

UCLA Earth & Space Sciences

Alumni
Newsletter
2000

Greetings from the Chair:

While you may not read this for some time after I write it, it is the beginning of the Fall 2000 academic quarter, and I am keenly aware that the challenges faced by a new Chair are squarely in front of me. I've been carrying out the Chair's duties since the beginning of July, but things are pretty quiet in the summer, and I know that will soon change. My first order of business is to praise

Mark Harrison for running the Department of Earth and Space Sciences for the last three years. Mark has provided effective leadership for the Department and has aggressively pursued its best interests. As the current political campaign often emphasizes, if you're better off than you were three years ago—and we are—then the Chair has done his job well. Mark, congratulations on a successful tenure as Department Chair.



I see the next few years as bringing great change to the Department. I've been here for a long time, and while there have been changes along the way, nothing in my memory can compare with the changes that have already begun. Two or three years from now the Department of Earth and Space Sciences will bear little resemblance to what it was in the past. This past year we lost **William Kaula**, a Department member

who for decades put UCLA at the top of the list of institutions carrying out teaching and research in geophysics and planetary physics. **Ted Reed** and **Wayne Dollase** have announced that they will soon retire, and **John Davidson** will be leaving us to assume the Chair of the Geology Department at Durham University. **Paul Coleman** has been lured from his UCLA office by the challenge of a new enterprise in the private sector. **Spring Verity**, our treasure of a Student Affairs Officer for the last 25 years has officially retired. **Lauri Holbrook** (BS '84) is taking on Spring's job, and she's already off to a fine start. Two new faculty, **Gilles Peltzer** and **Mark Moldwin**, have just joined us, and we are presently engaged in searches for new faculty in areas ranging from sedimentology to planetology. Some additional retirements can be anticipated in the not too distant future, adding to the changing face of the Department. Hopefully, our collective wisdom will insure that the Earth and Space Sciences Department ten years from now will be better than it's ever been.

Best wishes for the new year,


Gerald Schubert
Professor and Chair

New Faculty Members

Mark Moldwin, an Associate Professor of Space Physics, joined the UCLA Department of Earth & Space Sciences faculty in July of 2000. He received his PhD in Astronomy from Boston University. He studies the plasma and magnetic structure and dynamics of the inner



magnetosphere, magnetotail, and solar wind using an array of different satellites and ground-based observatories. The Earth's magnetosphere is a complex, tightly coupled, and highly dynamic system that protects the Earth's surface and atmosphere from direct interaction with the supersonic solar wind particle radiation. Through the interaction with the solar wind, the magnetosphere itself is also a source of particle radiation that can impact technological systems such as satellites and power grids. By examining how the solar wind couples and impacts the magnetosphere,

Mark is addressing how energy, mass, and momentum is transported through the Earth's space environment. In addition to his research interests, Mark has several active Pre-College Education and Outreach programs, including developing a National High School Magnetometer Network and supervising several space shuttle experiments being built by undergraduates and high school students and teachers. The most recent experiment flew on Atlantis (STS-106) in September 2000, and involved students from Eau Gallie High School and undergraduates at Florida Tech in Melbourne, Florida. Mark spends his free time with his family, taking his two children (Kyle Orion Galileo, age two and Lauren Andromeda, age 5) to the beach to play in the sand and surf, or to bike ride along the coast, or on day hikes in the Santa Monica or San Gabriel mountains. He also spends a morning a week at El Marino Language School playing science games with kindergartners, including his daughter.

Gilles Peltzer joined the Department of Earth & Space Sciences in April of 2000 as a Professor of Geology and Geophysics. He received his PhD from IPGP, University of Paris, France in 1987. Gilles has been with the CNRS, France since 1983. He joined the Jet Propulsion Laboratory's Radar Sciences Group in 1988 as an NRC post-doctoral fellow and was hired by the laboratory as a research scientist in 1990. Gilles' primary research interest is the study of crustal deformation processes from continental scale to earthquakes. He has been using various approaches to explore some of the many aspects of the subject, including scale modeling of continent-continent collision, remote sensing from Landsat and SPOT images, fine topography analysis of fault scarps, and the application of Synthetic Aperture Radar (SAR) interferometry to the study of earthquakes and associated processes.



On the cover: Atoka Kumagai in the White Mountains of eastern California during the 1999 Summer Field class. Atoka graduated *Summa Cum Laude* and was Valedictorian for the Class of 2000. Photo by graduate student Jorge Vazquez, TA for 1999's Summer Field.

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Middle Miocene turbidites of Topanga Formation intruded by Middle Miocene basaltic dikes related to Conejo Volcanics at Point Mugu, southern California. This view is toward the northeast, approximately parallel to the strike of Topanga strata, which dip 30 degrees to the northwest. Basaltic intrusions represent mantle-derived melts formed during rapid extension to form bathyal Topanga basin during transrotation of the Western Transverse Ranges. This is one of the few locations on Earth where transitional oceanic crust is exposed on land; similar crust probably underlies most rifted continental margins, but these margins are seldom exposed.

Evolution of the LA basin Ray Ingersoll and Pete Rumelhart

Professor Ray Ingersoll teaches geology at the Department of Earth & Space Sciences, and his former student Pete Rumelhart now works for ExxonMobil in Houston, Texas.

