Greetings from the Chair

One of the pleasant duties of being Department Chair is to be able to report all the good news about the Geosciences at Smith. Because we thrive on enrollments and majors, we have had a banner year. At the spring advising count, there were 40 students who are declared Geoscience majors. Enrollments in all our classes are up, in some cases requiring extra lab sections, van drivers, and cookies. Research activity is proportionately high. Four of our 11 senior majors completed honors theses. There were 8 geoscience special studies in the fall and 10 in the spring. We have one senior major, Kiara Gomez, who has received a Fulbright Fellowship to work on preventing coastal erosion in Greece and one, Clarke Knight, who has received a Rhodes Scholarship to study science-based environmental policy at Oxford (OK, Clarke is a Chemistry major, but her research is in geochemistry, so we claim her).

Other highlights of the year include: the Earthscope seismic station was installed at MacLeish Field Station in Whately and can be viewed online (Code: TA.L61B at (http://rev.seis.sc.edu/index.html); an Interterm field trip went to Hawaii with Amherst College, led by Mark Brandriss, Amy Rhodes, and Peter Crowley (Amherst); our Five College Lecture was given in February by Margaret Thompson ’69, a professor of geology at Wellesley (now emeritus); and the Committee on Academic Policy approved our request to increase the number of credits to 5 for 200-
and 300-level lab courses in Geosciences.

Thanks to all of you who have contributed to this Newsletter. We want to know what you are doing. Thanks also to those of you who have contributed financially to the Marshall Schalk Fund or to the GeoStars Fund. The income from these funds directly benefits current geology students. If you visit Northampton, be sure to visit the Department. If you give us enough notice, we will arrange a lecture, have you meet with current majors, and bake a cake.

John Brady,
Chair, Department of Geosciences

My principal sabbatical project will be developing an interactive, online guidebook for igneous and metamorphic petrology. The imagined resource will not be an e-book version of a bookstore text. Although there will be plenty of text, the material will be designed for online use, so that a printed version of the parts that can be printed will be of little value when compared with the web version. A key aspect of the proposed online book will be interactivity. The guidebook will contain diagrams and charts that ask for user input and choices. These will include graphs of data or calculations that respond to changes of variables by reader movement of sliders or reader data entry. The web guidebook will be rich with color images of rocks in outcrop and under the microscope. Students will be able click on the images or on buttons to see different, but related images, some in registration with the original image. Buttons, sliders, mouse-overs, video, and hyperlinks can make material interesting, but might not engage the average student long enough to be a significant improvement over a printed text. A key aspect of this project is a vision of pedagogical prompts and tools. After every few paragraphs of text, questions will be posed to the reader. In some cases, answers to those questions will unlock the next page or additional information. Some of the questions will require graph or data manipulation to obtain the answers. Others will require exploration of other web resources such as volcano webcams, data compilations, and thermodynamic magma models. I am excited by the idea of this project, but know that time, HTML5, and Javascript challenges must be overcome to make it happen.
An annual report for me would not be complete without a photo of those now 1-year-old grandchildren, Max and Lila, who are a main part of the “fuller” adjective for 2013-14.

Mark Brandriss
I’ve had another year full of igneous rocks, with a few students involved in studying volcanic materials of all kinds. I visited the lovely lochs and mountains of the Scottish Highlands last summer and brought back specimens from geologically famous locations on Skye, Mull and Ardnamurchan, where Paleogene lavas and intrusions have been studied since the early days of modern geology. But there’s still much to learn! Emily DiPadova ’16 has been making thin sections from those rocks, and we’re excited to see what we’ve got. By the way... if you want to visit Scotland, I highly recommend visiting Skye, and while you’re there, take the Bella Jane boat trip from Elgol to Loch Corriuk. Also, the Skye Picture House is a great place to stay (and they didn’t pay me to tell you that). Meanwhile, Emma Hall ’14 has been working on a suite of volcanic rocks she collected in Iceland last summer, developing a teaching collection that she’ll donate to our petrology lab. And Caroline Hackett ’14 is wrapping up a geo-chemical study of obsidian samples from New Mexico, which she collected at sites where prehistoric Native Americans quarried raw materials for tool-making; she’s working with a team of archaeologists interested in tracing the origins of obsidian tools in the American southwest.

In other news: Amy Rhodes and I took 17 students on a field trip to the volcanoes on the Big Island of Hawaii, where we teamed up with an Amherst group for a ten-day tour of geologic wonders. Some of you may remember (fondly, I hope) similar trips we’ve taken in the past, most recently in 2009. The lava, unfortunately, wasn’t very cooperative this year — it flowed from Pu’u O’o into the forests to the north, spreading out in areas closed to the public, so we didn’t get up-close experiences with hot glowing magma. But on the plus side, the lava lake in Halema’uma’u Crater was active for the first time in our many Smith visits, and though inaccessible to up-close viewing (due to the toxic gases roiling out in a caustic cloud), it produced a beautiful orange glow that lit up the sky every night. So three cheers for great geologic field trips, and I hope you’re all continuing to see marvelous things in the world around you.

