



**ALUMNI UPDATE**  
FROM  
**DEPARTMENT OF EARTH  
AND PLANETARY SCIENCE**

**Annual Report  
2006 - 2007**

**University of California, Berkeley**

# 40-Year Reunion

*It's the 21st Century ....  
Time for a Reunion!!*

**Berkeley Earth & Planetary  
Science Department  
Classes of 1968 – 73**



*Save the Date: April 12-13th, 2008*

*April 12*  
**Cal Day - Department**  
• Hospitality "Suite"  
• Faculty Talks & Tours  
• Meet undergrads  
• Cocktails & Dinner  
• Guest Speaker  
    > Russ Graymer, USGS

*April 13*  
**Point Reyes Field Trip**  
• Classic Outcrops  
• Ocean views  
• Lunch  
• Maps will NOT be graded!

## **Reunion Committee**

- Paul Henshaw '69 (Chair)
- Jim Murray '68
- Joe MacIlwaine '69
- Peter Yen '69
- Julia Wenk '70
- Andrei Sarna-Wojcicki '71
- Alan Lattanner '72
- Robert Heming '73
- George Brimhall '69, '72 (Faculty)
- Doris Sloan '76, '81 (Faculty)

For more information visit website: <http://eps.berkeley.edu/> or email to [candphenshaw@comcast.net](mailto:candphenshaw@comcast.net)

See Alumni Activities, p. 7



Cover photo: Photomicrograph (crossed polars) of somewhat altered granite with zoned plagioclase (zoned grain bottom center), quartz (gray, white), biotite/chlorite (colored) and accessory muscovite (bright blue). The granite is the rock on right of this group in the new Rock Garden at the main entrance to our building. Photo by Don Bain. Photomicrograph by Tim Teague.

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John Verhoogen, 1974



Howel Williams and Peggy Gennaro, 1974



Ian Carmichael (right) and Chi Wang (2nd from left) with Chinese visitors, 1975

# THE STATE OF THE DEPARTMENT, 2006-2007

Dear Alumni and Friends,



*Putting the final touches on the map of the Bergell Alps*

This has been an eventful year: The Department is growing. The number of majors has doubled in three years with the convincing promotion activity by Catherine Pauling. In my introductory mineralogy course the last seat is taken and we are using the last available microscope. Similarly, many other courses are overbooked. We have an exciting bunch of undergraduates in an expanding number of tracks: geology, geophysics, environmental science, planetary science and atmospheric science. Undergraduates have organized a geology club again (The Geological Association at Berkeley), with meetings, field trips and an inspiring webpage (<http://geologicalassociation.com/>).

Also, the faculty is growing: Burkhard Militzer from the Geophysical Lab in Washington has accepted a position as Assistant Professor in planetary science. His specialty is the stability of minerals from first principles, with emphasis on hydrogen and helium pertinent to the outer planets. He fills an important gap that was left after Mark Bukowinski retired. Reknowned climate modeler Bill Collins was hired by LBL and at the same time is Professor in Residence in EPS. Simon Clark from the high pressure beamline at the Advanced Light Source joins us as Adjunct

Professor. With planetary science growing, we also have closer contact with meteoritics expert and alumnus Lars Borg (BA 1985) from LLNL, son of alumna Iris Borg (PhD 1954), who became an Associate Researcher. In the coming year we hope to add a young geochemist/petrologist whom we are currently recruiting. Chi Wang retired this spring but will continue to teach a section of our introductory course EPS 50. Don DePaolo has accepted the directorship of the Earth Science Division at LBL and thus will probably spend much of his time on The Hill. The Department continues its excellence in research, with students and faculty having published six papers in *Science* and *Nature*. Most exciting for us has been the award of the Nobel Peace Prize to Al Gore and the IPCC, with Bill Collins and Inez Fung actively involved in the IPCC project. As Rajendra Pachauri, the chair of the IPCC panel puts it: "All the scientists that have contributed to the work of the IPCC are the Nobel laureates..." Will our colleagues receive an NL parking space, the most visible award the Campus bestows? Research on climate change has become a new thrust of EPS.

This has also been a year of passage: In December 2006 Lionel Weiss passed away as he was returning from a trip to England. And in June Hal Helgeson died, two months after he had been diagnosed with cancer. He had been planning to take a freshmen class to Yosemite. There will be a memorial for Hal on November 16, 4-7 p.m. in the Faculty Club and alumni are invited. Obituary notes by Laurel Goodwin and Jeff Dick on pages 10 and 11 highlight some memories of these outstanding scientists.

Our MSO, Cathy Cooper, became ill in the summer of 2006 and could not return. We now have a new manager, Judith Coyote, who joins us from Arts and Humanities with the highest credentials. It will make life easier, particularly for staff and the chair. Thanks go to the staff. With their hard work they made a year without an MSO bearable, and for special mention, I would like to single out Micaelee Ellswythe. For the first time in my long career in Berkeley we now get travel reimbursements done in days, not months. Margie Winn organized an impressive graduation in the Pauley Ballroom, with Charles Petit, long-time science reporter for *The Chronicle* and now with *U.S. News and World Report*, giving a beautiful speech. For some time we have had a "rock garden" outside McCone Hall but until now this was merely a collection of anonymous boulders. Thanks to the efforts of Matt Cataleta, Doris Sloan and Tim Teague we will soon have a guide next to the entrance. Come and see it on your next visit to Berkeley.

The Campus is involved in the "leadership phase" of an emerging fundraising campaign as shown by two recent contributions, the first a \$500 million grant from BP to create an Energy Biosciences Institute at Cal, and the second, a \$113 million matching grant from the Hewlett Foundation to establish 100 endowed faculty chairs to assist us in recruiting and retaining the highest quality faculty and graduate students. We anticipate the

campus-wide fundraising campaign will “go public” in the fall of 2008. This campaign is vital to the future of our department and all of UC Berkeley. The goal is to ensure the dual goals of excellence and access that are UC Berkeley’s hallmark. In particular, the emphasis is on creating a strong endowment to remain competitive with our peer universities—the private elite universities—across the country. We are moving strongly in the right direction in building our endowment, but have a long way to go to catch up to several of our peer competitors. As of fiscal year 2006, the UC Berkeley endowment was \$2.46 billion. In contrast, MIT’s endowment was \$8.4 billion, Stanford’s \$14 billion and Harvard’s endowment was \$30 billion. We will seek advice from a Visiting Committee that we are establishing shortly.

Increasingly we have to become involved in this fundraising effort. A new initiative to promote giving was launched by the Chancellor, who will match all contributions from faculty, staff and students. We already had a generous donation from Susan Storch and Michael Manga for a graduate student support fund, and my wife and I followed their example, recognizing the needs and in appreciation of what the University has done for us. Our hope is that it will stimulate others to follow suit.

We are more and more dependent on donations, and they have a great impact on our infrastructure, providing emergency help to students, subsidizing student events and field trips, and producing departmental seminars that unite faculty and students. Last year our seminar series continued to feature some alumni whose stimulating talks revealed that Berkeley prepared them for a successful career – as Maria Louisa Crawford (PhD 1965) put it, in her case by letting graduate students struggle alone to find their independence. She talked about her research on metamorphic rocks in Alaska, and Peter Olsen (PhD 1977), just elected to the Academy of Sciences, reported about convection in the Earth’s core. Tracy Rushmer (BA 1981) talked about deformation and melts as related to the deep earth. This fall two young stars will visit us: Ethan Baxter (PhD 2000) from Boston University and Cin-Ty Lee (BA 1996) from Rice University.

To simplify the administration of funds we plan some consolidation. We will keep all memorial funds (the inspiration of Chuck Meyer and Frank Turner are still attracting most support) but combine others in a fund called “Friends of Earth and Planetary Science” that will be used, at the discretion of the Chair, to help students with emergencies, support our seminar series, reach out to alumni, and subsidize important student functions, such as the yearly Santa Barbara Day’s event and field trips.