We propose that an episode of transtension dominated development of the Los Angeles basin area from 12 to 6 Ma, following mid-Miocene transrotation and prior to the modern transpressional regime. Transtension resulted from the releasing bend of the San Gabriel-Chino Hills-Cristianitos fault, which acted as the primary transform boundary in southern California during this episode. This implies that significant transform motion did not occur on the southern San Andreas fault prior to 6 Ma, and that the Gulf of California has opened primarily since 6 Ma. We propose a three-stage model for evolution of the Los Angeles basin and vicinity within the evolving transform fault system: transrotation (18-12 Ma), transtension (12-6 Ma), and transpression (6-0 Ma). Timing of these stages correlates with microplate-capture events, which occurred during

conversion from a convergent margin to a transform margin. Neither neotectonic transpressional models nor geometric transrotational models explain the observation that the Los Angeles basin area subsided rapidly beginning about 12 Ma. Widespread deep-sea fans (e.g., Puente Formation) were deposited 12 to 6 Ma, a time following rapid rotation and volcanism, and preceding north-south contraction in the Los Angeles basin area.

Future work will integrate structure, stratigraphy, petrology, and paleoenvironments at larger scale in order to refine our three-stage model. For a more detailed discussion of the subject, see "Three-stage evolution of the Los Angeles basin, southern California," by Raymond V. Ingersoll and Peter E. Rumelhart, *Geology*, v. 27, p. 593-596. □

*Spring Verity at her desk,
circa 1976, as seen in
Clarence Hall's slide show—
for a more current picture
of Spring, see page 8.*



A Farewell to Spring . . .

. . . may sound like the end of fair weather, but it was actually a celebration and commemoration of “a lifetime’s job well-done,” as Professor **Paul Davis** expressed it, referring to **Spring Verity’s** career at the Department of Earth & Space Sciences. Everyone in the Department, plus several local alumni, and her colleagues from Murphy Hall gathered for the festive occasion on Wednesday afternoon, August 30th, in the Commons Room of the Geology Building to honor and congratulate Spring on her retirement as the Student Affairs Officer of the Department.

Gerald Schubert, the new Chair of the Department, welcomed the group and shared some of his memories about Spring. She was a font of information that he, as a faculty member, could always count on. If he needed to know about tuition costs or research assistant salaries, the only number he had to remember was 53917—Spring’s telephone extension. **Clarence Hall**, as the “oldest extant” Chair of E&SS, presented an amusing and revealing—albeit short—slide show illustrating what the Department was like in the mid ‘70’s, and how Spring’s presence improved things here when she started her career at E&SS as the Department’s Secretary.

Paul Davis, another Chair Emeritus, wrapped up the “formal” part of the program, saying that, “Mere words cannot express adequately twenty-five years of consistent application at the highest level of conscientiousness and effectiveness. Although Spring’s job description requires her to be a counselor to students—nowhere does it read that she be a counselor for faculty, nor will you find it mentioned that she advise the Chair when he gets into difficulties.” It became quite clear that these were all things that she did over the years on a regular basis, when the floor was opened to “informal comments,” and several students, alumni, and faculty related stories about the help Spring

had given them and the seemingly insurmountable problems she had solved for them. Professor **An Yin** expressed what everyone who has come into contact with Spring already knows, when he mentioned her great personal warmth. And Professor **Dave Jackson** thanked Spring for articulating to our students and prospective students what faculty know well but don’t always express: that the University exists for the students. He cautioned that faculty will need to be sure this message reaches the students after Spring, our most effective spokesperson, retires.

To lessen the feeling of loss, Jerry Schubert announced that **Lauri Holbrook** (BS ‘84) has been appointed as our new Student Affairs Officer. As an alumna of Earth & Space Sciences, and with extensive experience counselling at UCLA, Lauri will bring both a love and knowledge of the subject matter as well as knowledge of the history and people of the Department to the position—not to mention a bright enthusiasm, and the same kind of human warmth we’ve all grown accustomed to having.

Then gifts were bestowed: A framed plaque with the letters “UCLA” formed from the original words of a song written by Lauri and **William Moore** (PhD ‘97) extolling the virtues of UC California in general and Spring in particular, which Bill then sang to the tune of “Hotel California”—without benefit of instrumental or alcoholic accompaniment. An electric tea kettle to commemorate all the “tea and sympathy” Spring has endowed. And a beautiful pendant and earrings designed especially for Spring with inlays of amethyst (her birthstone) and citron for all the sunshine she has brought to the Department, framed in black and white opal representing the sparkling personality she has shared both night and day, with gold handcrafted wire-wrap findings to say that “she is worth her weight in gold, and we will miss her dearly” . . . *and so said all of us!* □

Earth & Space Sciences is a Major Partner in Astrobiology at UCLA

Bruce Runnegar

Professor Bruce Runnegar is the Director of the Institute of Geophysics and Planetary Physics (IGPP) Center for Astrobiology, which was created in 1998 when UCLA became a member of the NASA Astrobiology Institute. Its members have pooled resources to promote research and education in Astrobiology.

Research in Astrobiology is focused on six main themes: (1) extrasolar planetary systems that may be abodes for life; (2) geobiology and geochemistry of early Earth and Mars; (3) paleobiology of Earth's early life; (4) genomic evolution and the tree of life; (5) celestial influences on terrestrial life; and (6) exploration for habitable environments in the Solar System using small spacecraft.

Astronomy. Recent technical advances and discoveries have paved the way for an exciting new era in the detection and characterization of extra-Solar stellar systems. UCLA astronomers have been deeply involved in these advances by making observations in the infrared, of the dust, disks, and substellar companions of nearby young stars. New techniques include the NIRSPEC infrared spectrometer—constructed at UCLA—now at the Keck Observatory in Hawaii; the high-altitude SOFIA observatory which will make observations in the mid- and far-infrared; and the adaptive optics (AO) capability of the Keck II telescope. These instruments and the Hubble Space Telescope will be used to observe nearby clusters of young stars discovered recently.