Al Curran
I continue to enjoy retirement and the multiple opportunities “free time” affords. One thing is for sure – there is never enough time to do it all, but I don’t mind trying. Geo-related travel continues to be one of my main interests and activities. In this regard, last summer was a real winner, beginning with a week plus on Ambergris Caye, Belize, with our Smith Coral Reef Ed-Ventures group, our 14th year in San Pedro.

Our big trip was to Turkey in July to attend an ichnology workshop with field trips (see photo). The workshop was held in the Dardanelles region, and our Turkish hosts pulled out all the stops to make it an excellent event. In addition to the field trips and a visit to Troy, we had several days in Istanbul, one of the world’s truly great cities. Since Croatia was not too far away, Jane and I took the opportunity to accept a long-standing invitation from Bosiljka Glumac to visit her family in Labin on the Istrin Peninsula. We spent several delightful days touring both geological and
archaeological sites and enjoying the beautiful scenery of the area. Given that Rome was on the route home, we stopped there for several days to revisit many of its famous sites and to sample the local cuisine, always hard to beat.

At the end of the summer, we visited our son and family outside of Tacoma, Washington. During this time, we spent a week in the beautiful Methow Valley, on the eastern side of the Northern Cascades. Our driving route to the Cascades took us on State Highway 530, right over the area where the tragic landslide occurred on March 22 of this year. At the time of our passage in August, the landscape appeared completely benign and unremarkable. Our son works for the USGS, and he returned to the area to monitor sediment load and turbidity of the Stillaguamish River, which was blocked immediately following the slide.

In October, I attended the 125th GSA annual meeting in Denver. I was a presenter and co-author of several papers and posters, and it was great to be able to visit with many attending Smith geo alums and colleagues. I’ve got other plans this coming fall, so I don’t know right now whether or not I will be at the 2014 meeting in Vancouver.

We again spent nine winter weeks in the Bahamas and Florida to start the new year 2014. Our first stop was Exuma, where Bosiljka and I met up with colleagues and worked on various field projects for a very full week. Jane and I then moved on to San Salvador for two more weeks of fieldwork. At that point, it was time once again to retreat to Florida. After visiting two sets of friends in south Florida and spending a week in the Keys (more carbonates), we settled in for a month in Crescent Beach, just south of St. Augustine, an area that we really enjoy.

The Coral Reef Ed-Ventures program in Belize now is directed by Professors David Smith and Denise Lello, and I am their all-purpose assistant. We have a great Coral Ed Team-2014 onboard for this 15th summer of the program, and I’m planning to be with them in San Pedro in June to help out. On the personal side, I continue to enjoy outdoor activities, tennis, and visits to Wellfleet, on Cape Cod. Our two grandkids on the Cape and three on the west coast are growing up fast (the oldest is now a first-year in college), and they all do their very best to keep us moving at top speed all the time…

On your next visit to the Smith campus, be sure to drop by the Geo Department. I’m in Burton B-11, and I’ll be happy to see you!

Al Curran with colleague and friend Zain Belaústegui (Spain) on a fieldtrip in the Dardanelles region of Turkey, July 2013

Bosiljka Glumac
It is hard to believe that one more year has gone by! Time indeed flies when you are having fun! 2013-14 has been another fun and busy year. In the Fall I was once again teaching my Sedimentary Geology (GEO 223) course. A small class size (11 students) and the use of Knowledge Forum (an electronic group workspace designed to support the process of knowledge building) allowed for a lot of exploration and learning in this course. In the Spring I offered two introductory level courses: Archaeological Geology of Rock Art and Stone Artifacts (ARC/GEO 112) and Extraordinary Events in the History of Earth, Life and Climate (GEO 106). I genuinely enjoyed exploring these extraordinary topics with all 60 of my students!

I continue to do research in the Bahamas. In January I spent one week on San Salvador with my Honors thesis student Sarah Brisson ’14 and my first-year AEMES student Jacky Banuelos ’17. We were an interesting group with 3 blue passports from USA, Mexico and Croatia! From there I hopped to Little Exuma to meet up with Al and Jane Curran and our research collaborators from the University of Akron (Lisa Park)
and Florida Gulf Coast University (Mike Savarese). I also continue to work in Croatia. Last summer I did some intense fieldwork in caves with Damir Lackovic (Croatian Natural History Museum) and Ira Sasowsky (University of Akron). With colleagues from the University of Zagreb (Blanka Cvetko Tesovic) and the Croatian Geological Survey (Tvrtko Korbar) I co-advice a PhD student (Mihovil Brlek) who will defend his dissertation this summer with whom I co-authored three articles for the journal Facies. It was great to host Al and Jane Curran in Croatia and I hope that many of you will come for a visit in the future.

One of my personal accomplishments was completing the “Couch to 5k” training and running 16 races in 2013! This year I joined the SMAC (Sugarloaf Mountain Athletic Club) Race Series and I ran my first half marathon on Mother’s Day! I draw inspiration from my older brother who finished the Boston marathon this year despite a serious medical condition.

