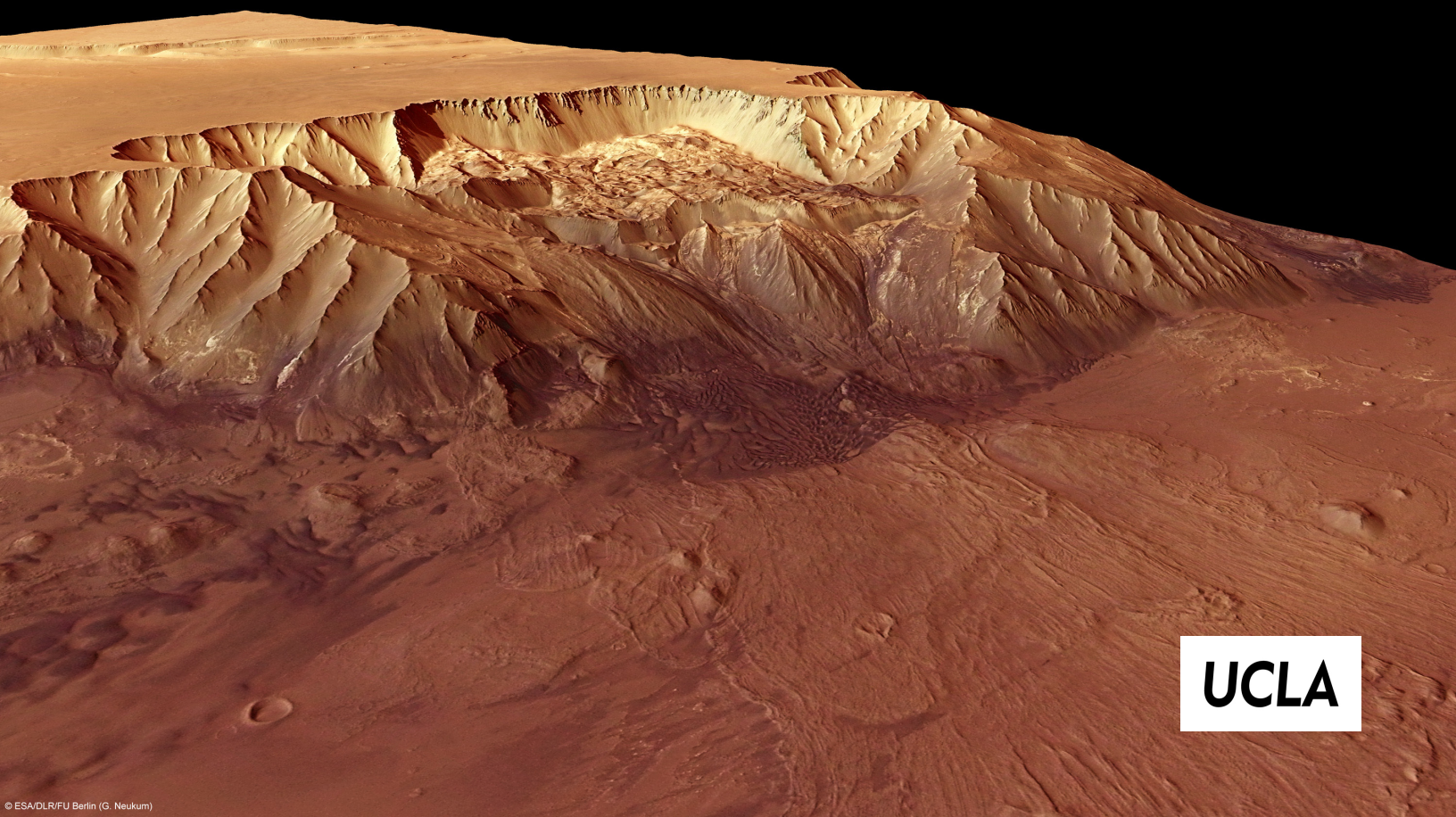


2013 Newsletter

Planetary

EARTH AND SPACE SCIENCES



UCLA

Greetings from the Chair

It's been another event-filled year for the Department of Earth and Space Sciences, and in fact, the last year of any kind for ESS. Starting January 1, 2014, we will add the term "planetary" to our name, officially becoming the Department of Earth, Planetary, and Space Sciences. Although we of course recognize Earth as a planet (in fact, the best planet!), we feel that our new appellation better acknowledges the broad scope of our educational and research programs that extend from the Sun through the rocky components of the inner solar system, the gaseous giants and their intriguing moons, to the dust and ices of the Kuiper belt (and encompassing the particles and fields "occupying" the vast distances of interplanetary space). We are having some trouble designing a logo that will be a fitting and memorable symbol to capture the breadth and dynamic spirit of EPSS. If you have any iconic inspirations, please consider sharing them with us; it would be wonderful to showcase the artistic design talents of our alumni!



We are very excited to be welcoming three new faculty members in the next year: geophysicist/seismologist Lingsen Meng who arrives in a few weeks, space plasma physicist Marco Velli (next July), and biogeochemical oceanographer Tina Treude (arriving next October). We are also happy (for her) but sad (for us) to announce the retirement of long-time ESS human resources manager, Lynne Engstrom. Finally, we note with sadness the passing of Professor Vladimir Keilis-Borok at age 92. A celebration of his life is planned for early spring.

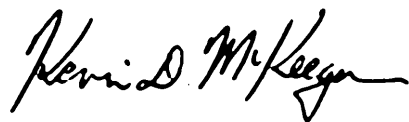
2013 witnessed more accolades for ESS faculty and students. An Yin was elected Fellow of the American Geophysical Union and Abby Kavner and Axel Schmitt were similarly honored by the Mineralogical Society of America. David Paige was given NASA's Exceptional Scientific Achievement medal for his "Breakthrough discoveries in the thermal stability of volatiles on the Moon and Mercury" and Jonathan Mitchell garnered the AGU's Ronald Greeley Early Career Award. Somewhat less-than-early career awards (sorry!) were given to Bill Schopf (the Charles Doolittle Walcott Medal, U.S. National Academy) and Mark Harrison (Einstein Professorship, Chinese Academy of Sciences). Graduate student Christopher Snead was honored by UCLA's Academic Senate with a distinguished teaching award in a ceremony held at the Chancellor's residence.

We welcomed mapping-legend and three degree man Mike Murphy (B.S. '93; M.S. '97; Ph.D. 2000) and many alumni and friends back to campus for the 2013 Alumni Lecture, "Mapping the Roof of the World: How UCLA Scientists Have Shaped our View of the Earth's Largest Mountain Range". The lecture was preceded by an open house, a tradition that we intend to continue.

One highlight of the Geology Building is our new and improving meteorite gallery. The UCLA meteorite collection and our department benefited this year from extraordinary gifts by Arlene and Ted Schlazer. In addition to donating >60 beautiful specimens from their exceptional meteorite collection, the Schlazers have honored us with a bequest that will endow a faculty chair – the Schlazer Professorship in Cosmochemistry and Meteorite Research. This >\$3M gift represents the first fully endowed Chair in our department, complementing the Leon and Joanne Knopoff Term Chair in Physics and Geophysics, soon to be occupied by Professor Meng. A grand opening of the UCLA meteorite gallery and acknowledgement of the Schlazer's generosity is planned for early next year.