Due to our increasing need for private donations, now more than ever we are deeply appreciative of the generosity and support of so many donors to EPS—every gift makes a tremendous difference to us. Special thanks goes to our major donors this year: Iris Borg (PhD 1954), Michael Manga (faculty) and Susan Storch, Steven Pride (BA 1985), Charles Shaw (PhD 1956), Julia Wenk (BA 1970), and currently a gift from the estate of David Leppaluoto (PhD 1973) is being finalized. The bequest of Charles Ramsden (BA 1933) continues to have a tremendous impact on our undergraduate environment, including support for research projects that students pursue under the supervision of faculty. Esper Larsen’s (BA 1906, PhD 1918) endowment continues to stimulate innovative faculty research projects that often grow into larger programs supported by extramural agencies.

Note that we have expanded our Alumni Webpage: visit the alumni section and check if we have entered your information correctly (<http://eps.berkeley.edu/alumni-new/>). Also, please contribute old pictures to our Photo Album (<http://eps.berkeley.edu/alumni-new/gallery.php>) (send either prints or scans to [mso@eps.berkeley.edu](mailto:mso@eps.berkeley.edu)). The “Make a Gift” page has been updated (<http://eps.berkeley.edu/about/gift.php>). In this digital age we would also like to have your e-mail address for easier communication.

We have fared well here on campus and for this I would like to thank Mark Richards, Dean of Physical Sciences, and also one of our EPS faculty members, who has been very effective in persuading the higher administration that earth sciences really matter. Thanks also go to my colleagues for their support and patience. They are all dedicated to continuing to advance the reputation of our Department. Doris Sloan (MS 1976, PhD 1981) was an excellent editor of this year’s “Annual Report,” which we are renaming “Alumni Update from Earth and Planetary Sciences” to make it sound more cheerful than a tax return. Our talented undergraduate Charles Brothers composed it and is currently working on creating a new alumni database. Of course, I am appreciative to all of the alumni who stay in touch with us with support and advice.

Rudy Wenk

PS: As this Update goes to press, I am delighted to let you know that Bruce Buffett, Professor of Geophysics at the University of Chicago, has decided to join our Department and elevate our geophysics program to a new level.

# DEPARTMENT FACULTY — FIELDS OF SPECIALIZATION



**Allen, Richard M.**, Assistant Professor, Ph.D., 2001, Princeton University. Seismic imaging of deep Earth processes; crust and mantle interactions; kinematics and dynamics of fault rupture; earthquake initiation processes and warning systems.



**Alumbaugh, David L.**, Adjunct Professor, Ph.D., 1993, University of California, Berkeley. Geophysics, special interests in the physics of electromagnetic induction and propagation in the earth, and imaging the structure of the earth using inverse methods and large scale numerical calculations for the interpretation of electromagnetic data.



**Alvarez, Walter**, Professor, Ph.D., 1967, Princeton University. Impacts and mass extinctions; Mediterranean stratigraphy and tectonics, especially in the Italian Apennines; magnetic reversals and the geologic time scale; global tectonics; Colorado Plateau stratigraphy; landscape evolution.



**Banfield, Jillian F.**, Professor, Ph.D., 1990, Johns Hopkins University. Geomicrobiology, microbial ecology and evolution; nanoparticles in the environment.



**Berry, William B.N.**, Professor, Ph.D., 1957, Yale University. Climate changes, related environmental changes and mass extinctions; Bay Area watershed and wetlands restorations; K-12 environmental science education; hypoxic-anoxic environments; cool water limestones.



**Bishop, James K.B.**, Professor, Sc.D., 1977, MIT/WHOI Joint Program in Oceanography. Chemical, physical, and biological controls on the cycles of carbon and related chemical species in the ocean; robotic instruments for ocean exploration; satellite oceanography.



**Boering, Kristie A.**, Associate Professor, Ph.D., 1992, Stanford University. Atmospheric chemistry and climate; field, laboratory, and modeling studies of the stable isotopic compositions of atmospheric trace gases; photochemical isotope effects; laboratory studies of the kinetics and optical properties of atmospheric aerosols relevant to early Earth, early Mars, Titan, and other anoxic planetary atmospheres.



**Brimhall, George H.**, Professor, Ph.D., 1972, University of California, Berkeley. Development of digital mapping systems, mineral exploration, geo-politics and earth resource issues, geoscience education reform.



**Bürgmann, Roland**, Professor, Ph.D., 1993, Stanford University. Active tectonics, space geodesy and structural geology; observations and models of crustal deformation associated with active faults and volcanoes.



**Chiang, Eugene**, Associate Professor, Ph.D., 2000, California Institute of Technology. Theoretical astrophysics, emphasizing the origin of planetary systems. Current research areas include the dynamical evolution of circumstellar disks, including the Kuiper belt; photoionized winds from extrasolar giant planets; and the dynamical equilibria of stars orbiting supermassive black holes in galactic nuclei.



**Cohen, Ronald C.**, Associate Professor, Ph.D., 1991, UC Berkeley. Atmospheric chemistry and its role in climate change; development of technologies for detection of atmospheric trace chemicals; *in situ* measurements of radicals and their reservoirs from aircraft, balloon and ground-based platforms.



**Cuffey, Kurt M.**, Professor, Ph.D., 1999, University of Washington. Glacier mechanics; paleoclimatology; environmental isotope geochemistry; river processes.



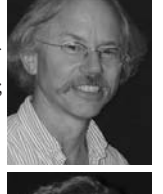
**Collins, William D.**, Professor in Residence, Ph.D., 1988, University of Chicago. Global climate change; interactions of sunlight and heat with the Earth's surface and atmosphere; applications of remote sensing to understand climate processes; development and application of global Earth system models.



**DePaolo, Donald J.**, Class of 1951 Professor of Geochemistry, Ph.D., 1978, California Institute of Technology. Isotope geochemistry and geochronology; igneous petrogenesis; age and structure of the continents; mantle geochemistry; isotope hydrology, isotopic tracers for environmental studies.



**de Pater, Imke**, Professor, Ph.D., 1980, University of Leiden. Radio and infrared observations of our Solar System. Examples include giant planet atmospheres and Jupiter's magnetosphere at radio wavelengths, and infrared imaging using Adaptive Optics techniques of, e.g. Uranus, Neptune, Io, Titan, and planetary rings.



**Dietrich, William E.**, Professor, Ph.D., 1982, University of Washington, Seattle. Hillslope and fluvial geomorphology; mechanics of sediment transport; hydrology.



**Dreger, Douglas S.**, Associate Professor, Ph.D., 1992, California Institute of Technology. Research interests include wave propagation, earthquake source physics, earthquake hazards, realtime seismology, and nuclear monitoring.



**Fung, Inez Y.**, Professor, Sc.D., 1977, Massachusetts Institute of Technology. Climate change; global carbon cycle; geophysical fluid dynamics and large-scale numerical modeling; remote sensing of the Earth.



**Ingram, B. Lynn**, Professor, Ph.D., 1992, Stanford University. Paleoclimate reconstruction; paleoceanography; marine, estuarine, and lacustrine geochemistry; geoarchaeology.



**Jeanloz, Raymond**, Professor, Ph.D., 1979, California Institute of Technology. Mineral physics; ultra-high-pressure experimental geophysics; constitution and evolution of planets; Earth and environmental policy; national and international security.



**Kirchner, James**, Professor, Ph.D., 1990, University of California, Berkeley. Environmental earth sciences; watershed hydrology and geochemistry; weathering, erosion, and climate; analysis of environmental data; evolutionary ecology.



**Manga, Michael**, Professor, Ph.D., 1994, Harvard University. Geophysical and environmental fluid dynamics; planetary geodynamics; volcanology; hydrogeology.



**Militzer, Burkhard**. Assistant Professor, Ph.D., 2000, University of Illinois. Computer simulations of planetary interiors using first-principles simulation techniques; equation of state calculations; modeling Jupiter's interior through simulations of hydrogen-helium mixtures at extreme pressure and temperature conditions; understanding planetary formation processes.



**Pride, Steven R.**, Adjunct Professor, Ph.D., 1991, Texas A&M. Crustal physics; seismic stimulation to mobilize pollutants and hydrocarbons in porous rocks; the physics of seismic attenuation; electrokinetic coupling phenomena; the theory of brittle fracture and stress-induced interacting damage.