This year I enjoyed a special trip to my Alma Mater – The University of Tennessee at Knoxville – where I gave a couple of lectures and was presented with a surprise Accomplished Alumna Award. I also liked giving invited talks at Colby College and The University of Akron, attending GSA conferences in Denver, CO and Lancaster, PA, and to be invited as an officer for SEPM (Society for Sedimentary Geology) to their Strategic Planning Meeting in Boulder, CO. At Smith I kept very busy chairing the Library Committee, co-chairing the Science Center Committee on Diversity, and serving as a member of the Archaeology Program Advising Committee, Kahn Institute Advisory Board, and the Committee on Study Abroad.

My spouse Tony Caldano (structural geologist by training!) continues to enjoy working as the Program Director for Science & Engineering Computing at Smith. Our children Alex (10.5) and Yelena (8.5) keep us very involved with a myriad of school, sport, music and performing activities. Alex’s latest basketball and baseball teams won their respective championships, and this spring Yelena won her gymnastics state championship! We are all getting ready for our summer trip to Europe. On the way to Croatia we will spend 2 nights in Paris, and then Tony and I embark
on a Smith College Trip “Fabled Sarajevo and the Glorious Coast of Croatia and Montenegro.” I look forward to meeting the Alumnae and to share with them some of my perspectives about my homeland through lectures about the origin and evolution of the Adriatic Sea, landscapes and landforms of the Adriatic coast, and the historical use of local limestone as building and decorative stone.

My most enjoyable duty this year was to advise our fabulous GEO class of 2014 and to serve as the Departmental Director of Honors for our 4 extraordinary senior thesis students: Sarah Brisson, Paula Burgi, Camille Dwyer and Kiara Gomez. I was also a mentor for Kiara’s successful Fulbright application to conduct research in Greece. Congratulations seniors!

Jack Loveless
I am finishing my third year at Smith, and time has flown! This was another fun but busy year of teaching and doing research, with solid enrollments in Natural Disasters, GIS, and Structural Geology, and four students busily working away in the active tectonics lab (the former Cave).

Paula Burgi ’14 wrote and defended an excellent thesis on the 2012 subduction zone earthquake that occurred beneath the Nicoya Peninsula in Costa Rica. Her research originated as a Keck Geology Consortium project, and she spent the year delving into the intricacies of using GPS and geomorphic observations of ground motion caused by the earthquake to infer the location and magnitude of slip on the subduction interface. Her major conclusion is that the magnitude of the earthquake needs to be revised — from 7.6 to a 7.7, equivalent to 1.3 times the amount of energy release than has been reported in prior studies. Following graduation, Paula will continue work on active tectonics on the other side of the Pacific Ocean, joining the Earth Observatory of Singapore as a research assistant.

Sophie D’Arcy and Seulgi Son, both ’16 STRIDE scholars, completed their STRIDE research with a poster presented at Celebrating Collaborations and the Five College Geology Student Research Symposium. Using a long historical record of earthquakes offshore Chile, they assessed the hypothesis that subduction zone earthquakes are responsible for shaping faults present onshore in coastal regions, finding that this is likely the case in northern Chile but the story is more complicated in the central and southern part of the country. I’ll miss Sophie and Seulgi next year as they both head abroad!

Emerson Lynch ’15 carried out a special studies also summarized in a Collaborations poster on comparing short- to long-term uplift in the Pacific Northwest. Emerson’s modeling results are providing a great foundation for field work that she and I will carry out this summer in collaboration with Western Washington University (following her return from John Brady’s Global Engagement Seminar in Greece).

The occurrence of a sequence of earthquakes offshore northern Chile in March and April 2014 kept me burning the midnight oil as I analyzed stress changes induced by them. These earthquakes, including the great magnitude 8.2 event on April 1, thankfully caused only moderate damage thanks to superb preparations by the Chileans. I submitted a collaborative proposal in January 2014 to revisit the seismic hazard of northern Chile, a topic I focused on in graduate school, and these events have only made the seismic setting of this area more complicated, and therefore more interesting!

The coming summer will be busy for me, as my wife, Claire, and I are expecting our second child in early June. I was invited to speak at a natural hazards conference outside Sendai, Japan in mid-July, so I will once again appreciate having local grandparents to help with daughter Simona and the baby while I’m away. As mentioned before, I’ll head to the Olympic Peninsula in mid-August, and then spend the fall semester on sabbatical thinking about my summer work and writing some papers!
Bob Newton

Another year has passed and I find myself late, yet again, with my Newsletter contribution.

It has been a very busy year teaching the Groundwater course together with a new research course for First Years (Biogeochemical Cycling of Mercury in the Avery Brook Watershed) and Intro in the fall and Geomorphology and a continuation of the year-long research course in the spring.

