THE EPOCH

Summer/Fall 2011| No.41

College of Arts and Sciences
University at Buffalo *The State University of New York*

Letter from the Chair

Marcus, I. Bursik, Professor and Acting Chair

Dear Alumni and Friends,

Greetings, All! This edition of the EPOCH finds the Department of Geology at the end of an eventful year. The year began with Chair, **Dr. Richelle Allen-King** taking up a one-year temporary position as a Program Officer at the National Science Foundation in Washington, DC. This is an extremely prestigious and important appointment, which Dr. Allen-King pursued with the greatest gusto. Congratulations, Richelle!

My appointment as acting chair for the 2010-2011 academic year began with a bang and never let up!

On the first day of classes, **Dr. John Simpson**, UB President, announced his retirement effective January 15, 2011. The University seemed to be in disarray for a bit, but everything settled down and a new president was chosen in the normal, orderly fashion. The Department, along with the rest of the University, welcomed (former) **Provost Satish Tripathi** to the presidency following his official confirmation by the SUNY Board of Trustees in April, 2011. President Tripathi continued the pursuit of UB 2020 plans, and in May 2011 Governor Cuomo and SUNY Chancellor Zimpher had instituted the NYSUNY 2020 plan, based in large part on the earlier UB2020 plan, but in this case encompassing freedoms for all the SUNY centers. Near the beginning of the fall 2010 semester, **Dean Bruce McCombe** announced his retirement, effective at the end of the academic year after serving as Dean since 2007. Again, the normal, orderly process was followed in choosing the new dean, and **Dr. Bruce Pitman** from Mathematics was selected. I am sure that in his careful hands, the Department will continue to flourish.

In an important side-note, Dr. Pitman promptly fingered **Dr. Charles Mitchell** for the important job of Associate Dean for Research (his own former position), with a portfolio including liaison to the sciences. The Department will thus be losing some of the precious time of Dr. Mitchell, not for this reason alone, but also for the sake of a well-earned sabbatical in fall 2011. Teaching of Paleontology-Stratigraphy will be in the able hands of Michael Joy (B.A. '94; M.A. '96, Ph.D., J.D. '02; see Alumni Feature article on page 14-15.). However, Chuck's service will be greatly missed.

Early in the year we also learned that **Greg Bank**, **Dr. Tracy Bank's** husband, was going to be moving with his company, Seneca Resources (the exploration and production branch of National Fuel), to Pittsburgh, PA. This necessitated the loss of Dr. Bank, who has proven herself an excellent instructor and wonderful faculty member. Tracy will continue her appointment through the 2011-2012 academic year teaching her courses and mentoring her graduate students through the completion of their degrees. We wish the Bank family all the best in their new home in Pennsylvania.

Later in the year, long-time Technician **Mr. Peter Avery** tendered his retirement papers after 41 years of service to the Department and to the University (see article pg. 1). Friend and aide to all, from student to University President, Pete's talents will be greatly missed. However, we are hopeful that he'll be sticking around in a new capacity as a University volunteer. The service of Pete and the preceding three generations of Avery's to the University are what keeps it going, and what maintains that critical institutional memory. We will hold a retirement luncheon for Pete later in the fall 2011 semester.

During the year we've managed to get a number of interesting projects going, or at least make advances on them, many in conjunction with alumni and friends. First, thanks to the generosity of alumni, we've been able to continue to expand the undergraduate Petrographic Lab with the addition of three new student 'scopes to the four that were purchased last year. Thanks to alumni generosity, it's beginning to look like the 21st century around here!

Alumna **Mary Anderson** (BA, '70) and her husband Charles have generously made a five-year commitment to help fund field camp. Alumnus **Duane Champion** (MA, '73, BA, '71) has committed to a scholarship opportunity for students to aid in their research or presentation thereof.

We've been able to institute a new track in the Professional Science Masters Program (PSM) in Geohazards. The new track takes full advantage of the existing resources in the PSM program, yet adds an opportunity for our many Volcanology Masters students to obtain a certificate in Geohazards and Risk that should help them with securing jobs in the geohazards engineering consulting industry upon graduation.

Finally, the issue of high-volume, horizontal hydraulic fracturing really heated up in the state this year with the continued pursuit of gas reserves from the Marcellus Shale in Pennsylvania and the moratorium placed on the process in December 2010, by then Gov. Patterson. This fundamental geologic issue has raised interest in our field like no other in NY State in many years - perhaps ever. To help get information to the public about the regulatory environment in which drilling takes place in NYS, as well as the many other issues involved, the Department held an eight-week long series of lectures at the end of the Spring 2011, term. The lectures were attended by a crowd that always numbered over 100, and sometimes topped 200. Interest was unending from across the spectrum. The speaker series is on-line at the department website for those interested, and we are looking into ways to develop from the lecture series. On another, but not unrelated track, we have continued to make progress on a Shale Gas Institute (changed from Black Shale Institute for acronymic reasons, q.v.). I am very hopeful that we will soon have all the pieces in place to get the Institute "fully armed and operational" to quote the Emperor.

Well, that's about all I can think of for now. I hope that this coming year sees our Department continue to grow. I also wish all our friends and alumni the best, in whatever corner of the world our chosen field has taken you.

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The EPOCH

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Please visit us online at:
www.geology.buffalo.edu

Peter Avery Retires

After 41 Years of Service to the Geology Department

Peter Avery started as a student in the UB Geology Department before serving his country in Vietnam. When he returned to the US in 1969, then Chairman Dr. John S. King offered him a job as the Department's Instructional Support Technician. Pete has been here ever since, caring for the mineral collections, assisting faculty and students, coordinating the many departmental moves across campus, and serving as the assistant curator for the old Ice Core Laboratory. In previous years, Pete has coordinated efforts at the University Open House and Orientation, offered hospitality services to visiting scientists and foreign students, and has been the driving force behind at least two significant donations of mineral and fossil collections to the Department.

Pete received a Letter of Commendation from the Chairman of the Department of Geology in 1975 and was the recipient of the Departmental Merit Award in 1986, and in 1987. In 1996, he received the prestigious Chancellor's Award for Excellence in Professional Service, and was nominated by Dr. Michael Sheridan, then Chair of the Department. Recipients of the Chancellor's Award are *"individuals who embody SUNY's highest standards and who inspire and serve as role models for the entire University community. They have repeatedly sought improvements of themselves, their campuses and ultimately the State University and, in so doing, have transcended the normal definitions of excellence."*

Throughout his tenure here at UB, Pete has earned the respect and support of many colleagues and students. Dr. Paul H. Reitan wrote of Pete's "loyalty and dedication to the Department" in a letter of support, and Dr. John S. King stated, "Pete has never shunned responsibility. He has provided help and leadership whenever needed". Known around the halls for his master storytelling and friendly smile, Pete will surely be missed. We wish him well in all of his future endeavors!

Ode to Pete

By Travis Nelson, support technician left behind…..

I've had the honor and privilege to have known and worked with Pete for a quarter of his term here at UB and I must say that his knowledge and dedication to this department was second to none. Thank you so much for your years of service and in shaping the minds of all of the students that have passed through the doors of this department. I was always amazed when Pete would grab a random rock sample from some random rock cabinet from a dark and dusty basement room and tell me the entire history of that sample. The geology, the formation, the composition, the location, time, date, who he was with and what they had for lunch…… mind you this was in 1978. ABSOLUTELY MIND-BLOWING!! You will be missed. I hope you will stay in touch and join us for occasional social events like groundhog's day. I'm still open to the idea for "Avery & Nelson – Moving and storage Inc.". My heartiest congratulations and best wishes for your retirement Peat!!

Pete Avery canoeing in Algonquin Park (year unknown)

Economic Geology Lives on at UB!

Tracy Bank, Assistant Professor

In April, the Economic Geology class took a three day field trip to one of the world's largest and most valuable mining districts. Twelve undergraduate and graduate students, our teaching assistant, and I had the remarkable experience of visiting the Sudbury nickel district of Ontario, Canada. We were hosted by Dr. Daniel Kontak, Chairman of the Department of Earth Sciences at Laurentian University and economic geologist extraordinaire. Despite an insanely difficult trip to Sudbury, which involved winds greater than 100 km/h, closed bridges, closed highways, and overturned tractor trailers, we made it to the Sudbury area in just nine short (long!!!) hours.

The weekend was spent learning the very complex geologic history of the Sudbury basin which is host to numerous deposits of Ni, Cu, and platinum group elements. The ore deposits in the Sudbury area resulted from melting and re-crystallization of the host rock following a meteorite impact 1.85 billion years ago. Our group toured the surface of the Podolsky mine, which is a recently discovered, copper-rich deposit with beautiful chalcopyrite veins exposed at depth and extending to the surface. The Podolsky property is adjacent to the Whistle Pit, which was a productive nickel deposit in operation 100 years ago. Students (and teachers!) enjoyed collecting massive chalcopyrite and bornite samples from the property.

Following our visit to the active mine we did a cross-section of the Sudbury Igneous Complex and saw the shatter cone evidence of the meteor impact. We also visited the Inco Superstack at the nickel refinery, one of the largest chimney structures in the world. Our last geologic stop was at an unusual felsic pegmatite outcrop that hosted feldspar crystals up to 1 meter in length.

At the end of two very long days of learning and traveling, we attended the St. Francis Xavier University Alumni reception in Sudbury and were treated to some excellent food and beverage. The economic geologists were named honorary Canadians for the evening!

This trip was such a fantastic experience and I cannot express how thankful I am to Dr. Kontak. He was a gracious host, fantastic cook, and a wonderful tour guide and educator. After an approximate 30-year hiatus, economic geology at UB is back!

The Economic Geology class and our host Dr. Daniel Kontak (second from left) at the appropriately named "Big Nickel" in Sudbury, Ontario.

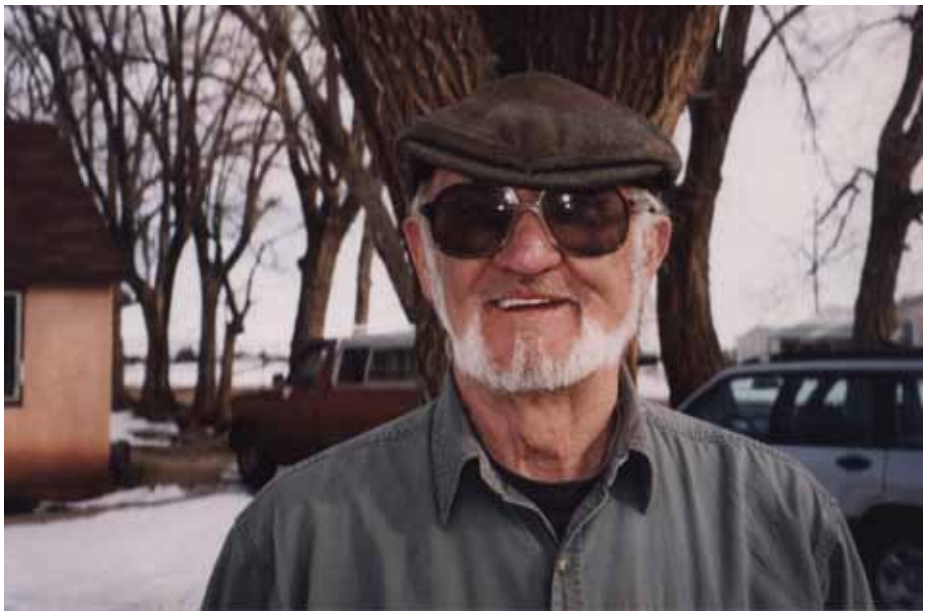
Searching for nickel ore minerals at the remains of the Whistle Pit.