**Rector, Jamie**, Professor, Ph.D., 1990, Stanford. Seismic techniques for characterizing reservoir properties and processes; seismic reflection imaging; borehole seismology; seismic wave propagation simulation; near-surface seismology with applications to environmental remediation and archaeology.



**Renne, Paul R.**, Adjunct Professor, Ph.D., 1987, University of California, Berkeley. Geochronology; paleomagnetism; flood basalts; Earth-Moon impact chronology; Permian-Triassic boundary; hominid evolution; geologic time scale calibration.



**Richards, Mark A.**, Professor, Ph.D., 1986, California Institute of Technology. Mantle convection and large-scale mantle structure; large-scale dynamics of terrestrial planets; history and dynamics of global plate motions; igneous processes in the mantle and deep crust; regional crustal deformation and earthquake hazards.

**Romanowicz, Barbara A.**, Professor and Director, Berkeley Seismological Laboratory, Doctorat d'Etat, 1979, Université de Paris. Global seismology; Earth's deep structure and dynamics; waveform modeling and tomography; normal-mode theory; earthquake scaling laws and source processes.



**Sloan, Doris**, Adjunct Professor, Ph.D., 1981, University of California, Berkeley. Biostratigraphy; history of San Francisco Bay; introduced species in the Bay; regional geology.



**Wenk, Hans-Rudolf**, Professor and Chair, Ph.D., 1964, University of Zurich. Mineralogy, and structural geology; special interest in texture analysis and anisotropy development in naturally and experimentally deformed materials pertaining to the deep earth. X-ray, neutron and electron diffraction measurements complemented by modeling.



#### EMERITI

**Bukowski, Mark S.T.**, Professor Emeritus, Ph.D., 1975, University of California, Los Angeles. Physics and chemistry of planetary interiors; mineralogy; high pressure mineral physics; planetary structure and evolution.



**Carmichael, Ian S.E.**, Professor Emeritus, Ph.D., 1960, University of London. Igneous petrology; analytical chemistry of volcanic rocks; electron-microprobe analysis of minerals; experimental studies of silicate melts; geologic evolution of western Mexico and of the western Basin and Range.



**Curtis, Garniss H.**, Professor Emeritus, Ph.D., 1951, UC, Berkeley; founder and chairman of Board, Berkeley Geochronology Center. Geochronology and volcanology, autobrecciation of lava and eruptive processes; K/A and Ar40/Ar39 dating; geologic timescale; calibration of Tertiary Mammal Stage ages, calibration of hominoid-hominid evolution. E-mail: gcurtis@uclink4.berkeley.edu



**Johnson, Lane R.**, Professor Emeritus, Ph.D., 1966, California Institute of Technology. Seismology and physics of the Earth's interior and wave propagation; seismic source theory; applied geophysics.



**Jones, David L.**, Professor Emeritus, Ph.D., 1956, Stanford University. Cordilleran, Alaskan, and circum-Pacific tectonics; suspect terranes and continental growth; radiolarian biostratigraphy; tectonics of the San Andreas fault system.



**Morrison, H. Frank**, Professor Emeritus, Ph.D., 1967, UC Berkeley. Applied geophysics: electrical and electromagnetic methods for mapping subsurface conductivity; marine magnetotellurics, cross-well electromagnetics for reservoir characterization, numerical modeling and inversion.



**Wang, Chi-yuen**, Professor, Ph.D., 1964, Harvard University. Tectonophysics; heat and fluid transport in the Earth; hydrological processes during earthquakes; hydrological processes on Mars; crustal deformation in active tectonics.



# INVESTIGATING AEROSOLS AND CLIMATE

Bill Collins

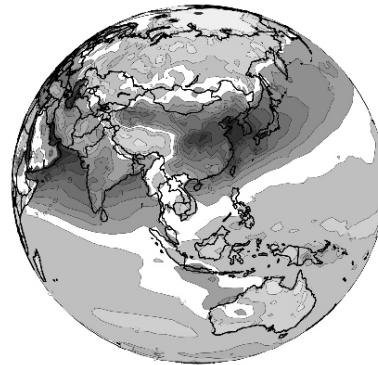
When I joined Earth and Planetary Science in April this year, I came in search of new challenges and new horizons in climate science. The climate community is facing a whole new array of challenges and opportunities as we work to understand and address global warming. After meeting the students in the department, I know Berkeley is the right place to train the next generation of Earth scientists to tackle climate change.

My own journey in climate research started somewhat far afield in our local arm of the Milky Way. As an undergraduate, I was fascinated by astrophysics and spent a summer at the Arecibo radio observatory studying the behavior of pulsars. We had to share time on the huge telescope with teams studying the surface of Venus. Looking over their shoulders as they mapped the Venusian mountain ranges, I began to think about research on celestial objects a little closer to home. I had the good fortune of working with Gene Parker at the University of Chicago on my graduate thesis. Gene and I focused on understanding the solar corona, a topic that was viewed as quite unfashionable by some of my cosmologist classmates. However, Gene never tired of reminding me that the Sun is the only star in the universe that we can observe in detail. He made sure I understood the importance of testing my theories for heating the corona against all the available observations. When we would take a break from my struggles with my equations, he would share his ongoing work on the geodynamo of the Earth and other planets.

My graduate career paralleled the arc of worldwide concern with the ozone hole. By the time I finished my thesis, I knew I wanted to pursue research in a field that would combine my interests in physical science and the environment. With Gene's encouragement, I went to talk to Prof. Ramanathan, a new faculty member in Chicago's Department of Geophysical Sciences. Fortunately Ram wanted to hire a post doc with an interest in theory and preferably with a genuine talent in musical performance. Despite my rather obvious shortcomings as a musician, Ram asked me to join his group.

My post doc marked the start of my career in Earth sciences. Since then, I have worked on the interaction of sunlight and heat with the clouds, gases, and aerosols in the Earth's atmosphere. One of the puzzles I have studied concerns the effects of man-made aero-

sols on the climate of southern Asia. In 1999, I joined colleagues from the U.S., Europe, and India to study the aerosol pollutants over the Indian Ocean during the winter monsoon. The amount of aerosols produced industry, transportation, and cooking in this region had tripled since the last major experiment in the 1970s. In order to study the regional impacts of this pollutant plume, we set up our experiment on the Maldives atolls far downwind of India. The capital city Male, which is little more than 1 mile long, is home to the world's most densely populated city and served as our home base during our experiment. I developed a new model that synthesized computer simulations and satellite observations into a regional analysis of the emission and evolution of the aerosol plume. My estimates of aerosol optical depth, a measure of the amount of light scattered or absorbed by aerosols, is shown in



the Figure. During the experiment, I used the model to forecast where the thickest aerosol plumes were located so we could send the aircraft out to measure them. Now my colleagues and I are using this model to understand the ef-

fects of the aerosols on the Earth's hydrological cycle. We are finding that the aerosols can alter the amount of rainfall and evaporation over large areas of the Earth's surface, and we have deduced that the aerosols can alter the partitioning of energy between the atmosphere, ocean, and land. I plan to study the consequences of these findings for future climate change with faculty and students here.

It has been a real pleasure to join Earth and Planetary Science. The faculty, staff, and students share in the creative buzz of research and teaching. The Department has also created a very welcoming and inclusive environment for visitors and for new members like myself. I certainly look forward to pursuing my investigations in climate change with Earth and Planetary as my intellectual home base.



# ALUMNI ACTIVITIES

## ALUMNI RELATIONS COMMITTEE

In 2007 a new group was created to organize and encourage alumni activities focused on continuing friendship, campus involvement, lifelong learning, and new developments in geosciences, as well as fund raising for the Department. The Committee includes, besides myself, Paul Renne, Paul Henshaw, BA '69, who is the Class Representative, and Departmental members Doris Sloan, Margie Winn, Micaelle Ellswythe, Catherine Pauling, and Clarissa Pal. Our current activities are focused on having a 40-year alumni event for the graduating classes of 1968 through 1973: "A Cal Weekend With EPS" will take place on Saturday and Sunday April 12-13th. On Saturday, which is also Cal Day, when the University is open to the public, our Department will hold an Open House for Alumni, consisting of a series of lectures, demonstrations of digital mapping systems, and an alumni dinner in the Faculty Club. Sunday's event will include a field trip to Point Reyes ending with an alumni gathering at Barnaby's on Tomales Bay.

