



THE UNIVERSITY OF MARYLAND GEOLOGY DEPARTMENT'S 2007

GEOGRAM

LETTER FROM THE CHAIR

Achievement is a journey not a destination

My title is taken from President Mote's annual address to the University Senate this past September (All About The Future: State of the Campus 2007 at <http://www.president.umd.edu/statements/2007/stateofcampus/>). This year I want to review how far have we come along our journey since the early 1970s when the University formally established the Department of Geology.

Because we highlight our progress and achievements (milestones along the way) annually in the GeoGram (<http://www.geol.umd.edu/GeoGram>) you know we have come a long way since 1973. You also know that the foundation was laid by the faculty of the 1960s and 1970s, and the creation of the Graduate Program in the early 1980s under the first chair—**Dr. Luke Chang**—was a significant step in our rise to national and international prominence. However, it was the transfer of the department to the new College of Computer, Mathematical and Physical Sciences in the mid-1980s that provided the impetus for improvement to compete with our peers and propelled our rise to become highly-ranked in Geochemistry last year. This progress is an admirable complement to our long-standing strength in undergraduate education and the achievements of our alums.

When speaking to the University Senate in 2000, President Mote commented “Faculty distinction is today, as it always has been, the foundation of the great university, and recruitment of star quality faculty in head-to-head competition with the best universities is

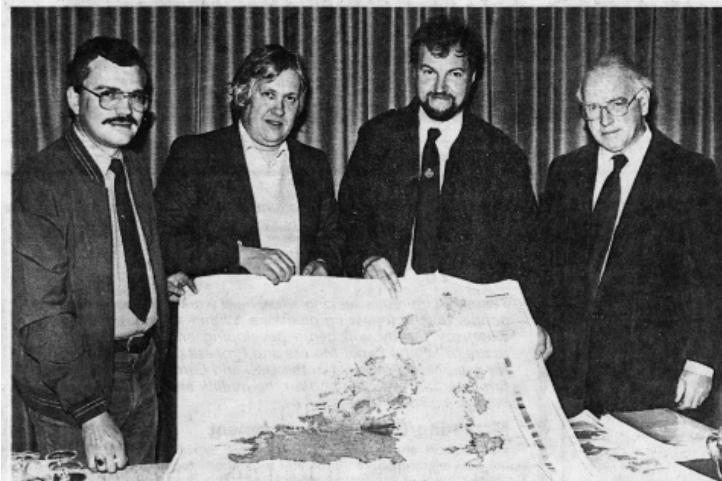
mandatory to be ranked among the best. Fortunately we are now competitive for the best. For instance, this past year we recruited geology professor **Roberta Rudnick** from Harvard, where she was Professor of Earth and Planetary Sciences. **Dr. Rudnick** is the world's expert on the lower continental crust and her research focuses on the origin and evolution of continents.”

To place this remark in context, remember we hire between one hundred and two hundred faculty each year, and only a few can be used as examples in the President's annual address to the University Senate. The hire of the McRudnick team (**Bill and Roberta**) was an important piece in our rise to a ‘top-ten’ ranking in Geochemistry in 2006 (see the GeoGram

for 2006 at <http://www.geol.umd.edu/GeoGram>). Our journey to that milestone took about fifteen years and required significant investment in the department by the university.

Recently we began the journey to achieve a ‘top-ten’ ranking in Geophysics (information about our faculty concentration in geophysics at <http://www.geol.umd.edu/geophysics>). Again it all comes down to whom we hire. I am pleased to report that **Dr. Dan Lathrop** (Department of Physics and Director of the Institute for Research

in Electronics and Applied Physics—profiled in the GeoGram for 2006) requested that his status in Geology be changed from that of Affiliate Professor to a joint appointment this academic year. Dan is Professor of Geology and Physics. With two additional hires in Spring 2007 (Montési and Zhu profiled in this GeoGram) we raised our Geophysics faculty to six, including **Adjunct Professor Fei** at the Carnegie



The long awaited proof geological survey map of Guernsey pictured with the leaders of the group who have been looking at Guernsey's oldest volcanic rocks (left to right): Mike Brown, Chris Topley, Tim Pharaoh and Bob Roach. (601/3/86)

Since we are looking back at the journey we have followed, I thought you might be amused to see me in a former life before I came to Maryland! Guernsey is one of the Channel Islands between England and France; igneous petrogenesis and the magmatic history of Guernsey and Jersey were among my research interests in the 1980s.

Institution of Washington—a long-standing collaborator and supporter. Our journey to the ‘top-ten in Geophysics’ milestone will not take fifteen years—we have the foundation in place and we are on a roll!

Once again our strategy caught the attention of the President in his annual address to the University Senate this September, as follows “Geology has recruited a husband and wife team **Laurent G.J. Montési** and **Wen-lu Zhu**. This makes two spousal pairs plus two half spousal pairs that Geology has

Department of Geology: Faculty and Staff Time Line



(2000) Bill McDonough, Roberta Rudnick, Paul Tomascak, Ginette Villeneuve

recruited.” This is important. Our department has always been at the forefront of hiring a diverse faculty and staff, and maintaining a diverse student population, and our graduate program historically has always recruited a high proportion of under-represented groups. Now we are leading the way on campus in dealing with the issue of dual professorial hires. Where Geology leads the campus follows!

