Greetings from the Chair

Another wonderful year has passed for the Geosciences Department, filled with great students, numerous interesting research projects, field trips, lunch talks, and activities that would be familiar to alums. Several of the most exciting events of the year involve our paleontologist, Sara Pruss. In January, Sara gave birth to a beautiful daughter, Annabel. In February, Sara received the non-tenured Faculty Teaching Award given by students at Rally Day. And in March, Sara was promoted to Associate Professor with tenure. What a great year this has been for Sara!

We have now all settled in to our new and renovated spaces in Sabin-Reed Hall. The added and redesigned labs and classrooms give Geoscience students and classes space to undertake the research projects that have become central to the Geoscience major experience. It is a pleasure to teach in the new spaces, which are well worth the inconveniences caused by the construction. However, with all the moving, I am still looking for some rocks and other teaching materials!

Although we have only five graduating senior majors, overall enrollments are up and 14 sophomores have already declared Geosciences as their major. The number of students presenting the results of their research at the annual Smith Collaborations celebration (25), at the Five College Geology Symposium (22), as honors theses (2), and at professional meetings (15, including some recent graduates) may have been all time highs this year.
We have a talented new Administrative Assistant, Donna Kortes, in the Clark Science Center office. Donna completes countless tasks for the geoscientists, from managing an increasingly complex budget to organizing field trip logistics. And she also does countless similar tasks for the physicists and astronomers, all with a smile. One task she did for us is collect and organize the information for this newsletter, making it beautiful with In Design. With all this work well done, you should not be surprised that Donna received a Spotlight award from Smith this spring as appreciation and recognition for her exceptional contributions.

I am trying to convey the good news that the Geosciences at Smith are alive and well. And it’s not just my opinion. The Geosciences Department Decennial Review Visiting Committee wrote last spring, “. . . it is clear to us that Smith College’s Department of Geosciences ranks with the very best liberal arts undergraduate programs in the country. First-rate facilities and instrumentation, a dedicated and productive faculty, a strong sense of community, and students who not only enjoy their studies, but are intensely committed to the department and its well-being, all add up to an outstanding program.”

Thanks to all of you who sent us news for this Newsletter or who find ways to keep in touch. We want to hear from you, to know what you are doing, to see you if you return to Northampton for a Reunion or another event. We are interested in you.

John Brady,  
Chair, Department of Geosciences

Faculty Updates

John Brady
After all the moving last year, becoming Department Chair once again seemed like a reduction in workload. Of course, my colleagues quickly noticed that my organizational skills pale in the shadow of those of Bob Newton, who guided us so well for the previous three years. But with the help of Donna and others, the end of the year is within our sights without major disasters.

I have devoted some of my time to remembering my senior thesis and Ph.D. advisor, J. B. Thompson, Jr., who died in November, 2011. I attended sessions in his honor at GSA in Charlotte last fall and at Northeast GSA in New Hampshire this spring. And I completed the long task of sorting through many filing cabinets with his papers at Harvard. There is still work to do with what I have salvaged. And I have learned to give higher priority to winnowing the material my own full filing cabinets.

Last summer I had the opportunity to work on a project that has long been a dream: the creation of an outdoor rock classroom at Smith. As part of the renovation of the courtyard between Burton and McCon- nell, a suite of about a dozen large (~1m across) rocks was placed where classes and visitors can view and study them. To get rocks of sufficient size and quality, I visited active quarries around the Northeast, finding owners who would generously donate the rocks. The result is pleasing to a geologist’s eye and a pleasant place to spend time.

On a personal note, I am pleased to report the births of grandson Max to Caitlin and Mike in Alaksa in
January and of granddaughter Lila to Mairin and Mike in Northampton in May. Nancy and I are learning to be grandparents and are very much enjoying the task.

Mark Brandriss
It’s been a fairly quiet year for me, teaching classes and doing fieldwork. Last summer I spent a couple of weeks on the Juneau Icefield in southeastern Alaska and British Columbia, adding to my already-too-big collection of Paleogene plutonic rocks from the Coast Mountains. I have some plans for all those samples and plan to start grinding some of them up soon. I also spent a week in the Sierra Nevada, on a GSA-sponsored field trip that brought together igneous petrologists from around the world to visit famous outcrops and discuss the origins of batholiths. We saw granites on the first day, examined a variety of granites during the next few days, and then on the last day, we looked at some granites. There’s a lot of granite in the Sierra Nevada.

Some of you may have met my wife, Ronadh Cox, at some point during your years at Smith. She’s now a full professor at Williams College and we’re enjoying the dual-geologist life. Our son Owen is 13 years old and much larger than he was even just a year ago. My advice for any of you with infants and toddlers: don’t blink, it all happens really fast!

Bob Burger
Hello everyone. My second year of retirement has been just as pleasant as my first. Just about the only thing I really miss is working with the wonderful students in my classes. Most of my time and Ann’s is now spent visiting grandchildren (soon to be six), working on our gardens, and trying to stay in good physical condition. Each of us has hobbies that take up a lot of enjoyable hours; mine is finally being able to work on my model trains.