UB Geology senior Daniel Kaszubski giving a thumb up at the Podolsky Mine Property.

2011 Field Camp – Synergy

Travis A. Nelson, Field Camp Operations Coordinator, Geologist, Grad/Dept. Support Tech.

The 2011 Field Camp season was filled with great highs, and great lows. It is with much sadness that we report the passing of two members of the Field Camp family: **Dixie Ufford and Gene Schafer.** Field Camp alumni will fondly remember Dixie from the world-class annual barbecue at Ron and Dixie's beautiful Rainbow Valley ranch, a highlight of every year's field season. Dixie was taken from this earth on November 7, 2010. Dixie touched the lives of everyone she met, and her light and happiness will be missed by everyone. Gene was similarly a bright spot at the end of field days while at Davis Canyon. With a zest for hard work and simple living, Gene always had a great story to tell at camp when he would stop by to visit or lend a helping hand, which were always in plenty. Gene passed during the end of Field Camp on June 15, 2011 after a short illness, just over two weeks after we last seen him. Their bright presence will be deeply missed in seasons to come. We send our condolences to the Ufford and Schafer family and friends.



Gene Schafer

On a lighter note, this year's Field Camp was another smashing hit, filled with great days studying rocks; the typical ups-and-downs of Rocky Mountain weather; and the daily plethora of blisters, sore muscles, and colds. We enjoyed the company of student Matt Cwiklik, from Pennsylvania, until he was sent home after an injury. He completely tore up his knee while mapping in Davis, and we wish him a quick and speedy recovery - what a trooper! Our wonderful group of students this year consisted of 14 gals and 25 guys; 13 students from UB, 4 from SUNY at Cortland, 1 from University of Pittsburgh, 5 from University of Rhode Island, 1 from University of Maine, 3 from California University of Pennsylvania, 1 from SUNY at Fredonia, 2 from Edinboro University, 1 from Franklin and Marshall College, 1 from Colby College, 1 from Kansas State University, 1 from Northwest Missouri State University, 1 from Bloomsburg University, 1 from Long Island University, 1 from Southern Methodist University, 1 from Georgia Southern University, and 1 from Wesleyan University. As usual, a great team of students from all over the country led by fantastic faculty and T.A.'s all with bellies kept full by magnificent cooks. We were also greeted by a few friendly field camp alumni at the last map site; Sean McGrane, Jenn Lombardo and Philip DAurizio. Awesome of you guys to stop in and camp with us…… All are welcome!

Travis Nelson & Matt Cwiklik

2011 group picture at the Goose Necks of San Juan.

Sunset Jam – Patrick Whelley, Phil Stokes Michelle Gillmore, Niki Schufelt, Kathryn Velie.

Field Camp Alumni, Philip D'Aurizio, Sean McGrane, Phil Stokes and Jennifer Lombardo

The first site was instructed by **Dr. Tracy Gregg** and **Dr. Marcus Bursik**. **Dr. Jason Briner** and Dr. Marcus Bursik taught the Davis Canyon site, **Dr. Paul Baldauf** and Dr. Marcus Bursik taught the Rainbow Valley Ranch map site in Dinosaur, and Dr. Marcus Bursik finished out the final map site at Q Creek Ranch in Wyoming. Our teaching assistants this year were: **Patrick Whelley** (4th yr), **David Carlone** (2nd yr – 2010 Field Camp Student) and **Michelle Gilmore** (2nd yr – 2010 Field Camp Student), and our fantastic cooks: **Phil Stokes** (8th yr.), **Nikki Shufelt** (3rd yr – 2009 Field Camp Student), and **Anna Hrywnak** (2nd yr –2010 Field Camp Student).

Good times again gang, thank you for this year! See you on the trails!

Please visit:
http://www.geology.buffalo.edu/fieldwork/fieldCamp.shtml
for more information, highlights and pictures.

Dixie and Ron Ufford

Ufford Family and 2010 field camp group.

Advanced Field Course 2011

Dr. Jacobi again taught the joint AAPG/UB field short course entitled "Northern Appalachian Basin Faults, Fractures and Tectonics and Their Effects on the Utica, Geneseo, and Marcellus Black Shales" in June, 2011. The course headquarters was at the 4-star Harbor Hotel at Watkins Glen, NY. The course continued the successful format of the previous years with lectures in the morning followed by field work in the afternoon that illustrated the elements of the morning lecture. (Last year's course received amazing reviews, and in fact two students from last year wanted to take the course over again, because they liked it so much, they said—with nary a whisper of the wineries). We looked at fractures and faults in the Utica, Geneseo and Marcellus black shales—really great. The unofficial TA was Mike LaGamba, who is mapping fractures as part of Jacobi's NYSERDA/DOE study for CO2 sequestration in black shales. UB geology students who attended the course includedv Kyle Jones, Rachel Kolenko, Alex O'Hara, Roy Widrig, Dana Schonwalder, and Mathew Wendt. The professional registrants came from such corporations as Shell, Sasol, Fronterra, Murphy Oil, and independent consultants, and came from as far away as London, UK. The weather, fractures, faults, restaurants and wineries were all fine. We will offer the course again next year.

Successful Pumpkin Drop thanks to Badding Brothers Farms!

Every fall, GLY 101 students learn about impact cratering, one of the four fundamental geologic processes (along with tectonism, volcanism, and weathering or modification) that affect every solid body in the Solar System. The highlight of the impact cratering lab comes when we drop pumpkins from the roof of the Natural Sciences Complex. Prior to the drop, students predict whether or not the pumpkin will generate a crater (and how big it will be) and how far away from the point of impact the pumpkin "ejecta" will travel. They also estimate the kinetic energy associated with the impact, based on the mass and size of the pumpkin. The pumpkins typically strike the ground with velocities approaching 60 miles per hour, in a cathartic explosion. This year, the pumpkins for all 22 laboratory sections were donated by Badding Brothers' Farms, thanks to connections established by the Lead 101 TA, Mr. Mike Badding. Thanks, Badding Brothers, and thanks, Mike!

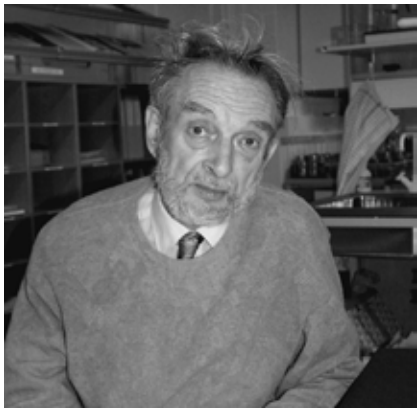
Marcellus Shale Lecture Series

UB Geology hosted The Marcellus Shale Lecture Series last spring, a series of talks about the gas industry and the relationship between gas drilling and its relationship to New York State's economy and environment. Presentations were given by local geologists, economic advisors, law professionals, consultants, and energy service providers. The goal of the series was to inform the community about the process of exploration, and what legal, environmental and regulatory issues are involved.

Videos of the lectures can be found at: http://www.glyfac.buffalo.edu/mib/course/marcellus/

Willi Dansgaard (1922-2011)

(photo and details from Arctic, Vol. 64, no.3, September 2011)



Willi Dansgaard, distinguished professor emeritus at the Niels Bohr Institute and head of the Geophysical Isotope Laboratory at the University of Copenhagen, Denmark, died in Copenhagen on January 8, 2011. Dansgaard is recognized as one of the world's foremost authorities on past climate change as revealed in polar ice cores.

Dansgaard will be remembered best for his considerable contributions in the field of climate change and by his students and co-workers. His groundbreaking discovery of the seasonal variations and rapid changes in climate over short time intervals was established by measuring variations in the stable oxygen isotope ratio data (O18/O16) in the 1390 m deep core recovered at Camp Century, Greenland. Dansgaard's climate record of the deep core reflected annual accumulation layers dating back to 8300 years BP, and additional accumulation years back to the bottom at 115 000 years BP, with less accuracy.

Paleoclimate Lab Update

Jason P. Briner, Associate Professor

The Paleoclimate Lab is now happily housed in Hochstetter Hall. We were four graduate students this year, and two very helpful undergraduate students **Stefan Truex** and **Sarah Lavin**. **Shanna Losee** (2nd year MS student) spent most of the year processing lake sediment samples from Greenland. Her thesis research focuses on generating climate trends from lake sediments spanning the Holocene near the largest glacier on Greenland: Jakobshavn Isbræ. Shanna is planning to defend her thesis in September, 2011. The results of Shanna's work are of interest to **Nicolás Young** (third year PhD student), who is reconstructing the ice sheet history of western Greenland. In particular, Nicolas uses cosmogenic ^{10}Be exposure dating to determine the timing of past fluctuations of Jakobshavn Isbræ. Nicolás published two papers in the journal *Geology* this last year, is working on several new papers, and plans to finish this next academic year. **Sam Kelley** (first year PhD student) joined us on Greenland in summer 2010, and worked on a first year project aimed at reconstructing part of the western Greenland Ice Sheet during the Little Ice Age. Sam was awarded a Geological Society of America grant to continue his work on Greenland this summer. **Michael Badding** (first year MS student) joined us in the Brooks Range, Alaska last summer. We cored lakes and collected rock samples in **Parker Calkin's** old stomping ground. Busy with samples and reading theses by **Lamb**, **Ellis** and **Hayworth**, Mike found time to write a grant proposal for the Geological Society of America, which was awarded. With Sam as his field assistant, Mike just returned from the Brooks Range with stories of wildlife, crazy weather, and a new collection of rock samples. As for myself, I've had just a terrific time working with such talented students. I'm taking sabbatical this upcoming academic year, and have plans to spend time at the University of Bergen, Brown University, University of Colorado and Lamont Doherty Earth Observatory. In June I stopped in to see Parker in Boulder, CO and we had a nice lunch and a nice chat about the Brooks Range.

Mike Badding sampling glacier-eroded bedrock for 10Be exposure dating in the Brooks Range near Atigun Pass.