We are pleased to note that some amount of financial stability has returned to California and to the UC. Although the downward spiral has been arrested, there are still many needs, especially those that were deferred during the economic crisis. A good example is our field vehicles – crucial infrastructure for the "off the beaten path" education of our undergraduates. With your generous support via the Alumni Fund, we will soon retire one vehicle but we would dearly love to replace the others as well. Please know that all gifts, no matter the size, are important for enabling us to continue our missions of educating talented and motivated students, and doing novel, cutting-edge research. If it is within your means to consider even a small gift this year, please do so. On behalf of all our faculty, staff, and students, I extend my sincere gratitude for your generosity and I hope to see you at one of our upcoming events or hear from you in the coming year! Happy Holidays!

With best wishes,



Kevin D. McKeegan

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Cover image: Large long-runout landslides in Valles Marineris on Mars. Graduate student Jessica Watkins is currently conducting research on these features. These images were taken by the HRSC instrument.

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Welcome

On January 1, 2014, **LINGSEN MENG** will begin his tenure as the first Knopoff Chair of geophysics. The endowed chair in the Department of Earth, Planetary, and Space Sciences is named after renowned physicist and former IGPP director, Leon Knopoff.

Meng joins EPSS after a Ph.D. at Caltech and a post-doctoral fellowship at UC Berkeley. He has developed novel numerical techniques to model large seismic array data to better understand earthquake source physics. In particular, he has developed advanced source imaging techniques to explain the physics of the 2010 Haiti earthquake and the recent large quakes in Japan and Sumatra.

Meng started his career in geophysics at China's Nanjing University which is already 2000 miles from his home city Liaoning, in the southern part of Manchuria. Meng explains why he moved so far away from home to go to college: "I wanted to go to a different part of the country from my home town which is subtropical. I wanted a different environment. I have always loved nature and Earth; I enjoy nature as well as studying science." Meng's parents are a probable influence on his decision to become a university professor. "My father is a professor who teaches electrical engineering. We both study signals. His are just at a much higher frequency; he makes radios and cell phones. Mom's an electrical engineer too."

Meng may love the nature available in China but he says that California is the best place for studying earthquakes. Meng's current research is focused on understanding the physics of large quakes and why they are so devastating. He is investigating the possibility of an early warning system that would be triggered by precursor waves. Justifiably, Meng sees himself as a 'public scientist'. His goal is giving people notice before a large quake and convincing them to prepare for the eventuality. Meng is quick to add that it's not easy to predict big quakes but the Los Angeles area is due for a 7.5 event within 30 years. He encourages us all to prepare.

Despite the inevitability of a big earthquake, Meng is enthusiastic about settling in Los Angeles. "It's one of the greatest places in the world," says Meng. "There is a diverse culture and I like the sunshine and climate. It's a good life here."



Faculty Updates

JONATHAN MITCHELL, who holds a joint appointment in Earth, Planetary, and Space Sciences and Atmospheric and Oceanic Sciences, was awarded the American Geophysical Union's (AGU) Ronald Greely Early Career Award in Planetary Science. As the name indicates, this award is given to individuals 'in recognition of significant early career contributions to planetary science.' His current research is focused on understanding surface-atmosphere interactions on Titan, superrotating atmospheres, tidal interactions of synchronous satellites, and Earth's paleoclimate.

J. WILLIAM SCHOPF, distinguished professor of paleobiology, is the recipient of the Charles Doolittle Walcott Medal. Schopf is being honored for his studies of the microscopic fossils that represent the earliest forms of life on Earth and for his generous and inspirational leadership of large, collaborative research groups. These "Precambrian Paleobiology Research Groups" brought together scientists from multiple disciplines and focused their efforts to yield new ideas and information. Their work has stimulated countless further studies of the earliest history of life on Earth. The Walcott Medal is presented every five years with a \$10,000 prize and recognizes contributions to research on Cambrian or Precambrian life.

DAVID PAIGE was awarded a NASA Exceptional Scientific Achievement Medal. This award is NASA's top scientific honor and is given to individuals "for exceptional scientific contributions . . . toward achievement of the NASA mission." Paige is honored for his "Breakthrough discoveries in the thermal stability of volatiles on the Moon and Mercury". Among other things, Paige discovered strong evidence for the presence of ice at the poles of Mercury. His research received much attention from the scientific community, including the January 18, 2013 cover of *Science*.

Around the Department...

Distinguished Alumni Lecture

This year, the EPSS distinguished alumni lecturer was Michael Murphy, B.S. 93'; M.S. 97'; Ph.D. 00'. His lecture entitled "Mapping the Roof of the World" detailed the exploits of his many years of field work in the region. The Himalayas are the highest mountain range on Earth and behind them lies the Tibetan plateau, the largest continental plateau. For the past quarter of a century, our department has led efforts at explaining this vast region and formulating concepts of its origin through a dedicated field program. Many of Mike's classmates returned to campus to hear the lecture and enjoy the improvements on the third floor of Geology, including the renovated Meteorite Gallery. The lecture is available at <http://www2.oid.ucla.edu/Webcast/ess-colloquium/earth-space-sciences-colloquium>



Professors Kevin McKeegan (l) and An Yin (r) with Prof. Mike Murphy and his wife, Beth A. Carter, M.D., at this year's Distinguished Alumni Lecture honoring "Murph".



Mike Murphy reunites with former classmates and Professors An Yin and Mark Harrison.

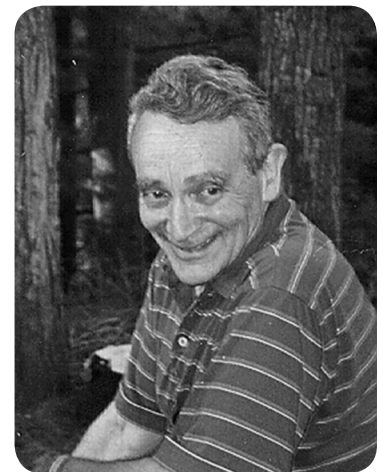
In Memoriam: Vladimir Keilis-Borok

It is with great sadness that the department notes the passing of Vladimir Keilis-Borok, 92, a renowned seismologist and mathematical geophysicist who, with his team, worked on a method to accurately predict earthquakes. He died Saturday, Oct. 19, in Culver City, Calif., after a long illness.

Keilis-Borok worked with other experts in pattern recognition, geodynamics, seismology, chaos theory, statistical physics and public safety to develop algorithms to detect precursory earthquake patterns. In June, 2003, the team predicted that an earthquake of magnitude 7 or higher would hit Japan in a region that included Hokkaido by Dec. 28, 2003. Approximately three months after their prediction, a magnitude 8.1 earthquake struck Hokkaido on Sept. 25, 2003.

Keilis-Borok, who received his Ph.D. in mathematical geophysics from the Academy of Sciences in Moscow, began his career at UCLA in 1998 as a Regents' Professor. He retired from the faculty in 2010. He was elected to membership in seven international academies of science, including American Academy of Arts and Sciences (1969), Austrian Academy of Sciences (1992), U.S. National Academy Sciences (1971), Pontifical Academy of Sciences (1994), Russian Academy of Sciences (1988), Academia Europaea (1999) and the Royal Astronomical Society (1989).

