

Faculty

Mark Abbott

Associate Professor

Thomas Anderson

Department Chair and
Professor

Daniel Bain

Assistant Professor

Rosemary Capo

Associate Professor

Mark Collins

Lecturer

Emily Elliott

Assistant Professor

William Harbert

Associate Professor

Charles Jones

Lecturer

Michael Ramsey

Associate Professor

Michael Rosenmeier

Assistant Professor

Ian Skilling

Assistant Professor

Brian Stewart

Associate Professor

Staff

Dolly Chavez

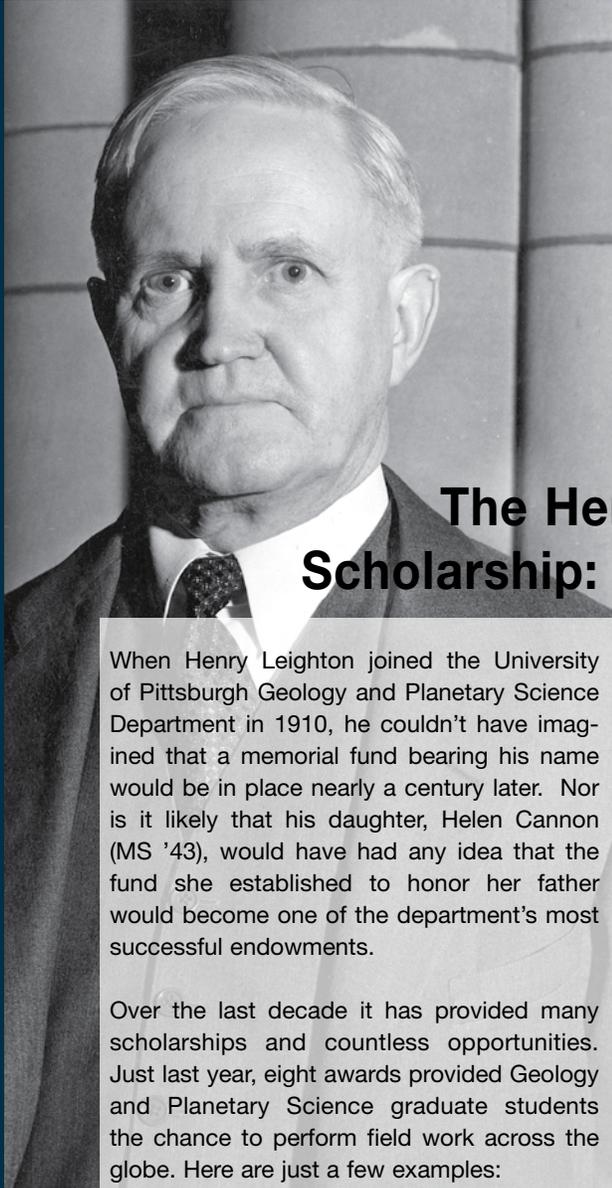
Receptionist/Secretary

Shannon Granahan

Academic Affairs Secretary

Lorrie Robbins

Department Administrator



The Henry Leighton Memorial Scholarship: A Legacy of Fieldwork

When Henry Leighton joined the University of Pittsburgh Geology and Planetary Science Department in 1910, he couldn't have imagined that a memorial fund bearing his name would be in place nearly a century later. Nor is it likely that his daughter, Helen Cannon (MS '43), would have had any idea that the fund she established to honor her father would become one of the department's most successful endowments.

Over the last decade it has provided many scholarships and countless opportunities. Just last year, eight awards provided Geology and Planetary Science graduate students the chance to perform field work across the globe. Here are just a few examples:

- Adam Carter (PhD '08) has won Leighton Scholarships three times since he began his studies in 2004. Much of this funding has been used to understand volcanic eruptions in the Kamchatka peninsula of Russia by "ground truthing" remotely sensed data. Dr. Carter uses characteristics from temperature and texture to understand volcanic eruptions. The progress Carter and his labmates make on Kamchatka volcanism may make airline travel safer: this remote area lies in the air traffic route between North America and East Asia.

- Emily Mercurio entered the doctoral program in 2007 to use her remote sensing expertise to study volcanology. Leighton funds helped her

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travel to Sveifluháls, a ridge in the Reykjanes peninsula of Iceland formed by volcanic eruptions under thick ice sheets. These landforms may be keys to understanding paleo-icesheet thickness—and this environment may be our best opportunity to observe the formation of continental crust.

- Thanks to Leighton money, graduate student Marion Sikora is able to research in Nine Mile Run, a place close to Dr. Leighton's one-time home. Dr. Leighton was a Wilkesburg resident known for taking long walks. It's likely he spent many hours in the Nine Mile Run watershed. Now Ms. Sikora is able to monitor the water quality in the stream and evaluate the recent restoration efforts. For example, in the aftermath of a cloudburst last summer, Ms. Sikora did real-time sampling through the course of storm flow, allowing insight into hydrologic pathways and sources of contamination.

The achievements of Dr. Henry Leighton—chair of our department for 16 years, a fellow of the Geological Society of America and a charter member of the Society of Economic Geologists—and his daughter, Helen Cannon—chairwoman of the National Research Council for four years and recipient of the Distinguished Service Award from the Department of Interior—are impressive. Equally impressive is the legacy of research support. Their generosity is a cornerstone for continuing success in Geology and Planetary Science.



GEOLOGY GRADUATE STUDENT FIELD WORK



Babies!



