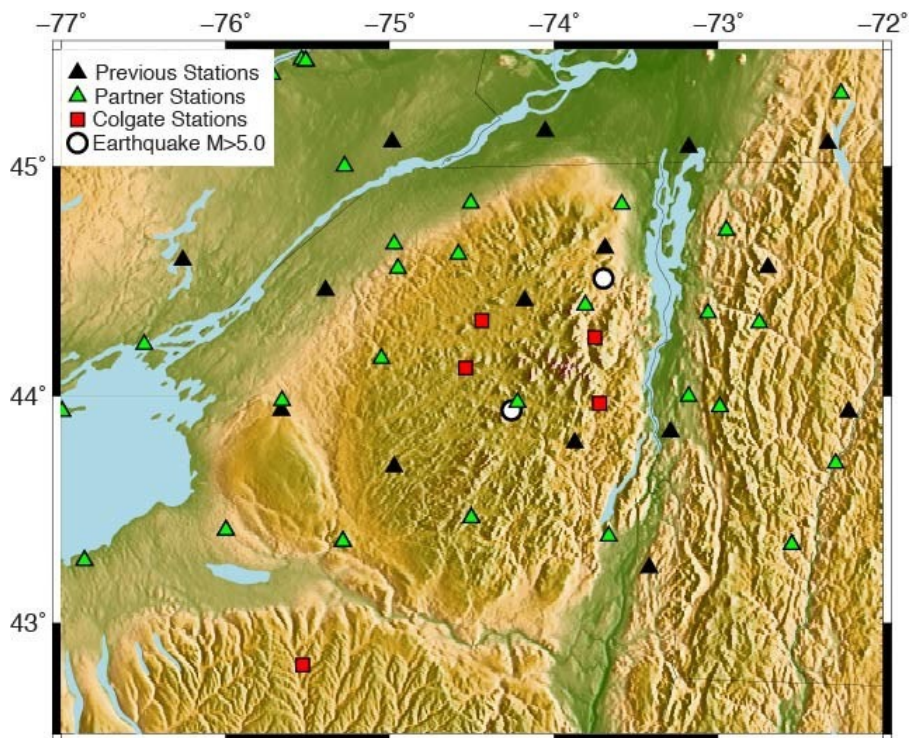
occasional grazing deer or curious passerby.

In the past forty years, two earthquakes with moment magnitudes larger than 5 occurred in New York. Both were centered near the High Peaks region of the Adirondack Mountains, just west of the surficial suture of the Appalachian Thrust Belt, indicating the likely presence of deep crustal structures that cannot be seen from the surface.

While a number of seismic stations currently operate, or have recently operated, in the Adirondack Mountains, little seismic data is available from within the High Peaks themselves. During the past two summers, students in the

geophysics lab have installed four seismometers in and around the High Peaks region. Unlike the on-campus station, these temporary stations are designed to work in remote areas for three years, powered by solar panels, and storing data on disks that are collected during periodic maintenance trips.

Data collection will continue for the next year to aid in deciphering the clues that earthquakes give into the geologic history and hazards of New York. Meanwhile, Colgate students are working to analyze the growing dataset by measuring the arrival of waves from regional earthquakes, carefully determining earthquake locations, and modeling of subsurface rock properties.



Left image - Colgate's new seismic stations in the Adirondack Mountains (red squares) in relation to existing stations. Large earthquakes from the past shown by white circles. Right image - Sean Corrigan (Astrogeophysics '18) helps to carefully bury the sensitive seismometer at Colgate's on-campus seismic station in December 2015.

GEOLOGY 420 TRIP TO CHILE

Contributed by:
KAREN HARPP

During the fall of 2015, 25 students enrolled in Geology 420, a course focused on the geology of Chilean volcanoes. For those of you who were part of the 2010-2011 Chile trip, yes, this was similar, but with a few volcanic differences...Students spent the fall studying advanced topics in volcanology through the lens of specific volcanoes in Chile. For three weeks in December 2015 and January 2016, the group visited Llaima, Lonquimay, Villarrica, Osorno, and Calbuco volcanoes for an extended field experience that they designed as part of the course. They produced a digital field book and ecotourist guide as a final project summarizing their experiences and scientific findings.

In preparation for the trip, we examined the eruptive history, origins, chemical and physical traits, and hazards implications of the volcanoes we were going to visit on the trip. Villarrica and Calbuco had both erupted during the previous few months (Calbuco quite spectacularly and explosively in April, 2015). We spent approximately 4 days at each volcano (Llaima, Lonquimay, Villarrica, Osorno, and Calbuco). Small groups of students led the activities on each leg. Methods addressed in the field included:

The group about to start the first hike of the trip, up the flanks of Llaima Volcano.



tephrochronology, isopach and isopleth mapping, stratigraphic column analysis to determine eruptive history, identification of deposit types and implications for eruption style, identification of hazards potential, and analysis of hazards mitigation efforts, among others.

Throughout the trip, students collected data, images, and information from the various field activities, which they integrated into the digital field book. They spent parts of each evening working on the field book as well.

Special highlights from the trip include:

- Our first hike in spectacular sunny weather over the saddle at Llaima volcano across fresh, glassy scoria deposits from the recent 2009 eruption.
- Mapping the 10 km long andesitic Navidad Flow from Lonquimay volcano.

- Being able to see almost all of our volcanoes from the summit of Lonquimay, as well as the ongoing eruption from Copahue Volcano, just over the border in Argentina (the first live volcanic eruption for all of the students);
- Observing the emissions from Villarrica Volcano from the safe haven of Quetrupillan, its (less active!) neighbor;
- Carrying out a simulation of the Pucon town hazards plan to determine whether residents could get to safety from lahars, an event that had only recently happened a few months before;
- Exploring the deposits from the explosive Calbuco eruption in April, including the damage done from the extensive fall;
- Forging a new trail up a valley filled with brand new lahar deposits on the flanks of Calbuco;
- Interviewing local residents about the impacts of the Calbuco, Villarrica, and

GEOLOGY 420 - CHILE

Llaima eruptions (among many other experiences).

Because the students spent the entire semester studying the volcanoes we visited, it was like

visiting old friends. The real scale of volcanoes and their activity becomes eminently clear when you are witnessing their eruptive behavior, their impacts, and climbing their

flanks. I know I speak for every student on the trip as well as myself when I extend our profound thanks to the Boyces for their invaluable contribution toward this experience.

Hannah Bercovici '17 initiates a discussion about the impact of volcanoes on climate change, while standing on the flanks of Osorno.



The group having made it successfully to Llaima saddle.



FACULTY AND STAFF NEWS

RICHARD APRIL



I'm writing this note in mid-July, 2017. I'm two weeks into a year of phased-retirement, meaning that for this next academic year I am essentially half-time, but likely will work full-time, as usual. 😊

On July 1st, I will formally retire, after teaching at Colgate for over 40 years. It's been a great run, and I will miss it all.

But, I know that it is time to move on to other things, and to make way for fresh faces and new directions in the Geology Department.

Over the course of this year I will continue to write papers, conduct research, and curate the Linsley Geology Museum. My hope is to stay connected to the department and to the university for a little while longer. But, no more teaching mineralogy, or geochemistry, or clay & x-ray mineralogy, or gems, or the many other courses I truly enjoyed offering over the years. This I will miss.

So, let me just say that it's been a pleasure teaching for four decades in one of the finest undergraduate geology departments in the country. I

am grateful to have worked with so many excellent students and colleagues, and to have accumulated so many wonderful memories since my first day at Colgate in 1976. As I step away from my professorship at the end of June, I will look back with pride and satisfaction, knowing that so many of you have gone off to successful careers, and to lives full of wonder and appreciation for the magnificent and beautiful planet on which we live. Take care of it.

Signing off, and wishing you all a happy, healthy, and long life ahead.

P.S. Now, what was the name of that beautiful gemmy mineral with the composition $\text{Be}_3\text{Al}_2\text{Si}_6\text{O}_{18}$?

PAUL PINET



Paul taught his last 'official' course in Spring 2015, and was conferred the title of Professor

of Geology and Environmental Studies, Emeritus during the April faculty meeting. Paul celebrated his 36 years on the faculty with a wonderful dinner at the Poolville Country Store, and he was presented with a book of reminiscences from students, colleagues, and friends. In the few terms since Paul has taught several sections of his Ecology, Ethics, & Wilderness course, and this past term taught Marine Geology, so he is still a very active part of the department.

Paul came to Colgate in 1978, after receiving his Ph.D. at the University of Rhode Island and six years at the University of Georgia. His scholarly career began with research on plate tectonics and geologic history of the seafloor, but once at Colgate, collaborations with Charlie McClennen and students led him to questions of coastal erosion and coastal resource management. Paul's teaching expertise is incredibly diverse, spanning oceanography,

FACULTY AND STAFF NEWS

coastal geology, public land management, and the complex interrelationships among nature, technology, and people. His Wilderness Ethics course exemplifies Paul's ability to get students to think deeply and

critically about difficult ideas. Paul's influential textbook, *Introduction to Oceanography*, has shared his interdisciplinary approach with countless students worldwide. Paul has been a Distinguished Speaker

for National Association of Geoscience Teachers, a Phi Eta Sigma Professor of the year, and is included in the Princeton Review's "The Best 300 Professors".



KAREN HARPP

Hello everyone! The past few years have been spent teaching classes in Geology, Peace and Conflict Studies, and courses for the Benton Scholars Program. A highlight has been the opportunity to teach with our new geophysicist, Aubreya Adams. We offered a 400-level course on mantle plumes, with guest lectures by video from leaders in the field. We anticipate having those videos posted for the general geology

public in the next few months, to build an online repository of resources about mantle plume research.

In terms of research, my group has been focused primarily on understanding the evolution of the Galapagos Archipelago, and on the behavior of basaltic lava. To get the big picture perspective in the Galapagos, we've had to elucidate the geologic histories of several of the oldest islands, which remained unstudied until now.

Nobody had spent much (or any) time working on these islands for good reason, as they are rather inhospitable—no water, nasty thorny vegetation, difficult terrain, limited access. I was lucky to recruit some great (and resilient!) students to tackle these projects over the past 2 years. In the summer of 2015, Maggie McGuire ('16) and Kevin Varga ('16) joined Dennis Geist and me for fieldwork on Espanola Island, the oldest in the Galapagos. We got around the island through a combination of brush slashing (Maggie's favorite activity), climbing up rubble, walking around tortoises, side-stepping iguanas, dodging albatrosses, and jumping on and off of a motorboat, courtesy of the captain of our trusty boat, the *Pirata* (yes, the Pirate; he even flies a skull and crossbones). Kevin also worked on the most recent eruptions at Fernandina Island before joining us for the Espanola leg. For the rest of the summer and fall, Maggie and Kevin carried out geochemical and petrographic analyses on

FACULTY AND STAFF NEWS

the samples we collected, and presented their findings at the American Geophysical Union conference that December.