He was awarded the inaugural Lewis Fry Richardson Medal of the European Geophysical Society for his exceptional contributions to non-linear geophysics. He was the founding director of the International Institute of Earthquake Prediction Theory and Mathematical Geophysics. He also served as president of the International Union of Geodesy and Geophysics from 1987 to 1991.



Mindshare UCLA

In late 2012, UCLA's Division of Physical Sciences collaborated with the organization Mindshare LA to create a special "Mindshare UCLA" series of geoscience talks featuring faculty from our department. Professor Abby Kavner talked about "The Formation of Earth within Space and Time", Ed Young gave a talk on "From Past to Present, how Rare IS Earth?" and Jean-Luc Margot discussed "Astrobiology: Origin and Distribution of Life in the Universe." Dean Joe Rudnick also spoke at the event.

The "Mindshare UCLA" public outreach concept was suggested by faculty member Aradhna Tripathi and its inaugural event a resounding success! 300 people attended and live video was streamed online with 18,000 unique tune-ins and over 10,000 hits on social media.

The talks can be found on the Mindshare LA YouTube channel:
<http://www.youtube.com/user/MindshareTV?feature=watch>

Comments from attendees included:

"I love how the event bridged the world of academics with people of the professional working world. I didn't realize UCLA hosted events like these in the community, where the public attend for knowledge and faculty share their research."

"I also have always considered UCLA to be a forerunner in various types of scientific research. These speakers and the fact that UCLA would team up with Mindshare fits right in with my standing impression of UCLA."

Distinguished Teaching Assistant Award

Graduate student Christopher Snead was honored on October 15, 2013 in a ceremony held by UCLA's Academic Senate Committee on Teaching. Only five teaching assistants are selected each year for this prestigious teaching award, and Christopher is the first ever from the Earth, Planetary, and Space Sciences Department.



Scan the QR code to watch a video of Christopher discussing how he challenged his undergraduate students with activities such as building their own telescopes, visiting Griffith Observatory, and charting the phases of the Moon.



Christopher hunting for meteorites

Lynne Retires



On June 30, 2013, after 25 years of service, Lynne Engstrom left her post as ESS HR/academic personnel manager to spend time with her family and work on the long-term project of establishing a Japanese-style garden in the backyard of her Northridge home. Dozens of members of the department gathered in Slichter 3853 on June 11 to bid her farewell and thank her for her dedicated service. Current ESS chair Kevin McKeegan invited past chairs to speak about their years working with Lynne. Clarence Hall, Bruce Runnegar, David Jackson and Paul Davis all praised Lynne for her hard work and her ability to navigate delicate personnel matters. They also remarked on the importance of the red chair next to Lynne's desk where these delicate conversations often took place. Art Montana chimed in long-distance with remembrances of the great day that he hired Lynne "on the spot". Former ESS manager and assistant dean of physical sciences, Warren Thomas, remembered her impeccable files. It is only because of this impeccable file-keeping that the department is able to carry on after Lynne's departure!

more around the department...

Exploring Your Universe

Almost 5000 community members participated in EYU 2013, a scientific outreach event jointly organized by several south campus departments, including EPSS. Activities included lab demonstrations by EPSS faculty and lectures by faculty and researchers. Please visit the event website to see a full gallery of EYU 2013 photos, tinyurl.com/nmawggt



Poster Session

Abby Kavner's graduate class in geophysics culminated in a real poster session so that graduate students could not only recap what they learned but also practice presenting their material to a professional audience. EPSS' visitors from Imperial College also participated in the class and enjoyed the final project!




The Moos



The Moo family of Michigan organizes their summer vacations around trips to places where they can see pieces of the Canyon Diablo Meteorite. The UCLA Meteorite Gallery was an important destination as it has an impressive piece of Canyon Diablo that was given to UCLA by its famous benefactor William Andrews Clark. Having seen what is known locally as the Clark Meteorite or even the Big Meteorite, Joshua Moo, his wife, and three children are off next summer to visit the natural history museum in Paris which is home to another large chunk of the meteorite.

Raisin' Department Morale



Everyone knows that there's an instant remedy in Geology 3806 for whatever ails you. It's the chocolate-covered raisins that are generously and regularly provided by John Gardner, a long-time EPSS staff member. Faculty, staff, delivery people, facilities workers...everyone takes advantage of the delicious treats in the plastic M&M dispenser. Thank you, John! And thank you, Frank Kyte, for occasionally filling in with chocolate-covered peanut M&Ms.

Chris Russell's 70th birthday

A celebration of Professor Chris Russell's seventieth birthday was held on May 8-9, 2013 on the campus of UCLA. Organized by Bob Strangeway, the celebration gathered over a hundred colleagues and students from UCLA, former students and postdocs, and close friends made through decades of research collaboration. A good number of participants flew in from other parts of the country, and several guests made journeys from Canada, Mexico, Japan and Taiwan, to attend this special event.

The centerpiece of the celebration was a two-day Symposium held at Royce Hall on May 8 and Young Hall the following day. The Symposium began with welcoming remarks by Kevin McKeegan, chair of the ESS department, and Joseph Rudnick, dean of physical sciences, followed by scientific presentations, fond reminiscences of working with Chris, and testimonials of Chris's imprint on their career paths. The diversity of the scientific presentations reflected the breadth of Chris's intellectual interests and the legacy of his accomplishments as a scientist in both space physics and planetary science.

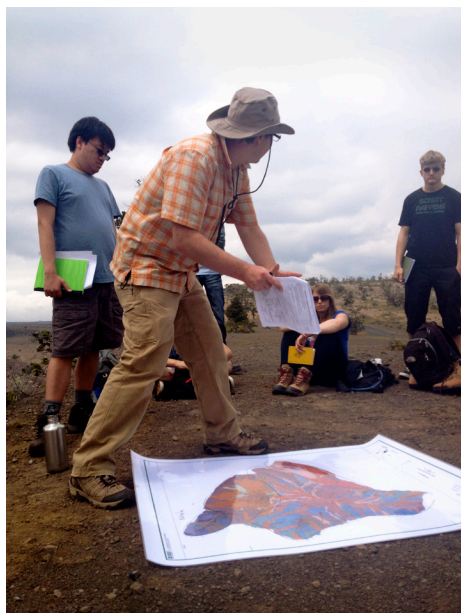
The Symposium provided an opportunity to revisit the traits of a prolific teacher and scientist through the people who have worked with him. The students and postdocs who passed through Chris's training reported a wide variety of lessons learned, ranging from cultivation of physics intuition, to research methodology, to problem solving skills, to personnel management. Several professors provided their insight into the number of Chris's publications which, to those outside the space science community, there may seem to have been inadvertently added an extra digit. With extensive analysis, Maha Ashour-Abdalla revealed a surprising yet statistically significant pattern in the first letter of the last name of Chris's co-authors, adding further enigma to this publishing phenomenon.



announcements Chris has been writing for the AGU Space Physics and Aeronomy (SPA) Section Newsletter since the 1990s, many of which confused and sometimes upset those with a lesser sense of humor. The song "You Raise Me Up," performed by the soprano Xiaoyan Zhou, a former postdoc of the Russell Group, propelled us to the highest point of the evening.

