

# GeoGram

A publication of  
The University  
of Maryland  
Department of  
Geology  
2012



Geology Chair Roberta Rudnick shakes hands with Dr. Bai Chunli, the President of the Chinese Academy of Sciences, during her induction into the Academy in June this year.

## LETTER FROM THE CHAIR

Dear Alumni and Friends,

After nearly a year and a half as the Department chair, I can more fully appreciate the tremendous job done by my predecessor, **Michael Brown**. When folks ask me, "How's the chair's job?" I typically reply, "Well, the Department has survived and so have I!" It was a challenging but extremely rewarding year. It started with an email from the outgoing Dean, **Steve Halperin**, informing me that it is time for the Department's periodic External Review. Therefore, much of the fall semester was spent producing a self-study report that helped the Department to take stock of where we are and also to think about the future and how we can improve. Our able visiting committee, composed of **Marilyn Fogel** (Chair, Geophysical Lab, Carnegie Institution of Washington), **Frank Richter** (University of Chicago) and **Norman Sleep** (Stanford), spent two days at the University in February meeting with all stake holders and crafted a report that acknowledged our accomplishments and made recommendations for areas that should and can be improved. As a result of the review, we have commenced construction of a student lounge, knocking out walls in about half of the fourth floor of the Geology Building. Most of the construction was completed over the summer months and in a few weeks our Geology majors (as well as our graduate students and faculty) will finally have a place to relax, have a cup of coffee, check email or converse in a comfortable atmosphere. We are indebted to **Dean Banavar** for his support in this endeavor! Elsewhere in this issue you will read about the renovations to our teaching labs in the Geology building. Geology is looking better than ever!

In other news, the University hired a new

Provost, **Dr. Mary Ann Rankin**, who spent many years as Dean of the College of Natural Sciences at the University of Texas, Austin. That means that **Ann Wylie**, after more than a decade in University administration, will be returning to the Department. Ann plans to use the latter half of 2012 to organize her research materials. Then she will have a well-deserved sabbatical in the first half of 2013. She plans to use this time to organize her mineral collection and donate to the Department, and write a popular science book on the geology of the Catoctin Mountains.

This year we also welcomed Assistant Professor **Vedran (Ved) Lekic** to the Department (see last year's *GeoGram* for a description of Ved's work). Ved has already engaged students in seismological research and is teaching a new course on "Observational Geophysics."

As you will see in the remainder of this *GeoGram*, our students, faculty and alumni continue to excel and bring acclaim to the Department and the University. To communicate such news to our friends and alumni we have started a departmental Facebook page. If you are a Facebook user, you may simply click on the link on our Departmental website, "like" the Facebook page and you will receive news feeds as they are posted. If, instead of a virtual visit you are ever in the region, please do stop by for a face-to-face visit and have a cup of coffee in the new student lounge!

A handwritten signature in dark ink that reads "Roberta Rudnick".

Roberta Rudnick  
11-15-2012

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## GEOLOGY RENOVATIONS

BY PHILIP PICCOLI

Three decades of continuous use had taken its toll on the teaching labs in the Geology Building. Since the department moved into the building in 1982, thousands of students have learned the fundamental principles of fossil, mineral, and rock identification, map reading, and the proper use of stereonet in these labs. The wear and tear was evident. For several years, members of the department discussed the possibilities of when and how to best renovate the space. Over the past year, a plan was finally set in motion to renovate these labs into new and enhanced places to teach and learn.

Following the conclusion of classes in the spring, a series of well choreographed moves were implemented in order to maximize the time contractors had available to work during the short summer break. Several logistical hurdles had to be overcome. How do we teach summer labs when construction was occurring? Where were lab materials going to be stored?

Traditionally, a small lab had been taught in the Department over the summer. Given that *all* of the teaching labs in the building were being renovated, where would the courses be taught? The solution was straightforward—the lab was taught in the Department's Gems and Minerals Museum. This provided a rare opportunity for a group of students to access the museum on a daily basis.

Rocks and minerals, maps and microscopes, all had to be moved to temporary, secure locations while construction was taking place. If times were normal, the Department would have access to a large storage area on the fourth floor

of the building. However, renovation of the teaching labs was not the only construction project going on at that time. The storage room was being expanded and converted into a student lounge. That left one obvious solution: materials from all three teaching labs would be stored in several small offices vacated for the summer.

Monday, May 21<sup>st</sup> was moving day. Undergraduate and graduate students, and faculty helped to move samples to the storage locations. Three labs and a storage room were emptied simultaneously. Many of the samples were transported and stored in their original drawers *in toto*. Others were boxed and crated, and tagged with a color to indicate where they would be stored. With all of the help and prior planning, the bulk of the materials were moved in just three hours.

Progress was sporadic over the summer. Floors and drop ceilings quickly disappeared, and a prep room was constructed. After what seemed to be a long lull, professors were nervous and wondering where their fall courses would be taught if construction was not completed on time. Then the new drop ceilings went in and walls were painted. After another period of inactivity, cabinets and lab tables arrived and were installed, and even some of the correct drawers arrived! August 27<sup>th</sup> marked the day that specimens moved back into the labs.