In this review, we should remember that Geology is but one part of the Geosciences spectrum, which stretches from the outer reaches of the atmosphere to the hydrosphere and the solid Earth under our feet. Our colleagues in the Earth System Science Interdisciplinary Center—particularly **Affiliate Professor Tony Busalacchi** (ESSIC Director)—led an exciting partnership between the university, NOAA, NASA and the American Meteorological Society to host a workshop last October on the use of climate data in modeling and forecasting climate effects. This type of activity highlights one of our strengths in CMPS—interdisciplinary and unselfish co-operation in research and education. The Geosciences spectrum in the College also includes our sister Department of Atmospheric and Oceanic Science.

I mention the Geosciences rather than just Geology because the latest “Essential Science Indicators for Geosciences” from the “Web of Science” (published by Thompson Scientific) ranked the

University of Maryland #21 of 377 institutions listed. Bearing in mind that the twenty institutions above us include a number of huge government organizations such as NASA, NOAA and the Russian Academy of Sciences, the Geosciences at Maryland are among the ‘top-twenty’ university programs in the world—on a par with our colleagues in the Computer Sciences, the Physical Sciences and the Mathematical Sciences.

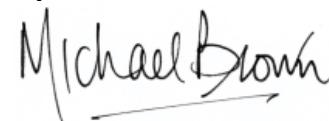
Again, this is but one milestone along the journey, but it is a significant one—every cornerstone discipline in the College of Computer, Mathematical and Physical Sciences ranks in the top twenty worldwide!

As alums, friends, students, staff and faculty you are part of one of the best Geosciences Groups in the world—you should be rightly proud of your achievement. But, there is more to be done, and you may help through your support. Through the generosity of giving by our alums, friends, faculty, staff and students (<http://www.geol.umd.edu/pages/contribute.htm>) we have been able to provide grants to help our undergraduate students with fieldwork and Senior Thesis research projects, and to offer prizes for Best Senior Thesis, Best Presentation by a Master’s Student, and Best Presentation by a Doctoral Student each year. But we are also ambitious, and as part of the Great Expectations: Campaign for Maryland

(<http://www.greatexpectations.umd.edu/>) we are looking for increased opportunities to provide scholarships for students and to create endowed professorships.

What else has been happening during 2006-2007? The campus prepared for and received a visit by an evaluation team representing the Middle States Commission on Higher Education, who were “. . . positively impressed with the investment that the University of Maryland, College Park, has made in institutional assessment, planning, and resource allocation” and concluded that “. . . the institution currently has a sound curriculum that fulfills the requirements of accreditation . . .” Thus, we continue in good standing for another five years! We also have a new Senior Vice President for Academic Affairs and Provost in **Nariman Farvardin**, formerly Dean of the Clark School of Engineering. He is leading a strategic planning process that will determine the future direction of our academic programs and set campus goals for the next decade. The next decade will be an exciting one as we become more ‘internationalized’ as a university and as our overall quality as an institution becomes more widely recognized. Geology will be at the forefront of these exciting developments and will provide innovative educational opportunities for our students in the new ‘flat’ world!

Finally, during the 2007-2008 academic year **Jay Kaufman** is taking a well-earned sabbatical break as a Deutsche Forschungsgemeinschaft Guest Professor at the Westfälische Wilhelms Universität in Munster, Germany. And, it is very nice to report that research in the department was highlighted in the CMPS CONTINUUM (at http://www.cmps.umd.edu/pdfs/cmps_f07.pdf) in the article “Geo-sleuths: Maryland geologists solve the universe’s mysteries”.



MEET OUR NEW FACULTY

Laurent G. J. Montési

Assistant Professor
(MIT 2002)



Understanding the mechanics of the lithosphere requires a combination of data collection and theoretical modeling. As a theoretician, I strive to construct models that link geological, geochemical, and geodetic observations to state-of-the art knowledge of rock rheology and transport properties. I seek to identify which observations are diagnostic of the overall behavior of the lithosphere and upper mantle, focusing in particular on the development and influence of heterogeneities such as faults, ductile shear zones, and magma transport and accumulation features.

I have studied over the last few years the formation of ductile shear zones and their role in postseismic deformation. Several current projects address mantle flow and its consequences for the thermal structure and magma geochemistry at mid-ocean ridges and subduction zones. Whereas I work mostly on terrestrial tectonics, I also apply these models to other planets. I enjoy working in a variety of geological settings and at various scales, for instance including a simplified description of microscopic processes into a model that encompasses an entire plate boundary.

My professional trajectory led me to study the tectonics of Venus, Mars and Ganymede while at MIT, before considering terrestrial strike-slip fault, mid-ocean ridges, and subduction zones during five years at the Woods Hole Oceanographic Institution. I am looking forward to discovering new tectonic settings with my new colleagues at the University of Maryland and in the greater Washington area.

