



The Champlain Thrust

News from the

Department of Geology, UVM

2010/2011

Department News



Greetings from the (new!) Chair:

Greetings from the corner office of Delehanty Hall. As announced in last year's newsletter, Char has returned to full time teaching and research after serving as Department Chair for six long years. I had the opportunity to serve as Acting Chair during Char's recent sabbaticals and found the experience both challenging and rewarding. I wonder how long that feeling will last now that I have officially become Char's successor in the corner office!

It has been another busy and productive

year in the department. Below is a very brief summary of our activities. Many more details can be found in the individual faculty sections.

Since Paul Bierman's Cosmogenic Isotope lab came back on line last year, he, his students, and many collaborators have been furiously cranking out data and publishing papers. It is good to see that corner of the building buzzing with activity again. Great news: Greg Druschel was promoted to Associate Professor in April. Congratulations! He and John Hughes have set up an impressive new Mineral Characterization laboratory, which is used almost daily for research by our students and has already become a great addition to classroom activities. Keith Klepeis has been busy with field expeditions in remote parts of Patagonia and somehow managed to convince Char to go along with him. They both made it back safe and sound with lots of new data and ideas. John Hughes had a very productive one-year leave and is looking forward to getting back to teaching after years of administrative duties. A new mineral (Hughesite) was recently named in John's honor and we will soon have a specimen for display in the Perkins Museum. Char seems to be truly enjoying her post-Chair life, although she kept herself pretty busy with teaching and research

even before stepping down. This semester she has cranked up her already heavy teaching load by offering a new TAP course and has lots of plans for future courses. Laura Webb successfully sailed through her second reappointment and continues to collect NSF awards. Her latest award will allow her to build a Geochronology Facility that will house a fancy noble gas mass spectrometer and will provide new opportunities for both teaching and research. When he is not teaching, Stephen Wright can normally be seen somewhere out there in the field, mapping and digging, always looking for new and exciting clues related to the glacial history of our region.

Last July, Char and Keith went back to Iceland for the department's yearly Regional trip. The eruptions of the Eyjafjallajökull volcano in April and May made planning for the trip a bit more complicated than usual, although what better place to go for a geologist! Jack and Barry continue to be very involved emeriti. Barry and Sandy will return to Oaxaca, Mexico, during the summer to help run UVM's Overseas Program there. Once again Jack has managed to collect all the information needed to put this newsletter together. Not an easy feat! He has also been of tremendous help with the Perkins Museum tours. It is fun to see him surrounded by dozens of wild school children. I am not sure how he does it. The rest of the department normally goes into hiding during the school group visits...

As always, Gabriela, Robin and Srebrenka keep Geology running. As we acquire more funding and more instrumentation, there is very little chance for our support trio to get bored. Without them, the place would fall apart!

I know belts are tight for everyone these days, but we could really use your help. The next time the UVM Alumni Affairs office calls or sends you a fundraising letter, don't hang up or recycle that envelope! Think about making a donation to support UVM Geology. This can be done either through the Development Office by earmarking it for the Geology Department or donations can be made directly to the department itself. If you would like your donation used for a specific purpose that can also be indicated. All of your funds go directly to students. This really IS a case of "every penny helps." On behalf of everyone in the Department, thanks to all of you who have been making donations.

Department Faculty



Char Mehrtens, Professor (Stratigraphy, Sedimentation, Carbonate Petrology):

Greetings all! I am back to teaching full time now that I've handed off the Chair responsibilities to Andrea. Since we try to offer 100 level classes like Strat/Sed on alternate years, I decided to create a new class as one of the College's TAP (Teacher Advisor Program) freshman seminars. The new class is called "Global Climate Change and Fossil Fuels." I wanted the class to focus on the scientific basis to climate change, so I spent the summer re-reading basic physics and learning a ton about single layer models of the atmosphere. Pretty cool stuff! Since TAP classes are supposed to be writing-intensive I am spending a LOT of time reading and editing essays, and a term paper looms at the end of the semester. Between this class and the weekly quizzes in Geo 001, I feel like I spend most of my evenings grading. That said, the class is going well and I'm going to try and teach it on alternate years with Strat/Sed.

Research-wise, I spent the summer doing thin section petrography and point-counting the sandstones I collected with Keith and his grad students in Patagonia last year as part of Keith's research project on the early stages of Andean orogenesis in Patagonia, Chile. Just before school started at the end of August I got the results written up and handed off to Keith, who assembled the structure-stratigraphy-sedimentology-geochronology manuscript, which was recently submitted to Tectonics.

New grad student Megan Scott joined us this year and is working with me and Keith on a structure-stratigraphy project in the Middlebury area. I was asked to run a Champlain Valley stratigraphy trip for

next fall's NEIGC meeting, hosted by Middlebury College, so starting this spring and through the summer I'll be prepping a trip that looks at the Chazy limestone from Crown Point, NY north to Isle la Motte.

Keith and I (and Gaby) led this year's Regional trip back to Iceland in late July. It never fails to be an amazing place to visit. I think everyone had a good time (and got a wool sweater!).

Outside of geology, I continue to take adult education classes in Spanish. It's coming slowly as my brain still scrolls for vocabulary in French (a language I took from elementary school through college) whenever it's confronted with "say something not in English." I guess if there is "spanglish" there must also be "frenspan" or some like that. I'm still curling with the Green Mountain Curling Club and thanks to Jack's insistence that the week have some play time in it, I continue to play as much golf as I can with him and Vermont weather permits. I have gotten to the, "I'm not horrible at this anymore" stage and don't humiliate myself when I play with Barry and other "real" golfers.

Please drop us a line to say "hi" and let us know what you are up to. It's wonderful to hear from you.
<http://www.uvm.edu/~cmehrten/>



John M. Hughes, Professor (Mineralogy, Crystallography, Crystal Chemistry):

It has been an excellent year. I am delighted to be back in the classroom, and hopefully the students feel the same way. Despite my small sections this fall, I will pay for that next spring with a mega-section of 220 students in the Dynamic Earth, which I am actually looking forward to. As the academic politics swirl in the university, as they always do, I am delighted to observe from afar, in the classroom and laboratory, while I interact with UVM students...

It has been a productive year in research. We have installed the new powder diffractometer that we obtained with NSF funding (Greg Druschel was the PI of that grant), and I am now shopping for a new single-crystal diffractometer with colleagues in Chemistry. That is my main instrument, so I am pleased that we will have one at UVM now. Three other proposals are in review with colleagues here and elsewhere, and we are waiting with fingers crossed. Papers with students at my former institution and other colleagues have appeared or will appear soon in American Mineralogist (x3), Canadian Mineralogist (x2), Mineralogy and Petrology, and several others will be submitted soon; it is wonderful to be catching up on research. I also continue my service to the Mineralogical Society of America, Chairing one committee and serving on others; I enjoy that service greatly.

Susan and I spent a wonderful few days in Budapest in the late summer at the International Mineralogical Association meeting where I presented a paper, and it was a great way to kick off the new year. We are now busy preparing to move to a new condo in Essex, so life is busy, but wonderful. Finally, I was deeply honored and humbled recently, as colleagues from around the country joined to describe a new mineral and name it hughesite in my honor; to one who has spent his entire career studying minerals, it is truly humbling...



The new X-ray analysis lab in Delehanty



**Paul Bierman, Professor (Geomorphology, Geohydrology, Isotope Geology
Applied to Landscape Change):**

The Geomorphology group at UVM had a great year. Since moving into our new clean lab back in January 2009, and spending nearly a year testing and refining methods, we have been processing samples from all over the world. Over 1000 samples have moved through the new lab and been measured at Livermore with higher beam currents and lower blanks than we ever achieved before. That's 4 times more samples than we've ever done in a year and thanks are due to everyone involved - lots of graduate students from UVM and from far away including Penn State, Macquarie Uni in Australia, Williams College, and Duke University. Even from afar, you can see the lab live and on-line using our webcams - visit:

<http://www.uvm.edu/cosmolab/?Page=cosmocam.html>

I've been working very closely with 5 graduate students as they complete their research. Lee Corbett and Joseph Graly are completing work on our first Greenland project (sponsored by NSF). Two papers are in review and one has come out. You can find any of our papers and abstracts by visiting the lab web page and checking under publications.