Geobiology and Geochemistry. A pioneering ion microprobe study of the carbon isotopic composition of *in situ* Precambrian microfossils was published this year. Techniques are now being developed for an in depth study of Proterozoic acritarchs and other organically-preserved microfossils. In parallel with this work, the nature of the Hadean and early Archean environments is being explored through the use of geochemical tracers such as oxygen isotopes in ancient zircon

crystals and the four stable isotopes of sulfur (^{32}S , ^{33}S , ^{34}S , ^{36}S) in Archean and older sulfides and sulfates. This research is aimed at obtaining information about atmospheric composition, sea water chemistry, and surface temperatures on the early Earth.

Paleobiology. Conical stromatolites from early Archean of Western Australia have been studied by X-ray computerized tomography in order to test numerical models for stromatolite growth being developed at UCLA.

Research on ancient black smoker deposits associated with massive sulfide ores in deep-ocean environments have revealed a wealth of new fossils, including numerous vestimentiferan tube worms. Future work will focus on the microbial fossils associated with these Phanerozoic occurrences and a search for similar deposits in deep Precambrian time. Other discoveries in paleobiology include work on the importance of microbial mats in the stabilization of sands and the preservation of Precambrian soft-bodied

UCLA Center of Astrobiology Research Highlights 1999-2000

- Robust whole-genome Tree of Life (Fitz-Gibbon & House, 1999)
- Discovery of seven T Tauri stars and a brown dwarf in the nearby TW Hydrae Association (Webb *et al.*, 1999)
- Biochemical evidence for the common ancestry of mitochondria and hydrogenosomes (Dyall *et al.*, 2000)
- Microbial mats are the key to Ediacaran preservation (Gehling, 1999)
- Confirmation of early Archean giant impact deposits using chromium isotopes (Shukolyukov *et al.*, 2000)
- Adaptive Optics (AO) comes on line at the Keck Observatory (Wizinowich *et al.*, 2000)
- Carbon isotope compositions of individual Precambrian microfossils (House *et al.*, 2000)
- Homeobox gene *engrailed* implicated in skeleton formation (Jacobs *et al.*, 2000)
- The first extra-Solar planet may have been observed (work in progress)
- Horizontal gene transfer limited by complexity of gene product interactions (Jain *et al.*, 1999; Lake *et al.*, 2000)
- Namibian trace fossil record ruins Precambrian-Cambrian boundary definition (Jensen *et al.*, 2000)
- Hydrothermal vent communities traced back to Paleozoic (Little *et al.*, 1999; Shpanskaya *et al.*, 2000)
- Planetary atmospheres are not significantly eroded by giant impacts (Newman *et al.*, 1999)
- Spectacular circumstellar disk imaged with NICMOS (Weinberger *et al.*, 1999)

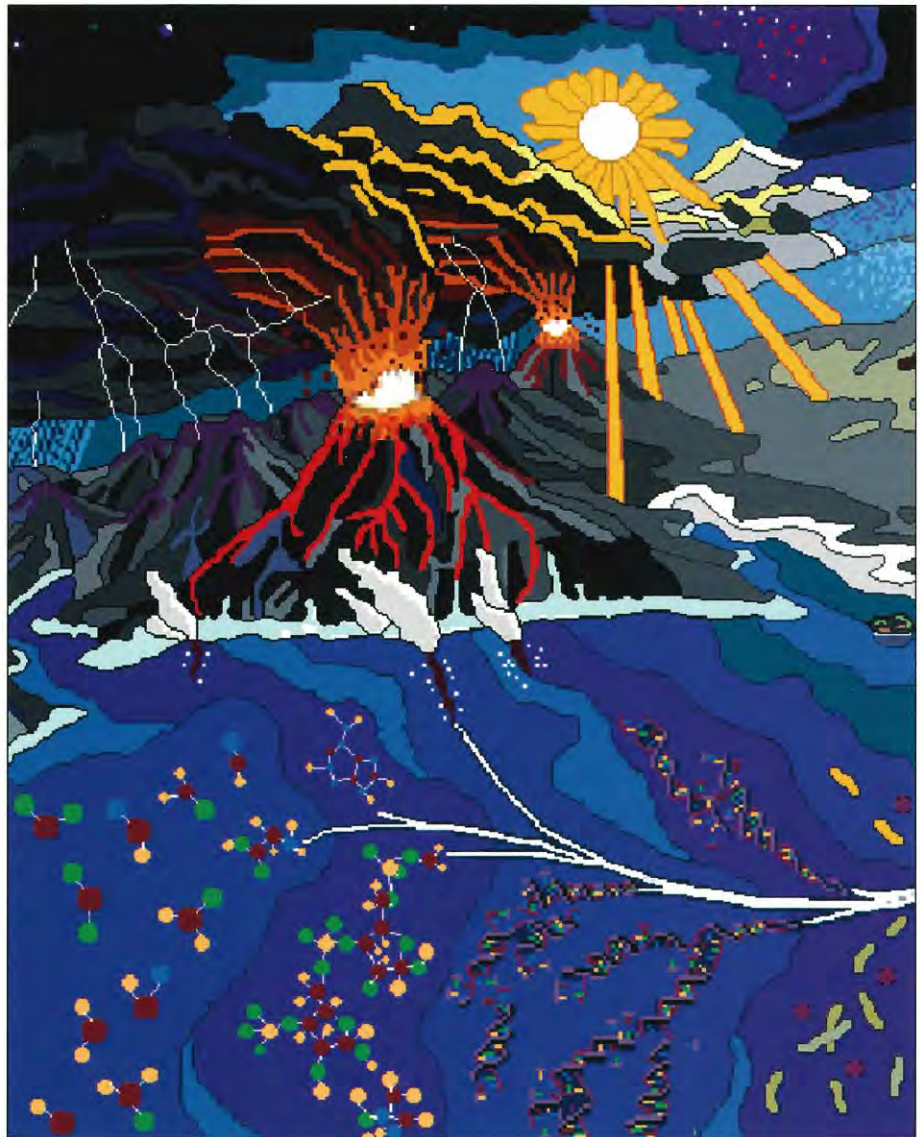
organisms, plus the role of trace fossils in the initial stages of the Cambrian Explosion.

