

The Morton K. Blaustein, Department of Earth and Planetary Sciences, Johns Hopkins University  
<http://eps.jhu.edu> 410-516-7135

## Note from the Morton K. Blaustein Chair

Spring and summer 2013 were a busy productive period for Earth & Planetary Sciences. Many students graduated from our undergraduate and graduate programs: Ten completed Bachelor's degrees in E&PS, eight earned Bachelor's degrees from the GECS program, nine earned Master's degrees, and four were awarded PhDs in E&PS, our most advanced degree. Hearty congratulations! The Faculty is very proud of every single one of you. You are a credit to the Department, the Krieger School of Arts & Sciences, and Johns Hopkins University. Most of you are now leaving E&PS. We wish you good luck in your future careers and remind you that you're always welcome in Olin Hall. You are joining an elite group of distinguished alumni and we hope you stay in touch with us.

The E&PS Faculty spent much of the 2013 spring semester searching for new professors in Planetary Sciences. I'm delighted to announce that the search concluded with spectacular success: Drs. Sarah Hörst and Kevin Lewis will join us as Assistant Professors in September 2014. Dr. Hörst is currently an NSF Astronomy and Astrophysics Postdoctoral Fellow at the University of Colorado, Boulder, and is an expert on photochemistry of planetary atmospheres such as Titan. Dr. Lewis is an Associate Research Scholar at Princeton and works on planetary geophysics, with particular interest in Martian sedimentary rocks. Sarah and Kevin plan to establish world-class research and teaching programs in planetary science that will transform and enrich our department.

As always, we're very grateful to departmental donors who support our teaching and research activities. You make an enormous difference and directly contribute to the success of E&PS.

With best wishes.



Thomas W. N. Haine



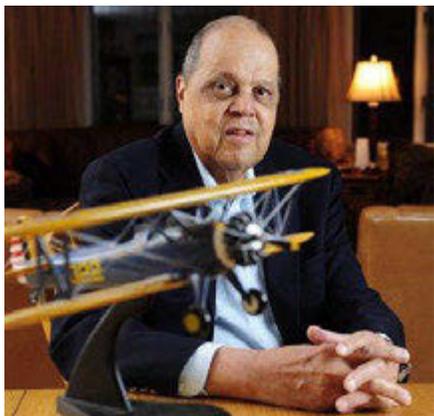
### INSIDE THIS ISSUE

|   |    |
|---|----|
| Note from the Morton K. Blaustein Chair         | 1  |
| Upcoming Seminars & Lectures                    | 1  |
| Bill Bromery                                    | 2  |
| Theodore Poole                                  | 2  |
| Thank You to Our Donors                         | 3  |
| Congratulations to Our Graduates                | 3  |
| Thesis Presentations                            | 3  |
| In the News                                     | 4  |
| E&PS on the Move                                | 5  |
| E&PS Photo Contest                              | 6  |
| Environmental Field Methods                     | 7  |
| Summer Workshops                                | 7  |
| Global Urban Soil Ecology and Education Network | 7  |
| Open Earth Systems                              | 8  |
| 5 <sup>th</sup> Annual AOS Days Seminar         | 9  |
| Announcements                                   | 9  |
| Hopkins Alumni in the Deep South                | 10 |
| Alumni Corner                                   | 11 |

## Upcoming Seminars

**Bromery Seminar Series** – 12:00 PM on Thursdays  
 Check our website for any changes <http://eps.jhu.edu>

- September 16 - Moritz Heimpel
- September 26 – Elizabeth Cottrell
- October 3 – Anne Thompson
- October 10 – Frank Brown
- October 17 – Tim Hall
- October 24 – Kirsten Koehler
- October 31 – Nitish Dogra
- November 7 – Dusty Schroeder
- November 14 – TBA
- November 21 – Laurence Yeung
- December 5 – Linda Hinnov