I haven’t been doing much in the geological realm, except for upgrading some software and dynamic tables connected to my most recent geophysical textbook, writing letters of recommendation, and working on an occasional project with former students. My textbook co-author (Anne Sheehan) is urging me to consider working on a new edition, so I’ve been doing a bit of planning for that.

June 8 is our 50th wedding anniversary, and we will be celebrating by taking our entire family on a Disney cruise. We decided the cruise was the perfect way to get everyone together and have a lot of activities to occupy the grandchildren.

Both Ann and I had to deal with a number of medical issues this year, but those are behind us, and we are back at full strength. Our chair asked for a photo or two, so since I don’t have anything new that is geology related, I’m contributing proof of our gardening and family activities.

Bob on one of the Burger woodland paths in May.

The family photo on Nantucket, July 2012. One more grandchild is due in September.

Al Curran
Retirement is great! Once again many of my activities this past year were geo-travel related. Last summer, my biggest trip was in August to St. John’s, Newfoundland, Canada for a large international ichnology meeting. The best part was an excellent field trip along the Newfoundland coast with stops at spectacu-
lar Lower Paleozoic cliffs facing the open Atlantic on some of the smaller offshore islands. In early November, I attended the annual GSA meeting in Charlotte where I was co-convener of a large Bahamas geology oral and poster theme session. It was great to visit with many Smith geo alums there, and I hope to attend the 125th GSA meeting in Denver this coming October.

Jane and I again spent nine winter weeks in the Bahamas and Florida. With Bosiljka Glumac, Sara Pruss, and colleagues beyond Smith, I am continuing to pursue research on a variety of Bahamian geology projects. This past January, along with colleagues from Florida, Temple University, and NSF, I assisted Bosiljka with the fieldwork part of her Carbonates Geology course, this year on Exuma. After a full week on Exuma most of the class returned to the mainland, and Jane and I moved on to San Salvador for fieldwork with Kiara Gomez (Sara P’s honors student) and Jen Leman (both SC geo majors, Class of 2014). Once the students completed their work and departed for Smith and the start of the spring semester, we welcomed colleagues from Spain and Japan (see picture) to San Salvador for two more weeks of productive field research. By the end of the fieldwork season in the Bahamas, Jane and I were desperate for serious R&R time! Once again, we spent a month in Crescent Beach, just south of St. Augustine – a part of Florida that we really enjoy.

I continue to be involved with the Coral Reef Ed-Ventures program in Belize. Coral Ed has transitioned to the able leadership of Professors David Smith and Denise Lello, and I will be with them in San Pedro in June to help out. We have a great Coral Ed Team-2013 onboard for this 14th summer for the program. 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 and do their best to keep us running…

When you make 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 very glad to see you!

Bosiljka Glumac

In 2012/13 I continued to teach full time and do research with students. I also enjoyed traveling and spending time with my family and friends. In the Fall I offered my Sedimentary Geology (GEO 223) course, and the new edition of my Spring semester Carbonate Sedimentology (GEO 334) course featured a weeklong trip to Exuma Island, Bahamas in January. All eight students in this class presented posters about the results of their research projects this April at Celebrating Collaborations, and at the end of the semester I hosted a Research Symposium on Geology of the Bahamas featuring students’ presentations and talks by Al Curran and faculty visitors from Washington, D.C., and Florida. This Spring I also taught my ARC/GEO 112 course on Archaeological Geology of Rock Art and Stone Artifacts. New features of this course included a class demo on flint knapping and a tour of the Campus with an architectural historian.

When you make 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 very glad to see you!
This year I advised research projects by Shawn Moore '13 who did a Keck Geology Consortium project in Alaska, and Kelsey Moore '15 (not related to Shawn) who is also an Archaeology minor and worked on a group of decorative stones from the Van Buren Antiquities Collection at Smith College. I also worked with a large group of first year students as part of the new Early Research Program in the Sciences. These seven students worked on the Jurassic Turners Falls deposits from our local Deerfield Basin and also produced a beautiful Celebrating Collaborations poster.

I enjoyed traveling to the GSA Charlotte last Fall and seeing so many of our alumnae. I also liked going to the Keck Symposium at Pomona College in Claremont, CA this April. I look forward to my May trip to the AAPG meeting in Pittsburgh (where I am serving at the Vice Chair for SEPM), and to going to San Salvador, Bahamas in June for the Natural History Conference and to conduct some fieldwork. This Summer will also be very busy and fun since I will be working with three Smith Summer Science students and travelling to Croatia with my family. In Croatia I will be continuing to research a local cave with colleagues from the Croatian Natural History Museum and The University of Akron, Ohio. My children Alex (9.5) and Yelena (7.5) will in the meantime be enjoying the beaches and waters of the Adriatic Sea. Their father, Tony Caldanaro, will also take a short break from his new position as the Program Director of the Center for Science & Engineering Computing at Smith to join us in Croatia.

Jack Loveless
2012–2013 has been a busy year on many fronts! I taught Natural Disasters and Introductory GIS in the fall and Structural Geology course in the spring. Structure was very large this year — 18 students, compared to 5 last spring. We swarmed outcrops at the dinosaur tracks, Mount Tom, Highland Park in Greenfield, and along Route 9 in Cummington under a mix of sunny and rainy skies this spring, culminating in a perfect 70 degree day for our last field trip.