Jason Briner and Parker Calkin, Boulder Colorado (June 20, 2011).

Coffroth lab update

Fitness Effects and Symbiont Type in the Upside-Down Jellyfish, *Cassiopea xamachana*

Rachel Mellas, MS Student

Dinoflagellates in the genus *Symbiodinium* form symbioses with many cnidarians, including corals, which serve as the foundation of the coral reef ecosystem. In this mutually beneficial symbiosis, the symbionts transfer newly fixed organic carbon to the host and, in return, receive inorganic waste metabolites and an environment free from predators.

Symbionts are especially important in providing nutrients; for *Cassiopea,* they act primarily as a supplement to regular food gathering, since most of their lifestyle is spent on the bottom of shallow mangrove areas.

Establishment of the symbiosis occurs in the scyphistomae (polyp) stage of development where multiple strains of *Symbiodinium* can be acquired. Once infected, the scyphistomae produce ephyra (young medusa) through a process termed strobilation. Once they reach the adult medusa form, they typically harbor one specific type of symbiont (*Symbiodinium* A1).

This project involves both laboratory work in Buffalo and fieldwork experiments in the Florida Keys. The goal is to help understand the fitness advantages of the host in harboring different symbiont types. This is accomplished by setting-up laboratory experiments which examine how different symbionts affect the growth rate, survivorship, infection rate, and timing of strobilation of scyphistomae, and if strobilation occurs with only certain symbionts (A1).

Rachel is also testing to see if polyps inoculated with symbionts will "switch" symbiont types when put out in the field and are exposed to natural environments. After a week of exposure to the field conditions near the Keys Marine Laboratory in Long Key, FL, the polyps are collected and then sampled for molecular analysis back in Buffalo. The DNA is extracted and a PCR is performed to amplify the hyper-variable region of Domain V of the large subunit chloroplast ribosomal gene (cp-23S rDNA). This is then run on an acrylamide gel (LiCor) which then provides the ability to identify the symbiont type. Using this information, Rachel will be able to determine if the symbionts "switched" and out-competed the other symbionts within the host.

Cassiopea xamachana medusa

Lava Lab Updates

Tracy K.P. Gregg, Associate Professor

Diana Miller (M.S. student) taking measurements in the Snake River Plain, Idaho

Last year, from March – April of 2010, **Dr. Tracy Gregg** participated in a long-awaited research cruise aboard the *R/V Atlantis* to examine the Galapagos spreading center (GSC). **Dr. John Sinton** (U. of Hawaii) was the Chief Scientist, and coordinated our use of the Human Occupied Vehicle *Alvin*, a towed camera owned by Woods Hole Oceanographic Institution (WHOI), and the Autonomous Vehicle *Sentry*, also operated by WHOI. During this 6-week-long cruise, Dr. Gregg went down to the bottom of the ocean in Alvin 4.5 times (one dive was aborted because of mechanical difficulties) and learned how the ocean floor is-constructed at the GSC and how the Galapagos hot spot affects the spreading center. In June of this year (2011), participating cruise scientists met at the University of Hawaii in Honolulu to discuss the next steps of data analyses and dissemination.

Cruise Participants on the R/V Atlantis

Last summer (2010), both **Mr. Kenneth Christle** (M.S.) and **Ms. Diana Miller** (MS) received awards from the Geological Society of America to conduct field work. Mr. Christle and Dr. Gregg spent a few days in Iceland mapping some lava-water interaction features. Ms. Miller proved herself an amazing driver as she navigated the dirt roads in the eastern Snake River Plain, studying shield volcanoes with Dr. Gregg to provide insight into the venusian volcanic fields Ms. Miller is studying for her thesis.

Ms. Trevelyn Lough (M.S.) and Mr. Christle successfully defended their theses in the spring, and are expected to complete their written theses in the fall semester. Ms. Lough is currently employed by the Dept. of Natural Resources in Alaska, and says that the people and rocks are amazing, but that the mosquitos are really bad.

Ms. Carolyn Roberts (M.S.) joined the Lava Lab this spring, and is currently participating in an internship at the Lunar and Planetary Institute in Houston, TX. The purpose of the internship is to help scientists and engineers select the next lunar landing site, for future robotic and/or human exploration.

Tim Gregg (field assistant) and Ken Christle (M.S. student) in Skaelinger valley, Iceland

Dr. Gregg was elected to serve as Secretary for the International Union of Geology and Geophysics (IUGG) commission of Volcano-Ice Interactions. She's not yet sure precisely what her duties will entail, but she's grateful for the support of her terrestrial and extraterrestrial colleagues!

Hydrogeology Group Year 1

Christopher S. Lowry, Assistant Professor

Hydrogeology graduate students quantifying groundwater – surface water interactions.

My research group has now officially made it through the first year, and have been very fortunate to work with three great graduate and three undergraduate students. We are looking forward to the addition of three additional graduate students coming next year. I have been very impressed with the quality of students in my classes, which have kept me on my toes with their great questions, and I am looking forward to year number two and the excitement that it will bring. Below is a quick summary of what my students have been working on over the last year.

My two PhD students **Jeremy Crowley** and **Jonathan Malzone** have had a very busy year instrumenting several new field sites. Jeremy is currently working on a project using temperature as a groundwater tracer and has collected data for a stream restoration project south of Buffalo. Jonathan has instrumented three streams in western New York to investigate physical and geochemical changes as a result of groundwater/stream interactions. In support of his work Jonathan received a Geological Society of America research grant to investigate regional aquifer connections between his field sites. He also presented some preliminary findings at the Geological Society of Americas Northeastern/North-Central Meeting in Pittsburgh last spring.

My Master's student **Nicholle Griffith** has also hit the ground running, working on a Ecohydrology project in collaboration with the Buffalo Audubon Society. Nicholle is investigating the link between groundwater dynamics and vegetation patterning at the Audubon Society's Beaver Meadows site. She has had a very productive field season installing over twenty-five wells at the site.

I was also fortunate to work with three outstanding undergraduates this year. **Justin Miceli**, who is one of our geology majors, worked on a groundwater flow and heat transport modeling project simulating groundwater/stream interactions. I am happy to say as a result of this work Justin was awarded an undergraduate research award from the UB Center for Undergraduate Research and Creative Activities. Over the summer I worked with **Ben McPherson** and **Kaitlin Thomas** as part of the Ecosystem Restoration through Interdisciplinary Exchange Research Experience for Undergraduates (EIRE-REU) program funded by the National Science Foundation. Ben is a UB undergrad in Civil, Structural and Environmental Engineering, and his work looked at using a fiber optic based distributed temperature sensor to quantify groundwater flow. Ben's work was highlighted as one of the top three projects at the ERIE-REU symposium. Kaitlin is a geology and secondary education major from California University of Pennsylvania and is a student of Dr. Kyle Fredrick (a UB alum)w. Kaitlin's project focused on identifying mixing zones between groundwater and surface water in order to better determine biogeochemical activities in the subsurface. Both Ben and Kaitlin will be presenting their research at the upcoming annual GSA meeting.

Geology 313 class stream survey.

News From the Paleontology Lab

Charles E. Mitchell, SUNY Distinguished Teaching Professor

Several of you (Mike, Dejan, Dino!) stopped by to say hi this summer. It was great to see familiar faces and hear your adventures. You are all welcome always.

These days I am working with my students and colleagues on two main areas of research. **Kyle Jones** (MS candidate) and I are continuing to pursue studies of the Utica Shale in eastern and central NY. These graptolite-bearing, moderately organic-rich shales formed in the Taconic foreland basin, but the precise character of their depositional environment and subsidence history is not clear. Some combination of eustasy, local structure, and regional flexure created the accommodation space that received these sediments, but the influence of these drivers changed over time and space, thus changes in thickness, fracture patterns and carbon content are difficult to predict. Kyle and I are working with **Bob Jacobi** and **Gerry Smith** (among others) to try to get a more precise picture of these ancient conditions with support of student research grants from the American Association of Petroleum Geologists and the Society for Sedimentary Geology. We continue to get data from the field and cores, including the lovely 75NY2 that **Melissa Roloson** and **Staci Hansen** worked on with me and Bob.

I am also continuing work on graptolite paleobiology. **Drew Hawkins** has finished up his master's thesis, which focused on analyzing change patterns of graptolite community composition during the latest Ordovician in the run-up to the end-Ordovician mass extinction. He has found that community composition of these planktic animals, especially the degree to which a few species dominate assemblages, closely track several geochemical indicators of oceanic conditions. As the Late Ordovician climate switched from greenhouse conditions to icehouse conditions over several hundred thousand years, the widespread oxygen minimum zones (to which most graptolites appear to have been adapted) appear to have contracted or disappeared. This led to changes in marine productivity, phytoplankton community composition and water column oxygenation. Graptolites responded by dying like flies – they and a very large fraction of the rest of the animals in the ocean! When the Hirnantian glaciation ended 1.5 million years later, greenhouse conditions returned and the surviving animals re-diversified and populated the oceans with a distinctive new marine fauna.

Dan Robinson is studying two of these graptolites, *Styracograptus mississippiensis* and *S. tatianae*, for his master's thesis. Our goal is to test whether these lineages exhibit morphological evolution in response to the changing Late Ordovician conditions. Dan is using sophisticated statistical means to measure their shape and changes in shape based on a large collection of samples from Vinini Creek Nevada and some supplemental collections from coeval rocks in the Yukon and south China. These two species are among the common Late Ordovician graptolite species and both went extinct during the Hirnantian icehouse. Nevertheless, they show morphological stasis rather that directional change! Their populations were falling off a cliff as the world went to Hell in a hand basket, but they appear not to have noticed, so to speak!

Despite how weird that seems, it turns out it's consistent with results of a broader analysis of graptolite species extinction during the Hirnantian. This broader analysis is work that former student **David Bapst** (now a doctoral candidate at the University of Chicago) and I started when he was an honors student here at UB. His work suggests that although some graptolite groups survived much better than others, extinction during this event nevertheless was independent of their colony form. Other features like habitat or food preferences must have been more important to their survival despite how well designed and diversified their colonies seem to be.

I am on sabbatical this fall and will be getting out of Dodge very soon – off to Madrid Spain, Rennes France, and Prague Czech Republic to work with colleagues on graptolites from these peri-Gondwanan regions as part of a new project on graptolite biogeography and macroevolution with **Dan Goldman** and several others. With luck we will get a lot done before classes start up again in January. Several new graduate students and undergrad research students will help to keep me on my toes.

Lunar Field Work

Greg Valentine, Professor

A beautiful June day in the Lunar Crater Volcanic Field. Every hill is a volcano!