*Graly, Joseph A., Bierman, Paul R., Reusser, Lucas J., and Pavich, Milan J., Meteoric ^{10}Be in soil profiles – a global meta-analysis. *Geochimica et Cosmochimica Acta* (2010).*

Luke Reusser is finishing up his doctorate in New Zealand. Two of his papers are out and two more are in prep.

*Reusser, L., Graly, J., Bierman, P. R., and Rood, D., A new approach for constraining long-term meteoric ^{10}Be deposition rates. *Geophysical Research Letters* (2010).*

*Reusser, Lucas J. and Bierman, Paul R., Using meteoric ^{10}Be to track fluvial sand through the Waipaoa River basin, New Zealand. *Geology* **38** (1), 47 (2010).*

Eric Portenga and Charles Trodick are working out the erosion dynamics of one of the most geomorphically famous landscapes, the central Appalachian Mountains. They are both presenting at GSA this year in Denver.

Eric just submitted a paper to GSA Today that compiles every ^{10}Be erosion rate ever measured - quite a feat!

Jamie Russell, the staff member in charge of the several digital archives we maintain, has made great progress with both. She's presided over a more than four-fold expansion of the Landscape Change Program archive. We just got word that the program is going to be funded by the National Endowment for the Humanities (not the usual organization for Geologists to get \$\$ from). We will be digitizing an archive of 36,000 images documenting the construction of the Interstate Highways through Vermont and using the images to understand how landscape and cultural change in rural Vermont was catalyzed by these highways. There are now over 38,000 images of Vermont landscapes on-line. Have a look and find your favorite town or picture of campus at:

<http://uvm.edu/landscape>

Jamie's also been working hard on a new image archive designed to improve the teaching of Geomorphology and Physical Geography. We now have over 2800 images of landscapes from around the world on line and ready for downloading. We'd love more images, so please scour your archives and hard-drives and upload a few images on line at:

<http://uvm.edu/geomorph/gallery>

I've been doing lots of writing. Colleague Dave Montgomery and I are creating a new Geomorphology textbook, the rough draft of which is almost done! We've been working with Christine Massey on this endeavor. She's been coordinating the outreach component. You can learn more about the project and get involved (by sharing your own case studies as Vignettes, on-line e-media) at:

<http://uvm.edu/geomorph/textbook>

Lastly, we have funding for two new MS students to start work in summer/fall 2011. One project will take us back to Greenland for fieldwork and then analysis of DSDP cores; the other is the Interstate Highway project I explained above. If you know of a top notch undergraduate who would like to come to UVM for a funded MS degree, please have them get in touch with me!

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Paul and Christine with current and former UVMers on the Kirk Byran Fieldtrip, Columbia Gorge channeled Scablands in Oregon.



Paul preparing for field work with Kyle Nichols in Namibia



Andrea Lini, Associate Professor (Stable isotopes, Limnology and Climate Change): Greetings from the world of stable isotopes, lake mud and (new) tree rings!

Our research project on Lake Champlain paleolimnology is moving along very well. We have just submitted a manuscript for publication in a special volume of the Journal of Great Lakes Research dedicated to Lake Champlain. The article focuses on St. Albans and Missisquoi Bays, the two areas of the lake most heavily impacted by human activities. This past February and March we have successfully retrieved four long (up to 3 m in length) sediment cores from the two bays. These cores will allow us to extend our study of the processes that have affected the lake's chemistry, biology and

sedimentary patterns well beyond the European settlement period. We will present our preliminary findings at the annual meeting of the North Eastern Section of the Geological Society of America, which will be held in Pittsburgh, PA, in March 2011.



Recently I started a new collaborative project with faculty from the UVM Geography Department. We are investigating the nature and strength of the climate signal retained by populations of dwarf-shrubs from the arctic and the northwestern US. The project's goal is to assess the potential of these sites' dendro- and stable isotope chronologies for use in further climate reconstruction studies. Two undergraduate students are heavily involved in this very exciting study.

Why won't this @#!& boat go any faster??!!

Some recent papers are listed below.

Parris, A., Bierman, P., Noren, A., Prins, M., and **Lini, A.**, 2009, Holocene paleostorms identified by particle size signatures in lake sediments from the northeastern United States, *Journal of Paleolimnology*, v. 43, p. 29-49

Rayback, S. A., **A. Lini**, and D. L. Berg. 2010. Growth, reproduction and stable isotope ratio chronologies of *Cassiope mertensiana*: Multiple climate signals from a site on Mount Rainier, Washington, USA. *Physical Geography*, v. 31, p. 79-106

Rayback, S. A., A. Lini and G. H. R. Henry. In Press. Spatial Variability of the Dominant Climate Signal in *Cassiope tetragona* from Sites in Arctic Canada. *Arctic*.



Keith Klepeis, Professor (Structural Geology and Tectonics) Greetings!

This past year has been an exciting time at UVM for those of us interested in field geology and tectonics. Char Mehrtens and I are in the last phase of a large, international research project on the tectonic evolution of the Patagonia Andes. Since 2007 I have run six science expeditions to some of the wildest fjords in Patagonia, including the Beagle Channel (where Charles Darwin made geological observations and almost lost his ship by a calving glacier), Seno Otway, and the Straits of Magellan. UVM grad student Janelle McAtamney and undergrad Shane Snyder finished their theses on the transition from rifting to compression in the southernmost Andes, which combined elements of structural geology with sedimentology, geochemistry and U/Pb geochronology. Char Mehrtens cosupervised Janelle's thesis and accompanied me on three cruises. Janelle is now in Texas and thinking about PhD programs. UVM geology alum Paul Betka also continues his PhD work on the Patagonian Andes with me and with Prof. Sharon Mosher at the University of Texas at Austin.

During the summer, 2010, Char, Gabriela and I also took a group of Geology students to Iceland as part of our Regional Geology course. This was our second trip to the island, which, like the first one, was full of adventure. Some of you may remember that volcanic eruptions completely disrupted air travel in Europe during the spring and early summer of 2010. Luckily we were able to travel to and from Iceland with no major problems, and we got to see the aftermath of numerous eruptions there. Iceland is a fantastic

place where volcanic, tectonic, and glacial activities interact and affect one another in unique ways. It was a great learning experience for everyone. I've also taken on two new graduate students this year. Jeff Webber, who hails from Montana, is working partly on the tectonic evolution of a volcanic arc in the central Andes and partly on thrust tectonics in Vermont. Prof. Laura Webb is working us in the Andes. Laura and I also are co-supervising Christine McNiff, who is looking at some interesting dome-and-basin fold geometries in western Vermont. This latter project builds on the results of an undergraduate project that Hal Earle completed with Dr. Jon Kim at the Vermont Geological Survey and I. Hal presented his results at the Northeastern Section meeting of the Geological Society of America. Also in 2010, undergraduate Maggie McMillan began a field-based geology project looking the evolution of structures in Craftsbury, Vermont. Maggie is the tenth UVM student to do a research and field mapping project in Vermont with Jon and I. We will certainly be at Northeast GSA in Pittsburgh in 2011 so I hope to see some of you there.