I’ve been dabbling in several research projects throughout the year and am looking forward to summer to make some more headway on each. Last summer, Paula Burgi ‘14 and Alex Julius ‘14 (Engineering) worked on understanding the relationship between the subduction zone offshore Chile and the many crustal faults that mark the coastal regions. At the same time, Wish Sahu ‘14 (Engineering) took a new look at the slip distribution of the damaging 1994 Northridge, California earthquake as part of a project funded by the Southern California Earthquake Center to understand how consideration of the real, 3-dimensional crustal structure may influence our estimates of earthquake slip based on GPS data. Paula Burgi continued her summer work as a special studies in the fall and found that the geometry of the South American subduction zone varies substantially, and these changes in its shape could influence the location and magnitude of great earthquakes that occur there. She’s off to Costa Rica this summer to participate in a Keck project on earthquake geomorphology, and I look forward to working with her as she completes her senior thesis next year. Sophie D’Arcy and Seulgi Son, both ‘16 STRIDE scholars, sifted through the catalog of all major earthquakes along the Chilean coast since 1976 and estimated a distribution of slip for each, summarizing their year of work in a poster at Celebrating Collaborations. I’m getting back to research in Japan, where I’ve previously worked to constrain how deformation is partitioned between the subduction zones and crustal faults. I’m also starting to take a look at subduction processes on the other side of the northern Pacific Ocean, developing a project to compare patterns of stress accumulation on the Cascadia subduction zone to uplifted marine terraces along the Oregon, Washington, and British Columbia coastlines.

In a mix of research and teaching, I’ve gotten involved with the Science Education Resource Center’s "MARGINS Data in the Classroom" project. MARGINS was an NSF-sponsored program that funded research at active convergent and divergent plate boundaries, and this initiative is weaving the main science results from a decade of MARGINS research into curricular materials for use in upper-level earth science courses. It’s been a fun experience so far, with lots of good discussion that will lead to, among other things, more realistic representations of active plate boundary processes in textbooks. Next year’s Structure students will be guinea pigs for some of the materials we’re developing!

Bob Newton
Is it time for the Newsletter already?? What happened to my sabbatical? It seems this year has flown by - way too fast!
During the fall semester I went back to being a student and took the Advanced Hydrogeology course at UMass taught by Dave Boutt. It was a lot of fun and I got to sharpen my Matlab skills and relearn a lot of calculus. It also reminded me of what it is like to be a student and have lots of work and not enough time to get it all done and I was only taking one class!

In January, Jill and I participated in a Smith Alumnae trip to Patagonia. It was an incredible experience! Part of the trip was by ship and we were able to go ashore on Cape Horn to see the basalts and then made a number of stops in the Tierra Del Fuego region to see glaciers, moraines, and even some Patagonian beaver ponds to compare with those in Avery Brook. We then moved ashore and spent time in Torres Del Paine National Park in Chile looking at glacial features and granites and then went to Puerto Montt where we climbed the Osorno Volcano. All this sandwiched between stops in Buenos Aires and Lima made it a truly great trip especially since we had a fantastic group of alums that wanted to learn as much as they could and were willing to try anything. Although I didn't know any of them before the trip, it turns out we did have some connections. One taught history to both my nephews in high school in Chicago and another took my place in my seventh grade class (28 students) when I left the small private school I attended in Puerto Rico. Small world!

Part of my sabbatical has been spent organizing and writing a grant proposal to return to Woods Lake in the Adirondacks. I started doing research at Woods Lake as part of the Integrated Lake Acidification Project in 1979. In 1989, as part of the Experimental Lake Watershed Liming Study we applied 1000 tons of lime to the watershed in order to mitigate the acidity of the lake caused by acid rain. We have reassembled the original research team to go back and determine the long-term effects of the treatment 25 years later. Let's hope it gets funded!

This year we also continued our invasive worm project with Anna Martini and Maria Kopicki at Amherst College looking at the impacts worms have on the organic horizons of forest soils. Gretchen Ravenhurst did her special studies on a new set of experiments. Somewhat unexpectedly the experiments showed that the addition of worms caused the export of high concentrations of phosphate from organic horizons developed under hemlock canopies. She presented our results at the Northeast GSA Section meeting in New Hampshire in March. It is likely that the worms are simply increasing the decomposition rate and are liberating phosphate that has been concentrated under the hemlocks. We are currently working with the City of Northampton to set up a field experiment in the Avery Brook watershed where they are planning to log some of the hemlocks. We anticipate that increased sunlight hitting the forest floor, would increase decomposition rates, releasing phosphate that would, in turn, increase the trophic level of the reservoir.

This fall Bob Merritt (Biology) and I will be offering a new course for First Year students, Biogeochemical Cycling in the Avery Brook Watershed. This is a course that we proposed as part of the recently funded HHMI grant proposal. As part of the grant, we were able to purchase two new mercury analyzers for the Center for Aqueous Biogeochemistry Research (CABR). A Teledyne Leeman Labs Hydra C Mercury Analyzer will be use to determine the mercury concentrations in soils, sediments, newts, and fish while a Teledyne Leeman Labs Hydra AF Gold will be used to determine the concentration of mercury in water samples. Students in this yearlong course will work on some aspect of mercury cycling in the watershed and will be expected to present their results at next spring's Northeast GSA Section meeting.