In the summer of 2016, we took a larger team to tackle San Cristobal Island, another of the oldest islands in the archipelago. This time, we split the team into two, a land-based group working on the southwestern shield, which has a few roads to access its interior, and a group again on the R/V Pirata, which circumnavigated the (much larger) island. The intrepid team included Hannah Bercovici ('17), Jake Mahr ('17), and Regina Pimentel ('18), as well as a physics major Zack Cleary ('17). We were also joined by an Ecuadorian student from the Escuela Politecnica de Quito, Marco Cordova, from their geophysical institute. Together, we managed to do a

rather thorough sampling and field examination of the island, throwing in a few encounters with irritated pelicans, sleepy iguanas, nesting blue-footed boobies, and surfing sea lions. For their thesis and AGU presentations at the Fall 2016 Meeting, Jake and Regina focused on understanding the evolution of San Cristobal's twin volcanoes, Zack performed a gravity survey of the southwestern shield, and Hannah explored the anomalous explosive activity at another Galapagos volcano, Rabida, a project she'd been working on already for several years. The project continues this summer with radiogenic isotope analyses on the samples everyone collected, which will contribute to an archipelago-wide analysis of the origin of the Galapagos mantle plume.

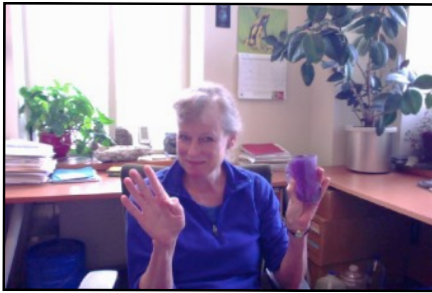
Several research students have also focused on a field area closer to home, the Lava Project at Syracuse University, where it is possible to produce real, 1200°C lava for experiments. We've used it for volcanology labs, but also as a focus of several research projects, including those of Zac Sawin ('16), John Quazza ('16), and Ariel Hampton ('16). These students examined questions related to the diversion of lava flows with barriers, the cooling rates of tephra-insulated lava, and the interaction of basaltic lava with patterned ground in Iceland. For some of the pours, we were joined by the renowned basalt expert Erika Rader CU '07, who has just been hired at the University of Idaho in a tenure track position (congratulations!).



Left - Kevin Varga ('16) uses his rock hammer to slash his way through the brush on Espinoza. Right -Regina Pimentel ('18) preparing for a (slippery) leap into the motorboat after a day in the field.

FACULTY AND STAFF NEWS

DI KELLER



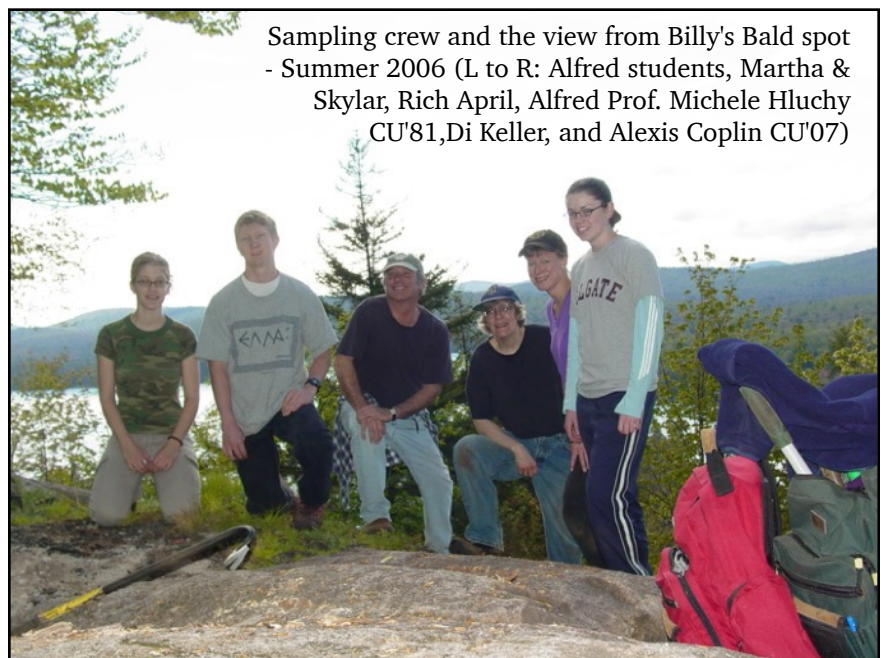
Hello alums! Hopefully, you are not only seeing a wave there but also that I am holding up four fingers along with "the number 4 mineral." (And hopefully, many of you have correctly identified it by now - its name sounds like 4, it has a hardness of 4, and it has 4 cleavages...)

Working with research students and teaching labs for Mineralogy, GEOL 190, and Environmental Geology still keeps me busy. Although I am getting older, meeting new students in the 100-level courses and seeing them find an enthusiasm for geology that they never knew they had, will never get old for me. Seeing some of those familiar faces again in Mineralogy the next year is always special too.

Spring term had its challenges this year because I broke my left foot in January. (At least that meant I was able to start off the spring semester on the right foot!) Luckily I had excellent help from recent graduate, Oleg Kozel '17, in setting up a few of the early labs.

Research over the past few years has mainly focused on revisiting our forested sites near Old Forge in the Adirondacks, a decade after we limed them, in order to assess the impacts of the lime on the chemistry of the soil and plants, and on the soil mineralogy. For those of you who know my love of dirt firsthand, I have to say that the last pit we dug this past summer was one of the nicest Spodosol profiles I have ever seen. It was developed in sandy outwash deposits so digging the pit was like "cutting through butter," the horizons were well defined and even, and the E-horizon was truly lovely. As our very fine research student, Andy Sia '17 will tell you, it took some coaxing to get me out of that last pit so that we could fill it back in.

Although some soil pits have been better than others, I can honestly say that of the close to 100+/- pits I've had a hand in digging, I never met a soil pit I didn't like. (Well, except the cobble-till pit at Big Moose Lake, and possibly the one on Billy's Bald Spot where the black fly got lodged in my throat, but that was the fly's fault and the view from up there made up for it.) Countless thanks go to Rich April for introducing me to most of those pits and for inviting me to be a part of discovering the fascinating scientific stories that went with them. There's just something special about working with soil. If you've never sifted soil between your fingers and broken apart the clumps, I highly recommend trying it some day.



Sampling crew and the view from Billy's Bald spot - Summer 2006 (L to R: Alfred students, Martha & Skylar, Rich April, Alfred Prof. Michele Hluchy CU'81, Di Keller, and Alexis Coplin CU'07)

FACULTY AND STAFF NEWS

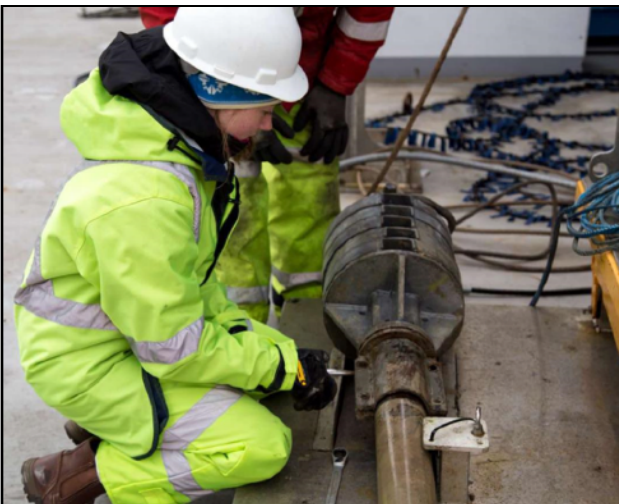


AMY LEVENTER

It's hard to believe that I have been teaching here in the Geology Department for 20 years! I'm still having a great time, both in the classroom and in the field. I continue to teach Introduction to Oceanography almost every other semester, a great way to meet lots of students and to try to attract new majors. At the upper level, I enjoy teaching Paleoclimatology, a course that aims to help students develop an understanding of the nature, scale and variety of climate records, and uses the earth's

climate history as a backdrop for addressing current and potential future climate change. My other favorite course is Climate Change and Human History, a Core Scientific Perspectives class. Over the years, I have felt an increasingly strong need to teach students something that I feel is of critical importance to society. I hope that this class helps students become more conscious of their responsibility to global issues and their ability to make economic, social and political decisions that are based on scientific realities. Finally, I've been fortunate to teach in the field with Dave Linsley, most recently during summer 2016, when Dave and I spent 3 weeks in Arizona on the Geology 120 field course. There is no better way to spend a few weeks, surrounded by beautiful scenery, great rocks, and many milkshakes at the end of the day – I still can't believe I'm paid to do this!

My research on climate change in the Antarctic is progressing well, thanks to lots of help from many, many students. Meghan Duffy ('18) joined me this past semester for a 6 week cruise aboard the Australian research vessel Investigator to the East Antarctic margin (<https://sites.google.com/site/sabrinaseafloorsurvey/>). As on every expedition, student efforts, like Meghan's, are critical to the scientific success of the cruise; she worked 12-14 hours every day, monitoring geophysical instruments, (working on deck to recover coring equipment, and in the lab to describe and sub-sample sediment cores and to evaluate the phytoplankton. Of course, the friendships, scenery and memories of our field work are exceptional as well! Thanks to all the students who have worked in the lab, and who have completed senior projects with me – Aurelia Casarrubias, Jackson Lucas, Taylor Mooney, and Glenna Thomas, all class of 2017!



Left: Meghan Duffy ('18) works on equipment aboard the cruise. Right: Amy leads a discussion of a core.

FACULTY AND STAFF NEWS

WILLIAM PECK



It has been a busy few years here since the last newsletter. Henry (now 11) is in 6th grade, and Julia (now 8) is in 3rd at Hamilton Central School. We still live south of town on Rt. 12B; just down from the townhouses. The big change on that side of town is that Good Nature Brewery has moved onto 12B, about 250 meters from our front porch! In addition to the taproom downtown they now have a beer garden at the new brewery, so when you are next in town you should stop by and take a look.