My best to everyone,
Keith



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<http://geology.uvm.edu/structure/structure.html>
<http://geology.uvm.edu/structure/fiordland/fiordland.html>
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Field work in Patagonia, January, 2009



Janelle in the Patagonia field area



Keith in front of Darwin's Glacier



Greg Druschel, Associate Professor (Aqueous Geochemistry, Mineralogy, Sulfur Biogeochemistry, Microbial Geochemistry): Hello everyone, I celebrated this past April on getting tenure at UVM! We also had some nice grant success this year, receiving funding from NSF for a 5 year study of elemental sulfur in different environments and to obtain new equipment for mineral characterization. The labs continue to grow with these grants, and with John Hughes I am managing the new minerals characterization lab which includes a new Rigaku MiniFLex II powder XRD system, a Thermo Niton XL3t 900 series GOLDD handheld XRF, a DeltaNu Rockhound Raman spectrometer, and a micronizing unit for ultrafine powder production. We also were able to upgrade the SEM over in the Microscopy Center at the medical research center with a new Oxford Instruments 50mm2 EDS device for quantitative X-ray analysis and mapping. In the main lab we also have a new Beckman Coulter DelsaNano HC Dynamic Laser Particle scatter that can quantify particles down to 600 picometers and also do zeta potential measurements for determining surface charge. These devices have dramatically improved what we can do here and I look forward to working with new generations of students on many interesting research questions they will help us investigate! The past year we have continued research of iron-sulfur interactions, with a big push finishing up some iron isotope experimental work that Jess Sperling started (Jess is working in consulting and is in Madison, WI where she and Ed are now married); Alyssa Findlay and Christine Cramer have been involved with these experiments as we team with colleagues at Wisconsin on the isotope analysis. Also we have been busy continuing our Lake Champlain work; Lydia Smith (who completed her MS in May and is now gainfully employed in town as an environmental consultant) made some very interesting measurements showing us how redox chemistry drives nutrient mobility over seasonal and even diel time scales. New MS student Nikki Shufelt has started work in quantifying the flux of phosphorus in and out of lake sediments under varying redox conditions. Our sulfur work also continues, Ed Greiner's work on calibrating voltammetric electrodes last year payed off with a very successful trip to Yellowstone with colleagues from Maryland and the USGS in May and early June – Alyssa Findlay was part of the team in the field and additionally studied accidental bear spray discharge (Alyssa is now a grad student at the University of Delaware; Ed is now a grad student at Wisconsin). New MS student Angel Garcia has joined the group and will be investigating how elemental sulfur particle size can be characterized via laser particle analysis, voltammetry, and raman spectroscopy. Together with Mickey Gunter (a Marsh at-large Professor at UVM and a Professor at the University of Idaho) I have also been looking at mineral dusts and lung fluids, with local attention to the abandoned asbestos mine near Lowell; Alyssa Findlay started some work on characterizing high Ni and Cr in sediments there, and Laura Wilson is continuing a detailed look at the distribution of Ni, Cr, V, and As in sediments transported downstream from the site and on using the new XRF to precisely characterize those materials. I am teaching new courses in Medical Geology at the grad level and as an Honors College course – new stuff that has just been fascinating as a topic to teach – integrating mineralogy and geochemistry with health sciences along with the policy and legal implications makes for some great discussion! I'll be teaching Earth Materials with John Hughes next semester and am looking forward to the shared duties along with an opportunity to utilize the new lab! Geochemistry and Geomicrobiology continue to be taught as well, and the new equipment has been a wonderful addition to the classroom!

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Stephen Wright, Senior Lecturer (Glacial geology, Geomorphology, Environmental Geology): We've had a cold and wet fall which has been good for both recharging groundwater and keeping boots wet. A new field trip for the Vermont Field Geology class this fall was a visit to the Chateaugay magnetite mine on the north side of Lyon Mountain (northeastern Adirondack Mountains). While access to most of the deep mine workings is blocked, there are still ample exposures of the ore and its contact relationships with the bounding gneisses in some of the supporting pillars (see

photo at right). The setting of the ore (within felsic meta-igneous rocks) is very similar to the much more extensive and older (1.8–1.9 Ga) magnetite ores in Kiruna, Sweden where I did my dissertation research and their origin (immiscible liquids vs hydrothermal replacement) still controversial.

I've worked on two projects with undergraduate students this last year. A year ago fall Greg Parrish did a senior research project using ground penetrating radar to investigate the subsurface geometry of a buried bedrock channel on Shattuck Mountain and the three-dimensional distribution of glacial sediments underlying parts of the West Bolton Golf Course. We used GPR equipment kindly lent to the department from St. Lawrence University under the direction of UVM graduate students, Will Hackett, Jo Palmer, and



Lauren Chrapowitzky, all St Lawrence geology alums. Similar projects will now be possible using the department's newly acquired GPR equipment.

Rebecca Derr is currently completing measurements that should enable her to compute the isostatic uplift plane for Glacial Lake Winooski, a large glacial lake that occupied that north-central part of Vermont. Similar work on Glacial Lake Hitchcock to the east in the Connecticut River Valley, Glacial Lake Vermont to the west in the Champlain Valley, and Glacial Lake Memphremagog to the north have all produced somewhat different isostatic tilt planes. Her work should help our understanding of the dynamics of the Laurentide ice sheet. Rebecca will also be analyzing the clay mineralogy of Glacial Lake Winooski sediments as her final project in John Hughes' X-Ray Diffractometry class.

My summer months were spent co-teaching (with Helen Mango, Castleton State College) another cohort of K–8 teachers both geology and chemistry as part of their Vermont Science Initiative program, mapping a reach of the Second Branch of the White River valley in Randolph, and moving. The Randolph mapping was south of mapping I completed in the Steven's Branch valley (Barre to Williamstown) some years ago. The same esker system I mapped to the north extends down the valley until it becomes completely buried by younger glacial lake sediments (see photo below). This Second Branch valley was a narrow arm of Glacial Lake Hitchcock and my mapping indicates that the lake largely filled with sediments well before the lake drained. This was a beautiful valley to map in with interesting geology and many pleasant, interested, and accommodating landowners.

I'm looking forward to bringing another Regional Geology class out to Colorado early this summer and pursuing other research projects focused on the glacial geology of the region. I'm living in Randolph now (catching the LINK bus in from Montpelier every day) and looking forward to not moving again for awhile. Please stop by and say hello if you're around the department. I wish you all well.

Email: Stephen.Wright@uvm.edu



Laura Webb, Assistant Professor (Igneous petrology and Geochronology)
Hello UVM Geology alumni and friends:

It's been another busy and exciting year here on many fronts. Some projects are ramping up, some are midstream, and others are coming to a close. Merril Stypula (MS student) is working on the final phase of NSF funded research in the East Gobi Fault Zone, Mongolia, trying to understand the relationship between migmatites and earliest documented phase of ductile shear. Kyle Ashley (MS student) has built momentum on NSF funded research testing the utility of the titanium-in-quartz thermobarometer in unraveling the conditions associated with the complex history of fabric development in the Strafford Dome region. Christine McNiff (MS student) joined us over the summer to help get the ball rolling with undergraduate research utilizing newly NSF funded geophysics equipment (ground penetrating radar, electromagnetic induction). She is starting a new, local structural geology project (coadvised by Keith Klepeis) investigating polyphase deformation of thrust sheets in the Champlain Valley. I also continue to be active in research on the exhumation of the youngest documented high and ultrahigh-pressure rocks in the Woodlark Rift of Papua New Guinea. Other news I am pleased to share is that I have been funded by NSF's Instrumentation and Facilities program to build a multi-user facility for $40\text{Ar}/39\text{Ar}$ geochronology here in Delehanty Hall. The laboratory will provide great opportunities for teaching and training, research and collaboration.

Best regards,

Laura

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Merril Stypula (MS student), Graham Hagen-Peter (Senior Geology major) and Onon and Baaska (Mongolian MS students) survived another day of field work at Tavan Har in the Gobi, SE Mongolia. Summer 2009



Laura Webb (lower right) with colleagues from Syracuse University and the crew of the MV Chertan in Alotau, Papua New Guinea (March 2010).