Students are now benefitting from the enhancements made to the labs. Over 1000 sq. ft. of lab space was renovated, including new tables, storage cabinets and shelving. All three labs are available to Geology students on a 24-hour basis with access granted by using their student IDs. The Department and its students are thankful to have these newly renovated

facilities, and to the individuals outside the Department who helped bring them to fruition, in particular **Tony Brown** in Facilities Management who oversaw the renovations, and **Tom McMullen** and **Sean Davis** in the Dean's office who drew up the plans and coordinated the efforts. ■

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**THREE**  
renovated labs  
**1000**  
square feet  
**OPEN**  
**24/7**  
*for*  
**STUDENTS**

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Looking at spectacularly veined (white and beige-colored) and folded (pencil pointing to fold) lawsonite-blueschist facies rocks of the Catalina Schist, Santa Catalina Island. (L-R): undergraduate student Natalie Sievers, graduate student Julia Gorman, Assistant Professor Sarah Penniston-Dorland.

## RESEARCH FOCUS

BY ASSISTANT PROFESSOR  
SARAH PENNISTON-DORLAND

A major thrust of my research addresses fundamental questions of how water travels through rocks at elevated pressures and temperatures, and what elements are transported by that water within the Earth's crust. In my research group, we use the mineralogy and geochemistry of metamorphic rocks to decipher evidence of fluid-rock interactions. We are currently investigating fluid-rock interactions at convergent plate boundaries through the study of subduction-related metamorphic rocks using novel geochemical tracers. The associated field areas include the Catalina Schist and the Franciscan Complex, both located in western California. The research is collaborative, and we have relied on the expertise of **Gray Bebout** (Lehigh University) and **Sorena Sorensen** (Smithsonian) to introduce us to these field areas. My research group utilizes the strengths of the geochemistry facilities and the electron probe microanalyzer facility at the University of Maryland, and we use a wide variety of instrumentation available within the department and university for our work.

We are currently investigating lithium and its isotopes as tracers of fluids within subduction zones. This work is done in the Plasma Laboratory in collaboration with my Maryland colleagues **Richard Ash**, **William McDonough** and **Roberta Rudnick**. This work is important for a variety of reasons, one of which is that fluids derived from subducting slabs contribute to the generation of magma and associated arc volcanoes. The results we have obtained suggest that fluid flow events during metamorphism may be relatively brief, perhaps only a hundred years in duration. Graduate student **Leigh Roble** is working on a project investigating diffusion of lithium in metamorphic reaction zones within the Catalina Schist.

We also investigate other geochemical systems that can potentially inform us about processes within subduction zones. The highly siderophile elements, especially Os, Ir, and Ru, are highly concentrated in mantle rocks compared to crustal rocks, and are thought to be relatively immobile in fluids. Initial work on several subduction complexes indicates physical mixing of mantle and crustal materials along the shear zone at the interface between subducting slab and overlying mantle wedge. Graduate student **Julia Gorman** is working on a project

investigating the role of such mixing in the formation of metamorphic reaction zones in the Catalina Schist and the Attic-Cycladic Complex of Syros, Greece. This work is done in the Isotope Geochemistry Laboratory in collaboration with my Maryland colleagues **Rich Walker** and **Phil Piccoli**.

Trace element concentrations in rocks and minerals can also be a powerful tool in investigations of the effects of metamorphic fluids. Undergraduate student **Natalie Sievers** is measuring trace element concentrations of metaconglomerate cobbles of the Catalina Schist and its minerals in order to understand which elements are transported by metamorphic fluids.

Most recently I have become interested in new ways to estimate the temperatures at which these metamorphic rocks crystallized inside the subduction zone. Undergraduate student **Hollie McBride** is measuring concentrations of Zr in the mineral rutile to constrain the temperatures the rocks of the Catalina Schist have experienced during metamorphism. ■

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## FACULTY HIGHLIGHT

### JERRY WEIDNER THE FRUGAL EXPERIMENTALIST

BY  
PROFESSOR ALAN J. KAUFMAN

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Even though Jerry Weidner left the Geology Department and the University of Maryland over twenty years ago, he played a critical role in establishing the world-class research program we have today.

The department got lucky in 1969 when Jerry came looking for a job after his Post-Doctoral Fellowship at NASA Goddard. At NASA he had constructed a high PT laboratory to study samples from Apollo missions to the Moon. He continued to work at NASA while teaching the masses of undergraduate students at Maryland, and even had lunar samples brought here for study. Jokingly he said, “Moon rocks did come to Maryland...with an armed guard.”

Weidner knew that the geochemistry branch at Goddard was doomed to be closed as NASA was reshuffled in the early 1970s. It is fortuitous that Goddard got the satellites while Houston got the samples and facilities. Crafty Jerry was able to “transfer some equipment” from Goddard to Maryland and establish the first experimental laboratory for phase equilibria. This laboratory was initially set up in the old Bureau of Mines Building, which was soon demolished, and later moved into Geology where Phil Candela’s Laboratory for Mineral Deposits Research now resides. Undoubtedly, some of the original equipment is still there.