## Professor Randolph W. (Bill) Bromery 18 January 1926- 27 February 2013

The Department was saddened to learn of the loss of Bill Bromery who has long been a supporter of the Department and the University itself in serving as a Trustee for many years; for his distinguished service was awarded an honorary degree of Humane Letters. He also earned his Ph.D. in our Department in 1968, having obtained his B.S. (math & physics, 1954) and M.S. (geology, 1962) degrees at, respectively Howard University and American University. His graduate work here was in geophysics under Ernst Cloos who, although well known as a structural geologist, Ernst had wide ranging interests, like Bill himself. Before coming here Bill had been working for some

time for the U.S.G.S. in aeromagnetic surveys where he flourished at the technical details of carrying out the surveys, the quantitative reduction of the data, and the geologic interpretation of the data. This unusual capability reflected Bill's skill and propensity for mathematics, physics, and geology. He was from his earliest days a truly curious man and a scholar. He was born in Cumberland, Maryland where his father was a hotel maitre'd. He was fond of telling the story about living on the better side of the tracks but, being a black lad, had to go each morning to the other side of the tracks to attend school and on his way he would meet some of his white pals who lived on the lower side of the tracks having to hike to the other side of the tracks to go to their school. After high school and a short stint as a machinist he joined the Army Air Corps and, upon recognizing his athleticism and great skills in math, he was made a Tuskegee Airmen where he served with distinction in the European Theatre. It is this training along with his interests in nature and science that took him to the U.S.G.S where he carried out aeromagnetic surveys all over the country including classic studies of the Gettysburg area and Moosehead Lake, Maine. Early on, while working on a survey in Oklahoma, upon checking in at a motel the proprietor pointed to him and said to Bill's boss: "He can't stay here." And the boss said: "He's okay, he's an Egyptian." And the motel man said: "Oh, Okay." Needless to say, Bill served with civility and incredible distinction at whatever he did. He authored over 100 papers and was on boards at Exxon, John Hancock, and several Universities. He was Chancellor of the University of Massachusetts at Amherst (1971-1979) and he also served as president of Roxbury Community College, president of Springfield College, and interim president of Westfield State College. He received many awards and accolades for his dedicated, insightful service. While attending board meetings here at Hopkins he would commonly come to the Department and visit up and down the halls. He graciously endowed the Department to sustain our weekly seminar series – the Bromery Lecture Series— which is absolutely critical to our intellectual well-being, and also set up a graduate student fellowship for minorities. Anyone who ever met Bill Bromery came away struck by one basic characteristic of him – he was simply a good guy to be around: smart, affable, and kind.



## Passing of Theodore Poole



On January 17, 2013, Theodore Poole, the longtime caretaker of Camp Singewald passed away. We are saddened and greatly appreciative of all the years of service he and his family provided in keeping the camp clean and updated.

## Thank You to Our Donors

We are indebted to the following alumnae, alumni, friends, and organizations for contributing to the Department from January 1 to June 30, 2013.

Mr. Michael A. Aurelia, III  
 Ms. Natalie Bray  
 James Gerald Brophy, Ph.D.  
 Dr. Edward H. M. Chown  
 Chevron Corporation  
 H. Edward Clifton, Ph.D.  
 Conoco Phillips  
 Mr. Michael Alexander Cormack  
 Ms. Jennifer Drake  
 Exxon Mobil Foundation  
 John H. Fournelle, Ph.D.

Ms. Yuchao Gao  
 Peter A. Geiser, Ph.D.  
 Stanley C. Harrison, Ph.D.  
 Peter J. Heaney, Ph.D.  
 B. Carter Hearn, Jr., Ph.D.  
 Dr. J. Stephen Huebner &  
 Mrs. Emily Zug Huebner  
 Blair F. Jones, Ph.D.  
 William R. Kaiser, Ph.D.  
 Dr. Lynton S. Land  
 Donald H. Lindsley, Ph.D.