Geologist studying xenoliths in volcanic rocks on Egum Island, Papua New Guinea"



Graduate Students



Luke Reusser: I am currently a doctoral student in the School for Natural resources and the Geology Department at the University of Vermont, having completed my masters in the Geology Department. Many of the projects I am working on for this degree include estimating drainage basin-scale erosion rates along both the east and west coasts of North America, as well as along the east coast of the North Island of New Zealand. The aim of my research is to understand better the relative influence of tectonics and human land use on rates and styles of landscape change.

Prior to my current research, I completed a Masters Degree here at UVM considering the rate and timing of fluvial incision through bedrock along several large rivers draining the central Appalachian Mountain Belt. I earned my Bachelors degree from Skidmore College where I studied both Geology and Studio Art. Besides playing with rocks, I occupy myself with the usual hiking, camping, traveling etc, and I also enjoy growing a good garden.

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Lee Corbett: After spending about 15 straight months in UVM's new cosmogenic isotope laboratory, I now have loads of exciting data from the samples we collected in Greenland in 2008. I plan to spend most of the coming year writing; at present, I'm working on a manuscript that investigates ice retreat rates in western Greenland at the end of the last glacial period. I recently presented my work at the Arctic Workshop in Colorado and the International Polar Year Science Conference in Oslo, Norway, and I plan to present at both GSA and AGU this fall.). email: ashley.corbett@uvm.edu



Lauren Chrapowitzky: I am a second year master's candidate here at UVM having graduated from St. Lawrence University with a BS in Geology this past spring. While at UVM I'll be working on the sedimentology, paleoecology, and paleoenvironments of the Valcour Formation (Middle Ordovician, Chazy Group) in Vermont and New York with Char Mehrtens. Char and I have been working on some spectacular outcrops this fall, trying to make the most of the remaining field season. As for the coming winter, I'm hoping for as much of the white stuff as possible so I can spend most of my free time skiing! Email: lchrapow@uvm.edu





Charles Trodick: I graduated in 2007 from Cornell College with a double major in Geology, and Economics and Business. I spent 2007-08 at Vanderbilt University in Nashville, TN doing Master's work. During the summer of 2008, I transferred to UVM. I grew up on the Mississippi in Iowa, I spent last year in Nashville, and I moved to Burlington, VT in August of 2008. Currently, I am a first year graduate student working with Paul Bierman on a project involving the study of pre-human sediment fluxes down the Potomac River, near Washington, DC. I will be making at least two trips to the Potomac to gather samples for running in the Beryllium lab here at UVM. I will use this data along with previously gathered data to compare pre-human with modern sediment loads on the Potomac. Then I hope to come up with a recommendation to get our modern sediment loads back to the pre-human amounts. Outside of school, I enjoy biking, hiking, camping, socializing with friends and family, and many different sports including soccer, football, and baseball. Email: ctrodick@uvm.edu



Eric Portenga: I have been studying erosion rates of exposed rock outcrops in the central Appalachian Mountains for the past few years with Paul Bierman. We have been utilizing concentrations of 10-Beryllium produced within the quartz mineral structures of these outcrops. The amount of 10-Be reflects the length of time the outcrop has been within the uppermost few meters of Earth's crust. Our results are being presented at the Geological Society of America's annual Fall Meeting in Denver, CO. I have also been working on a larger project with Paul: We have compiled all erosion rate data using the 10-Be method for both bedrock outcrops and drainage basins from around the world and analyzed them, looking for trends between erosion rates and environmental and physical parameters such as elevation, mean annual temperature, seismicity, and lithology, among others. This study may be able to lay the groundwork for erosion rate prediction of unsampled locations, as well as those inferred through other methods. The results of our work are currently in review at GSA's monthly journal, *GSA Today*. Email: eric.portenga@uvm.edu



Drew Koff: I had a busy first year as a master's student at UVM. I have been working on my thesis project with Andrea Lini and Jo Palmer on the paleolimnology of Missisquoi Bay. We collected two sediment cores last winter on the ice and have been analyzing them this spring, summer and fall. This summer I got married across the lake in the Adirondacks and then went on an amazing two week honeymoon trip to Northern Italy where we toured around the coast, Piedmont and Alps. This fall has been filled with lab work and TAing Environmental Geology with Stephen Wright. I'm looking forward to winter and more adventures in the snowy mountains of the North East! Email: Andrew.koff@uvm.edu



Johanna (Jo) Palmer: I just recently graduated from St. Lawrence University with majors in geology and anthropology. I am interested in many aspects of geology, including hydrology, geochemistry, isotopes, etc. I spent the last 3 summers doing an internship with the Stream Corridor Management Program with the SWCD, and really love water and how humans and water interact. I love traveling, and have spent time in New Zealand, Curacao, Costa Rica, Canadian Rockies, and in many areas of the US. For my project, I will be working in St. Albans Bay doing sediment core isotope work with Andrea. I'm excited to be here at UVM and am looking forward to the next 2 years! Email: jpalmer1@uvm.edu



Kyle Ashley: I am a second year MSc candidate working on utilizing Ti concentrations in quartz as a thermobarometer for use in pressure-temperature-time-deformation histories construction with my adviser, Laura Webb. I am currently collecting as much data as possible and starting to synthesize and integrate our findings so far. I graduated from SUNY College Potsdam with a BS in geology, which is located about 10 minutes away from where I grew up (Madrid, New York). I enjoy both outdoor and indoor activities, especially sports (golf, racquetball, soccer, etc.) and playing guitar. I look forward to my final year at UVM and am enjoying my time working and spending time with the department. Email: Kyle.ashley@uvm.edu



Merril Stypula: Greetings. I graduated with a bachelor's degree from Colorado College and made my way east to UVM in order to work with Laura Webb in tectonics, thermochronology and ARCGIS. My introduction to UVM was a field season last summer in Mongolia. A great experience. Email: Merril.stypula@uvm.edu



Ben DeJong
Major professor: Bierman
PhD through the Rubenstein School of Natural Resources
Defining mappable Pleistocene units on the Eastern Shore of Maryland
Email: bdejong@uvm.edu



Angel Garcia: Hola! Greetings! I come from the Caribbean island of Puerto Rico. I did my undergraduate major in Environmental Science and a minor in Marine Biology at the Universidad Metropolitana, San Juan, Puerto Rico. I'm in my first year of a Master's program. I participated in four national and international summer research internships in places like South Carolina, Arizona, Costa Rica, and Vermont. Actually, I'm part of the Vermont EPSCoR Fellowship for graduate studies. I really enjoy hiking and scuba diving across the world. I'm working with geochemistry in Yellowstone National Park. Email: agarcia2@uvm.edu



Hello! I received my BS: Geology from Salem State College in Salem, MA. Originally from MA, I have lived in Florida and traveled a bit before returning to MA to attend college. I am particularly interested in structural geology, petrology and geophysics and came to UVM to work with Laura Webb. My husband and I are excited to spend time in Vermont. Besides working/studying, we hope to do as much hiking and climbing as possible. I also enjoy beekeeping, growing food and cooking. Email: Christine.McNiff@uvm.edu



Jeff Webber: Greetings, I am currently a Masters of Science candidate in the department of geology at UVM working under the guidance of Dr. Keith Klepeis. The fundamental premise of our research concerns the evolution of deformation in a variety of tectonic and thermal regimes from the low-grade assemblages of the green mountains to melt involved plutonic complexes in coastal Chile. I was born and raised in the mountain town of Bozeman Montana where I received a Bachelors of Science degree from Montana State University. My passion for research and teaching is most directly linked to days spent climbing, hiking, and skiing with mentors and friends amongst the mountains of the West. My previous research has included work in Montana, Colorado, Spain, and France studying a variety of environments from large scale crustal shear zones to deep marine basin formation. I am excited to begin a new chapter in Burlington with new peers, students, and colleagues. Email: jrwebber@uvm.edu



Nikki Shufelt: Hello! I just moved to Vermont from Buffalo, NY where I got a bachelors degree at SUNY at Buffalo in Geology. I am originally from a small farm town in western NY, so all the local farming here makes me happy. I really enjoy reading and hiking and other such outdoor activities along with watching or playing sports. I am a die-hard Buffalo fan, including the Bills (football,) Sabres (hockey,) and Bandits (lacrosse.) Due to my geochemical research here at UVM, with Greg Druschel, I recently got my open water SCUBA diving certification. This will allow me to better gather samples to measure the phosphorus flux at the sediment water interface and analyze its relation to the cyanobacteria blooms in Lake Champlain. My research interest is measuring phosphorus flux at the sediment water interface and analyzing its relation to cyanobacteria blooms in Missisquoi Bay and Saint Albans Bay.