Shane Keel Laughlin

April 9, 2009, 10 lbs, 2 oz



Elisheva Lucille Bird (on left)

April 27, 2009, 8 lbs, 7 oz



Magdalene Lucille Josephine Bain

July 30, 2008, 7 lbs, 14 oz

Letter from Department Chair Tom Anderson

I took over as Chair again in August 2008. I promise that this will be my last term! I follow three years of steady leadership by Brian Stewart; may I not foul things up. Old dog that I am, I hope that I can learn some new tricks in order to maintain the upward trajectory established by Brian Stewart and Bill Harbert.

I inherit some dandy new staff members who have the aggressiveness necessary to keep me in line. The staff is anchored by Department Administrator Lorrie Robbins, who couples energy and exuberance with good budgetary skills. Shannon Granahan focuses on student issues (among many other things). Dolly Chavez, the department secretary whom many of you already know from pleasant interactions, overlapped with me in the late '90s. This professional team is situated in our main office in 200 SRCC. In addition, I will benefit from a new web page developed under Brian's leadership: <http://www.geology.pitt.edu>.

Departmental Research: Our graduate program continues to attract high-caliber students. Support for research programs continues to be strong as manifest by graduating PhD students (eight are anticipated in 2009-2010) and comparable numbers of Masters students in Geology and Planetary Science and Geographic Information Systems. Research topics include CO₂ sequestration (Bill Harbert), acid mine drainage and soil formation (Rosemary Capo and Brian Stewart), paleoclimate from global glacial records (Mark Abbott), sediment core studies of landscape dynamics and agricultural sustainability in rural France (Mike Rosenmeier), volcanic activity and wind patterns (Mike Ramsey), volcanic eruptions under ice (Ian Skilling), power plant emissions (Emily Elliott), metal in flood plain

deposits (Dan Bain), and the relation of faults to fast groundwater pathways near the Nevada nuclear waste repository (Tom Anderson).

Undergraduate Programs: Under the able and tireless leadership of Mark Collins, the Environmental Studies BA program continues as one of the best interdisciplinary majors at Pitt. We have about 100 Environmental Studies majors, and have been graduating about 30-35 per year. Charlie Jones, who guides the Geology and Environmental Geology BS programs, continues to strive to improve the curricula while providing insightful student mentoring and inspiring teaching. We currently have 30 BS majors, and we're working to increase that number. This year many geoscience grads will pursue graduate degrees. Students continue to take advantage of internship opportunities and participate in research projects with our faculty. We believe that student involvement in research is critical to the success of both our teaching and our research mission.

What About You? From our conversations with you, we learn about accomplishments of graduates of GPS programs. But to get the word out to everyone, we ask that you send us updates on any aspects of your professional and personal life you wish to share with your fellow G&PS alumni (do it online at <http://www.geology.pitt.edu/alumni/update.html>). Our program is only as strong as the graduates it sends out into the world, and we hope you will keep in touch

Zagorski Honored

The Pittsburgh Association of Petroleum Geologists (PAPG) has conferred upon William A. Zagorski (BS '79, MS '91), Vice President of Geology at Range Resources, the title of "Father of the Marcellus."

The award is in recognition of Zagorski's outstanding accomplishments in the initiation and early development of the modern era of natural gas production from the Marcellus Shale.



Jim Pancake (left), President of the Pittsburgh Association of Petroleum Geologists, presents citation to Bill Zagorski of Range Resources.

Alumni News 'n'@

Jeffrey Wagner (PhD '80) is looking forward to retiring from his career at the Bowling Green State University Fireland College Branch Campus in Huron, Oh. His wife Barbara retired from a career teaching high school English and Latin in 2007. Their son, David, graduated from Hillsdale College with a double major in French and mathematics in May 2009.

Vincent L. Santucci (MS '91) began an assignment as the Chief Paleontologist for the National Park Service (NPS) Geologic Resources Division in May 2009. Vince has been involved in a baseline inventory of paleontological resources throughout the NPS documenting fossils from at least 212 units of the NPS over the last decade. These fossils span the history of life ranging from Precambrian stromatolites in Glacier National Park to Pleistocene/Holocene wolves preserved at Yellowstone National Park.

Santucci has been involved with a wide range of paleontological resource management and protection projects from monitoring incidents of theft and vandalism of fossils on NPS lands to assisting in training law enforcement rangers to protect paleontological resources. Additionally, he will publish an article on monitoring *in situ* paleontological resources in a Geological Society of America Special Publication this fall.

Given the new Paleontological Resource Preservation legislation recently passed by Congress, Santucci will be busy assisting the NPS incorporate the new law into agency specific regulations, let alone managing, protecting and interpreting NPS fossils.

For more information or to catch up please contact Vincent at vincent_santucci@nps.gov.



Ann Vander Schrier (MS in GIS/RS '03) and Michael Holstein wed on October 11, 2008, at the Old Stone Church in Cleveland, Ohio. They honeymooned in Italy, and currently reside in Cleveland Heights, Oh.

Ann is currently working on an MLIS at Kent State University

while working full-time at Case Western Reserve University as Manager of GIS Systems & Numeric Data Services. Michael is employed at Cleveland State University as Information Security Administrator.

Caron O'Neil (BS '81, MS '86) is a geologist with the Pennsylvania Geological Survey and has been for the past 22-1/2 years.

Joshua M. McCullion (BA '06) received a commission as a 2nd Lieutenant in the United States Air Force after graduating from Pitt. His first assignment was to Space and Missiles Training with the 392nd TRS in Vandenberg, Ca. After training, he had a short assignment to Keesler AFB, Miss, serving as the Senior Analyst ILO Division of the 2nd Air Forces commanded by Major General Michael C.

Gould. He is currently at Eglin AFB, Fla, assigned to the 20th Space Control Squadron.

The mission of the 20th Space Control Squadron is to detect, track, identify, and report near earth and deep space objects in earth's orbit, and provide space object identification data in support of United States Strategic Command's space control mission. It is one of the world's foremost space surveillance units, and in light of current events, one of the busiest. Joshua is a crew commander responsible for overseeing all mission operations utilizing the \$250 million radar system.