Chris continues to nurture new students, publish at an astonishing speed, and steer his Dawn spacecraft toward the next destination, Ceres, for new discoveries. The celebration provided a timely venue for a reunion of many who spent memorable years working with Chris on the sixth floor of the Slichter Hall. On behalf of all of Chris's former students, we sincerely thank Bob Strangeway for devoting months of preparation and putting this special event together, giving us an opportunity to express our appreciation to Chris. We gratefully acknowledge the ESS Department for the warm support, as well as Kathleen Micham, Emmanuel Masongsong, Marjorie Sowmendran, and many others for making the event possible. The event organizers have provided the Symposium presentations and a collection of Chris's non-academic essays for the space science community online at <http://www-ssc.igpp.ucla.edu/CTR70/Russell70>.

DR. PETER CHI AND DR. HANYING WEI



The time-honored “Glossary of Geology” lists eight entries which are derived from Hawaiian. Not bad for a language that, sadly, at one point had only as many speakers as UCLA’s student populace. Among these terms are Scrabble must-knows “aa” and “pahoehoe” (universally accepted terminology for “rubbly” and “smooth” lava flows). A less familiar word, but one of my personal favorites, is “Kipuka”: it describes an unscathed area surrounded by lava flows, often a remnant of old-growth rainforest. In other words, a Kipuka is the analog of a patch of natural habitat enclosed by freeway lanes, something Californians are all too familiar with. And this is why I believe that Hawaii is a destination well worth visiting not only for petrologists enamored with aa or pahoehoe: it is a place where geologic change occurs at a pace that we normally associate only with human activities. To experience this first-hand, and to learn how magmatic rocks are born, a group of 16 undergraduate students plus teaching assistant and instructor

boarded a plane from LAX to Hilo for a five-day field trip as part of the Igneous Petrology class of 2013, the first departmental undergraduate field trip to Hawaii in more than a decade. Our quarters in the “Kilauea Military Camp” were spartan, but at \$17/night unbeatably economic. The biggest plus of our accommodation, however, was that it was only a short stroll to view the glow of incandescent lava within Halema’uma’u crater, a reward that made coping with bunk beds easy. Any trip to Hawaii’s Big Island offers a cavalcade of geologic superlatives: we spelunked in the world’s largest lava tubes, hiked to the ocean entry of the ongoing East Rift lava outpouring, dipped rock picks into molten lava, took a dip on a green sand beach (forsteritic olivine galore!), and cruised along Saddle Road, indulging in the spectacular scenery of two sleeping volcanic giants, Mauna Loa and Mauna Kea. With students presenting their petrology study topics on location it became obvious that there is no better classroom than the outdoors, and no better way of experiencing the difference between aa and pahoehoe than attempting to walk on it. After a last (in fact, our only) Hawaiian feast at “Ken’s House of Pancakes”, everybody was sufficiently sedated for the red-eye flight back to Los Angeles. Although this meant replacing awe-inspiring vistas of barren lava flows and lush kipukas with those of tarmac and traffic islands for the rest of the quarter, we brought with us a lasting impression: Earth constantly changes, with and without humans involved. The 2013 Igneous Petrology class is very grateful to the department, its alumni, and many dedicated individuals who made this unique experience possible. **AXEL SCHMITT, professor**



Talk about interactive, hands-on learning! Over five days, we visited craters, lava tubes, hydrothermal vents and beaches. Nothing could top the 3-D, real-life example that went along with each student report. The most outstanding part of the trip, for me, however, was the lava hike. Trekking over a mosaic of altered basalt and poking lava made us more critically aware of the igneous processes at work. We witnessed the Big Island expand by a few cm as seawater quenched lava. Darcy, from University of Hawaii shared not only her expertise on volcanology but also insights on sociocultural implications of volcanic activities and the best poke (raw tuna salad) in town. I hope the next generations of 103A students get the chance to experience Hawaii as well. I would like to thank Axel, Winnie, Ms. Lynne Engstrom and everyone who made this trip possible! P.S. We will miss our pet pineapple, Wilson. **PAUL PEMPENA, student**



During our five-day stay on the island of Hawaii, we spent only a few hours at the beach. It was just the right amount of time, from the perspective of students excited about volcanism. The active lava flow was the highlight of the trip. We each experienced dipping our rock hammers into lava, marking our high temperature steel with a commemorative singe courtesy of the Hawaiian goddess Pele (1200° C molten rock). Hawaii, also known as the Big Island, has many other attractions of geologic – and petrologic – interest. On our second day on the island, we hiked into Kilauea Iki crater, which in 1959, was a lake of molten lava. On the southeast side of the crater floor is the remnant spatter cone into which we climbed and discussed the event that created it. On our third day, we visited the site of a massive flank collapse, where about 500 meters of relief was created catastrophically by gravitational (and possibly injected magma related) instability. On the fourth day, we drove from our lodging to the ranger station, which is about 3km (9800 feet) in elevation. The biota and temperature changes are impossible to miss, but we were most interested in a roughly analogous change in rock composition. On the road to Mauna Kea, at the visitor center, we climbed a cinder cone and found fantastic lava bombs with large, centimeter long plagioclase laths in them. The change from olivine basalt porphyry to more alkalic cinder cones occurs roughly in step with elevation change due to later stage volcanism as this part of the plate moves farther past the hotspot. The image I will never forget was also the hardest to capture on camera. This was the view from the crater rim at night, a short walk from our lodging at Kilauea military camp. The mixture of vaporized volatiles rising from the Halema'uma'u crater reflects the bright red lava below, and above, the fiery light grades into the cloudless Pacific night sky.

CHRIS MCGUIRE, teaching assistant



Axel brought along a great guidebook for our trip: Richard Hazlett's *Roadside Geology of Hawaii*. It took us to a few cool out-of-the-way places we likely would not have seen otherwise and occasionally included interesting stories about the areas we visited. On the second-to-last day of our trip, we made the trek around the island and up to Mauna Kea. We stopped at several places along the route to observe the cinder cones lining the flanks of the massive volcano and to check out the characteristics of the various lava flows along our journey. Hazlett's book told a particularly awesome story about one of these flows near Mauna Loa. Apparently in the 1930s this flow was bearing down the hillside with towns in its path, and Dr. Thomas Jagger (whom the National Park's Volcano observatory is named after) suggested dropping bombs into and around the lava to divert it. It ended up being great practice for the pilots, many of whom went on to fight in WWII, but was wholly unsuccessful in diverting the flow of the lava. Mauna Loa quieted down on its own some time later and the flows never reached far enough to do too much damage, which of course led Dr. Jagger to declare his method a success. His approach has not been used to deal with any subsequent flows on the island. **GENEVIEVE MCGUIRE, student**

Undergraduate Student Awards

STEVEN NORTON, Joseph Murdoch Scholar, (right) developed a deep appreciation for the outdoors and its natural beauty at a young age – something he attributes to frequent visits to Yellowstone, the Grand Tetons and Glacier National Park. An introductory course (ESS 1) and chats with academic counselor Lauri Holbrook convinced Norton that a career in Engineering Geology best suited his future. His participation in Summer Field 2012 proved that spending all day in the field was not an issue for Norton who says, “There is nothing like being surrounded by geology 24/7 and truly learning how to hone your skills as a geologist.” Norton currently works as a staff geologist for Grover-Hollingsworth and Associates, Inc. and hopes to become a licensed geologist as he continues to work in the field of engineering geology.