Stephen M. McDuffie, Ph.D.  
 Mr. Richard Mercer  
 Mr. Athol E. Meder  
 Philip Andrew Molling, Ph.D.  
 Richard B. Palmer, Ph.D.  
 Richard A. Sheppard, Ph.D.  
 Mr. Harvey Matson Smith  
 Ms. Stephanie M. Spetka  
 David A. Vanko, Ph.D.  
 Mr. Edward J. Wall  
 Mr. Tyler A. Woods

*Please accept our apologies if we missed your name on the above list. If you will let us know, we would be most grateful, and will make sure we acknowledge your gift in the next newsletter. Your gifts mean more to us than you may realize. We are a small department. We remember all of our alumni and we are heartened to see that, through your gifts, you still support and are interested in the Department and its scholarly activities. Some of the things your gifts allow us to do are: admit more graduate students, pay for student summer field and laboratory work, and maintain Singewald Field Camp and purchase equipment, teaching and research materials that are not covered by the department's operating budget. Your generous gifts make a significant difference to the Department of Earth & Planetary Sciences and we thank you.*

## Congratulations to Our Graduates

The Department had four students graduate from our Ph.D. program: **Scott Guzewich, Rebecca Kraft, Namhey Lee, and Lynnae Quick**. In addition, Master's Degrees were awarded to **Hamada Badr, Fisseha Berhane, Mollie Celnick, Huanting Hu, Haoyuan Ji, Sophie Lehmann, Alexandria Russell, Saleh Satti and Tiffany Smith**. The Department awarded Bachelor's Degrees to the following students: E&PS Majors **Natalie Bray, Edward Brooks, Yuchao (Chloe) Gao, Andrew Giannascoli, Benjamin Hirsh, Amy Klivans, Nicholas Lybarger, Mary Maldarelli, Aaron Schwartz and Matthew Sykes**; and GECS majors **Tae Jung Kim, Harley King, Cosette Larash, Kelsey Maloney, Julia Nick, Ian Osborne, Diane Simunek and Tyler Woods**. We would like to extend our congratulations to all of you.

## Thesis Presentations

Three E&PS undergraduates completed senior theses on April 30, 2013. The theses included: Yuchao (Chloe) Gao, Climate Variability and Air Mass Trajectories in Africa (Advisor: Darryn Waugh); Amy Klivans, Pyroxenes in the Palisades Sill: Chemical Analysis and Textures (Advisor: David Veblen); and Matt Sykes, Effects of Heat Stresses on Equilibrium  $\Delta 47$  of Calcium Carbonate (Advisor: Ben Passey).



Back: From Left to Right: Naomi Levin, Ben Passey, Matthew Sykes, Darryn Waugh and David Veblen  
 Front: Chloe Gao and Amy Klivans

On August 2, 2013, Jerry Burgess presented his thesis entitled "Geologic and Edaphic Controls on Serpentine Vegetation Dynamics". Using field measurements and laboratory experiments, Jerry examined the interaction of parent material, soils and woody plants in these unique ecosystems. Greenhouse experiments showed that xeric oaks are uniquely adapted to the dry, nutrient poor serpentinite substrates. However, in the absence of disturbances, such as fires and grazing, the vegetation is changing. Historical record, tree ring data, and the chronosequence approach indicate that these unique ecosystems are being colonized by common deciduous trees leading to their ultimate disappearance from the landscape.

The PhD is the latest in Jerry's impressive collection of higher education degrees. He already has two MSc Degrees (one in Geology and one in Environmental Science and Policy), and another Master's in Education. Currently Jerry is head of the science department at a local high school.



From Left to Right: Kathy Szlavec, Jerry Burgess and Christopher Swan

## In The News



Naomi Levin

### Naomi Levin Awarded the GSA Donath Medal

Naomi earned the Young Scientist Award (Donath Medal) for outstanding achievement in contributing to geologic knowledge through original research.

To read more go to:  
<http://www.geosociety.org/news/pr/13-44.htm> and  
<http://www.geosociety.org/awards/index.htm#donath>



## Postdoc Awarded Doornbos Memorial Prize



Renaud Deguen

Deguen, a postdoc in E&PS, was awarded the 2012 Doornbos Memorial Prize at the 13th Symposium of SEDI in July in recognition of outstanding work on the Earth's deep interior. The prize is awarded to a young scientist by the Committee on Studies of the Earth's Deep Interior, in association with their biennial meetings. It is given in honor of the Dutch seismologist, Durk Doornbos. Congratulations!

