



SMITH COLLEGE

Department of Geosciences Newsletter

May 2017



Greetings from the Chair: Bosiljka Glumac

Greetings! I hope this Newsletter finds you well and that you will enjoy reading it. Thanks to all of you who contributed, and especially to our Departmental administrative assistant Donna Kortess for putting it all together.

This year I started my 2-year rotation as the Department Chair. And what a year it has been! The Department is undergoing a required self-study as part of our 5-year midterm review, which provides an opportunity to review and plan our curriculum and staffing. As part of this process and as the Department Chair I had the privilege of organizing and hosting in March 2017 a very informative Five College Symposium on "Mineral Resources for a Sustainable Future"

that focused on the status, challenges and opportunities in the field of mineral resource exploration. The event included a Keynote Lecture by Larry Meinert (former Smith Professor in Residence and Acting Deputy Associate Director - Energy and Mineral Resources, United States Geological Survey), and invited lectures by Allyson K. Anderson Book (Executive Director, American Geosciences Institute), John F.H. Thompson (Wold Family Professor of Environmental Balance for Human Sustainability, Cornell University and Principal, PetraScience Consultants), Jessica E. Kogel (Associate Director for Mining, National Institute for Occupational Safety and Health), and M. Stephen Enders (Professor and Interim Department Head, Geology and Geological Engineering, Colorado School of Mines). Included in the Newsletter are many other examples of extraordinary

opportunities and that our knowledge-thirsty and action-packed GEO-community of students, staff and faculty works hard to create and be a part of. Here I would like to highlight just a couple of special accomplishments and offer congratulatory remarks to my remarkable colleagues.

First of all, congratulations to our structural geologist Jack Lovell for earning tenure and promotion to Associate Professor this year! Jack's record of research, teaching and service is impressive and we are thrilled to have him as a tenured member of our community. I would also like to congratulate Mark Brandriss, our Senior Lecturer, on winning this year's Sherrerd Award for Excellence in Teaching. Thank you all who nominated Mark for his great honor. He joins previous recipients GEO Profs. Bob Burger, John Brady and Sara Pruss. Congratulations once again. We are also very happy that our Departmental Technical Assistant Mike Vollinger successfully defended his Master's thesis in volcanology at UMass this Spring. We expect that Mike will finish the revisions and formatting of his thesis document in time for August graduation. Good luck Mike with this final stretch! Congratulations are also in order to Donna Kortez for winning one of this year's Spotlight Awards, which recognize staff members' exceptional contributions that go beyond the everyday scope of their responsibilities. This year, going beyond the scope of their everyday responsibilities were also GEO Profs. Amy Rhodes and Bob Newton who took on directing the Smith College Environmental Science and Policy Program, and the Center for the Environment, Ecological Design and Sustainability (CEEDS), respectively. I would also like to congratulate Sara Pruss on the Geobiology Society inaugural Terry J. Beveridge Award for significant professional achievements, and to thank Luke Faggetter, a PhD student from the University of Leeds, UK, who joined us this semester to teach Oceanography and help manage Sara's research lab while she is on a well-deserved sabbatical leave. John Brady will be taking a

sabbatical leave next year, after which he will return to teach for one more year before retiring. With all of his research, teaching and personal projects, John always has a lot going on and we wish him an enjoyable and productive leave.

On a personal note, my last academic year ended with a research trip to the Yucatan peninsula in Mexico where Sydney Reyes Beattie '19 and I worked in collaboration with archaeologists from SUNY Albany. In June I spent 4 weeks in Italy as a Smith College Affiliated Fellow at the American Academy in Rome, followed by a couple of weeks in Croatia where I continue to collaborate with local geoscientists.

In the Fall I was teaching my Sedimentary Geology class and with Mike Vollinger's help I oversaw the move of the Sed Models lab across the hallway in Burton basement to open up some new teaching spaces in response to reorganization related to Neilson Library renovations. In January I traveled to Exuma islands in the Bahamas with my Carbonate Sedimentology students. In the Bahamas I enjoyed the company of Geo Prof. Emeritus Al Curran who actively continues to travel and do research, and my friend and colleague from the University of Zagreb, Croatia, Prof. Blanka Cvetko Tešović. Besides welcoming Blanka back to Smith, this Spring I was also hosting Lorenzo Chemeri who is an undergraduate student from the University of Florence in Italy. For three weeks Lorenzo sat in on my Carbonate Sedimentology class and assisted students working on projects dealing with various aspects of sedimentation and diagenesis of carbonate strata in the Bahamas, including the impact of October 2016 Hurricane Matthew.

On a family front, Alex (13.5) is now a 7th grader at JFK Middle School and is crazy about soccer and ultimate Frisbee. Yelena (11.5) is in 5th grade at Smith Campus School and continues to love dancing and gymnastics. My spouse Tony Caldanaro (structural geologist by training) keeps busy directing the Science Center computing support group. My work and family obligations leave very little time for other hobbies, but last November I enjoyed finishing my second 26.2 race – the world's largest New York City marathon – and I am currently registered for my 3rd one in Chicago this October, as well as for my first "ultra" this May in Maine: 50K in celebration of my 50th birthday!



Bosiljka Glumac in a marble quarry in Carrara, Italy, during her Summer 2016 Smith College Affiliated Fellowship at the American Academy in Rome.



Bosiljka Glumac visiting one of the Villas of Oplontis near Pompeii, Italy, during her Summer 2016 Smith College Affiliated Fellowship at the American Academy in Rome.

Faculty Updates



On the Rocks: 2017 Smith College Geosciences Faculty (L to R) - John Brady, Bosiljka Glumac, Amy Rhodes, Jack Loveless, Bob Newton, Mark Brandriss .

John Brady

The best part about a teaching job at a liberal arts college is the students – new ones each year to get to know and learn from, old ones who move on to interesting lives after Smith. Smith attracts great students who work hard, ask good questions, and keep my job interesting. I continue to revise my classes to make the hard parts easier and the easy parts more fun. Sometimes the changes make a class better. Sometimes they do not. This fall in Mineralogy I tried a number of new things, including the addition of FTIR and Raman spectroscopy to identify and characterize minerals. The FTIR worked quite well; the Raman did not. We 3D-printed models of crystal blocks and crystal structures with great results. We tried faceting crystals and are still working on that.

My principal scholarly interest continues to be an online petrology textbook project, which I hope will be ready for beta-testing in another year. With the help of students and staff at Smith, I am designing website that, like your favorite online retailers, will keep track of what a student reads and her answers to questions. I hope to create software that uses that information to tailor website responses that will increase learning and reward students for their efforts.

Life outside of Smith is filled with family, especially grandchildren Max (in Alaska) and Lila (in Whately, MA), both 4. I like to think that my tennis game is improving, but I am certain that my love of opera has reached new highs. Nancy and I have planned a trip to Wyoming and Montana with friends to see the total solar eclipse on 21 August, and then to visit some familiar outcrops. Thanks to all for keeping in touch with the Smith Geoscience Department. We miss you and want to know what you are doing.

Mark Brandriss

The past year has been full of rewarding geoscience experiences that reminded me how great it is to teach at Smith. Student demand has grown for our popular introductory field course, “Exploring the Local Geologic Landscape”, so last fall we hired a grad student from the University of Massachusetts, Raquel Bryant, to teach two of our three sections while I taught the third. Raquel completed her own undergraduate degree at Brown just a year ago, and her fresh outlook and dynamic personality inspired her enthusiastic groups of students as they toured the valley from Mt. Tom all the way up to Sunderland. It was a pleasure to work with her and I’m glad to say she’ll be returning to teach again this fall.

Another highlight was traveling with a Smith contingent of six students on a Five College field trip to Arizona last January. The trip was organized by UMass professor Sheila Seaman, who felt that we needed a Five College Geology trip to enliven winter break. She was right. So the two of us, along with UMass professor Mike Williams, took a group of 28 students on a geologic tour along the entire length (height?) of Arizona, from the old copper-mining town of Bisbee on the Mexican border in the south to Monument Valley on the Utah border in the north. It was a great experience and we all saw plenty of things we’d never seen before, including a blizzard in the Grand Canyon.

In personal news, my wife Rónadh Cox continues to teach and serve as Chair of the Geology Department at Williams College. If you Google “Cox Aran Islands” you can read many news stories about her research on giant boulders moved by the storm waves that regularly pound these islands along the west coast of Ireland. Her work has been reported in Forbes magazine, NBC News online, and many other media outlets, and she was even featured in a 5-minute segment of Irish national television’s 3-part series on Ireland’s scenic Atlantic coastline, “Creedon’s Wild Atlantic Way”. Meanwhile our son Owen is a junior at Mt. Greylock high school, enjoying his time on the cross-country, wrestling and track teams, and even enjoying his AP physics class, which has the virtue of being difficult enough to compel him and his friends to hold hours-long homework sessions in the Williams College library. Good practice for college!



Mark Brandriss (Smith Geosciences Senior Lecturer and winner of the 2017 Sherrerd Award for Excellence in Teaching) moderating a panel discussion at the close of the Mineral Resources for a Sustainable Future Symposium at Smith College in March 2017. Panelists (L to R): Allyson K. Anderson Book, M. Stephen Enders, Larry Meinert, Jessica E. Kogel and John F.H. Thompson. For more information please see the Department Chair's column.

Al Curran

Retirement continues to agree with me as I pursue my research interests in ichnology (the study of trace fossils), coral reefs – both fossil and modern, and Quaternary carbonates of the Bahamas. My report this year will be shorter than usual because tomorrow (April 25), I am leaving for Taiwan to attend a trace fossils workshop meeting at the National University in Taipei, including associated field trips around the island. My presentations are ready, but I still have packing to do, and we have an early morning departure (yikes....!).

This past winter, we again spent three weeks in the Bahamas doing fieldwork, including investigating the effects of Hurricane Matthew (Oct. 2016) on a coastline area of Little Exuma with Prof. Bosiljka Glumac and her Geo 334 class on carbonates geology. We had a productive and enjoyable time and got good field data and samples that Bosiljka's class has been working with throughout the spring semester – results were presented at the annual all-campus Collaborations event this past weekend.

Following Exuma, Bosiljka, Jane, and I, along with several students, moved on to San Salvador where we continued our cooperative research with a group from Temple University. All went well on San Sal, and we followed up with six weeks of R&R in Florida, at Crescent Beach just south of St. Augustine.

I am again going this June to Belize with the Smith Coral Reef Ed-Ventures team and its leaders, Professors David Smith and Denise Lello. My role is as the team's all-purposes assistant. The rest of the summer will be split between Cape Cod (daughter and family), western Mass, and a family trip out west to Yellowstone National Park.

I will be back from Taiwan in time to attend our Smith geo-alums graduation weekend reception this year, and I look forward to seeing some of you there. If you don't make it to reunion, then be sure to drop by the Geo Department on your next visit to the Smith campus. The department has a lot going on, and the labs are open. I'm located in the subterranean habitat of Burton B-11, and if I am in, I will be very glad to see you.



In August 2016, Al Curran bagged his 50th state with a visit to Southeast Alaska.