TOMAS CAPALDI, Walter S. Harris Scholar, (left) is an engineering geology major and southern California native. Growing up in a geologically diverse area initiated his interest in the field. Understanding the geologic processes by which it all happened always served as a source of intrigue. When it came to attend college, Capaldi says that he chose UCLA over other institutions because “the EPSS department had more rigorous and fundamental geology courses and is paired with more of a quantified science aspect with the few additional geotechnical engineering courses required.” He recalls summer field mapping Poleta Folds (Faults) as being a particularly significant experience, not only because of its educational value but also because the experience was shared with a group of wonderful peers. Next fall, he plans to attend a master’s program specializing in sedimentology with the goal of one day working in the industry.

As the grandson of a UCLA professor and the son of two alumni, **ANDREW PERRINE, Clem Nelson Scholar,** (not pictured) considers UCLA a family institution. His choice to pursue a degree in geology with a minor in geochemistry brings him even closer to his roots – his father is also a geologist and as an undergraduate worked with the late Clem Nelson. However, it was the encouragement of Professor Peter Bird, who noticed that Perrine excelled in EPSS 1F, which prompted him to pursue a formal education in geology. Perrine attributes his initial interest in the field to the many wonderful stories related to him by his father as they traversed the Eastern Sierra and the White Mountains. Perrine would later visit these places as a participant in a summer field course, an experience that he cites as being a favorite. For Perrine, who plans to pursue a Ph.D. in either geology or geochemistry in preparation for a career in research, summer field served as more than just another science class, “it was my time to honor the education that my family and my professors and TAs have all given me.”



SEAN AHDI, Clarence Hall Scholar, John and Frances Handin Scholar, (left) was attracted to UCLA because of the combination of academic prestige, amazing weather, and the fact that it is simply a nicer place to be than Berkeley. An unprecedented double-major in civil and environmental engineering and engineering geology, Ahdi credits his analytical tendencies and his father's civil engineering career as the reasons behind his choice of degrees. After becoming interested in geotechnical and earthquake engineering as specific focuses within the civil engineering major, Ahdi realized that the complement of the engineering geology major was crucial to understanding the settings in which geotechnical engineering problems occur. Ahdi served as president of CalGeo at UCLA, a geotechnical-engineering focused student group, with the intent of bridging the gap between students, faculty, and industry members in the geotechnical and geological engineering fields. He also participated as a member of the ESS undergraduate panel for the Academic Senate review board for the department and states that it was encouraging to hear that student experiences in ESS were overwhelmingly positive. Ahdi is currently pursuing M.S. and Ph.D. degrees in Geotechnical Civil Engineering at UCLA. In the future he hopes to overlap the fields of geotechnical engineering, engineering geology, and engineering geophysics/seismology and contribute to the combined fields as an engineering consultant, professor, or researcher.



The locality and diverse community of UCLA are what first drew **SHERRY MEYER, Deane Oberste-Lehn Scholar,** (left) to the school, but the friendliness and welcoming attitude of the EPSS faculty and staff are what kept her here. Her interest in the Earth sciences started early, influenced by frequent family vacations to national parks, state parks and national monuments. It was while participating in similar trips during her first few geology classes that Meyer realized that geology would be a good fit for her. She lists Professor Ingersoll's course on historical and regional geology (EPSS 133) where she visited the Grand Canyon and Zion as being a highlight of her time at UCLA. The experience brought together much of what the students had learned over the course of their education, says Meyer. Since graduation, Meyer spends her time working and volunteering while she applies to graduate schools for next year.

MARGO ODLUM, Deane Oberste-Lehn Scholar, (right) chose to attend UCLA for a variety reasons – the level of academic excellence, the location, and the football team. As a freshman, Odlum enrolled in EPSS 20 with Clarence Hall and fell in love not only with the field trips but with the field of geology as a whole. Four years later, that interest has not faded and Odlum, finishing up in December, has decided that graduate school is next on the list. She is currently filling out applications while continuing to work in the ion probe lab here in the department. Favorite memory of her undergraduate experience? “Summer field of course – nothing beats hanging out in the White Mountains with your best friends, cold beverages and a camp fire every night.” Odlum's plans for the future are easily summarized: “get a job that takes me all over the world looking at rocks.”



Commencement 2013



Awards

JOHN & FRANCES HANDIN SCHOLARSHIP

Presented to undergraduates for scholastic excellence, endowed by alumnus John W. Handin & his wife Frances

Sean Kamran Ahdi

JOSEPH MURDOCH SCHOLARSHIP

Presented to undergraduate students for scholastic excellence, preferably with majors in mineralogy and petrology

Steven A. Norton

DEANE OBERSTE-LEHN SCHOLARSHIP

Presented to undergraduate students for scholastic excellence, endowed by department alumna Deane Oberste-Lehn

Sherry Anne Meyer

Margaret Larkin Odium

WALTER S. HARRIS SUMMER FIELD AWARD

Presented to summer field students in honor of alumnus

Walter S. Harris

Tomas Neil Capaldi

Jonathan Lajcaj

CLARENCE A. HALL, JR. SUMMER FIELD AWARD

Presented to summer field students in honor of Professor Emeritus Clarence A. Hall, Jr.

Sean Kamran Ahdi

Austin John Chadwick

Elias Collins Karkabi

CLEM NELSON SUMMER FIELD AWARD

Presented to summer field students in honor of the late Professor Clem Nelson

William Elias Pepper

Andrew Richard Perrine

DEANE OBERSTE-LEHN SUMMER FIELD AWARD

Presented to summer field students in honor of alumna Deane Oberste-Lehn

Hannah Rose Cohen

Margaret Larkin Odium

Grace Alexandra Parker

Eleanor Catherine Robertson

Degrees

BACHELOR OF ARTS

Lindsay Marie Almaleh
Wendy Azucena Barrera
Kay Cadby
Mateo Gamino
Eun Jin Song

BACHELOR OF SCIENCE

Jacob Benjamin Adler
Sean Kamran Ahdi
Alyssa Natasha Anderson
Brian James Anderson
Miles Victor Bolkin
Caitlin Melissa Cartmell
Robert William Ebert
Eric Alexander Macleod
Sherry Anne Meyer
Dave Gerald Milewski
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Anne Elizabeth Strader
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*valedictorian



Gifts and

MAJOR GIFTS

UCLA is a leading force in Earth, space, and planetary sciences research and education. Your major gift commitment today will help the department maintain its leadership position by sustaining and encouraging the groundbreaking endeavors of outstanding faculty, students, and researchers. Your visionary philanthropy will also serve as an important source of inspiration to others, stimulating further financial sustainability for Earth, planetary, and space sciences at UCLA.

AREAS OF NEED

NAMED GRADUATE AWARDS & FELLOWSHIPS The quality of research and teaching is bolstered by the high caliber of graduate students the department is able to recruit. Faculty is also attracted to our department based on the exceptional reputation of our graduate students. More funds are needed to secure graduate student placements from among the best and brightest worldwide.

NAMED ENDOWMENT FOR SCIENTIFIC TECHNICAL STAFF Technical staff serve a vital role in EPSS educational and research work, through managing and maintaining lab equipment, developing new applications and analytical methods, and ensuring that research towards groundbreaking discoveries continues to move forward. Funding for technical staff has decreased in the past few years, and private support is critical to maintaining these important positions.