## All Hands on Deck

"All Hands on Deck: Researchers join forces to probe climate change," an article written by Mat Edelson. The Department of Earth and Planetary Sciences is capitalizing on its regional expertise to create an academic beachhead. It hosted a two-day conference in November, *Climate Dynamics of Tropical Africa: Present Understanding and Future Direction*, which delved into the global and regional drivers of African climate and potential future collaborations.

To read more go to:  
<http://krieger.jhu.edu/magazine/v10n2/clued-in/>



From Left to Right: Naomi Levin, Anand Gnanadesikan, Darryn Waugh and Ben Zaitchik

## The Ozone Hole and Changes in the Ventilation of the Southern Oceans



Darryn Waugh

Darryn Waugh and collaborators analyzed measurements of chlorofluorocarbon-12 (CFC-12) made in the southern oceans in the early 1990s and mid-2000s and found large-scale coherent changes in the meantime ("age") for ocean ventilation (transport of surface waters into the interior ocean). Over this period there was a decrease in age of subtropical waters but an increase in age of upwelling sub-polar waters. The inferred age changes are consistent with the observed intensification of surface westerly winds, which have occurred primarily because of the formation of the Antarctic ozone hole. An increase in age of sub-polar waters is also consistent with an increase in upwelling of carbon-rich deep waters and slow-down in the rate carbon dioxide is removed from the atmosphere by the southern oceans. This suggests a possible connection between stratospheric ozone depletion and the rate of climate change.

## In The News – Continued

### Graduate Student Wins Both Video Award and Poster Competition



Stephen Jeffress

EPS Graduate student Stephen Jeffress has recently won two awards for the development of a mathematical framework that relates correlation functions and fluid transport equations.

To read more go to: Judges Choice Award in the 2013 NSF Video and Poster Competition  
<http://posterhall.org/igert2013/posters/381>

Best Student Paper in the 19th AMS Conference on Atmospheric and Fluid Dynamics  
<https://ams.confex.com/ams/19Fluid17Middle/webprogram/Paper226409.html>

### 2013 Ph.D. Innovation Initiative

A 2013 Ph.D. Innovation Initiative Award was awarded to the Department create a broad and flexible interdivisional Ph.D. concentration/certificate program, tentatively entitled “Sustainability and Health,” with faculty from the Schools of Public Health, Arts & Sciences, Engineering, and Business.

To read more go to: <http://web.jhu.edu/administration/provost/initiatives/pii/index.html>

### E&PS on the Move

In addition to the traditional weekend at Camp Singewald, the graduate students added additional trips as part of their activities. Over the past year they have spent their time driving to Assateague State Park for some surf, sunbathing and site seeing, where they saw wild horses. One spring day students and faculty collected shark teeth fossils at Calvert Cliffs. Just recently they visited Mineral Hill and hiked around Patapsco Valley State Park. Stay tuned to see where we end up on our next adventures.



## E&PS Photo Contest

This past year we held our first departmental photo contest that focused on several categories within E&PS. We had over 80 submissions and chose the top 5 photos.

**1<sup>st</sup> Place – Lei Wang**  
**An Unexpected Cold Front**



**2<sup>nd</sup> Place – Kial Stewart**  
**The March of the Emperor**



**3<sup>rd</sup> Place - Fang Huang**  
**Meili Snow Mountain**



**4<sup>th</sup> Place – Jenna Fleck**  
**Svartifoss in Iceland**



**5<sup>th</sup> Place – Brandon Harrison**  
**Frozen Trolls**



## Environmental Field Methods

Katalin Szlavecz and Naomi Levin taught a new course in Environmental Field Methods in Spring 2013. The course introduced students to the broad range of ecological, geochemical and sedimentological field methods associated with studying surface and sub-surface environments. The class consisted of weekly field excursions to different points along the riparian ecosystem of Stony Run, both adjacent to the Homewood Campus and to the north, including on the grounds of the Evergreen Museum. The students in the class included both E&PS and GECS majors.