Email: Nicole.Shufelt@uvm.edu



Megan Scott: Hi, I came out to Vermont to work with Char Mehrtens on a project involving some Ordovician carbonates near Middlebury. Last spring I graduated from University of Illinois, which is located in my hometown Champaign-Urbana. Some of my favorite past geology field trips includes diving to study coral reefs in Curaçao, looking at sedimentary rocks in Western Ireland, and field camp in the Wasatch-Unitas. I try to spend most of my free time outside cycling, hiking, gardening, or just enjoying nature. Email: mtscott@uvm.edu

Staff



Robin Hopps: UVM Geology is a great department in which to work with outstanding students, staff and faculty. At present, the Department has 13 graduate students, 2 PhD students, 42 majors, and 17 minors. Stop in to Delehanty Hall, to visit, or re-visit staff and faculty, as well as the Perkins Museum. Feel free to stay in touch by sending an email to geology@uvm.edu. You can also see the list of lectures for the Geology Seminar Series on the UVM Geology website at "News and Events." I enjoy my ten-month position in the office, as well as being out of the office from mid-June to mid-August for my landscaping business.
email: robin.hopps@uvm.edu <http://www.uvm.edu/perkins/>



Srebrenka Sehovic: Since May 16th 2008 I have worked as department administrative coordinator in the Geology Department, and I love working here. It is a real pleasure to work with every single person in the Department. Being around young, educated people and watching them develop makes me feel good. I am always glad to assist them when they need help. My husband and I are fortunate to have four daughters; two of them graduated from UVM and the younger twins are seniors at Burlington High School so I am expecting to see them on campus next year. Also, I am a grandmother, my two-year old grandson brings me joy on a daily basis.
Email: srebrenka.sehovic@uvm.edu



Gabriela (Gaby) Mora-Klepeis, Senior Research Technician: Greetings. It has been a busy and productive year since our facilities continue to grow: The Dean's office provided support for the acquisition of 5 additional Macintosh computers to our computer laboratory and 5 new polarizing microscopes for the petrology laboratory. After removing all software, we donated the old computers to the Winooski City Schools. I am also happy to say that I was fortunate enough to receive the Dean's Staff Award for Superior Technical Support. There was not much bike riding this summer due to different personal and work-related travels. I had the opportunity to assist faculty and students during the Regional Geology field trip to Iceland in July. We spent 10 days doing a cross section of the North American and European plate boundary! This Fall Keith and I have been hosting some of our Australian colleagues as we start or finish some projects. Every so often we see a familiar face back in the building. Kristen Stokes and Maartje Melchiors stopped by for a visit and updated me on their future plans. If you are in the area, please stop by for a building tour, I'll be happy to show you around! Here are some photos from the Iceland field trip. G

Email: Gmora@uvm.edu
<http://www.uvm.edu/~geology/?Page=faculty/mora-klepeis.php>



Keith, Char, Icelandic guide and myself



At Hengill, Iceland

Emeriti Faculty



Barry Doolan: Greetings to all Geology Alums.

We just returned from a three-week trip to the southern Appalachians. It was not a geology trip (visiting my daughter Kate (UVM '00) in Durham and playing golf with son-in law Ian); however, I did get a look at the Knox, Martinsburg, Chilhowee and the Catoctin amongst other memorable formations along the way!

I made a surprise visit to Laura Mallard in her office in the Geology Department at Appalachian State University in Boone, NC. I will treasure the shock on her face for a long time to come. She is doing very well, and deservedly proud of her year and a half year towhead son who was prominently displayed in photos in her office. She sends her hellos and best wishes to all mutual friends

Sandy and I will return to Oaxaca Mexico next March to teach the Geology of Oaxaca course again to UVM students completing their semester abroad program in Mexico. We will try to get into a mountainous village outside of Oaxaca City to get a look at the recent landslide damage and try our hand at assessing other mass wasting potentials in the area. The bedrock geology is extremely interesting in Oaxaca but unfortunately is a bit beyond the capabilities of the intro students.

Older daughter Kristan (UVM Geology '92) is doing well in nearby Bakersfield running Does Leap Farm (organic goat cheese and kefir and more recently pork and goat sausage) with her family. Grandkids Zoe and Peter continue to be a source of joy and inspiration for us. We are fortunate to have them close by.

We still live in Fletcher Vermont (since 1981) and welcome any visits you may make to Vermont. Just put in 27 Cambridge Road, Fletcher Vermont in your GPS.

Best wishes to all

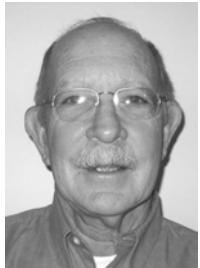
Barry



Jack Drake: Life for Ruthie and me has developed somewhat of a routine, but a good one at that. We spend the fall semester here in Burlington where we both sit in on courses at UVM (this year Spanish again for me as well as a History of Art; last year History of the Muslim World and Intro. to Islam). I also use the time to update the newsletter that you are currently reading, and give some museum tours to school groups. When the semester ends, we head out to California (near Santa Barbara) for several months to dodge the depths of winter, then back in the spring to get our sports equipment (fly rods, kayaks, sailboat, golf clubs, etc.) ready for action. This year we will spend Christmas in Denver with Nathan, his wife Jenn and our two granddaughters (ages 5 and 3). We try to intersperse this routine with some more exotic travels (i.e. last year to Spain and Provence). So, for us, life is good. We just have to keep reminding ourselves how lucky we are considering all the trials, tribulations and problems that exist in the world today. Note that the alumni weekend for the coming year is in the fall. So if you come back, and I hope you do, make sure to get in touch.

Best to you all, you have provided many fond memories of my years here at UVM.
Jack

Email: john.drake@uvm.edu or jcdrakevt@gmail.com



David Bucke: Greetings all. We've been out on the road again, this time since Sept 1. We got back Monday night after about 9500 miles, just in time to get voting done. Son-in-law #4 is in charge of the Essex town polls so I get tapped to be a helper. A long day-night but I do get to see & meet a lot of neighbor folks.

On this trip we concentrated on Oregon -- both coastal and inland ending up with Crater Lake, one of our most favoritest spots, scenery-wise. Our other stay-longest state was Utah -- great rocks. We rarely stayed more than 1 night at any place, enjoying the travel as much as the intermediate destinations. If it weren't for gasoline, it would have been a cheap vacation. We never eat out, so that cost matches home and we averaged a little over \$4.00/ night for camping costs. It's amazing how many free places can be found -- and we avoid commercial campgrounds. Federal places (Nat'l. Parks & Monuments, Bureau of Land Management, National Forests, Corps of Engineers, etc) are all 1/2 price camping and free entry with our "antique cards" (i.e. the "Golden Eagle" Pass).