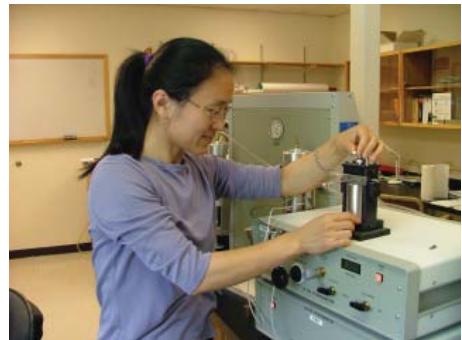
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Wen-lu Zhu

Assistant Professor
(SUNY Stony Brook 1996)

I am now an assistant professor in the Department of Geology at the University of Maryland. I received my Ph. D. in Geophysics from the State University of New York at Stony Brook in 1996. In 1997, I accepted a postdoctoral fellowship to work at the Woods Hole Oceanographic Institution (WHOI) and the Massachusetts Institute of Technology (MIT). I was appointed first as an assistant scientist and later an associate scientist in the Department of Geology and Geophysics at WHOI. I joined the University of Maryland in 2007.

My primary research interest is to understand fluid transport processes in the Earth's crust and mantle, and their geological implications. Using experimental, microstructural and theoretical approaches, I focus on the relationship between permeability and pore structure in a wide range of geomaterials, including sedimentary rocks with applications to convergent margins, where tsunami generating earthquakes occur; partially molten rocks beneath mid-ocean ridges, where oceanic plates diverge and new crust is made; and deep sea hydrothermal vent deposits where



unusual chemosynthetic microbial communities thrives. A better understanding of permeability-porosity relationship provides critical constraints in studying the effect of pore fluid, including water, CO₂, and melt, on the mechanical and geochemical properties of these tectonic regions.

My research interests have taken me on several sea-going expeditions. I worked on R/V Thompson and R/V Melville to study submarine volcano terraces along the Puna Ridge, the submarine extension of the East Rift Zone, Hawaii and the Galapagos Triple Junction at the East Pacific Rise, respectively. Most recently, I boarded on the deep sea drilling vessel Chikyu to participate in the Nankai Trough Seismogenic Zone Experiments (NanTroSEIZE) in Southwest Japan.

In 1997, I was awarded the AGU Mineral and Rock Physics Best Student Award for my Ph.D. thesis work. Recently, with co-author Dr. J. B. Walsh, I received the 2007 Best Research Paper Award by the American Rock Mechanics Association (ARMA). At the University of Maryland, I will work with both undergraduate and graduate students who are interested in rock physics, marine geology as well as energy resources.

DISTINGUISHED ALUMNUS

Carmala Garzione

Our distinguished alumnus for 2007 is Carmala (Carmie) Garzione, an Associate Professor at the University of Rochester. Carmie is a Marylander. She grew up in not far from College Park, went to high school locally, and completed her undergraduate studies at Maryland. She was very active as an undergraduate, and helped run our Geology Club. As part of her senior thesis research, a project completed under the direction of Rich Walker, she used Rb-Sr isotopes to examine the relationship between the Lithium Corporation of America pegmatite and the Cherryville granite, near Charlotte, NC, which proved not to be simple. Since the completion of that research in 1994, her travels have taken her far from the borders of the State.

Carmie attended the University of Arizona, where she received a M.S. (1996) and Ph.D. (2000) working on problems using sedimentology and geochemistry to address problems in tectonics. In her masters research, she characterized sediment sources in the

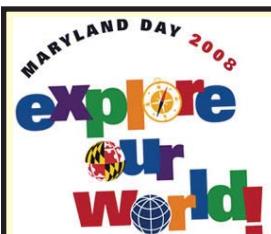
Canada. She built on that work for her Ph.D. research, and returned to Asia working in remote central Nepal and southern Tibet to undertake a project on paleoaltimetry (the science of estimating mountain height in the distance past). This work was completed under the direction of Peter DeCelles who described the region as “one of the harshest places in the Himalaya, situated in officially restricted terrain along the Tibetan border; a windy, cold, topographically rugged, oxygen-deficient high desert.” She has refined the techniques developed as part of that work, developed others, and is applying those techniques to the Andes plateau in Bolivia.

This Fall, Carmie received the Donath Medal for 2007. The medal is awarded by the Geological Society of America to a scientist younger than 35 for outstanding achievement in contributing to geologic knowledge through original research that marks a major advance in the earth sciences. In her acceptance speech, she credited Rich Walker and Eirik Krogstad for “turning me on to the apparently limitless applications of geochemistry to address regional



Our distinguished alum, Carmie Garzione in Argentina in 2007.

geologic problems.” She continued on about her experiences at Maryland, stating that “working in their lab on a senior thesis project, inspired me to go to graduate school.” She has started to gain well-deserved recognition for her innovative work and her impact in the field of tectonics. We would like to believe that some of her success is due to the well-rounded education she received at Maryland, and we look forward to more creative research from her in the future.



Maryland Day April 28, 2008

Maryland Day, an open house for the University community, has been taking place for 10 years. It grew out of Ag Day which is now in its 83rd year. As part of the 2008 celebration, the University will try to set a record worthy of recognition by the Guinness Book of World Records (a previous attempt to *build* the largest strawberry shortcake failed). This year's celebration will include making 50,000 cupcakes and arranging them in the shape of the University seal. Details for the event will be available on the web at: <http://www.marylandday.umd.edu/> as they become available.