Genomics and Evolution.

Achievements include the publication of a robust tree of life based on the protein-coding genes from a suite of microbial genomes, including yeast. This massive analysis demonstrated that lateral gene transfer has not obliterated the phylogenetic signal in genome sequences and it provided strong support for the broad architecture of the rRNA tree.

It has long been thought that the most deeply branching living eukaryotes, such as *Giardia*, lack organelles (mitochondria and chloroplasts) because they never had them. Recent work has shown that many of these amitochondriate protists have nuclear genes that have a mitochondrial origin, and in some cases, a mitochondrial function. At the same time, it has become clear that organelles known as hydrogenosomes may be best explained as mitochondrion-like bodies that have lost all their genes. Both of these ideas are being tested, because they have important implications for understanding the early history of eukaryotes and the way in which the eukaryote genome evolved.

Planetary Science. Two areas of great interest to Astrobiology are the effects of major impacts on the history of life and the effects of secular changes in Earth's orbital parameters on climate and the evolution of the biosphere. The first is being investigated through the discovery and characterization of impact deposits in undisturbed sedimentary sequences. For example, thick spherule beds with anomalous iridium and chromium isotope ratios provide evidence for the frequency of



The Astrobiological Earth. In this figure, the major processes that led to the emergence of life on this planet are represented in schematic form.

Liquid water (shown by the ocean, clouds and rain), energy resources (lightning, volcanoes, sunlight, chemicals) and raw materials (meteorites, prebiotic molecules) combine in this scheme to form the first self-replicating systems, and ultimately life. (Figure courtesy of NASA)

devastating impacts in early Archean times. In the second case, long numerical integrations of Solar System dynamics are being tested through the stratigraphic record of distinctive climatic events which are reflected in global changes in ocean chemistry. An unexpected outcome of this research has been the discovery of the sensitivity of orbital calculations to the ways in which some components of the system are approximated. As a result, we are rewriting the codes from first principles and plan to test and apply the results of long

numerical integrations to problems on both Earth and Mars.

Solar System Exploration. The sequential loss of the Mars Climate Orbiter (MCO) and Mars Polar Lander (MPL) has seriously disrupted the UCLA program in Astrobiology. However, the announcement of a rejuvenated program for the exploration of Mars in 2003, involving the landing of two rovers, provides new opportunities for UCLA astrobiologists and their colleagues in the NASA Astrobiology Institute. □

A Tribute to William Kaula 1926-2000

William M. Kaula, Professor Emeritus of Geophysics at UCLA, lost his long and heroic battle against cancer on April 1, 2000. He was born in Sydney, Australia, and as a youngster travelled with his family to New Zealand, Holland, and the US, finally spending most of his youth in Massachusetts. He attended the US Military Academy at West Point and graduated with a BS in Military Engineering in 1948. There followed several years of military service and studies at Ohio State University where he obtained an MS in Geodesy in 1953. He moved quickly from Chief of the Division of Geodesy of the Army Map Service to Research Scientist at NASA Goddard Space Flight Center to Professor of Geophysics at UCLA. Though he retired in 1993, he remained as active and productive as ever until almost his last day.

William Kaula was one of the leading geophysicists and planetary physicists of the last three decades. He was the author of two pioneering and influential books, *Theory of Satellite Geodesy* (1966) and *Introduction to Planetary Physics* (1968). He published over 250 papers on a broad range of subjects, including gravity fields of the Earth and the terrestrial planets, their interior structures and dynamics, and their dynamical evolutions. His papers dealt with tides, chaotic dynamics, planetesimal distributions, accretion of terrestrial planets, formation of the solar system, origin of the Moon, and comparative planetology.

Bill was influential not only as a researcher and teacher—he also served the academic and scientific communities with boundless energy and dedication. He was a frequent participant in NASA missions, as team leader for the laser altimeter on Apollos 15, 16, and 17, and team member for the radar and gravity experiments on the Magellan spacecraft. He was chief of the National Geodetic Survey of NOAA, editor of two major scientific journals, and chair of numerous academic and professional scientific committees. He served as Chair of both the Geophysics and Space Physics and the Earth and Space Sciences departments at UCLA, President of the Geodesy Section of the American Geophysical Union, and Chair of the Division of Dynamical Astronomy of the American Astronomical Society. He also served twice as a member of UCLA's Council on Academic Personnel. Bill's scientific contributions were recognized by numerous honors and awards, including Fellowship in the American Geophysical Union, an honorary Doctor of Science from Ohio State University, and the NASA Medal for exceptional scientific achievement. He was elected to the National Academy of Sciences, and received the Whitten Medal of the American Geophysical Union and the Brouwer Medal of the American Astronomical Society. In 1996 the asteroid #5685 was officially named "Kaula." Bill was particularly proud of



William Kaula

two achievements. He was the first person for a period of fifteen years to receive a tenured appointment in the physical sciences at UCLA without a PhD degree—there has been no other such appointment since. He was also the first graduate of West Point to be elected to the National Academy of Sciences since George Squires, Chief of the Signal Corps in 1919.