Luke Faggetter

Where has the time gone?! Teaching GEO108 (Introductory Oceanography) has been thoroughly enjoyable and I am privileged to have been a part of, albeit for a short time, the wider Smith Geo community. Now that the semester is finished and teaching, lab meetings and visitor seminars are over, I am left feeling that I will miss the Smithies I have gotten to know, you are a great bunch! I would like to thank the Geoscience Department for welcoming me into their faculty, for entrusting me with their students and for their support throughout the semester. Speaking more broadly, it has been a pleasure teaching Smith students. They have been engaging, insightful and personable at every turn, even when faced with choppy seas and stormy skies on our Oceans cruise there were no complaints to be heard. The Smith College teaching ethos will stick with me and I thank those who have given me feedback throughout the semester. Outside of teaching I have also managed to

progress some research that Sara Pruss and I have been working on collaboratively, our paper was published in April which was a great way to tie up work we had been conducting in the Western USA on Cambrian geology.

As a Brit, New England has a familiar charm to it; the rolling topography, woodlands and of course the rain (no Brit can go without mentioning the weather...) has made me feel at home in a foreign country. I would even go so far as to say I felt like a somewhat reconstructed New Englander, a feeling that was cemented when I bought my first pair of snow boots! I have been lucky enough to explore a small corner of the area, heading west to the Catskills and east to the Long Island Sound, but also taking in some local scenery in the Pioneer Valley; I'm sure I will be back at some point in the future and I would love to see more. For now, I will leave you with a photo of my students happily investigating our trawl from the Thames estuary. Thank you Smith College Geo Dept!



Jack Loveless

This marks the end of my sixth year at Smith, and I'm excited to share that I will spend many more years here, as I've been promoted to associate professor with tenure. I feel so lucky to have ended up in this department, surrounded by talented and inspirational students and colleagues, and I'm thrilled to continue working with everyone!

I've continued several research projects on active subduction zones, publishing papers about the 2014 Pisagua (Chile) earthquake, Japan, and the Philippines in 2016, as well as being involved in ongoing research in Cascadia. Eli Molitors Bergman '17 completed a fantastic senior thesis identifying and cataloging slow slip events in GPS records of surface motion. Funded by a grant from the USGS Earthquake Hazards Program, Eli will stay in Northampton this summer to prepare their work for submission as a manuscript, and for presentation at the fall AGU

meeting in New Orleans.

Sofia Johnson '19 continued work on a different aspect of the Cascadia subduction zone: numerous faults within the crust, including some that are directly beneath Seattle. We are examining how these faults respond to stresses induced by the underlying subduction zone, and the possibility that the subduction zone may respond to activity on these smaller structures. Sofia will also spend this summer on campus as a Summer Undergraduate Research Fellow, examining more closely the nature of stress accumulation in this region.

Juliette Saux '20, a STRIDE scholar, and Oliv Young '20, an AEMES scholar, joined the lab this year and compiled a global map of subduction zone earthquake slip dating back to the mid-20th century. They used published models of earthquake slip and then projected those models onto a global representation of subduction zone geometry. This work complements ongoing research with colleagues at Harvard to develop a picture of stress accumulation around the world based on GPS surface motion.

Molly Kover '17, Marlo Stein '17, and Naomi Jahan '18 brought research they started elsewhere back to Smith, each carrying out special studies this year. Molly participated in a Keck Geology Consortium project in summer 2016 and spent this year analyzing patterns of deformation in a schist body within the Salinian Arc of central California. Marlo's interest in tsunami preparedness was piqued during a visit to the Oregon coastline as part of the Williams-Mystic Program. She spent this year doing some fascinating GIS-based analyses of tsunami evacuation plans for the community of Seaside, Oregon, and has been in contact with county officials about these findings. Naomi returned from a summer internship with the Southern California Earthquake Center with a new GPS dataset that allowed more detailed examination of the role that various fault strands play in accommodating Pacific-North America plate motion in the San Bernardino mountains.

Natural Disasters, GIS, and Structural Geology were all fun classes to teach, as usual. The GIS students again worked with local conservation-minded non-profits — Mass Audubon, Kestrel Land Trust, and Franklin Land Trust — carrying out group research on those organizations' behalf. It was again wonderful to see the students so engaged in their work, carrying out data analysis and mapping of floodplain forests along the Mill River, the Forever Farmland initiative throughout the valley, food deserts in Chicopee, trail maintenance in the Sawmill Hills of Florence, forest re-growth in Williamsburg, and the history of land conservation by the Franklin Land Trust.

On a personal note, my family and I continue to enjoy life in Northampton. My wife, Claire, started a new job as a

reference and distance learning librarian at Greenfield Community College. Our daughters Simona (6) and Annelise (3) both love the new schools they joined this year, Simona in kindergarten at Bridge Street School and Annelise at Smith's Fort Hill preschool

Robert Newton

I am late with my newsletter contribution as usual but just returned this morning from the People's Climate March in Washington. As Director of CEEDS, I was able to arrange to rent a large bus so that we could take about 50 students and faculty to the March. It was a 24hour marathon trip leaving at 1am Saturday morning and returning just after 1am today. An amazing experience! But wish it wasn't necessary. It was great to see a large contingent of passionate students (including geoscience majors, Meg Kikkeri, Abby Lown, and Emma Harnisch) willing to give up the time at the end of the semester to participate in this important political statement. I had also planned to do the Science March in Boston last week but daughter Molly broke 2 bones in her foot during a cross-fit workout so Jill and I had to make a weekend trip to Maine to help her out. Her broken foot means she can't drive her car nor take her dog on walks, so we now have an additional dog (yes, another golden retriever) to add to our other two.

This has been a busy year with my work at CEEDS together with working as a member of the Smith College Study Group on Climate Change, and as the chair of the local organizing committee for the International Conference on Mercury as a Global Pollutant to be held in Providence this July.

I have also been immersed in a number of research projects including; the Paradise Pond Sediment Sluicing Project, the Mandelle Permeable Pavement Experiment, a study of environmental contamination from an old abandoned lead mine in New Hampshire, and a survey of water quality issues in the Ossipee Aquifer in New Hampshire.



A bulldozer moving sediment for redistribution in Paradise Pond. Approximately 600 cubic yards of sediment was moved to in front of the dam, ready for sluicing.

SURF students, Lizzie Sturtevant '18 and Sally Cartter '18 worked on the pond project this past summer together with assistance from Emma Harnisch (2018). We did our first sediment distribution in July during a partial pond drawdown when we moved about 600 cubic yards of sediment using a bulldozer to push sediment into the river flowing through the pond bottom and allowing it to move the sediment down to the residual pond in front of the dam. We used a drone to collect aerial photos both before and after the redistribution and then did precision photogrammetry to create digital elevation models that could be subtracted to determine exactly how much sediment was moved. Alas, we did have a drone "incident" that ended with the drone in the top of an 110ft high pine tree near the President's house. But thanks to tree climbing ability of Chief Arborist, John Berryhill, the drone was recovered unharmed with all its data intact! Unfortunately, last summer's drought did not allow for the removal of the redistributed sediment as we did not have high enough stream flow to support sluicing. However, Lyn Watts '17 devoted her honors thesis to developing a sediment transport model (MIKE21) to simulate sluicing events in Paradise Pond and her results suggest that sluicing will work provided we get enough sediment in front of the dam. The plan to sluice more sediment this summer will likely be delayed, as the Army Corps of Engineers is requiring more extensive permitting due to concerns that sediment released from the pond could clog the downstream flood control diversion channel.



Sally Cartter '18 surveying the bottom of the pond during July of 2016.

Last spring we completed the installation of a permeable pavement laboratory in the Mandelle parking lot (12 spaces). Half the lot is covered with standard asphalt pavement while the other half is paved with permeable asphalt. We have installed lysimeters and a well in the permeable side and we measure and collect runoff from the impermeable side. This past year, CEEDS intern Molly Day '19 has helped in collecting water level data together with water samples

for chemical analyses. Initial results show that the permeable side is able to successfully infiltrate water into the groundwater system under virtually all hydrologic conditions, although water is briefly stored in the subpavement reservoir during the spring melt. Water quality is generally better than that observed in the surrounding groundwater except when road salt is applied to the parking lot. The data from this project is being made available to students to use for course based research projects using an on-line database.



Emma Harnisch '18 aboard Research Vessel Silty with gravity core collected from the bottom of Paradise Pond.

Emma Harnisch '18 is continuing the work on the Cooks Pond/Madison lead mine project. This year's fieldwork was delayed by a family of loons who decided to nest in the river that provides access to the pond (closing the river to boat traffic). This, coupled with a small tornado that temporarily closed the dirt access road, meant that fieldwork didn't get done until October when Emma, Lyn Watts '17, Marc Anderson, Bob Merritt and I finally got to the site. We collected more sediment cores together with fish, aquatic vegetation and water samples from Cooks Pond and a nearby control site (Durgin Pond). We also managed to get samples from the mineshaft using a canoe that we carried to the mine (although someone forgot the canoe paddles). Results from this project are interesting as our initial hypothesis that mercury added to the ecosystem from mining operations would result in higher concentration in fish proved false as the fish at the control site had twice as much mercury as the mine impacted site. Turns out the mineral bound mercury (a variety of sphalerite) from the mine was not as important as the extensive sulfate reducing wetlands that methylated a higher

percentage of the total mercury at the control site. Emma's presentation of her results won a best poster prize at the 32nd Annual International Conference on Soils, Sediments, Water, & Energy for her poster entitled: Heavy Metal Contamination of Bottom Sediments from Mining Operations at Cooks Pond, Madison, New Hampshire. A manuscript for publication will be written this summer.



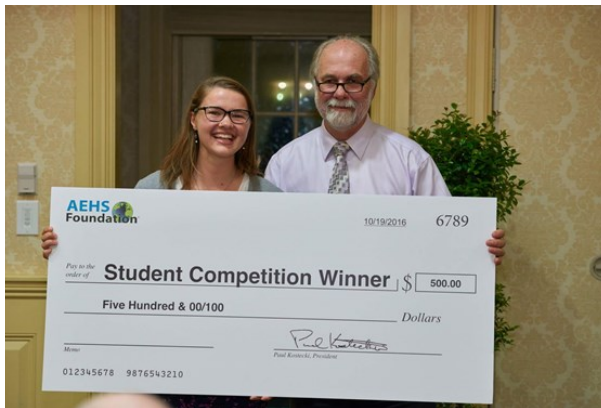
Emma Harnisch '18 and Bob collecting water samples from the flooded shaft of the Madison Lead Mine. Do you see any paddles?

Finally, I have been working with the Green Mountain Conservation Group in Effingham New Hampshire to form an aquifer protection advisory committee to protect the Ossipee Aquifer, one of the largest stratified drift aquifers in New Hampshire. The idea is to model it after the Barnes Aquifer Protection Advisory Committee (BAPAC) that I have been a member of for over 20 years. As a first step, we undertook a survey, sampling of over 70 domestic wells, and with the help of Marc Anderson and Emma Harnisch '18, complete chemical analyses were performed (including heavy metals and VOC's). These results will help determine what best management practices should be adopted for developments on the aquifer.

I look forward to another productive summer and the chance to spend some family time at our house at Silver Lake. Hopefully Molly will be mended and JT will be able to get some time off from his job at Apple. I have some hikes that I want to do based on features that I have identified on the newly released LiDAR DEMs of the Sandwich Range. Hope you are all doing well and that you will stop by if you are in the area or send me a note if you are not.



