


Note from the Morton K. Blaustein Chair

Welcome to the spring 2009 edition of the Earth and Planetary Sciences Newsletter. You will have no doubt noticed that this newsletter is much smaller than previous versions. We have made the change in the hope that we can produce a condensed newsletter more frequently (perhaps twice a year) and that we can distribute it electronically, either via email or via our web-site. Please let us know if you would like to receive future copies electronically or if you have any comments on the new version.

Although this is a condensed newsletter it still contains a lot of information. As described below, there has been continued change and growth in the department. Within the last year two new faculty (Naomi Levin and Benjamin Passey) have joined the department, and we have started a new undergraduate major. Both are key components of our new "Global Change Science" initiative. We have also hosted a very successful Cloos lecture by Ken Deffeyes, and the graduate students completed a summer field trip in June 2008 to New England and the Adirondack Mountains.

We have also added an Alumni Corner to the newsletter as a forum for alumni to report on their current activities. If you wish to make a contribution please send it to us.

Sincerely yours,



Darryn W. Waugh

New Faculty

We are pleased to announce the arrival of two new assistant professors **Naomi Levin** (Ph.D. University of Utah, 2008) and **Benjamin Passey** (Ph.D. University of Utah, 2007). Both are geologists who use fieldwork and stable isotopic records to study different aspects of paleoclimate and paleoecology, and they are in the process of establishing a mass spectrometry laboratory in Olin Hall.

Naomi Levin's research centers on understanding how terrestrial landscapes and organisms respond to past climate change. To date, Naomi has focused her research on reconstructing Plio-Pleistocene environments from sedimentary and isotopic records preserved in the East African rift system. Her work includes examination of modern climatic, ecological and geochemical processes to develop analogs for fossil systems. Naomi's new research projects include isotopic studies of soils and fossil teeth to study Holocene climate change in Mexico and to reconstruct Middle Pleistocene environments associated with archaeological sites in South Africa.

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Benjamin Passey's research involves the use of geochemical and ecological tools to study past and present ecosystems and climate. Ben's previous research has included examination of the Mio-Pliocene history of the East Asian Monsoons, the global expansion of tropical C4 grasses during the late Miocene, and dietary behavior and niche partitioning in fossil mammal communities. More recently he has been involved with the development of the exciting new 'clumped isotope in carbonate' (D47) paleothermometer, and is currently using this tool to help reconstruct past climates, including those in East Africa relevant to human evolution, and those associated with the Cretaceous-Paleogene mass extinction event.

Congratulations to Our Graduates

On May 22, 2009 the department had four PhD students graduate. **Joanne Stubbs**, who has since moved to California and is currently a Postdoctoral Research Associate at the Stanford Synchrotron Radiation Lightsource, which is part of the SLAC National Accelerator Laboratory; **Kaustubh Patwardhan**, who has a teaching position at Bucknell University in Pennsylvania; **Jun Wu**, who is a postdoc at the Arizona State University; and **Shouliang Zhang** who is at NASA's Johnson Spaceflight Center and the Lunar and Planetary Science Institute in Houston. In addition, three Master degrees were awarded to **Mei-Lin Chen**, **Namhey Lee** & **Benjun Wu**. **Jessica Zha** received her undergraduate degree.



Graduate Kaustubh Patwardhan



Left to Right: Jun Wu, Prof. David Veblen, Shouliang Zhang

NEW Major: Global Environmental Change and Sustainability

A significant development in the department was the recent approval of our new undergraduate major "Global Environmental Change and Sustainability" that will be introduced in the fall. Dr. Cindy Parker, who holds a joint appointment in the Bloomberg School of Public Health, Department of Environmental Health Sciences and in Earth and Planetary Sciences, directs this multi-disciplinary program and currently teaches the very popular course "Introduction to Sustainability." Students will take courses in science and social sciences from departments across the Krieger School – political science and economics for example – as well as in the Schools of Engineering and Public Health.

The major was developed to advance awareness of the magnitude and consequences of global environmental issues and to train the next generation of problem-solvers who will address the effects of global environmental change.



Dr. Cindy Parker



We expect graduates to be able to gain employment in a wide range of areas, including environmental businesses and government and non-government agencies, or pursue graduate studies in environmental sciences/studies, law, policy or public health. The creation of the program comes in response to intense student demand, and we expect it to be highly subscribed.

Cloos Lecture – April 13, 2009



From Left to Right Prof. John Ferry,
Dr. Ken Deffeyes and Prof. Darryn Waugh.