Katalin Szlavecz guides students through the protocols of an earthworm survey lab on the grounds of the Evergreen Museum



GECS student Martin Wong gets help identifying earthworms that he recovered during his survey



Students measure soil CO2 fluxes to calculate respiration rates in the soils along San Martin Drive

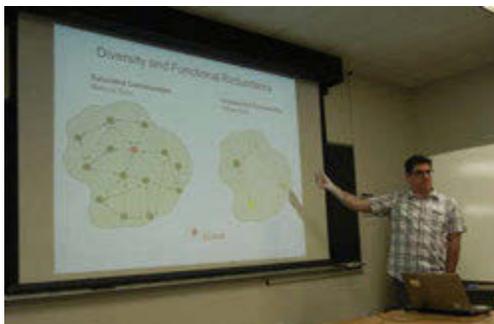


Field methods students retrieving the semester-long leaf decomposition experiments in East Stony Run on the grounds of the Evergreen Museum

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## Summer Workshops

### Global Urban Soil Ecology and Education Network



Mitch Pavao-Zuckerman from University of Arizona

On July 26, 2013 E&PS hosted a workshop entitled “Global Urban Soil Ecology and Education Network.” Kathy Szlavecz received an NSF grant to conduct a “proof of concept” study for comparing soil biodiversity and soil processes across urban ecosystems at local, regional and global scales. The work will focus on developing protocols that are simple to adopt across many habitat types and soil conditions in urban areas across the world. Soil scientists from the US Forest Service, several US universities, Finland and Hungary gave talks and discussed issues on experimental protocols, environmental monitoring, and data management for such a network.

## Summer Workshops – Continued

### Open Earth Systems: An Earth Science Course for Maryland Teacher Professional Development

Maryland teachers working in Olin 246 on laboratory exercises during the Open Earth Systems summer course for Teacher Continued Professional Development, June-July 2013 which was funded through the National Science Foundation's Frontiers in Earth System Dynamics Project.



From Left to Right: Saki Olsen and Grace Kim

Course participants received 45 hours of lectures and supervised training in online Earth Science instructional resources, laboratory methods, and field studies. Participants built their own K-12 lesson plans, emphasizing interactive student learning in the areas of the Global Climate System, Natural Disasters, Earth History and the Fossil Record, and Plate Tectonics and the Rock Cycle. Teacher lesson plan development was supervised by David Nelson, our colleague at Baltimore Polytechnic Institute and the Hopkins School of Education.



Participants from local city and county public schools



Participants from local city and county public schools



From Left to Right: Peter Olson and Anand Gnanadesikan

Open Earth System researchers conducting the lectures, laboratory exercises, and discussions included Peter Olson, Linda Hinnov, Anand Gnanadesikan, Raj Goswami, and Saki Olsen.

We were very pleased with the response of the participants and look forward to hosting other summer workshops in the coming years.

## Summer Workshops – Continued

### The 5th Annual Atmosphere–Ocean Science (AOS) Days seminar

The 5<sup>th</sup> annual Atmosphere–Ocean Science (AOS) Days seminar was hosted by our Department during 6-7 June 2013 and organized by Amin Dezfuli, PIM postdoctoral fellow. The AOS Days is a two-day conference for young Atmosphere–Ocean Scientists, hosted each year by a different institution in the Northeast and Mid-Atlantic region. The conference is organized by and for graduate students and postdoctoral researchers with the aim of fostering a community of future AOS researchers in the region. Previous conferences have been held at the NYU, University of Maryland, MIT and Princeton University. A diverse group of participants from over 10 different universities presented their recent research results in both oral and poster sessions. Professor Anand Gnanadesikan gave the keynote talk of the meeting on “The Southern Ocean in the Earth System”.

## Announcements

### AGU Meeting December, 2013

The Department will be hosting the annual Alumni Reception at the AGU meeting in San Francisco. Please stop by and join us if you are attending AGU this year.

Wednesday, December 11, 2013 from 7:00 – 10:00 pm

Hotel Intercontinental San Francisco

888 Howard St, San Francisco, CA 94103

Sutter Room, 5<sup>th</sup> Floor

Invitations have been mailed.

If you would like to attend please contact Kristen Gaines @ [Kgaines@jhu.edu](mailto:Kgaines@jhu.edu).

We hope to see you there!