Lyn Watts '17 seine netting at Durgin Pond in New Hampshire to collect fish for mercury analysis.



Emma Harnisch '18 receiving her best poster award from the Association for Environmental Health and Sciences (AEHS) Foundation.

Sara Pruss

I spent the 2016-17 on a glorious sabbatical that was filled with travel (both personal and professional), friends, family, and writing. This year away from the classroom has been a gift that allowed me to complete some projects, including one that had been simmering for a decade, and start many new ones. I traveled to Scotland, Norway, and the White Inyo Mountains of California on field work. As I mentioned last year, my colleague, Francis Macdonald, and I received a National Geographic Grant to return to Namibia last Fall to continue the work that we started nearly 7 years ago, which was a delightful return trip filled

with rocks, baboons, and giraffe. I also spent a day last summer introducing our STEM Posse II scholars to the wonders of New York State fossils on an all-day field trip. I gave talks at Lafayette College and Yale University this Spring, and spent much of the rest of the spring semester writing up some of my existing projects. While away from teaching in the classroom, I continued mentoring students, and had 10 working in my lab over the course of this year (please see list for students and projects). They had some amazing discoveries and generated enough data to keep me busy for many years to come! Fortunately, Luke Faggetter, a graduate student at the University of Leeds in the U.K., joined my group this Spring. His primary job was to teach Oceanography for the department but he also helped mentor my students in my periodic absences.

In other professional news, I will receive the inaugural Terry J. Beveridge Award for "significant achievements in geobiology" by a mid-career scientist, which will be presented by the Geobiology Society in Banff this June. I am very much looking forward to celebrating with my friends and colleagues and feel so grateful for this recognition.

Personally, my husband and I turned 40 this year, so we celebrated with a party for friends on a Cruise around the marina in Los Angeles last November. We extended this celebration through much of the Fall celebrating with friends and family, and I felt lucky to have the time on sabbatical to plan many enjoyable events. My family welcomed my brother's son, my first nephew, last Fall and I had the time to fly to Pittsburgh to meet him in his first few weeks. My own kids, Annabel (4 y.o.) and Ethan (7 y.o.) are both thriving in their schools and other activities. Ethan is an avid hockey and piano player, and Annabel is learning to ride her bike and swim in the deep end. Ethan returned to the White Inyos with me last summer, and camped at 8000 feet. He spent some days in the field with me and the rest of the time fishing and hiking with his grandparents. My husband, David, joined me on my field work trip to Norway last summer, which was our first big child-free trip since starting our family. We enjoyed that, and traveling with our family to the Cape, California, and New York City this last year. As I said in our last newsletter, all is happy and well in our home and in our families, and we are very grateful for that.



Ethan DeSwert, 6, acting as camp cook in the White-Inyo Mountains, August 2016.



Sara and David DeSwert in Oslo, Norway, June 2016.



Sara on microbial mounds of the Ediacaran Nama Group, southern Namibia, September 2016.

Amy Rhodes

Hi Everyone,

I hope this newsletter finds you well. It's been another exciting year at Smith! This year, I moved from chairing the geosciences department to directing the Environmental Science and Policy Program (ES&P). Geosciences has maintained strong ties with the ES&P Program, and we see that connection in our classes: larger enrollments in introductory courses and attraction of students to the geo major who have interdisciplinary interests that connect our geoscience curriculum with societal and broad environmental issues.

This year, my GEO301 class (Aqueous Geochemistry) returned to Kampos Bog (Stockbridge, MA) to monitor road salt pollu-

tion within groundwater and peat of this wetland. We also trekked to the historical Davis pyrite mine (Rowe, MA) to see the results of acid mine drainage. Recent college construction near the crew house by Paradise Pond revealed extensive fly ash deposits that were disposed back when Smith heated the campus by burning coal. A small group of GEO301 students analyzed the fly ash materials (by microwave digestion) and discovered that it contained high concentrations of heavy metals, including lead, chromium, copper, nickel, and zinc. The next step will be to see if any of these metals can be detected in the groundwater that interacts with the fly ash.

This March, Smith's released a report by the Study Group on Climate Change (SGCC), which resulted from 18 months of study by faculty, staff, alumnae, trustees, and students. The SGCC was charged by the Board of Trustees to direct Smith's response to climate change, and I co-chaired the effort along with VP Finance Michael Howard. The report provides a comprehensive, blueprint for action that includes Smith's academics, co-curriculum, operational infrastructure, and endowment investments. As a way for the college to become neutral with its greenhouse gas emissions, one recommendation is to move college-wide heating and cooling from natural gas and electricity to ground-source heat exchange. To test the viability of this idea, an exploratory well to test the thermal conductivity of subsurface sediments is scheduled to be drilled this summer. Please check out the full SGCC report online (link: <https://www.smith.edu/climatechange/>) and tell us your questions and feedback!

On the personal front, my daughters Sylvia and Linnea have reached their teenage and pre-teen years, at ages 14 and 10. They, Erik and I look forward to a summer family trip to Rome to check out ancient ruins and take a side trip to Pompeii. Spurred by my 25th reunion last year and an alumnae row organized by Smith crew coach Karen Carpenter Klinger, I began rowing again! I joined a master's rowing team, Northampton Community Rowing, and am so happy to be back on the Connecticut River. I forgot how much fun rowing is, and I have had the opportunity to compete at Master's Nationals and the Head of the Charles regattas. I get to wear a uniform that has the same colors as Smith's blue-and-gold athletic teams, so I feel right at home. Not surprising, several other people on the team are Smith alumnae rowers too. That's all for now. Please feel free to visit next time you are in Northampton.



The Aqueous Geochemistry class survives a trip to Kam-poosa Bog, with peat cores intact! Standing from left to right: Cai Ytsma '18, Katelyn Rainville '18, MHC, Marlo Stein '17, Kate Graham-O'Regan '17 (in very back), Amanda Patsis '17, Amherst College, (in center), Anne Lepow '20, Emma Harnish '18 and TA, and Josie Little '17 (holding snowshoes). Kneeling in front: Casey Hecox '19.



From right to left, Linnea Rhodes (age 9), Sylvia Rhodes (age 13), and Amy visit our Norway "sister" Tale Noer last summer at Glittersjå Fjellgård, western Norway. We love homemade waffles, cream and strawberry jam!

News from the Lab

Mike Vollinger -Technical Assistant



Amy Larson Rhodes is back in the boat on the Connecticut River, with Northampton Masters Community Rowers.



Departmental Technical Assistant Mike Vollinger successfully defended his Master's thesis in volcanology at UMass in April 2017.

tion of an Ethos Up Microwave Digester has enabled the CABR to more safely and efficiently perform elemental analysis of biological tissues, sediments, and soils. The addition of an Elemental CHN analyzer has allowed the CABR to measure carbon, hydrogen, and nitrogen concentrations in plants and soils.

Last summer the CABR facility performed analysis on over 100 ground water samples collected from wells throughout the Ossipee Aquifer in east central New Hampshire. This project was part of an outreach program directed by Smith's Center for the Environment, Ecological Design and Sustainability (CEEDS). The analysis not only included general characterization of the ground water and possible detection of volatile organics (from heating oil spills etc.), but the CABR extended the analysis to include concentrations of both lead and copper. The measurement of lead and copper helped both our students and the NH Green Mountain Conservation Group community better understand the EPA Lead and Copper Rule and the disaster surrounding Flint, Michigan.

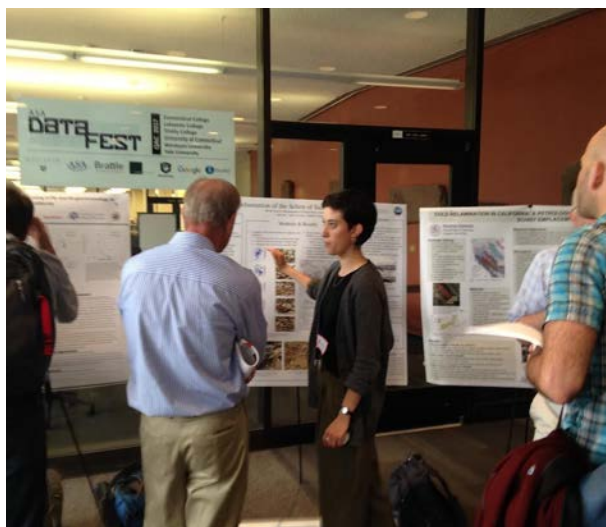
This year we submitted plans for a remodel of the sample preparation room in SR-112. This part of the CABR facility was deferred during the major renovations to Sabin-Reed in 2011. The new plans include reducing the number of, and replacing existing fume hoods with energy efficient models, expanding bench top surface area, and the addition of a 128 sq. ft. soft-walled clean room for sub-ppb sample preparation.

News from the Field

Keck Geology Consortium

In summer 2016, two Smith College Geosciences majors participated in research projects organized by the Keck Geology Consortium, which also includes Amherst College, Beloit College, Carleton College, Colgate University, The College of Wooster, Colorado College, Franklin & Marshall College, Macalester College, Mt. Holyoke College, Oberlin College, Pomona College, Trinity University, Union College, Washington and Lee University, Wesleyan University, and Whitman College. Jack Loveless served as our Keck Faculty Representative this year.

Molly Kover '17 spent two weeks in summer 2016 in central California, examining a schist body within the Salinian Block as part of a project directed by Alan Chapman (Macalester College) and Sarah Brownlee (Wayne State University). She carried out her Keck research at Smith with Jack Loveless. Anny Sainvil did field work in Iceland as part of a volcanology project directed by Andy DeWet of Franklin and Marshall College, then continued GIS-based research back at Smith with Mark Brandriss and Bob Newton. Both students presented their research at the Keck Geology Symposium held at Wesleyan University.



Molly Kover '17 explaining her poster at the Keck Geology Symposium.



Molly Kover '17 (third from right) in the field during her Keck project in the Sierra de Salinas, California.



Anny Sainvil '17 collecting observations of volcanic morphologies at Laki, Iceland. She used these observations to support digital terrain models to understand the distribution of these features for her special studies with the Keck Geology Tephra Project.

Junior Year Abroad

Becca Matecha '18—Frontiers Abroad—New Zealand

Traveling to New Zealand for study abroad was one of the best decisions I have made (second only to choosing Smith). I spent six weeks in the field with 23 other geology students from various college's around the US. During this time I was pushed to and past my limits; I climbed more mountains than I can count, clambered across mini waterfalls, learned how to cross a waist deep river with a partner, climbed a volcano, took part in a volcanic eruption simulation, and grew more than I ever thought possible. I learned an amazing amount in a very short time and made friends that I hope I will have years from now.

Once we started classes I embarked on my first geology research endeavor. I am working closely with one of the instructors from field camp using 3D seismic data and the program Kingdom to map architectural elements in buried submarine Miocene stratovolcanos in Taranaki Basin, off the west coast of the north island of New Zealand. Along with this exciting research I am taking a class on geohazards, a class on Maori culture, a class on New Zealand politics, and a course designed to promote geology research skills in the field. All of these courses are a unique experience I wouldn't have been able to experience at Smith. This trip has helped me grow into a more confident and capable person and I am so grateful that I was given this opportunity .



Becca Matecha '18 climbing a hogback during our field mapping module in Cass, South Island of New Zealand.