During his time at Elgin he met his wife (below) and they have two children--Kiera (4 years old) and Eagan (6 months old).



Amanda (Illar) Schmidt (BA/GIS Cert. '05) has been through many changes in life and career. By the time you read this, Amanda and her husband will have welcomed Kobain Robert Schmidt to the world, their first child. Since 2006 she has been working for the Pa. Department of Environmental Protection and recently transferred to a position as a Water Quality Specialist in Beaver Falls, Pa. Amanda is thrilled to have the opportunity to work in the field often, and certainly will have to adjust to working in the world of regulatory compliance while becoming a new parent. However, she wouldn't have it any other way.

Shawn Wright (MS '03; in Hawaii, above) gave a Pitt colloquium talk in January 2007 and received



his PhD in Geology from Arizona State University (2008). Now Shawn is a Senior Research Scientist for the Institute of Meteoritics at the University of New Mexico in Albuquerque. Among several projects, Shawn maps the newly discovered Santa Fe (N.M.) impact structure to go along with his previous fieldwork and spectral studies of impact sites Meteor Crater, Ariz, Lonar Crater, India, and on-going collaboration with Pitt Emeritus Faculty and UNM alumni William (Bill) Cassidy studying craters in the Campo del Cielo, Argentina crater field. Besides these terrestrial impact studies, Shawn

is a member of the Mars Exploration Rover (MER) Mineralogy/Chemistry team and MER Miniature Thermal Emission Spectrometer (Mini-TES) instrument team. Shawn enjoyed trips to South Africa (conference) and Hawaii in 2008.

Lauren Burkert Lazzari (BA '02) is Director of the Johnstown, Pa., office of Investar Redevelopment.



Investar Redevelopment was founded in 2002 to perform specialized real estate redevelopment services to ensure investment, cleanup and re-use of distressed and underutilized property. Investar is working on several community development projects in the Greater Johnstown region, including the renovation of the former bank at 407 Main St. to four loft apartments and 3,000 square feet of office space. This mixed-use project is the fourth in downtown Johnstown. Investar is also helping a wood pellet manufacturing operation open in the county, which will help provide a more green home heating alternative while employing approximately 40 people. Lauren lives in Johnstown, Pa. (her hometown). She married Mark Lazzari in July 2005 and they have one daughter, Mollie Leona Lazzari, born November 13, 2007 (pictured above).

John R. Boulanger (BS '01) is a professional geologist and lead hydrogeologist with GAI consultants in Homestead, Pa.

Mike Price (BS '68, MS '70) has been with Hess Corp. in Houston, Texas, since 1990. He is currently Geological Operations Manager for Gulf of Mexico, South America, and West Africa. He and his wife, Mary Ann, plan to retire to Seattle, Wash. within the next year or so. Their two daughters are both in Seattle and Mike and his wife fell in love with the area several years ago. They're still Steelers fans and have discovered a "Steelers Nation" bar in Houston.



Jim Pottinger (MS '96) welcomed Beckett Jackson Pottinger, born Sept. 20, 2008. Beckett Joins his big brother Torin, 4, and big sister Riley, 6 (pictured above with Jim).

Jim is keeping busy in Murrysville after building a new house in Westmoreland Farms. He encourages you to check out Facebook; there are many

Pitt GPS grads with great pages! At work Jim created a "Green My School" initiative at Gateway School District in collaboration with Sustainable Monroeville.

Victoria Pretti (MS '00) has been working as the Assistant Technical Director for the New York State Department of Health's Environmental Laboratory Approval Program (<http://www.wadsworth.org/labcert/elap/elap.html>) since 2008. The program is based in Albany, N.Y. She is the Quality Assurance Officer for the program. On top of that, she performs laboratory assessments of drinking water, asbestos (PCM and PLM only), and wastewater laboratories. Prior to beginning this job, she obtained a secondary education degree in 2006 in Earth and Space Science Education from IUP and had the opportunity to teach general science and technology at an international school in Malmo, Sweden. Victoria currently resides in Saratoga Springs, N.Y.

Suzanne Traub-Metlay (PhD '93) enjoys "letting loose my inner policy wonk" as Operations Director for Secure World Foundation, a private operating foundation in Superior, Colo., dedicated to promoting cooperative solutions for space security (www.SecureWorldFoundation.org). During 4½ years as Education Programs Manager at Fiske Planetarium at the University of Colorado at Boulder (<http://fiske.colorado.edu/>), Traub-Metlay educated the public about our solar system and assisted the family who discovered the Berthoud meteorite; they are still dealing with the repercussions of witnessing and collecting a fresh meteorite fall.

Suzanne's husband, Mike Metlay (PhD, Physics, '92) is Associate Editor of Recording magazine, Read his blog at <http://www.recordingmag.com/blogs/6.html>. Mike also released his second live album with his band, mindSpiral, (www.cdbaby.com/cd/mindspiral2) and has now started releasing downloadable albums—free of charge!—on the Earth Mantra netlabel (www.earthmantra.com).

Suzanne's kids Julia (age 13) and Alexandra (age 8) are well. Julia is a member of Colorado Civil Air Patrol as well as dancer and choreographer and Alexandra is a massive Harry Potter fan

You are welcome to visit them in the Boulder area at any time – the geology and weather are great! You can contact her at stmetlay@gmail.com

Ben Senkowicz (BS, '01) finished his PhD in Materials Science, is living in Pittsburgh and working for US Steel.