Finally, the Paradise Pond Monitoring Project has received a substantial equipment upgrade as part of the work to improve the dam and dike system. We have moved the existing stations and installed a new set of dataloggers and sensors. We now have a station at the Lamont Bridge that records stream discharge, temperature, and turbidity and a station on the dam that records pond level, water temperature at several depths and rainfall. Both stations will shortly have live Internet connections so you will be able to see what is happening in real time. A “damcam” will also provide real time video of water going over the dam.

On the home front, Molly has been accepted into the graduate program at the Smith School for Social Work and is expecting to start classes this summer. JT
has moved to Holyoke Community College where he will hopefully finish his degree next year. Jill is tutoring chemistry students at Williston and helping out in the lab and if the Woods Lake project is funded she will also return to Woods Lake where she started her research back in 1979. Our ill-mannered dogs are still ill-mannered but very cute.

I hope this newsletter finds you well and that you will stop and see us if you are in the area.

A guanaco at the Torres Del Paine National Park, Chile.

Sara Pruss
I am now in my 6th 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, a new course, and some professional milestones. On the first front, I was very excited to see research from two of my thesis students from 2011-12 published in peer-reviewed journals (Lilly Dalton ’12 and Kaylyn Oates ’12) and a third will have her work presented at the Goldschmidt conference in Florence, Italy, in August 2013 (Katie Castagno ’12). Many new research students have been busy working this year in the lab. I have two senior thesis students, Sophie Westacott and Maggie Sawdy, who are currently busy putting the finishing touches on their fascinating theses. Sophie’s work grew out of the field work we did in January 2012 in the Valley of Fire with Professor Jack Loveless. Kiara Gomez (’14), my Mellon Mays Fellow, spent January in the Bahamas with the field support of Al Curran. She sampled the Pigeon Creek delta on San Salvador Island to continue her work on ooid formation there. Savannah Lawson (’14) teamed up with my colleague Francis Macdonald from Harvard University and his graduate students to work on the Beck Spring Formation in Death Valley and began her work on microfossils preserved in this unit. I was unable to accompany either Kiara or Savannah in the field this January, for reasons I will explain below, but I was so grateful to have the help of my generous collaborators in my stead.

In other exciting professional news, I taught a new class in the Fall of 2012, a First-year seminar on Exobiology and the Search For Life in the Universe, which was such a fun experience. It was made all the more enjoyable because our semester was progressing as the Mars Rover, Curiosity, was sending back data. I look forward to teaching that class during alternate falls. And, in the Spring, I was thrilled to learn that I was awarded the Student Teaching Award at Rally Day, an annual award given to one tenured and one untenured faculty member. I was so touched and honored to be awarded this by the Smith College students, a truly discerning group of students who care so much about their learning experiences. Last but not least, on my son’s 3rd birthday, a smiling courier arrived at our house with a letter proclaiming that I had been granted promotion to Associate Professor with tenure. What a joyful day! As my wise colleague in California wrote, “You can rest for five minutes, and then get back to work!”

On a personal note, I write this year’s newsletter updates as a mother of two, as our baby girl, Annabel Brady DeSwert, 8 lbs, 12 oz, joined our family on January 8th, 2013. She is such a mellow and joyful baby and seems to have inherited her mother’s knack for sleeping – we hope it continues! Her Big Brother, Ethan, is excited about her arrival and periodically “checks on her” for us. My husband, David, is doing very well as AVP of Financial Planning at Smith, and we look forward to our first summer as a family of four.

Smith Alums at Torres Del Paine National Park, Chile.
Members of the SPruss lab at Collaborations last spring.

Amy Larson Rhodes
After a very nice sabbatical, I found this to be an enjoyable year returning to teaching in the Geosciences department. In the spirit of hands-on, experiential learning (for which our Department is known to do) Aqueous Geochemistry (GEO 301) resumed this spring with a class research project that investigated the geochemistry of a calcareous fen that has been greatly altered by road salt pollution. Named “Kampoosa Bog,” the fen is located in Stockbridge, in the western part of the state, and it is designated as one of Massachusetts’ Areas of Environmental Concern. Its unique ecology of graminoids and other wetland plants is supported by the alkaline and calcium-rich groundwater produced by mineral weathering of marble bedrock. Donning snowshoes and waterproof gloves, the GEO 301 class spent a cold Saturday in February on the floating mat of the fen collecting groundwater and peat samples along a transect that extended from the Massachusetts Turnpike. The students analyzed their samples over the course of the semester using instrumentation in the CABR (Center for Aqueous and Biogeochemical Research), and they weaved their understanding of aqueous geochemistry principles into the interpretations of their data. Their results will be shared with the Kampoosa Bog Stewardship Committee, which granted us access to the site. Many Smith Geology alumnae may be familiar with Kampoosa Bog, having also pursued independent research projects at this location.