In the past, the Department has opened its Gems and Minerals Museum, had various activities for kids including digging for shark teeth, making dinosaur art, and getting your tap water tested. This past year, the undergraduates headed by **Casey Soneira** made the pet rock booth—a big hit with the kids!



Graduate students **Barry Reno, Erik Hankin** and **Melissa Wilmot** are being quizzed by children who want shark teeth specimens they collected identified.

Come by and see us this year. We would love to show you many of the great changes that have taken place!

COLLEGE PARK SCHOLARS: EARTH, LIFE & TIME

**Thomas R. Holtz, Jr., Faculty
Director**

Background: Origin of Earth, Life & Time

Founded in 1994, College Park Scholars is a two-year invitational living-learning program for academically talented and socially engaged students. The majority of the students who accept their invitation to Scholars live together in the North Campus Cambridge Community. While Scholars students are enrolled in traditional majors on campus, they are also taking courses together (some of them unique to their Scholars program) in order to complete a citation at the end of their fourth semester.

In contrast to its older sibling the University Honors Program—where the course of study is determined entirely by the student—Scholars is organized into a dozen specific programs. Each Scholars program has some major interdisciplinary theme, and is run by a Faculty Director and staff from one of the University’s departments.

Geology’s first role in Scholars was running the Environmental Studies (ES) program. **Eileen McLellan** ran ES for several years before she left the University to pursue a career on Capitol Hill. Control of the Environmental Studies program was transferred over the School of Agriculture. However, Geology did not want to lose its contact with the Scholars program as a whole.

At that time (1998) I was Undergraduate Director in the Department of Geology.



Ann Wylie informed me that there was a desire to make one of the last two of the 12 Scholars programs be one with an earth science focus, and asked me to develop such a program. The resulting planned program was “Earth, Life & Time” (the name shamelessly ripped off from Steven Stanley’s historical geology textbook *Earth and Life Through Time*). With plans to start the program up for the Fall of 1999, I set about trying to organize syllabi, planned courses of study, and so forth with the help of the faculty directors of already extant programs.

The most important advice I received at this time was “You absolutely have to have someone else on staff!” As it happens, during the Spring of 1999 I had been contacted by **John Merck**, a fellow vertebrate paleontologist who had just recently wrapped up his Ph.D. at the University of Texas, had moved to the Washington metropolitan region, and was looking for a job. He was hired on as the Assistant (now Associate) Faculty Director of Earth, Life & Time, and subsequently expanded his role as a Lecturer in the Department of Geology and as the Undergraduate Director of the same.

The first cohort of Earth, Life & Time (ELT) students entered in the Fall of 1999; we have already had seven cohorts complete the program, with two more currently in process.

The Structure of Earth, Life & Time
While our first couple cohorts served as experimental test subjects for the program, we managed to create the current Earth, Life & Time program by about the third and fourth year.

Like other Scholars programs, ELT is focused on its colloquia: a series of one credit courses that meet over the student’s first three semesters. Current colloquium syllabi are viewable at <http://www.geol.umd.edu/~jmerck/eltsite/syllabi.html>.



The Earth, Life & Time motto is “The Science of Nature, and the Nature of Science.” As with all Scholars programs we are interdisciplinary: we are not just teaching earth sciences and life sciences, but examining the methods of Science and scientific thinking; the interaction between the non-living and living world and how these interact with human society and technology; and the role of Science within the larger human society. Over the course of the three first semesters, we introduce students to the basic principles of physical and historical geology; paleontology; evolutionary biology; physical anthropology and archaeology; historical linguistics; paleoclimate research and contemporary climate change studies; evolutionary agronomy and evolutionary medicine; and other natural historical sciences.

We teach this program through traditional lectures as well as through small in-class group projects (mini-labs); readings from natural history authors like Carl Sagan, John McPhee, Jared Diamond, Carl Zimmer, and Tim Flannery; and field trips to sites of local natural history interest, such as field locations (Jug Bay Wetlands Sanctuary, Chesapeake Beach, and Sideling Hill for some examples) as well as regional museums (National Museum of Natural History, National Zoo, Koshland Museum of the National Academy of Sciences, and the American Museum of Natural History, among others).

In addition to the natural sciences, we teach our students how to write their own html code so that they can post their assignments online (readable from the central ELT website, <http://www.geol.umd.edu/~jmerck/eltsite/>). Furthermore,

all our students learn vector and raster graphics, which they use at the end of the program to create their Practicum posters.

The Practicum is the capstone experience of ELT. All students engage in some form of individual research, service-learning, or internship project related to the natural sciences. These projects have included aiding researchers in labs in Geology and other departments here at UMCP; assisting ongoing research and curation projects at the Smithsonian Institution National Museum of Natural History and other natural history museums, zoos, and aquaria; interning at the National Institutes of Health; mentoring at local schools; and many other diverse topics. As part of their project, the students must assemble a poster and present their work at the annual College Park Scholars Academic Showcase (typically held in the first week of May). Past practicum project posters are viewable from <http://www.geol.umd.edu/~jmerck/eltsite/practicum.html>.