Casey Armanetti '18—Frontiers Abroad—New Zealand

We have been thoroughly enjoying our time with the Frontiers Abroad Geology of New Zealand program. The year began with a 5-week field camp consisting of themed modules in which we learned about the diverse and dynamic geologic history of various regions throughout both islands. Intensive

days in the field with faculty from the University of Canterbury and students from universities around the US taught us about field mapping techniques, metamorphic core complexes on the West Coast of the South Island, the volcanology of Tongariro National Park and the Taupo Volcanic Zone, and the rich cultural and geologic history of Banks Peninsula.

Throughout the rest of the semester, we have been working on independent research projects with our mentors at UC Christchurch. I (Casey) am studying ways to better understand the volcanic and loessic spring system of Banks Peninsula, involving GIS work to map the springs using infrared imagery, and a qualitative analysis of drinking water security with regards to the interaction between livestock and spring water. Sally is working with the developing Paihere Geopark on Banks Peninsula to make ecotourism accessible to visitors of all abilities.



Frontiers Abroad students catching their breath and admiring the view after a hike.



Sally Carttar '18 and Casey Armanetti '18 enjoying the glacial landscape in Wanaka, NZ.



Anny Sainvil '17 and Nathaly Alvarez '17 taking a day off from fieldwork and exploring the caves of the west coast of New Zealand.



Anny Sainvil '17 and Nathaly Alvarez '17 mapping 13 mile beach during field camp in New Zealand with Frontiers abroad.



Digging mass balance pits to measure winter mass balance on Bogerbreen Glacier for a term project at UNIS in Svalbard.



Molly Peek '18 exploring an ice cave in Lars-breen glacier in Svalbard.

Molly Peak '18—Iceland and Svalbard

For my junior year abroad, I took my fall semester in Iceland, studying climate change in the arctic. I was able to live and study in volcanic and periglacial landscapes, and see the effects of modern climate change on the local area, and the arctic as a whole. I focused my independent work on studying the sustainability and security of food in arctic nations, and its future in the face of global climate change. This spring, I went in search of more snow and spent the semester studying Arctic Geology at the University Centre in Svalbard. Here I studied sedimentology and tectonics in the Barents Sea, focusing on the unique sedimentary history that is preserved in the stratigraphy of Svalbard. My other focus this semester was the geology of local glacial and periglacial landscapes, performing field work on glaciers and permafrost features in the area.

Other Departmental News

The GeoStars and Schalk Funds -

Great Ways to Support Geosciences at Smith College

Thank you once again to all contributors to the GeoStars and Schalk Endowed Funds (Smith Fund 544399 and 544847, respectively)! Your contributions are added to the endowment. Income from the funds is used to support a range of geo-activity extras that require funding beyond what our always-tight departmental budget will allow. These funds support field-based education and research experiences for students, professional development for students at conferences, and opportunities for alumnae, students, and faculty to interact.

This year the funds from GeoStars helped with students'

travel to the GSA Meeting in Denver, Colorado in September 2016 and the NE GSA Meeting in Pittsburgh, PA in March 2017. This fund also helped support the GSA Alumnae Reception and the Departmental Luncheon Lecture Series.

The Schalk fund, established in memory of Professor Marshall Schalk, is used primarily to support students attending field camps and conducting geological field research. This year the fund helped support Prof. Bosiljka Glumac's Carbonate Sedimentology (GEO 334) course January 2017 research trip to Exuma islands in the Bahamas. The fund also supported Smith students participating in the Five College field trip to Arizona in January 2017, and helped the following students gain field experience in these amazing places: Sofia Johnson '19 and Ziqiu Zhang '19 – Hawaii; Jessica Chang '17 – YBRA field camp; Naomi Jahan '18 – Italy; and Rhiannon Nolan '19 – Death Valley.

Five College Geology Collaboration

Smith Geosciences continue to actively engage in the Five College Collaboration. Our contribution to the Five College Geology Lecture Series this year was the talk "From soil to paleosol: The challenges of interpreting paleoclimate, paleolandscape reconstruction, and paleoatmospheric chemistry in deep time" by Dr. Steve Driese from Baylor University, hosted by Bosiljka Glumac. Mark Brandriss was our speaker at the Five College Faculty Symposium this year, and Bosiljka Glumac's Carbonate Sedimentology (GEO 334) students presented posters at the 38th Annual Five College Undergraduate Research Symposium at Amherst College.

Mark Brandriss helped UMass professor Sheila Seaman lead the Five College field trip to Arizona in January 2017. The trip explored the Chiricahua Caldera Complex, the Catalina metamorphic core complex, the Bisbee copper mine, Meteor Crater, and the great sedimentary sequences of the Grand Canyon and Monument Valley. Smith College students Meg Kikkeri '19, Marlo Stein '17, Molly Kover '17, Olivia Leadbetter '19, Claudia Deeg '17 and Naomi Jahan '18 participated in the trip.

In March 2017 Smith hosted the Five College Geology Symposium that focused on the status, challenges and opportunities in the field of mineral resource exploration. The event featured a Keynote Lecture on "Mineral Resources for a Sustainable Future" by Larry Meinert (former Smith Professor in Residence and Acting Deputy Associate Director - Energy and Mineral Resources, United States Geological Survey), and invited lectures on "Extractive Industries: Nexus of Everything?" by Allyson K. Anderson Book (Executive Director, American Geosciences Institute), "Changing World - Changing Exploration" by John F.H. Thompson (Wold Family Professor of Environmental Balance for Human Sustainability, Cornell University and Principal, PetraScience Consultants), "Mining's Contribution to Sustainable Development" by Jessica E. Kogel (Associate Director for Mining, National Institute for Occupational Safety and Health), and "Preparing the Future Generations of Explorers for Success at Discovery" by M. Stephen Enders (Professor and

Interim Department Head, Geology and Geological Engineering, Colorado School of Mines).

The Five College Geology Consortium adopted one of the EarthScope grid array seismometers and installed it at the Smith College's MacLeish Field Station in Whately, MA. EarthScope (www.earthscope.org) is a project for deep geoscientific exploration of the entire North American continent, funded by the National Science Foundation. The seismometer continuously senses, records, and transmits ground motions from a wide range of seismic sources, including local and distant earthquakes, volcanic eruptions, and other natural and human-induced activities. The output of this monitoring can be viewed live on the web at <http://ds.iris.edu/ds/nodes/dmc/tools/stationmonitor/TA/L61B/>.

Other examples of our collaborative efforts include: Smith Oceanography class going on a research cruise that was partially funded by The Five College Coastal and Marine Sciences Program; Emma Harnisch '18 and Smith Prof. Bob Newton using the core processing lab and the ITRAX core scanner at UMass as part of a study on contamination of several New Hampshire lakes from an old abandoned lead-zinc mine; and Smith Prof. Sara Pruss and students Claudia Deeg '17 and Brenna Getzin '18 collaborating and co-authoring an AGU abstract on K-T foraminifera with UMass Prof. Mark Leckie. Smith Prof. John Brady continued research collaborations with: Profs. Tekla Harms and Jack Cheney of Amherst College on rocks from Montana and Greece; Tony Morse of UMass on igneous petrology experiments; and Prof. Darby Dyar of Mount Holyoke on using FTIR and Raman spectroscopy in the classroom. Smith Geosciences equipment and facilities are also shared by other Five College users. One example includes the use of the X-ray diffractometer at Smith by a UMass research associate Eli Sklute.



Smith students visiting the Queen Mine in the old Bisbee copper mining district, on the Five College Geology trip to Arizona in January 2017. Left to right: Meg Kikkeri, Marlo Stein, Molly Kover, Olivia Leadbetter, Claudia Deeg, Naomi Jahan.



Smith students in Monument Valley on the Five College Geology trip to Arizona, January 2017. Left to right: Mark Brandriss, Olivia Leadbetter, Molly Kover, Meg Kikkeri, Marlo Stein, Claudia Deeg, Naomi Jahan.

Geosciences Luncheon Lecture Series

The Department continues to organize a lively luncheon series, partially funded by the GeoStars Fund. Amy Rhodes organized the series in the Fall 2016, and Mark Brandriss was the host in the Spring 2017.

The year started with our students sharing their “Summer GEO Adventures” and with a visit by Max Borella from Frontiers Abroad New Zealand. Other guest lecturers included: Laurie Brown from UMass who spoke about the records of magnetic field reversals from the Chilean Andes; Gary Robbins from UConn who told us about water systems of Rome, Italy; and Alex Sessions from Caltech who shared his expertise about the role of sulfur in the organic carbon cycle. Smith Prof. Jack Loveless gave a lecture about a geologic record of subduction zone earthquakes in Northern Chile, and the Fall semester ended with updates from GEO senior thesis students.

The Spring semester series started with a lecture by Luke Faggetter on Cambrian carbon cycle perturbation, extinction and massive volcanism. Luke is a PhD student from the University of Leeds, UK, who was teaching Spring 2017 Oceanography at Smith. Other featured guest lecturers included: a research scientist from UMass, Ambarish Karmalkar, who spoke about climate models; James Witts from the American Museum of Natural History speaking about the Cretaceous–Paleogene mass extinction event and recovery in Antarctica; and Emmy Smith from the Smithsonian Institution and Johns Hopkins University on calibrating the Cambrian-Precambrian transition with insights from the Southwest U.S.A. This semester we also had in-class (Carbonate Sedimentology and Aqueous Geochemistry) guest lectures open to the public by: Lisa Park Boush from UConn on a long-term climate and hurri-

cane record from the Bahamas; Blanka Cvetko Tešović from the University of Zagreb, Croatia, on geological evolution of the Adriatic-Dinaridic Carbonate Platform; and our Five College lecturer Steve Driese from Baylor University about geochemistry of ancient soil horizons. The series also featured our Smith Prof. Bob Newton’s lecture on LiDAR: a revolutionary tool for landscape analysis, and ended with Raquel Bryant’s lecture about paleoceanographic implications of global climate change in the Western Interior Seaway. Raquel is a UMass graduate student who taught two sections of GEO 102 field course at Smith last Fall and who will be helping us again this Fall. Thanks Raquel, thank you to all other presenters and series organizers, and especially to Mike Vollinger and Donna Kortess for arranging the food!

GEO Contributions to the Smith College Sigma Xi Chapter

Smith College has a very active local chapter of Sigma Xi: The Scientific Research Honor Society. The chapter organizes and sponsors a popular luncheon lecture series that features a range of research talks by Smith College and visiting scientists, and attracts a large number of faculty, staff, and students to McConnell Hall every Tuesday.

Among this year’s Sigma Xi speakers were GEO Profs. Bosiljka Glumac who talked about “Travertine Limestone Weathering, Tiber River Flooding, and Contemporary “Reverse Graffiti” Art in Rome, Italy,” and Bob Newton who with Emma Harnisch ’18 presented their research on “Sources of Mercury in Fresh Water Fish from East-Central New Hampshire.”

Our Senior Lecturer Mark Brandriss has been serving on the Sigma Xi admission committee and GEO Seniors Anny Sainvil ’17 and Marlo Stein ’17 were admitted into the Society this year. Congratulations!

Smith College GEO Club

Greetings from the Geo Club! We had a great year including an excursion to Mike’s Maze in Sunderland, a Halloween party and costume contest, a Mountain Day hike on Mt. Norwottuck, a Valentine’s Day party and pun competition, as well as multiple movie nights and informal gatherings. In addition, we designed and organized new departmental apparel and swag! We are excited for the club to continue next year under our new presidents, Emma Harnisch ’18, Meg Kikkeri ’19, and Casey Hecox ’19.