Among Bill's many scientific interests was the dynamics of the giant outer planets. He believed that a certain peculiarity of our

solar system might lead to complex behavior in its orbital properties. Every time Jupiter makes five complete orbits around the sun, Saturn makes almost exactly two orbits and again lines up with Jupiter and the sun. This near coincident return of the orbits is known as a "resonance," and Bill was especially interested in how this resonance, which he was fond of calling the "Great Inequality," could affect the smaller Uranus and Neptune. He was convinced that while the Great Inequality would complicate their orbital properties, the natural order of our solar system would be preserved. In recent years, Bill became interested in the claim that the outer solar system was chaotic, a claim he thought was nonsense. It is fashionable to describe systems whose long term behavior is extremely sensitive to their initial behavior as being chaotic. If this were true, the solar system might be expected to change over billions of years. Shortly after his death, his collaborators presented (posthumously with Bill) a joint paper proving the lack of validity of this claim. While the Great Inequality, and Bill's contributions to its understanding, remain a hallmark of modern planetary science, we like to think that one of Bill's last contributions was to restore some order out of the chaos in our understanding of the outer solar system.

Bill was not only an extraordinary scientist, but an extraordinary person, as well. He was highly knowledgeable about many subjects besides science—literature, art, music, and food, to name a few. He will be sorely missed by his children, grandchildren, wife Gene Hurley Kaula, friends, and colleagues. Bill's office at UCLA will be converted into a combination Seminar/Reading Room. The goal will be to keep many of Bill's things intact there, while providing much needed space in the Department of Earth & Space Sciences for seminar classes and studying. Contributions can be designated to the UCLA Foundation/ESS for the William M. Kaula Memorial Fund, and sent to the UCLA Department of Earth & Space Sciences, Los Angeles, CA 90095-1567, Attn: Barbara Widawski, or to the American Geophysical Union, Executive Offices, 2000 Florida Avenue, NW, Washington, DC 20009, in honor of William M. Kaula. □

In Memoriam

Don F. Anders (BA '50) died on February 19, 2000 doing one of the things he loved most—traveling the world. He served in the US Air Force during World War II, and was a part of the Manhattan project, photographing early nuclear explosions on the Bikini Islands. Besides earning his BA in Geology, he also earned an EDD in Education at UCLA, and became a high school administrator in the San Fernando Valley for the Los Angeles City School District, from which he retired in 1984. Don was active in the Masons all his adult life. He also attained the grade of Navigator in the US Power Squadrons, and served as the Commander of the Valley Ho Power Squadron in 1993. In 1998 Don achieved his goal of completing 25 years of service with the California Boys State Organization. [by Norman Bradley]

William Emerson (BA '49) passed away from cancer three years ago. [by Thomas Macleod]

Perry Ehlig (BA '52, PhD '58), a truly outstanding geologist and professor, died unexpectedly on December 26, 1999. He contributed significantly to understanding the complex regional geology of southern California, especially of basement rocks and the displacement history of the San Andreas fault system. He is remembered as an inspirational professor at California State University, Los Angeles, where he was one of the founding members of the Department of Geological Sciences. He taught there for 43 years, and served as Department Chair, Assistant to the Vice President-Academic Affairs, and acting Dean. Perry was also a highly regarded consulting geologist, and worked on many projects involving engineering, groundwater, and landslides. Over the years he enthusiastically led many stimulating field trips for geological societies and student groups. Perry cherished his family and included them in fun outdoor activities—he leaves behind his wife Marilyn, 2 daughters, 3 sons, and 11 grandchildren. [by John Crowell]

William A. Greenwalt, Jr. (BA '41) died on April 28, 1998, after a long battle with cancer. He had a distinguished career as a petroleum geologist with the Unocal International Division. He was decorated by the King of Thailand for discovering their first natural gas field—"Erawan"—and called "Father of Thailand's petroleum industry."

Fred L. Hantsch (BA '49) died on May 12, 2000. He had been in the Army Corps of Engineers for three years before earning his degree at UCLA. Though he was retired as a microengineer for General Telephone, he remained interested in geology, and continued to be active in the Southern California Microscopical Society, the Micromineral Society of Southern California, and the Paleontology Society. [by Phyllis L. Hantsch]

John Kingsley (BA '57, MA '63) died on March 29, 1996 at the age of 69 in Monterey, of pancreatic cancer after a prolonged illness. He left Janet, his wife of 48 years, a son, and two grandchildren. [by Janet Kingsley]

Gordon B. Page (MS '50) died on March 20, 1999, at the age of 87. His interest as a young boy in Southwestern Indians led him to study archaeology at the University of New Mexico, before earning his MS in geology at UCLA. He served with the Army Corps of Engineers, attaining the rank of Colonel, and retired after a distinguished 32-year career. He returned to Albuquerque, where he served as President of both the Archaeological Society of New Mexico and the Albuquerque Archaeological Society (ASNM), and was a member of the certification council for the ASNM for many years. Gordon was a teacher at heart, and passed on his knowledge of geology, geography, cartography, and archaeology. He was responsible for providing courses to senior citizens and was one of the prime movers in the Ghost Ranch archaeological program. He also acted as the survey and mapping crew chief for the ASNM Archaeology Field School at Gallup, New Mexico. Gordon became a champion Senior Olympic swimmer, winning regional and national awards. His humor and energy were contagious, and he will be remembered as one who always participated and could be called upon to help when needs arose. [by Dick Bice and Joan Wilkes]