Travels in Earth, Life & Time

Since the natural sciences are best experienced out in Nature, the ELT faculty lead a number of different field science courses. One of these scheduled on a regular basis are a trip during Spring break of odd-numbered years to Arizona. There we transect the state, bringing students to Sunset and Meteor Craters and Native American ruins such as Walnut Canyon and Wupatki; camping in the Chiricahua Mountains; and hiking down into the Grand Canyon. Along the way the students examine up close the geology, botany, zoology, and archaeology of the American Southwest.

In even-numbered summers ELT faculty have taken a group of students down to the Galápagos Archipelago as part of a 3 credit course. There students get to witness firsthand the volcanic geology, oceanography, and (most spectacularly) specialized animals and plants of these islands.

Additionally, ELT has participated in a group course on Victorian Science and Social Change (centered in London), and John Merck has served as the unofficial geologist on trips to Belize and Alaska run by the College Park Scholars-Life Sciences program.

The Future of Earth, Life & Time

Merck and I often say that running ELT is the best job we've ever had. It allows us the freedom to discuss a variety of topics related to natural history that would not normally be brought together in a standard 3-4 credit course. It enables us to interact closely with a number of bright talented young students (at least a few of whom we have "converted" to Geology majors and minors!) And it provides a framework for these young people to explore issues outside of the context of the standard curriculum.

In future years we will continue to update and refine the topics addressed in class. (For example, we've been expanding the global change components of ELT as this issue becomes a more general concern for the public at large.) Whereas we still hope to run field natural history courses in the future, the realities of the rising costs of ecotourism may mean that the 2008 Galápagos course will be the last. In its place, we have contemplated other natural historical travel study trips: an



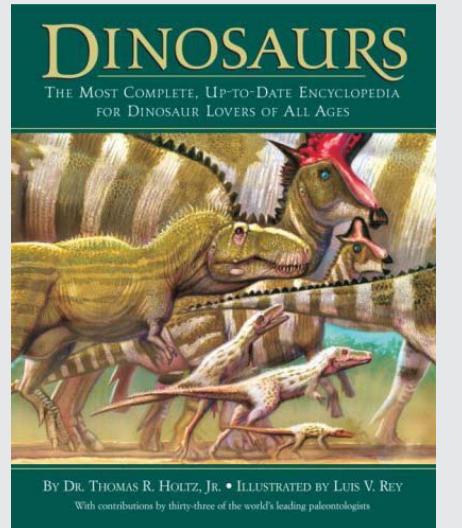
expanded Alaska trip or the geology and paleontology of southwestern Canada are two under consideration.

More important, however, is that we want to continue introducing bright incoming students to the natural historical sciences. Given the structure of some school districts today, many of the most academically talented students are steered away from taking Earth Science and organismally-oriented Biology courses in their high school careers in favor of cellular and biochemically-oriented classes. We hope to do our part to take some of those students and reveal to them the wonders—and the research potential—in studying the ever-changing Earth we inhabit and the living creatures with which we share it.

Tom Holtz

Dinosaurs Anyone?

Congratulations to **Tom Holtz** for the publication of his book "*Dinosaurs: The Most Complete, Up-to-Date Encyclopedia for Dinosaur Lovers of All Ages*". The >400 page book is illustrated by **Luis Rey** and is published by Random House. This is Tom's 5th book.



DEPARTMENT HIGHLIGHTS

FACULTY HIGHLIGHT

Peter B. Stifel

The Third Professor Hired; The First Emeritus Professor

Students have a way of latching on to certain faculty—those with a good story, those who are animated, or those who throw a good party. Pete Stifel was all of these, and he had a vast impact on students while he was at Maryland, and continues to have an impact on students today (although they may not know it).

The Paved Road to Maryland

On occasion, Pete Stifel describes himself as ‘a farm boy from West Virginia.’ After a long career of teaching, he is farming again, but this time on the eastern shore of Maryland.

Pete attended Cornell and experiences there he used years later to help shape the department at Maryland. Cornell had an undergraduate research program, and as part of his research, Pete mapped a talc deposit near Mansfield, VT. This was part of larger project to map ultramafic

bodies throughout the Appalachians.

Pete went to graduate school at the University of Utah, where he had the daunting task of examining a 25,000 ft section of the Pennsylvanian and Permian of Utah. This was part of the State Map Program and as Pete recalls, “I was the sucker.”

After graduation, Pete ended up working at

Fort Belvoir, a commitment he had to fulfill because of an ROTC program he was enrolled in at Cornell. While there, he went to a meeting of the Paleontological Society of Washington (**Tom Holtz** is the current president). **Len Fernow**, who was Pete’s TA at Cornell, was at the meeting. Fernow never attended another PSW meeting. By the time Pete was nearing the end of his military obligation, he had an offer to map in Kentucky (he was told by his wife, “no”). His backup plan was to call Fernow, who said that “as a matter of fact, there is a position open.”

As Pete describes it, “on October 8th I was teaching 60 colonels at Fort Belvoir, and on October 9th, I was teaching 300 students in College Park.” That was the chaos of the early days in the department.

The Rocky Road at Maryland

The trip up Route 1 from Fort Belvoir, along with a climb to the 4th floor of HJ Patterson, led Pete to a shared office with Len Fernow and Galt Siegrist.