In August 2010 we were awarded a National Science Foundation grant for studies at the Lunar Crater Volcanic Field in Nevada (ok, it's not the Moon, but the title got your attention!), with the goal of understanding the linkages between the source and composition of magmas in the upper mantle, their ascent through the crust and interactions with structures such as faults, and the way that they erupt. Faculty co-investigators include myself and **Joaquín (a.k.a. Caco) Cortés** at UB, **Elisabeth Widom** at Miami University (Ohio), and **Eugene Smith** at University of Nevada-Las Vegas. My contribution focuses on physical volcanology and structural relationships, Cortés and Smith are focusing on petrologic and tectonics issues, and Widom is focused on isotope and source geochemistry; but the fun part of this project is that we're all collaborating very closely across our different areas of expertise!

This project involves a bunch of graduate students. Ph.D. student **Amanda Hintz** is working on the geometry and thermal histories of shallow plumbing of scoria cones, especially the relationships between intrusions in the upper tens of meters of crust and within scoria cones and complex basaltic eruption processes. She is finding that even at very local scales, dikes that radiate from a central conduit record fluctuations in magma pressure that are due to the rise of large bubbles through the magma. When these bubbles reach the surface they burst and throw out fluid bombs that accumulate around the vents and build the cones. The dikes likely also play a role in how magma loses gas, therefore providing feedback into the eruption processes. M.S. student **Jamal Amin** is working on unraveling the history of Bea's Crater, which is named after UB's Dr. Csatho. Jamal is finding that Bea's Crater records a complex alternation between eruptions driven by the expansion of magmatic gases, which tend to form scoria cones, and those driven by explosive interaction of magma with groundwater, which create deep craters. **Dawn Ruth** (Ph.D. student) is studying the microscopic textures of deposits from Marcath Volcano (the youngest in the volcanic field, with an age of about 38,000 years) in order to unravel the causes of different eruption styles that ranged from explosive to lava-producing. She will be comparing this with data that she has gathered at Llaima Volcano in Chile. Incoming MS student **Peter Johnson** has already begun work on ash deposits from Marcath Volcano – his goal is to reconstruct the details of the explosive eruptions. **Dayana Schonwalder**, one of our Ph.D. students, joined us for a month-long field excursion to Lunar Crater and got her first exposure to scorpions and rattlesnakes! Additional students are involved at our collaborators' institutions.

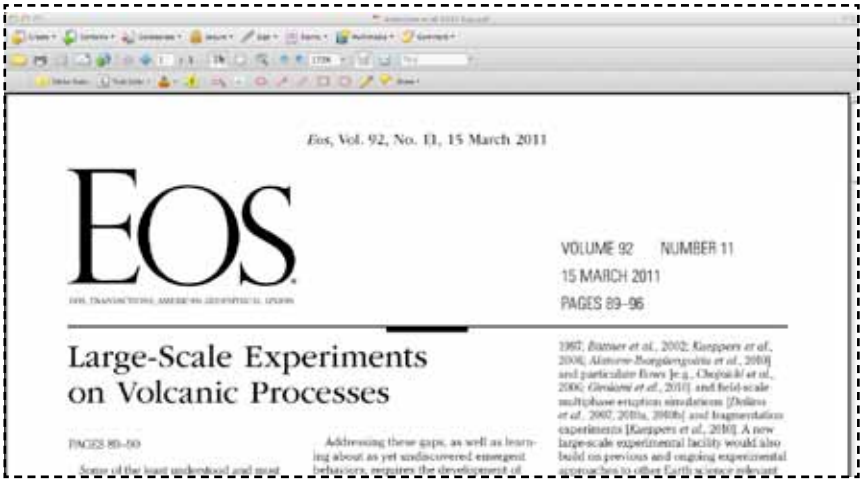
One of the small projects we did in the Lunar Crater Volcanic Field assessed the viability of two different models for how maar volcanoes form. Maar volcanoes are negative landforms (i.e., holes in the ground) that are generated by explosive interaction of magma and groundwater. The Lunar Crater maar is a crater about 1 km in diameter. This research is leading us to develop large-scale experiments with explosively-generated craters, using the new ECLIPSE Campus (see "Center for Geohazards Studies" article) – we hope to have some big bangs this coming Spring!

Dr. Cortés takes a break with an outstanding view of the Basin and Range landscape.

Center for Geohazards Studies

Greg Valentine, Professor & Director

Many positive developments are unfolding through the work of the Center for Geohazards Studies (CGS). CGS is strongly linked with the Geology Department, but is also part of the larger **UB2020 Strategic Strength in Extreme Events**. In this capacity CGS serves to link researchers across the University with each other, and to key international research efforts. Below, we summarize some of the major efforts of the past year.



An article in the American Geophysical Union's newspaper (Eos) highlighted research needs that will be addressed with the large-scale experimental facility at the ECLIPSE campus.

- **Vhub.org** – This NSF-funded project is setting up an online collaborative environment for volcanologists. Over the past year we added online simulation tools, workshops, and educational materials; and the number of volcanologists who are registered Vhub users is up to about 400 (probably 25% of the international research community!).
- **Large-scale experiments** for volcanoes and geological hazards – CGS is working closely with UB's Multidisciplinary Center for Earthquake Engineering Research (**MCEER)** to develop capabilities to address the physics of geological hazards with large-scale experiments that mimic natural processes, such as pyroclastic flows, debris flows, ash plumes, and explosions. We hosted an international workshop on the topic, and as a result this new facility will become an international user base, attracting researchers from around the world to its unique capabilities. The facility is being developed at UB's new **ECLIPSE Campus,** an open area dedicated to large-scale science and engineering experiments near the town of Ashford, NY.
- **INVOGE** – This program, led by Center member **Eliza Calder**, involves exchanges of MS students between UB, Clermont-Ferrand (France), and Milan (Italy). Students benefit from interacting with international researchers and receive dual MS degrees. The 2010-11 academic year was the first year of INVOGE, and we hosted two students from France, and one of our UB students spent the year in France. This coming year we will have students from both France and Italy and three UB students will work abroad.
- **Center for Integrated Disaster Resilience** – This proposal is currently under review at NSF, and focuses on bringing together physical sciences, engineering, social sciences, management, economics, policy, and other disciplines to conduct research that improves society's resilience in the face of natural and manmade disasters. We will learn about our status in October 2011.
- Interdisciplinary Graduate Education, Research, and Training **(IGERT)** – CGS members, led by Abani Patra, developed a proposal for a major Ph.D. program called "Hazardous Geophysical Extreme Event Risk Analysis and Management." The theme of this proposal to the IGERT program at NSF is very similar to the CIDR proposal, but focuses specifically on Ph.D. student training.
- **Visiting researchers** – during the 2010-11 academic year CGS hosted visitors from many countries such as Spain, France, Italy, Colombia, and the UK. These visitors presented seminars and interacted with both faculty and students, and helped to bring international perspectives to our programs here at UB.

In summary, CGS is working on many fronts to grow our research and education efforts to link science with real societal issues. We are especially pleased with the growing collaborative efforts within UB, such as with the Earthquake Engineering Center mentioned above.

Communicating on Behalf of Science

An Alumni Profile: Dr. Michael P. Joy, J.D., Ph.D '02, MA '96, BA, '94

Shana DiCamillo

These days, energy exploration and development is a topic splashed all over the news. One might see ominous forecasts about the sustainability of our resources, record profits from industry titans, or heightened concerns about the environmental costs of local drilling. A term that is sure to pop up in the local news in Western NY is "hydraulic fracturing", which is the process of drilling rock layers to recover natural gas. UB Geology has been working to help inform the public about the scientific facts behind this type of resource development through the ***Marcellus Shale Lecture Series*****,** which took place during the Spring of 2011. A featured speaker on the series, **Dr. Michael Joy**, talked to us in detail about his experiences as a legal service provider for natural gas development and land service companies throughout the Northeast.

After receiving his MA in Geology in 1996, Michael worked in the Caspian Sea off the shore of Kazakhstan for Amoco Exploration (now a subsidiary of BP Global) and thought that he would continue as a geologist for the company after receiving his Ph.D. During his time overseas, however, he began to notice the need for knowledgeable administrators to help the scientists communicate with the many players involved in international large-scale resource development. Working in third world countries alongside geologists, Michael realized that the complexities of international and national regulatory policy and politics were "at least as interesting" as the geological side. Additionally, Michael explained that scientists are notoriously weak at communicating the complexities of their field to the average layperson. Who better to work as an advocate of the industry than someone who has studied the science behind resource development?

Since receiving his Ph.D and J.D. from UB in 2002, Michael has combined his unique background into a practice focused on natural gas development, representing mainly independent natural gas companies working on development in the Trenton Black River area, as well as unconventional resource development throughout the Appalachian Basin (Marcellus and Utica shales). The new energy discoveries in the Northeast have changed the ways that these companies operate on a major scale, and Michael is able to give advice on the regulatory and political issues that affect the many stakeholders involved. As an expert in his field, he has also taught at UB's Law School as an adjunct professor, leading courses such as "Oil and Gas Law" and "Trends in Energy in the Environment". He is scheduled to teach a course in stratigraphy, sedimentology, and paleontology this coming Spring in UB's Geology Department, and hopes to develop a course about exploration.

As a nationally recognized authority on the industry, Michael has done public relations and lobbying work for a variety of land service companies, natural gas operators, and the oil and natural gas industry trade association on issues associated with hydraulic fracturing, water use, treatment and disposal, well spacing and compulsory integration, local governmental input into natural gas operations, and the economic and tax impacts of natural gas development. Michael describes his goals as a lobbyist as being much the same as his goals as an educator: making sure that correct information is communicated effectively to a group of people. As a lobbyist, he tries to break down extremely complex issues into understandable pieces to better inform policymakers. Michael explained that public officials often don't hear relevant information from those behind the scenes, such as experts in hydrology, engineering, or geology. His job is to clarify and disseminate correct information so that those in charge can make informed decisions. Michael says that the biggest accomplishment of his career was working with a group of stakeholders to re-write the *Oil Gas and Solution Mining Law of New York* in 2005. The law is a comprehensive regulatory policy that he describes as "the only one of its kind in the country".

In 2010, Michael co-chaired the Center for American and International Law's Institute of Energy Law, a 2-day shale gas course in Fort Worth, TX. This was the first workshop of its kind, where lawyers, policymakers, and scientists gathered to discuss shale gas development. Michael called the move towards domestic exploration a "major paradigm shift in how the industry operates," and emphasized the importance of an open dialogue between stakeholders to stay on top of current issues. Along similar lines, Michael is a big supporter of UB Geology's efforts to create a Shale Institute, where independent research and data gathering can occur, supporting the work of academic institutions. He emphasized the value of an emotion-free focus on scientific research and evaluation to better inform the public.

Joy during his time at UB.