Things have been going well on the research front. In the past few years Erin Cummings ('16) and Ellis Van Slyke ('17) have continued the research on the carbon isotopes of breakfast syrup. The project has now expanded from maple syrup to newer boutique syrups made from birch and walnut sap— we just submitted our results to a food chemistry journal this winter. I still work on rocks, though— most recently continuing my research on the igneous and metamorphic history of the Laurentian Mountains in Quebec and the Adirondack Mountains in New York. Students who have worked on these projects include Kevin Lough ('16), Mike DuBois ('16), Oleg Kozel ('17), Grace Howard ('17), and Alex Taylor ('18). Last summer Bruce Selleck and I took four students to the Lewis wollastonite deposit in the Adirondacks, and sampled exploration core for isotopic

analysis to understand the contact metamorphic environment of the anorthosite.

Those of you who took Petrology with me may remember the progressive metamorphic sequence in Dutchess County, near Poughkeepsie. Since about 2003 I have tried to get access to property owned by a hunting club there, to chase after a report from the 1930s of the metamorphic mineral glaucophane. If confirmed, this would point to very high metamorphic pressures in that part of the Appalachians. After many years of asking people, Scott Donahue ('76) had contacts in the area and was able to set up a visit for us. A group of us was able to hike the area, and Sarah Katz ('16) made these rocks the subject of her honors thesis. Alas, no glaucophane! But it is good to finally know.

CONNIE SOJA



Hello to all of our wonderful geo-alumni here and abroad! Life continues to be busy and enjoyable at Colgate, especially while teaching my revised paleo course (reefs are the centralizing theme with an emphasis on modern sustainability concepts and concerns) and dinos -evolution course. For that course (and for talks I give on Colgate's dinosaur egg), I designed a first-ever "Unscrambling Colgate's

dinosaur egg coloring book — for kids of all ages." Who knew that coloring books would be the latest "thing" to help us reduce stress in our busy lives? I also designed a new assignment for that course: an in-class dissection of a bbq-style chicken wing so that students can discover direct evidence that links bird evolution to dinosaurs. Based in part on that exercise, I've been invited to give a talk (at the annual GSA

FACULTY AND STAFF NEWS

meeting in Seattle in Fall 2017) about general principles for designing successful food-based exercises in introductory geology courses. At the 13th International Coral Reefs Symposium in Honolulu (June 2016), I enjoyed presenting data on ancient reefs in Alaska and also hearing Dana Fisco '08 give a talk about her M.S. thesis on Florida coral reefs. It's been the highlight of each year to attend geology conferences and to hear about the impressive research being done by Colgate geo-alums!

On the research front, I've continued to publish, as senior or co-lead author, papers about the geology of southeastern Alaska and Russia, documenting evidence that answers many long-standing questions about the paleogeography of the Alexander terrane. An understanding of the fossil biotas and of Silurian-Devonian lake sequences in se Alaska — research accomplished with Colgate students over more than two decades (thank you!) — was critical for developing a model that sorts through conflicting interpretations (based on sedimentological-geochemical data published by others) and links the Alexander

terrane to the Caledonide and Ural Mountains. I presented that model during a session I convened at a GSA meeting in Anchorage to honor paleo-artist, Ray Troll. Thanks to the Boyce Endowment and department funds for recent field support in Alaska and Scotland. Additional thanks go to Mike Yavorek '16, who completed his senior project on lacustrine samples from Alaska (and was supervised by Rich April and Di Keller). Other special mentions include Shannon Dillon '15 who studied coral reefs as part of a Keck-Belize project; Vic Steffen '15 who printed the first-ever 3-D model of Colgate's dino egg and also worked with Andy Sia '17 on creating a digital photographic database of Bob Linsley's extraordinary collections of recent and fossil specimens. Andy Sia '17 was also responsible for designing educational resources for Glacier Bay National Park in Alaska about the Silurian fossils we've studied there. More recently, Meg Ryan '16 and Kegan Thompson '16 completed a census of trilobites at Geer Road quarry, and Brett Field '17 explored ways in which their data could be used as the basis for educational outreach.

Last year, I was invited to join the editorial board of the Russian journal *Vestnik* (“messenger”) and am excited to promote the publication of articles in English about the geology of Russia. I continue to serve as an Associate Editor for one of paleontology's premier journals, *Palaio*, and enjoy reviewing articles and suggesting improvements so that important new data are published. I was invited to join a team of amazing geo-educators at NAGT (National Association of Geoscience Teachers) to co-lead NSF-funded workshops at academic institutions where faculty are striving to “Build Strong Geoscience Departments.” That work has been especially fruitful in helping faculty decide how to restructure their curricula, attract, retain, and diversify majors, and facilitate annual program assessments. Life is busy! Thanks to all of you for your ongoing interest in the department and for sharing information about your post-graduate years. We're proud of you! Please stop by on your next visit to campus!

FACULTY AND STAFF NEWS



MARTIN WONG

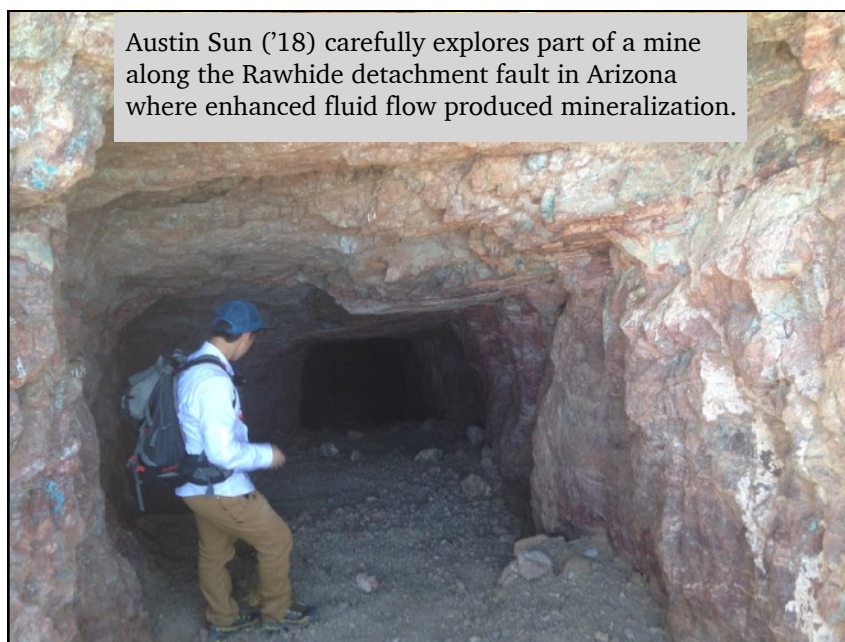
Hi all and greetings from Hamilton! A lot has happened on both the personal and professional fronts. The big change personally is obvious from my photo choice - in January 2017, my family welcomed our second child, Asher. Big sister Olivia (now 11!) is thrilled to finally have a brother to boss around. So it's been a wonderful but hectic year. In our pre-Asher lives, we had a great time leading the Colgate Australia study group with a terrific group of students in spring 2015, which feels like a long time ago now!

On the research side of things, I have been working with colleagues to better understand Basin and Range extension in Arizona, especially within the

belt of metamorphic core complexes. This has involved field mapping, U-Pb geochronology and Ar/Ar thermochronology. Recent work has included EBSD studies of mylonites, coupled with Ti-in-qtz analyses to understand the temperature conditions of the ductile shear zones in the area. Surprisingly, it looks like the shear zones did not develop during Miocene extension but rather during a cryptic episode of early Tertiary extension, likely as a result of gravitational collapse of the Sevier orogen. This is forcing us to rethink the tectonic development of crustal extension in the region. Many students have been involved in this work, including Alex Wrobel ('15), Rick Cummings ('15), Kate Hardock ('16), Ryan Clements ('16), Taylor Dawson

('17), and Austin Sun ('18). I also worked with Veronica Vriesman ('17) on her Keck project on CA tectonics.

Teaching is also going well. I continue to teach Structural Geology and Tectonics, as well as a range of intro courses and FSEMs. Aubreya Adams and I are revising the Structural Geology class to include more tectonics and geophysics to become a new 200-level course titled "Tectonics and Earth Structure" to be taught for the first time in Spring 2018. So I'm excited to be mixing things up on courses. Change is good! Hope everyone is well and to see you on your next Colgate visit, if not before!



GEOLOGY OFF-CAMPUS (SUMMER FIELD)

Colgate's summer field course is still going strong, and we continue to be one of the few undergraduate institutions to teach a summer field camp for our own students. The summer 2016 OC began in the area of Golden Colorado, spending time mapping Dinosaur Ridge and the Proterozoic rocks of Golden Gate Canyon with William Peck and Aubreya Adams. After Colorado the group worked on projects in Moab and Flaming Gorge (UT) with Bruce Selleck. In Wyoming the group did a geologic tour of Yellowstone National Park a final mapping project at Seminole Reservoir with Martin Wong.



GEOLOGY OFF-CAMPUS (SUMMER FIELD)



STUDENT AWARDS AND RESEARCH

Student Awards

The department is fortunate to attract so many great students that are passionate about geology and reach high academic goals. Thanks to many generous gifts from geology alumni, the department is able to recognize outstanding geology students for their achievements and help them further their geology careers. Students that received awards from 2015-2017 are described below.

Award for Excellence in Geology

This award is given annually to the senior(s) who best demonstrates a combination of excellence in the classroom and creativity and perseverance in research.

Recipients:

2015 - Jennifer Godbout and Alexander Wrobel

2016 - Sarah Katz

2017 - Oleg Kozel and Taylor Dawson

Norma Vergo Prize

This prize is given to a graduating geology concentrator each year who significantly contributes to the spirit of excellence among fellow students in the department. Norma Vergo graduated from Colgate with Honors in Geology in 1981 and then completed her M.S. degree at the University of Illinois. She



Geology students who received academic awards gather with William Peck at the awards ceremony in 2017. Front (left to right): Hannah Bercovici, Isabel Dove, Meghan Duffy, Taylor Dawson. Back (left to right): Jake Mahr, William Peck, Andy Sia, Oleg Kozel.

died in 1989 at the age of 30. This special award was initiated by friends and colleagues in memory of Norma, an alumna the department fondly remembers as a gifted scientist and as someone with a special compassion for others that continues to inspire us today.