Another activity we have instituted this year is the Alumni-Student Careers Forum to expose students to varied and challenging career opportunities beyond the faculty life students see every day at Cal. The hope is that Berkeley graduates will be encouraged to pursue academic excellence and also take on active roles in professional service in the broad spectrum of careers in which scientific knowledge plays an increasingly important role in society. Alumni Mauricio Escobar and Nick Walchuk worked with me to design a program of monthly meetings when alumni (BA, MA and PhD) come back to the department, give an informal lecture, and interact with our present undergraduate students sharing their experience regarding careers. This year's speakers and their career areas were: Mauricio Escobar and Nick Walchuk (environmental consulting), Bill Lettis (geological hazards consulting), Tim Mote (GIS project design), Erin Zike (K-12 teaching), Jacquie Bicais (geosciences law), and Russell Graymer (USGS 3-D geological mapping). The web link is:

[http://eps.berkeley.edu/~brimhall/Alumni\\_Student\\_Forum/Website\\_Alumni\\_Student\\_Forum.htm](http://eps.berkeley.edu/~brimhall/Alumni_Student_Forum/Website_Alumni_Student_Forum.htm)

George Brimhall, Chair

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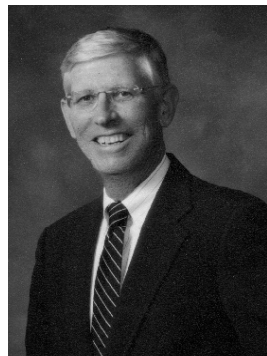
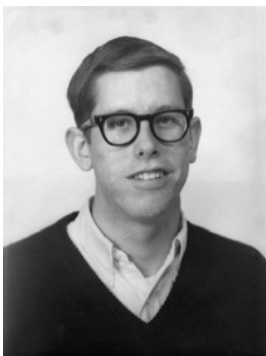
## GRADUATES OF CLASSES 1968-73 "40TH REUNION"

We are planning a reunion to coincide with the Cal Day Events of April 12-13, 2008. Remember the times on campus: extracurricular activities with the Blue Meanies on campus; helicopters overhead; psychedelic lightshows in petrography labs; field trips in the White Mtns, Poleta Folds and across the Western USA; Jimmie Hendrix, Mick Jagger and Grace Slick blaring on tape decks at the Grand Canyon? Clyde, Chuck and Garniss as our fearless field trip leaders, and Rudy fresh from his

PhD in Europe? Discussions about continental drift and missions to the Moon and Mars.

It is time for us to pay tribute to our past and remember how we all started on our careers through academia and industry. We will visit the E&PS department events and have an evening of activities plus a field trip on the 13th. Look for notices from the department through the coming months at the E&PS Departmental website <http://eps.berkeley.edu>.

Paul Henshaw, '69  
Chair, Reunion Committee



Then and Now



Summer  
Field Camp,  
1968

# MEMORIES FROM SUMMER FIELD CAMP

Field Camp under the tutelage of Prof. Clyde Wahrhaftig comprised 6 weeks away from civilization to perform field mapping and hone our survival skills. After nearly 40 years of travel to remote international sites, geology field camp was by far, the most arduous, primitive and difficult. Most necessities had to be bartered, traded, or “borrowed.”

Camp water was supplied by a water truck, which was used to fill two mattress-shaped rubber bladders, a large one named Lola and the smaller one, Lolita. Those who dared to risk severe reprimand would lie on top of these enormous waterbeds for an undulating ride.

Showers were a real luxury after a day baking in the field studying the Poleta Formation. The first to return from the field and use the showers enjoyed water that was heated in the pipelines, while the latecomers would get cold showers. Showers were never the right temperature, but were one modern convenience that we were allowed.

Four thrones. There were four holes cut in a sheet of plywood, set up over a trench, with a bag of lime handy nearby. The view was breathtaking.

No-see-ums, an ubiquitous type of gnat, apparently unaffected by intense heat, would attack in swarms.

The food - I vaguely remember that we had a dedicated chef and the food quality was generally OK to good. I also remember that Clyde actually did not

Small enough to fly through mosquito mesh, they would sting any exposed part of the body and cause a painful swelling reaction. The only recourse was to wear long pants, long-sleeved shirts, hat and bandanna, all the while enduring the intense heat. Some of us sewed or stapled our shirts to close any openings and tied our cuffs. We used DEET, but it was only a temporary measure, as perspiration soon washed it away. Half-humans wandered through the camp, swatting constantly even when there were no insects in sight.

On our return to camp one particularly roasting day, Pete Mote and cohorts from the class of '68 set up a roadblock to greet us with ice-cold punch. Obviously, we were parched, thanked them for their hospitality and drank liberally. We later arrived in camp completely inebriated and senseless.

The moon walk. A few of us, in a lone Carryall, separated and returning from a field excursion, stopped in a place of refreshment one evening in the town of Independence. The day was July 20, 1969, and as we gathered around the bar sipping 7-Up, we saw (or thought we saw), the first Apollo lunar landing, on a snowy TV set.

Peter Yen '69

want us to watch the lunar landing, and that some of us sneaked away from camp in the darkness of the eve.

Tiong Liem '69

I remember that the Wahrhaftig/Poleta Folds Summer Field Class was the REQUIRED summer field class, Geology 118. There was an optional second summer field class (Geology 119) which was split between Wahrhaftig and Curtis (at least in the summer '68). The advantage of the second course was seeing a greater variety of geologic mapping projects and attendant difficulties. Clyde introduced us to mapping granitic and metamorphic rocks in the Tower Peak quadrangle. Curtis tried to make sense of the Brokeoff Mountain and Lassen Peak volcanic rocks and pre-volcanic metasediments in the rain, and finally Curtis led us on a mad dash from Death Valley, via the Charleston Peak area, to the Grand Canyon area. We were exposed to all types of tectonic faulting and large-scale sliding. The finale was a trek down the Kaibab Trail and up the Bright Angel Trail in one day.



Dale Stickney and accessories, Saline Valley, 1968

As with much of geology, initially you are exposed to a few pieces of the geologic jigsaw puzzle at a time, and later on you see a few more pieces, perhaps in a different context. Eventually, sometimes years later, the Big Ah-Hah! Moment hits and you say to yourself,

“That’s why Dr. Phil N. Blank dragged us to those exposures. He (in some cases, she) was building the foundation of what I REALLY needed to know!”

Dale Stickney ‘69

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Until 1969 female geology students were sent to the University of Indiana summer field course. However, in 1969, Clyde Wahrhaftig relented under pressure and, along with two other female undergraduates, Kathryn and Sandy, I spent six weeks in the Poleta folds above Deep Springs Lake in Clyde’s field course. It was hot and I remember lugging around nearly a gallon of water every day. Each morning I checked my boots for scorpions. One fellow student chose to go barefoot in camp, which was alarming since we usually found squished scorpions outside the mess tent in the morning. The boys may have resented our presence...they had to dig our latrine...and we always got the first showers with the hot water from the sun-heated pipes. Once I was left behind in the field. I had spent too much time contemplating the Poleta folds in the shade of the one and only tree. I remember watching the last truck turning up the hill. That was a memorable hike back up to the field camp! On the 4th of July Clyde took us down



to Bishop Airport to watch the fireworks. Recently I came across my old map with its many different limestone layers, each named to match its appearance: What an experience those six weeks were!

Julia Wehausen-W.

---

### DAVEY JONES FIELD TRIP

“Why is he stopping?”

“Davey never met a roadcut or an outcrop he didn’t like.”

“Where did he go?” “Over the edge and down.”

“Down, down I come, like glist’ring Phaeton, wanting the manage of unruly jades.”

“Who said that?”