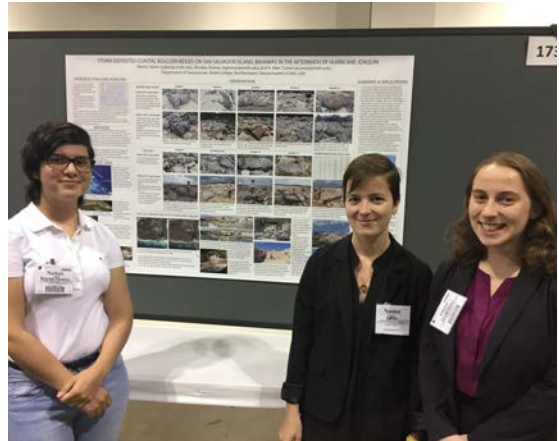
Emma Roth '17 and Claudia Deeg '17 after winning the Halloween costume contest as Alluvial Fans.



Geo Club members after successfully navigating Mike's Maze.



Alyssa Graveline '19 and Tessa Browne '17 modeling the new Geo swag.



Nathaly Reyna Alvarez '17, Naomi Jahan '18, and Eliana Perlmutter Nathaly '16 at GSA Denver, Fall 2016.



Reception at 2016 GSA Denver. L to R: Nathaly Reyna Alvarez, Carol deWet, Bosiljka Glumac, Priscilla Strain, Heather Petkovic, Eliana Perlmutter, Shawn Moore, Alianora Walker, Jen Axler, John Brady.

Student/Faculty Publications

(*denotes student authors)

Brčić, V., Glumac, B., Fuček, L., Grizelj, A., Horvat, M., Posilović, H., and Mišur, I., 2017, The Cenomanian–Turonian boundary in the northwestern part of the Adriatic Carbonate Platform (Čičarija Mtn., Istria, Croatia): Characteristics and implications: Facies. DOI: 10.1007/s10347-017-0499-7

Buynevich, I.V., Savarese, M., Curran, H.A., Bitinas, A., Glumac, B., Pupienis, D., Kopczinski, K.A., Dobrotin, N., Gnivecki, P.L., Park Boush, L.E., and Damuštý, A., 2017, Sand incursion into temperate (Lithuania) and tropical (the Bahamas) maritime vegetation: Georadar visualization of target-rich aeolian lithosomes: Estuarine, Coastal, and Shelf Science. doi: 10.1016/j.ecss.2017.02.011.

Brady, J.B., Spear, F.S., and *Hamelin, C., 2016, Illustrating mineral equilibria with interactive, web-based tools. Geological Society of America Abstracts with Programs, 48, 7, doi: 10.1130/abs/2016AM286085 .

Curran, H.A., Savarese, M., and Glumac, B., 2016, The stellate burrow: A large and complex trace fossil in Holocene carbonate eolianites of the Bahamas: Ichnos, v. 23:1-2, p. 126-137.

*Deeg, C., *Getzin, B., and Pruss, S.B., 2017, The Effect of the Cretaceous–Paleogene Extinction on Calcium Carbonate Accumulation, Abstract, Northeast Geobiology Symposium, UConn, March 2017.

*Du, K., and Pruss, S.B. 2017, Microfossils from the Cryogenian Period of the Rasthof Formation, Namibia, Abstract, Northeast Geobiology Symposium, UConn, March 2017.

Faggetter, L.E., Wignall, P. B., Pruss, S. B., Newton, R. J., Sun, Y., and Crowley, S., 2017, Trilobite extinctions, facies changes and the ROECE carbon isotope excursion at the Cambrian Series 2-3 boundary, Great Basin, western USA, in press at Palaeogeography, Palaeoclimatology, Palaeoecology.

Faggetter, L.E., Wignall, P.B., Pruss, S.B., Sun, Y., Raine, R., 2016, Sequence stratigraphy, chemostratigraphy and facies analysis of Cambrian Series 2 – Series 3 boundary strata in northwestern Scotland, Geological Magazine, DOI: <https://doi.org/10.1017/S0016756816000947>

Hsu, Y.-J., S.-B. Yu, J.P. Loveless, T. Bacolcol, R. Solidum, L. Artemio, Jr., A. Pelicano, and J. Woessner, 2016, Interseismic deformation and moment deficit along the Manila subduction zone and the Philippine Fault system: Journal of Geophysical Research, 121(10), 7639–7665.

*Jahan, N., Glumac, B., and Curran, H.A., 2016, Storm-deposited coastal boulder ridges on San Salvador Island, Bahamas in the aftermath of Hurricane Joaquin: Geological Society of America Abstracts with Programs, Annual Meeting, Denver, Colorado, v. 48(7).

Loveless, J.P., 2017, Super-interseismic periods: Redefining earthquake recurrence (Commentary): Geophysical Research Letters, 44 (3), 1329–1332.

Loveless, J.P., 2017, Super-interseismic periods: Redefining earthquake recurrence (Commentary): Geophysical Research Letters, 44 (3), 1329–1332.

Loveless, J.P., Scott, C.P., Allmendinger, R.W., and González, G., 2016, Slip distribution of the 2014 MW=8.1 Pissagua, northern Chile, earthquake sequence estimated from coseismic fore-arc surface cracks: Geophysical Research Letters, 43(19), 10134–10141.

Marshall, S.T., Funning, G.J., Kruger, H.E., Owen, S.E., and Loveless, J.P., 2017, Mechanical models favor a ramp geometry for the Ventura-Pitas Point fault, California: Geophysical Research Letters, 44(3), 1311–1319.

*Moore, K.E., Bosak, T., Macdonald, F.A., Lahr, D.J.G., Newman, S., and Pruss, S.B., 2017, Biologically agglutinated eukaryotic microfossil from Cryogenian cap carbonates: Geobiology, DOI: 10.1111/gbi.12225

*Mwinde, C., Bergman, E., Cantine, M., and Schoene, B., 2017. Unusual Seafloor Precipitated Carbonate Fans of the Neoproterozoic Rainstorm Member, Abstracts, Northeast Geobiology Symposium, UConn, March 2017.

Newman, S.A., Klepac-Ceraj, V., Mariotti, G., Pruss, S.B., Watson, N., and Bosak, T., 2017, Experimental fossilization of mat-forming cyanobacteria in coarse-grained siliciclastic sediments: Geobiology, 1–15, doi: 10.1111/gbi.12229.

Newman, S.A., Mariotti, G., Pruss, S.B., and Bosak, T., 2016, Insights into cyanobacterial fossilization in Ediacaran siliciclastic environments: Geology, v. 44, p. 579-582.

O'Reilly, S.S., Mariotti, G., Winter, A.R., Newman, S.A., Matys, E.D., McDermott, F., Pruss, S.B., Bosak, T., Summons, R.E., and Klepac-Ceraj, V., 2016, Molecular biosignatures reveal common benthic microbial sources of organic matter in ooids and grapestones from Pigeon Cay, The Bahamas: Geobiology, DOI: 10.1111/gbi.12196

Payne, J.L., A.M. Bush, E.T. Chang, N.A. Heim, M.L. Knope, and S.B. Pruss, 2016, Seeking a paleontological signature for mass extinctions caused by flood basalt eruptions, Abstract, AGU Fall meeting, San Francisco.

*Perlmutter, E., Caris, J., *Widstrand, A., Curran, H.A. and Glumac, B., 2016, Drone use in rapid assessment of Hurricane Joaquin coastal impact on San Salvador Island, Bahamas: Geological Society of America Abstracts with Programs, Annual Meeting, Denver, Colorado, v. 48(7).

Pruss, S.B., Higgins J.H., Bush, A.M., Leckie, R.M., Deeg, C., and Getzin, B.L., 2016, Deep-Sea Carbonate Accumulation and Surface Ocean Saturation State in the Aftermath of the Cretaceous–Paleogene extinction, Abstract, AGU

Fall meeting, San Francisco.

Pruss, S.B., 2016, Microbial Signatures in Modern Bahamian Ooids, Abstract, Gordon Research Conference, Galveston, Texas.

Rhodes, A.L. and Horton, N.J., 2015, Establishing baseline water quality for household wells within the Marcellus Shale gas region, Susquehanna County, Pennsylvania, USA: Applied Geochemistry, 60, p. 14-28.

Rhodes, A.L. and Guswa, A.J., 2016, Storage and release of road-salt contamination from a calcareous lake-basin fen, western Massachusetts, USA: Science of the Total Environment, 545-546, p. 525-545.

Student/Faculty Research

Abigail Beckham '19, Alyssa Graveline '19, and Emily Grote '18 (Bosiljka Glumac): Petrography of Carrara Marble from Italy and Limestone from Yucatan, Mexico (Research Assistantship)

Abigail Beckham '19, Alyssa Graveline '19, and Nathaly Reyna Alvarez '17 (Bosiljka Glumac and Al Curran): Dynamics of physical deposition and bioturbation of Pleistocene carbonate subtidal sediments, Harry Cay site, Little Exuma, Bahamas (course-based research and Celebrating Collaborations poster)

Sally Carttar '18 (Bob Newton): Paradise Pond Sediment Sluicing Experiment (SURF 2016)

Elias Molitors Bergman '17 (Jack Loveless): Distribution of slow slip events in space and time at the Cascadia subduction zone (SURF 2016 and Honors Thesis)

Tessa Browne '17 (Sara Pruss): Carbon isotope analysis of the Rasthof Formation, Fransfontein Ridge, Namibia (Special Studies)

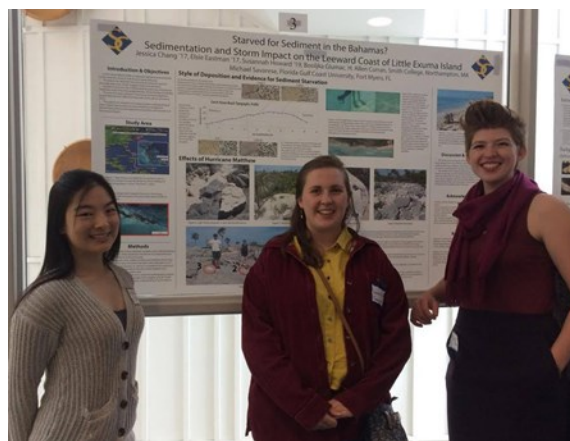
Jessica Chang '17, Elsie Eastman '17, Susannah Howard '19 (Bosiljka Glumac and Al Curran): Starved for Sediment in the Bahamas? Sedimentation and Storm Impact on the Leeward Coast of Little Exuma Island (course-based research and Celebrating Collaborations poster)

Kendall Clarke '17 (Sara Pruss): The First Calcifying Metazoan Organisms! (Special Studies and Celebrating Collaborations poster)

Claudia Deeg '17 (Sara Pruss): Deep sea sedimentation in the aftermath of the K-T extinction (Special Studies)

Kimberly Du '18 (Sara Pruss): Microfossil abundances in Neoproterozoic samples from Namibia and Australia (McKinley Fellow)

Brenna Getzin '18 (Sara Pruss): Planktic and Benthic assemblages in ODP Core U1370, post-K-T extinction (Special Studies)