Dan Nelson (MS '04) is currently in his second year at the University of Washington pursuing a PhD in chemical oceanography. He's working on understanding the environmental controls on hydrogen isotope fractionation in biomarkers in lacustrine environments to refine the application of these tools as paleoclimate proxies. Dan ran into several folks from Pittsburgh at the fall AGU meeting in San Francisco was glad to see everyone and hear that everyone is doing well!

Tell us your news!

<http://www.geology.pitt.edu/alumni/update.html>

Faculty News 'n'@

Brian Stewart

My students continue to make good progress on a wide range of research projects. Tonya Brubaker has been working with Professor Capo and me on an isotope study of interaction between environmental waters and coal fly ash. Her data demonstrate how strontium isotope ratios can be used to track leaching of potentially toxic elements from ash ponds. Amy Wolfe's dissertation on iron partitioning and isotope fractionation in coal nears completion. She has benefited from interactions with Professor Bain, and has been able to use his accelerated solvent extractor (ASE) to get at surface and organic complexation in coal. Undergraduate honors student Justin Hynicka graduated in 2008 with a senior thesis on isotope tracking of particulate sources in the Atacama Desert, Chile; he and I are working on a manuscript for a scientific journal based on his research. I carried out field work and sampling in the Atacama Desert with colleagues from UC Berkeley and Arizona State—a fantastic experience.

My three-year term as Chair expired in August 2008. It was a pleasure and a privilege to serve our talented and collegial colleagues and students, but I welcome the opportunity to focus my efforts on teaching and research once again.

Ian Skilling

I had a very successful field season with PhD student Emily Mercurio on the Reykjanes Peninsula in SW Iceland, where we examined a multiple eruptive fissure called Sveifluhals that erupted through ice about 40,000 years ago. Sveifluhals has about nine en-echelon fissures, a total length of about 20km, and vents evenly spaced every 0.6km. There are more than 1,000 such fissure systems in Iceland, ranging in age



from about 3 Ma to present day, and they represent an invaluable but untapped resource on ice conditions. The project aims to understand the construction and evolution of such complexes and how they interact and record evidence of former ice. Initial results were presented at the AGU meeting in Toronto in May 2009. We shall return to Sveifluhals in August 2009. I co-edited two volumes of *Journal of Volcanology and Geothermal Research* ("Physical Volcanology of Large Igneous Provinces" and "Volcano-Ice Interaction on Earth and Mars") and gave several presentations at the International Volcanological Congress in Iceland in 2008.

Michael Rosenmeier

Another busy newsletter season! My paleoenvironmental research program in Central Asia expanded once again, with summer fieldwork in the forest-steppe region of the Russian Federation. Former graduate student Kevin Robinson and I spent several weeks collecting sediment cores from lake basins in the southern Ural Mountains, in an area several hours south of the city of Chelyabinsk (birthplace of Pittsburgh Penguins defenseman Sergei Gonchar). The Chelyabinsk region is quite beautiful, with rolling hills reminis-

cent of our own Alleghenies, but with a rather sinister military-industrial past. The area was historically a locus of the Soviet Union's nuclear weapons program, and consequently the site of a number of rather catastrophic radiation releases and other environmental disasters.



On a lighter note, graduate student Tamara Misner continues to make great progress on her PhD research examining the direct cause-and-effect relationships between historic land-use changes and long-term watershed dynamics in Burgundy, France.

In other news...graduate student Benjamin Cavallari is nearing completion of this research project in northern Greece, and he is now scheduled to defend his thesis by the end of summer. Undergraduate student Allie Tessin has picked up some unfinished components of this project over the last year, and will be investigating recent agricultural and industrial impacts on lakes in the region.

Michael Ramsey

I spent the last four months of 2007 "roughing it" in Hawaii for the end of my sabbatical where I was working on analysis of data from Mars and Kilauea Volcano. The entire year away was very



productive, but I needed most of 2008 readjusting to being back at the University and teaching classes. Speaking of, the relatively new Natural Disasters course in the spring has been a great success. It now has more than 300 students enrolled and supports 12 recitation sections! Scientifically, I serve on the science teams of two NASA missions (ASTER and THEMIS) and two NASA advisory panels for future Earth Science and Lunar Exploration. My research continues as well with eight active NASA and NSF grants supporting four graduate and one undergraduate student, as well as one post-doctoral researcher. The work centers on thermal infrared data analysis in the lab, the field, and from the orbits of Earth and Mars. My research group is using these datasets to study geologic processes from eolian systems to active volcanoes. The work has received a lot of media attention including NPR, the Discovery and the National Geographic channels. I am looking forward to an even more productive year.

Charles Jones

The newsletter year started with me going out to Yellowstone National Park with Bill Harbert. I am taking over the geology section this year. Bill's method of student torture was endless hikes, with the magical petrified forest always located just over the next crest. My method will be grain-size analysis: Students will eat dirt, while I episodically shout Bear! Fun will be had by all. I also spent quite a lot of time this year getting

the latest edition of the *Laboratory Manual for Physical Geology* ready for press. I gave them perfect Adobe Illustrator illustrations, and they messed them up so I had something to do when I got the proofs.



I've gotten back to teaching the GEOL 0055 labs, which is nice because I like to see the undergraduate TAs give the lab lectures. It is reassuring that they do such a nice job! Also nice is seeing so many

of our recent graduates getting nice jobs in the petroleum and other industries. And this brings up another topic: Please drop me a line to let me know what you are up to. It is always interesting to see where people end up after graduating.

William Harbert

This year has been very busy. Many excellent Professional Masters of GIS students have completed the program and are employed.