“Bill Getty.”

“What is this?” from below. “Rhyolite?” “Yes!”

And so it went, plate tectonics, subduction, ophiolite suites, all rendering “standing still” meaningless.

Camp. Dinner. Bill Getty gets two cases of wine from his trunk - 24 different reds, whites and varietals.

“Vinum virumque cano,” Prince Hal, the guide.

“What’s ‘buttery oak’ supposed to taste like?” “What kind of melon? I can’t taste it.”

“Is an empty body the opposite of ‘full bodied?’”

And so it went, with tastes turning to gulps until it was done.

What a trip!

Anonymous ‘94



Davy Jones, 1992

# IN MEMORIAM

## Harold C. Helgeson 1932 - 2007



Hal at Tahoe

Hal was born in Minneapolis, Minnesota and studied geology at Michigan State University. His taste for adventure led him after graduation in 1953 to Athabasca and Blind River, Canada, to prospect for uranium. He then served for two years as a photo-radar intelligence officer for the Air Force, and spent about four years working as a mining geologist in South West Africa (Namibia), South Africa and Zambia. Later, Hal would share his mining knowledge with students on Geology/EPS 39A (freshman seminar) field trips, recollecting at the campfire his brushes with death and other experiences underground. Looking for a different type of adventure, Hal enrolled in graduate school at Harvard in 1959.

The depth of Hal's contributions to geochemistry and biogeochemistry is astonishing. His pursuits included characterizing thermodynamic and physical-chemical



Chris, Velda and Hal Helgeson, Ian Carmichael and Joe Gregory, Commencement 1973

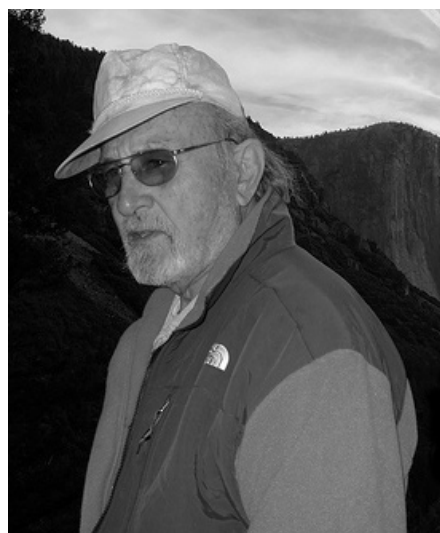
constraints on ore deposition, on metamorphism, and on other geochemical processes, including organic reactions; generating global equations of state for minerals and aqueous species consistent with experimental data; and applying the principles of coupled reactions and mass transfer to geochemical and biochemical systems. These and other topics he tackled with relentless vigor, engaging his graduate students,

postdocs and colleagues in animated discussions on the validity of the conventional wisdom of the time. Perhaps partly because of his revolutionary stance, Hal asked for rigor and completeness in scientific writing; his students remember the thoroughness with which Hal edited the drafts of their papers and dissertations. The equations, thermodynamic data, and theoretical techniques developed in Hal's work are in daily use in laboratories around the world.

Hal was a prime mover with a demanding personality, but an even more generous heart. He took responsibility for teaching his students about life as well as science. Future geochemists became aware, through direct experience, that "the purpose of life is to have lunch," and that activities such as sailing, skiing, and attending Giants baseball games can be an essential part of a student's training. Hal hosted famous parties at conferences and would enliven departmental seminars and graduation receptions. He often brought his laboratory - students, books, computers and all - to his sabbatical destinations. It was his pleasure to treat his guests well and to encourage one to live fully.

The field of geochemistry loses a great leader with the passing of Hal Helgeson. He transmitted to others a passion for doing and communicating science that cannot be lost, however, and whose fruits continue to grow.

Jeff Dick, '07



Hal at Yosemite on a 39 Trip

## Lionel E. Weiss 1927 - 2006

On Nov. 11, 2006 I lost a friend and mentor, Lionel Weiss. I feel this loss deeply. I did not do a good job of keeping up with Lionel over the years, but his influence



on my development as a scientist and teacher was profound and indelible. This is perhaps the most durable legacy any person leaves behind – ideas and images etched in memory, valued, and passed on.

To say Lionel was brilliant is insufficient. It does not capture the intensity of his vision, his extraordinary ability to identify patterns

in the world around him, his drive to understand their underlying cause. Few people have the ability or sheer energy to employ the range of approaches he used to document and explore these patterns. I've yet to meet anyone who matches his skill in field structural analysis. He was a superb photographer and a gifted petrographer, able to extract information from a range of scales, and to consider processes from micromechanics to tectonics. He was patient and exacting in the lab, designing and conducting deformation experiments. Laboratory and field observations informed his theoretical work; the natural world served both as his inspiration and his testing ground. Lionel set standards in quantitative work long before such approaches were embraced by the broader community. His work was so foundational that it pervades current cutting-edge approaches and ideas in structural geology, typically without attribution. His ideas have become part of the fabric of what we teach and how we think.

By the time I met Lionel in 1980, his considerable skills were devoted to teaching. He was passionate about word use. His clarity in writing and speaking was supplemented by extraordinary classroom illustrations, rendered at seemingly impossible speed in multicolored chalk. His uncanny ability to draw perfect circles on the board was consistently met with awed silence. Although hardly a measure of course content, it was an apt illustration of his devotion to exactness in presentation. I still return to battered notes taken when I was Lionel's TA in Structural Geology and Mineralogy; I still use his carefully constructed lab exercises in my own classes. And I can

still close my eyes and conjure up 'movies' of Lionel in action.

The list of Lionel's accomplishments, and the speed with which he launched himself into the academic world while still in his 20s, are physical manifestations of this intellectual ability. Rudy Wenk, Iris Borg, and Richard Doell have documented the history of Lionel's academic career, and placed it in the context of his life, in a U.C. Berkeley memorial at [http://academic-senate.berkeley.edu/memorial/documents/Weiss\\_approved.pdf](http://academic-senate.berkeley.edu/memorial/documents/Weiss_approved.pdf). My comments are much more personal: Lionel viewed through the prism of my own experience. The limitations of this narrow view were made evident just minutes ago, as I spoke with Gerhard Oertel (Professor Emeritus of Structural Geology, UCLA) about what I was trying to do. Gerhard immediately recalled an evening many years ago, in which Lionel gave an impromptu and beautiful cello concert at his home. This is a side of Lionel I never saw. It was a strong reminder that Lionel was much more than his profession. Too deep a focus on his professional life overlooks a key aspect of his larger life: he was devoted to his wife Liv and deeply proud of his children, Nicholas and Elin, and his grandchildren. Liv was his center, his touchstone. When I saw them last a few years ago, their relationship seemed every bit as strong and vivid as it appeared when I first saw them together more than 25 years before. Lionel was a complex and gifted man. He contributed to his profession, but it did not define him. No one is perfect, and Lionel was no exception; his exactitude was a double-edged sword that was at times a great burden. But he lived life on his own terms, and loved (and was loved) deeply. He will be missed.

Laurel Goodwin, '88



Lionel with dingo puppy, Australia, 1974

# ALUMNI NOTES

## **John S. Owens** – 1941 M.A. Geology

Fond memories of Profs. Taliaferro, H. Williams, and grad students in Bacon Hall. Been mining ever since. Retired 1981, M.A. Hanna Co.

## **David “Burt” Slemmons** – 1953 Ph.D.

My B.S. was in Economic Geology in the Mining College in 1947. I started to work on a Ph.D. in 1948 and my thesis was on the Geology of the Sonora Pass region. Gilbert, Pabst, Wisser, Turner and Verhoogen were on my thesis committee. I accepted a position at UNR’s Mackay School of Mines in 1951, teaching petrography, and I finished my thesis to receive the Ph.D. in 1953. I kept UCB contacts by teaching geology courses for two summers, and assisted “Tucky” Taliaferro in the Mother Lode for 10 summers. I retired from UNR in 1989 as Professor of Geology and Geophysics after 38 years and as Director of the Center for Neotectonic Studies. My wife, Ruth, and I moved to Las Vegas for the warmer climate. I consulted until 2005 and traveled extensively. I published on faulting and earthquake hazard in Las Vegas, and expect to finish earlier projects, including the Owens Valley 1872 earthquake area.