Weidner’s pedigree is impressive. He was a student of Frank Tuttle at Pennsylvania State University—the greatest experimental petrologist of his day and a student of Norman Bowen, who is arguably the most influential geologist of all time. Using equipment designed by Tuttle, Weidner was able to develop a laboratory to simulate virtually any condition in the Earth’s crust. His work on the phase equilibria of iron



“It is hard for me  
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oxide minerals in magma, one aspect of his doctoral work with Tuttle, won the best paper in *Canadian Mineralogist* in 1982. He was awarded the Hawley Medal of the Mineralogical Association of Canada in 1983 and became a Fellow of the Mineralogical Society of America in 1984.

According to Candela, Jerry had a deep knowledge of thermodynamics, and a provocative attitude towards research. A pipe smoker when it was still legal to smoke indoors, he was often heard banging his pipe against an ashtray and berating students. He once peered into Phil’s office on the fourth floor of the Geology Building—the smell of Sir Walter Raleigh in

the air—and said, “I’m not sure I believe in electrons anymore!” In his 20-year career at Maryland, Weidner advised more than 30 senior thesis projects. According to Ann Wylie, when some part of a student’s project did not go so well, Jerry was often heard to say, “that’s the RE part of Research.” Ann said further, “Jerry always had time to talk to students and I know that his wise counsel got many of them through their degree programs.” Hired just three years after Weidner, she further attributed her learning how to teach at the university level, and how to get her research program off the ground with very limited resources, to his mentorship.

His sound judgment was a great asset in building the Geology Department in its early years, and in development of the Graduate Program, which he directed from its inception in 1981 to 1987. He left Maryland in 1989 because of “total, complete, and absolute burn-out from too much teaching” coupled with a lack of support from the NSF and DOE. At the time, he said, “Labs like mine were closing. The heyday of high temperature experimentation was over.” The intellectual cowboy then took his pipe, his banjo, and his Honda motorcycle to Idaho where he could ride free. There Weidner worked at the Integrated Earth Sciences Department at the Idaho National Engineering Laboratory, creating an ultra-strong oxy-nitride glass as a bulletproof shield for the military. This research resulted in one of Weidner’s three U.S. patents.

“I was at INL for a decade, at retirement age, and single with a motorcycle,” Jerry said, “so I decided to go to Alaska to see what it was like and to live off the land.” He went north with the notion of writing a book on geology for non-specialists, but the project never got off the ground before he was called back to Idaho to complete his other research on the encapsulation of nuclear waste.

Ever the wanderer, Jerry got the idea that it would be fun to ride his motorcycle in the back country of Russia. “I discovered two things,” he said. “First, there were no roads, and second, there was no gas. There was also a good chance of being wacked in the head and ending up in the river.” One good thing did come of his trip, however, he met his wife Luba through his Russian translator. After getting married back in Idaho Falls, they moved together from the high desert of eastern Idaho and on to Terre Haute where he was a lecturer in the Department of Geography, Geology and Anthropology at Indiana State University from 2004-2005. Yearning



for the big city, Luba convinced Jerry to move to Lexington, Kentucky where he was a lecturer in the Department of Earth and Environmental Science at the University of Kentucky from 2008-2011.

Looking back at his years at Maryland, Weidner said, "It is hard for me to imagine where I would be today if I had not walked in and asked for a job. Clearly, it was a pivotal point in my career." The geological family at Maryland has Jerry to thank for launching the Geology Department program off the ground with his emphasis on research, connections to NASA, and his endless energy for students in the senior thesis program. ■

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"Jerry always had time to talk to students and I know that his wise counsel got many of them through their degree programs."

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## DEPARTMENTAL FIELD TRIP

BY  
PROFESSOR ALAN J. KAUFMAN

On Saturday and Sunday the 25<sup>th</sup> and 26<sup>th</sup> of August 2012, faculty, graduate, and undergraduate students from the Geology Department were led by Professor **Alan J. Kaufman** on a field trip to geological sites in Maryland and Pennsylvania staying overnight at Camp Singewald near Clear Spring, Md.

Stops on Saturday included the Baltimore Mafic Complex and Soldier's Delight (discussion led by Assistant Professor **Sarah Penniston-Dorland**), where we searched for chromite mineralization in the serpentinites associated with the Taconic Orogeny; the Gettysburg sill at Little Round Top, where we viewed the historic battlefield and its geological features within a Triassic-aged half graben (discussion led by Professor **Philip Candela**, with historical commentary from **Dr. John Merck**); and the famous gas-rich Marcellus Shale along a railroad cut near Kistler, Pa. (discussion led by Professor Alan J. Kaufman).