NAMED ENDOWED CHAIRS In order to maintain a competitive edge in the academic marketplace, EPSS needs endowed chairs to recruit and retain the highest caliber of faculty worldwide. Endowed chairs support research, teaching, and encourage innovation and risk-taking often not supported by federal grants.

NAMED FIELD VEHICLES To help continue our tradition of field experience, we are in need of three rugged, all-terrain vehicles to transport students, faculty, and equipment to remote sites for invaluable field research and educational opportunities.

NAMED ENDOWED PRIZE POSTDOCTORAL FELLOWSHIPS There is a need to attract top-notch post-doctoral researchers to EPSS. These prestigious placements help the department attract and retain high-quality scholars from all over the world as well as bring new academic perspectives to EPSS' exploratory and supportive department. Due to the lack of federal funding for these positions, there is a current critical need to fund post-doctoral geology researchers.

NAMED UNDERGRADUATE SCHOLARSHIPS The department aspires to matriculate more undergraduate students pursuing a degree in geology, geophysics, and our various minors. In order to achieve this goal, we need to offer better financial packages for talented undergraduates based on both need and merit. Undergraduate scholarships set us on the right course by inspiring young minds to pursue a career in Earth, planetary, and space sciences.

IMPACT

Post-doctoral fellows and scientific technical staff are at the heart of our research focus, which help us recruit and retain top-performing faculty worldwide. These distinguished scholars pave the way to major breakthroughs and important findings in every EPSS research area. The international acclaim they bring to the department also helps attract exceptional, inspired, and motivated graduate and undergraduate students, and helps continue our tradition of excellence.

HOW YOU CAN HELP

A named major gift commitment can be in the form of current use funds or an endowment. Current use naming gift opportunities begin at \$25,000 and an endowment may be established at UCLA for a minimum of \$100,000. Major gifts can be paid over a period of five years. We will work with you to discover payment options that can fit within your budget.

You may also consider honoring a loved one or faculty member through named endowments or other named opportunities.

If you are interested in supporting UCLA's Department of Earth, Planetary, and Space Sciences, and would like to learn more about any major gift opportunities, please contact:

Kerri Yoder, Sr. Director of Development for Physical Sciences (310) 794-9045 or kyoder@support.ucla.edu.

Giving

Your generosity will have a direct impact on the areas of highest priority in the department, and address pressing needs to support the vital work of students and faculty. Please consider a gift to the EPSS ALUMNI CHAIR'S DISCRETIONARY FUND. This general department fund allows us the flexibility to serve the current and greatest needs across the department and research program areas, including the following:

AREAS OF NEED

STUDENT SUPPORT & SCHOLARSHIPS Student support funds enable vital instructional enhancements for the classroom and field research. Scholarships further enable a superior education for talented, deserving students, and are awarded on the basis of financial need, academic merit, or a combination of both.

FACILITY IMPROVEMENT Needed facility improvements will help provide a collaborative environment for all of our students, faculty, and researchers.

UNDERGRADUATE LAB EQUIPMENT Quality equipment can last us for years to come, and enriches the classroom experience exponentially for our undergraduates.

ALUMNI & PUBLIC OUTREACH Through colloquia, public seminars, alumni outreach activities, commencement, and community outreach events, we share our research and passion with the public.

SUMMER FIELD RESEARCH Your support will allow students to put the principles and techniques they have learned into practice in the field, and will ensure that students continue to enjoy essential research experiences outside of the classroom.

Alumni Opportunities

EARTH, PLANETARY, AND SPACES SCIENCES COLLOQUIUM

EPSS hosts a large variety of weekly colloquia to which all alumni are invited. Our main departmental colloquium is held Thursdays at 4 p.m. but there are other talks throughout the week. Tuesday is Geocheminar; Wednesday: Tectonics and Seismology; Thursday: Planetary Lunch; Friday: iPLEX lunch and Space Physics Seminar. You can access a full calendar of these presentations on the EPSS website.

STAY IN TOUCH

We love to stay in touch with our alumni! Please keep the Earth, Planetary, and Space Sciences department up to date on your personal and professional information. Just send an email to Kathleen Micham, kmicham@ess.ucla.edu. We like to receive photos too!

As an alumnus, you are eligible for lifetime @ucla.edu email forwarding to an account of your choice. Please visit this website to learn more: <https://www.bol.ucla.edu/services/accounts/lifetime/>

IMPACT

The undergraduate and graduate experience in EPSS is central to fostering a life-long love of the Earth, planetary, and space sciences, and helps instill a sense of curiosity in the world around us. Support for the department's greatest needs through the EPSS Alumni Chair's Discretionary Fund is vital to maintaining a robust, innovative, and distinguished department. Your gift to the EPSS Alumni Chair's Discretionary Fund also qualifies you for participation in the UCLA Chancellor's Society program.

To learn more about this program, please visit: <http://www.uclafund.ucla.edu/getinvolved/chancellorsassociates>.

HOW YOU CAN HELP

Every gift has the potential to make a lasting impact on our students, faculty, and scientists. If you are interested in supporting UCLA's Department of Earth, Planetary, and Space Sciences, please visit the department's giving page at www.ess.ucla.edu/giving to learn more about annual gift opportunities and make your gift today.

ANNUAL GIFTS

METEORITE GALLERY

Now open to the public every weekday 9:00am to 4:00pm, the UCLA Meteorite Gallery on the third floor of the Geology Building underwent significant improvements this summer. The collection continues to grow as well. Thanks to a very generous donation of meteorite samples from the Schlazer family, the gallery now features beautiful back-lit pallasite samples. We would also like to thank the Utas Family for their recent meteorite donation. For more information about the gallery, visit the meteorites website: <http://www.meteorites.ucla.edu>.

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**Gifts to the Department of Earth and Space Sciences from January 1, 2012 to November 24, 2013. Gifts made after November 24th will be listed in the 2014 newsletter.*

Alumni Updates

Jacob Adler, B.S. '13 writes: I am currently in my first semester of graduate school at ASU. I am working for Professor Jim Bell at ASU's School of Earth and Space Exploration and am in the Geological Sciences PhD program with a concentration in Planetary Sciences. I'm interested in learning about the surface of Mars and remote sensing of other planets.

Sean Ahdi B.S. '13 is working on his master's degree in geotechnical engineering. He misses the great sense of community he enjoyed in ESS.

Rosaleen Gilmore, M.S. '13 is teaching statistics as an adjunct faculty at Gwynedd-Mercy College.

Catherine Macris, Ph.D. '13 writes: I am currently a postdoctoral scholar in geochemistry at Caltech. I am researching multi-component diffusion in high silica melts and oxygen isotope fractionation between olivine and basaltic melts.

Robin Reith, M.S. '13 writes: After graduating this June I took a month off to travel and then I started work with an oil and gas company down in Long Beach, CA. I interned twice during my summers at UCLA with this same company. My title is geologist and the company is Oxy Long Beach Inc., which is a part of Oxy Oil and Gas Company. I am really enjoying working and living in Long Beach.

Margo Odum B.S. '13 is working in Axel Schmitt's lab.