## **Giles Maloof** – 1953 B.A. Geophysics

Boise State has a new Isotope Geology Laboratory with a TIMS (Thermal Ionization Mass Spectrometer) as centerpiece. We offer a doctorate in geophysics and masters in geology. I continue teaching mathematics (emeritus, part-time). I am very sorry that Bacon Hall is gone. I recall Garniss Curtis as a (very energetic) beginning professor; how nicely Jean Verhoogen treated me, and classes with Byerly, Gilbert, Pabst, Turner and Taliaferro among others. I remember Louderback as a very old man with a cane.

## **Bob Kubik** – 1954 B.A. Geology

I had a wonderful education by Drs. Turner, Verhoogen, Pabst, Taliaferro, Gilbert, Curtis, Hinds and Kleinpell. However, life took me in other directions for a career—into computers in 1955 and thence into engineering. I moved back to Berkeley in 2000 and am quite content here. I do art, garden, go backpacking and cycling. I’ve never regretted majoring in geology. It taught me how to look at things.

## **Edward Hosley** – 1956 B.A. Geology

After completing my degree and some graduate study in the Department, I worked for a few years as a geologist for the Bureau of Land Management in L.A. I then entered the graduate program in Anthropology at U.C.L.A., competing the Ph.D. in 1966, with emphasis on Alaskan archeology and ethnography. Taught/administered at several schools, ending up in the State University of New York system as Assoc. V.P. and Vice Provost. Since retired, we have returned to the West Coast currently in Idaho but soon to return to Oregon. Still writing and doing some research, primarily the completion of

long-ago field work and notes. Memories: Summer field school and Taliaferro’s gold-plated rock pick.

## **John Hohlmann** – 1958 B.A. Geology

I remember taking a course from Garniss Curtis about 50 years ago. Every year since, I seemed to spot his name in SF Chronicle articles about dating fossils or artifacts. Bravo to him for a long successful tenure.

## **Richard F. Curtin** – 1960 B.A. Geology

I continue to enjoy retirement. Mary and I travel (2 trips to Ireland with another planned for 2007). I putter with antique military vehicles (30 years in reserves). Now have 2 granddaughters ages 5 and 3, which we enjoy seeing regularly. Great to see the note from Mike Pepper in the 2005-6 Annual report.

## **Mike Holdaway** – 1963 Ph.D. Geology

I retired from my only job as Professor of Geology at SMU in 2001, and we moved to Colorado. My first wife, Patricia, died in 1991, and I married Angie in 1992. Since retiring I have enjoyed being active in our church and volunteering in mental health and jail ministries.

## **Carl E. Mortensen** – 1966 B.A. Geophysics

Doing emeritus work at USGS.

## **Richard Buffler** – 1967 Ph.D. Geology

I can’t believe it has been almost four years since my retirement from U.T. Austin. I continue to love living here in Berkeley, where Pat continues her work with the U.C. School of Public Health. I continue to stay involved with professional activities, although I don’t get by the Department as much as I would like.

## **Richard Cheney** – 1972 B.A. Geology

I’m saddened by the passing of Dick Hay, who was my undergrad advisor. His intellectual curiosity and insight were the qualities I remember most. Since graduation, I pursued a career in the U.S. Air Force, retiring in 1997 and currently working as an Operations Analyst in Stuttgart, Germany. Along the way, I earned additional degrees in Asian Studies (M.A., Univ. of the Philippines) and Geophysics (M.S., Texas Tech University). Cal was, without question, the highlight of my college career. Go Bears!

## **Charles R. Bacon** – 1975 Ph.D. Geology

Studying eruptive histories of volcanoes continues to be exciting at the USGS. Presently, I am compiling a geologic map of Mt. Veniaminof, Alaska, from field work by colleagues and myself. In November the long-awaited eruptive history of Mt. Mazama and the Crater Lake region was published in GSA Bulletin. In June, 2006, I completed my two years as

President of the VGP Section of AGU, as well as had a great trip to Iceland, including a close approach, in the rain, to Ian Carmichael's Ph.D. thesis volcano, Thingmali.

**Wes Hildreth** – 1977 Ph.D. Geology

Five months' fieldwork in 2006, completing detailed geologic maps and eruptive-history studies of the Three Sisters (OR), Simcoe volcanic field (WA), and Mammoth Mtn. (CA). Had dinner at Mammoth with Garniss Curtis, 46 years after taking field camp from him at Westgard Pass.

**Virginia Gillerman** - 1982 Ph.D. Geology

Husband, Alan, and I entered a new phase in our lives in mid-November, 2006. We journeyed to China and brought back our new adopted daughter, Hannah. At a lively 29 months of age, she is teaching us lots of new things. I hope she grows up to like rocks and science and the outdoors.

**James V. Robinson** – 1983 B.A. Geology

USGS, Menlo Park, CA, Microprobe Technician, 1983-1985; M.S. Earth Science, UC Santa Cruz, 1986-1988; Environmental Consulting, Sacramento, CA 1988-1994; California Geologist Registration, 1994; Montana Dept. of Environmental Quality, Hard Rock Bureau, 1994-1997.

Currently work as a planner for the Montana Dept. of Natural Resources. Primary role – serving as an advisor to watershed groups in the Yellowstone River Basin. My daughter and I enjoyed visiting with George Brimhall's field class held in Wise River in June 2005. I still chuckle at the image of Rudy Wenk after he discovered that his livestock had consumed a good portion of his newly planted vineyard. Good times helping him with his wine cellar.

**Gretchen Muller** – 1984 B.A. Geology

I'm currently working in education for a consortium of school districts in southern Marin County. I support districts with math curriculum and professional development, and assessment data analysis. I am also working on my doctorate at the University of San Francisco in the Learning and Instruction Dept. in the School of Education.

**Ann Davies Hudson** -1986 M.S. Geology

I have been working for the past 5 years for Portland Public Schools as an assistant with Special Ed students. Bud is a residential remodeling contractor and has his own company with 5-8 employees. Emily is in 10th grade now and enjoying high school and doing very well. She has been on the swim team for the past two years. Joel is in 5th grade and does very well on his tests, but really doesn't like to do his homework. He can't skateboard until his broken finger heals, so he's working on a jigsaw puzzle and a 1000-piece Lego Batmobile. We bought a lot at the coast and are building a house ourselves. All work on our 100-year old house here in Portland has come to a standstill for a couple of years.

**Andrew Durham** – 1991 B.A. Earth Science

Looking for water in the Arizona desert. Nine years working for the same company as the "Map Guy." My wife Natalie is expecting our first child on July 4th.

**Barbara Ransom** – 1991 Ph.D. Geology

Lately been blogging on a global Jihad website for something different and to learn more about blogs and ghost blogging. Will get my Project Management certification this year to give me more experience managing large infrastructure efforts and pursuing a Master Gardener certification so I won't keep making the same landscaping mistakes over and over again! This year I became the "turf queen." You must come by and see my grass (seriously!). If you want to do some "hard time" in DC and see how NSF works from the inside, call me. You won't regret it; nothing is more instructive than seeing how it works from both sides of the desk.

**Sarah Yoder** – 1999 M.A. Geology

My husband Glenn took a job as Telescope Systems programmer with the Carnegie Institute Magellan telescopes based in La Serena, Chile. We are (as of Dec. '06) in the midst of moving ourselves and our two daughters, Griselda (3½) and Sigourney (9 months) Eychaner to La Serena. I have been a stay-at-home mom for four years and loving it, I'm looking forward to our great new adventure.

**Arthur Reis** - 2002, 2005 B.A., M.A. Geology

I'm currently with the San Francisco District Corps of Engineers in the Engineering Geosciences group after spending two years working in East Asia and one year in the EPS Master's program.

**ANNUAL SANTA BARBARA'S DAY CELEBRATION**

Saturday, Dec. 8, 7p.m. in the Haas Clubhouse, Strawberry Canyon, for the annual dinner and show put on by EPS graduate students.