Two graduate students, Chris Purcell and Alan Mur, are working in CO₂ related research generously funded by the United States Department of Energy. We are using advanced 3D reflection seismic processing, rock physics analysis of limestone core material at *in situ* conditions, including P, SH, and SV velocity analysis, and risk assessment/geochemistry-related work. Many scientists at NETL are involved, including Dr. Yee Soong. In addition, the research project focused on an active CO₂ injection site in Texas is in collaboration with the Southwest Regional CO₂ partnership and Bureau of Economic Geology. Working with Dr. Bob Hardage of BEG has been an amazing experience and I'm happy to report that we recently had an additional award from DOE for the investigation of the Marcellus Shale. After finishing my work with the state to draft the carbon-management plan for Pennsylvania, I have been appointed to a DCNR advisory board focused on geologic sequestration of carbon dioxide in Pennsylvania.



I am very sorry to report that one of our best Professional Masters students, Mr. Chandler Ketchum II, passed away following a traffic accident this fall. My memory of Chandler is of a bright, hard-working, motivated young man with an can-do attitude. I miss him in our program and am deeply saddened still by his passing. I feel honored to have worked with him for almost a year here at Pitt.

Emily Elliott

The completion of my second year in G&PS was productive and gratifying. In fall 2007, I was awarded a three-year grant from the U.S. Department of Agriculture's National Research Initiative, Air Quality program, entitled "Stable Isotopes of Reactive Nitrogen and Particulate Matter: Improved Tools for Characterizing the Transport and Fate of Agricultural Emissions." Additionally, a pilot study has been funded by the Electric Power Research Institute to examine the stable nitrogen isotopic composition of NO_x in coal-fired power plant stacks. Our first stack gas

sample was collected in May 2009.

With much hullabaloo, lab renovations were finally completed in late September 2008. These facilities added several new labs and a new Isoprime Continuous Flow Isotope Ratio Mass Spectrometer with a Gilson GX271 autosampler and a Trace Gas system.

We welcomed a new PhD student to our group. Dave Felix joined us in fall 2008 after completing his MS at UNC-Wilmington and will be investigating stable isotope tracers of agricultural and urban air pollutants. Marion Sikora and Katherine Middlecamp are producing exciting research results on nutrient pollution in Nine Mile Run and urban air pollution and will graduate in 2009.



Mark Collins

The Environmental Studies program continues to excel, thanks to the wide-ranging interests of ES students—including notice in national competitions: Lindsay Witthaus won a Fulbright Scholarship Grant for study in Brazil, while Theresa Romanosky and Ashley Schmid each received Honorable Mention in the 2008 Morris Udall National Scholarship competition. In the past eight years, Pitt students have won three Udall scholarships, while another half-dozen have been runners-up.

Locally, three students—Jacob Slyder, Erin Stacy, and Christina Tasevoli—earned acceptance into Phi Beta Kappa, and sophomore Amelia Johnson received an "Outstanding Poster" award at the 2008 Ohio River Basin Consortia at Carnegie Mellon University.

Enrollment in the major has climbed to 100; elective courses—including Dr. Patricia DeMarco's environmental policy class, Don Hopey's environmental issues course, and Ward Allebach's nonprofit management class—continue to do well. We've also added a HAZWOPER training class taught by Del Kubeldis.

The program's success is a direct result of three factors: continued support of the Heinz Endowments, the amazing cadre of teachers, students and alumni (present readers included), and the dedication of the Geology Department's administration and staff: Brian Stewart, Tom Anderson, Lorrie Robbins, Dolly Chavez and Shannon Granahan.

Keep in touch—we enjoy hearing from you.

Rosemary Capo

Doctoral student Liz Chapman is wrapping up work on a Green Building Alliance-funded project with Bob Hedin (President of Environoxide, Inc.), former MS student Ted Weaver (Project Geologist with Hedin Environmental), and Hoover Color, Inc., to optimize recycling of coal mine drainage related iron oxides. We're also finishing working on a joint DOE-NETL-WVU project to investigate the chemical interaction of coal utilization byproducts (e.g., fly ash) with natural waters. First-year PhD student James Gardiner is finishing up a geoarcheology project related to horse domestication in Kazakhstan begun in collaboration with Mike Rosenmeier and Sandra Olsen from the Carnegie Museum of Natural History. Mark Collins and I worked with Ward Allebach, Patty DeMarco, and Stan Kabala to present a student symposium, hosted by Sustainable Pittsburgh, as part of the "One Step at a Time" Carnegie Mellon-

Pitt-Duquesne campus sustainability collaboration supported by The Heinz Endowments. Last spring Brian Stewart and I investigated field sites in New Mexico and Arizona with students Tonya Brubaker and Allie Ackerman. Brian and I also enjoyed meeting up in Houston during GSA with Dick Gray and former graduate students Sherry Stafford, Amanda Reynolds, and Joey Minervini, now geologists working for ExxonMobil.

Daniel Bain

The most inspiring event this year was the arrival of our daughter, Magdalene Lucille Josephine Bain, on July 30. The rest just pales. I'll try to focus on work for the rest of this brief.

My work has taken interesting turns. I spent a lot of time trying to understand hydrology in the northeastern U.S. during colonial times as part of the Hydrosynthesis project at the City University of New York <<http://hydrosynthesis.cuny.cuny.edu/Home.html>>.

My most conspicuous piece of work, a reply to a January *Science* article about mill dams and legacy sediments, was published in July. Pennsylvania is considering making legacy sediment removal the preferred restoration method. However, as laid out in our reply, there's little evidence that this preference is warranted.

Quick bits: Amelia Johnson, an undergrad working in my lab, received a best student poster award for her reconstruction of dendrochemical records of Pittsburgh industrial history at the Ohio River Basin Consortia for Research and Education meeting. Katelin Fisher, another undergrad, was selected as one of Pitt's representatives to the National Council for Undergraduate Research meeting to present her work on Nine Mile Run water quality.