Last summer I co-directed a Keck project (Evaluating Extreme Weather response in Connecticut River Floodplain Environment) with Anna Martini (Amherst College) and Jon Woodruff (UMass). This project looked at sources, characteristics, and the distribution of sediments from Tropical Storm Irene. We had 9 students working primarily in the Westfield, Deerfield, and West River (Vermont) watersheds collecting cores from a variety of impoundments together with samples of the source material glacial tills. Tropical Storm Irene was a unique storm in that an extreme amount of precipitation (>10 in) fell within a very short time (12 hours) in a fairly small portion of the Connecticut River Watershed. This produced record flooding in the Deerfield River, but little flooding in the main stem of the Connecticut River. Sediments deposited from Irene are very distinct, being more fine-grained and higher in potassium than other flood plain sediments. The nature of the sediments reflects the fine-grained portion of the source materials that were liberated by extensive landslides associated with this event. During the academic year I helped Julia Seidenstein from Lafayette College with her honors thesis that examined the clay mineralogy of the Irene sediments. We developed a technique for “finger-printing” the Irene sediments that can be used to track the movement of these sediments through the Connecticut River system.

The new research course for First Years (Biogeochemical Cycling of Mercury in the Avery Brook Watershed) is being funded through a grant from the Howard Hughes Medical Institute (HHMI). The idea for the course was developed from multiple lunchtime discussions that I had with Bob Merritt (Biology) and somehow it was incorporated into the grant proposal. Bob and I taught the course together and I think it was fairly successful. The course met for two 3-hour sessions each week plus weekend field trips. The students were divided into 2 or 3 person research teams that looked at some aspect of mercury cycling through the watershed. Topics ranged from determining mercury concentrations in soil horizons, beaver ponds, fungi and fish to using DNA fingerprints to determine what kinds of sulfur reducing bacteria (mercury methylators) are present in the beaver pond sediments. The students made presentations at a Smith Sigma Xi lunchtime meeting in the fall and then they all presented posters at the Northeastern GSA meetings in Lancaster Pennsylvania. As a result of this project, we have successfully developed techniques for measuring mercury in a wide range of materials ranging from soil to fish to water, mainly through the efforts of Marc Anderson, the CABR (Center for Aqueous Biogeochemistry Research) ITI who also helped teach the course. The course will be offered again next year and we plan to expand our efforts to include a more regional analysis of mercury in fish.

Other research projects in Avery Brook this year included work by Clarke Knight. Clarke is a chemistry major who did her honors thesis with me looking at the impacts of climate change and invasive species on the chemistry of organic soil horizons within the Avery Brook Watershed. Her work has shown how invasive worms and changing soil temperature change the nature of the decomposition products as well as the rate of decomposition and how this in turn affects the release of mercury and DOC from the soil. She presented a poster on her results at the Northeastern GSA meeting and her poster received an Outstanding Undergraduate Poster Award. She will be back this summer to prepare a manuscript on this research for publication before leaving on her Rhodes Scholarship to attend Oxford University in the fall.
Collecting vibracores during the Keck project. This year senior Nicole Collier did two different Special Studies projects under my direction. The first was an extension of her summer research done in conjunction with the School for International Training on the Geology of the Himalaya. As part of this project Nicole examined changes in water quality of the Bagmati River as it flows through the Katmandu area. Her spring semester Special Studies looked at the influence of bedrock and surficial geology on the chemistry of 14 small headwater streams in the Berkshires. Nicole will be spending her summer working for the National Park Service in Katmai, Alaska.

Nicole sampling (finding?) a stream. It was a snowy winter!

Finally, we are about to begin a new phase in the Paradise Pond Project. This summer we will begin a 3-year experiment to determine the feasibility of using sediment flushing to remove accumulated sediment from the pond rather than periodic dredging. The idea is to open the gate at the base of the dam during high flows to scour sediment from the bottom of the lower part of the pond. This will be used in combination with a program to mechanically move sediment from the upper part of the pond to the lower part. As part of this project we will be acquiring a new acoustic Doppler current profiler to enable us to measure velocity profiles throughout the pond under a variety flow conditions. We will also be establishing reference stream reaches both upstream and downstream of the pond to monitor any environmental impacts. This project should provide students with many opportunities for future Special Studies projects.

On the home front, Jill is now retired but is doing a lot of chemistry tutoring for Williston students. JT is now working for Apple Computer at the Holyoke store and is taking classes at Holyoke Community College. Molly just finished her first placement with Smith’s School for Social Work at Boston Healthcare for the Homeless and is looking forward to her next placement at Laselle College. I am looking forward to a quiet summer with time to get more writing done. Hope this newsletter finds you all doing well and please drop by to see us if you are in the area.

Sara Pruss

I am now in my 7th year at Smith, and what an incredible year this has been! From a professional standpoint, it has been a wonderful year filled with exciting student collaborations and fun in the classroom. My research lab was filled with nine hard working students over the course of this year. Their enjoyable company and exciting personal achievements has made me very proud. Firstly, Special Studies student Jana Burke was accepted to Yale University for her Ph.D where she will work with Pincelli Hull. Kiara Gomez was awarded a prestigious Fulbright Fellowship, and she will leave for her work in Greece later this summer. Camille Dwyer accepted a position at Harvard University where she will work from Francis Macdonald as his lab manager. I am very excited for their futures, but also sad to lose them from the lab.