On a warmer spring day, GEO 301 also visited a 100-year old, abandoned pyrite mine, located in Rowe, MA, to see the effects of acid mine drainage on stream water chemistry. Our pH measurements were not as low as we might have expected for acid mine drainage. Even so, the lowest pH value we measured (2.8) was in groundwater that seeped from the base of a tailings pile, and the mine drainage lowered the pH of a nearby stream by about 1 pH unit.

In all, it was a fun and busy class, attracting 10 students from a variety of science majors: Geosciences, Chemistry, Biological Sciences and Environmental Science and Policy.

Clarke Knight ('14) keeps the pH meter warm during a measurement at the Bog while her own toes freeze. Photo: Viviana Aluia ('15).

Feelings of satisfaction after a good day of sampling acid mine drainage at Davis Mine. Back L-R: Viviana Aluia ('15), Jenna Zukswert ('13), Sarah Dester (AC), Kiara Gomez ('14), Hannah Underwood ('15), Katie Broadwater ('13), Clarke Knight ('14); Front: Beth Gillespie (AC). Photo courtesy of Viviana Aluia ('15).

Programming at the Ada and Archibald MacLeish Field Station, overseen by the Center for the Environment, Ecological Design & Sustainability (CEEDS), has been moving right along this past year. Dedicated readers of the Geosciences newsletter will remember that in 2008, Smith designated its property in Whately, MA for environmental education. This fall, the new Bechtel Environmental Classroom at the
MacLeish Field Station was open for business. This beautiful building gently rests on the landscape, and it contains seminar, performance, and laboratory space for a variety of Smith classes and activities. Designed as a "high performance – low impact building," we are hopeful that it will meet the “Living Building Challenge (LBC),” which has only been awarded to four other buildings in the U.S. One could consider the LBC as LEED Platinum on steroids – meaning that the LBC designation requires the highest bar of environmental performance based on different “Imperatives” of its design, construction and resource consumption. The Imperatives include choice of construction materials (which takes into account their carbon footprint and chemical makeup), net-zero consumption of energy, net-zero consumption of water, and on-site management of nutrient flows. To meet the LBC’s environmental justice imperative, the building project must improve the land in some way, which Smith addressed with choice of the site location (which was formerly inhabited by invasive plant species) and by contracting with Kestrel Land Trust to put approximately 180 acres of the field station into a conservation restriction. The building includes locally and regionally harvested lumber, composting toilets (which really are quite pleasant to use), many day-lit spaces, and an array of photovoltaic panels that supply more energy to the grid than the building consumes. The building is so nicely insulated that it can be heated by not much more than a candle. Of course, this is theoretical because candles violate Smith fire safety rules. The building is cozy, never-the-less.

John Brady helped with some educational design elements of the classroom’s interior floor. He supplied to the architects geologic specimens from western Massachusetts that span 1.18 billion years of history, and these rocks were imbedded within the concrete floor—to scale—to form a geologic timeline. The most recent sample is “Old Till” (0.1 m.y.), which was donated by Bob Newton. You will be happy to know that the Old Till survived the concrete polishers during floor construction just as well as the Jurassic Holyoke Basalt and the Proterozoic gneisses did, thanks to the careful planning by the architects and care of the installers.

All the Imperatives required of the LBC must be validated after a full year of occupancy, during which time the energy and water consumption are monitored and the conservation restriction should be in place. Hopefully by the next newsletter, we will share with you that the LBC designation was awarded!

Of course as geologists, we are enjoying using the outdoor space of the MacLeish Field Station. Several miles of beautiful trails, many of which geo majors helped to construct, wander through the property. We plan to make use of the site for departmental hikes and cookouts. A large fire pit overlooks beautiful views of the Holyoke Range, and a campsite is available for student overnights. On the research side of things, I have advised several student biogeochemical research projects that investigate nutrient cycling within hemlock and deciduous forests on the property. Through Five College collaboration, the MacLeish Field Station will join the Earthscope seismic array, and a groundwater monitoring well was drilled this past fall. Installation of a new weather station is planned for this coming year.

The new Bechtel Environmental Classroom at the MacLeish Field Station. Photo by Reid Bertone-Johnson.

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

GEO-STARS 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,
Smith and Amherst petrology field trip to Vermont in April.

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 GEO-STARS 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 is growing, and that is encouraging! Gifts to GEO-STARS can be made through the Smith Alumnae Office by designating the GEO-STARS Fund (Smith Fund 544399) as the intended recipient of the gift, or by sending gifts directly to the Department of Geosciences designated for the GEO-STARS 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.

