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Earth Science Newsletter

FALL 2011

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Faculty News

Emeritus Profile: James Kennett

James Kennett, Emeritus Professor of Earth Sciences at the University of California, Santa Barbara, began his interest in science with a passion for collecting. Born in Wellington,New Zealand, Kennett "started collecting anything I could get my hands on: shells, insects, skeletons. I immediately got hooked on geology. I decided at the grand age of 11 that I wanted to be a geologist," he says. He started his doctoral studies at Victoria University in 1963. Kennett's major mentor, Paul Vella, showed him the usefulness of foraminifera, microfossils crucial in learning about Earth's history. "This one group has been absolutely critical," Kennett says. "You can distinguish the cold from the warm critters," he explains. Studying a sediment sequence from New Zealand, Kennett found that significant marine cooling in the late Miocene era corresponded to an inferred drop in sea level recorded in the sediments. "I put two and two together," he says, and proposed an expansion of the Antarctic ice sheet at that time. "Nobody had even thought about the history of the Antarctic ice sheet. It was ignored as part of the climate system," he says.

After finishing his Ph.D. at Victoria University in 1965, Kennett came to the U.S. to work in Orville Bandy's laboratory at the University of Southern California (Los Angeles, CA). Bandy's group was known as innovators in the then-emerging field of paleoceanography, which uses the ocean to decipher clues about Earth's past. In 1968, the Deep Sea Drilling Project, led by the United States, began. Over the next 15 years, the project took nearly 600 long cores from beneath the Earth's oceans. "That program has had such a profound effect on our thinking, it's unbelievable. Before drilling, we did not have samples of the ocean's history," Jim says.

In 1968, Kennett moved to Florida State University as an assistant professor, and two years later, he became an associate professor in the Graduate School of Oceanography at the University of Rhode Island, where he remained for 17 years. During that time, Kennett published many classic studies, focusing on ocean-climate evolution over the last 60 million years and the role of the

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OH CAPTAIN, OUR CAPTAIN: LETTER FROM THE CHAIR...

Doug Burbank

Greetings from the new department chair at the start of the 2011 academic year. After three years of dedicated and thoughtful leadership, Ralph Archuleta passed the torch to me at midnight on June 30th, but who says he was counting the minutes? He certainly hasn't retired: instead he, as expected, dove back into full-time seismological research, advising, and teaching, and perhaps he is enjoying the glow from his Harry Fielding Reid Medal, the highest award of the Seismological Society of America.

As the new school year begins, we are happy to welcome back three of our senior professors who were on leave last year. Toshiro Tanimoto spent a year at the University of Tokyo whose faculty are renowned for their seismological expertise. Cathy Busby has returned from a year at UT Austin, as well as a prior sabbatical spent mostly in Spain, and David Lea spent last year as a Jefferson Fellow at the Department of State in Washington, D.C. He worked in an advisory role on climate issues and says he had a fascinating, eye-opening experience working at the interface of science and policy. David was also named a "Google Science Communication Fellow" – one of 21 such awardees throughout the country.

Alex Simms has just completed his first year here as an assistant professor (see the subsequent article). I am fascinated by his clever applications of well-established dating techniques to define past sea-levels in his efforts to unravel linkages among climate, sea level, and tectonics. I am also amazed at what he accomplishes as he helps raise four young boys. Ah, the energy of youth!

Some youthful exuberance and dedicated scholarship were rewarded during our annual awards ceremony last spring. That's a time when the faculty have the pleasure of selecting among our many deserving and high-achieving students; the choices are tough, but we are always delighted that we have such a dedicated and enthusiastic group. Distinguished alums Jeffrey Severinghaus and Alula Damte were recognized for the accomplishments and contributions in the fields of climate change and resource exploration and development, respectively. We take continuing pride in the noteworthy paths that many of our alums have blazed.