William V. Sliter (BA '58, PhD '66) passed away on October 31, 1997, as the result of a heart attack. Bill was part of the first group of graduate students working under the guidance of Professor Helen Tappan [Loeblich] at UCLA in the mid-1960's. Upon completing his PhD dissertation on Cretaceous foraminifera, he took a job with Esso Production Research Company in Houston, Texas. After seven years, he went to Calgary, but soon returned to California where he began work for the US Geological Survey in Menlo Park. Bill wrote about Cretaceous foraminifera throughout his career, as well as other topics in geology and paleontology. He served the profession well, both within the Survey as Branch Chief of Paleontology and Stratigraphy in Reston, Virginia, and in professional societies. He was a former Director, Editor, and President of the Cushman Foundation. He stepped down from his position as Director some years ago, so "younger blood" could have a chance to have an impact on the Foundation. He continued, however, as an Honorary Director, and attended most meetings, where his jovial and insightful comments made the meetings fun and effective. Bill passed away in his laboratory at the Survey, doing paleontology to the very end. [by Jere Lipps]



Class of 2000—New Graduates, Faculty, Awardees, and retiring Student Affairs Officer Spring Verity (fifth from the right, first row) at the E&SS Commencement Celebration Brunch, June 18, 2000.

Honors and Awards—2000

EUGENE B. WAGGONER SCHOLARSHIP

Awarded to an undergraduate for academic excellence, this scholarship honors the memory of Department alumnus Eugene B. Waggoner (BA '38, MA '39).

Lori Heitzhaus

WALTER S. HARRIS SUMMER FIELD AWARD

Conferred for scholastic excellence to summer field students, this award was endowed by Mrs. Charlotte Harris Johnston in memory of Department alumnus Walter Stephen Harris (MA '58).

Myles McMonigle

Katherine O'Keeffe

Nyssa Roeth

Earth & Space Sciences Degrees Conferred 1999-2000

Doctor of Philosophy

- Elizabeth J. Catlos *Geochronologic and Thermobarometric Constraints on the Evolution of the Main Central Thrust, Himalayan Orogen* (Professor Harrison) *Geochemistry*
- Christopher Howard House *Tectonic evolution of southwest Tibet* (Professor Yin) *Geology*
- Michael Andrew Murphy, Jr. *Carbon Isotopic Fractionation by Diverse Extant and Fossil Prokaryotes and Microbial Phylogenetic Diversity Revealed through Genomics* (Professor Schopf) *Geology*
- Jennifer Alice Newbury *Plasma Heating and Thermal Transport in the Solar Wind Near IAU* (Professor Russell) *Geophysics & Space Physics*
- Frank C. Ramos *Processes and Mantle Sources Generating Basaltic Volcanism: Insights from Th Isotopes* (Professor Reid) *Geology*
- Leslie Kay Tamppari *Viking Era Water-Ice Clouds on Mars* (Professor Paige) *Geophysics & Space Physics*

Master of Science

- Sami Wadi Asmar (By Comprehensive Examination) *Geophysics & Space Physics*
- Jeremy Welles Boyce *Ar diffusion in quartz: Implications for Magma Residence Time Estimates Based on ⁴⁰-argon/³⁹-argon Ages of Quartz Phenocrysts* (Professor Reid) *Geochemistry*
- Lysa J. Chizmadia *Amoeboid Olivine Inclusions in CO₂ Carbonaceous Chondrites: Sensitive Indicators of Parent Body Aqueous Alteration* (Professor Wasson) *Geochemistry*
- Zhen Liu (By Comprehensive Examination) *Geophysics & Space Physics*
- Tamitha Lynne Mulligan (By Comprehensive Examination) *Geophysics & Space Physics*
- Thomas Paul O'Brien, III (By Comprehensive Examination) *Geophysics & Space Physics*
- Ann-Sophie Provost (By Comprehensive Examination) *Geophysics & Space Physics*
- Scott Martin Thompson (By Comprehensive Examination) *Geophysics & Space Physics*
- Hanbiao Wang (By Comprehensive Examination) *Geophysics & Space Physics*
- Yongli Wang (By Comprehensive Examination) *Geophysics & Space Physics*
- Amy Elizabeth Young (By Comprehensive Examination) *Geology*
- Kellie Lynn Zito *Characterization of the Carbon and Oxygen Isotopes of Carbonate Minerals in the Carbonaceous Chondrite Orgueil* (Professor Harrison) *Geochemistry*

Bachelor of Science

- Kirsta Lyn Dowling *Geophysics & Space Physics*
- James Jeffrey Fortuna *Earth Science* (Summa Cum Laude)
- Atoka Kumagai *Geology* (Summa Cum Laude)
- Patrick Sheung Lam *Geology*
- Timothy Lin *Geology/Psychology*
- Eric Geoffrey Margrave *Geology*
- Alice Ann Ormsbee *Geology*
- Willis Quan *Geology*
- Stephanie Marie Robbins *Geology*
- Justin Lee Rubinstein *Applied Geophysics* (Cum Laude)
- Kim Marie Scott *Geology/Paleobiology*
- Brian Wayne Viggiano *Geology* (Cum Laude)
- Colin Eric Woodruff *Applied Geophysics*

A very special "Thank You" to all of our 1999-2000 donors . . .

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Alumni News

1939

Joseph W. Kean, Jr., BA, spent 16 years as a high school teacher with the California Department of Corrections in the California Youth Authority, from which he retired in 1980. This was after retiring from a 22-year military career as a Lieutenant Colonel in the US Marines! He's been enjoying his second retirement, and the growth and adventures of his large family.