I'm looking for grad students, so please send folks my way.



Thomas Anderson

In the midst of rushing to finish up a number of long-term research activities, I was re-appointed chair of the department after a hiatus of several years. I am working hard to maintain research momentum. Daniel Lao-Davila defended his dissertation and has begun developing a series of papers about deformed ultramafic rocks in southwest Puerto Rico. Concurrently, projects in Nevada, New Mexico, and Pennsylvania progress. Patti Campbell, a former student, her students and I continue to strive to finish work in the East Potrillo Mountains of southern New Mexico. In Nevada, Sarah Morealli has finished most field work and plans to defend this summer. Mary McGuire is in the midst of studying iron-ore deposits and fractures in Pa. My activities involved helping to put together two papers with Gordon Haxel (USGS) about Late Jurassic faults; continuing to work with Bert Struik and Jim Ryan of the Canadian Geological Survey on Eocene extension; and conducting a graduate plate tectonics seminar on Alpine orogenesis. Sadly, my wife Tanna died in April 2008 after a long struggle with Alzheimer's capped off by cancer. Sara Lee (Florida) with Joe Guido and Garrett (California) with Qin Hong are fine and rearing one and two grandsons respectively.

Mark Abbott

Nathan Stansell, Broxton Bird, and I spent a month doing fieldwork in the Peruvian Andes with post-doc Roland Zech and collaborators from Union College coring lakes and sampling watersheds for climate change studies. We spent most of the time in the Cusco area where we identified a previously unknown lacustrine sedimentary sequence that spans the late glacial period including the Younger Dryas interval at annual resolution. We also collected lake cores from several lakes near ancient (pre-Incan) smelters to study the history of metallurgy in the region. Later in the summer I spent time getting lake cores from the Chesapeake Bay with a colleague at Mary Washington University to study sea level history and spent time sampling watersheds in the upper reaches of the Lake Superior watershed for climate change studies. Byron Steinman and Broxton Bird did field work in the Cascades of Washington state aimed at documenting Holocene drought history in the Pacific Northwest.

Emeritus News 'n'@

Bruce Hapke

I continue to be active in research and am currently writing a second edition of my book on reflectance spectroscopy. I have been working with my former student Bob Nelson, who is a senior scientist at the Jet Propulsion Laboratory and a member of the team of scientists analyzing data from the Cassini spacecraft orbiting Saturn. Bob has discovered a spot on Saturn's satellite Titan that changes its brightness and spectra sporadically. We were able to show that these were not due to changing lighting conditions and

that they were on the surface and not a cloud. The spectral changes seem to be consistent with a cryovolcanic eruption of an ammonia-rich liquid. This is exciting because it shows that Titan is a geologically active body, and also solves the problem of where all the nitrogen in the atmosphere comes from.

William Cassidy

Field Season 2008: Our Campo del Cielo (Field of the Sky), located in northern Argentina,



is best visited during their mild winters instead of their extremely hot summers. During the August-September period, which is the end of their winter, some Argentine colleagues and I were able to run topo and magnetic surveys over Crater 6 at Campo del Cielo, and then dig trenches across it to locate the impacting mass, collect and weigh it, and determine the original structure of this small meteorite crater.

The craterfield consists of at least 20 small impact craters. Four of them are explosion-analogue craters and the rest are penetration funnel impact sites. The craterfield is distinctive in being

significantly elongated (18 X 4 km), indicating a very low-angle trajectory through the atmosphere. As a result the penetration funnels are also elongated, and from their structures we can infer angles and azimuths of impact. From the original size of each impact crater we can estimate its energy of formation. Because $E = \frac{1}{2} mv^2$, when we determine m by weighing the mass, we can calculate velocities of impact. Crater 6 was especially interesting because it is apparently on the borderline between being an explosion analogue crater and a true penetration funnel.

Michael Bikerman

2008 was a memorable year. New Years was celebrated on a Panama Canal lecture cruise on the Regent Mariner going from Long Beach to Ft. Lauderdale. In April we bought a condo in Mt. Lebanon and put our house up for sale. A day later we flew to Scotland to visit the farm where Michael lived in 1941, and introduced our grandson to the current owners' granddaughters—the fourth generation of both families to meet! Then off to see our grandson's digs at Ulster University, and the famous columnar basalt flows of Giant's Causeway. In May friends from France came for a whirlwind tour of the Southern Utah National Parks and the Grand Canyon. In September off to Mexico to see Copper Canyon and take the train through it. Copper Canyon is deeper and wider in places than the Grand Canyon but, while spectacular in its own right, is less colorful and awe inspiring.

We finally sold the house and closed in November. Next was a lecturing cruise on a Holland America Transatlantic repositioning from Venice to the USA and I once again found large and enthusiastic audiences for my lectures.

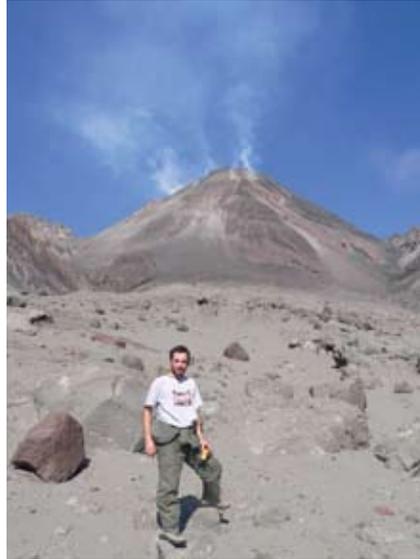
Oooohhh! Aaaahhh!



Yellowstone 2008: Environmental Studies students Eric Beal, Katie Palmer, Jessica Stewart, Amanda Lukas, Molly Kane and Laura Pliske await fireworks in Silver Gate, Montana.