### LinkedIn

As an additional networking tool, the Department recently created a group on LinkedIn.

Please visit and join our LinkedIn site to get instant updates and share news.

You can find our page by searching The Morton K. Blaustein Department of Earth & Planetary Sciences at Johns Hopkins University.

## Hopkins Alumni in the Deep South: Antarctica

Last January the JHU Alumni Association under the skillful direction of Marguerite Ingalls-Jones organized a trip to Antarctica and asked Bruce Marsh to go along as a faculty lecturer. Although Bruce had spent the better part of the past twenty years working in the McMurdo Dry Valleys of East Antarctica, he had never been to the South American side and he was particularly interested in seeing this part of the continent. He also relished the opportunity to see Terra del Fuego and the infamous Drake Passage and to be able to have his wife Judy Marsh along.

The trip itself left from Ushuaia, Argentina on the Beagle Passage aboard an exquisite new 450 foot French ship L'Austral with 130 crew and 190 passengers all from various universities and their respective alumni organizations.

The twelve-day course followed nearly the exact route taken by Roald Amundsen and Frederick Cook in the late 19th century on the Belgica Expedition, which was also exceedingly interesting. The outbound cruise found the Drake Passage flat and passive and over a day's time was saved, which was added to the time available in Antarctica.

The overall daily activities began with a lecture either from a university professor or from the onboard naturalists, which without exception were excellent, followed by morning and afternoon excursions via zodiac boats to various islands and the continent itself.

The weather was spotless, the seas accommodating, and the wildlife, in the form of whales and countless penguins, overly abundant. But best of all, for Bruce, was the geology and the general lay of the land. Deception volcano, which was last active in the 1980's, was visited with a long hike to see lavas and ash flows.



Much excellent background information on the geology and history of exploration was furnished to Bruce by Gille Allard (E&PS Ph.D.) who over the past twenty years has guided many such tours himself. The return trip across the Drake Passage made up, many times over, for the downward trip with 90 mph winds and 60 foot seas and, even though the ship had the most modern of stabilizers, it was quite an exciting time for ten or twelve hours. This capped off the trip in the best possible way with Drake seas similar to the historic tales of life threatening voyages by Magellan and Drake himself. Everything about the cruise was superb: the ship accommodations, the food, the tours, the naturalists, and especially the Hopkins alumni—Jay Samstag (Chicago), Rob and Sara Coe (Long Island), and Denny and Gail Scharf (San Jose).

From Left to Right: Bruce Marsh, Jay Samstag, Judy Marsh, Sara Coe, Denny Scharf, Gail Scharf and Rob Coe.

## Alumni Corner

If you have something you would like to share in the next edition, please provide us information by email to [ktrent2@jhu.edu](mailto:ktrent2@jhu.edu). We look forward to hearing from you.



Randolph W. "Bill" and Cecile T. Bromery established the Bromery Fund for Minorities with the GSA Foundation in 1999. This award was setup to provide support for the Randolph W. "Bill" and Cecile T. Bromery Award for the Minorities."

The award is awarded to any minority, preferably African Americans, "who have made significant contributions to research in the geological sciences, or those who have been instrumental in opening the geoscience field to other minorities.

This year's award recipient was Reginal W. Spiller from Azimuth Energy LLC.

For more information about the award go to: <http://www.gsafweb.org/CurrentEvents/bromeryfund.html>

For more information on past recipients, please go to: <http://www.geosociety.org/awards/past.htm#bromery>



### Norm Herz – PhD. 1950

We sadly learned we lost one of our alumni/colleagues on May 27, 2013 in Athens, GA. May he rest in peace.

To read Norm's bio sketch go to:

<http://what-when-how.com/earth-scientists/herz-norman-earth-scientist/>

To read his obituary:

<http://www.legacy.com/obituaries/onlineathens/obituary.aspx?n=norman-herz&pid=165139060#fbLoggedOut>



### Harry Fielding Reid – 1880, 1882 PhD.

Discovered and proudly named the Johns Hopkins Glacier in Alaska Glacier Bay.

To read more go to: <http://alumni.jhu.edu/jhglacier>

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