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

Student/Faculty Publications
(* denotes Smith student)


Edgcomb, V. P., Summons, R. E., Bernhard, J. M., Beaudoin, D., Pruss, S. B., Gillespie, A. in press, Microbial diversity in oolitic sands of Highborne Cay, Bahamas, Geobiology


Student/Faculty Research

Aluia, Viviana and Camboulives, Sabrina (Bosiljka Glumac): Comparison Between Laminated vs. Spongiiform Texture in Holocene Eolian Carbonate Deposits From Little Exuma Island (Celebrating Collaborations Poster derived from GEO 334 coursework)

Burgi, Paula and Julius, Alexandria (Jack Loveless): Analyzing Systems of Earthquake-Related Landform Deformation along the Chilean Coastline.(SURF 2012)

Burgi, Paula (Jack Loveless): Analyzing Morphological Controls of Earthquakes along the Nazca-South American Subduction Zone. (Special Studies)

Cao, Melody; Coronilla, Valeria; Cristina Del Valle, Maria; Keller, Claire; Mosiany, Nashipae; Yu, Karen; and Zhang, Wei (Bosiljka Glumac): Searching for Isotopic Signatures of Hydrologically Closed Jurassic Lakes in Western Massachusetts (Celebrating Collaborations Poster derived from Early Research Program)
Collier, Nicole and Moore, Kelsey (Bosiljka Glumac): Petrology of Holocene Carbonate Deposits From Exuma Island, Bahamas Island (Celebrating Collaborations Poster derived from GEO 334 coursework)

D’Arcy, Sophie and Son, Seulgi (Jack Loveless): Investigating the Longevity of Earthquake Segments along the Coast of Northern Chile. (STRIDE)

Feng, Wanda (Sara Pruss): Predation on Cat Island and The Origin of Glauconite in Cambrian successions (STRIDE student)

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

Gomez, Kiara and Lawson, Savannah (Bosiljka Glumac): Investigating Unusual Brown Sand of Sediment-Starved Beaches on the Leeward Coast of the Bahamaan Islands (Celebrating Collaborations Poster derived from GEO 334 coursework)


Kelley, Lisa (Sara Pruss): Microfossils of the Nama Group, southern Namibia (Special Studies student)

Lawson, Savannah (Sara Pruss): Geobiology of the Beck Spring Dolomite, Death Valley, CA (Special Studies, SURF 2013)

Leman, Jennifer and Stephen, Sarah (Bosiljka Glumac): Dynamics of Shallow Marine Deposition and Sediment-Organism Interaction in Times of Warm Climate, High Sea Levels and Increased Storm Activity (Celebrating Collaborations Poster derived from GEO 334 coursework)

Moore, Kelsey (Bosiljka Glumac): Decorative Stones of the Smith College Van Buren Collection (Special Studies and Celebrating Collaborations Poster)

Moore, Shawn (Bosiljka Glumac): Origin of the River Channel Sands of the Chickaloon Formation From Matanuska Valley, Alaska (Special Studies and NE GSA, Keck Geology Consortium and Celebrating Collaborations Posters)


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

Sahu, Bismita (Jack Loveless): Revisiting the Slip Distribution of the 1994 Northridge, California Earthquake. (SURF 2012)
Sawdy, Maggie (Sara Pruss, BIO): Constraining the Record of late Neoproterozoic Life: New Insights from Cryogenian strata (~750 to 650 Ma) of northern Namibia (Senior thesis student)

Sweezy, Theo (Amy Rhodes): “Biogeochemistry of forest succession following logging of hemlock trees at the MacLeish Field Station.” Special Studies in Geological Sciences.

Westacott, Sophie (Sara Pruss): Paleocology of post-extinction fossil assemblages of the Lower Triassic Virgin Limestone Member in the Muddy Mountains, southern Nevada: New insights into silicification of recovery faunas (Senior thesis student)

Zukswert, Jenna (Amy Rhodes): “Effects of Eastern Hemlock Removal on Nutrient Cycling and Forest Ecosystem Processes at the MacLeish Field Station, Whately, MA.” Honors Thesis in Biological Sciences.

Technically Speaking

Mike Vollinger (Technical Services Specialist)

Wow. It is hard to believe that I have been here for 3 years. It seems like only a few months ago, I came for the interview. It has been a busy year. Early August involved the emptying of the Burton Hall display cases and moving then into temporary storage in John Brady’s old experimental lab while the cases were painted and rewired for new lights (LEDs). John Brady and myself flew to (and drove back from) Denison University in Ohio in August to part out their old Scintag XRD for parts for our Scintag XRD. The Spring 2013 semester was spent helping the Carbonate Sedimentology class prep and make thin sections. Who knew that it would take so much (a two year supply) of epoxy to hold together a few dozen rocks?

This summer with the help of the McConnell shop, we will have the complete rebuild of the Wave Tank in the Sed Models Lab. With luck that will end the massive leak problem we have with it. Other tasks will involve moving and consolidating the various teaching collections and assisting a few students over the summer in making thin sections for independent research and senior thesis they are working on.

News from the SAL
by Jon Caris

The big news in the Spatial Analysis Lab (SAL) was the hire of Corrina (Cory) Keeler as our first Spatial Analysis Lab Post-Baccalaureate Fellow. Cory hit the ground fast and began work in July 2012 and she will be with the SAL until summer 2014. She is a 2012 Grinnell College graduate with a self-designed curriculum in Geography. Her relevant coursework included Resource and Environmental Economics, Health Geography, Biogeochemistry, Political Ecology, Spatial Ecology, and an Anthropology senior seminar in Anthropological Uses of GIS.

With Cory’s help, the SAL supported all things spatial, connecting with a record number of students, faculty, and classes. We worked with 13 classes last year, and as always, provided our most upbeat support for GEO105 and GEO150. We also brought back the week-long “Introduction to GIS” interterm course and churned out 7 new conundrums in our popular Mystery Map series.