*This year it's a brew-off at Santa Barbara's Day. If you brew beer, have brewed in the past and need to get back into it, or are thinking about learning to brew, we invite you to submit your libations to the scrutiny of the Santa Barbara's Day partygoers, as well as a distinguished panel of completely impartial judges.*

For more information: [gwurman@seismo.berkeley.edu](mailto:gwurman@seismo.berkeley.edu)

**2008 EPS COMMENCEMENT**

Thursday, May 22, 2 p.m., Zellerbach Playhouse.

Watch the EPS website for details:

<http://eps.berkeley.edu>

# DEGREES AWARDED

## FALL 2006 - SUMMER 2007

### BACHELOR OF ARTS

#### ATMOSPHERIC SCIENCE

Elaine Yue Ling Tjsia  
Chelsea Megan Chandler

#### ENVIRONMENTAL EARTH SCIENCE

Jessie Deanne Golding  
Joseph Gomez  
Megan Helen-Rose Reitz

#### GEOLOGY

Gregory Ian Ball  
Brett John Davidheiser-Kroll  
Michael Jeffrey Harris  
Karen Mariposa Lancelle  
Scott Douglas Orton  
Charles Joseph Paradis

#### GEOPHYSICS

Angela Morrish

#### MARINE SCIENCE

Logan William Jager  
Katherine Xuan-Kha Thi Tran



Commencement, May 2007

Back row, left to right: Graduates Ryan Stewart McWilliams, Joel Rowland  
Middle row: Undergraduates Ian Ball, Scott Orton, Charles Paradis, Jose Gomez, Megan Reitz,  
Jessie Golding, Ajay Limaye  
Front row: Undergraduates Elaine Yue-Ling Tjsia, Sylvia Moses, Chelsea Chandler, Karen Lancelle,  
Eileen Evans, Angie Morrish, Katherine Xua-Kha Tran, Joel Scheingrass.

### MASTER OF SCIENCE

Nestor Herman Cuevas

Jeffrey Ralston Moore

*Rock Mass Strength Controls on the Erosion  
Rate of Alpine Cliffs in the Sierra Nevada,  
California, USA*

### DOCTOR OF PHILOSOPHY

Sarah Maria Aciego

*New Approaches to Quaternary Geochronology:  
U-Th/He Dating of Basalt and Stable Isotope  
Mapping of Polar Glaciers*

Jeffrey Michael Dick

*Calculation of the Relative Stabilities of Proteins  
as a Function of Temperature, Pressure, and  
Chemical Potentials in Subcellular and Geochemical  
Environments*

David Dolenc

*Basin Modeling in the San Francisco Bay Area*

Elisabeth Grove Green

*The influence of geochemical and microbiological  
weathering on hillslope erosion and landscape  
evolution*

Kimberly Blythe Knight

*Argon Geochronology: I. Applied  $^{40}\text{Ar}/^{39}\text{Ar}$   
Methods to the Chronology of Large Igneous  
Provinces II. Development of Cosmogenic Argon  
Methods for Terrestrial Chronology*

Wren Bowlan Montgomery

*The Role of High-Pressure Organic Chemistry in  
Planetary Evolution*

John William Moreau

*The role of microbial sulfur cycling in the fate of  
metals in mining-impacted environments*

Jay Taylor Perron

*Formation of Evenly Spaced Ridges and Valleys*

Joel Carey Rowland

*Tie Channels*

Dennise Christine Templeton

*Exotic Seismic Sources: Nearly Identically  
Repeating Events and Non-Double-Couple  
Earthquakes*

Akiko To

*Elastic and viscoelastic properties of the solid earth  
using normal mode based and numerical methods in  
1D and in 3D*

Mark John Wenzel

*Layered Mantle Convection on Mars, and the  
Electronic Structure of Magnetite*

Degrees awarded as of Summer 2007



# DEPARTMENT FUNDS SUPPORTED BY ALUMNI AND FRIENDS

## FRIENDS OF EARTH AND PLANETARY SCIENCE FUND

Established in 2007 to solicit funds for emergency student aid, collegial activities in support of education and research as well as equipment and facilities upgrades; to help with costs for student activities such as field trips and the yearly Santa Barbara's Day event; to make a monetary award to the winner of the Departmental Citation; to alumni outreach; to defray the costs of the weekly departmental Speaker's Program in which distinguished speakers from around the country are invited; and to assist in the acquisition of journals for the Earth Sciences Library and Map Collection.

### MEMORIAL FUNDS



#### Perry Byerly Fellowship Fund:

Established in 1978 to honor the memory of Perry Byerly with a graduate fellowship in seismology.



#### Louderback Fund:

Established in 1957 to honor the memory of George D. Louderback with fellowships in geology and paleontology.

See [eps.berkeley.edu/~jlipps/louderback/](http://eps.berkeley.edu/~jlipps/louderback/) for more information.

Recipient in EPS: Michael Lamb



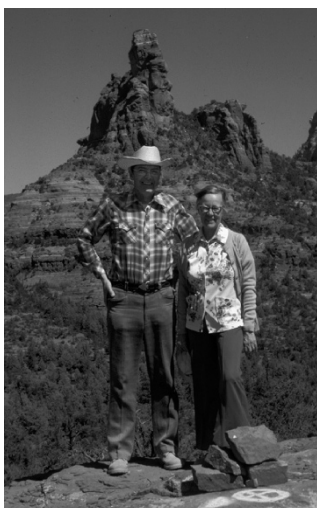
#### Thomas McEvelly Fellowship Fund:

Established in 2002 in memory of Professor Thomas V. McEvelly to award a graduate fellowship in seismology.



#### Charles Meyer Fellowship Fund:

Established in 1980 to honor Professor Charles Meyer by awarding a graduate fellowship in the area of integrated field and laboratory studies of ore deposits.



Chuck and Ginny Meyer in Sedona, 1984

#### Ralph Newton Emergency Fund:

Established in 1994 in memory of Ralph Newton to provide emergency funds to graduate students.

#### Harlan Todd Sutherland Memorial Scholarship:

Established in 1987 in memory of undergraduate student, Harlan Todd Sutherland, killed doing field research. Funds to support undergraduate or graduate student.

#### Don Tocher Memorial Fellowship Fund:

Established in 1979 to honor the memory of Don Tocher with a graduate fellowship in seismology.



#### Francis J. Turner Fellowship Fund:

Established in 1986 to honor the memory of Professor Francis Turner with a graduate fellowship in geology.

Recipients: Leah Morgan, Su-Chin Chang



### ENDOWED FUNDS



#### ESPER S. LARSEN, JR. RESEARCH FUND

Formally established on October 31, 1989. The proceeds of an endowment left to the University by Eva A. Larsen are used to support new research in the fields of geology, mineralogy and petrology. 2007 EPS recipients:

**Jill Banfield**, *Functional characterization of microbial communities involved in elemental sulfur dissolution on pyrite surfaces.*

**Don De Paolo**, *Integrating magma production with geodynamic models of continental tectonics.*

**Paul Renne**, *Chronostratigraphy and paleoenvironmental analysis of the Permian-Triassic boundary in western Texas.*

**William Dietrich**, *Sediment supply effects on river morphology and dynamics.*

#### GRADUATE STUDENT SUPPORT FUNDS

Michael Manga and Susan Storch Fund for graduate student support.

Julia and Rudy Wenk Fund for graduate student travel support.

#### RAMSDEN UNDERGRADUATE RESEARCH AWARDS

Established in 1994 to support undergraduates who have

expressed an interest in preparing for careers in the geosciences.

The 2007 recipients were:

**Allyssa Atwood**, Alaskan fieldwork and research in CH4 ebullition from tundra lakes.

**Allison King**, to support research experience in the Trace Gas Biogeochemistry Lab with Prof. Rob Rhew.

**Sylvia Moses**, studied the origin of the luminescence in the Upper Grant Pelagic Limestone in Italy under Prof. Walter Alvarez.

**Joel Scheingross and Eric Winchell**, for a joint project on debris flow influence on channel head morphology in steep mountain streams with Prof. William Dietrich.