Carbonate Sedimentology (GEO 334, Prof. Bosiljka Glumac) students Jessica Chang '17, Susannah Howard '19 and Elsie Eastman '17 presenting a poster at Smith College Celebrating Collaborations in April 2017

Francesca Giardine '20 (John Brady): Automating Display and Recording of High Temperature Petrology Experiments with Labview (Stride)

Emma Harnisch '18 (Bob Newton): Groundwater Quality Issues in the Ossipee Aquifer (SURF 2016) and heavy metal contamination of bottom sediments from mining operations at Cooks Pond, Madison, New Hampshire (Special Studies)

Susannah Howard '19 (Bosiljka Glumac): Petrography of Carrara Marble from Italy and Limestone from Yucatan, Mexico (Early Research)

Naomi Jahan '18 (Jack Loveless): Elastic Block Modeling in the San Geronio Pass (Special Studies)

Sofia Johnson '19 (Jack Loveless): Analyzing the Relationship Between Coupling Patterns and Upper Plate Faults along the Cascadia Subduction Zone (STRIDE research and Celebrating Collaborations poster)

Molly Kover '17 (Jack Loveless): Schist de Sierra de Salinas Exhumation (Special Studies and Keck Geology Consortium project)

Josie L. Little '17 (Amy Rhodes): Development of a methodology for determining cation exchange capacity of peat (Special Studies and Celebrations of Collaborations Poster)

Aurora Lopez '20 (Bosiljka Glumac): Mysterious trace fossils from the Cockburn Town Fossil Reef, San Salvador, Bahamas (Early Research)

Chiza Mwinde (Sara Pruss): 2.7 Ga carbonates of the Cheshire Group, Zimbabwe (Special Studies)

Cindy Nguyen '20 (John Brady): Fourier Transform Infrared Spectroscopy of Clay Minerals (AEMES)



Bosiljka Glumac's first-year AEMES student Aurora Lopez '20 working in the Rock Room

Rhiannon Nolan '19 (Sara Pruss): Paleoeological Analysis of the Campito and Poleta Formations in the White-Inyo Mountains of California (STRIDE research and Celebrating Collaborations poster)

Emma Roth '17 (Sara Pruss): Abundance of skeletal fossils in Cambrian grainstones of the western US and western Newfoundland (Special Studies)



Sara Pruss and Emma Roth '17 on coral patch reefs in southern Norway, June 2016.

Anny Sainvil '17 (Robert Newton and Mark Brandriss): Chronological Interpretation of Volcanic Rootless Cone Field in Laki, Iceland (Special Studies and Celebrating Collaborations poster)

Juliette Saux '20 (Jack Loveless): Cumulative Fault Slip from Global Subduction Zone Earthquakes (STRIDE research and Celebrating Collaborations poster)

Courcelle Stark '18 (Sara Pruss): Cambrian fossil abundance in the middle Cambrian Carrara Formation, Titus Canyon, Death

Valley, CA (Special Studies)

Marlo Stein '17 (Jack Loveless): Mapping community preparedness and education along the Washington and Oregon coast in anticipation of the next major Cascadia Subduction Zone earthquake (Special Studies)

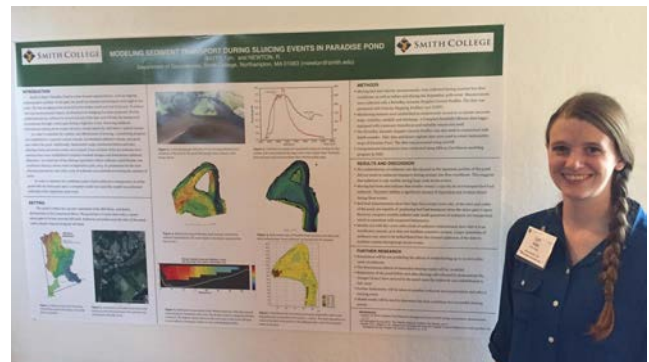
Lizzie Sturtevant '18 (Bob Newton): Paradise Pond Sediment Sluicing Experiment (SURF 2016)

Leah Tallent '19 (Bosiljka Glumac): Petrography of Italian Travertines (Early Research)

Olivia Young '20 (Jack Loveless): Cumulative Fault Slip from Global Subduction Zone Earthquakes (AEMES research and Celebrating Collaborations poster)

Lyn Watts '17 (Robert Newton): Modeling Sediment Transport During Sluicing Events in Paradise Pond (Honors Thesis and Celebrating Collaborations poster)

Ziqiu Zhang '18 (Sara Pruss): Unusual preservation in the basal middle Cambrian Carrara Formation, Eagle Mountain, CA (McKinley Fellow)



Lyn Watts '17 presenting a poster at the NE GSA in Pittsburgh, March 2017 .



2017 GEO Honors Thesis students Eli Bergman and Lyn Watts.

Geosciences Seniors

Class of 2017

Nathaly Reyna Alvarez
Elias Molitors Bergman
Tessa Browne
Jessica Chang
Mingxuan Chia
Kenny Clarke (GEO Minor)
Claudia Deeg (GEO Minor)
Elsie Eastman
Anna George (GEO Minor)
Molly Kover
Emma Roth
Anny Sainvil
Marlo Stein
Lyn Watts

Congratulations!



2017 GEO seniors: serious (above), (L to R: Lyn Watts, Elsie Eastman, Eli Bergman, Anna George, Molly Kover, Emma Roth, Tessa Browne, Marlo Stein, Claudia Deeg) and silly (below).



Alumnae News

Sally (Stanton) Hasted '67

My news this year reflects shifting gears into gentle, lower energy, as befits a 71 year old running house for a life partner of 78. As my elder brother wrote at Christmas, "The adventure continues". But I'm doing it with more down time from yardwork, housework, and errands.

I still teach in a local hospital for teens who've given up on their own young lives. They are so afraid to step into the world; I tell them my adventures in fieldwork, from Geology school and Environmental work, and they sigh and say "I wish I had your stories. Someday, I will have exciting things of my own to talk about." One girl recently said "It's so exciting you went to Smith. That's such a great school, all women." I told her I'd fought my crusty family to break from the "marriage, kids, secretarial training" lifestyle and become a scientist, and how I'd elected to have a minority roommate at Smith, and my student thought that was heroic. I brought in our Alumnae book on Women Changing the World, and she teared up over the chance for women to do that. So the lives we Geo Alums led as groundbreaking women scientists in modern Geology, Environmental Protection, Civil Rights, and self determination, are now the dusty beacons leading the way for children desperate to make their own positive mark on earth. I remember carefully turning the maps made by "real geologists" in the Geo map room at Smith, and longing to trek with Roy Chapman Andrews across the Gobi. Now, children timidly ask how I became a field scientist, and long to have the adventures I've done. When did I grow old and venerable? How did my exploratory steps become a part of world history? I had no guidance in where to place my feet. We walk randomly up a mountain; and suddenly, like the dinosaurs, we're part of earth's record, and we've helped swing the course of how people behave. My life story is now a gift to youth, and I'm grateful to Smith Geology for making me a Scientist.

For my own fun, I pore over the fossils I collected with "Madame Kierstead" in South Carolina on that first, muddy collecting trip, and I think of the Paleo collections at Smith. Someday I'd like to leave our own collection to the Smith Geology Department, to complete my personal circle of learning and giving back, and to let our rock pets continue their own proud lives of being admired and caressed by eager young hands. I ponder, fondly, whether they'd have preferred to cluster with their comrades in the shale-beds and limestones where they rested so long, or whether they enjoy showing off their spines and unique little bones in a comfy box to admirers who still have their soft tissues in working order. Our gang's got attitude; they seem to pose for my students. To them, Geologic Time

continues serenely through this latest, “modern” era, and I think they’re enjoying this latest setting in the journey.

Personally, I’ve discovered the lifestyle I always longed for, but didn’t realize existed. It’s called Homesteading. I always longed to fish, farm, and keep my own house; and now, I know what that’s called. I dislike computers, and would prefer a rotary phone. Working with my own hands is just about perfect. So I enjoy whacking my own weeds, doing my own chores, and caring for two homes here and by the Massachusetts shore. We derive exquisite pleasure in restoring two antique houses, and look forward to a happy future in both. But I’ve adjusted to the winding down of my own muscles, having learned from a lifetime of pets that we all, eventually, slow down. So these days I bite off smaller chunks of work, and nap unabashedly in the sun.

So that’s my latest step in the adventure. I’ve finally seen that time is drawing down, and I’m very comfortable with the notion of joining the fossils in the record-box of our shared earth. And I wonder what the next adventure will be. Just so it’s got hikes to take and animals to love, seacoasts and oceans, fossils of course, and Jack with me.

Carol B. deWet ‘81

We welcomed the third Dr. de Wet, geologist, into the family, joining Mom and Dad, when our eldest son successfully defended his Ph.D. in Climate Science at UMass in April 2017. Our younger son will be starting graduate school in geology/ climate change science next fall after graduating from Bowdoin College this spring. Our middle daughter will be doing field work for her PhD in cultural anthropology in South Africa of next year so it seems that traveling with geologist parents for so many years rubbed off on their career paths. I’m still teaching Sedimentology & Stratigraphy, as well as a general education course focused on coral reefs, at Franklin & Marshall College in PA.

Sarah Carmichael ‘98

I am still at Appalachian State University where I am an Associate Professor in the Geology Department. This year has been very busy - I was elected a Councilor from the Mineralogical Society of America and was named a Fellow of the Explorers Club for my fieldwork in extreme environments (caves in the southern Appalachians, the Gobi Desert in western Mongolia, Ol Donyo Lengai volcano in Tanzania, and the bottom of the ocean at the 9N East Pacific Rise Integrated Study Site - my university wrote up a press release about it here: <http://www.news.appstate.edu/2017/04/19/sarah-carmichael-2/>). I went to NYC for the Explorers Club Annual Dinner in March 2017 where I met Jess Phoenix '05J, another Fellow of the Explorers Club (and now running for Congress in CA!). I also received an NSF MRI grant to replace our university's scanning electron microscope, so I've been busy with learning and writing a manual for a new and much more

amazing instrument than what we had previously. This fall I will go on sabbatical for the first time, which I am very, very excited about.

Hope you all are doing well!

Heather ‘Cricket’ Sawick Kennedy ‘99

I’m still working as a crew trainer at NASA which keeps me really busy -- lots of travel between my home base in CA and Johnson Space Center in Houston, plus a visit to Marshall Space Flight Center in Huntsville. My payload just completed another successful mission on the SpaceX rocket which launched back in February and now we’re gearing back up for yet another mission in May! I’m still trying to get them to actually launch ME at some point but we’ll see about that. Anyway, on a personal note, I was in the PNW last May for a friend’s wedding and got to stop by for a visit with Gena Schwam '98 in Seattle (while she still had that bun in her oven)! Photo of our illustrious reunion included. I’d love to hear from anyone I’ve lost touch with over the years - you can reach me at heather.s.kennedy@gmail.com!