After social hour and dinner at Camp Singewald, a monsoon set in that lasted until early the next morning (good to have shelter!). Stalling for time the following morning, we discussed the planned stops for the day before



leaving in the rain for nearby Hancock, Md., where we hiked about a mile to view structural features in the Tonoloway Formation and Keyser Limestone (discussion led by Assistant Professor **Aaron Martin**). Due to the inclement weather we chose not to visit the Needmore Formation near High View, W. Va. to collect fossils, and instead drove back to College Park in the early afternoon.

You can download the field guide and see photos of the 2012 Department Field Trip at: [www.geol.umd.edu/fieldtrip](http://www.geol.umd.edu/fieldtrip).

Participants in the 2012 Geology Department Field Trip at Little Round Top, Gettysburg, Pa. included: (L-R) Yadviga Zhelezinskaya, Huan Cui, Julia Gorman, Caitlin Brown, John Merck, Phil Candela, Valentina Puchtel, Anna Statkiewicz, Igor Puchtel, Ming Tang, Sarah Penniston-Dorland, Aaron Martin, Kristy Long, Yu Huang, Roberta Rudnick, Katherine Watter, Mike Evans, Steven Ginley, Dana Borg, Zella Rudnick-McDonough, Emily Worsham, Zachary Reeves, Bill McDonough, Alex Lopatka, and Phil Piccoli. (Photo by Alan J. Kaufman)

## GRADUATE STUDENT HIGHLIGHT

### CHRIS YAKYMCHUK

BY

PROFESSOR MICHAEL BROWN  
AND CHRISTOPHER YAKYMCHUK

**“Polar Exploration is at once the cleanest and most isolated way of having a bad time which has been devised.”**

—A. Cherry-Garrard,  
*The Worst Journey in the World*

Not distressed by the aforementioned warning, Chris Yakymchuk has made a career out of conducting geological fieldwork in the coldest and most remote areas on Earth.

Chris obtained a Bachelor's degree in Earth Sciences from Dalhousie University in Canada and spent two summers working with the Geological Survey of Canada in the Canadian high-Arctic conducting fieldwork on Baffin and Southampton Islands (“we had a few encounters with Polar Bears, but they seemed more interested in seals than us”), which contributed to his Honors thesis on the tectonic significance of mafic granulites, for which he won the best thesis award. In the summer of 2007, the team of eight included students and geologists from the Geological Survey of Canada who were responsible for mapping an island the size of Switzerland in eight weeks using two helicopters. “We were dropped off by helicopter and traversed over 15-20 km of tundra during the day, mapping and taking samples, and we were picked up at the end of the traverse. We were in great shape by the end of the season.”

Between his Bachelor's and Master's degrees, Chris spent a summer collaborating with researchers at the Institut National de la Recherche Scientifique in Québec conducting analog modeling of tectonic processes in the middle-crust. The results of this summer internship were published as four peer-reviewed papers, with Chris as a co-author.

Chris came to the University of Maryland in August of 2010, bringing with him a prestigious National Science and Engineering Research Council of Canada Post-Graduate scholarship and, under the supervision of Pro-

fessor Michael Brown, headed south in October 2010 for his first field season in Antarctica.

During the winters of 2010-2011 and 2011-2012, Chris and a team of two geologists and two mountaineers spent multiple months in West Antarctica exploring a range of mountains by ski-enabled aircraft and snow-machines. “We are mapping and sampling these mountain ranges because they provide a rare view into the roots of mountains.”

Fieldwork in Antarctica is a far cry from the relative comfort of working in laboratories at the University of Maryland. Most fieldwork in remote Polar Regions is conducted out of large camps with helicopter support, cooks and heated cabins. Following the fine tradition of early Antarctica explorers—quoted above—once they were dropped off via aircraft on the ice, Chris and the team were a self-supported field camp with no interaction with the outside world. “No one was around for hundreds of miles so you need to be prepared.”

A typical day in Antarctica involves “squirming out of a very constricting sleeping bag in freezing temperatures, having a cup of tea, climbing up and rappelling down vertical cliff faces while taking *a ton* of geological samples and *a multitude* of structural measurements all the time wearing thick mittens (not easy), having another cup of tea, and digging tents out of constantly drifting snow.” A more detailed account of the 2011-2012 field season can be found at <http://g097-mbl.blogspot.com>.

In addition to metamorphic petrology, Chris is well versed in structural geology, geochemistry and geochronology. “In hard rock geology you need to be able to work across multiple specialties. The more tools you have in your geological toolbox, the greater an understanding you can develop about the history of mountain belts and the Earth itself.”