For much of his career, Pete served as the Undergraduate Director. That duty, especially during the early years of the department when enrollment was high, required that he interact with a large number of students. Pete enjoyed the camaraderie of the students. It was common for Pete to host a party for the



Pete in September after a ride in his 1910 Thomas Flyer.

undergrads at his house in Kensington. Unlike most parties, before the main course was served, there was often a brief anatomy lesson—clams: ‘the mantle the siphon the foot’

At one point, Pete counted the number of student-couples who met in his classes and eventually got married at 25. One of those couples, **Beth (BS 1982) and Tony Creamer (BS 1984)** threw an annual party—the Pig Pickin. As Pete tells the story, Beth and Tony would acquire a pig, roast it, and play some music. After several ‘discussions’ with the authorities, it was decided that the festivities could not continue in College Park. At that point, Pete offered the Hope House.

Pete recognizes that one of his major contributions to the department was the development of the undergraduate research program (originally GEOL 399; now GEOL 393/394). He modeled it after the program he participated in at Cornell. A 1-credit senior thesis program in 1973, today the research experience comprises two 3-credit courses, and nearly 500 students have participated in it, many of whom are not aware of the history behind it. From the beginning, there was an “emphasis on doing the project in a scientifically proper way” and having the papers “say what you want them to say.”



Pete, preparing the main course, at the pig pickin' in 1986.

The Dirt Road from Maryland

For those of you that interacted with Pete, you realize how at home he is in a pair of jeans and working on the farm. Since his retirement, he has spent most of his time in Talbot County, at the end of the long dirt road that leads to Hope House. The farm keeps Pete busy, and he enjoys it.

This past September, Pete made his first entry into an antique car show as part of a charity event in St. Michaels. After some cleaning up of the car, he entered a 1911 Mercer T35C Raceabout, and won 1st in class. Pete is involved with other charity work also. He is on the board of the Adkins Arboretum, and has enlisted **Alicia (Watson) Siegrist (BS 1975)** to serve with him starting in 2008. He spends some of his time writing grants to get funding to continue support for educational programs.

A Story to Finish

Part of the work on the farm this summer was to raise chickens. Pete made a bet with a local farmer, who was also starting to raise chickens, to see who would get the first eggs. Pete was raising free range chickens, and left easy passage for the birds. At one point he noticed that the chicken feed was disappearing quickly, and realized that his cow and horse were making their way through the doorway, and helping themselves to the feed, a problem he solved with a door and a lock. On a trip to town, the other gentleman showed Pete the eggs his chickens laid, and it appeared as though Pete lost the bet. Time went by, and still no eggs in the coop. Frustrated, but not to be outdone, he grabbed a peacock egg and headed to see the man, claiming that his chickens didn't lay the first eggs, but did lay the bigger eggs! Pete later found that the free range chickens had been laying eggs near the horses in the stable.

GRADUATE STUDENT

HIGHLIGHT

Kateryna (Katya) Klochko



Katya grew up in the Ukraine, and attended Central European University in Budapest, Hungary. There she studied the environmental impact of mining at a gold mining project in Baia Mare, Romania. She received her MS from the University of Rochester, where she worked on a project addressing issues related to Mo isotopes under the direction of **Ariel Anbar**.

Katya came to Maryland in 2003, and has been working with Jay Kaufman on three topics related to boron in geologic systems. One component of her work is to evaluate the use of boron isotopes in marine carbonates as tracers of paleo-pH in seawater (with **Steve Shirey** and **Tim Mock** at Department of Terrestrial Magnetism, Carnegie Institution of Washington). Second, along with **Jack Tossell** (Chemistry and Biochemistry), she developed a procedure to determine the boron isotope equilibrium constant, a significant advance due to an inability previously to quantitatively the boron species in seawater. The third aspect of her work was to evaluate boron speciation (i.e. boric acid versus borate) in seawater. Those measurements are being performed using nuclear magnetic resonance (NMR), under the direction of **George Cody** of the Carnegie Institution of Washington.

Katya has won awards for the quality of her presentations in the department.

UNDERGRADUATE STUDENT

HIGHLIGHT

David Weinstein



Our undergraduate this year is David Weinstein. Although Dave has finished his undergraduate studies at Maryland (B.S. 2007), we are fortunate that he has not left us. Dave grew up in Montgomery County, but clearly had aspirations to travel far beyond its borders. As a child, while on a scuba trip off shore of Little Cayman Island, Dave became interested in geology of coral reefs.

Dave will tell you that his undergraduate research was his favorite class experience at UMD, because "it incorporated bits of most all of his classes into his project." Dave had an interest in marine geology, and decided to pursue that interest by working with someone actively performing research. Dave took the initiative to contact Robert Ginsburg of the University of Miami's Rosenthal School, and although he was retired, he was happy to take Dave under his wing. Dave developed an interest in the breakdown of coral, and that formed the basis of his senior thesis. The field work for that project took place at Windley Key in the Florida Keys. Following the field season, the subsequent research was performed with guidance from Jay Kaufman and Tom Holtz. For this work, Dave received the J.R. Dorfman prize for the best research project conducted by a CMPS undergraduate.