Heather Kennedy '99 at NASA



Heather Kennedy '99 at NASA

Christine Rowe '00

I'm an assistant professor at McGill University in Montreal (could be Associate Prof by the time you read this, I'm expecting my tenure decision any day now). I teach field courses, structural geology, tectonics, and grad courses about faults. I just developed a new course for incoming majors inspired by John Brady's *Geology in the Field*. My research is focused on mechanical and chemical effects of earthquakes on fault rocks and the feedbacks by which resulting changes in rock properties control earthquake propagation. I also work on soft sediment deformation, gold deposits, and whatever looks interesting. I had the honour of advising Naomi Barshi ('12)'s MS thesis at McGill. My partner Jamie is also a geologist and we have a son, Sam, born April 12.



Christine Rowe's son Sam.

Susan (Sooz) DeYoung Lundmark '01

Hi All! Not too much new to report since last year, just another year under my belt working in local government for the Salt Lake City Redevelopment Agency. It has been very interesting delving deeper into issues of local transit, homelessness, and development of affordable housing. Although my work life is less and less related to geology, I still count myself lucky to live in a state with such great geology all around! My oldest son,



Kevin, Peter, and Sooz Lundmark at Dead Horse Point State Park near Moab, Utah. Isaac slept through this photo unfortunately.

Peter (6), just finished an extended geology lesson in his kindergarten class and has been using my rock hammer and safety glasses to break open just about every rock he can get his hands on. Makes his momma proud!! His little brother, Isaac (2), also tries to get in on the action, which makes his momma terrified. Hope you are all doing well and give a shout if you are ever in Utah!!

Marian Kramer '04

What a crazy few years it has been! To recap since 2013 (when I think I last submitted an update):

- I worked remotely from my house in Minnesota (full-time) for Chevron as a Petroleum Geologist on the Kern River Field in Bakersfield, California from 2013-2016. What wonderful, fun, and rewarding work!
- I delivered my identical twin boys, Jack and Henry, in September 2015 (they were delivered 5 weeks early and were in the NICU for 2.5 weeks). They are doing very well and are now rambunctious 1.5 year olds keeping me on my toes.
- I went back to work remotely full-time (for Chevron) in January 2016 knowing the low oil price environment had brought very uncertain times to those of us working in the industry, especially for me as a remote worker.
- In February 2016, Chevron gave me an ultimatum: I had to move back to Bakersfield, CA (with my husband and our 5 month old twins) or take the severance package. My husband had been laid off in December 2015, so we were in a tough spot. We decided to have me take the severance package and stick to the plan of raising our family in Minnesota. There was no guarantee that if we moved back Chevron wouldn't go through another round of layoffs, putting me at risk again. The prospect of being laid off, far from home was not a good one. One the other hand, leaving what had become my "dream career" was incredibly tough.
- I stopped working for Chevron in April 2016. Shortly after, my friend (and VP at a local environmental consulting firm) asked me if I want to apply for a full-time consulting/contracting position at the Minnesota Department of Transportation, where I had worked briefly in 2012. I said yes! What a great opportunity.
- I interviewed and got the position, starting in August 2016.
- In September 2016, I started my own consulting company, Kramer Geoscience, PLLC.
- I am currently working on getting my Professional Geologist license. I just found out that I passed the first part of the licensing process, the FG exam (Fundamentals of Geology). Studying 4 years of geology material with twin babies and a full-time job was super hard. I am so happy I passed! Now onto applying for and taking the PG exam.

Lessons learned: Be clear on how you want to balance life and career. Sometimes life wins and that is okay. Take the FG ASAP after graduating from Smith!! Network and do NOT ever burn bridges. You never know where an opportunity is going to turn up. Have a career back-up plan and a financial safety net. Crap happens and you need to protect

yourself to be able to weather the bad times. Above all else, embrace change, work hard, and be true to yourself. Love to Smith and Smith Geology!!

Lauren Seidman Robinson '04

Lauren Seidman Robinson '04 and her husband, Eric, welcomed their first child, Nathan Jesse, into the world on September 4, 2016. Lauren and Eric both work as geologists in Houston, Texas. Lauren and her sister, Lily Seidman '11 (also, working as a geologist!), enjoy taking Nate on long walks to notable Houston landmarks close to Lauren's home including Hermann Park, the Museum District and Rice University's campus.

Jess Phoenix '05J

Jess Phoenix (05J, formerly Mencer) is working on taking geology to the halls of Congress! She is running to unseat an anti-science incumbent in California's 25th District, and is finding that she already misses her field boots. For her last geo-hurrahs, she carried the Explorers Club official flag on an expedition to explore a cave her research nonprofit, Blueprint Earth, discovered in the Mojave Desert. If you are a field scientist/student and are interested in joining the Explorers Club, feel free to contact Jess for info on joining. Also, Jess took part in filming an episode for the Discovery Channel's Shark Week, which is tentatively titled "Sharks and Volcanoes." It was a blast, and she was happy to lend her expertise as a volcanologist.

Jess can be reached at jess@volcanojess.com, and always loves hearing from Smithies who are interested in networking.



Jess Phoenix '05J with shark biologist Mike Heithaus from the Discovery Channel shoot. It is the ocean entry of Kilauea volcano.

Lily Seidman '11

Just celebrated 1.5 years in Gulf of Mexico Exploration with Shell Oil in Houston, TX. Outside of work, I enjoy spending time with my sister Lauren Seidman Robinson '04 (Geology), brother-in-law Eric and new baby nephew Nathan. Took a trip of a lifetime with Smithie Rachel Dorset '10 (Chemistry) to Iceland where we straddled the North American and Eurasian plate, swam in geothermal pools, walked on glaciers and experienced the amazing Icelandic culture!



Lily Seidman '11 sitting atop a columnar basalt on the south coast of Iceland.

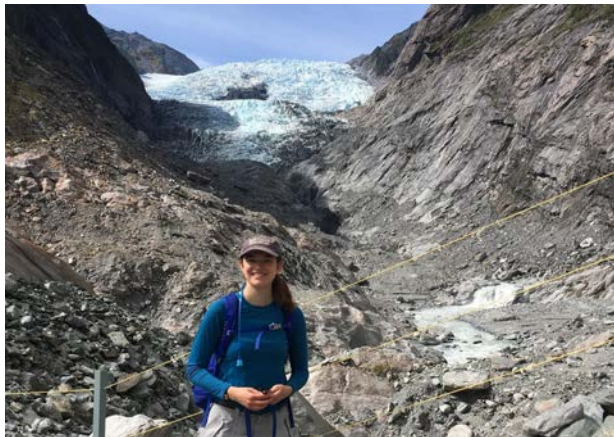
Alianora Walker '11

This summer I'm diving into Colorado plateau geology while working as a park ranger at Natural Bridges National Monument, Utah. If anyone is passing my way this summer, I've got some great cross beds to show you... In the fall I'm heading to San Jose State University to start a master's in neotectonics.

Naomi Barshi '12

Since this time last year, I have been through all degrees of longitude except those between 104°E (Singapore) and 170°E (Te Anau, New Zealand). Thus I cannot yet claim to having been all around the world, but I'm getting close. I started my year of travels in Montreal, QC, where I'd been living and working since 2013, including doing my master's at McGill University, co-advised by Christie Rowe '00. After my leave-replacement teaching terms were up at McGill and John Abbott College, I headed for the Eastern Indian Ocean to sail aboard the research vessel *JOIDES Resolution* as an Onboard Outreach Officer. We wanted to find out more about earthquake processes, decollement formation, and Himalayan development by sampling the entire input sequence for the Sumatra Seismogenic Zone. That's 1.5 km of sand, mud, and a sprinkling of carbonates, plus 10 m of basalt, all in 4.2 km of water! (If you'd like to know more about all this, you can check out my blogs at <http://joidesresolution.org/blog/375>, stay tuned for the Proceed-

ings papers that will come next Fall, or email me at naomibarshi@gmail.com.) One of my favorite places I visited in my "pretirement" was Franz Josef Glacier, in New Zealand, where I sported my Smith Geosciences hat with great pride. Next Fall you can visit me in Switzerland where I'll be teaching geology to 10th graders at a study abroad program called Swiss Semester. See you there!



Naomi Barshi '12 in New Zealand.

Sophie Westacott '13

In May I wrapped up my third season at Capitol Reef National Park, where I had started in 2014 as a GeoCorps intern and continued on as an interpretive ranger. It was hard to leave, but the good part about saying good bye to a national park is that you know it will still be there in years to come, almost unchanged and open to your visits. Following in the footsteps of many fellow Smithies I spent a fantastic summer at Indiana University's G429 course alongside Heather Upin ('16). In August I arrived at Yale to start a PhD in Celli Hull's micropaleontology lab, where Jana Burke ('14), a third year here, has helped me get settled, and where I'll be looking at extinction dynamics.

Camille Dwyer '14, Katie Castagno '12, Paula Burgi '14, Sarah Brisson '14

The No Pants Party Co-op (NPP) moved away from Cambridge in August 2016. Sarah Brisson '14 began her PhD at UConn and is studying Devonian brachiopods. She spends her spare time cooking and hiking.

Katie Castagno '12 moved to Woods Hole Oceanographic Institution to end her transient life between Boston and Woods Hole. She completed her PhD qualifying exams and studies paleotemperature and the effects of hurricane events on salt marsh sedimentation. She continues to write songs about geology (though not many about bivalves) and spends her spare time nurturing plants and a sourdough starter until she gets a dog.

Camille Dwyer '14 visited Paula Bürgi '14 in Paula's final days as a geophysicist research assistant at the Earth Observatory of Singapore. Camille, Paula, and Paula's boyfriend, Paul, traveled to Borneo to catch a glimpse of wild orangutans. Their wish

was granted on the last day of their voyage. Also, they ate delicious food, went on moonlight treks to hunt for bugs and spiders, and slept in secluded huts in the middle of the rainforest.

Camille moved to Albuquerque, New Mexico to begin her PhD on late Cretaceous bivalves macroevolutionary patterns at the University of New Mexico (UNM). She continues to conquer her fear of heights by hiking up the steep Sandia Mountains and basalt volcanic necks and looking over bridges that span over deep gorges. Luckily, Also, Camille luckily met a Smithie, Kristen Rahilly '10, when they both started their geosciences graduate program at UNM.

Paula is a PhD candidate at Cornell and studies geophysics and geodesy. She lives in a lake house overlooking Lake Cayuga, and is enjoying all the seasons again after a 2-year stint living in the tropics. In her free time, she goes waterfall hunting around Ithaca and attends trivia nights.

Camille made a trip back east and visited Sarah and Katie in Western Mass. They had a wonderful brunch at the Green Bean and drank lots of tea and caught up on good olde fashioned gossip.

Paula visited Camille in New Mexico for her spring break and they skied, thrifted, hunted for staurolite, and crashed a wedding.

They all talk constantly over text and they send each other snaps of pups, bugs, and rocks.



Camille Dwyer '14 and Paula Burgi '14 on a ski lift in Sipapu, New Mexico.



Katie Castagno '12 and Sarah Brisson '14
in front of Paradise Pond.

Kristen Rahilly '10

I finished my two years of teaching middle school science in Mississippi and am now finishing up the first year of my PhD at the University of New Mexico. I am studying volcanic gas geochemistry and am super excited to have a great balance of lab work and field work. When I arrived as a new graduate student this past summer I was pleased to meet another Smith Geo Alum here at UNM: Camille Dwyer! We have enjoyed reminiscing about our experiences in Burton/Sabin Reed.