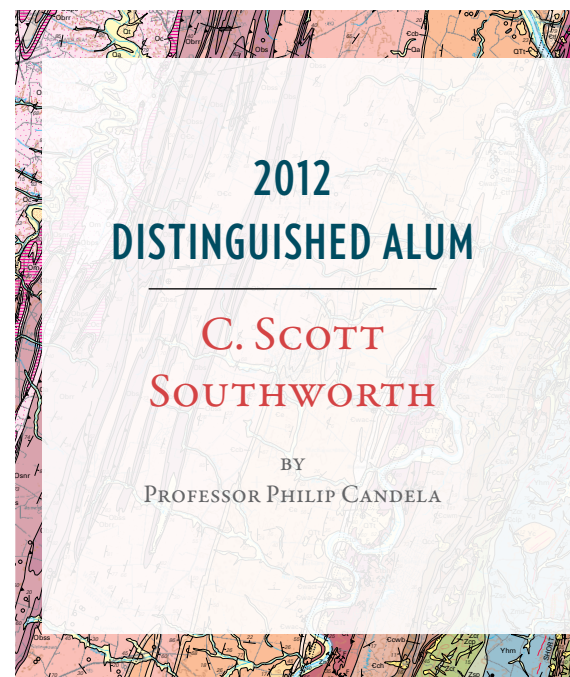
Chris has made presentations on the results of Antarctic fieldwork and subsequent lab work at the University of Maryland and at international conferences in Edinburgh, Montréal, and Brisbane, and he has a forthcoming article in a Special Publication of the Geological Society of London. Travel to these conferences has been generously funded by scholarships from the Geological Society of America, the National Academy of Sciences, the National Science Foundation, and the University of Maryland. He was given the Best Talk award for a Ph.D. candidate during the Geology Department's Grad Talk days at the University of Maryland in 2012.



Chris in the field in the Fosdick Mountains of West Antarctica in 2010.

In his spare time Chris enjoys hiking, playing a variety of musical instruments and curling—a sport that involves cold temperatures and rocks, which perhaps is not surprising. Other fun facts about Chris are that he has been a beach lifeguard, a SCUBA diver, and he is a trained rattlesnake handler—should you ever have need of one.

Chris is aiming to finish his doctoral dissertation by the summer of 2014. What is next for Chris? No matter where it is, it is likely to be somewhere cold. ■





## UNDERGRADUATE STUDENT HIGHLIGHT

### IRENE KADEL-HARDER

BY

ASSISTANT PROFESSOR AARON MARTIN

Senior honors student Irene Kadel-Harder is a Maryland native, hailing from Elkton. Geology first caught Irene's interest in middle school while studying charismatic features such as volcanoes and glaciers in physical science class. She also gained an appreciation for Earth's beauty through family visits to the mineral museum at the nearby University of Delaware.

Thus primed, she came to the University of Maryland on a Banneker/Key Fellowship and chose to major in geology. Since then she has been one of the top students in our department. In the fall of 2011 she broadened her horizons by spending the semester studying at Ludwig-Maximilians University in Munich, Germany. While there she experienced her favorite geologic encounter: hiking in the central Alps, learning geology from the primary sources. Irene recalls, "I remember a professor explained the stress directions and resulting shear in an outcrop and illustrated her point by drawing the arrows on the rock with permanent



Irene is standing to the left of the Zugspitze, Germany's tallest mountain. The cross marks 2962 meters. The Zugspitze is located in southern Germany and is part of the Northern Calcareous Alps. The peak runs along the border between Germany and Austria. Before the formation of the EU, visitors had to present passports to pass from Austria to Germany and vice versa to walk to the summit.

marker. It was great to go out into the field and see classical examples of geology as well as hike from inn to inn and sleep in the mountains." She also completed a thesis using microstructural analysis to study progressive deformation in an Alpine high strain zone.

Now back at Maryland for her final year, Irene is working on her senior thesis under the guidance of Assistant Professor Aaron Martin. Using zircons from meta-igneous rocks from the Goochland terrane of the central Virginia Piedmont, she will evaluate which tectonic processes added new crust to this part of the continent during assembly of the Mesoproterozoic supercontinent Rodinia and its breakup in the Neoproterozoic.

Other than geology, Irene's main interest at the University of Maryland has been the University's club crew team. For four years, Irene has rowed competitively in four and eight person boats. The team practices on the Anacostia River, three miles from campus, where Irene has also developed an interest in the tidal cycle, sandbar migration, and sediment pollution. Irene plans to attend field camp next summer. After that, she will spend a year away from academics before continuing her geologic education in graduate school. We can't wait to see what the future holds for this rising rock star! ■



(L-R) C. Scott Southworth and Professor Philip Candela.  
Photo by Todd Karwoski.

Our 2012 Alumni Award Recipient is Mr. C. Scott Southworth (M.S. Geology, 1993) of the United States Geological Survey, Reston, Virginia. Scott's research at the University of Maryland was supervised by Dr. Eileen McLellan. Scott is a Research Scientist and Project Chief at the USGS, and has made significant contributions to our understanding of early Appalachian geological history; he is also a Fellow of the Geological Society of America. Scott has published numerous research papers and maps on several of our eastern National Parks, including the Great Smoky Mountains Region, Harpers Ferry, Shenandoah National Park, and the C&O Canal. Additionally, he has published excellent public outreach-style maps. We would be remiss if we did not emphasize that geological mapping is arguably *the* fundamental, and quintessential geological activity, and Scott is one of the present-day masters of this venerable geological skill.