Unfortunately, we also lost some valued members of our faculty this past year. Both Bruce Luyendyk and Rachel Haymon retired. Their energy and expertise in sea-floor exploration, marine and continental tectonics, marine geochemistry and those magnificent black-smoker communities, as well as their dedication to the department and UC's mission will be sorely missed. Although long-retired, our widely admired and fondly remembered George Tilton passed away last fall. It still amazes me that George was the first person to really accurately define the age of the solar system: what a monumental contribution! (A much fuller description of his life and science follows.)

Two of our valued staff members Sam Rifkin (grad program assistant) and Renee Meuret (office manager) also moved on to higher paying UC jobs this year. Given the absence of staff pay increases for the past four years, new jobs are typically the only way to move up. Luckily, we welcomed June Betancourt as a new (and very capable) office manager this summer, while an upward shuffle among our existing staff filled other openings. If you visit our departmental website (http://www.geol.ucsb.edu/), you'll see it has a new look, thanks primarily to the efforts of Dave Robbins. Over the coming year, you'll see a fresh face across much of the website.

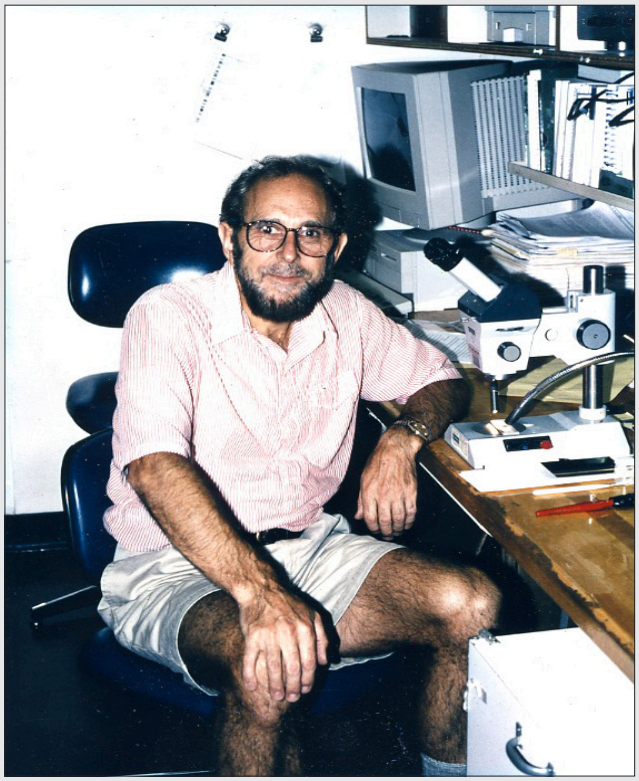
As the fall term began, we welcomed eight new graduate students to our ranks. This slightly-smaller-than-usual cohort helps balance the eighteen new grad students who joined us last year. One of last year's entering grads, Daniel Livsey, was awarded an NSF Graduate Fellowship this year and joins several other NSF and NASA grad fellows already in our department. Such fellowships are both an honor and a boon to our department, not only because they indicate that we have recruited top-notch scholars, but also because they free up resources to support teaching assistants and enhance our scholarly mission in other ways. Clearly, the several million dollars that our faculty attain each year in research funding from federal and state agencies, as well as from diverse other sources, also support many of our graduate and undergraduate researchers, engaging them in projects around the world.

Not all of the news is heartening. A third (7 in total) of our faculty have retired over the past four years, during which we have hired four new faculty, with Alex being the most recent. Given these net losses, the return of three senior professors to our ranks is particularly significant this year, a year when California's continuing budget crisis has brought at least $650M in cuts to the UC system. In response, large increases in tuition and fees have been imposed, support for our educational programs has been reduced, and rather stiff constrictions have been placed on new faculty hiring (about 25% of usual over the past two years). Many of our Earth Science undergraduates have also been feeling the pinch. We are very aware that our continued ability to subsidize field trips and reduce the costs of attending field camp or participating in research cruises depends heavily on the financial support that we receive from our alumni and other friends of the department. Your generous donations help us sustain our vigorous and diverse undergraduate and graduate programs, send students to conferences, underwrite independent research, and reward our students for jobs well done. As always, we greatly appreciate the assistance that we receive from you, but even more so during these challenging financial times.