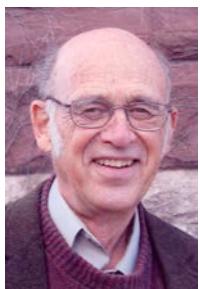


Dave and Donna, Crater Lake, Fall 2010

Not much special other than the travels to report for now. Oh yes there is! We have another granddaughter. Katy (now Katherine Sonnick)) presented Charlotte (pronounced the North Carolina way) Rose to the world about 5 months ago.

Donna & I extend our warm best wishes to all of you

Our new email address is:
ddbucke@gmail.com . I think my UVM mail still works & flips into the gmail box -- but maybe not.



Allen Hunt: Greetings from Bakersfield where we still live on Prospect Hill Farm. Last Spring we sold our herd of registered Angus cattle to reduce our responsibilities. Our three sons are scattered across the country. Edwin, our eldest, is single and lives in Nevada. Harry, our middle son, is an architect and lives in Stowe with his wife and two children – a girl and boy. Jesse continues to live in Park City, Utah, with his wife and three children – two girls and a boy. We no longer have an excuse for not traveling except that we love our farm in Vermont. Other than an occasional family trip west or to our cottage in Maine, we are home and enjoy visitors who may be traveling in our area.

Email: anhunt@wildblue.net
Telephone: 802-827-4418

2010 Graduated Geology Majors



Back row: Char, Pat Tobin Greg Parrish, Matt Bansak
Front row: Greg Swank, Hal Earle, Elisia Korbet, Graham Hagen-Peter

Recent Student Presentations

Reusser, L., Bierman, P., and Finkel, R., 2008, Estimating pre-disturbance rates of sediment generation and erosion with in situ and meteoric 10-Be: Waipaoa River Basin, New Zealand: Geological Society of America Abstracts with Programs, p. 299 http://www.uvm.edu/cosmolab/papers/Reusser_2008_3863.pdf

Hackett, W.R., Bierman, P.R., Rizzo, D.M., and Besaw, L.E., 2008, Increasing precipitation and runoff over the last 70 years, the Winooski River Basin, Vermont: Geological Society of America Abstracts with Programs, p. 301-1 http://www.uvm.edu/cosmolab/papers/Hackett_2008_3861.pdf

Betka, P., Klepeis, K.A., De Paoli, M., and Clarke, G. 2008, Three- Dimensional Finite Strain and Kinematics of Flow from a Lower Crustal Extensional Shear Zone: Fiordland, New Zealand: Geological Society of America Abstracts with Programs, p. 343.

Klepeis, K., Betka, P., Alvarez, J., Poblete, F., Thomson, S., Gehrels, G., and Clarke, G., 2008, Tectonic Evolution of a Doubly- Vergent, Thick-Skinned Fold and Thrust Belt in the Patagonian Andes: Southernmost South America, Geological Society of America Abstracts with Programs, p. 322.

Ashley K.T., Webb, L.E., Spear, F.S., and Thomas, J.B., 2010, Constraining P-T-t-D Histories with the TitaniQ Thermobarometer: Preliminary Findings from the Strafford Dome, Vermont. EOS, Transactions, Fall 2010 American Geophysical Union Meeting.

Stypula, M.J., and Webb, L.E., 2010, Microstructural and U-Pb Zircon Constraints on the Relationship between Partial Melting and Ductile Shear in the East Gobi Fault Zone, Southeast Mongolia. EOS, Transactions, Fall 2010 American Geophysical Union Meeting.

Graham Hagen-Peter, Laura E. Webb, and Merril Stypula, 2010, Timing and significance of large-scale folding in the Tavan Har basement block in southeastern Mongolia relative to Late Triassic sinistral shear. The Green Mountain Geologist, Spring 2010, vol. 37, No. 2.

Donald Hefferon, 2010, Petrographic and geochemical analysis of basement rocks in the East Gobi Fault Zone, Mongolia. The Green Mountain Geologist, Spring 2010, vol. 37, No. 2.

Presentations at Recent Meetings (2010 GSA Meeting, Denver, Colorado, references in Geologic Society of America 2010 Annual Meeting, Denver, Colorado Program and Abstracts) (UVM faculty and students in **Bold**)

De Paoli, Clarke, and **Klepeis** *CONTEMPORANEOUS ECLOGITE AND GRANULITE FACIES ASSEMBLAGES OF THE BREAKSEA ORTHOGNEISS, FIORDLAND, NEW ZEALAND*; 2010 GSA

Portenga, Bierman, Trodick, and Rood *LOW RATES OF BEDROCK OUTCROP EROSION IN THE CENTRAL APPALACHIAN MOUNTAINS INFERRED FROM IN SITU ^{10}BE CONCENTRATIONS*; 2010 GSA

Matmon, Briner, Carver, **Bierman**, and Finkel *MORAINE CHRONOSEQUENCE OF THE DONNELLY DOME REGION, ALASKA*; 2010 GSA

Trodick, Bierman, Pavich, Reusser, **Portenga**, and Rood *BASIN SCALE EROSION RATES FROM THE POTOMAC RIVER BASIN USING IN SITU AND METEORIC ^{10}BE* ; 2010 GSA

Corbett, Young, Briner, **Bierman**, Graly, Neumann, and Rood *USING IN SITU COSMOGENIC ^{10}BE TO UNDERSTAND DEGLACIATION TIMING AND GLACIAL EROSION EFFICIENCY NEAR JAKOBSHAVN ICEFJORD, WESTERN GREENLAND*; 2010 GSA

Bacon, Richter, **Bierman**, and Rood *STONE TO SOIL: ELEMENTAL FLUX RATES DURING PEDOGENESIS ON THE SOUTH CAROLINA PIEDMONT*; 2010 GSA

Cox, **Bierman**, Perry, and Rakotondrazafy *COSMOGENIC ^{10}BE ANALYSIS OF RIVER SANDS PROVIDES BACKGROUND EROSION RATES FOR MADAGASCAR*; 2010 GSA

Wu, **Druschel**, Beard, and Johnson *EXPERIMENTAL DETERMINATION OF IRON ISOTOPE FRACTIONATIONS AMONG Fe(II)_{aq} - FeS_{aq} -MACKINAWITE AT LOW TEMPERATURES*; 2010 GSA

Lini, A., Levine, S., Ostrofsky, M., Bunting, L., Burgess, H., Dahlen, D., and Leavitt, P., 2009, *Impacts of Land Use and Climate on Lake Champlain (USA-Canada)*, GSA Abstracts with Programs Vol. 41, No. 3

Lini, A., Levine, S., Ostrofsky, M., Dahlen, D., 2009, *LAKE CHAMPLAIN BEFORE AND AFTER EUROPEAN SETTLEMENT: WHAT WE CAN LEARN FROM ITS SEDIMENTS*. Vermont Lake Champlain Quadricentennial Indigenous Conference, May 2 & 3, 2009, St. Michael's College, Colchester, VT

Graly, J. A., **Bierman, P.**, Neumann, T., **Corbett, L. B.**, **Lini, A.**, **Reusser, L. J.**, Finkel, R., and Rood, D., (2009). *RELIANT SOIL ENTRAINMENT IN PLEISTOCENE ICE THROUGH OPEN-SYSTEM REGELATION: LATITUDINAL VARIATION IN THE WESTERN GREENLAND ICE SHEET*. Geological Society of America Abstracts with Programs. Paper No. 244-9

Rayback, S. A., **Lini, A.**, and Henry, G. H.R., 2010. *MULTIPROXY RECONSTRUCTIONS: COMBINING STABLE ISOTOPE ANALYSIS AND DENDROCHRONOLOGICAL TECHNIQUES TO RECONSTRUCT RECENT CLIMATE IN THE EASTERN CANADIAN ARCTIC*. The Association of American Geographers 106th Annual Meeting, Washington, D.C. April 2010.