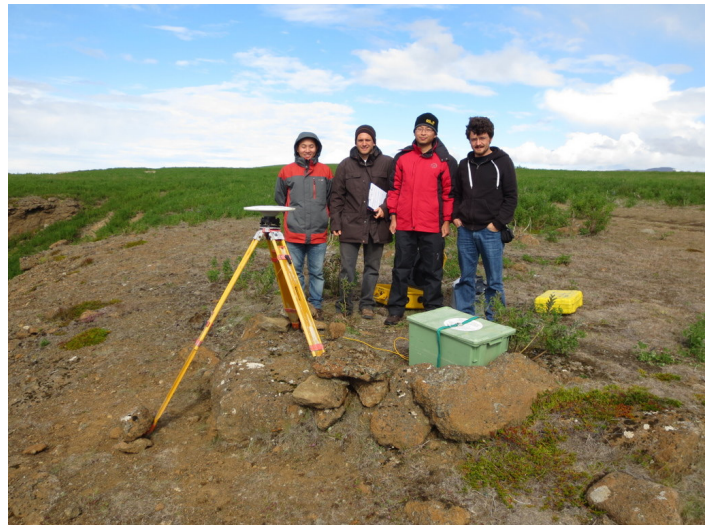
Eun Jin Song, B.A. '13 writes: I was interning at Hyperion Treatment Plant as a student chemist while I was at UCLA (March 2012 – June 2013). Based on this working experience, I am currently seeking a position related to environment protection such as laboratory technician or environmental consulting jobs. This time is a great opportunity for me to rest between graduation and working full-time while I am having interviews from various companies.



Dallon Stang M.S. '13 writes: After finishing my M.S. with Ray Ingersoll, I am now employed as a development geologist at Aera Energy in Bakersfield, CA. In my last year at UCLA I co-founded the Bruin Geological Survey (BGS), and enjoyed my tenure as inaugural President. With over 50 active undergrad, graduate and researcher members, we had field trips on foot, snowshoe and kayak in continental southern California and the Channel Islands. Any alumni interested in being involved with the BGS can email bgs.ucla@gmail.com. In my free time I still enjoy traveling and most recently spent a few weeks in Morocco.

Evan Wolf, M.S. '13 has been traveling and working as a researcher for his advisor since graduating. He is currently applying for Ph.D. programs.

Vanessa Brillo, B.S. '12 has moved to Santa Barbara to pursue her master's degree in Marine Science at UCSB. She is both anxious and excited for this next step in her education!



Jon Harrington, field work in North Iceland

Amanda D'Elia, B.S. '12 writes: Since graduating last year, I was accepted to the UC Davis Soils and Biogeochemistry Graduate Group. This fall I will begin pursuing my M.S. degree in soils and biogeochemistry. While at ESS I worked on isotope geochemistry research under Professor Edwin Schauble and at UC Davis I will continue to pursue isotope based research.

Jonathan Harrington, M.S. '12 has begun a PhD program in Earth Science and Engineering at the King Abdullah University of Science and Technology (KAUST) in Thuwal, Saudi Arabia. He recently took part in a GPS campaign in North Iceland with the Crustal Deformation and InSAR group (CDI) from KAUST.



Dallon Stang, Mt Whitney summit

Alumni Updates

Johanna Hoyt, M.S. '12 writes: since graduating, I started an internship with Aera Energy LLC in Bakersfield, CA. After a summer of working for the company, I was hired on as a full time petroleum geologist. These days I develop 3D reservoir characterization models and am currently organizing the annual fall geology field trip for Aera. Since moving to Bakersfield, I've been in the Sierra Nevada most weekends and have gone on many backpacking trips in the Sierra Nevada, Channel Islands, and British Columbia. I hope to continue trips to more exotic locations. Other than backpacking, backcountry snowboarding is a relatively new hobby. The winter sport season is approaching and I'm getting my gear ready!

Debbie Shay, B.S. '12 writes: I am now working towards my doctorate in physical therapy in San Diego. Although I have decided not to move forward

in geology, I love and miss all of the amazing experiences I had in ESS! Perhaps in the future I can contribute to geology by treating injured mappers and field geologists!

Dong Lee, B.S. '12 is attending UH as an MSc candidate for Geophysics.

Matthew Siegler, Ph.D. '11 writes: Things are going great for me lately. My wonderful wife, Rita Economos (who is a researcher in ESS looking at igneous petrology using the SIMS), and I just welcomed our first baby, Jackson Joseph Siegler, on Aug 22nd. The same week I was promoted to Staff Scientist at Jet Propulsion Lab (JPL) where I work. I will be working on studying the Moon and Mercury, as part of continued work with my (award winning) thesis advisor, Dave Paige, as well as starting several new projects, including work on the upcoming InSight mission to Mars.



Rita, Matt, and baby Jackson

Krista Soderlund, Ph.D. '11 writes: I am now a postdoctoral fellow at the University of Texas Institute for Geophysics where I work on planetary fluid dynamics and am involved with radar instrumentation for the exploration of icy satellites and terrestrial analogs. I also got married in April.

Jessica Kapp, Ph.D '03 is a senior lecturer and associate chair at the University of Arizona.

Paul Kapp, Ph.D '01 is a tenured professor at the University of Arizona.

Karen McBride, B.S. '85 has given a lot of talks in Europe about Mars exploration. She continues to do research on Mars exploration at UCLA.

Joe Polovina, M.S. '80 sends us a photo (see opposite page, top left) taken at Panum Crater (south of Mono Lake), looking west at the eastern Sierra Nevada. They were on a Long Valley-Mono Craters Region field trip for a group of Texas schoolteachers led by Mark Cloos and Steve Lipshie, both of whom are also alumni of the department.

John Oehler, Ph.D. '73 is happy to report that his second novel *Papyrus: A Thriller* is out and doing well – it even made the Amazon bestsellers in “technothrillers” in its first week. The story is set in 1983 in Egypt and Sudan and centers on a Rika Teferi, a young woman who formerly led midnight raids in Eritrea’s war for independence from Ethiopia



Johanna Hoyt, back-country ski-hut in the high Sierra



Joe Polovina M.S., Mark Cloos Ph.D., Steve Lipshie Ph.D.

and is now working on her doctorate in the Cairo museum. Kirkus Reviews writes, "Oehler delivers a fusion of mainstream thriller and historical fiction, reminiscent of *The Da Vinci Code*."

Dorothy Oehler, Ph.D. '73 continues to work at the Johnson Space Center as part of the Mars Curiosity Science Team. The Curiosity team does most of its work by telecon - every day - as they have members from all over North America, Europe, and Asia." As a result of that work, she was able to give an invited presentation in September to the annual

convention of the Society for Exploration Geophysicists in Houston. They have a special session each year called "Recent Advances and the Road Ahead." Dorothy writes "I joke sometimes and wonder if I should conclude that talk with a slide of Titan (a moon of Saturn that has lakes of methane and ethane) and mention that the "road ahead" may eventually mean a VERY long pipeline to Titan's source of natural gas!" She also continues work on early life with Chris House from Penn State University (also an ESS alumnus). The results of their col-

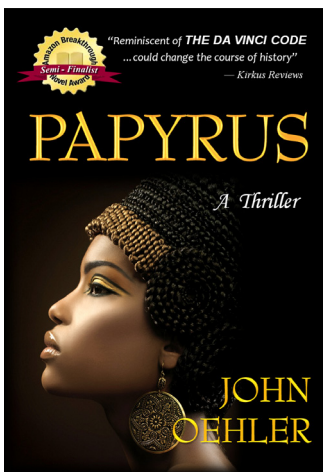
laborative work two years ago at UCLA on the SIMS instrument were recently published.