Norma Vergo Prize Recipients

2015 - Duncan Keller

2016 - Katherine Hardock and Kevin Varga

2017 - Hannah Bercovici

Robert M. Linsley Prize

The department is able to award this prize, in honor of Bob Linsley, thanks in part to a donor who wishes to remain

anonymous. The prize is given mid-way through the junior year to a rising senior who has demonstrated the promise and potential for leadership and excellence in earth science scholarship and research. It is to be used at the awardee's discretion to do field work or other research, to attend scientific meetings, to present research, or interview and make contacts for graduate school, or to cover costs of summer field camp or special field trips. It is intended for someone who exhibits a balance of leadership, research, and communication/teaching interests, in Bob's spirit, and who plans to pursue earth science as a career.

STUDENT AWARDS AND RESEARCH

Linsley Prize Recipients:

2015 - Julia Horne

2016 - Tiong Hua (Andy) Sia

2017 - Alexander Taylor and
Meghan Duffy

Kevin Williams '11

Memorial Fellowship

Kevin Bradley Williams (CU 2011)
July 27, 1988 – October 4, 2010
Geology & Geography major

This fellowship was established to give students the opportunity to experience what Kevin discovered as one of the greatest joys in life – experiencing other countries and cultures. To help celebrate Kevin's memory and spirit, the recipient of this fellowship is asked to take to heart Kevin's favorite motto: "Live life to the fullest. Don't take anything for granted." The fellowship helps awardees take full advantage of their study abroad experience.

Recipients:

2015 - Jackson Lucas ('17)

2016 - Lily Daggett ('18)

2017 - Monica Dimas and Isabel
Dove ('19)

Student Research Funds

Summer research experiences for students have become a vital part of their geologic education. The department is fortunate to have several funds to support student summer research experiences, all of which are supported by generous gifts from alumni and friends of the department, so our thanks to all of you for

helping make these summer research experiences possible.

Douglas Rankin '53 Fellowships

This fund was established by Doug Rankin (CU '53) to provide support for student research with an emphasis on Appalachian geology. Over the past three years, this fund has supported summer research experiences for 13 students, whose names and advisors are listed below:

2015

John Quazza '16 (Harpp)

Zachary Sawin '16 (Harpp)

Ashlynn Rando '16 (April)

Ann Preston '16 (Selleck)

Andy Sia '17 (Leventer)

2016

Oleg Kozel '17 (Peck)

Natalie Smith '17 (Selleck)

Seamus Crowley '18 (Selleck)

Graceanne Howard '18 (Peck)

2017

Julia Barcello '18 (Peck)

Monica Dimas '19 (Adams)

Mark LaPan '19 (Leventer)

Tayshaun Jin '20 (Adams)

Hackett-Rathmell 1968 Memorial Fund

2015

Meghan Duffy '18 (Leventer)

Nathan Taylor '17 (Winsor)

2016

Meghan Duffy '18 (Leventer)

2017

Yinuo Tayshaun Jin '20 (Adams)

Caio Rodrigues Faria Bringhamti
'20 (Harpp)

Natalie Kozlowski '19 (Leventer)

Linsley-McLelland Fund

2015

Matthew Quinan '17 (Peck)

2016

Kaylie Patacca '17 (Leventer)

2017

Emily Weaver '20 (Harpp)

Dhara Patel '19 (Peck)

Alexander Taylor '18 (Peck)

Norma Vergo Fund

In addition to providing a senior award, this fund also helps fund student research.

2015

Aurelia Casarrubias '17
(Leventer)

Kaylie Patacca '17 (Leventer)

Victor Steffen '16 (Soja)

2016

Jake Mahr '17 (Harpp)

Zach Cleary '17 (Harpp) Austin
Sun '18 (Wong)

2017

Dhara Patel '19 (Peck)

Juan Saenz '20 (Harpp)

Isabel Dove '19 (Leventer)

Meghan Duffy '18 (Leventer)

SENIOR THESIS RESEARCH

2015

- Jennifer Godbout – Chemical Weathering and Hydrogeochemistry of the Roger’s Glen Watershed, Chadwicks, New York** (*Advisor: Rich April*)
- Duncan Keller – Garnet Exsolution in Megacrystic Clinopyroxene: Evidence of Ultrahigh-pressure Metamorphism in Maryland?** (*Advisor: William Peck*)
- Alexander Wrobel – Igneous and Metamorphic History of the Harcuvar Metamorphic Core Complex, AZ: Insights from U-Pb Zircon and Monazite Geochronology** (*Advisor: Martin Wong*)
- Richard Cummings – U-Pb Geochronology of Titanite from the Harcuvar Metamorphic Core Complex, AZ** (*Advisor: Martin Wong*)
- Katherine Schultz – Diatom Based Reconstruction of Holocene Paleoclimate, Hugo Island Trough, Western Antarctic Peninsula** (*Advisor: Amy Leventer*)
- Peter Swiggett – Trace Element Geochemistry of the Marcellus Subgroup: Tioga County, New York** (*Advisor: Bruce Selleck*)
- JonDavid Schiff – Deformation Structures and Fluid Chemistry in a Subsurface Decollement Zone, Marcellus Formation of New York State** (*Advisor: Bruce Selleck*)
- Thomas Bartlett – Geochemical Investigation of Lithic Tools and Debitage from the Islands of the Four Mountains, AK** (*Advisor: Martin Wong*)
- Shannon Dillon - Morphometric and Taphonomic Analysis of *Acropora prolifera* at Coral Gardens, Belize** (*Advisor: Constance Soja*)
- Mikhaila Redovian Holocene Oceanographic Change to the Sabrina Coast, East Antarctic Margin, a Diatom Based Approach** (*Advisor: Amy Leventer*)
- Jacob Bitting – Clay Mineral Weathering Products and Plant Uptake of Heavy Metals at the Sterling Hill Mine, Ogdensburg, NJ** (*Advisor: Rich April*)
- Matthew Bosselait – Investigation into the Physical Properties Responsible for the Formation of Basaltic Spatter** (*Advisor: Karen Harpp*)
- Alexandra Schneider – Cyclic Geochemical Variation in Prehistoric and Historic Lavas, Sakurajima Volcano, Kyushu, Japan** (*Advisor: Karen Harpp*)
- Giuliana Kafaf – Natural Coal Firing of Upper Cretaceous Formations in Helper, Utah** (*Advisor: Bruce Selleck*)
- Robert Hynes – Assessing the Sedimentary Record of Recent Warming Trends, Western Antarctic Peninsula, Through the Study of Palmer Deep Diatom Assemblages** (*Advisor: Amy Leventer*)
- Jeffrey Koch – Sand-Budget Analysis of Fire Island, NY** (*Advisor: Paul Pinet*)
- Emily Holzman – Provenance of Emsian and Givetian Clastics, Acadian Foreland Basin of New York State** (*Advisor: Bruce Selleck*)
- Avalon Bunge – A Comparative Study of Two Community Gardens: The Influence of Soil Mineralogy and Chemistry on Crop Nutrient Content and Elemental Abundances** (*Advisor: Rich April*)

SENIOR THESIS RESEARCH

2016

- Kevin Varga – Understanding magmatic plumbing system dynamics at Fernandina Island, Galapagos (*Advisor: Karen Harpp*)
- Julia Horne – Volcanological Perspectives on Paulina and East Lakes, Newberry Crater, Oregon (*Advisor: Karen Harpp*)
- Ariel Hampton – Interaction of Basaltic Lava Flows with Patterned Ground: Field and Analog Studies (*Advisor: Karen Harpp*)
- Katherine Hardock – $^{40}\text{Ar}/^{39}\text{Ar}$ thermochronology of the Harcuvar metamorphic core complex, Arizona (*Advisor: Martin Wong*)
- Sarah Katz – Mineralogy and Stable Isotopes of Taconic Metasedimentary Rocks in Dutchess and Litchfield Counties (*Advisor: William Peck*)
- Teymoor Tahbaz – Regional correlation and geochronology of a Late Ordovician K-bentonite from the Wells Outlier, New York (*Advisor: Bruce Selleck*)
- Ann Preston – Sequence Stratigraphy Correlations and Depositional Environments of the Late Ordovician Sequence in the Wells Outlier (Wells, New York) (*Advisor: Bruce Selleck*)
- Rebecca Siladi – Syndepositional and Post Depositional Tectonism in the Late Ordovician from the Wells Outlier in Wells, New York (*Advisor: Bruce Selleck*)
- Maggie McGuire – Geochemical Evolution of Espanola Island, Galapagos Archipelago (*Advisor: Karen Harpp*)
- Ashlynn Rando – Geochemistry of the Adirondacks: A Liming Study (*Advisor: Rich April*)
- Ryan Clements – Kinematics and temperature conditions of mylonitization in the Harcuvar metamorphic core complex, AZ (*Advisor: Martin Wong*)
- Michael DuBois – Geochemical analysis of pyroxene megacrysts from massif anorthosite in the Adirondacks region (*Advisor: William Peck*)
- Zachary Sawin – Effect of Barrier Design on Hazard Mitigation of Lava Flows (*Advisor: Karen Harpp*)
- Erin Cummings – Causes of Variability in Carbon Isotope Ratios in Maple and Birch Syrups (*Advisor: William Peck*)
- Megan Ryan – Analysis of Trilobite Taphofacies at Geer Road Quarry, New York (*Advisor: Constance Soja*)
- Kegan Thompson – Paleocology of Devonian trilobites at Geer Road, Lebanon, New York (*Advisor: Constance Soja*)
- Michael Yavorek – Mineralogy of the Karheen Formation in SE Alaska (*Advisor: Rich April*)
- Kevin Lough – Constraining Metamorphic Conditions of the Morin Shear Zone, QC Using Thermobarometry (*Advisor: William Peck*)
- John Quazza Investigation into the Insulating Properties of Scoria on Basaltic Lava (*Advisor: Karen Harpp*)