1943

Robert M. Norris, BA (MA '49) keeps busy visiting grandchildren in Australia and Mississippi, leading an occasional field trip for UCSB or the local museum, and writing articles now and then for *California Geology*. Some time is devoted to "sharing glories and tales of the past with other old codgers." He sent us the 1948 photo of himself, Ken

1949

Takeo Susuki, BA (MA '51), played baseball with the "Ventura Merchants," a team that competed against Babe Ruth's "Universal All-Stars" in 1931! He was drafted during World War II, and fought with the much decorated 442nd Regimental Combat Team that liberated the German Death Camp in Dachau, while his family was in a detention camp in America. He'd turned down an assignment in the Pacific, because he didn't want to take the chance of having to fight his brother, who had returned to Japan before the war and been drafted into the Japanese Army. After the war, Takeo attended Long Beach City College on the GI Bill, then transferred to UCLA, and later received a doctorate from Tohoku University in Japan.



Takeo Susuki and Jesse Ventura

He worked as a museum scientist at UCLA, and also taught the art of fossil photography and graphic illustration techniques — he retired in 1988. He is credited with discovering more fossil species in the Santa Monica Mountains

than any other paleontologist. Takeo toured Japan last year with the Nisei Baseball Research Project, a non-profit organization committed to preserving the "hidden legacy" of Japanese Americans in baseball. They opened an exhibit at the Tokyo Dome and Museum, and also visited Kyoto and Osaka. At the 16th century Osaka Castle, Takeo spotted Governor Jesse Ventura, who was there promoting trade and tourism for Minnesota — and they posed for this picture together.

Myron (BA '47), and Dave Poole (BA '44, MA '49).

1946

Bob Stevenson, BA (MA '48) says that he was just a bit behind John Crowell (MA '46, PhD '47), "who

was a hero to all of us veterans trying to get back into life." His field partner was Bob Herron (BA '46) for Summer Field of '46, which was led by Bill Putnam. Because of remaining wartime travel restrictions, and lack

of Department funds, their "field camp" was the north slope of the Santa Monica Mountains. Bob continued on for his Master's, with U.S. Grant IV as his major professor. While teaching at Compton College, Bob encountered K.O. Emery at USC, who'd just returned from completing his marine geological study at Bikini Atoll. Dr. Emery's enthusiasm changed Bob's life — Bob realized he could do geology and oceanography from a ship, thereby foregoing crawling through underbrush for the rest of his life! Bob continues his work in "space oceanography," working closely with astronauts at the Johnson Space Center and oceanographers and coastal marine geologists looking at problems of natural hazards that derive from the ocean. Bob and his wife Jeani recently moved to the North Shore of Kauai.



Bob Norris, Ken Myron, and Dave Poole fording the Amargosa River in Death Valley.

1950

Brad Johnson, BA (PhD '54), and Carole (Konold) Johnson (PhD '51) liked the town of Ojai when they passed through it on the way to 1950 Spring Field on Sespe Creek . . . Brad's still working at petroleum geology there—and still enjoying it.

1953

Don Hagen, BA (MA '57), is retired from the oil industry and is still strong and healthy. He travels a fair amount worldwide and, when at home, he stays active with skiing, tennis, mountain biking, dancing, hiking, sailing, and swimming. He also sings tenor in a classical choir, and does volunteer work for Habitat for Humanity.

1958

David Weide, BA (PhD '74, in Geography), worked in the Department from 1962 to 1973 as the Curator of Mineralogy and Petrology. He is now a Full Professor of Geology and Geography and Associate Department Chairman at the University of Nevada Las Vegas Department of Geoscience. David also produces a weekly radio program devoted to folk music—so be sure to tune in to KUNV, 91.5 FM, the next time you find yourself in Las Vegas!

1965

Stephen R. Adams, BA, retired on the last day of 1999 from his position with the city of Redding as a computer systems analyst and programmer, working mainly with financial software systems. His retirement days are filled with golf, tennis, snow skiing, and mountain biking.

1966

John Warme, PhD, who is a professor at the Colorado

School of Mines, went to Siberia in July of 1999 to study the Popigai Impact Crater, north-central Siberia. He was awarded the "Outstanding Achievement Award," which is awarded to one alumnus each year, by his alma mater where he received his BA, Augustana College in Rock Island, Illinois.

1968

Allen Barrows, PhD, is at the California Division of Mines and Geology. He and his fellow alumni there—Richard Greenwood (BS '74), Jerome Treiman (BS '72), and Siang Tan (MS '72) considered it a treat to have Paul Merifield (BA '54, MA '58) stop by to review some

maps . . . and Paul was surprised to see so many familiar faces there!

1976

Steven I. Usdansky, BS, has returned to the United States after ten years in Asia as a lecturer with the University of Maryland's

To: Barbara Widawski <barb@ess.ucla.edu>
Subject: Alumni News
From: Tom Qvenshine (PhD '65)

at 3:29 pm 1/18/00 you wrote:

. . . Incidentally, wouldn't you like to give me a little update about what you've been doing all these years to include in the next Alumni News section? --Barb

Dear Barb:

Well, only since you asked . . . I wasn't at the bottom of my class at Yale in 1958, but I clearly had it in sight. After a number of the worst graduate schools rejected me, I sneaked into Virginia Tech by claiming an interest in entomological agronomy and against all odds got a masters degree there. By mistake I was admitted to UCLA in 1960, and in the faculty food fight that ensued, John Crowell lost and had to direct my thesis. Late in my years at UCLA, Bill Rubey came after retiring from the USGS. One day we discovered that we were brothers in Phi Gamma Delta and had worked our way through college in pool halls. I needed a job, and Bill knew Director Pecora of the USGS well enough to get me hired in Menlo Park, California.