In other exciting professional news, I was awarded a grant from the STEPPE Foundation this year to hold a Geobiology workshop at Smith College in February 2014. We had exciting participation from faculty and students at Amherst and Williams Colleges as well as Harvard University, MIT, Princeton University, Yale University, and the University of Connecticut. Five Smith students presented their work and received positive and productive feedback. In March, the SPruss lab participated in the Northeast Geobiology Symposium at Yale University at which four Smith students presented their work. It has been an exciting semester watching these students gain confidence in their presentation styles and receive so much positive feedback on their exciting work from other professionals.

On a personal note, my daughter Annabel is now 16 months old and full of opinions and ideas. Her brother, Ethan, 4 years old, is slowly learning to accommodate this new person in his life and even occasionally wakes her up from her naps (!) so that she will play with him. David, who is the Associate Vice President for Financial Planning at Smith College, continues to enjoy his work, although we both acknowledge that far fewer house projects are getting done as we manage two little ones and busy careers. Case in point, I write this update between a very successful trip exploring the Cambrian and Jurassic of the Scottish Highlands and an upcoming trip to the Bahamas with colleagues from MIT – can’t imagine a better job for me than the one that I have!
Hi everyone! This has been a fun year of teaching and research, both in the lab and in the field. This past fall, I taught ENV101: Environmental Perspectives, which is the introductory course for the Environmental Science and Policy program. This course morphed out of GEO109 (The Environment) to combine more environmental policy and environmental historical perspectives with geoscience principles. We enjoyed reading Naomi Oreskes’ Merchants of Doubt to think about some of the challenges facing climate change policy, and the class culminated with a mock-congressional hearing on U.S. energy policy. During the hearing, the students crafted arguments addressing renewable energy policy while taking on the roles of different senators and stakeholder organizations. With 60 students in the course, there were definitely lots of ideas and debate! In addition, I also really enjoyed teaching GEO102 “Exploring Our Local Geologic Landscape,” which filled with 18 students who traveled through the Pioneer Valley to unravel the stories of our local rocks. During the spring semester, the Aqueous Geochemistry course returned to Kampoosa Bog in Stockbridge, MA to conduct a project examining the effects of road on the geochemistry of this calcareous fen.

Earlier in the newsletter, Mark Brandriss described our Interterm field course to examine the volcanoes of Hawaii with 36 Smith and Amherst students; numbers of student participants were split evenly between both schools. Peter Crowley, Professor of Geology at Amherst, also co-taught the course. The trip was fantastic and brought back many memories of the first Smith trip to see the volcanoes of Hawaii in 1991, when I was able to go with John Brady, Al Curran, and lots of geology friends during my senior year! My family was able to join us in Hawaii, and Sylvia (age 11), Linnea (age 7) and Erik (aged just right) really loved the green sand beach and reaching top of Mauna Kea.

My year of volcanoes culminated with a 4-day Smith alumnae trip to Iceland. We saw the rift valley that separates the North American and Eurasian Plates, glaciers, and cruised past the volcano Eyjafjallajökull (which is just interesting to try to pronounce). Smith Travel hopes to offer the trip again, and if you can swing it, I would highly recommend going!

The Bechtel Classroom at the MacLeish Field Station made national news this year, having met the “Living Building Challenge” – the 5th building in the world to do so! We’re setting a trend here in western Massachusetts; both Williams and Hampshire Colleges are now exploring the possibilities of pursuing the Living Building Challenge with new construction on their campuses. For more information on Smith’s building and its achievements in sustainable design, read an article in Building Energy magazine here: http://issuu.com/nesea/docs/spring14_be-magfinal/1. Smith’s building made the cover!

This summer at MacLeish, Hannah Francis (’16) and Taylor Jones (’17) deepened our investigation of nitrogen cycling processes in response to forest succession from Eastern Hemlock to decidu-
ous forest. Our research is motivated by large-scale ecologic change that is occurring due to the invasive insect the Hemlock Woolly Adelgid, which is causing widespread mortality of hemlock trees in eastern North America. Our project is in collaboration with Smith botanist Jesse Bellemare, and we’ve expanded the study to higher elevation forests in Goshen, MA as well. Read Hannah and Taylor’s perspectives on their summer research experience in the CEEDS blog at: http://smithceeds.wordpress.com/. Their work this summer was greatly informed by Jenna Zukswert’s (’13) honors thesis, which Jenna just successfully published in the peer-reviewed journal Southeastern Naturalist in its special issue about ecologic impacts of the Hemlock Woolly Adelgid.