John Connor, B.S. '66 writes: I retired from teaching about six years ago. I think the Don Carlisle Undergraduate Research Fund is a great idea. My experience with Dr. Carlisle and the Quadra gang really changed my life. This past summer my wife and I spent two weeks traveling around Vancouver Island with a couple of days on Quadra. What a spectacular area! I can't believe NSF was willing to pay a 19 year-old to have that opportunity.

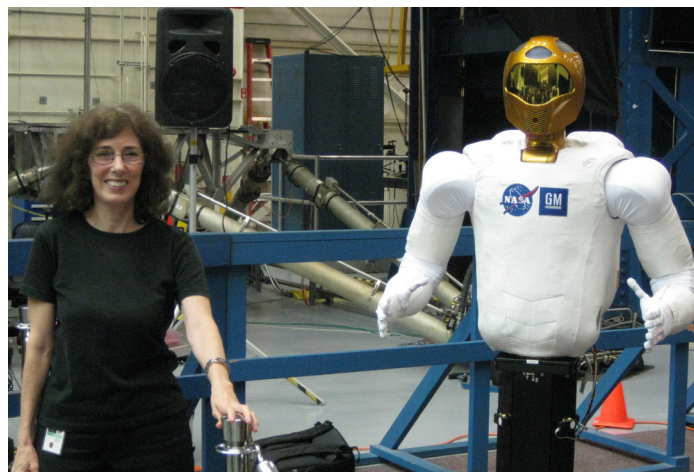
Shingi Kuniyoshi, B.S. '66 writes: I still live in Grand Terrace near San Bernardino. I have been well and enjoying retirement life. I read, attend lectures, do community service, and visit my family and friends. I went to UCLA yesterday to listen to scientific lectures. My oldest son lives in Hawaii and two sons live in the Bay area. I am going to the north for family Thanksgiving dinner.

ESS Alumnus Bob Hill, B.S. '68, MS '72, helps to establish the **Don Carlisle Undergraduate Research Fund**:

Bob Hill has such fond memories of his time working on Quadra Island with Professor Don Carlisle that he was eager to help current undergraduates participate in similar research projects. Bob set about contacting all of Don's former students to establish a special alumni fund for this purpose. His efforts have been very successful and EPSS will be able to fund undergraduate research as early as this summer. Bob explains how he came to the study of geology: "Sigurd Heiberg and I were students in UCLA's College of Engineering when Don selected us to work with him in British Columbia; Quadra Island was our base of operations. Earlier that year, I discovered the Geological Sciences across the quad from the College of Engineering, and began taking undergraduate courses in ESS. I believe I was taking a mineralogy course when Don entered the room seeking students interested in geological mapping in B.C. as part of an NSF Undergraduate Research Program. Don's brief appearance in that classroom changed my life forever." Thank you, Don, for that wonderful legacy and thank you, Bob, for your dedication to EPSS undergrads!



Front cover of *Papyrus*



Dorothy Oehler with Robonaut before he went to the International Space Station.

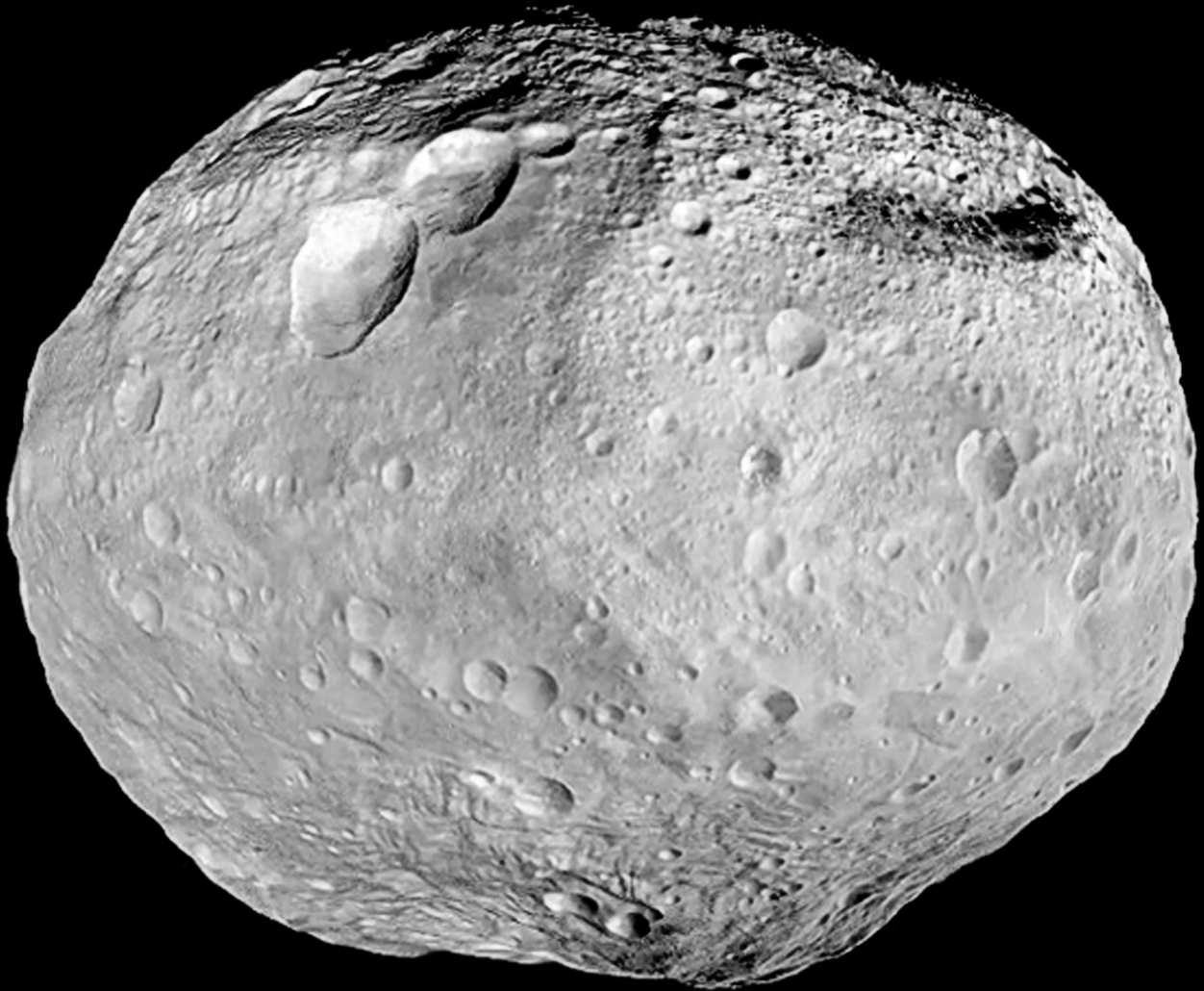
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Full view of Vesta (diameter of 525 km) from the departing Dawn spacecraft, a mission headed by EPSS faculty member Chris Russell. Vesta is the second most massive body in the asteroid belt, after dwarf planet Ceres, Dawn's next stop (scheduled to arrive spring 2015).

Image credit: NASA/JPL-Caltech/UCAL/MPS/DLR/IDA