SENIOR THESIS RESEARCH

2017

- Jake Mahr – Rejuvenescent Volcanism on San Cristóbal Island, Galápagos: A Late “Plumer” (Advisor: Karen Harpp)
- Hannah Bercovici – Isla Rabida, Galapagos: A little island with a big secret (Advisor: Karen Harpp)
- Taylor Dawson – EBSD and Ti-in-quartz analysis of mylonites from the Harcuvar core complex region (Advisor: Martin Wong)
- Glenna Thomas – Antarctic Radiolaria (Advisor: Amy Leventer)
- Grace Howard – Thermometry and geochronology of Adirondack anorthosite (Advisor: William Peck)
- Oleg Kozel – Pseudosection analysis and geochronology of Adirondack anorthosite (Advisor: William Peck)
- Taylor Mooney – A Diatom-Based, Paleolimnological Study of Shadow Lake, Waupaca County, Wisconsin (Advisor: Karen Harpp)
- Alex Campbell – The Trace Element Geochemistry of the Trenton-Utica Boundary in Herkimer County, New York (Advisor: Bruce Selleck)
- Natalie Smith – Flat Creek, Jackson, Wyoming: Assessing Impacts of Development on Water Quality (Advisor: Bruce Selleck)
- Jonathan Miller – Sources of Rifting in the East African Rift System: A Rayleigh Wave Tomography Study (Advisor: Aubreya Adams)
- Veronica Vriesman – Cold Relamination in California: A Petrological Study of Salina de Sierras' Schist Emplacement (Advisor: Martin Wong)
- Matthew Quinan – Provenance of detrital zircons in the Paleoproterozoic Morin terrane, Quebec (Advisor: William Peck)
- Brett Field – An interactive educational exercise on local Devonian trilobites for teachers and students in Hamilton, NY (Advisor: Constance Soja)
- Aurelia Casarrubias – A Holocene climate record based on diatoms from the Sabrina Coast, Antarctica (Advisor: Amy Leventer)
- Ciara Pettinos – Nitrogen and Carbon Isotopes in Bivalve Tissue and Shell Organic Matrix: Differentiating Impacted vs. Non-impacted Watersheds, Central and Northern New York (Advisor: Bruce Selleck)
- Jackson Lucas – Ice Retreat in the Eastern Antarctic Peninsula: The Application of Diatoms for Understanding Climate Change (Advisor: Amy Leventer)
- Tiong Hua (Andy) Sia – Effects of Liming on the Soil Geochemistry of the Adirondack Mountains (Advisor: Rich April)
- Ellis Van Slyke – Carbon isotopes and sugars in birch, black walnut, butternut, and maple syrup (Advisor: William Peck)
- Nathan Taylor – Magnetite T.I.: The Case of the Blue Lava or Origin of Surficial Color in the Blue Dragon Lava Flow, Craters of the Moon National Monument (Advisor: Karen Harpp)

ROBERT M. LINSLEY GEOLOGY MUSEUM



**Contributed by:
DI KELLER**

Outside the atrium entrance to the Ho Science Center, there's a new dinosaur in town. As a matter of fact, there are three! In our last newsletter, you met Doug the Dinosaur, who unfortunately was "invited to a Halloween party" a few years back, or at least part of him was. Thankfully, following Doug's demise, Rich April was able to commission artist John Kennedy of Delphi Falls, NY not only to make us a new T. rex sculpture but also two Deinonychus raptors to keep watch over him. Visitors to the Ho building are greeted by this

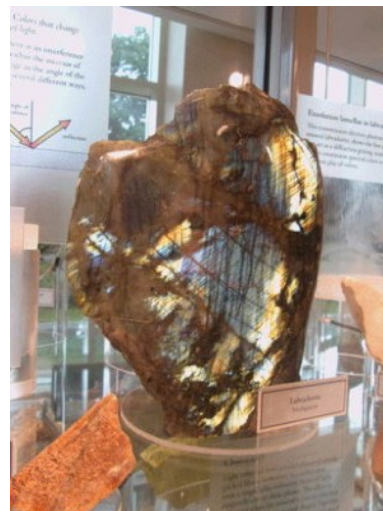
colorful trio, much to the delight of the thousands of schoolchildren who come here with their classes each year to participate in science outreach activities run by Ho Tung Visualization Lab technical director and designer, Joe Eakin, along with a group of Colgate students who help run museum tours and other outreach activities for the kids.

Having just recently become a member of the American Alliance of Museums, the Linsley Museum continues to be a very popular attraction on campus. Each year the museum receives around 5000 visitors, comprising current and prospective students and their families, alumni, Colgate faculty and staff, local families, as well as assorted other visitors. Both geology and non-geology faculty also use the museum as a resource for their classes, either as a source of information or as the basis

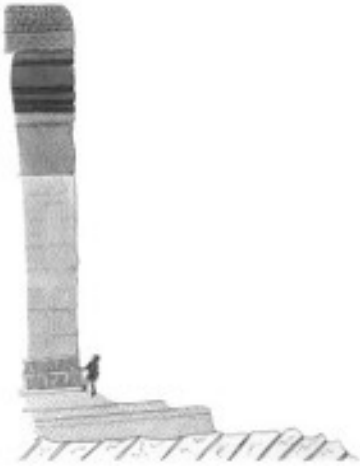
for various class-related exercises.

Over the past few years we've obtained some truly spectacular new specimens such as a delicate, pink slice of Liddicoatite tourmaline from Madagascar and a sizable, polished piece of labradorite, both pictured here.

In addition to new samples, a new small display case was installed this past fall for the purpose of highlighting new and exciting samples from our collections. This case currently houses some beautiful crystalline samples of four different quartz varieties. Reflections on the case front interfered with photographing it well, so we hope you will stop in and see it for yourself, along with the dinosaur sculptures and other museum displays, the next time you visit Colgate!



FROM THE ROCKPILE



Contributed by:
WILLIAM PECK

Last year we asked alumni from the classes of the 1960 and earlier to share their memories at Colgate as Geology majors. Here are excerpts of some of their reminiscences:

“I graduated in 1953 with a BA degree, majoring in Geology. This was during the tenure of both Professors' Woodruff and Trainer. At the time of my graduation I was committed to 2 years of service in the U.S. Marine Corp. ... Because of my geological/survey experience at Colgate, I choose to report to Fort Belvoir for three months of military engineer training... I was assigned to an engineer battalion at Camp Lejeune, NC for the remaining 2 years of active duty. After completion of my military service, I communicated with the Colgate Placement Office. I was given a list of alumni contacts that would have local knowledge of employment

opportunities in the area. One of the contacts provided was Mark Graves, graduate of “32”.... My wife and I had lunch with Mark, who described the local industrial operations that included the local mining companies. During lunch Mark informed me that he was team manager for the famous 1932 Colgate Football team that had the spectacular undefeated season in which they were not scored upon... After lunch Mark made a phone call to the manager of the St. Joseph Lead Co., who operated zinc/lead/silver mines in Balmat and Edwards [Adirondack Lowlands, NY]. My geological degree, along with my military background, lead to employment in the company's Engineering Dept. The St. Joseph Lead Co. had a well-established geological department. My previous geological foundation provided by Colgate was useful as I learned more about the complex geology of the area.... I had nothing but the highest regard for both professors Woodruff and Trainer. The knowledge that they passed on at Colgate was essential to my future career. Needless to say, Colgate and the geology department was indispensable in making all this possible.”

-Fred R. Totten (CU 1953)

“On one of the first days of orientation week at Colgate nearly 65 years ago, I was exploring the campus and wandered into Lathrop Hall. I ventured up the stairs to the second floor where there was a wonderful museum of fossils, minerals, and Indian artifacts. While enjoying these, all alone, a gentleman approached and introduced himself it was John Woodruff. At this point in time, I was like most entering freshman, without a clue about a career ahead or what subject to major in. Dr. Woodruff suggested enrollment in “Physical Geology” for my one remaining elective, which I did. Thus began my interest in the earth sciences and John Woodruff was my teacher, my advisor, my mentor and my friend.

Following three years of active duty in the air force, it was on to graduate school, majoring in geophysics and then to employment with Shell Oil Company exploring for oil and gas around the world for the next 44 years. In retrospect, meeting John Woodruff that day in Lathrop all was the launching pad for my working life, my career. I will never forget that moment, nor John Woodruff and the wonderful education in geology which he provided.”

-Bob Quitzau (CU 1955)

FROM THE ROCKPILE

“To study geology at Colgate was probably the single most important decision I made on entering Colgate. Because of it, the course of my whole life was determined. Let me explain. Shortly before graduation because of my ROTC involvement, I was advised by the ROTC Commander, Lt. Col. McDonald of a new program in the Air Force. It seems that President Eisenhower had assigned the responsibility to the Air Force for monitoring of underground nuclear tests. The Air Force was looking for officers with science degrees... to study seismology for eventual assignment as program managers in the new Air Force Technical Application Center. I applied and was accepted. I spent two years in the master's program at St. Louis University and was ultimately assigned to AFTAC. That began a career of 24 years with the Air Force and after retirement, 13 additional years with the US Geological Survey. My last assignment with the USGS was chief of the Seismic Laboratory in Albuquerque, NM. The programs I worked on in the AFTAC and the USGS took me to 36 countries all over the world and Antarctica involved in selection, installation, operation and maintenance of seismic stations. The program was known as the Vela Uniform Program and included the installation of seismic arrays in

Norway and Iran. Studying under professor John Woodruff provided me with the tools and foundation for my career.”

-Nicholas A. Orsini II (CU 1952), Lt. Col. USAF Retired

“I was there when Dr. Woodruff was chair, Dr. Trainer was my advisor and Dr. Linsley had just joined the Department ... I especially liked Geol 101 & 102 (physical, historical), the geomorphology classes and Dr. Linsley's Invertebrate Paleontology (I still have the fossil drawing book for that class; I think it could also have served as an art credit!). Dr. Trainer and I got close, not just because he was my advisor but also because he worked with me on my Senior Special Studies project- “Glaciation” in upstate N.Y. I well remember trips to quarries to do leaching test and pebble sample collecting. What stood out, however, was when we returned from the field to Dr. Trainer's home- so I could help install storm windows! There was also some “refreshment” sharing. I can assure you, my “A” did not come as a result of my storm window work!! I also assisted Dr. Trainer in surveying and realigning the track at Whitnall field (no evidence of that effort exists today!!)”

-Paul Beardslee (CU 1959)

“I began my studies in geology at Colgate in 1948 and graduated with my BA in 1952. I have very fond memories of both Doc Trainer and Doc Woodruff Both were true gentlemen who took considerable interest in their geology majors. They always had time to suggest additional study areas, offer encouragement and just plain talk. Field trips were quite limited at that time and usually took the form of an afternoon in the quarry looking for trilobites or whatever else we might find. I remember the year, maybe around 1940, but my Mother bought me a copy of ‘Under a Lucky Star’ by Roy Chapman Andrews. He was my childhood idol and it was reaffirmed when I read his book about exploration in the Gobi Desert. One of my first experiences as a freshman was to be given a guided tour of the museum in Lathrop Hall by both Drs. Trainer and Woodruff. They proudly showed me the dinosaur egg which had been donated by the Colgate member of the family [Colgate Trustee, Col. Austen B. Colgate]. In any event they were both so proud of that egg that one could almost imagine that they were the ones who had laid it.”