In "Mellow Park" I joined the Alaskan Branch because there were vacancies—their good people were always getting better jobs. They put me in the Alaskan Panhandle group, because I could swim, and all the field work was done in boats. In USGS in those days your scientific work was subject to rigorous scrutiny and because of my reviews, I became a manager. From 1970 to 1972 I was Assistant Chief of the Alaskan Branch. After a turn on Deep Sea Drilling Leg 29 and a year as editor of the Alaskan Pipeline Impact Statement, I became Chief of the Alaskan Branch from 1976 to 1980. It was more work than I anticipated, because that was when the USGS had to make mineral resource assessments of Alaska. I hated testifying in Congress, because it made me nervous.

In 1980 I moved from Menlo Park to USGS headquarters at Reston, Virginia to become Chief of the Office of Mineral Resources. This was a stretch for me, having been in "soft rock" most of my life. "How much program emphasis should we put on massive sulfides, Tom?" "Yes," I learned to say, "Enough to do the job on this important deposit type. But let's not forget porphyries."

In 1984 I was asked to take over the USGS International Program, which turned out to be kind of fun having your way paid to countries where there are different types of dysentery. My welcome at USGS got a little thin by 1995 (I'd occupied one of the Super-Grade slots for 15 years) so I moved back to Menlo Park, out of Dodge, posse in hot pursuit. I live now in comparative comfort in Palo Alto, gleaning the fields picked for artichokes and potatoes in order to make it through the winter.

It would not be fair to say that everything I am today I owe to UCLA. No Department deserves that kind of blame—you have to look at genetic factors, too. Notwithstanding, at UCLA from 1960 to 1965, I was taught by faculty who were acute, human, and supportive, in the company of other graduate students who were bright, honest, and deeply in love with geology. Your men and women from those years are strewn widely around the profession, where they bring considerable credit to your collegium, myself excepted.

Asian Division. He has decided to take a year off before “seeking gainful employment.”

1983

Bruce Barraclough, CPh, sent us the photo of himself with John Phillips (MS '83, PhD '87) and Gilles Bussod (PhD '90). All three were once employed at the Los Alamos National Laboratory, but John is now with NASA in Houston, where he is an astronaut. There are a number of other E&SS graduates working at LANL, including Dave McComas



Bruce Barraclough (left), John Phillips, and Gilles Bussod (right)

(PhD '86), Rick Elphic (PhD '82), Kurt Moore (PhD '91), and Jim Blacic (PhD '70).

1985

Karen Loomis, BS (PhD '90, Stanford), recently changed her career—she is now an environmental consultant working for Tetra Tech, Inc. in Santa Barbara. She says that she has come full circle, starting off in environmental science at UCLA before switching to a Geology major, which then led her into the oil and gas industry. Another major change in Karen's life was marrying George Koutoulas—the wedding was in Big Sur on June 5, 1999.

Peter K. Valles, MS, was promoted to Staff Geologist

with the Shell Exploration & Production Company in March of 1999, only to move on to a new position in the Hague, Netherlands as an Organizational Effectiveness Consultant for Shell International. He and his wife Laura have two daughters, and were also expecting a new baby, due in April of 2000.



Peter Valles with Laura, Emilie, and Hannah

1987

Steven Garrison, BS, started a new job as a pilot for Delta Airlines. Another recent change in his life was the arrival of his two-year-old

son, Liam James. He is living in Salt Lake City.

1989

David Bercovici, PhD, is a Professor and Chair at the Geology & Geophysics Department at the University of Hawaii at Manoa School of Ocean & Earth Science & Technology. He lives there with his wife and their two daughters, Sarah and Hannah. Among other honors, he was a Macelwane/AGU Fellow in 1996, received the University of Hawaii Regents Medal for Research in 1996, and was named ARCS Scientist of the year (Honolulu Chapter) in 1999. David will leave Hawaii at the end of 2000 to accept a Full Professorship with tenure at Yale.

1992

Toby B. Moore, MS (PhD '93) and his wife Monika had their first baby in March—a red-headed girl they named Jessica. Consequently, he'd been getting by on very little sleep when he contacted us—just like in grad school! He is still working with Mission Geoscience in Irvine, along with fellow grads Jim Ashby (MS '89) and Eric Hendrix (MS '86).

1997

David R. Baker, PhD, began a tenure-track faculty position in Physics this fall at Austin College in Sherman, Texas. Austin College is a highly selective liberal arts college recognized for innovative techniques in teaching and learning. In addition to teaching undergraduate physics courses, he will be responsible for upgrading the astronomy and environmental science curricula. David's current research involves interaction between the atmosphere and the land surface, especially the influence of soil moisture and rainfall on severe storms and flash flooding. He previously served on the Science Team for NASA's Shuttle Radar Topography Mission (SRTM). He lives

in McKinney, Texas with his wife Holly and their two-year-old daughter Laney.

Casey Lee Jensen, BS, moved back to his hometown of Stockton, married his wife Ligaya, and they now have a wonderful son, Christian.

Aaron Snow, BS, worked as a geologist for about a year at Slosson & Associates in Van Nuys. Among other things, he wrote third-party geotechnical reviews for the City of Agoura Hills, logged bore holes, and reviewed numerous court depositions. Although he loves geology as a subject, he soon realized that geology was not his cup of tea as a profession. He landed an internship at a recording studio during his employment as a geologist, and was later hired on full time. Now he edits and writes music for film and television, and tells us that he is the only music editor/composer he knows of with a BS in Geology.

Floyd Sabins, although not an alumnus of the Department, continues to enjoy his association with E&SS. Retired from Chevron, he remains active in remote sensing—in fact, he still teaches a class once a year here at the Department. He also lectured at the Center for Scientific Research and Higher Education of Ensenada in 1999, and has been invited to help establish a remote sensing function there.

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