**Scott Orton**, for determination of magmatic activity and regional tectonic deformation in Palm Canyon, California supervised by Prof. Rudy Wenk

#### GARNISS H. CURTIS ENDOWED CHAIR:

Established in 2004 in honor of Garniss' contributions to science and to UC Berkeley. Used at Chair's discretion on behalf of the Department.



# DONATIONS TO THE DEPARTMENT

JULY 1, 2006 — JUNE 30, 2007

## **Perry Byerly Fellowship Fund**

Alexander, Mia  
Billington, Selena  
Dewey, James W.  
Gregor, Nicholas J.  
Maloof, Giles W.\*  
Plumb, Robert E.

## **Garniss Curtis Endowed Chair**

Aldrich, Michele  
Aldrich, Terry M.  
Cheney, Richard S.  
Curtin, Richard F.  
Hildreth, Wes\*  
Hinton, Leanne L.\*  
Mahood, Gail A.\*  
Maloof, Giles W.\*  
Ohlmann, John P.  
Schetter, William C.  
Scott, Gary  
Stemmons, David B.  
Suess, Steven T.

## **Earth and Planetary Science Upgrade**

Schlumberger Technology Corporation\*

## **Earth Science Renovation Projects**

Irvine, Pamela J.  
Lin, Wunan  
Maloof, Giles W.\*

## **EPS Chair's Fund**

Aldrich, Michele  
Bacon, Charles R.  
Brice, James C.  
Brodersen, Ray A.  
Buffer, Richard T.  
Cheney, Richard S.  
Crosson, Maria E.  
Curtin, Richard F.  
Gillerman, Virginia S.  
Hildreth, Wes\*  
Hill, Melvin J.\*  
Hosley, Edward H.  
Irvine, Pamela J.  
Lauferweiler, Louise  
Mahood, Gail A.\*  
Maloof, Giles W.\*  
Marsh, Bruce D.  
Mcbain & Trush\*  
McClure, Cole R.  
McNab, Walt W.  
Mozley, Edward C.

## **Matching Funds**

ChevronTexaco Corporation, Exxon Mobil  
Foundation, Shell Oil Company Foundation  
Inc.

Murray, James W.  
Owens, John S.  
Prindle, Robert O.  
Robinson, James V.  
Seeburger, D. A.\*  
Sharp, Warren D.  
Teshima, Janet M.  
Trso, Martin  
Wallace, Paul J.

## **EPS Scholarship Fund**

Alexander, Mia S.  
Bacon, Charles R.  
Bluth, Gregg J.  
Cheney, Richard S.  
Curtin, Richard F.  
Dengler, Lorinda A.  
Dent, Sydney B.  
Doerschlag, Mark G.  
Hildreth, Wes\*  
Holdaway, Michael J.  
Lin, Wunan  
Lisle, Thomas E.  
Mahood, Gail A.\*  
Maloof, Giles W.\*  
Smit, Jacob M.  
Stimpson, Douglas B.  
Taylor, Roger L.  
Welby, Charles W.

## **Field Geology and Digital Mapping**

Booth, Charles V.\*  
Nielsen, Richard L.

## **Earth Sciences Department**

Alexander, MiS.  
Calk, Lewis C.  
Grew, Priscilla C.\*  
Kersting, Annie B.  
Lackey, Larry L.  
Liston, James M.  
Lopez-Morillas, Consuelo  
Marcus, Kim  
Merino, Enrique  
Nelson, Stephen A.  
Prindle, Robert O.  
Salter, Dayna J.  
The Fluor Foundation  
The Schwab Fund for Charitable Giving  
Wong, Florence L.

## **Earth Sciences Library**

Aldrich, Michele  
Cheney, Richard S.  
Hildreth, Wes\*  
Lin, Wunan  
Mahood, Gail A.\*  
Maloof, Giles W.  
Nielsen, Richard L.  
Prindle, Robert O.  
Trso, Martin

## **Louderback Fund**

Maloof, Giles W.\*

## **Graduate Student Support Funds**

Michael Manga & Susan Storch\*  
Julia and Rudy Wenk\*

## **McEvelly Seismology Fellowship**

Allen, Mary E.  
Billington, Selena  
Boyd, Nicholas G.  
Dewey, James W.  
Hood, Julie A.  
Karageorgi-Dermitzakis, Eleni  
Lee, Richard C.  
Leith, William S.  
McLaughlin, Keith L.  
Mortensen, Carl E.  
Seeburger, Donald A.\*

## **Meyer Fellowship Fund**

Barker, Robert W.  
Curtin, Richard F.  
Fidelity Charitable Gift Fund  
Gillerman, Virginia S.  
Hemley, John J.  
Henshaw, Paul C.\*  
Nielsen, Richard L.  
Pumford, Mark R.  
Saffell, Anne E.  
Shaw, Charles M.\*

## **Tocher Memorial Fund**

Billington, Selena  
Dewey, James W.  
Gregor, Nicholas J.  
Welby, Charles W.

## **Turner Fellowship Fund**

Borg Family Trust\*  
Borg, Iris\*  
Brooks, Elwood R.  
Maloof, Giles W.\*

\*Donation of \$1000 or more

# IN THE FIELD



**Raymond Jeanloz** (left) with General Nadeem (center), in charge of post-earthquake reconstruction in Pakistan, Chris Chyba from Princeton (back to camera), and David Frantz from Midwest Research Institute (blue cap), on a field trip reviewing reconstruction work in Kashmir (here, a boy's high school a few hundred meters from the "line of control" with India) and North West Frontier Provinces.



**George Brimhall's Summer Field Camp: Wise River, Montana**

For more photos, go to:  
[http://eps.berkeley.edu/~brimhall/EPS118/Website\\_EPS\\_118.htm](http://eps.berkeley.edu/~brimhall/EPS118/Website_EPS_118.htm)  
 Go to 'Class Photos 2007' and 'Photo Galleries of Past Berkeley Field Camps' links.



Left to right: Rick Lellinger (UCB), Pat Ryan (UO), Liza (PASSCAL), Derry Webb (PASSCAL), Leland O'Driscoll (OU), Pallavi Chethan (PASSCAL)



Left to right: Rob Porritt (UCB), Yongbo Zhai (Rice), Liza (PASSCAL) Derry Webb (PASSCAL), Andrew Tran (UCB)

**Richard Allen's** group deploying a temporary seismic station east of Redding, CA. This station is one of an 80-station array being deployed from the Oregon border down to Clear Lake, from the coast to east of the Sierra, to study the Mendocino Triple Junction where the Gorda slab is destroyed and the San Andreas Fault System is formed. The stations will record continuously for one year, providing data to image structure, detect earthquakes, and constrain deformation processes. UO: University of Oregon; PASSCAL: The IRIS instrument pool from whom we borrowed the instruments.

# IN THE FIELD



**Roland Bürgmann's** graduate student Kelly Grijalva sets up a GPS receiver at a site in the San Benito Mountains, which required the use of a helicopter for access. These measurements are used to characterize deformation along the creeping segment of the San Andreas fault.



**Roland Bürgmann** (right) and Structural Geology and Tectonics class at Point Bonita during a fieldtrip to the Marin Headlands. Well-developed pillows are seen in the basalt of the cliff face. From left: GSI and EPS graduate student Trey Apel, Summer Ohlendorf, Eileen Evans, Gretchen Sites, Josh Graham, Alex Spehr, Loretta Kwong, Charlie Paradis, Judy Chang, Justin Briggs.



**Bill Dietrich's** 2006 Geomorphology field project in Marin County. Students are surveying a 1974 landslide scar that Andre Lehre (Ph.D., 1982) documented.



Judd Goodman surveying the scenery on a 2006 Geomorphology field trip to Fallen Leaf area of Lake Tahoe to study the glacial history of the Sierra. This field trip was developed by Clyde Wahrhaftig in the 1960's and is continued by **Bill Dietrich**.



Joel Scheingross (center), a casualty of fieldwork in the desert with **Rudy Wenk**. Surgery by Justin Simon. Undergraduate Colin Phillips in rear.