My research has also expanded to the issue of natural gas extraction by hydraulic fracturing. I began a baseline water chemistry study for a community in Susquehanna County, PA, and next year, the Aquatic Geochemistry course will expand this baseline survey as the primary project for the course. On our field trip, the students will meet landowners who anticipate the possibility of natural gas drilling in their region and are interested in the study. The students also will have the opportunity to meet with representatives from Cabot Oil and Gas, tour its gas drilling and production operations, and visit its water treatment facility. Michael Barressi (of Biological Sciences) and I recently returned from a scouting trip in Pennsylvania to plan the joint field trip for both our classes, which will take place spring semester. We are both grateful for curricular enhancement funding from CEEDS (Smith’s Center for the Environment) for helping to develop this exciting new field trip and project for Smith students in 2015.

The GEO-STARs and Schalk Funds – Great Ways to Support Geosciences at Smith College

GeoStars is an endowed Smith College fund that was initiated in 2009. The endowment yield from this fund is used to support a range of geo-activity extras that require funding beyond what our always tight departmental budget will allow. A primary goal of the fund is to assist our students with travel and other expenses related to research, field courses, and attending professional conferences. The fund also can be used to support the Departmental Luncheon Seminar Series, enabling guest speakers, students, faculty, and alumnae to share their educational, research, and professional experiences, and can provide support for alumnae social gatherings at annual Geological Society of America (GSA) and American Geophysical Union (AGU) meetings.

Our goal for GeoStars is to secure sufficient funds for an endowment yield of $20,000 to $25,000 annually. We are not presently close to that goal, but the fund has grown significantly over the past two years, and that is encouraging! Gifts to GeoStars can be made through the Smith Alumnae Office by designating the GeoStars Fund (Smith Fund 544399) as the intended recipient of the gift, or by sending gifts directly to the Department of Geosciences designated for the GeoStars Fund. As in the past, gifts also can continue to go the Schalk Fund (Smith Fund 544847), established in memory of Professor Marshall Schalk. The yield from this fund is used primarily to support majors attending summer geology field camps and conducting geological field research.

This year the funds from GeoStars supported students attending the GSA Meetings in Denver, Colorado and Lancaster, Pennsylvania. The Schalk funds were used to subsidize student travel for the interterm trip to Hawaii, and to help 2 students with travel to their research sites on San Salvador Island, Bahamas, and Death Valley, California.

Should you have questions or further ideas for the GeoStars and Schalk funds, please contact the Department Chair. To help keep Smith Geosciences strong and moving forward, support GeoStars and the Schalk Fund! Thank you!

Amy Rhodes on site at Cabot Oil and Gas water treatment facility for wastewater from hydraulic fracturing operations, Springville, PA.
Student/Faculty Publications
(* denotes student authors)


Bosak, T., Mariotti, G., Pruss, S. B., and Perron, J. T., 2013, Microbial shaping of wrinkle structures, AGU Fall Meeting Abstracts with Programs.


Hsu, Y.-J., S.-B. Yu, J.P. Loveless, and T. Bacolcol 2013), Interseismic deformation along the Manila subduction zone and the Philippine Fault system, EOS, Transactions AGU, 94(52), Fall Meeting Supplement, Abstract T13D-2559


impacted by invasive earthworms, Geological Society of America Abstracts with Programs, V. 46, no. 2, p106.

Loveless, J.P. and *P. Burgi 2013, Subduction interface geometry masks inferences of rheology, Geological Society of America Abstracts with Programs, 45(7) (Invited).


Student/Faculty Research

Banuelos, Jacky (Bosiljka Glumac): What happens to marine carbonate rocks when they get exposed to air? (AEMES)

Brisson, Sarah (Bosiljka Glumac): Determining the Surficial vs. Penetraphic Origin and Distribution of Caliche Crusts in Quaternary Carbonate Eolianite Deposits on San Salvador Island, Bahamas (Senior Thesis)


Burke, Jana (Sara Pruss): Taphonomy of cap carbonate microfossil assemblages from the Rasthof Formation, northern Namibia (Special Studies 2013)

Cao, Melody (Bosiljka Glumac): Testing the hypothesis about the influence of grain type and texture on formation of polygonally cracked carbonate grainstones in the Bahamas (SURF and GSA Poster)

Chia, Mingxuan and Xu, Xu (Sara Pruss): Analysis of the Neoproterozoic Rainstorm Member, Death Valley, California (Early Research students)

D’Arcy, Sophie ’16 and Son,Seulgi ’16, (Jack Loveless) SURF and STRIDE research, “Investigating the Longevity of Earthquake Segments along the Coast of Northern Chile”

DiPadova, Emily (Mark Brandriss): Magma Mixing and Plagioclase Zoning on the Isle of Skye, Ardnamurchan, and Mull, Scotland (Special Studies)

Dwyer, Camille(Sara Pruss): Early Cambrian phosphatized archaeocyathans and small shelly fossils of Southwestern Mongolia (Thesis student)

Gomez, Kiara (Sara Pruss): Distribution and characterization of oolitic sand in Pigeon Creek, San Salvador Island, Bahamas (Mellon Mays, Thesis student)

Hackett, Caroline (Mark Brandriss): Geochemical Characterization of the Mule Creek Obsidian (Special Studies, Keck Geology project)