Ken Deffeyes, professor emeritus at Princeton University, delivered the Ernst Cloos Memorial Lecture on Monday, April 13th at Hodson Hall with a reception that followed. Ken Deffeyes the author of two best-selling books "Hubbert's Peak" and "Beyond Oil" spoke on "Peak Oil: War, Famine and Pestilence." The Lecture was sponsored by the Morton K. Blaustein Department of Earth and Planetary Sciences and funded through Cloos Endowment funds. The Ernst Cloos Memorial Scholars program was established in 1975 to commemorate the life and career of the scientist who served as chairman of the Johns Hopkins University Department of Geology from 1951 to 1963 and as a faculty member there from 1931 to 1968. The program not only allows visiting scholars to lecture at Johns Hopkins, but also to spend several days meeting with faculty and students in the Department of Earth and Planetary Sciences.

"The least-bad scenario is a hard landing, global recession worse than the 1930s. The worst-case borrows from the Four Horsemen of the Apocalypse: war, famine, pestilence and death."

Ken Deffeyes

Thank You to Our Donors

We are indebted to the following alumnae, alumni, friends, and organizations for contributing to the Department in 2007

Blair F. Jones Ph.D
 Stephen M. McDuffie, Ph.D.
 Shemin Ge, Ph.D.
 Francis Merceret Jr., Ph.D.
 Harindra J.S. Fernando, Ph.D.
 Miner B. Long, Ph.D.
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 George and Sue Preece Trust
 Miner B. Long Charitable Fund
 John H. Fournelle, Ph.D.
 Mr. Richard F. Mercer
 Stuart A. Weinstein, Ph.D.
 Fidelity Charitable Gift Fund

In The News



Prof. Bruce Marsh

A crew drilling on the Big Island of Hawaii recently discovered magma, the molten rock material, in its natural habitat underground. Bruce Marsh ("Magma PI") and William Teplow, a consultant for Nevada-based Ormat Technologies, Inc., which was doing the drilling, announced the finding at the fall meeting of the American Geophysical Union. You can find this story in its entirety at http://www.jhu.edu/news_info/news/home08/



*Prof. / Chair
Darryn Waugh*

In other news research led by Darryn Waugh suggests that climate change could provoke variations in the circulation of air in the lower stratosphere in tropical and southern mid-latitudes. Such circulation changes could cause ozone levels in those areas never to return to levels that were present before decline began, even after ozone-depleting substances have been wiped out from the atmosphere. For more information see http://www.jhu.edu/news_info/news/home09/feb09/global_warming.html

Alumni Reception: AGU Fall Meeting As many of you know, E&PS participates in the AGU Meeting in San Francisco every year. Last year we had an alumni reception which was a GREAT success. We will be having another reception at this upcoming conference in December and would love to see you there! We will have more information to follow when date and times are confirmed.

Departures



Thomas Osborn

In December of 2008, Prof. Thomas Osborn retired from the Department after serving 22 years as a Professor of Physical Oceanography. In addition to his appointment in Earth and Planetary Sciences, Tom held a joint appointment as a Professor of Mechanical Engineering and served as the Deputy Director of the Center for Environmental and Applied Fluid Mechanics. Tom received his PhD from the University of California, San Diego in 1969. He is now residing with his wife Mary in Michigan.



Hope Jahren, who joined the department in 1999 as an assistant professor and ascended through the ranks to full professor in 2006, and Clint Conrad, who joined the department as assistant professor in 2005 departed for the University of Hawaii last summer.



Department Faculty—Fields of Specialization



Arking, Albert –Principal Research Scientist
Atmospheric Physics and Global Climatology PhD 1959,
Cornell University



Castillo, Carlos Del- Assistant Research Professor
Ocean, Biogeochemistry
PhD 1998, University of South Florida



Ferry, John – Professor
Metamorphic Geology
PhD 1975, Harvard University



Haine, Thomas W.N. – Professor
Physical Oceanography
PhD 1993, University of Southampton, U.K.



Hinnov, Linda – Associate Research Professor
Cyclo-stratigraphy and Paleoclimates
PhD 1994, Johns Hopkins University



Levin, Naomi –Assistant Professor
Terrestrial Environmental Change
PhD 2008, University of Utah



Marsh, Bruce D. –Professor
Igneous Petrology and Geophysics
PhD 1974, University of California, Berkley



Olsen, Sakiko –Senior Lecturer
Metamorphic Petrology
PhD 1972, Johns Hopkins University



Olson, Peter L. – Professor
Geophysical Fluid Dynamics
PhD 1977, University of California, Berkeley



Osborn, Thomas R. – Research Professor
Physical Oceanography
PhD 1969, University of California, San Diego



Passey, Benjamin –Assistant Professor
Isotope Geochemistry
PhD 2007, University of Utah



Strobel, Darrell F. –Professor
Planetary Atmospheres and Astrophysics
PhD 1969, Harvard University



Sverjensky, Dimitri –Professor
Geochemistry & Environmental Chemistry
PhD 1980, Yale University