-Ted Schulenberg (CU 1952)

GEOLOGY GATHERINGS - GeoPizza!

Contributed by:
DI KELLER

Always a fun time, GeoPizza! Night continues to bring together Colgate geology students, faculty, and staff to meet the GeoPizza! challenge - to turn blank pizza doughs and a variety of toppings into geology-themed pizzas. Despite the fact that nobody actually has ever made a "gneiss pizza," the GeoPizza creations that we are treated to at each event are always more than nice. They are bursting with creative ideas that take what the students have learned through their classes and



Glenna Thomas '17 & Oleg Kozel '17 with their 2-crust subduction calzone.

research to a whole new delicious level.

I didn't realize it at the time but this year's GeoPizza! was our tenth. The first GeoPizza! Night was held in November of 2007. How well I remember racing home after teaching a Mineralogy lab (What was I thinking!?) to roll out a dozen plus, badly behaved doughs from the Grand Union with the help of Connie Soja, in order to have them ready, along with having all the toppings, salads, and beverages assembled, for everyone who would be arriving less than two hours later. Thank goodness GeoPizza! doughs now come from Slices. What a difference well-behaved dough makes! Many thanks to Slices, as well as to geology major, Hayley Pearson '19 (center of the above picture), who spent two hours chopping toppings with me on the Sunday before this year's event.

Thinking back to that first GeoPizza! Night, I remember that the idea of making "geology-themed" pizzas wasn't all that clear to many of the chefs so a number of the pizzas were mighty tasty but didn't quite "rock." The concept is certainly now



Some of this year's GeoPizza chefs, all from the class of 2019, (L to R: Mark LaPan, Victoria Arnold, Hayley Pearson, Isabel Dove, and Adrian Heath.)

completely embraced by all the chefs. In fact, over the past few years, GeoPizza! creations have reached new heights, both figuratively and literally. This year, for the final GeoPizza! of the night (actually, a two-crust, subduction calzone), we had to lower the oven rack in order to accommodate the top of the newly-formed volcanic arc. If things keep up like this, I'm going to need a bigger oven!

For more photos from GeoPizza! and other department activities visit the following website: <http://blogs.colgate.edu/geology/category/galleries>

STUDENT ABSTRACTS AND PRESENTATIONS

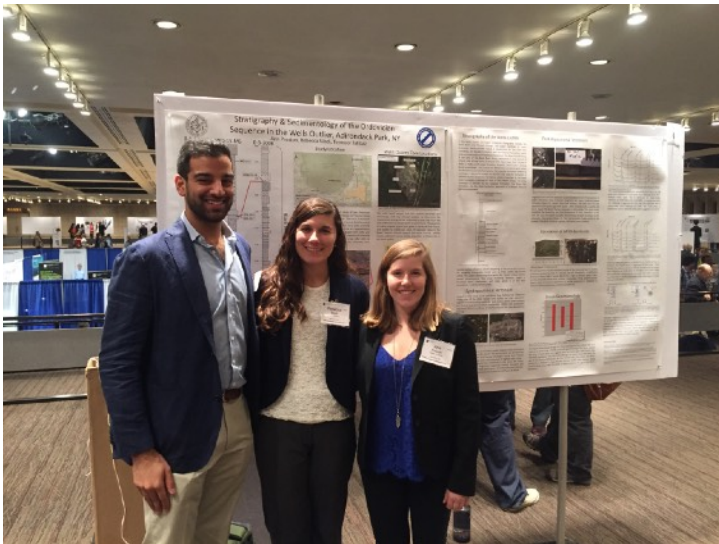
Students are fully involved in all forms of research that we do in our department. One reflection of this participation is in presentations given at professional meetings. The list below highlights abstracts where students took the lead to present the results of their own research at the meeting or where included as co-authors on faculty-lead research.

**denotes undergraduate author*

- Dunn, SR, Kotikian, M, Achenbach, K, Nesbit, J, *Montanye, B, Peck, W, And Markley, M, 2017, Calcite-graphite isotope thermometry in the Western Central Metasedimentary Belt, Grenville Province, Ontario: Geological Association of Canada/Mineralogical Association of Canada 2017 Meeting Abstracts with Programs, Abstract #295.
- Peck, WH, and *Taylor, A.T., 2017, Field and laboratory geochemical analysis of high-Al orthopyroxene megacrysts in Adirondack anorthosite: Geological Society of America Abstracts with Programs, v. 49(2)
- *Howard, GE, Peck, WH, and Selleck, B, 2017, Metamorphism of anorthosite in the Adirondack high peaks: Geological Society of America Abstracts with Programs, v. 49(2),
- *Kozel, O, Peck, WH, and Selleck, B, 2017, Modeling metamorphic mineral formation in Adirondack anorthosite: Geological Society of America Abstracts with Programs, v. 49(2)
- Peck, WH, and *Quinan, MP, 2016, Links between the Adirondacks and the Morin terrane: New evidence from geochronology: Geological Society of America Abstracts with Programs, v. 48(2).
- *Katz, S, and Peck, WH, 2016, Mineralogy and stable isotopes of Dutchess and Litchfield county metasedimentary rocks: Geological Society of America Abstracts with Programs, v. 48(2).
- Peck, WH, and *Dawson, TL, 2015, Carbon isotope investigation of channel carbon dioxide in ring silicates: Cordierite and beryl: Geological Society of America Abstracts with Programs, v. 47(7), p. 762.
- *Keller, DS, and Peck, WH, 2015, Garnet exsolution in megacrystic clinopyroxene: Evidence of ultrahigh-pressure metamorphism in the Maryland Piedmont?: Geological Society of America Abstracts with Programs, v. 47(7), p. 807.
- Miller*, J. and A. Adams (2016), Sources of Rifting in the East African Rift System from Rayleigh Wave Tomography, Eos Trans. AGU, 97(52), Fall Meet. Suppl., Abstract T51C-2944
- Bercovici, H. L.*, Geist, D., Harpp, K., Almeida, M., Mahr, J.*, Pimentel, R.*, Cleary, Z.* (2016): A little island with a big secret: Isla Rabida, Galápagos, Eos Trans. AGU, Fall Meet. Suppl., San Francisco, CA, abstract, V53C-3117.
- Pimentel, R.*, Harpp, K., Geist, D., Mahr, J.*, Bercovici, H.*, Cleary, Z.*, Cordova, M. (2016): Are you there plume? It's me, San Cristóbal: Geochemical evolution of a Galápagos Island, Eos Trans. AGU, Fall Meet. Suppl., San Francisco, CA, abstract, V53C-3118.
- Mahr, J.*, Kurz, M., Harpp, K., Geist, D., Bercovici, H.*, Pimentel, R.*, Cleary, Z.*, Cordova, M. (2016): Rejuvenescent volcanism on San Cristóbal Island, Galápagos: A Late "Plumer", Eos Trans. AGU, Fall Meet. Suppl., San Francisco, CA, abstract, V53C-3119.
- Cleary, Z.*, Mittelstaedt, E., Harpp, K., Bercovici, H.*, Mahr, J.*, Pimentel, R.*, Cordova, M. (2016): Investigating magmatic processes on San Cristóbal, Galápagos through analysis and modeling of newly acquired gravity measurements, Eos Trans. AGU, Fall Meet. Suppl., San Francisco, CA, abstract, V53C-3120.

STUDENT ABSTRACTS AND PRESENTATIONS

- Wadhwa, S. *, Zengilowski, A. *, Harpp, K. (2015): Adapting MOOC technology for the liberal arts classroom, Learning with MOOCs 2015, New York City, NY.
- Bercovici, H. *, Geist, D., Harpp, K., Almeida, M. (2015): Evidence for a dying magma chamber at Rábida Island, Galápagos, Eos Trans. AGU, Fall Meet. Suppl., San Francisco, CA, abstract V31D-3054.
- Varga, K. *, McGuire, M. *, Geist, D., Harpp, K. (2015): Understanding magmatic plumbing system dynamics at Fernandina Island, Galapagos, Eos Trans. AGU, Fall Meet. Suppl., San Francisco, CA, abstract, V43B-3121.
- McGuire, M. *, Varga, K. *, Harpp, K., Geist, D., Hall, M. (2015): Volcanic evolution in the Galapagos: The geochemistry and petrology of Espanola Island, Eos Trans. AGU, Fall Meet. Suppl., San Francisco, CA, abstract V31D-3055.
- Lemanski, B. *, Connor, S., Gullapalli, S., Harpp, K. (2015): Effects of pollution on the religious activity of individuals along the Ganges River: An interdisciplinary pilot study with sociological and analytical chemistry-based approaches, PITTCON Conference and Expo 2015, New Orleans, LA, abstract 2190-3.



Left: Teymoor Tahbaz, Rebecca Siladi, and Ann Preston (left to right), all class of 2015, present at Northeastern GSA 2015. Right: Oleg Kozel ('17) and Grace Howard ('17) (left to right) present at NE GSA 2017.

GIFTS TO GEOLOGY

Our deepest thanks to all of you that have made a gift to the department over the past few years. Thanks to your generosity, our students are able to participate in summer research, explore the country and the world to see amazing geology, travel to labs to conduct analytical work, attend professional meetings and so much more. If you are planning to make a gift to the department in the future, you can specify where those funds go if you wish. Gifts to the Geology Department support our discretionary fund, which is our most flexible fund that we use to support areas of greatest and immediate need. Funds can also be directed to a specific fund to support students, including: The Norma Vergo Fund, the Linsley–McLelland Fund, the Hackett–Rathmell Fund, the Robert M. Linsley Prize, or the newly created Rich April–Bruce Selleck Endowed Fund for Geology Student Travel. Outcomes of these funds are described on pages 26-27. Since the last newsletter the following people have made gifts to the department (Nov. 1, 2014 to Dec. 31 2017). Thanks again for your generous support of our department and students!