We wish you the best for the remainder of the year, and we'll be in touch again in the following months.

Cheers from the Chair!

FACULTY NEWS: JAMES KENNETT, EMERITUS PROFESSOR continued from p.1



Antarctic in climate change. In 1982, Kennett fulfilled a life-long ambition by publishing a striking research-oriented book, Marine Geology: a classic go-to reference for all students interested in ocean history and climate. In the mid-1980s, he thought, "We really need a new journal." After lobbying the American Geophysical Union (AGU) and recruiting papers, in 1986 Kennett founded the journal Paleoceanography, which has been the top-ranked journal in paleoceanography as judged by citations since 1995.

In 1987, Kennett moved UCSB both as a Professor in Geological Sciences (now Earth Science) and as the Director of the Marine Science Institute. One of his main research goals was to use the Santa Barbara Basin, directly offshore of the campus, for high-resolution studies of climate change. Kennett explains that in studying the basin, he "exploited a local laboratory." The 600-meter-deep Santa Barbara Basin is a rare site where sediments preserve such fine resolution that layers can be divided as closely as single years, a phenomenon Kennett calls "the equivalent of tree rings in the ocean." A high sedimentation rate combined with lack of oxygen in the basin has limited the large organisms that might disturb the sediment, yet preserved abundant foraminifera. The area is also highly sensitive to climate change because it is located between two competing currents: the cold California Current from the north and the warmer Southern California Countercurrent from the south.

In the early 1990s, the Ocean Drilling Program, successor to the Deep Sea Drilling Project,drilled a single site in the Santa Barbara Basin that yielded a core stretching back 160,000 years. "That was a gold mine of information about the late Quaternary," Kennett says. By looking at oxygen isotopes and foraminifera, he saw that it contained abrupt changes that looked very similar to those recently discovered in Greenland ice-core records. This observation indicated to Kennett that decadal to centennial climate changes were broadly distributed. "It showed the remarkable sensitivity of the Earth's climate system to change," he says.

As Director of the Marine Science Institute, Kennett promoted efforts to create a dedicated building for MSI. This initiative culminated with the construction in 2002-2004 of the Marine Science Building – a four-story, 62,000-square-foot research and education center.

Kennett continued to study processes that might drive these climatic shifts. In 2000, he published evidence of methane release at critical times of abrupt climate change. When Kennett analyzed fossil shells from the Santa Barbara Basin using mass spectroscopy, large spikes in methane appeared coincident with periods of abrupt climate shift. AGU published his book on what Kennett calls his "clathrate gun hypothesis" in 2002. Kennett acknowledges that the potential climate-shift role of methane clathrates, the more technical term for hydrate, was and remains controversial. "Methane hydrates have and will continue to play a key role in climate change," he predicts, "[but] the climate community has largely not accepted the idea of a role."

During his tenure at UCSB Kennett received many awards, including election to the US National Academy of Science and AGU's prestigious Emiliani lectureship, both in 2000. He taught both undergraduate and graduate courses, focusing on the Antarctic, marine geology, stratigraphy and micropaleontology, and he also had many successful graduate students at UCSB, among them those serving currently as faculty at University of Michigan, UC Davis, and University South Florida.

Kennett retired from teaching in 2006, but has no plans to stop his research. Research has remained in his family. Kennett is delighted to have published with his son Douglas, an Associate Professor in the anthropology at the University of Oregon, and he, his son, and a team of international researchers have been occupied in recent years in promoting the controversial hypothesis that an extraterrestrial impact caused the Younger Dryas climate reversal and the terminal Pleistocene extinction, ~13,000 years ago.

Adapted from "Profile of James P. Kennett" by Tinsley H. Davis, PNAS, 2007

Distinguished Alumni

Every year, the department honors one of its alumni, celebrates their accomplishments while providing our current students with exemplary role models.