Szlavecz, Katalin – Associate Research Professor
Soil Ecology
PhD 1981, Eötvös University, Hungary



Veblen, David –Professor
Mineralogy and Crystallography
PhD. 1976, Harvard University



Waugh, Darryn –Chair & Professor
Atmospheric Dynamics
PhD 1991, Cambridge University, UK

Emeriti



Fisher, George W. –Professor Emeritus
Metamorphic Petrology
PhD 1962, Johns Hopkins University



Hardie, Lawrence A. –Professor Emeritus
Geochemistry and Sedimentology
PhD 1965, Johns Hopkins University



Phillips, Owen M. –Professor Emeritus
Geophysics (Fluid Mechanics & Oceanography)
PhD 1955, Cambridge University, England

Field Trip 2008: New England and the Adirondack Mountains

In June 2008 our graduate students went on a trip to New England and Adirondack Mountains. The EPS field trip was great in providing a broad overview of the geologic history of the New England region. It was accessible to a wide audience, and covered important geological concepts that are best understood in the field. This trip was funded through the Palmer Fund. These types of trips would not be possible without the generous contributions from our donors.



David explains Champlain Valley Stratigraphy



The group at the diabase-hornfels contact at the base of the Palisades Sill

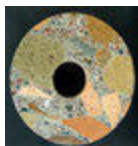


Lijun at the base of the falls

Alumni Corner

Attention all Alumni– If you have something you would like to share in the next edition, please provide us information by email to ktrent2@jhu.edu

John Fournelle (PhD 1989). I'm coming up to my 17th anniversary here at UW-Madison. I run the SX51 electron microprobe and the Hitachi VP-SEM and teach an instrumentation course. My title is Senior Scientist but in reality I am a jack of all trades...fixing this, repairing that... helping students figure out really what they need to do. Working with material science as well as geology students keeps things varied and interesting. The SEM has EBSD and so I've found that a cool variation; the structural geologists get off on their orientation maps, but to me using it for phase ID is very helpful (did you know there are at least 3 polymorphs of CaCO_3 ?). I have been an officer of the Microbeam Analysis Society and organized the 2008 EBSD Topical Conference here (and will repeat it in May 2010, contact me if you want details). My wife Judi Munaker and I have spent the past 2 March's visiting Barcelona (I have a collaborator there) then going by train thru France and Benelux, visiting old friends (Genevieve, MaryAnn) and digging into my Fournelle genealogy (great grandfather left Luxembourg in 1882). I've uncovered some interesting history (see photo).



Chen Zhu- PhD 1992. Chen Zhu still works at Indiana University – Bloomington. In 2008, he took a sabbatical leave at University of California – Berkeley, kindly hosted by Jill Banfield. Currently, he is visiting University of Oslo as a Fulbright Scholar. Chen is quite excited in applying what he learned at Hopkins on water-rock interactions to storing CO_2 in geological formations (carbon sequestration, or carbon capture and storage).

Marie Jackson continues to work on various aspects of the volcanic tuff building stones of ancient Rome, and the extraordinarily durable concretes (see photo) that Roman builders produced using these rocks during the Imperial age. Our research group is composed of a volcanologist, geophysicist, geochemist, and several archaeologists, historians and civil engineers. We have studied many Roman monuments and quarries for granular volcanic ash (pozzolane) in the area surrounding Rome. This is a much more civilized field area than the wild slopes of the southern Henry Mountains in Utah. A National Geographic documentary film will show some of our work in 2010. My son, Ian, is a senior at Whitman College in Walla Walla, Washington. My daughter, Nora, will be a freshman at Tufts University in Boston. They ski, backpack, ride bikes, and chill—sometimes with me.



Fornells de la Selva near Girona, Spain; the town's name dates to at least 10th century).

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Margaret (Maggie) Mangan - PhD 1990. "Still with U.S. Geological Survey (1990-1998 Hawaiian Volcano Observatory; 1998 to present Menlo Park CA) working on active volcanoes in the US and abroad. Added high temperature and pressure experimental work to my bag of tricks in recent years, as well as (sigh) administrative duties"



Kathy Cashman—I am now a Fellow of the American Geophysical Union (good news) and head of the Department of Geological Sciences at the University of Oregon (bad news). Being department head has only reinforced my belief that administration isn't my strong point, so I escape to the field when possible. This year, that includes field work in Ecuador, Italy, Hawaii, and Oregon as well as semi-annual trips to the island of Montserrat, West Indies, where I serve on an advisory committee responsible for volcanic risk assessment.

Gulzar M. Aziz (MA '91, PhD '95) and **Julia J. Aziz** (A&S '93) live in Houston, Texas. Gulzar works as a geophysicist at lon. e-mail: gmaziz@hotmail.com.

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