As for his time at UB, Michael says that he continued returning to the Geology Department for the unique research opportunities and influential faculty members. As a graduate student, he was able to work with Dr. Chuck Mitchell on multi-disciplinary and multi-university projects involving the Trenton Black River carbonates. He also notes **Dr. Rossman Giese** and **Dr. Bob Jacobi** as supportive mentors during his studies. In addition to his appreciation of UB, Michael also felt a strong loyalty to the Western NY area. He says, *"I saw the economic decline, and I saw people continue to move away from the area. We can't*

come back from that without young people – without energetic and successful people staying here. So, my decision to stay in the area was an academic one, but also a social one."

Field camp was Michael's most memorable experience at UB – a great "academic, intellectual, and social opportunity". UB has one of the only remaining mobile field camps in the US, and it offered him the chance to travel along almost all of the Rockies, view core concepts up close, and spend unique time with his colleagues.

Michael described the job market for geologists as "greatly improved" over the past 3-4 years as on-shore and domestic exploration becomes more relevant. A renewed interest in the Appalachian Basin area has become economically vital for Western NY, and offers future opportunities for those interested in the field. Michael emphasized that geology is a great plan of study for young students, and also unexpectedly good preparation for a law career. Although people might not realize it, similar strengths and thought processes are required for both areas of study. Michael explained that geologists have a notoriously incomplete rock record that they use to examine the facts at hand; use what information is available to interpret their findings; and present to the scientific community for evaluation. Lawyers must use the working law to interpret the facts that they are presented with; make their case to the courts; and allow a judge and jury to evaluate their findings. Both processes require the use of critical and creative thinking, and the overlap is, as Michael puts it: "tremendous".

Geology Alumni Advisory Board
A resource for the Department of Geology and all Alums

Robert Naum & Pat Costanzo, Co-Chairman

In our last communication, we mentioned the importance of seemingly increasing geologic and related events and the role of the geologist in deciphering, understanding, and predicting the impact of these events on all life. Just during the past few months, we have witnessed various parts of the country and the globe suffering from record breaking droughts, floods, and heat spells. **Global warming** has unquestionably arrived! The need to reduce, halt, or otherwise limit the discharge of global warming gases to the atmosphere is critical. Arctic sea ice extent declined at a rapid pace through the first half of July, and is now tracking below the year 2007, which saw the record minimum September extent. The rapid decline in the past few weeks is related to persistent above-average temperatures and an early start to the melt. Snow cover over Northern Eurasia was especially low in May and June, continuing the pattern seen in April. The National Snow and Ice Data Center reported that Arctic sea ice extent on July 17, 2011 was 7.56 million square kilometers (2.92 million square miles) – a total of 2.24 million square kilometers (865,000 square miles) below the 1979 to 2000 average[1]. ScienceDaily reported that the rate of sea level rise along the U.S. Atlantic coast is greater now than at any time in the past 2,000 years and has shown a consistent link between changes in global mean surface temperature and sea level[2].

The National Oceanic and Atmospheric Administration reported that:

- June 2011 was the 316th consecutive month with a global temperature above the 20th century average.
- The last month with below-average temperature was February 1985
- The June worldwide average land surface temperature was 0.89°C (1.60°F) above the 20th century average of 13.3°C (55.9°F)—the fourth warmest on record[3].

There is evidence that these climate changes are likely key contributing factors in the disastrous weather events of late, such as the widespread fires in the forests of eastern Russia due to the warm temperatures and dry weather[4]; and the heavy snow that blanketed parts of central Chile late this month burying some locations in several feet of snow[5]. It is clear that our role as geoscientists is now more critical than any time in the last hundred years. **Who, if not geoscientists, can provide the factual knowledge to our policy makers so that they can make environmentally responsible decisions?** We, the Alums and the UB Department of Geology must continue our efforts to ensure that today's students become the leading geoscientists of tomorrow. We need to ensure that they have the best facilities, state-of-the-art tools, and equipment to be prepared to become geoscientist leaders for the future. The way we can best help is to continue to provide the support the Department and the students need.

Board members Mark Saunders, P.G. and Senior Geophysicist for Weston Solutions, Inc.; Martin P. Derby, Director of Business Development, Quality Inspection Services, Inc.; and Andrew J. Kucserik, CPG, PG Applus RTD Group represented the Department at **UB's Student Affairs Career Services "Career Conversations Networking Night"** that is designed to link established UB alumni from many disciplines with current UB students and recent graduates who are interested in launching their careers in that area. As opposed to a more formal, job-oriented career fair, this event facilitated informal discussions, networking, and career information gathering. Mark reports that the

event was well put together and attended with about 200 interested students in attendance. Mark, Martin, and Andy would like to promote more interest in the geosciences area of the event and are looking for ways to do that. *Any suggestions from you would be most appreciated*. One suggestion was to have the event on Campus to make it easier for students to attend.

GAAB's efforts have focused this last year on growing the membership and clarifying the GAAB by-laws, including the right to use the word "Alumni" in our name. Recently and happily this issue was resolved and our name can stay as it is. Our by-laws have been rewritten to better outline our structure, goals, and governance. The Board determined that it shall consist of 13 members, outlined operational committees, and broadened the ways it can help the department both to grow and make greater contributions to geosciences technologies. There has also been some shuffling of members: **Todd Peters**, Geoscience Manager, Pioneer Natural Resources USA, Inc. based in Denver has resigned his active Board membership. Todd's many contributions were valuable and appreciated, but with his growing family and recent job change, the demands on his time and energy are growing, and though we will miss his contributions, we understand and wish him well. My tenure (Pat) is coming to an end, so I also am resigning as an active Board member, but will stay on as an Emeritus member, to assist if needed. In order to maintain the required number of Board members at 13, the Board has approved the nomination of **Dino Zack,** P. G. Project Manager for AECOM. You can read more about Dino on the next page.

With the help of the alumni, the Department has been able to purchase seven new student petrographic microscopes and an instructor's microscope. This new equipment is capable of generating images on a screen so that the class can see the image that is on the instructor's microscope. While these microscopes have significantly improved the petrographic capabilities of the department, our goal is to equip the laboratory with 8 more scopes (15 total) to enable each student to work on a single microscope during class. Thus far we have spent a total of $44,381.95 on these scopes and have another $50,000 to raise.

GAAB continues its efforts to build *The Black Shale or Marcellus Institute.* The University at Buffalo – New York State's largest and most comprehensive public research university – is well positioned to serve as a convening source of knowledge, providing solutions to problems related to black shale asset development. It can also serve to bridge the conversations between groups by drawing upon its capabilities in geology, law, engineering, communications, the social sciences, and other disciplines. With this in mind, the goal remains to have UB and the Geology Department, along with a diverse consortium of partners, establish The Black Shale Institute to provide a responsible, impartial source for compiling and disseminating factual data that can help inform governmental policies; improve corporate practices; and ensure responsible environmental, health-related, economic, social, and cultural impacts. At the end of last semester, the Department held a series of eight seminars on various Marcellus Shale exploration and development topics. These seminars were free to the public, well-attended, and clearly demonstrated the leadership of Dr. Bursik, as well as the acknowledgement that the Department is well-recognized for its knowledge on the subject. As always, GAAB continues to work closely with Dr. Marcus Bursik, Chair and GAAB mentor, to provide support and resources that will assist the Department in responding to current and anticipated needs for geoscientists and research in critical areas. Marcus' vision and support for these programs, however, starts with you. Current funding limits what the Department can do – your help is essential.

As always, you are an important element of the department's history and future. We encourage you take a few minutes to let us know what you are and have been doing have been since you were here as a student. If you have any photos you would like to share, we would be happy to receive them. Your comments and input are most welcome, and if you wish to contact the GAAB, you may either

visit the department's web site or contact Bob at applied@rochester.rr.com or Pat at law@patcostanzo.com.

(Endnotes)

1.http://nsidc.org/arcticseaicenews/

2.Data from *Proceedings of the National Academy of Sciences* (PNAS) http://www.sciencedaily.com/releases/2011/06/110620183242.htm

3.http://www.ncdc.noaa.gov/sotc/global/

4.http://earthobservatory.nasa.gov/NaturalHazards/view.php?id=51376&src=nha

5.http://earthobservatory.nasa.gov/NaturalHazards/view.php?id=51437&src=nha

New GAAB Member Introduction

Welcome to the newest member of our Geology Alumni Advisory Board, **Dino Zack**! A Project Manager – Geologist at AECOM, Dino enjoys sharing his experience as a professional with local schools and organizations. He has worked with students of all ages throughout Western NY to help them understand geologic collections and labeling, geologic formations and events, tectonic and glacier creation, and has even led mineral hunts in the area. He hopes to share his expertise further by working with our current UB Geology students.

In addition to his work as an "Ambassador of Geology", over the years he has also given technical, work-related presentations on environmental dredging and capping to professional societies such as BAPG and SAME, as well as here at UB. Dino's most recent presentation was on the St. Lawrence River Remediation Project, which he gave at a BAPG join meeting. He has also presented on fluorescent minerals of NY to the Flourescent Mineral Society in Franklin, NJ.

The highlight of his geology career was his "first find": identifying a fluorescent mineral combination at a location that was not previously known to have the specific assemblage (calcite and willimite). Dino named his discovery "Amzonite" after his wife's initials (AMZ). A sample of his find is on display at the NYS Museum in Albany.

Dino has served as director of BAPG, and sat on the student involvement board, as well as serving as a delegate for the Technical Societies Council of the Niagara Frontier. Now an active member of both AIPG and the Independent Oil and Gas Association of NY, Dino's first job was with a local oil and gas consultant. Currently, Dino serves as a contact at AECOM for tracking the progress of the Marcellus Shale Drilling in NY.

UB Geology Alumni and Friends: *Reaching Others and Changing Lives*

We'd like to thank all of the alumni and friends of the Department who generously supported us through gifts to the 2010-2011 Annual Fund. Due to your gifts, our department has been able to continue to support vital student activities, including field trips and scholarships. The Annual Fund is so important because it provides the department with the funds it needs to support student activities and scholarships, replenish our laboratories, and continue our mission of academic excellence.

The Geology Department would like to offer a special thank you to donor **Duane Champion (BA '71)**, who has recently created a fund to help graduate students with travel and field camp expenses in future years. Duane has also recently joined the Dean's Advisory Council for the College of Arts and Sciences at UB. UB Geology also extends its gratitude to **Dr. Mary Anderson** for her generous pledge to the John S. King Field Camp Fund, to be paid over the next 5 years. This donation will help support our camp in several crucial ways including the replacement of old equipment (such as our water tank!) and the purchase of state of the art two-way radios for communication of staff while in our remote field areas.

Your gift to the Annual Fund, in a very real way, ***reaches others and changes lives***. We are most grateful to you for your help and continuing support. On behalf of all of our students who benefit from your generosity, we thank you.

Duane Champion in the field.

Donations to UB Geology

Thank you to the following alumni and friends who have donated to UB Geology since July 1, 2010 (Reporting on donations received July 1, 2010 – June 30, 2011).