Graly, J.A., Corbett, L.B., Bierman, P., Neumann, T., **Lini, A., Reusser, L.J.**, Finkel, R., and Rood, D., 2010. "HIGH LEVELS OF METEORIC 10BE INDICATE THAT RELICT SOILS ARE PRESERVED IN THE WESTERN GREENLAND ICE SHEET", Oslo Science Conference Abstract,

Lini, A., Levine, S., Burgess, H., Ostrofsky, M., Guilizzoni, P., Lami, A., Dahlen, D., Leavitt, P., Kamman, N., 2010, *THE EUTROPHICATION OF THE MAIN BASIN AND SOUTHERN ARM OF LAKE CHAMPLAIN: A PALEOLIMNOLOGICAL ASSESSMENT*. Lake Champlain Basin Research Conference - June 7 & June 8, 2010

Carr, H., Levine, S., Boumans, R., and **Lini, A.**, 2010, *MODELING 200 YEARS OF CHANGING TROPHIC STATUS IN LAKE CHAMPLAIN BASED ON LAND USE CHANGE*. Lake Champlain Basin Research Conference - June 7 & June 8, 2010

Schwarting, L., Levine, S., **Lini, A.**, Marsden, J.E., Manca, M., Guilizzoni, P., and Lami, A., 2010, *USING PALEOLIMNOLOGICAL TECHNIQUES TO ASSESS HISTORIC FOOD WEB CHANGES IN LAKE CHAMPLAIN*. Lake Champlain Basin Research Conference - June 7 & June 8, 2010

Villars, T., Becker, L., Doolittle, J., **Lini, A.**, Manley, P., Merrel, K., and Ross, D., 2010, *MAPPING THE SUBAQUEOUS SOILS OF VERMONT – THE MISSISQUOI BAY PILOT PROJECT*. . Lake Champlain Basin Research Conference - June 7 & June 8, 2010

Levine, S., **Lini, A.**, Ostrofsky, M., Bunting, L., Burgess, H., Leavitt, P., Dahlen, D., Lami, A., Guilizzoni, P., 2010, *PALEORECONSTRUCTION OF THE TROPHIC HISTORY OF LAKE CHAMPLAIN: THE NORTHEAST ARM*. 2010 ASLO/NABS meeting, Aquatic Sciences: Global Changes from the Center to the Edge

Carr, H., Levine, S., Boumans, R., and **Lini, A.**, 2010, *MODELING 200 YEARS OF CHANGING TROPHIC STATUS IN LAKE CHAMPLAIN BASED ON LAND USE CHANGE*. 2010 ASLO/NABS meeting, Aquatic Sciences: Global Changes from the Center to the Edge

Schwarting, L., Levine, S., **Lini, A.**, Marsden, J.E., Manca, M., Guilizzoni, P., and Lami, A., 2010, *USING PALEOLIMNOLOGICAL TECHNIQUES TO ASSESS HISTORIC FOOD WEB CHANGES IN LAKE CHAMPLAIN*. 2010 ASLO/NABS meeting, Aquatic Sciences: Global Changes from the Center to the Edge

NEIGC 2009

Wright, S.F., 2009; *ICE FLOW, SUBGLACIAL HYDROLOGY AND GLACIAL LAKE HISTORY IN NORTHERN VERMONT*; in Westerman, D.S. and Lathrop, A.S. eds, New England Intercollegiate Geological Conference Guidebook No. 101, pp. 35–61.

RECENTLY COMPLETED M.S. THESES

Go to <http://www.uvm.edu/~geology/?Page=gradresearch.html&SM=oppmenu.html>
in order to access copies of theses and progress reports

2010

Joseph L. Graly - Ice sheet modeling and paleoclimate of Greenland

Janelle McAtamney – Structural evolution and basin analysis of the Magallanes Basin, southern Patagonia, Chile

2009

Will Hackett – Modeling of the hydrologic impacts of highway construction and climate change in Vermont

Lydia Smith – Organic phosphorus cycling, mobility and bioavailability for cyanobacteria in sediments of Missisquoi Bay, Lake Champlain

2008

Paul Betka - Evolution and tectonic significance of ductile deformation in the middle and lower crust during contraction and extension in Cordilleran-style orogens.

Jane Duxbury - The determination of millenial scale erosion rates using cosmogenic analysis of ^{10}Be in the Shenandoah National Park.

Julie Rumrill - Using GPS to assess the spatial and temporal variation of seasonal velocity changes on the Greenland ice sheet, near Swiss Camp Greenland.

HURRAY FOR THE LIBERAL ARTS!!

RECENT AWARD RECIPIENTS UNDERGRADUATE AWARD WINNERS!

Congratulations for successful **Hawley Award** applications to support undergraduate research to: **Sam Schultz, Kirsten Stokes and Graham Hagen-Peter**

NEW UNDERGRADUATE SCHOLARSHIP IN GEOLOGY!



Thanks to a donation to UVM by Claire and Arthur Heiser, the Geology Department is able to offer the Joseph Tinker Award to an outstanding senior majoring in Geology. Mr. Tinker, the father of Mrs. Heiser, was a Vermont resident, farmer and amateur geologist. The 2010 recipient was **Maggie McMillan**.

Congratulations to **Graham Hagen-Peter** and **Hale Earle**, Charles G. Doll Award winners as outstanding graduating seniors in Geology



The David P. Bucke award for the outstanding student in introductory Geology went to **Abigail O'Donnell** and **Sandra Cronaner**

Undergraduate Research Awards:

Fall 2009

Graham A Hagen-Peter “Large-scale folding in the Tavan Har basement block, Southeastern Mongolia and its relevance to intercontinental deformation” Hawley Award

Spring 2010

Donald Hefferon “Igneous intrusions in the East Goby Fault Zone” Hawley Award

Alyssa Findlay “Mineralogy of VAG mine waste” Hawley Award

Maggie McMillan “Bedrock geologic mapping to address groundwater issues in the town of Craftsbury, Vermont” Hawley Award

Coleman Adams “Furthering the Structural Understanding of Jenson’s Canyon, Wyoming” Hawley Award

Fall 2010

Michael Ingram “A bouger gravity survey of Chittenden County, Vermont ” Mudge Award

Laura Wilson “Reactivity of Stream Sediments Containing Nickel and Chromium” Hawley Award

COME SEE US AT THE FOLLOWING:

NATIONAL GSA Meeting:

2011 Minneapolis, MN, 9 Oct. – 12 Nov.

National AGU Meeting:

2010, 2011 Check AGU website for specific dates: <http://www.agu.org/meetings>

2011 ***NEGSA Meeting (with North Central section) :*** Pittsburgh, PA, 20 March – 22 March

NEIGC 2011: Check <http://w3.salemstate.edu/~lhanson/NEIGC/> for information regarding dates and location

Alumni/Reunion Weekend at UVM!!!! (Note that this coming year it is in the fall!)

14 Oct. – 16 Oct; check <http://alumni.uvm.edu/reunion> for more information

Make sure that you get in touch with us so we can show you around!!

Visit our website for links to more department information and activities

<http://www.uvm.edu/geology/> and <http://www.uvm.edu/perkins>

Some Alumni News

**(Please email your news for next year's update to Robin.Hopps@uvm.edu
put 2011 newsletter in the subject line so that your news will be directed
automatically to the correct folder. We want to hear from YOU!)**

Maartie Melchiors: Hi all: Looks like we are moving back to Texas for a few years – I've been accepted to the graduate program at TCU! Thanks again for all your help!

Maurice Colpron:

Hi Char,

Now that I have a real internet connection (at least for the next hour) let me tell you more about my recent activities.

Following our initial synthesis of Cordilleran terranes published in GSA Today, my good friend JoAnne Nelson and I have been busy expanding on the topic. We first were asked to contribute to a volume of Mineral Deposits of Canada, where we used our analysis of terranes to paint the backdrop to a metallogenetic synthesis of the Canadian and Alaskan Cordillera (I'll forward links to reprints in subsequent emails). This exercise led us to expand a bit on our interpretation of paleogeography of NW Laurentia.