D. Craig Anderson '77	Paul T. Chan '71	Daniel J. Gaudio '96
Benjamin April	Christine E. Chariton '84	Timothy D. Glotch '99
Ilana Beth April	Douglas E. Chiarello '98	Evan B. Goldstein '04
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Stephen B. Burke '80 P'11'20 H'04	Penelope A. Fearon '82	Jason L. Kaplan '06
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	Lillian G. Ganske '18	Deborah J. Knuth Klenck & Thomas R. Klenck P'11

Oleg Kozel '17
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Jamie C. Kwasnieski
Joshua A. Lasker '14
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Ronald L. Parker '82
Susan Pohanka '82
Ann B. Preston '16
Todd W. Quillen '89
Khaled B. Rahman '85
Elizabeth B. Rampe '05

Joshua P. Riefler '14
Daniel E. Riker '91
Katherine A. Robertson P'16
Emily E. Rodgers '02
Edward L. Roy '77
S. Andrew Sandberg '81
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Katherine C. Schultz '15
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Jeffrey A. Trembly '78
Wendy A. Trimble '91
Kyle P. Tumpane '06
Robert Y. Urquhart '60
Kara J. Vadman '14
McKenna H. Valley '17
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Elinor J. Wilson
Robert F. Ylagan '90
Robert M. York '85



ALUMNI NEWS

Thanks so much to all of you for providing updates on the great things you are up to! Please feel free to send any news you have to us and we can include it in our next newsletter. Please note that the responses below may be lightly edited for space and clarity reasons.

1950

Fowler, Russell "Russ" Dabblings from an old retired geology guy. Sadly, use of my training was rather minimal thanks to a job market that didn't fit my job situation at the time. Result was a variety of occupations over the years. Let's see: Army, Map Making, Underwriting, Systems Analysis and Design and lastly Horticulture. Yes, along the way Geology did get in it's licks too. So if the "right" job does't come your way immediately, explore. My wife and I did, both in jobs and in travel. it's a big, beautiful world out there - check it out for yourself.

1952

Schulenberg, Ted Very much enjoyed my years at Colgate. In all honesty, I feel that my geology major under the tutelage of Drs Trainer and Woodruff wasn't very good but both were great guys. I know that your geology program today is much better than it was then. The combination of a liberal arts degree plus some geology at Colgate plus an advanced degree from UT did provide me with a good foundation for my career.

I have proposed on two separate occasions that the Geology Department hold an all class departmental reunion. Nothing came of either. I'm now old enough that I might not be able to attend even if one is held but I will still advocate for it. In 2006 I made a somewhat similar proposal to the Geology

Department at UT. In view of their considerably larger department and in own parochial interests, I suggested that it be limited to graduate school enrollees in the 1950s. The department had never held a reunion of any sort and they were intrigued and very helpful in the logistics, getting out the word and ultimately hosting a cocktail party. The event was very successful and appreciated by the attendees. In consideration of the fact that about 30% of those eligible were either deceased by this time or too infirm to attend (This amounted to an approximately 50 year reunion of people who were in there mid 20's or older when enrolled.) we had about a 40% attendance. Try it. You'll like it.

On a more personal note, my wife of 53 years died in 2010. This year I remarried at the ripe old age of 87 to a younger, trophy wife of 86.

1954

Knowlton, Kenneth A wise professor, when asked by some of his students what they should do with their lives, advised them to follow their bliss, that is, what they were really interested in. I majored in Geology as the least objectionable subject I was taking, but after four years of undergraduate study and two more years of graduate work, no bliss. I went to work for a medium sided petroleum company, and after two years -

that's right, still no bliss.

Around that time I was exposed to cross training in other disciplines within the company and periodically in company training programs. Somewhere in that process I started to find my niche. From there I was fortunate to work in both domestic and international petroleum exploration, traveling and working on six continents and living overseas at one time. Over the years I have developed an abiding love of earth science as well as other fields of study. As for my experience, I would recommend that anyone not fixed on a career path decide on one and then follow it. You may not find your bliss, but maybe if you are fortunate your bliss will find you.

1961

Buchs, Andy Retired after 43 yrs of practice of Oral Surgery in June 2016.

1967

Finley, Lynn Thomas My wife and I were able to spend a wonderful afternoon with Dr. Aveni during the recent Class of 1967 50th reunion renewing Colgate over the years!

1968

Hakes, William After a long time of searching for oil and gas, I have retired and live in London, England.

Hoffman, John Great geology and wildlife on a week long Alaska cruise (Juneau to

ALUMNI NEWS

Juneau), spring 2017. We were on a small boat (75) so had many more options than the big cruise ships.

New grandson (Elliott) from oldest son, Michael and another grandson coming Sept. 1 from second son, Graeme.

1975

Shapiro, Steven Retired in 2014 - glad to discuss my fun and rewarding career.

1976

Mitchell, Ray "Holden" Sue (Hicks - geology '81) and I moved to Grand Isle, VT after retiring (yes, it really is an island). 29 years with ConocoPhillips, 33 years in the industry. Our 4 men are all married and our oldest had our first grandchild, Simon, residing in San Diego. Most beautiful grandbaby ever. Sue and I are enjoying living on Lake Champlain and are involved in the community. Sue's a mentor in the grade school, I'm on a town board, and we are both involved in the fire department and rescue squad. I'm a certified firefighter and we are both nationally certified emergency medical responders. Come visit, call 911, and we show up! Actually it makes for an interesting perspective on the community and being on these "teams" is fulfilling. I'm having my second hip replacement in June and hope to rehab back to full response mode with the fire department ASAP. Summer and Fall in northern VT are outstanding and we are expecting our usual full house of family and friends.

Sacrison, Ralph Following graduation ('76), I continued the philosophy of conquering fears and taking the opportunity to study unknowns. The upshot of that – an M.S. in Mining Engineering from New Mexico Tech in 1980. Like with

my geology, an ultimate object was to have something apart from a desk job. I am continuing a career which has allowed me a satisfying life across the Four Corners states and Great Basin. Occasional stints in other states, and Honduras, Mexico, Chile and Canada. Since '94 I've been back in my home state of Nevada – up in Elko, in the NE corner of the state – cattle and mining country. Last thirteen years as an independent consultant in engineering and geology. As a single parent since my little ones actually were little, my business model has been to facilitate caring for them. That is, working from home – thank goodness for the high-tech capacity which allows me to do so. My now-adult daughter with autism probably will remain here at home as long as I can. My son mustered out of the United States Marines in the Fall of 2016, and is re-adjusting to civilian life.

Along with the consulting, I pursue assorted volunteer work for the church, County, and State. And the Northeastern Nevada Autism Network. Oh, and like work now, all that stuff has evolved to be predominately keyboard and mouse activity – which is to say, writing and drawing. I don't hike transects anymore, nor pull ladderways like in the day. Hell, I can't even stack core boxes now. I do have a new hand lens, but that's mostly because of my eyes, not because I need it for rock work... . So yeah, finally comfortable with a desk job.

1977

Hickey, Janet Retired Naturalist, Parker River National Wildlife Refuge

1978

Arbeeny, Mark My geology experience has always helped me

enjoy the geology of every place I have lived, currently in Durango CO.

Wagner, Mark Continuing to work for the Dutch company, Arcadis for the past 36 years. My focus is supporting multinational clients with environmental impairment issues associated with their operations in Mexico and Latin America. Introducing new in-situ remediation technologies for soil and groundwater impacts in Mexico and other LATAM nations. Educating environmental regulatory agencies on toxicological risk-based remediation strategies to prioritize capital expenditures where the biggest reduction in risk can be achieved. Locally going to the schools where my 8 grandchildren attend and teaching classes on geology and the environment.

1980

Morrison, Jean Provost and Chief Academic Officer, Boston University

Nelligan, David Living and working in Standish, ME, owner of Standish Veterinary Hospital for 21 years, my wife Julia Smith Nelligan (Colgate class of 1981) passed away in 2014. 4 children, younger daughter Meredith will be entering her junior year at Colgate this fall. I'm still collecting "interesting" looking rocks.

Paish, Dave I have been living in Mississauga Ontario for the past 26 year - amazing how quickly the time goes by. I am happily married and have 4 great children. My first is completing his PhD in Medical Biophysics at Western University. My second is a full-time French teacher. My 3rd & 4th are still in University. After many years as an IT consultant, I am now a manager at Hydro One, overseeing the folks collecting and processing data from 1.3M smart meters.

ALUMNI NEWS

In my spare time, I am in my 22nd year as a baseball coach (currently for the Mississauga Southwest Senior Twins. I also enjoy golf, cycling and long walks with my dog. All the best to my friends from Colgate!

1982

Achtermann, Roger
Financial Advisor, Morgan Stanley

Parker, Ronald I've been living in Denver since 2008, working as a consultant to the Oil and Gas industry. In May of 2016 I started my own company with 2 colleagues from Fronterra Geosciences analyzing and interpreting borehole image logs. Before moving to Denver, I was an Assistant Professor of Geology (and Departmental Chair and Science Division Convener) at Earlham College in Richmond, Indiana. In 7 years at that small Geology Department I taught many courses including Intro, Historical, Mineralogy, Sedimentology, Hydrogeology, Geochemistry, Senior Seminars and Independent Study Research. I also taught month-long field trip courses to the American Southwest and to Hawaii. I was ably prepared for teaching such a diverse range of courses by the example of my professors in the Colgate Geology Department.

In early June I was pleased to revisit Colgate at my 35th reunion. We had a large contingent of geology majors drinking beer in the tents! It was good to chat with Bruce Selleck and to see the abundant evidence of a strong Colgate Geology Department. It was also a nice surprise to revisit the Colgate Quarry and local outcrops again.

Pursell, Victoria It was great to see a bunch of geology friends at Reunion in June 2017.

1983

Eifrig Rauth, Louisa Contracts Manager for Starkey Hearing Technologies

Rouse, Bob We relocated to Chattanooga, TN almost 2 years ago. Love the location, lots of great climbing, hiking, golf, fishing etc. Also tons of great music venues and brew pubs. Any geoheads in area welcome to stop by. Contact Bob @ 917.993-4140 or bob.rouse14@gmail.com

1984

Battles, Denise I am completing my second year as President of SUNY Geneseo, New York state's only member of the Council of Public Liberal Arts Colleges. I concurrently hold a faculty appointment, although my administrative role pretty much limits my geology activities these days to occasional hikes in national parks. I have been married since 1995 to Dr. Michael Mills, who is also an academic. We have no children but our return to upstate NY has placed us within easy reach of our nieces and nephews. I am involved in a number of higher education associations, serving on their Boards and in other leadership roles. I invite anyone who is passing through beautiful Finger Lakes country - perhaps visiting SUNY Geneseo with your prospective student? - to drop me a line!

1985

Cunniff, Robert Started acting as a part time venture about a year ago. I've managed to get roles on most TV shows being filmed in New York City, like: Gotham, Quantico, Blue Bloods and more. Also cable and Netflix

shows like Jessica Jones, 6 Degrees of Murder and A Crime to Remember. I get a lot of Cop/Detective roles.