Upon completion of his coursework, he attended a six week field course in Sardinia, followed by a 6 week sojourn arounds Europe. Now he is working in the laboratory with **James Farquhar**, and we are happy to have him back.

SENIOR THESIS PROGRAM

The Department of Geology senior thesis program has been coordinated by **Prof. Phil Candela** for the past decade. Since 1972 there have been nearly 500 completed senior theses advised by our faculty. There was a crowd of excellent graduating seniors in 2007. Again this year, their final presentation included a poster session. We wish each of our departing students, and newest alumni, the best of luck with their future endeavors. To see the posters from this year's presentations and lists of theses over the past 35 years go to <http://www.geol.umd.edu/pages/undergraduates/SeniorThesis.htm>.



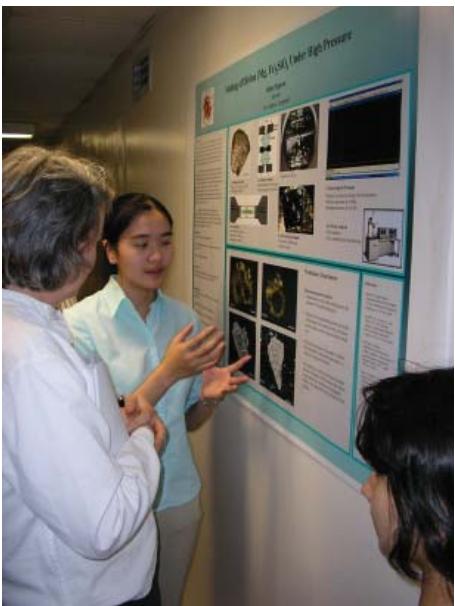
Krystle Behrns, Evaluation of Channel Adjustments to Urbanization on the Paint Branch Stream System
(advisor **Prestegard**)



Casey Soneira, Investigation of Fault Control at Mather Gorge and Petrographic Analysis of Lamprophyre Dikes
(advisor **Martin**)



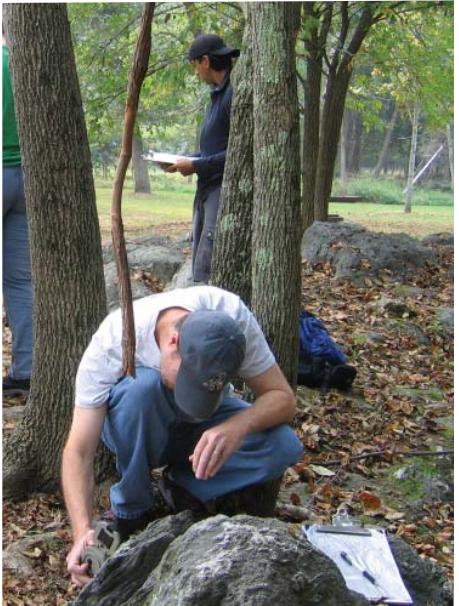
David Weinstein, Taphonomy of the Late Pleistocene Key Largo Limestone: A Comparison of Modern and Ancient Coral Reef Ecosystems (advisors **Kaufman, Holtz, Ginsburg** (U. of Miami), **Garza-Perez** (UNAM))



Helen Nguyen, Melting of Olivine (Fe,Mg)2SiO4 Under High Pressure
(advisor **Campbell**)



Robert Thomas, Effect of Phase Transition and High Pressure on Trace Element Partitioning Between Metal and Sulfide Melt (advisors **Campbell and Fei**)



Peter Streker, Impact of Geologic Structures on the Orientation of Potomac River Flow Near Great Falls, Maryland and Virginia (advisor **Martin**)

UNDERGRADUATE STUDENT AWARDS

The Jeffrey and Lilly Chen Award

The CMPS scholarship committee has awarded **Garrett Mitchell** the Jeffrey and Lilly Chen Scholarship for 2007-2008. This renewable award is given to one undergraduate and one graduate student annually in earth or space sciences, or physics.

Gem, Lapidary and Mineral Society of Washington, D.C., Scholarship

Eugenia Leone was the recipient of this award for 2007. This award is made on the basis of academic achievement and contribution to the department and community.

SOME GRADUATE STUDENT HIGHLIGHTS

2007 Best Talk Award Recipients

As part of the graduate curriculum, students are required to give an annual seminar. Overall, the quality of science and presentations is exemplary, and given that, the following individuals have been recognized by the faculty as having excelled:

Ph.D. Category

Award Recipient: **Rick Arevalo** *Critical tests of Core-Mantle exchange*
Runner-up: **Katya Klochko** *Constraints on the boron isotope proxy for seawater pH reconstructions: new evidence from NMR studies*

M.S. Students

Award Recipient: **Michael Mengason** *Experimental Study of Element Partitioning: Immiscible Fe-S-O Melts, Andesitic to Rhyolitic Melts, and Crystalline Phases*
Runner-up: **Erik Hankin** *Hydraulic Consequences of Bank Roughness in Urban Stream Corridors*

Department of Geology Field Camp Scholarship (Fernow Field Camp Fund)

Due in part to the generous contributions of alums, the department was able to award 3 scholarships to support field camp for three deserving undergraduates: **Helen Nguyen, Lynette Pitcher, and Rob Thomas**.