Scott gave a very entertaining talk during his visit to the department, in which he interspersed examples of the past and future value of geologic mapping with sage career advice for current students. Links to maps from the Appalachian Blue Ridge Project, all authored by Scott and his coworkers, can be found at: <http://geology.er.usgs.gov/eespteam/smoky/ResearchAreas/NovaMD/ncrgeology.htm>

## RECOGNITION & AWARDS

This proved to be another exciting year in the Geology department. With top honors, promotions, and many, *many* awards, our students and faculty did not fail to impress once again.

### Faculty

In 2012 we saw three faculty members receive promotions. **Laurent Montési** was promoted to Associate Professor (a tenured position), Igor Puchtel was promoted to Senior Research Scientist and Richard Ash was appointed to Associate Research Scientist.

**Michael Brown** was honored at the Goldschmidt 2012 meeting with a dedicated session celebrating his scientific contributions.

**James Farquhar** was selected by the CMNS Board of Visitors for their Distinguished Faculty Award for 2012 and was elected a Fellow of the Geochemical Society.

**Alan J. Kaufman** was elected a Fellow of the Geological Society of America.

**Sujay Kaushal** received the prestigious IRPE Prize (International Recognition of Professional Excellence) from the Inter-Research Science Center (IR), in Oldendorf/Luhe, Germany, a self-sustaining international Science Center. The Prize, which comes with an endowment of 3000 Euros honors a young ecologist (not older than 40 years) who has published uniquely independent, original and/or challenging research representing an important scientific breakthrough, and/or who must work under particularly difficult conditions. Sujay also received the CMNS Board of Visitor's junior faculty award.

**Daniel Lathrop** was selected as the recipient of the 2012 Stanley Corrsin Award from the American Physical Society. This Award was established to recognize and encourage a particularly influential contribution to fundamental fluid dynamics.

**William F. McDonough** was awarded the 2012 Bunsen medal. The medal is awarded by the European Geosciences Union for "distinguished

research in Geochemistry, Mineralogy, Petrology & Volcanology." (1) PHOTO BY MOTI STEIN

**Roberta Rudnick** was inducted as a Foreign Member of the Chinese Academy of Sciences and was awarded the Dana Medal from the Mineralogical Society of America.

**Ann Wylie** was named the University of Maryland's "Outstanding Woman of the Year" by the University's President's Commission on Women's Issues. (2) PICTURED WITH UMD PRESIDENT WALLACE LOH. PHOTO BY JESS JACOBSON

### Students

Springridge Middle School student **Brian Flood** won the 2012 Geology Department prize for Best Earth Science project at the Prince George's County Science Fair for his project entitled "Effects of Impact Angles on Crater Formation." (3) PICTURED WITH SCIENCE FAIR JUDGES VEDRAN LEKIC AND WENLU ZHU

**Chris Yakymchuk** (advisor: Brown), Best Talk Award 2012, Ph.D. post-candidate category.

**Kevin Miller** (advisors: Zhu/Montesi), Best Talk Award 2012, Ph.D. pre-candidate category.

**Sara Peek** (advisor: Kaufman), Best Talk Award 2012, M.S. post-candidate category.

**Julia Gorman** (advisor: Penniston-Dorland), Best Talk Award 2012, M.S. pre-candidate category.

**Daniel Eldridge** (advisor: Farquhar) was awarded a NASA Earth and Space Sciences Fellowship. Daniel was also awarded a graduate student research grant from the Geological Society of America for his laboratory study on the isotopic effects of bacterial sulfide oxidation.

**Xiaoming Liu** (advisors: Rudnick/McDonough) was awarded a Wylie Fellowship to fund her final semester of Ph.D. research.

**Kristy Long** (advisors: McDonough/Rudnick) received a Graduate Student Fellowship from the Society of Economic Geologists Canada Foundation for her study of gold in the continental crust.

**Kevin Miller** (advisors: Zhu/Montesi) was awarded a Mineralogy Scholarship from the American Federation of Mineralogical Societies.



**Lisa Walsh** (advisor: Martin) was awarded a Mineralogy Scholarship from the American Federation of Mineralogical Societies and a Wylie Fellowship that will fund her final semester of Ph.D. research.

**Katherine Watter** (advisors: Candela/Piccoli) won Best Student Poster Award at the AAPG 2012 Annual Convention & Exhibition for her work with Harrison Lisabeth (Ph.D. student) and Professor Wenlu Zhu.

**Christopher Yakymchuk** (advisor: Brown) received a travel grant to attend the 34th International Geological Congress in Brisbane, Australia from the Geological Society of America (GSA) and the U.S. National Committee for the International Union of Geological Sciences (USNC/GS).

**Yadviga Zhelezinskaya** (advisors: Farquhar/Kaufman) was awarded a graduate student research grant from the Geological Society of America for her study of geochemical transitions across the Archean-Proterozoic boundary.