Harmon, Douglas Partner, Arden Credit Fund, L.P.; running a commercial real estate debt fund. Living in CT, oldest daughter attends Colorado College and loves to look at rocks.

1987

Vyhnal, Chris We've recently renovated the observatory on our campus at The Thacher School and have started an astronomy research program for our high school students. Check these out for more information if you're interested to learn more: <http://blogs.thacher.org/deepdives/2015/11/12/music-of-the-spheres/> <https://www.thacher.org/page/News-Detail?pk=1083721>

1989

Quillen, Todd I've been having fun with environmental remediation, site assessment and asset retirement as a contractor to the USEPA and now with Chevron in International locations (Kuwait and Indonesia). After 8 years overseas we are planning to move back to the US later this year.

1992

Tiller, Charlie July 2017: I've now lived more than half my life in the Twin Cities after growing up in Central NY. Still happily married, kid-free, and enjoying what life brings. My latest experiment has been leaving behind corporate engineering firms after a 20-year grind to start my own private environmental consultancy. You can check me out on LinkedIn. It's all an adventure - lots more fun than scary at this point in my life. If you

ALUMNI NEWS

remember me, find yourself in MN, or discover that you are curious, let me know at charlietiller@hotmail.com. My best wishes to all!

1994

Doctor, Dan Living in Reston, Virginia for the past ten years has been very good to me and my wife, Katarina. We enjoy the cultural benefits that living in vibrant Northern Virginia afford. My work with the USGS has morphed and expanded over that time, and has always been interesting, challenging, and rewarding. Although the main focus of my work is still on karst geology and hydrology, a recent project brought me back up into New York state, mapping the Devonian bedrock and glacial deposits around the city of Binghamton. It has been so nice to be close to my geological roots!

1996

Gaudio, Dan I'm so grateful for the science and geology education I was given at Colgate. It truly has inspired a life long love a science and learning for me.

1997

Krutikov, Lena Going on year 15 in Alaska, married a geologist (gold exploration, for real), and we have 5-year old son Gideon. If you're ever visiting Fairbanks, look me up!

1998

Besch, Allison I'm still running continuing ed courses for environmental professionals at Duke. I've seen fellow geology alums Daren Moss ('98) and Patrick Koepele ('93) recently here in Durham, NC.

Brackett, Chapin I am approaching my sixth year at the Boeing assembly plant in Everett, Washington. 747, 767, 777, 787

(and soon the 777X) are assembled at the facility. I now manage the industrial hygiene, environment, and incident investigations team. I hope to see some of you at the 20th year reunion.

1999

Bozek, Cathy 2016 held a lot of new beginnings- my husband and I welcomed our daughter, Ella, to the world. I also started a new job at the US Fish and Wildlife Service, as the fish passage coordinator for the northeast region.

Glotch, Tim I continue to work as an associate professor in the Department of Geosciences at Stony Brook University on Long Island. My research utilizes vibrational spectroscopy to study crustal evolution on Mars and the Moon.

2001

Angell, Jordan Wife : Laura (Bissell) Angell Colgate class of 2000, two boys Wes (4) and Cam (3).

2002

Braham, Gary I am married with two children, ages 4 and 7. I have been getting them into geology as well. I teach earth science to 9th and 10th graders at a small high school in the Adirondacks. I also am an assistant wrestling coach and the girls varsity soccer coach. My current passion and project is finding a way to bring more equality to high school sports and to promote the necessary changes. Geocaching is another hobby of mine I have gotten into in the past year.

Byrne, Catherine Husband, Brian Byrne (2004) and I feeling blessed to have our recent baby who is now 8 months old. Kate is our fourth baby along with her siblings; Rory (2yo), Mary (3yo), and Bridget

(6yo). Looking forward to visiting campus and show our kids our beautiful alma mater.

Newton, Alicia This year marks my 10 year anniversary as an editor of Nature Geoscience, and also of my move to the UK. I've recently started dabbling in social science/humanities research, looking at quality and demographics of peer review in the sciences. Still very happily married to Edwyn Mayhew, and settling into our new home in the suburbs of Essex.

2003

Henderson, Joe I recently completed a research post-doc at the University of Delaware where I focused on climate change education. I am about to move to Saranac Lake in the Adirondacks and will be teaching environmental studies at Paul Smith's College. Say hello if you're in the area!

Wilson, Julia I have been working for a small environmental consulting firm for the last two years as a Project Geologist and Regional Health & Safety Manager. Also, my husband (Bear Wilson, Tarleton '01) and I welcomed our first daughter last December!

2004

Karmosky, Chris I just finished my first year teaching meteorology and oceanography at SUNY Oneonta after four long years in Northwest Tennessee. I'm loving being back in Central NY with real rocks and snowfall!!

2005

Rampe, Elizabeth I've been working on the Mars Science Laboratory Curiosity mission since 2011. This past January, I became the Deputy Principal Investigator of the CheMin instrument on Curiosity, which is an X-ray diffractometer. I also started a

ALUMNI NEWS

position as a civil servant at NASA JSC in January. This summer, I'm doing field work in Three Sisters, OR and participating in analog planetary exploration missions at Kilbourne Hole, NM and the Florida Keys.

Smith, Hilary Birth of our son (Spouse is Ricardo González, Spanish Language Intern 04-05) Simon River on June 17th 2016 joining Oliver Mateo (5 years old). We also moved to Malaga, Spain in case anyone is in the neighborhood and wants to come check out the local geology.

2006

Eppich, Gary I recently took a leave of absence from my post-graduate school place of employment (Staff Scientist at Lawrence Livermore National Laboratory) to take a position at the International Atomic Energy Agency (IAEA), in the Department of Nuclear Safeguards, in Vienna, Austria. As a mass spectrometry specialist, my main task is to perform isotopic analyses (primarily U and Pu) of environmental samples (usually swipes) collected by IAEA inspectors from nuclear facilities worldwide. The goal of this work is to ensure the international community that nuclear material is kept under safeguards, and to provide an accurate assessment of whether states are fulfilling their "peaceful nuclear use" agreements with the IAEA. These analyses are quite similar to those performed by the geochemical community; hence the hiring of a geochemist such as myself. I'm also responsible for developing new and improved techniques for pushing the lower limit on the quantities of nuclear material we can accurately and precisely measure. It's been an incredible experience; both in terms of contributing to the mission of an

agency I strongly believe in (primarily nuclear nonproliferation, and the peaceful use of nuclear technology); as well as being able to live and work in the beautiful city of Vienna!

Gregory, Gavin Working as Sr. Manager, E-Commerce Supply Chain at Newell Brands

King, Marylynn I graduated from PT school in Portland, OR in June 2016 and moved to Seattle to complete a 1-year residency to specialize in Neurologic Physical Therapy. I've enjoyed living in the Pacific NW and looking forward to exploring the North Cascades this summer.

Kinsman, Nicole After 5 years of working as a coastal geologist with the State of Alaska I packed up my house at the end of 2015 and rolled south on the Parks Highway to a new job with NOAA in Anchorage, AK. I'm still trying to decide how I feel about big city living, but the upshot is certainly more visitors so don't hesitate to get in touch as I always enjoy meeting up with fellow Colgate geoscientists.

2007

Carter, Russell Happily working for ConocoPhillips in Alaska since June of '15 and spending my free time exploring the geological oddities of Alaska from the Kobuk sand dunes to the Valley of Ten Thousand Smokes.

2008

White, Brian (M'Bri) Hi Jodi! - That's all I got, everything is great.

2010

Marshall (McDonald) Nicole Gary Marshall (2011) & I were married on September 4, 2016 in Cranbrook, BC. We are living in Calgary, AB along with fellow Colgate Geology graduates Samantha Elekes (Hunt)

(2009) and Elin Brown (2009). All of us work in the oil & gas industry.

2012

Crawford, Alex I married Karen Alley ('12) on July 3, 2016 in Hamilton, NY. On May 12, 2017 we both graduated with PhDs from the University of Colorado Boulder in Geology (Karen) and Geography (me). In August we are both joining the Geology Department at the College of Wooster in Wooster Ohio. Finally, we crossed the halfway point this summer in our quest to visit all 59 US national parks at Olympic National Park in Washington.

Schlitzer, Will Currently on my second deployment to the Middle East and enjoying it very much, but excited to return home to OKC, and to hang out with Julian Michaels '11.

2013

Boote, Susie I will be defending my dissertation in August, 2017 and I am excited to be starting a Geologist position at ExxonMobil in Houston, Texas this fall.

Portela, Casey I passed the ASBOG exam and am a licensed geologist in North Carolina.

Spencer, Staley Just finished my first year here in Albuquerque. This spring semester has been particularly jam-packed with proposal writing and defense, comps, and a few other course related research projects. Everything has been fruitful so far! I've learned a ton and have made some really good friends in my department too. I'm also very happy with my advisor, Dr. Peter Fawcett. I'm studying a ~72m sediment core from Stoneman Lake, a small closed-basin lake in Central Arizona on the edge of the Mogollon Rim (~7000'). The main goal is to characterize southwestern climate

ALUMNI NEWS

diversity at interglacial-glacial to millennial timescales. I'm especially interested in looking at interglacials like the Holocene to potentially demonstrate the magnitude of anthropogenic climate change. I'm funded over the summer which is nice; now that I've completed the bulk of my course work, I can finally bear down on my research! Other than research this summer, I'll be a TA for field camp later this month (White Mesa area near San Ysidro, NM and Huerfano Mtns. in S. CO)

and will be attending Drilling and Coring Summer Institute at LacCore at UMN, Twin Cities.

2014

Shah, Anay Geologist at AECOM

2015

Godbout, Jennifer Later this summer, I will be moving back to New York State to start medical school at the University of Rochester School of Medicine.

Holzman, Emily Working at Loureiro Engineering & Associates at their main office in Plainville, CT. Worked part-time while completing by GIS finishing my GIS graduate certificate this past fall. I transitioned into full-time employment in January of 2017.

2016

Katz, Sarah Working in the Geology Department at Union College as a Lab Technician.

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You may have noticed the new look of the newsletter. We hope you like the changes! Regardless, we would love to hear your thoughts, comments and suggestions. This newsletter was prepared by Jodi McNamara, Administrative Assistant to the Geology Department and Science Outreach Coordinator. Please send all comments/suggestions to her at jmcmamara@colgate.edu. Looking forward to hearing from you!