J.R. Dorfman Prize

Awarded for the best research project conducted by a current CMPS undergraduate, the current recipient is **David Weinstein**, for his senior thesis project “Taphonomy of the Late Pleistocene Key Largo Limestone: A Comparison of Modern and Ancient Coral Reef Ecosystems”

Other Awards

Ricardo Arevalo received a grant to attend the international 2007 V.M. Goldschmidt Conference in Cologne, Germany, where he presented research on using W to detect core-mantle interactions.

Tracy Centorbi served as science advisor for the book *Raging Forces: Life on a Violent Planet*, by George W. Stone which is to be published by the National Geographic Society.

Rachel Potter received a grant to cover field expenses from the Geological Society of America for her

American Mineralogist Undergraduate Award

The Mineralogical Society of America's American Mineralogist Undergraduate (AMU) Award program recognizes outstanding students who have shown an interest and ability in the discipline of mineralogy. The department is pleased to recognize **Andy Masterson** as one of the recipients of this international award in 2007.



The Geology Club logo. Information about the Geology Club can be found on the web at: <http://www.geol.umd.edu/geoclub>.

proposal entitled Diffusion of oxygen and lithium isotopes at a contact between the Bushveld and metasediments: Implications for diapiric rise of the Phepane Dome. She was honored recently at the GSA Annual Meeting for this work.

Barry Reno was successful with his proposal Tectonic Evolution of the Andrelândia Nappe Complex, Southern Brasília Belt, Brazil as a COE-21 collaborative researcher at the Institute for the Study of the Earth's Interior, Misasa, Japan. The proposal supported an extended stay in Japan, analytical costs, and travel.



Prior to the start of the fall 2007 term, the graduate students (and a couple of friends) took a field trip to upstate New York. *On rock:* Kate Scheiderich. *Standing* (left to right): Barry Reno, Harry Oduru, Rebecca Rennard (friend), Brian Tattitch, Zach Blanchet, Adam Mansur, Sarah Sillin (friend), Jeremy Bellucci, Chrissy France, Rachel Potter, Brian Mumaw, Xihe Zhu (friend). *Kneeling* (left to right) Jingao Liu, Yan Chen, Tom Ireland, Kristin Miller, and Xiaoming Liu.

HOW CAN YOU HELP US?

This is an exacting time at Maryland. We're recruiting world-class faculty and talented students. We are exploring new frontiers in rapidly emerging fields. Our Faculty are receiving recognition for their achievements. We have one of the best Geochemistry Programs in the world, and we will build one of the best Geophysics Programs as well. And we're all working together to become one of the top Geology Departments in the Nation.

But, we need your help to reach this goal! How can you help us?

In this tight economy, the support of alumni and friends like you is the key to our success and to maintaining our commitment to excellence. Whether you support us yourself or put us in contact with someone who can, your contribution is sincerely appreciated. Your tax-deductible donation will help us strengthen our program with faculty and student recruitment tools, state-of-the-art facilities, an enhanced fieldwork program for our undergraduates and innovative outreach programs.

A growing problem for our undergraduates is the transfer of the cost of Tertiary education from the State to the individual via reduced State support and increased tuition rates. The extra cost commonly increases the time it takes to complete the degree, and our ability to help is limited by a significant under-funding in scholarship support for students. In Geology, this is particularly important, since there are the additional costs associated with fieldwork, particularly Field Camp and research for the Senior Thesis, and additional financial help from the Department for those students in need commonly allows these students to succeed. Through the generous support of our alumni, faculty and friends, we were able to provide financial support to several students to assist with the costs of field camp in 2007. But we must do more.

Please consider strengthening your connection to the Department. I ask you to join with me and the faculty in supporting our students reach their goals. I invite you to join the College of Computer, Mathematical and Physical Sciences as members of the Dean's Circle (gift level >\$2,000) or the Newton Society (gift level >\$1,000). An envelope is enclosed, giving you a convenient opportunity to participate, right now, in the exciting and important work that our students and faculty are doing.

You can assist us to support future generations of Geology majors by earmarking your tax-deductible gift for Geology.

Your generous help allows us to provide grants to undergraduate students from the Fernow Field Fund to assist with the costs of Field Camp, and to award prizes for the Best Senior Thesis from the Stifel Undergraduate Research Fund and for the Best Graduate Student Presentations from the Chang Graduate Research Fund. The Hutton General Fund is used to address other needs in our drive for excellence in Education. In the future we aim to offer funded Summer Internships to undergraduate students.

Gifts to the Department of Geology also may be made directly to the Department by check or online (<http://www.geol.umd.edu/pages/contribute.htm>) using a credit card. Contributions to the Department of Geology by check should be made out to the University of Maryland College Park Foundation with "Geology" in the memo. To ensure that Geology is the receiver of your gift to the University of Maryland, please be careful when completing the Online Gift Form. On line two, please scroll down to "Other: Specify the gift designation in the following field", and on the third line in response to the question "Specify "Other" Fund or School/College" insert "Geology". If you do not change these items, Geology will not receive your gift.

I want to thank those of you who have responded in previous years, and on behalf of the Department, offer my thanks, in advance, for your early and positive response to this request for your help this year.