Mr. David Aloysius
Ms. Mary Anderson
Mr. Kenneth A. Angielczyk
Mr. Bruce Appelbaum
David & Julie Barclay
Mr. John H. Barnes
Mr. Paul M. Basinski
Mr. William Beck, Jr.
Dr. Barry A. Bienstock
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Mr. James F. Brennan
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Mr. George Campbell
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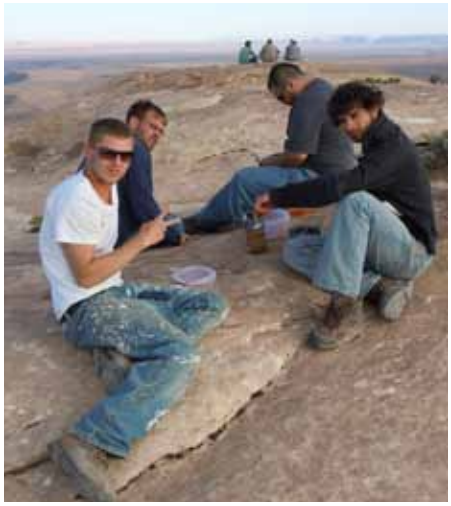
Mr. Harold O. Wolf
Ms. Julie Wortham
Mr. Glenn G. Zinter
Mr. Gregory Zynda

Field Camp Award Recipients

My name is **Rachel Kolenko** and I'm going into my senior year as an undergrad. I'm currently working towards my BS in geology and plan to graduate next spring. After graduation I hope to attend graduate school for paleontology. I would like to thank the department for awarding me the 2011 Dorothea Duttweiler Field Camp Award. The award greatly helped my family and I pay for the field course, especially since I had never camped out before and had to buy all new gear! Field Camp can only be described as an amazing experience and one I will never forget. I learned a lot about how to study and identify geology in the field and got to know some very smart and awesome people I'll be sure to keep in touch with. Once again, thank you very much for granting me this award.

My name is **Heather Lavin**, and I was a recipient of the Pegrum Field Camp award. With the aid of this scholarship, I was able to afford field camp, and make rent, whereas before, I would have gone through a major financial hardship to do so. This scholarship also enabled me to afford some of the necessary gear for roughing it in the field for 30 days, during which time I was able to see some of the most spectacular scenery the west and central US has to offer. With the completion of this field course, I have finished all of the necessary requirements for my Geology B.S., and am currently enrolled at UB to complete a secondary B.S. in Environmental Sciences. This will also allow me to continue playing rugby for the UB all-girls team, something I greatly enjoy. I am very thankful for this award!

My name is **Justin Miceli** I am a senior pursuing a Bachelor's of Science with honors. When I graduate I plan to go to graduate school to obtain a Master's Degree in Hydrogeology. I want to do something with chemistry and hydrogeology. I want to work in the field of contaminant hydrogeology remediating contaminated environments. I have always wanted to help clean up the environment and this field is perfect for me because it combines my passion for geology and chemistry. I am very grateful for receiving the Pegrum Field Camp Award. It helped me out a lot with the cost of field camp. I was able to buy gear I needed and pay for my travel expenses without taking out additional loans. My experience at field camp was better than I hoped it would be. I absolutely loved camping for a month straight and doing school work in awesome environments out west. It was the best experience of my life so far and thanks to the award I was able to enjoy it with good gear and less financial stress.



My name is **Patrick Staub,** one of several recipients of the Reginald H. Pegrum Field Camp Award for 2011. I am pursuing a BS degree in geology at UB as a senior. My intentions following graduation are far from set in stone right now, but I hope to work someplace in the environmental field. The award I received truly made field camp much less financially stressful, and I was able to completely avoid the Sallie Mae executioner's axe for the summer semester. I would like to thank everybody who has made a donation to the department, and hope that students in the future have the same opportunities available to them as I have had.

My name is **Ken Rhoades** and the field camp award I was given helped me financially in a very exceptional way. As a senior, field camp was my last course to be taken "at" UB. Originally from a small town outside Denver, I found myself in the unique situation where the field camp award allowed me to cover the expenses for field camp and also my move back home. This alone saved me a great deal of stress.

As for field camp itself, it will be one of my most treasured memories and experiences from UB, (only matched by the swimming and diving team winning the MAC Championship, defeating EMU - the reigning champions of approximately the last 20 years!) I met people from all over the east coast, and still keep in touch with many of them. We all share a unique bond that only a month out in the field together can build. During field camp, the award allowed me to enjoy the whole experience the camp had to offer without the worry of running short on funds.

I'd like to close with my fondest memory of field camp. At our last stop in Wyoming, on our first day there, our group was walking through the map site and characterizing the rock units. One in particular, the Sundance Formation (I went back to my field notebook to get the name of the rock unit) contained belemnites (bullet shaped fossils from an extinct squid-like creature, thanks again field notebook!). While walking up to the top of a hill my best friend Stefan Truex showed me a small belemnite piece he had found that showed very cool crystallization on the inside. I remarked, "Wow that's a good one". When we reached the top of the hill approximately another 100 yards from where we had spoken, we stopped as a group to take more field notes and survey the map area. Everyone had been collecting fossils on the way up the hill, and at the top were doing more searching than note taking. Being tired, I sat down to take some notes and looking down I saw my friend's belemnite. "He must have dropped it," I thought to myself. I pocketed it with the intent to surprise him later. We continued the day out in the field, and I had forgotten that I had his fossil until we got back to camp and were sharing rock descriptions. I pulled out the belemnite saying, "You dropped this at the top of the hill." He replied with "No I didn't, mine's right here." We looked at each other's belemnite and they were identical! Words cannot describe the moment that followed. We then put the two fossils together and they matched exactly! Unbelievably, we had found them not even close to one another, one on the top and the other on the hill slope. It seemed as if it was meant to be. It was the last class Stefan and I would take together, before I was off to Pennsylvania to perform diving shows for the summer.

This was my fondest memory of field camp and I'll cherish my belemnite as long as I live. I hope that I have shown my great appreciation for the award I was given. I'd like to thank the UB Geology Staff and Alumni for a truly remarkable and unforgettable education and college experience.

Alumni Notes

2000's:

Abdi (nee Walczak), Laura (BA, '08)
In July 2011 I accepted a position as Staff Geologist with the company Geo-Technology associates, Inc. in the Washington DC area. Nadiya will be three in October 2011 and Shabbir just turned one. Life is good!

Burkett, Brett (MS, '08)
Brett successfully started the "Learning Community", at Collin County Community College, merging Environmental Science and Modern U.S. History. He and his wife Shannon work as Geology Curators for the Heard Science Museum, and together constructed three exhibits. The couple bought a house together in April, 2010, and are in the process of co-authoring an Earth Science lab manual. **bburkett@collin.edu**

Burkett, (nee: Bardo) Shannon (MS, '07)
Along with her work as a Curator at Heard Science Museum and joint efforts to write a lab manual with her husband Brett (above), Shannon is a commissioned artist and has sold 15 pieces of artwork.

Fredrick, Kyle (PhD, '08)
Nearing completion of his fourth year as an Assistant Professor, Kyle leads a growing Geology and Environmental Earth Science program (over 50 majors). His students have enjoyed some notable successes including completing several voluntary research projects, presenting at regional and national conferences, and participating in numerous volunteer outreach activities throughout southwestern Pennsylvania. Personally, Kyle and his wife Christi have learned to appreciate Pittsburgh, though they still miss Buffalo! Their two children, now 4 and 2 years old, are doing well and keeping them very busy. **fredrick@calu.edu**

Garrett, Robert (MA, '06)
Robert is currently a Geologist with AMEC in Schenectady, NY. **bgarrett4@gmail.com**

Kowalski, Paul (BA, '03)
Paul recently completed his 7th year of teaching – and his 6th at Clarence Middle School in his hometown of Clarence, NY. He spent this past year teaching Regents Earth Science to 8th graders, but has taught all science courses offered in grades 6-9 over the past 7 years. Paul has recently begun additional graduate coursework in Educational Administration, with a future goal of becoming a school district administrator. He and his wife Julie reside in Newstead, NY and are about to celebrate their second anniversary. Hi to everyone from the class of '03- hope all is well! **PMKowalski@rochester.rr.com**

Mangel, Adam (BS, '09)
I presented at the SEG Fall Meeting in Denver, CO, and am the student chair for the 2011 SAGEEP meeting in Charleston, SC. I'm currently working on my Master's in Hydrogeology – Hydrogeophysics at Clemson University. **amangel@clemson.edu**

Nimlos, Eric. (MS, '09)
Eric started a new job last November with Antea Group in Valhalla, NY performing environmental remediation services.
erik.l.nimlos@gmail.com

Weinman, (nee: Scuderi) Fernanda (BA '03) Was recently married to Brian James Weinman on October 30, 2010. We went to Jamaica for our honeymoon, and just found out we are pregnant! This is my first child and Brian's 3rd; he has two boys, ages 14 and 12 (Dakota & Casey). We both work in the laboratory as Asbestos Analysts. We just bought our first house! And found out we are having a boy! I am due August 3rd.
nandaweinman@gmail.com

Williams, Rebecca (MS '06)
Rebecca passed her PhD this fall, studying the behavior of pyroclastic density currents. She was recently on board the JOIDES Resolution, sailing as an igneous petrologist for the Louisville Seamount Trail Expedition 330 from 14th Dec 2010 to 14th Feb 2011. Following the expedition, Rebecca returned to the University of Leicester where she works as a Teaching Fellow and postdoctoral research associate. You can read about the expedition here:
http://joidesresolution.org/blog/252
jrs_williams@ship.iodp.tamu.edu

1990's:

Bates, Jeff (BA, '91)
Jeff was promoted to Professor at Columbus State Community College in June 2007, and graduated with a Ph.D. in Geological Sciences from Ohio State University in December 2007. He resides in Johnstown, Ohio with his wife Suzie, and three children.
sjbates@cscc.edu

Frederick, Bill (MA, '91)
The Frederick family had a great summer vacation being beach bums at Cumberland Island National Seashore. It was "Africa hot" and we lived in swim suits for five days while camping on the island. Cheers everyone!
William.t.frederick@usace.army.mil

Kim, Jonathan (PhD, '96)
Jonathan is still working at the Vermont Geological Survey, and he's been in Vermont since leaving UB in 1996. He currently works on projects involving bedrock geologic mapping, naturally-occurring radioactivity in ground water, nitrate contamination of

bedrock aquifers, and rock slide mitigation. Jonathan still enjoys to bike, hike, and ski a lot. jon.kim@state.vt.us

Romans, Brian (BA, '97)
In August 2011 I started on the faculty in the Dept. of Geosciences at Virginia Tech in Blacksburg, Virginia. **romans@vt.edu**

1980's:

Abrahams-Dematte, Bill (BA, '87)
Bill is Project Hydrogeologist at AECOM-Environment in Massachusetts, and was recently elected to the Board of Directors of the Geological Society of New Hampshire (GSNH). billad@tellink.net

Costanzo, Patricia (PhD, '85)
Presently, Pat is serving as a Co-Chair of GAAB, The UB Geology Alumni Advisory Board. This message is an invitation for students to contact Pat as an "as needed mentor" and also to all old friends to drop a note to say "Hi!" costanzo@acsu.buffalo.edu

Dematte, Bill (BA '87)
Bill is Project Hydrogeologist at AECOM-Environment in Massachusetts, and was recently elected to the Board of Directors of the Geological Society of New Hampshire (GSNH). billad@tellink.net

1970's:

Hadley, (nee: Coniglio) Susan (BA '75)
If anyone from the Geology class of 1974-1975 is in the SF Bay area for a visit, let's reconnect. Susan is currently the owner of Susan Hadley Library & Information Services in Sunol, CA. suehadley@yahoo.com

Wienke, Jr. Burton S. (BA, '79)
Burton is currently the President of Syracuse Land & Energy, Inc., and lives in Sanborn, NY eenrd@aol.com

1960's:

Luther, Frank R. (MA, '68)
Frank retired in 2003 and spends his time fishing, hunting, canoeing, making maple syrup, and repairing his old farm house. He is also a volunteer firefighter and treasurer for the Hellenville Fire Rescue District in Wisconsin.