Hall, Emma (Mark Brandriss): Compositional Analysis of Iceland Volcanics (Special Studies)


McGann, Tessa (Sara Pruss): Petrographic analysis of varying microbialite forms and associated fossils, Cambrian of western Newfoundland and the western US (Special Studies, SURF student)

Moore, Kelsey (Sara Pruss): Post-Sturtian microfossils in cap carbonates of from Zambia (Special Studies, SURF student)

Mosiany, Sylvia (Bosiljka Glumac): Comparison of stable isotope composition of carbonate deposits from multiple lacustrine successions, Jurassic Turners Falls Formation, Deerfield Rift Basin, Massachusetts (SURF and GSA Poster)

Perlmutter, Eliana (Sara Pruss): Characterization of Ediacaran microfossils, northern Namibia (STRIDE student)

Weinstock, Jane (Sara Pruss): Early Cambrian Phosphatized Assemblages from small sieve sizes, Southwestern Mongolia (Special Studies 2014)

Wert, Haisley (Bosiljka Glumac): Origin of Mud From Milky Way Lagoon, Republic of Palau, Micronesia (Special Studies and Celebrating Collaborations Poster)


Roxanne (Finn) Matuszek ’96
I’m still working at Hampshire College and occasionally cross paths with Geo faculty at Smith. I even brought a student to the SEM lab to investigate a mystery sample, which John Brady was kind enough to help us solve. (It was silicon metal!) One of our blacksmithing students was interested in smithing a rock hammer, and I brought in my own hammer, which was a Smith graduation gift, for him to use as a model. I also got married in August 2013, in Capen Garden! Both I and my husband have family members who worked (and still work) at Smith, and his uncle was the gardener. It was a beautiful ceremony, and I’ve attached a photo of me in front of the old Sed Lab where I spent countless hours in complete darkness taking photos of thin sections. I hope to see some of you at the Geo reunion in a few weeks!
Erika Klose ’97
I continue to teach 7th grade science in West Virginia - and still love it! I also coordinate WV’s ESRI K12 Statewide License for the ArcGIS software. I train teachers and am excited to see our kids using ArcGIS! I work with my state in our adoption of the Next Generation Science Standards, and continue to enjoy writing content and lessons in GIS to align with the new standards. I am one of two WV Digital Innovators through PBS for 2014. I still work with my radio ministry and enjoy spending lots of time with some senior friends at one of our local assisted living communities. Still feeling blessed!

Sarah Carmichael ’98
I’m still teaching Petrology (among other classes) at Appalachian State University, and got to catch up with fellow geology major Sara Rosenzweig Cribbs ’97 in Arusha, Tanzania last summer. She was on her way to summit Mt. Kilimanjaro, while I was doing fieldwork on an active volcano site at Lake Natron on the Kenya/Tanzania border. I also got to hang out with Heather “Cricket” Sawick ’99 in San Francisco in December. My latest research (geochemistry of mass extinctions) means that I’ll be spending the first part of this summer in Wuhan, China and the month of August doing fieldwork in far western Mongolia, 500 miles from the nearest town. Otherwise I can still be found in an only slightly less remote part of western NC, on a small farm with my husband, son, cat, chickens, and two cantankerous, dowager sheep.

Susan DeYoung ’01
Hello out there! This past year has been pretty good for our little family. In July, I hit the one-year-recovery mark after having surgery to remove a benign brain tumor in July 2012. All seems good with that now, fingers crossed! I’m still living in Utah with my husband, Kevin, and our son, Peter. And I’m still working as an environmental geologist with my dear friend Katie Crane (’07). The big news in our family is that we are expecting our second child in Oct! Hope you are all well!

Julie A. Herrick ’02
With the New Year, I’ve resolved some of my brewing plans to continue in academia. So after living in Washington, DC for 3 years and working on contract with the Smithsonian’s Mineral Sciences Dept., it looks like the right time to seek a PhD program and reconnect with the academic groove. I’m looking forward to an exciting 2014; big plans are in the works! Also, some excursions are planned. Last year I had a chance to return to Death Valley and revive the memories of Bob Burger’s field trip (see photo of the Mesquite Dunes on 25 August 2013). This year, the epic trip should be a through hike in the backcountry of the Grand Tetons – I’m hoping there won’t be much snow by July 4th!

Marian Kramer ’04
I am back at work for Chevron as a Geologist working on the Kern River Field, an oil field discovered in 1899. Fortunately, Chevron has allowed me to work remotely from Minnesota. I feel very blessed that I am able to do this and I love going to work every day. Do you work in the energy or mining industries? If so, please contact me at mekramer@gmail.com. A group of us are interested in forming a “Smith Women in Energy & Mining” group. We’d love to hear from you.
While I did not have the good fortune of being part of Smith’s geology department, I went into geology after graduation and have since worked all over the world in hazards and natural resources. I recently co-founded an innovative interdisciplinary scientific research non-profit called Blueprint Earth. We are cataloging Earth’s microenvironments using teams of geologists, biologists, hydrologists, and atmospheric scientists and students, and we’ll use the data we collect to create “blueprints” of the environments we study. We are based in Los Angeles, and we are working with researchers from around the world. We’d love involvement from the Smith community, so please get in touch if you or someone you know would be interested!