## Marc Lipella Foundation

Marc Lipella graduated with a degree in Geology in 2004 (he completed his senior thesis with **Roberta Rudnick, William F. McDonough, Philip Piccoli** and **Richard Ash**). He subsequently worked as a research assistant at the National Museum of Natural History at the Smithsonian Institution while he also pursued his love of music as lead guitarist in the group Zen Black. Tragically, Marc passed away in September 2011 and his parents have set up a foundation in his honor to provide scholarships to worthy students. The first two scholarships will be awarded by the foundation to Geology students **Tom Doody** and **Sean Kayser** (L-R, pictured below).



(L-R): Natalie Sievers, Alex Kendall, Jesse Kolb

## Earth System Science Interdisciplinary Center (ESSIC) Undergraduate Student Travel Award

ESSIC (Earth System Science Interdisciplinary Center) has announced it will generously donate \$5K per year to the Department of Geology beginning in the fall of 2012, to enhance our students' experience. Geology will use these funds to help defray expenses of undergraduate students working with Geology faculty who will be presenting their own research at national or international conferences.

This year's winners include:

- **Alex Kendall** (advisor: Vedran Lekic) "Antarctic Microseism: Correlation with Sea Ice Extent and the Southern Annular Mode"
- **Jesse Kolb** (advisor: Vedran Lekic) "A Robust Deconvolution Method based on Transdimensional Hierarchical Bayesian Inference"
- **Natalie Sievers** (advisor: Sarah Penniston-Dorland) "Metasomatism of gabbroic and dioritic clasts in lawsonite blueschist facies metaconglomerates of the Catalina Schist, CA"



## SENIOR THESIS



(L-R): Natalie Sievers (393 student), Albert Gorman, Christopher Weller (393 student), Jonathan Banker, Zahra Mansaray

The Department of Geology senior thesis program, coordinated by **Philip Candela** for 14 years, has been a fixture of the Department of Geology since 1972. Senior thesis posters have enhanced the program since 2003; these represent one of the four presentations associated with the long-established program, which is used as a model of success across campus. We wish each of our departing students, and newest alumni, the best of luck with their future endeavors.

### Geology Senior Thesis Titles (GEOL 394) 2011/2012 Academic Year

**Bender, Amanda.** The Angiosperm Advantage: Evidence from carbon isotopes and the fossil record (Advisors: Jud / Kaufman / Holtz); **Banker, Jonathan.** Sulfur Isotope Effects Associated with Microbial Metabolism (Advisor: Farquhar); **Gorman, Albert.** Comparison of Geomorphological Characteristics of Titan Lakes with Potential Earth Analogues (Advisor: Prestegard); **Mansaray, Zahra.** Sulfide Flux as a Function of Temperature in the Severn River (Advisor: Farquhar); **Polley, Greg.** A Study of the  $\Delta^{34}\text{S}$  Signature of Xenoliths from the Premier Kimberlite, South Africa (Advisors: Penniston-Dorland / Farquhar); **Van Orden, Tess.** Impact of Stream Channel Urbanization on Dissolved  $\text{O}_2$  Concentrations (Advisor: Kaushal)

To see the posters from this year's presentations and lists of theses over the past 36 years, go to: [www.geol.umd.edu/seniorthesis](http://www.geol.umd.edu/seniorthesis).

## ALUMNI NEWS

### ADAM SIMON, B.S. GEOLOGY, 1995; PH.D. GEOLOGY, 2003

Adam is leaving his faculty position at the University of Nevada, Las Vegas, to take up a tenured Associate Professorship in Earth and Environmental Sciences at The University of Michigan in Ann Arbor in the field of Energy and Mineral Resources.

### CLAIRE COYNE, B.S. GEOLOGY, 1999

Claire earned an M.S. from University of Southern California in 2005 and is currently an Associate Professor of Geology at Santa Ana College in southern California. This year she was appointed as Chair of Geology/Earth Science Department and will also be serving on the Board of Directors for iSanctuary, a non-profit organization that advocates and serves survivors of human trafficking in India and southern California (<http://isanctuary.org/home>).

### THOMAS ZACK, POST-DOCTORAL FELLOW, 2000-2001

Thomas was a Feodor-Lynen Post-doctoral Fellow at University of Maryland from 2000-2001 working with Roberta Rudnick and Bill McDonough. After holding research positions in Heidelberg, and Mainz, Germany, he is moving to the University of Gothenburg (Sweden) in November 2012 as a senior lecturer in hard rock geology.

### FANG-ZHEN TENG, PH.D. GEOLOGY, 2005

Fang-Zhen is leaving his faculty position at the University of Arkansas to take up a new position as Associate Professor in the Department

of Earth and Space Sciences at the University of Washington, in Seattle, Wash.

### ALLIE GALE, B.S. ENSP-ESP, 2006

Allie successfully completed her Ph.D. at Harvard University. Her dissertation is entitled "Perspectives on ocean ridge basalts from the segment to the global scale."