PhD candidate Tamara Misner surveys in the wells at her study site in Burgundy, France



Post-Doc Adam Carter in front of the Bezymianny lava dome, Kamchatka, Russia



Don Robdell (Union College), Nathan Stansell (PhD '09) and PhD candidate Broxton Bird prepare to collect cores from a lake in Cusco, Peru

Graduate News 'n'@

Graduate Fellowships

NASA Earth System Science Graduate Student Fellowship
Stephen Scheidt

U.S. Dept. of State Foreign Language & Area Studies Fellowship
Tamara Misner

Andrew Mellon Pre-doctoral Fellowships
Broxton Bird, Emily Mercurio

Samuel T. Owens Jr. Fellowship
Marion Sikora

Competitive Research Grants

Geological Society of America Student Research Grant
Emily Mercurio
Tamara Misner
Katherine Middlecamp (Outstanding Mention)

Henry Leighton Memorial Scholarship
Tonya Brubaker
Jeff Hungerford
Katherine Middlecamp
Marion Sikora
Adam Carter
Emily Mercurio
Tamara Misner
Byron Steinman

Western Pennsylvania Scandinavian Society Scholarship
Emily Mercurio

University Center for International Studies Fund
Tamara Misner

Excellence in Presentation of Research

American Geophysical Union Outstanding Student Presentations
Shellie Rose, Marion Sikora

Pitt Grad Expo Outstanding Paper
Marion Sikora



Graham Dodworth (GSPIA), Bob Hedin (Hedin Environmental), PhD candidate Liz Chapman, and undergrads Allie Ackerman and Andrea Glassmire analyzing AMD near Lowber, Pa.



Masters candidate Marion Sikora and Katie Middlecamp install a passive atmospheric sampling plot in western Pa.

PhD

Sherry Stafford, 2007 - *Pre-cambrian Paleosols as Indicators of Paleoenvironments on the Early Earth*

Vladislav Kaminskiy, 2008-*Geophysical Surveys Aimed to Save Human Lives by Facilitating Safety Assessment*

Adam Carter, 2008- *Quantitative Thermal Infrared Analyses of Volcanic Processes and Products: Application to Bezymianny Volcano, Russia*

Daniel Lao-Davila, 2008- *Serpentine Emplacement and Deformation in Western Puerto Rico and Their Implications for the Caribbean - North America Plate Boundary Tectonic History*

Nathan Stansell, 2009 - *Last Glacial Maximum Equilibrium-Line Altitude Reconstruction, Paleo-Temperature Estimates and Deglacial Chronology of the Mérida Andes, Venezuela*

MS

Damian Piaschyk, 2007 - *Detachment Faults Between the Specter Range and Southern Spring Mountains: A Transpressional Fault Zone Along the Las Vegas Valley Shear Zone, South-eastern Nevada*

Kevin Robinson, 2007 - *A Holistic Paleolimnological Study of North-Central Mongolian Lakes*

Lev Spivak-Birndorf, 2007- *Sequential Leaching of Coal Utilization By-products: Geochemistry and Strontium Isotope Systematics*

Kristen LaMoreaux, 2008- *Recognizing Ice-contact Trachyte-phonolite Lavas at the Mount Edziza Volcanic Complex, British Columbia, Canada*

Brianne Cassidy, 2009 - *A 94-Year Lake Sediment Record of Industrial Pollutants in the Pittsburgh Metropolitan Area*

Tracee Imai, 2009 - *Andesitic Peperite Generation in a Montane Fluvial Setting: Understanding the Miocene Mehrten Formation at Kirkwood, California*

Pro MS

Chris Bostwick, 2007
Thomas Bouch, 2008
Bonnie Strayer, 2008

Recent Graduates

Environmental Studies – Bachelor of Arts

Jennifer L. Armstrong (GIS cert.)
Daniel T. Askinasi
Steven G. Bagnall (*cum laude*; Bio. double maj.; Chem. min.)
Eric R. Beal
Colleen M. Caldwell (*magna cum laude*; Poli. Sci. double maj.)
Ann M. Cassidy (*magna cum laude*)
Jon T. Coleman (*magna cum laude*)
Alaina E. Conner (Japanese min.)
Valerie J. Costigan (*cum laude*)
Natalie H. David (*summa cum laude*)
Zachary C. Dixon
Margaret E. Esch (*magna cum laude*; dual degree Bio.; Chem. min.)
Sarah M. Faust (*cum laude*; GIS cert.)
Daniel R. Fischman (*cum laude*)
Andrew S. Fiscus
Donald W. Fulmer III (*cum laude*, GIS cert.)
Vanessa L. Good (*summa cum laude*)
Amber T. Hanna (*magna cum laude*, Poli. Sci. min.)
Richard H. Heiden (dual degree Natural Sciences)
Lori I. Horowitz (*summa cum laude*)
Rimma Hussain (*summa cum laude*; English Writing double maj.)
Angel Ip (dual degree Bio.; Chem. and Econ. min.)
James A. Jorgensen
Lacey J. Kreiensiack (*cum laude*)
Julie L. Krug (dual degree Psychology)
Michael T. Kurosky
Mackenzie J. Lawson (*magna cum laude*; Global Studies and Latin Am. Studies cert.; Phi Beta Kappa)
Chelsea A. Little
Jeff A. Litwin
Christopher D. Livingston (*cum laude*)
Amanda N. Lukas (Physics min.)
Danielle Mullen
Alicia Normand
Ashley R. Petraglia (*magna cum laude*; Latin Am. Studies cert.)
Sarah M. Presogna (*magna cum laude*, English Lit. double maj., Theatre min.)
Laura J. Pliske (*summa cum laude*; History min.)
Raquel M. Rogers (Anthro. double maj.)
Renee I. Rogers (*cum laude*)