Danielle Schmandt

Danielle Schmandt is over a year into her PhD at the University of Adelaide, Australia, working with the ARC Research Hub for Australian Copper - Uranium group. She is focusing on the uranium in IOCG systems and rare earth element minerals.

Geosciences Photo Gallery



Fall 2016 Sedimentary Geology (GEO 232, Prof. Bosiljka Glumac) students on a field trip to Plum Island, MA



Carbonate Sedimentology (GEO 334; Prof. Bosiljka Glumac) students on the Tropic of Cancer beach on Little Exuma Island, Bahamas, January 2017, with a view of the Turtle Rock in the distance.



Carbonate Sedimentology (GEO 334; Prof. Bosiljka Glumac) students exploring a tidal creek with mangroves on Little Exuma Island, Bahamas, in January 2017.



Smith women "march" on the Tropic of Cancer Beach on Little Exuma, January 21, 2017.



Carbonate Sedimentology (GEO 334, Prof. Bosiljka Glumac) students and supporters in the field on Little Exuma, Bahamas, January 2017. L to R: Elsie Eastman '17, Prof. Blanka Cvetko Tešović (Univ. of Zagreb, Croatia), Alyssa Graveline '19, Anny Sainvil '17, Nathaly Reyna Alvarez '17, Susannah Howard '19, Matt Wright (Eckerd College), Prof. Mike Savarese (Florida Gulf Coast University), Prof. Al Curran (Smith College Emeritus), Abigail Beckham '19, Lyn Watts '17, Jessica Chang '17.



Spring 2017 Carbonate Sedimentology (GEO 334, Prof. Bosiljka Glumac) students with Lorenzo Chemeri (visiting student from the University of Florence, Italy) on a class field trip to Saratoga Springs, NY.



Sydney Reyes Beattie '19 at the archaeological site of Mayapan on Yucatan peninsula in Mexico where she worked with Prof. Bosiljka Glumac on a collaborative research project with archaeologists from SUNY Albany, May 2016.



Spring 2017 Carbonate Sedimentology (GEO 334, Prof. Bosiljka Glumac) students with Lorenzo Chemeri (visiting student from the University of Florence, Italy) on a class field trip to Saratoga Springs, NY.



Bosiljka Glumac's Carbonate Sedimentology class on Little Exuma, Bahamas, January 2017



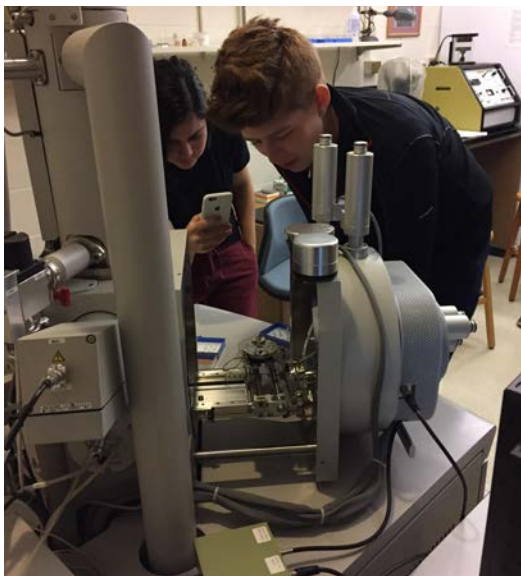
Spring 2017 Carbonate Sedimentology (GEO 334, Prof. Bosiljka Glumac) students with Lorenzo Chemeri (visiting student from the University of Florence, Italy) on a class field trip to Petrified Gardens stromatolites!



Fall 2016 Sedimentary Geology (GEO 232; Prof. Bosiljka Glumac) class in the field locally at Roaring Brook in Mt. Toby State Park.



Sara Pruss with STEM Posse 2 on their summer fossil adventure to NY State with Engineering Professor, and Posse Mentor Denise McKahn.



Carbonate Sedimentology (GEO 334; Prof. Bosiljka Glumac) students Nathaly Reyna Alvarez '17 and Elsie Eastman '17 admiring their SEM (Scanning Electron Microscope) research samples.



John Brady's Fall 2016 Geology in the Field class.



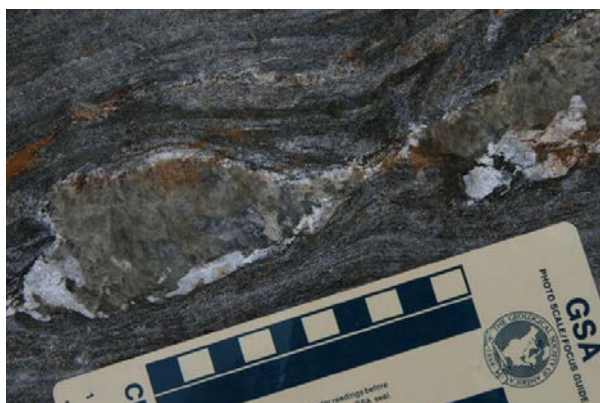
Brenna Getziin '18 with a big snapping turtle during the Fall 2016 Sedimentary Geology (GEO 232, Prof. Bosiljka Glumac) field trip to Chard Pond, MA)



John Brady's Fall 2016 Geology in the Field class.



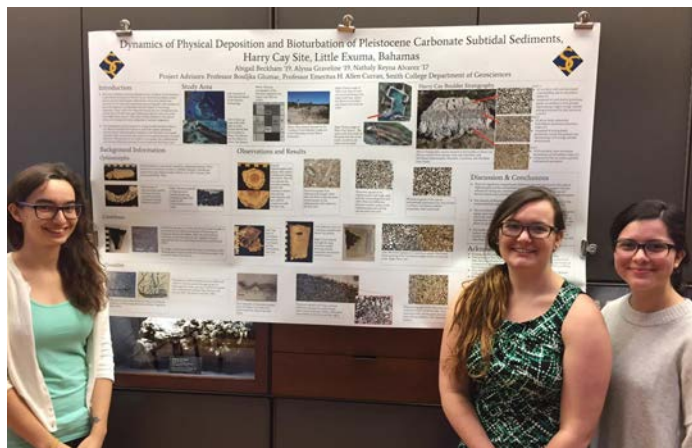
Fall 2016 Sedimentary Geology (GEO 232; Prof. Bosiljka Glumac) end-of-semester party with a special care and sparkling cider.



Fall 2016 Geology in the field class.



GEO 232 cake!



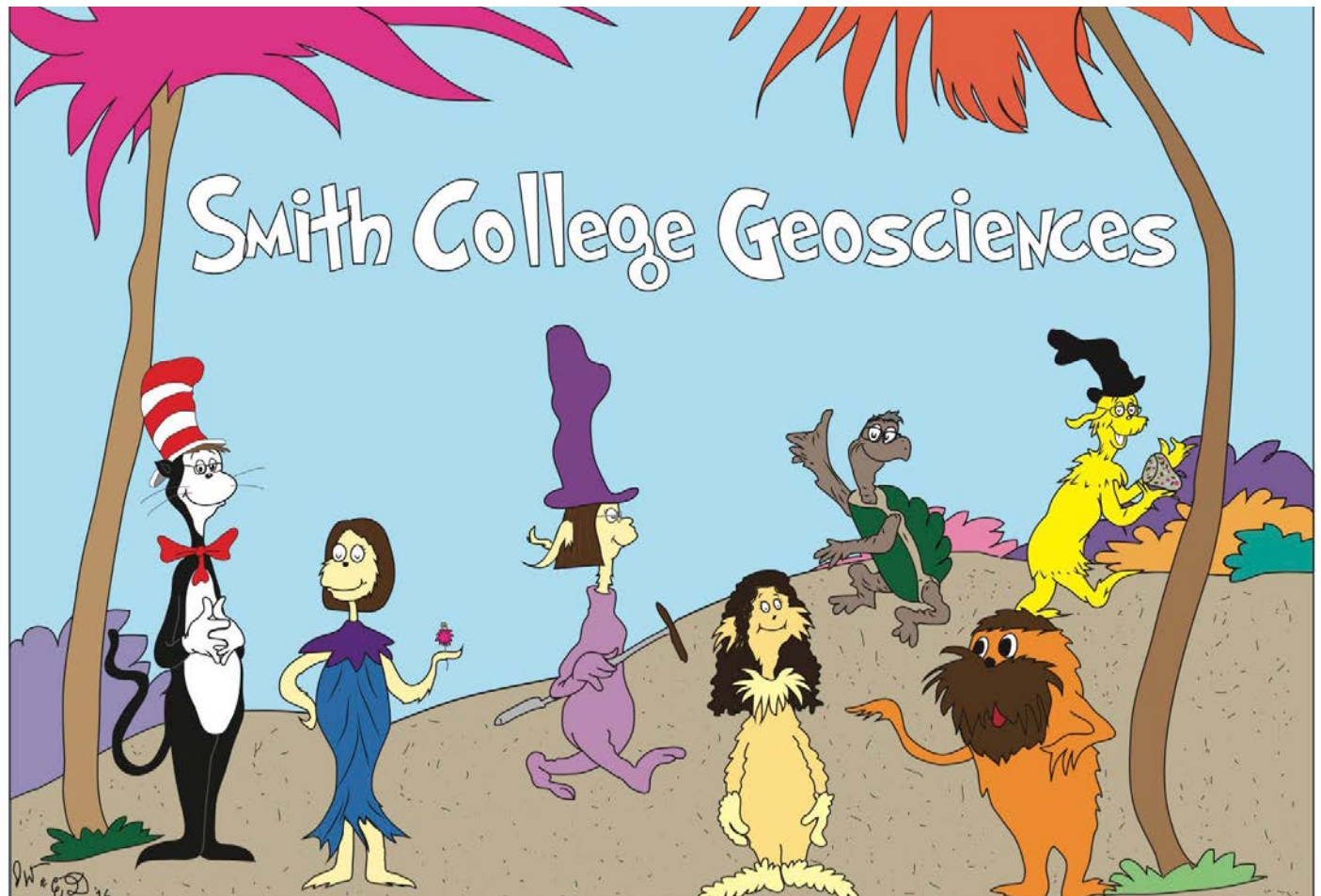
Carbonate Sedimentology (GEO 334, Prof. Bosiljka Glumac) students Abigail Beckham '19, Alyssa Graveline '19 and Nathaly Reyna Alvarez '17 presenting a poster at the Five College Geology Undergraduate Research Symposium at Amherst College in April 2017



Some of the alumnae who attended our GEO reception at Smith in May 2017 (L to R): Sara Rosenzweig Cribbs '97, Cheryl Cameron '97, Sarah Smalheer '97 and Roxanne Finn '97. Also in attendance were: Elizabeth L. Ambros '77, Erika Klose '97, Sarah C. Hale '07, Carolyn Tewksbury-Christie '07 and April Birnie '15. It was so great to see you all. Come back often and send us your updates.



Geoscience faculty with their brand new hats, custom-made by the GEO class of 2017. L to R: Amy Rhodes, John Brady, Bob Newton, Bosiljka Glumac, Mike Vollinger, Jack Loveless (holding Sara Pruss' hat) and Mark Brandriss (holding Luke Faggetter's hat)



Smith College Geosciences Faculty illustrated by the GEO Class of 2016, inspired by Dr. Seuss. L to R: Jack Loveless, Sara Pruss, Amy Rhodes, Bosiljka Glumac, Bob Newton, Mark Brandriss, John Brady.