Elizabeth Thomas ’05
This has been a big year for me! I moved from Providence, RI to Buffalo, NY to live with my husband, Jason Briner, while I wrote my dissertation. I defended my dissertation in Geological Sciences at Brown University, specializing in organic stable isotope geochemistry and paleoclimatology, in April 2014. I’m looking forward to being back in the Pioneer Valley next year, as I will be a NSF-EAR postdoc with Isla Castañeda at UMass Amherst. I’ll be bringing a future geologist with me: Jason and I are expecting a baby in mid-September! I was an infant at UMass when my parents were grad students there, so everything seems to be coming full circle (maybe Bob Newton will even let me take the baby on field trips, like my mom did with me?). Moreover, I am fortunate to have recently accepted an offer to be an assistant professor in Geology at the University at Buffalo starting after my postdoc, so I can start to teach and give back to the community that has taught me so much! I’m forever grateful for the strength of character, confidence, and skills that I learned at Smith, as I’m sure they’ve helped me get this far! Hi to my geo friends! Hope to see you all next year at our 10th reunion.

Kelsey Winsor ’07
I’m finishing up my PhD in paleoclimatology at the University of Wisconsin-Madison, where I’m looking at the relationship between past ocean warming and the retreat of the Greenland Ice Sheet. I just got back from a six-week research cruise off of East Antarctica- it was amazing and beautiful and the sea ice was way more variable than I’d imagined. Adelie penguins are my new favorite animal. My husband and I will be moving to upstate New York in a few months for a one-year teaching job at Colgate University. The glacial geology there is fabulous, and I’ll be starting research on the deglaciation record preserved in Oneida Lake, just nearby.

Merilie Reynolds ’08
Hi all. I have nearly finished the second year of the PhD program at the University of Alberta in Edmonton. I am studying the geochemistry of the Red Dog zinc-lead deposit in northwestern Alaska. My husband and two dogs were able to join me in Canada in November and it has been fun to actually get to live together for the first time since we got married in 2012! In the past year, I have initiated several activities in the U of A geosciences department to raise awareness about the challenges many women face advancing in science. The response has been mostly positive and I’m hoping more will grow out from my efforts in the coming years. I still play Ultimate Frisbee year-round.
Alianora Walker ‘11
This semester, my schedule is packed with calculus, physics, college chorus and lots of caving trips all over northern California. I’m operating under the principle that the one who sees the most rocks wins, so I’m heading to Ozarks National Scenic Riverways in Missouri this summer as a Mosaic intern. I can’t wait.

Alumnae Receptions at GSA Meeting in Denver

The Department participated in the Group Alumnae Reception at the Geological Society of America Annual National Meeting in Denver in late October, 2013. Some of the alumnae who attended the Reception were: MaryAnn Love Malinconico ’73 (past-chair of NE-GSA and a research associate at Lafayette College), Priscilla Strain ’74 (Program Manager, Center for Earth and Planetary Studies, Smithsonian National Air and Space Museum), Vicky Pedone ’75 (Chair, Dept. of Geological Sciences, California State University, Northridge), Elizabeth Holman ’88 (Clinical Psychologist, Denver VA Hospital; took Prof. Curran’s Oceanography course at Smith), Heather Clark ’94 (lives in Boulder, CO and loves her job as the Abstracts Coordinator for GSA), Lisa Gardiner ’95 (Science Educator at the National Center for Atmospheric Research in Boulder, CO), Wendy Curtis AC’02 Ada (finished her illustrated science/history book called “The Biggest Picture,” also available as an ibook for ipad), Carolyn Tewsbury-Christle ’07 (teaching Intro Physics at the United States Air Force Academy as a Captain in the USAF, completed Geophysics MS at the University of Tennessee-Knoxville, expecting first child Spring 2014), Jane Didaleusky AC ’09 (currently residing in Westfield, MA), Madeline Weigner ’09 (completed MS at the University of Idaho on Late Devonian Reefs in eastern Idaho), Francesca King ’10 (Geologist with Horizon Well Logging in Enid, OK), Jan Axler ’11 (graduate student in metamorphic petrology at Yale University), Katherine Kravitz ’11 (PhD student at the University of Colorado, Boulder working on salt tectonics in the Needles District, Canyonlands, Utah), Alianora Walker ’11 (finished leading cave tours in Sequoia National Park and starting a grad school search), Naomi Barshi ’12 (MSC student at McGill University working on deformation enhanced element mobility feldspars, co-advised by Christine Rowe ’00), Sophie Westacott ’13 (taking classes at Alfred University and doing odd jobs that leave time for poking around creek beds for fossils).
Geosciences Photo Gallery

Smith and Amherst petrology field trip to Vermont in April.

Cape Cod field trip in November.