Theresa L. Romanosky (*summa cum laude*; Econ. min.)
Ashley V. Schmid (*cum laude*; Global Studies and Latin Am. Studies cert.)
Megan E. Sharretts (*magna cum laude*, Studio Arts double maj.)
Abigail M. Sigmon
Marion T. Sikora (*magna cum laude*, B.Phil.)
Jacob B. Slyder (*summa cum laude*, Phi Beta Kappa)
Erin L. Snook (*magna cum laude*, Poli. Sci. double maj.; Global Studies cert.)
Erin M. Stacy (*summa cum laude*; B.Phil.; Anthro. double maj.; Global Studies cert.; Phi Beta Kappa)
Antonio J. Sudina (*cum laude*; Anthro. double maj.)
Christina B. Tasevoli (*summa cum laude*; Phi Beta Kappa)
Adam C. Vandrew (GIS cert.)
Lindsey Witthaus (*summa cum laude*; B.Phil.; Professional Writing cert.; Sociology min.)
Chasidy A. Zubler (Poli. Sci. double maj.; GIS cert.)

Environmental Geology and Geology – Bachelor of Science

Stephen A. Bechtold
Carrie N. Blakey
Richard Campbell (Econ. double maj.)
Alissa M. Demmer
Lucas Fidler (*summa cum laude*)
Katelin R. Fisher
James B. Gardiner (*magna cum laude*)
Konstatin Ginzburg (*cum laude*)
Stanley Gratosky
Justin D. Hynicka (*magna cum laude*, Chem. double maj.)
David J. Kurimsky (*cum laude*)
Steven M. Ladavat Jr.
Abby E. Lewis (*summa cum laude*)
Sonja M. Melander (*magna cum laude*, Physics double maj.)
Alan J. Mur (English Writing double maj.)
Nicholas P. Orsborn
Sean Polun (*cum laude*)
Josh R. Riethmiller
Daniel J. Sibilia
Brian J. Spang
David C. Stackhouse (*cum laude*)
Sarah E. Strano (*summa cum laude*)
Marion T. Sikora
Raymond T. Vactor (*cum laude*)

Graduation 2008



Thank You for Your Generous Contributions!

Contributions from our alumni are vital to the Department of Geology & Planetary Science. The individuals listed below have provided generous support during fiscal year 2008. If your name is missing and you know you contributed last year, please accept our apology and let us know. We want to be sure to recognize you next year.

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Thank you to Schlumberger Information Solutions for their gift of PETREL Mercury/3D Master Suite G-Core software, valued at \$3.7 million to the University of Pittsburgh and the Department of Geology and Planetary Science. The Schlumberger Worldwide

University Software Program offers software developed by Schlumberger Information Solutions to select colleges and universities at minimal cost. This software allows the Geology and Planetary Science Department to instruct students as part of course curriculum, and to conduct research within our Geographic Information Systems program.

Why donate?

As you can see in the cover story on the Henry Leighton Memorial Fund or the many awards Pitt GPS students receive, every dollar you contribute could fund field camp or field work. Behind every successful student is a generous alumni or friend.

Where can I donate?

Discretionary Departmental Gifts Fund provides us with the greatest flexibility in responding to departmental needs and to take strategic steps toward the future.

Norman K. Flint Memorial Field Geology Fund commemorates Dr. Flint's devoted and inspiring teaching by helping with summer field camp expenses. This memorial fund was initiated by family, friends, students and colleagues of Dr. Flint.

Francis Dilworth Lidiak Memorial Fund supports lecture series and invited speaker costs.

Henry Leighton Memorial Scholarship Fund, established by Dr. Helen Leighton Cannon (MS '34), provides a permanent graduate scholarship awarded for merit and need.

Samuel B. Frazier (BS '49) Student Resource Fund, established by family and friends, provides educational expense support to undergraduates in honor of Samuel Frazier.

Harry J. Werner Oil Finder's Fund provides support for students preparing themselves to meet the diverse challenges in the search for energy resources. This fund was initiated by Francesco Corona (BS '77, MS '80).

Alvin J. Cohen Memorial Fund supports students conducting basic research in meteorics, mineralogy, and geochemistry.

Victor A. Schmidt Memorial Classroom Fund is a memorial classroom fund in honor of Professor Schmidt.



GEOLOGY GRADUATE STUDENT FIELD WORK





University of Pittsburgh

Department of Geology & Planetary Science

200 SRCC
4107 O'Hara Street
Pittsburgh PA 15260
412-624-8780
FAX: 412-624-3914
www.geology.pitt.edu

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Environmental Studies Student Wins Entrepreneurial Award

The fourth annual campus-wide Big Idea Competition, hosted by the Institute for Entrepreneurial Excellence, challenged students to create a new product or service idea that could be turned into a functioning business.

Adam Nelson, a junior environmental studies/economics student, won the wild-card category for "LightStripe," a device for bicycles that projects a two- to four-inch band of light on the ground next to the cyclist. The band of light is projected onto the road a few feet from the side of the cyclist, giving motorists a better idea of how much space to leave a cyclist as they pass. The light serves as a bike lane that moves with the cyclist. The concept is currently in its development stage.

THE LIGHTSTRIPE A New Kind of Light for your Bike

The LightStripe projects a beam of light onto the road beside the bicycle, creating a visual barrier between the cyclist and passing motorists. It's a bike lane that travels with you! A potentially lifesaving accessory for cyclists, the LightStripe will sell at bicycle shops for around \$20.



Entrepreneur: Adam Nelson
4th year Economics and
Environmental Studies student

Image courtesy of Emily Berezin