Meylan, Maurice A. (BA, '63)
I am now an Emeritus Professor of Geology, having retired from the University of Southern Misisippi in May 2009. I am still involved with my department, doing a little teaching, assisting graduate students with research, and responding to requests from the public such as, "Is this a meteorite?"
UB Geology is really the one making news. It has transitioned from the small, ill-equipped and housed department I knew in the early 1960's to a world class organization. This is very nicely documented in the EPOCH. Keep up the good work!
Maurice.meylan@usm.edu

1940's:

Tesmer, Irving H. (MA, '48)
In September, my wife Lorraine and I took a 6,000 mile round trip to the West. We followed the Trans-Canada highway from Sudbury to Calgary and then enjoyed visiting Banff and Yoho Parks in Canada as well as Glacier National Park in Montana. As we passed through Field, British Columbia, we were reminded of the wonderful Cambrian fossils found there many years ago. Now we have some great photos of the West as souvenirs. irvtesmer@aol.com

We are sorry to report that the following alumni and friends have passed away:

Ebert, Charles H.V. "Vince"
Vince Ebert, SUNY Distinguished Teaching Professor Emeritus, passed away at the age of 86 on Dec. 30, 2010. Dr. Ebert had taught at UB since 1954 and was a faculty member in the Department of Geology and Geography with Reginald Pegrum until he founded the Geography Department in 1963. Although he "officially" retired in 2000, he was still teaching his disasters course during the fall 2010 semester until he became too ill to continue.

Gramza, Andrew, son of Dale (BA, '80) and Lori Gramza
Andrew died on November 8, 2010 after suffering from injuries due to a car accident in October. His parents thank the heroic efforts of a young stranger who calmed and comforted Andrew at the scene of the accident while waiting for help to arrive. They also wrote of three correctional officers who stopped on their way home from work to pull Andrew from his vehicle and care for him until rescue vehicles came to their aid. Dale and Lori write: "Words can never express our gratitude for these heroes being there at our son's time of need." Andrew is survived by his parents Lori and Dale Gramza, his sister, Larissa (Beau Reibel), and his grandparents, Mitchell and Elaine Gramza, and Leonard and Betty Weisbeck.

Reitan, Paul H. (Professor Emeritus)
Died October 30, at the age of 83. Dr. Reitan taught at UB from 1966 to 1998, and served as Dean of the Natural Sciences and Mathematics Department from 1976 to 1979. In 1995, he was inducted into the Royal Norwegian Society of Sciences and Letters, and in 2005 was named a fellow of the American Association for the Advancement of Science for his contributions to educating the public about environmental sustainability science. He is survived by his wife of 49 years, Reidun; his daughter Kirsten; and son, Eric. Dr. Reitan is remembered fondly by his UB Geology colleagues and students.

Post-Graduation Challenges and Job Success

Tahir Sher Mohammad, General Manager (Exploration)
Pakistan Oilfields Unlimited (MS '83)

As a previous graduate of UB's Geology department, Mohammad discussed the importance of broadening one's skill sets: "*In my case, strict laboratory discipline and good practice gained from [faculty members] David Borden, Dr. Pat Costanzo, Dr. Mike Herron, and Pete Avery gave me both expertise and confidence. Additionally, the ability to read and analyze maps is one of the most important skill sets required to get a job in the geological and geophysical sciences. Our current generation must have the right computer usage and software skills…the knowledge of GIS Arc view adds immense value."*

Mohammad understands that in order to gain employment as a geoscientist, it is vital to consider options in both domestic and international settings, and prepare with coursework in economics and business development, in addition to the geosciences. Despite pessimistic media and a down economy, there are many opportunities within the United States: State Geological Survey organizations, the USGS, the oil and mining sectors, and the environmental sciences. However, there is considerable worldwide opportunity to seek jobs rather than limiting oneself to the domestic market. "*A geosciences background from the US with both a Bachelor's and Master's degree certainly adds a lot of value when working for a multi-national corporation. The State University of New York definitely adds value – no doubt about that at all."*

Describing his initial desire to work in the oil industry, Mohammad writes, "*While completing my thesis (analyzing fluoride ions in kaolinite clays) for Dr. Giese, I learned that the petroleum industry was in a state of 'glut'. This means low oil prices, and low activity – when people are laid off. In 1983, the US oil industry was basically in crisis, so I returned to Pakistan and had immediate job offers from Occidental and Union Texas. In Oxy, the Exploration Manager had done his field work in the Appalachians, so my undergraduate field geology course in the Catskill Quadrangle played a key role in gaining my first job offer.* Mohammad also credits his studies in sedimentology and petrology with Dr. Bob Jacobi, and studies in tectonics (especially the study of fractures) with Dr. John Fountain as great preparation for handling shallow platform carbonate/fractured reserves.

"I considered myself as only an average graduate student, who went into top oil industry positions due to being a 'Jack of all trades' in the geosciences, and the vital subjects of economics and business development." Mohammad credits his work ethic to the Buffalo experience: "*For a Pakistani who had never seen snow to have been trained to jog all the way from Ridge Lea to Snyder (through the main Road) in Buffalo after 11:30 at night in the snow…I tell you, God bless America…for it made me tough!"*

Mohammad is happy to share his message that the average US graduate student can excel with the right preparation and determination. Read more about his company, at http://www.pakoil.com.pk/index.html.

The G&G Team: Pakistan Oilfields Unlimited Exploration Team of Geologists and Geophysicists.

Degrees Conferred & Student Honors/ Awards

Degrees from September 2010– June 2011

Bachelor of Arts

Andrew J. Camping	Feb-11
Peter M. Carcione	Feb-11
Sarah M. Lavin	Jun-11
Lily Mei	Jun-11
Kathryn A. Swanson	Jun-11

Bachelor of Science

Philip A. D'Aurizio	Sep-10
Thomas J. Dobmeier	Sep-10
Christopher W. Foote	Feb-11
Emily L. Harper	Feb-11
Ryan Ross	Feb-11
Andrew T. Brownell	Jun-11
David P. Carlone	Jun-11
Nicholas R. Dahn	Jun-11
Daniel J. Kaszubski	Jun-11
Kevin R. Kersten	Jun-11
Jason P. Mazurowski	Jun-11

Master of Arts

Sarajane Gomlak-Green	Feb-11
Steven M. Moeller	Feb-11
Greyford Hunter	Jun-11
Adou Katche	Jun-11

Master of Science

Missti D. Brown	Sep-10
Stacey Hanson	Sep-10
Anthony D. Kellogg	Sep-10
Sean G. Hays	Feb-11
Melissa Roloson	Feb-11
Daniel Krysak	Jun-11
Sean T. McGrane	Jun-11
Neil C. Terry	Jun-11

Duttweiler Field Camp Award:
Alumna Dorothea Duttweiler contributed funds to our department to support women studying in the field of geology; specifically to help women attend summer field camp. Ms. Duttweiler graduated with a BA in Geology in 1937. As a woman, she found many doors in geology closed to her. She eventually became a professor in UB's School of Education, but she never lost her love for geology. The

Marcus Bursik with Field Camp Award Recipients (L-R) Justin Miceli, Patrick Staub, Kenneth Rhoades and Rachel Kolenko.

Dorothea Duttweiler Field Camp Award has been given since 1994 and the department continues this award in her memory. The 2011 recipient of the $1,258 award is **Rachel Kolenko.** See page 19.

Pegrum Field Camp Awards:
Four field camp awards were made from the **Reginald H. Pegrum** fund. Due to increased donations to our department from alumni and a generous endowment account return, the department expanded support of students attending field camp through use of these funds. This year's recipients are **Patrick Staub, Justin Miceli, Heather Lavin and Kenneth Rhoades (**$1,258 each).
See page 19-20.

James P. Owens Scholarship:
The **James P. Owens scholarship** was set up by Lucy McCartan-Owens to honor the memory of her husband James. Mr. Owens began his studies at UB in 1941, but interrupted his education to serve in the US military and returned to UB in 1946 under the GI bill. He received his Bachelors degree from Geology and Chemistry in 1948 and completed his graduate degree in 1949. His graduate work included extensive study of the Cazeonvia Creek and he credits the University at Buffalo with much of his later professional success. This scholarship was set up to assist an outstanding undergraduate student or an applicant to the Geology Graduate Program who is interested in fields related to surface and near-surface geology.

For 2011 we are pleased to award this scholarship to **Timothy Pryshlak**, an undergraduate student pursuing his B.S. in Geology, and working in the research laboratory of **Dr. Richelle Allen-King**. When Tim was nominated for the award, Dr. Allen-King wrote "Tim has worked in my lab for over one year. He is smart, motivated, reliable and a pleasure to have in the lab. His work is outstanding."

Marcus Bursik and James P. Owens Scholarship Recipient Timothy Pryshlak.

Postdoctoral Associate, **Indra Kalinovich** said the following of Tim: "I have had the real honor of knowing Tim as he worked in the hydrogeochemistry research group for the past year and a half. Tim is an incredibly hard-working and reliable individual and for the past two years in our group, he has easily clocked in 20 work hours per week on top of a demanding undergraduate course schedule as well as all of his extra-curriculars. I have been so unbelievably impressed with the effortless intelligence, humility and grace that

Tim possesses. Tim is thoughtful and diligent in both his work and in how he interacts with the other students in our research group. Even before hiring Tim, I remember the other undergraduate students talking about this mysterious "Tim" person with awe in their voices, as he was so broadly liked and highly regarded as an intelligent individual by all of his peers."