Our spatial reach goes beyond classes and mystery maps and includes:

- Work with Facilities Management and the Botanic Gardens to create “an Interactive Digitally Integrated Landscape” (think “Smart Campus”)
- Wrangling GIS to quantify Zebrafish post-optic commissure formation with Michael Baressi’s lab in Biology
- Develop and teach a two day workshop, with Amherst College, on Spatial Humanities
- Supporting Kiara Gomez ’14 with our kite mapping system to acquire imagery on San Salvador island for her Honors Thesis titled, “Mapping Ooid Distribution at Pigeon Creek Delta, San Salvador, The Bahamas.”
- Complete the 3rd iteration of the “Rail Trails of Northampton and Easthampton” bike map. The first iteration of this cartographic odyssey began back in 2006 with Amanda Nyren, Geology ’06.
- Fly Kites in Belize with Al Curran and students in the 2012 Coral Reef Ed-Ventures program. Kayln Oates, ’12 was instrumental in our successful kite mission in the lagoons of Ambergris Caye, Belize.
is working to expand the scope of resource assessments to include an evaluation of the impacts of mining these resources, and I was recently happily paired with Katie Walton-Day (Smith ‘81) to develop this effort. You never know where Smithies will show up and when those shared connections may be important. Last summer I was appointed as the first woman to chair the International Atomic Energy Agency/Organization for Economic Co-operation and Development Uranium Group. The uranium group is comprised of scientists, economists and engineers from member countries who meet each year to review their uranium production and remaining resources and publish the bestseller “Uranium Resources, Production and Demand”. My eldest daughter Clara strongly considered attending Smith next year, in particular for the STRIDE program, however in the end she chose Tulane - too bad, so sad.

Parents weekend in New Orleans.

Carol B. deWet (’81)
I have enjoyed being back in the classroom teaching Sedimentology & Stratigraphy after three years as an Associate Dean at Franklin & Marshall College, where I’ve been on the faculty since 1990. My current research includes work with collaborator Gail Ashley on tufas from Olduvai Gorge; Pliocene lake carbonates and tufas from the Atacama Desert; and finishing up a project on Middle Cambrian microbial reefs. I am honored to have received an endowed chair professorship this spring. My youngest leaves for college next year so we’ll be empty-nesters, which will
Donna Whitney (‘85)
I seem to have survived my first year as head of the School of Earth Sciences at the University of Minnesota, and I even enjoyed it more than I expected; I am not yet sure if that is cause for alarm. This year I am also chair of GSA’s Structural Geology and Tectonics Division, something that might amaze my former structural geology professor, especially since I am mostly a metamorphic petrologist (with interests in tectonics). I am really looking forward to field work this summer, starting with work in some metamorphic complexes exposed in fault zones in eastern Turkey and continuing later in the summer with field work in the Montagne Noire migmatite dome (France) and the Western Gneiss Region ultrahigh-pressure terrane (Norway).

Hilary Sanders Lackey (‘92)
Hilary was not a Geo major but classes with Brian White, Al Curran and Connie Soja inspired her to pursue graduate work and a career in geoscience. She earned a Ph.D. in Geology from the University of Wisconsin (dissertation focus on evolutionary paleobiology). She is currently a professor at Mt. San Antonio College, near Los Angeles. She lives in Claremont, CA with her husband, Jade Star Lackey, who is a geologist at Pomona College, and two children. This photo was taken at the April, 2013 Keck Geology Symposium at Pomona College.

Christene Albanese Binger (‘93)
I am a 1993 Geology Alum and have been working in the environmental field for 15 years. I am currently with GeoInsight, Inc. and work on assessment and remediation projects all over New England. I enjoy the diversity of my work, helping clients that range from home owners to Superfund responsible parties. I met my husband Ben Binger at YBRA geology field camp before our senior year. We attended graduate school in Geology at Washington State University. We now live in the woods of Sterling, MA and have rescued three shelter dogs and plan to rescue more! We’ve been traveling and went to Singapore and Bali a few years ago and heading to Europe soon.

Heather Petcovic (‘95)
I am an Associate Professor at Western Michigan University where I hold a joint appointment between the Geosciences and Science Education programs. In fall 2012 I was able to enjoy what might be the best perk in faculty life – my first sabbatical. Perhaps more appropriately described as a “stay-batical” (translation: work at home so no one can find you), I completed a study of student, faculty, and professional geoscientists’ perceptions of why field work is valuable in undergraduate education. In addition to teaching future teachers, working with current teachers, directing various research projects, and supervising graduate students, I keep busy with daughters Jessica (age 7) and Allie (age 4) – future Smithies? I am looking forward to working with John Brady on a curriculum development project over the next few years.

Amanda Veazey (‘96)
I am a geologist with Seneca Resources Corpo-
ration in Pittsburgh, PA. My husband Matthew and I have two kids – Patrick (9) and Emily (7). I have been with Seneca for five years and have worked on tight gas sand development projects as well as shale gas exploration and development projects, all in Pennsylvania. For the past two years, I have worked on environmental projects for Seneca such as fresh water aquifer protection, addressing stray gas migration, and salt water disposal.