### DAVID JOHNSTON, PH.D. GEOLOGY, 2007

David, an Assistant Professor at Harvard University, received the F.W. Clarke Award for 2012 from the Geochemical Society at the Montreal Goldschmidt Meeting in June. The F.W. Clarke Award is made annually to an early-career scientist for a single outstanding contribution to geochemistry or cosmochemistry, published either as a single paper or a series of papers on a single topic.

### KRISTEN MILLER, PH.D. GEOLOGY, 2012

Kristen is now a Post-doctoral Fellow at MIT working with renowned biomarker geochemist Roger Summons.

### HARRY ODURO, PH.D. GEOLOGY, 2012

Harry was awarded an Agouron Institute Geobiology Fellowship.

### EMILY SELDOMRIDGE, PH.D. GEOLOGY, 2012

Emily was awarded a Fulbright Fellowship to study in Germany, but declined the award in favor of a three-year postdoctoral position at Texas Tech University.

## CONGRATULATIONS TO OUR RECENT GRADUATES

### DOCTORAL GRADUATES

#### Heather Franz

advisor: Farquhar, Summer 2012

#### Jingao Liu

advisors: Rudnick and Walker, Fall 2011

#### Michael Mengason

advisors: Candela and Piccoli, Fall 2011

#### Kristen Miller

advisor: Kaufman, Spring 2012

#### Harry Oduro

advisor: Farquhar, Spring 2012

#### Emily Seldomridge

advisor: Prestegard, Spring 2012

#### Brian Tattitch

advisors: Candela/Piccoli, Spring 2012

### MASTERS GRADUATES

#### Jodi Gaeman

advisor: Hier-Majumder, Fall 2011

#### John-Luke Henriquez

advisors: Penniston-Dorland/McDonough, Spring 2012

#### Sara Peck

advisor: Kaufman, Summer 2012

#### Jesse Wimert

advisor: Hier-Majumder, Fall 2011



# We acknowledge our donors

We acknowledge the importance of each contribution in support of our education and research missions and we are grateful for the generosity and continued commitment of our donors during the past several years. Making available opportunities for students to be involved in the excitement of advancing knowledge is critical to the development of the next generation of scientists who will solve problems of societal relevance. In addition, for many of our undergraduates our ability to help with the costs of field camp and senior thesis research is critical to their success.

As you will see in the “Your contributions, at work” section below, your generosity benefits our students in many ways. Therefore, once again, we ask for your support. Tax-deductible gifts to the department can be made online through the UMCP Foundation website (<http://advancement.umd.edu/giving/index.php>). Enter “Geology” in the search box in the right hand corner to ensure that your donations are allocated to the correct department.

## YOUR CONTRIBUTIONS, AT WORK.

This year, Keegan B. McDonald received the Green Scholarship and the following students received field camp grants of \$1,000 each, which are given to students to help offset costs related to completion of field camp:

Jonathan Banker  
Albert Gorman  
Zahra Mansaray  
Evan McMullen  
John Nance  
Christopher Weller

## BENEFACTORS

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Department of Geology  
University of Maryland  
College Park, MD 20742



## GEOLOGY DEPARTMENT • FALL 2012

### (L-R) FRONT ROW:

Tracey Centorbi,  
Sujoy Kaushal, Philip  
Piccoli, Richard Walker,  
Vedran Lekic, Saswata  
Hier-Majumder, Daniel  
Lathrop, Roberta Rudnick,  
Zella, Karen Prestegaard,  
James Farquhar, Laurent  
Montési, Thomas Holtz,  
Richard Ash, Wenlu Zhu,  
John Merck, Michael  
Evans, Aaron Martin

SECOND ROW: Ming  
Tang, Hailong Bai, Brian

Harms, Laura Hebert,  
Natalie Sievers, Dana  
Borg, Julia Gorman, Tyler  
Drombosky, Brian Tattitch,  
Joost Hoek, Audrey  
Ougier-Simonin,  
Katherine Bermingham,  
Mallori McDowell,  
Emily Worsham, Stepha-  
nie Johnston, Caitlin  
Brown, Miriam Sharp,  
Jeremy Banker, Gregory  
Archer, Palma Botterell,  
Michael Pennino, Rose  
Smith, Lisa Walsh, Tammy  
Newcomer, Leigh Ann

Roble, Xiaoming Liu,  
Yadviga Zhelezinskaya,  
Michael Antonelli,  
Todd Karwoski

BACK ROW: Suzanne  
Martin, Joanna Patterson,  
Zachary Reeves, Daniel  
Eldridge, Anna Statkiewicz,  
Michelle Montero, Carolyn  
Plank, Kevin Miller,  
Katherine Watter,  
Harrison Lisabeth,  
Dorothy Brown, Alex  
Lopatka, Sandy Romeo

## CONTACT US

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*GeoGram is an annual publication of the University of Maryland, Department of Geology. We welcome your comments and feedback.*

*For address changes and personal updates, please visit [www.geol.umd.edu/alum-reg](http://www.geol.umd.edu/alum-reg)*

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