Gilbert Jaffe Memorial Award:
This award is intended for a student that excels in the study of marine or environmental sciences. **Sarah Lavin** is the recipient of the $750 award for 2011. Sarah graduated in June 2011 with her BA in Geology and BS in Biology and will pursue graduate work in the area of biogeochemistry or environmental engineering.

Marcus Bursik and Gilbert Jaffe Award recipient, Sarah Lavin.

Sarah is an exemplary student who is bright, hard working and very motivated to pursue a career that makes a difference in improving and protecting the environment. She held an internship in the summer 2009 with the Chicago Botanic Garden where she did research in biogeochemical cycles. She holds the highest Geology GPA in the department and is also the 2011 recipient of the College of Arts & Sciences Outstanding Senior in Geology Award. Dr. Tracy Bank can't say enough great things about Sarah: "not only is she extremely intelligent but also extremely nice. She took my graduate level biogeochemistry class and did great. She has an environmental conscious and knows that improving the environment is what she wants to do in life; and with her excellent work ethic I know that she will."

Dr. Jason Briner wrote, "For the past year Sarah has worked in the Paleoclimate Lab, mainly helping graduate students with quartz separation and purification for cosmogenic exposure dating. Spending hours at a time in the basement crushing and sieving rocks then watching quartz grains sink one by one through heavy liquid usually motivates past student employees to find someplace else to work. Sarah has been working so hard that we've run out of things for her to do! And, she does all this with a smiling face and work ethic to beat all work ethics."

Undergraduate Pegrum Award:
The Pegrum Award has been given annually since 1970 to an outstanding graduating senior in the Department of Geology. The 2011 recipients of the recipients of the $750 awards are **David Carlone and Andrew Brownell**.

Post-doctoral associate **Indra Kalinovich** had the following to say in regards to David Carlone: "I have known David for two years, as an undergraduate researcher working in the hydrogeochemistry group. David is one of those rare students who is able to rise to the challenges posed to him. He started in our lab as a general go-to kind of guy and quickly rose to the role of active researcher, taking on an undergraduate research project that was extremely challenging in both time and content. He started this project in July 2010 on a field campaign to Borden, Ontario and presented the first half of his results on 're-interpreting lithofacies in a vertical core transect using an outcrop analogue' to the scientific community in October 2010 at the Geological Society of America's Annual Meeting. This just goes to show you how industrious, intelligent and hard-working an individual David Carlone is."

Dr. Eliza Calder said the following about Andrew Brownell: "he very impressively, secured an Honors College award to fund his honors thesis work which involved participating in a field trip to Llaima volcano, in southern Chile last January. Andrew was a good sport during this trip, collecting and measuring more little bits of brown and black scoria than most of us care to imagine. He now has more data available for his honors project than is possible to analyze during an entire masters degree. I also recall, on one extremely windy day in the field, Andrew volunteered his services to climb a ridge and conduct a wind-hazard evaluation. The aerodynamic form Andrew's profile took on, and the quick-thinking observations he made on the saltating 10-cm particles, enabled a timely re-evaluation of the days objectives and a respectful retreat of the group down the volcano...to safety."

Graduate Pegrum Awards:
Thanks to a large donation of close to $140,000 from alumnus James W. Cadwell, the Pegrum Fund is now also able to give additional awards to students. The graduate Pegrum Award is given to a graduate student that excels in teaching, research or both. This year three students received awards of $750; **Daniel Robinson** & **Shanna Losee** for excellence in teaching, and **Patrick Whelley** for excellence in research.

Daniel Robinson is pursuing his MS degree under **Dr. Charles Mitchell** studying the application of geometric morphometrics to Graptoloid populations. **Dr. Tracy Gregg** said the following about Daniel Robinson: "he is an enthusiastic and creative teacher; he is good-natured and well-organized; and he genuinely cares about the students and their learning outcomes. Over the last two academic years, Mr. Robinson taught multiple lab sections of GLY 216 (paleo-sed), multiple lab sections of GLY 101 and 102, and was the Lead TA for GLY 101 in the fall 2010. He received high marks on his GLY 101-102 student evaluations, and one student graced him with a comment that I wish I had received on my evaluations: 'Dan is approachable, well-informed, and passionate about his work. He is clear in his expectations… gives good feedback…and always comes on time and is prepared for our labs.'

Marcus Bursik with Undergraduate Pegrum Award Recipients David Carlone and Andrew Brownell.

As Lead 101 TA, Mr. Robinson was clearly in-tune with the students and was able to readily communicate with me precisely what the difficulties were with the labs, and specifically how to improve them. He met with the other GLY 101 TAs to show them how to teach labs, and warn them of possible problems, confusion, and pitfalls. His ability to see into the mind of a typical undergraduate was uncanny and invaluable.

In teaching the GLY 216 lab, Mr. Robinson had a free and creative reign. Dr. Mitchell gave him the concepts that are to be taught, but left it up to Mr. Robinson to figure out how to implement these concepts and ideas. TAs are not often given the task of creating upper-level course labs, however he rose to this challenge and constructed new or modified labs for the majority of the course.

Shanna Losee is pursuing her MS degree under Dr. Jason Briner studying Holocene climate change in west Greenland. Dr. Tracy Gregg said the following about Shanna Losee "she has demonstrated an enthusiasm and talent for teaching, and particularly excels in making geology interesting and accessible for students who would really rather be somewhere else. Students commented that Ms. Losee 'was a terrific TA—two thumbs up!' Many students remarked positively on how she was 'always helpful when asked, and very patient.' And another student noted that she was 'very organized and had the class planned well and kept us on task.'

She served as a Teaching Assistant for GLY 101 and 102 in the 2009-2010 academic year and was Lead TA for 102 in the spring of 2010. That last semester was particularly demanding on the Lead TA because I was on a research cruise in the middle of the Pacific Ocean and could only be reached via email. Ms. Losee had to implement and oversee all of the labs in my absence and I was thrilled with how well Ms. Losee led and executed the labs while I was gone. Ms. Losee always had good suggestions for me on how to improve the labs by making them more accessible to the students. In addition, she created a lab designed to make the review of rocks and minerals fun and implemented it—completely independently from me, and I plan to continue using this lab.

Her advisor, Jason Briner, states that Shanna is probably the most well-organized student that he has advised. "Her time-management abilities and work ethic are exceptional. In addition, I have never heard her complain, nor have I ever seen any sign of frustration. I can easily see how these traits would lead to success as a teacher."

Patrick Whelley is pursuing his Ph.D. in volcanology under **Dr. Eliza Calder** who wrote: "I have had the pleasure of being Patrick's supervisor since here arrived at UB in 2007. Since then he has been awarded a NASA Graduate Fellowship in 2008 for his PhD studies, a Geological Society of America Grant 2008, and an NSF NCALM Award for Acquisition of LIDAR data 2009. Patrick is developing into a young researcher with a unique set of skills, he is both an accomplished field geologist as well as remote sensor, and this provides him with the ability to apply these tools together to better understand volcanic deposits and landforms, both in remote environments on earth as well as planetary environments. Patrick has accomplished writing two research papers from his PhD so far, and numerous conference abstracts, and this adds to an already established publication record from previous research in which he has been involved. Patrick is a real pleasure to work with; he is both dedicated to his work, and a meticulous scientist. Furthermore, his positive attitude, independence and genuine strength of character, will carry him far. Many of us that have shared time in the field with Patrick (including numerous trips to Chile, Guatemala, field camp, and Lunar Craters), will acknowledge that Patrick is often the source of many legendary field memories. The field environment is an environment where his sense of humor, patience, driving skills and all round good nature really shine through. Congratulations Patrick for receiving this well-earned award."

Pegrum Professional Development Awards

Since 2001 the department has offered the Reginald H. Pegrum Professional Development Award. This Award provides financial support to undergraduate and graduate students for the purposes of attending professional meetings, workshops and other programs that would aid in their professional development. For the 10-11 academic year, this fund supported 19 Students totaling $7,000.

Marcus Bursik with Graduate Pegrum Award Recipients Daniel Robinson, Patrick Whelley and Shanna Losee.

Student Research: Lauren Fortson

In the fall, I will be a second year Master's degree student working under Tracy Bank. At UB, my graduate thesis focuses on the geochemistry of the Marcellus Shale, an important natural gas reservoir. The hydraulic fracturing fluid, used to release the natural gas found in the tiny pore spaces of the Marcellus Shale, contains several industrial chemicals. My research involves determining if those chemicals can alter the local solubility of uranium and chromium within the shale therefore posing a threat to the environment. The outcome of this research will allow the natural gas industry to better manage long-term environmental protection and remediation projects. This summer, I was selected to participate in the Mickey Leland Energy Fellowship (MLEF) Program at a Department of Energy (DOE) laboratory in Richland, Washington: the Pacific Northwest National Laboratory (PNNL). I worked on a carbon capture and storage project aimed at determining how precipitation of salt can affect the technical and economic feasibility of carbon capture and storage projects. I was excited to have the opportunity to create 3-D models of carbon dioxide flow in the subsurface. This was the first time I had ever worked with computer modeling and was privileged to learn how to use the STOMP geochemical code, created right at PNNL. My fellowship program sent me to New Orleans in order to present my work at a conference. It is the first time that I have visited New Orleans and I was amazed at the cultural richness of the city.

Lauren Fortson with Time-of-Flight Secondary Ion Mass Spectrometer in the Chemistry Department at UB

Remember When... captions

1981 - Pete Avery with P. Kirst at a Geology picnic.

1984 – Pete Avery and Bernie Kapuza (ice curator).

1984 – Pete Avery and the Ridge Lea rock & mineral samples.

1984 – Dr. Chester Langway, Pete Avery and Dr. Charles Clemency in the seminar room at Ridge Lea Campus.

1986 - Peter Avery instructing student Steve Moeller.

In the field looking at tephra deposits in Mexico, 1991

1991 – Peter Avery at the Fall Geology Picnic at the home of Dr. Michael Sheridan

1991 visit of Astronaut Ellen Shulman Baker (sitting on the left). Clockwise from left, unknown, Stephen Hasiotis, Peter Avery, Janice Norris, Robyn Hannigan, Karen Murphy, Alicia Wawrzynski, Daniel DiCesare, Clay Padginton

October 1996 Michael Sheridan with Peter Avery at the Convocation of Pete's distinguished professional service award.

2006 Emily O'Mahoney and Peter Avery at Geology's annual Ground Hogs Day

Provost Satish Tripathi, Peter Avery and President John B. Simpson at the reception for the recipients of 40 years of service pins. Photo by Nancy J. Parisi, June 2010

See back page for larger photos.











Remember When...