I look forward to meeting fellow Smithies at AAPG here in Pittsburgh at the end of May!

Karen Foster Mitchell (‘97)
This is my first year teaching at Laconia Christian Academy in Laconia, NH, and I’m loving every moment! I’m teaching 3 high school math classes as well as Chemistry and AP Physics, and I thank my Smith education daily—especially my geology classes—for preparing me for this. I taught high school math in Nicaragua for three years before settling down with family, so adding the science classes this year has been very gratifying.

My two kids commute to school with me, with my daughter in Kindergarten and my son in Preschool. It’s so exciting to watch them turn into little people and realize how much they’ve learned in [almost] a school year. My husband is in his 12th year as pastor of a local church and we all just got home from school vacation week in Williamsburg, VA. This was our third trip there and I enjoy it more and more each time…I’m finally learning about history/humanities that I missed out on at Smith since I was spending too much time on Keck Projects in the GeoLounge with all the amazing geobabes back in the day.

Katie (Dick) Crane (‘07)
I am graduating this month from the University of Utah with my Masters in Public Health, with an emphasis in environmental public health. I’m pretty sure I was the only MPH student who spent more time in the geology building than the health buildings! I am living in Salt Lake City with my husband, Justin and our dog, Aura. I work as an environmental consultant at URS corporation, where I have worked for the past six years. Lucky for me, I get to work with Sooz (DeYoung) Lundmark (‘01), who received her Professional Geologist license last spring. If anyone is coming out to ski or snowboard please look us up!

Marie McLane (‘08)
I am continuing in polar science support - spending the 2012-13 austral summer at Byrd field camp Antarctica as the heavy equipment operator and one of 3 camp staff. I am now part of the crew stationed at the South Pole for the 9 month winter. We closed on February 14th and are scheduled to open on
November 1.

Merilie Reynolds (’08)
I have just completed my first year of a PhD program at the University of Alberta at Edmonton. After getting over the initial shock of being a student again (after four years in the “real world”), I’m really enjoying school. I’m studying the geochemistry of one of the largest zinc deposits in the world, called Red Dog, located in northwestern Alaska. (Zinc is used in all sorts of things like galvanized metal, metal alloys, paints, cosmetics, sun screen, and dietary supplements.)

On a personal note, I got married last July 6th with Stephanie Moore ’07 in attendance. My husband, a mining engineer who I met while working in northern Nevada, is planning to join me in Edmonton in a few months. Since moving to Edmonton in September, I’ve started playing Ultimate Frisbee again and I just joined a budding competitive women’s team. Love it!

Kristen Rahilly (‘10)
I am still having fun in Alaska and am happy to say I’ve survived my third winter in Fairbanks! I am currently working on my MS degree in volcanology at the University of Alaska Fairbanks, using optical satellite imagery to study volcano-ice interactions at six different Alaskan volcanoes. I have also had a wonderful experience working with 5th and 6th grade students as a GK-12 science fellow this past year! I will be continuing on as a GK-12 fellow next year, hopefully converting more elementary students into future geology majors!

Lily Seideman (‘11)
Lily Seideman is currently working with the USGS and the National Earthquake Information Center (NEIC) in Golden, CO, as a geophysicist. This opportunity came about from a connection at the USGS made in Chile during her Fulbright Grant working with the Chilean National Seismological Survey. Come August, Lily will be heading to Houston, TX, to pursue her Masters degree at Rice University in Geophysics under Dr. Richard Gordon. Her experience in Texas and at Rice will be even furthered as her sister Lauren Robinson ’04 is a petroleum geologist in Houston. It will be the first time in more than ten years since she and her sister have lived in the same city, and she is beyond excited!

Geosciences Department
Commencement Reception May 2012

Besides graduating seniors and their family and friends, many alumnae attended our Departmental Reception in May 2012. Some of the alumnae included those from the Class of ’02: Kristin Abel, Erica Bradstreet, Louisa Bradtmiller, Kristen Clark, Sarah Katchpole, Anna Marchefka and Angelie Peterson; and from the Class of ’97 Karen Mitchell, Sarah Smallheer and Sara Rosenzweig Cribbs. It was great to see you all. Come back often and stay in touch.
Alumnae Receptions at GSA Meeting in Charlotte, NC

As usual, the Department participated in the Group Alumnae Reception at the Annual National GSA Meeting. Some of the alumnae who attended the Reception were Stephanie Moore ’07 (PhD student at UT Austin), Sarah Carmichael ’89 (Faculty at Appalachian State University), Madeline Weigner ’09 (graduate student at the University of Idaho), Priscilla Strain ’74 (with the Air & Space Museum in Washington, D.C.), Susan Vincent ’00 (and MAT ’02; retired from teaching at the Young Women Leadership School), Roxanne Renedo ’09 (graduate student at the University of Minnesota), MaryAnn Malinconico ’73 (research scientist at Lafayette College), and Carolyn Anderson Lepage ’74 (environmental consultant in Maine). Current student Sarah Brisson ’14, and Faculty John Brady, Al Curran and Bosiljka Glumac also attended the Reception.
Geosciences Photo Gallery