In the same period, I put together a field guide for a transect of the northern Cordilleran terranes (look for Open File 2007-3 on our website: www.geology.gov.yk.ca). This trip was first run as part of a conference in honor of Bill Dickinson in Tucson. We have since done this trip (or variants) 3 times...

Discussions on this trip have subsequently led JoAnne and I to further elaborate our paleogeographic interpretations which resulted in a model for the Paleozoic evolution of the Arctic region that we recently published in a Special publication of the Geological Society of London (vol. 318; again reprints will

follow). While still being primarily a Cordilleran geologist, this model has precipitated a flurry of exchanges and collaboration with Arctic geologists... this is where my association with Francis comes from (and also because he has recently undertaken studies of Proterozoic rocks in Yukon). This Arctic "work" has been very stimulating. It has taken me to Norway twice in the past 2 years and has greatly expanded my professional circles... Now I'm just wishing I could join some of these guys in some Arctic expedition to actually test myself the model we're proposing for rocks I've never seen...

My day job continues to be regional bedrock mapping in Yukon. I have just started a new multi-year project this past summer. My mapping is now mostly focussed in Mesozoic arc rocks that are associated with various style of Cu-Au mineralization. The area includes very exciting new discoveries to have totally isolated Yukon from the recession. Yukon is currently the hotspot for gold exploration in Canada and perhaps all of North America. We totally live in a bubble up here...

Another major project for me is an update of the geologic map of Yukon. Hope to complete this project in the coming year.

I continue to be involved with graduate students through affiliations both at Simon Fraser University near Vancouver and Carleton University in Ottawa. I currently have 3 M.Sc. and one Ph.D. students. And will (hopefully) be involved with 2 PDFs in the coming year...

This winter has been incredible in Whitehorse; mild temperatures and fantastic snow... And I am taking full advantage of it by stepping on my cross-country skis almost daily...

Here you go for my personal newsletter... doing great. Keeping real busy...

All the best to you and everyone in Burlington.

Ciao! Mo

Kent Koptiuchck:

Dear UVM Geology Department,

After 2 years as Nestle Waters' Natural Resource Manager for VT, NH, & NY, I transferred into the same role for the southeastern US and for the past year and a half have been based in north Florida monitoring the health and quality of 9 natural spring sites, overseeing sustainable springwater withdrawals from them, and re-learning Karst hydrogeology in-depth. I also search for, and evaluate new potential spring sites for development as water sources. In addition, I oversee the land use management of a couple of thousand acres of timber and agricultural lands that we own and maintain around our spring properties.

I still get up to my home in Essex, Vermont a couple of times per month to get in a "mountain fix". Took the whole family on a trip to visit my old haunts in Alaska this past May. We took a cruise ship up the Inside Passage from Vancouver, explored rainforests in Ketchikan, ice-climbed on the Mendenhall Glacier outside of Juneau, hiked the Chilkoot trail in Skagway, went salmon fishing on the Kenai River, whitewater rafting on 6-mile creek, and lots of hiking and climbing in Denali National Park. A great trip, and I got to look at some incredible geology throughout!

Kent S. Koptiuch, CGWP
Natural Resource Manager, FL/TN
Southeast Springs Management Group
Nestle Waters North America, Inc
Deer Park Bottling Plant
690 NE Hawthorn Avenue
Lee, Florida 32059

Jonathan L. Goldberg, M.S., M.D. (UVM 1996, 2002)

My wife Laura and I have two new additions since the last update, Sophia and Hannah ages 3 and 1 years. I have just been appointed Assistant Professor of Medicine at Case Western Reserve University Medical School in Cleveland, Ohio. My clinical practice is focused on cardiology with a research interest in pulmonary hypertension.

Ellery Klein, class of 1996 (yikes...)

Hi! Just got the postcard in the mail and thought I'd email the following: I just welcomed my second child into the world, Violet Diane Bell born 11/14/09. She joins big brother Lincoln who was born in July of 2007.

Thanks!

Rob Rau

Hi UVM Geo Dept. Got your post card last week and just wanted to let you know what's up with me:

"Rob works on contaminated groundwater sites and dive projects at the Environmental Protection Agency in Seattle"

Thanks

Rau.Rob@epamail.epa.gov

W. David Hoisington, Ph.D

I just received a post card in the mail asking for alumni news. I am not sure if I have responded in the past so I will briefly give a short story of what has transpired since graduating a while back.

After UVM I received a Masters degree in geology from Dartmouth and went on to work for Anaconda (which became a part of Atlantic Richfield Co – ARCo). Eventually I became the only geologist in the company selected for to be a member of the corporate minerals research group. The mission of this “think tank” was to promote cutting-edge ideas that would help our field personnel. I mention this because my experiences in this position took me around the world and also allowed me the opportunity to be linked with some of the top researchers. This was, as I look back, a foundation for what I am doing now.

I left the field of geology (sort of) and received a Masters and a PhD in counseling. This lead me eventually to teaching at the College of St. Joseph here in Vermont. But also to a very long and involved research project on compassion. This work (and images if you need them) can be found at www.CompassionSpace.com. It is research that is still continuing. It is also used by people around the world and is one of the top compassion research web sites.

I said I “sort of” left the field of geology. I started as a “rock collector” when I was 10 years old. Every spring I have that primal urge to trek off into the mountains and visit the rocks to hear the story they have to tell. I decided to tackle something of interest to me and to many others – the history of Herkimer Diamonds. This research can be found at www.HerkimerHistory.com and it is updated every year (there are great images here also). As far as I know it is the top research website on this topic. These sparkling quartz crystals from the areas just west of Albany, NY, are a fascination to many collectors around the

world. My goal is to provide a research-based web site that explains this unique mineralization in both scientific terms and in layman's language.

Aaron Hartmann <achartma@ucsd.edu>



Hi Char,
Sorry for the nearly year-long delay
getting back to you with an update.

I'm currently starting my fourth year of a Ph.D. in Marine Biology at Scripps Institution of Oceanography. I study adult and larval corals, in particular coral health, investment in young and interactions with their symbiotic algae. My work is done in the field - mostly in Curacao - and in the laboratory, where I use stable isotope and lipid measurement techniques to ask the questions that interest me. I'm currently in Curacao working on a collaborative project that

seeks to ask: do healthy corals make healthy babies, and we're using both biochemical and behavioral techniques.

I'm excited to report that my first first-author paper was just published in *Coral Reefs*, I've attached it here. I've also attached a picture of me doing some geological work!

I hope all is well in Burlington.

Best,
Aaron

Regional Geology in recent years

**Regional Geology
Iceland, 2010**





**2009 Regional
geology students:**
Matt Bansak, Ben
Henry, Greg
Parrish, Will
Hackett (TA),
Maggie McMillan,
Tyler Vendituoli,
Holly Crimmins,
Mary Snyder, Mike
Ingram, and Shane
Snyder at the base
of a weathered
Tertiary lava flow
near Del Norte,
Colorado.

Regional Geology, Italy, 2008





Regional Geology, Colorado, 2007: Pat Niggel, Gary Peters, Pat Tobin, Corey Coutu (TA, partially hidden), Jessica Schechter, and Kirsten Stokes studying the contact relationships between Paleozoic carbonate rocks and Laramide intrusive rocks near Cumberland Pass, Colorado



**Regional Geology Class enjoying the good life in Italy
Summer 2006**



Regional Geology 2005 in front of the “Maroon Bells” near Aspen, Colorado



**Iceland Crew enjoying summer sun
August 2004**



Regional Geology 2003 enjoying the Maine coast

**And now we conclude with a “blast from the past”
Regional Geology 1986, Newfoundland (Can you identify these people?)**