Alula Damte

In their letters of recommendation for his admission to graduate studies at UCSB, Alula Damte's professors at Addis Ababa University in Ethiopia had the highest hopes that he would become one of the foremost structural geologists in Africa. Alula's return to Africa has been circuitous and transitory, but in the process, he certainly has become a prominent structural geologist in the petroleum industry. For that reason, the Department of Earth Science selected him as its Alumnus of the Year.

Alula took his BSc in geology in 1987 and MSc in geology 1990 at Addis Ababa University, and then was appointed to a staff lecturership there. During the course of his graduate study in the East African rift, he found, significantly, that some of the master faults were not strictly normal faults, contrary to prevailing opinion, but instead evinced evidence for components of strike-slip. Thus developed Alula's great interest in such faults and his desire to study the San Andreas fault in California.

Alula was awarded a special Fulbright scholarship for Africans in the Junior Staff Development program and came to UCSB in 1992 to pursue a PhD in structural geology with emphasis on strike-slip faults.

Upon arrival in Santa Barbara, Art Sylvester took Alula to the Mecca Hills where Alula, whose previous experiences were with flat-lying basatic rocks, was absolutely overwhelmed by the wonderfully folded and faulted Miocene and Pliocene lacustrine and alluvial strata so beautifully exposed there. Alula determined that he would have to come to know the rocks on his own and so spent two weeks wandering alone in blistering heat of the hills. Alula said the heat and the geology nearly killed him, but he persevered. He took his PhD 1997 with a dissertation entitled: "Styles of deformation in zones of oblique convergence: Example from Mecca Hills, southern San Andreas fault."

One of Alula's primary discoveries was that the strata in the Mecca Hills were deposited in a separate, fault-bounded basin from the larger Salton basin, and that the San Andreas fault, which separated the two basins, has a nearly 2 km vertical separation in the subsurface, based on his paleomagnetic and gravity studies. Strike-slip faults with such a great component of vertical separation are quite uncommon, leading Alula to postulate that the San Andreas fault in the Salton basin was initially a Basin and Range fault that later evolved into a strike-slip fault when the transform boundary between the North American and Pacific plates extended into the Salton basin in Pliocene time.

The terms of Alula's visa required that he return to Ethiopia at the end of his studies, but his parents admonished him that because of the prevailing political climate there, he should remain in the U.S. He was able to spend a year with Mobil Oil Company, but the dilemma of his visa was solved when Alula sought and received entry into Canada with employment with Petrel-Robertson Consulting, Ltd., a leading petroleum exploration company in Calgary. Alula not only rose quickly within the company to become its executive vice-president, but he was also a leader in the Calgary Ethiopian Community Association whose mandate was mainly to welcome new Ethiopian arrivals to Calgary and help them become integrated into Canadian society.

Now, after 20 years of petroleum industry and related teaching experience with expertise in petroleum systems analysis of basins throughout Africa, North and South America, central Europe and western Australia, he is President, Chief Operating Officer, Managing Director, and co-founder of Central European Petroleum, Ltd. Throughout his industry career, Alula has provided solutions to structurally complex problems at the basin to prospect scale. He has also been responsible for the identification of petroleum opportunities especially in eastern Germany, where overseeing a well there precluded his return to UCSB to accept his award.

Alula has come a long way from flat-lying basalt in Ethiopia and his arrival at UCSB and pilgrimage in the Mecca Hills to be one of the leading structural geologists and petroleum geologists in the world. He is truly one of the department's Distinguished Alumni.

Jeffrey Severinghaus

Jeff completed his Masters at UCSB in 1988 under Ken MacDonald's supervision on mid-ocean ridges, and worked with Tanya Atwater on a groundbreaking map of eastern Pacific seafloor tectonics. He received his Ph.D. from Columbia University in 1995, working with Wallace Broecker on geochemistry and paleoclimate. He then became Assistant Professor at UCSD-Scripps Institute of Oceanography in 1997 before becoming Professor of Geosciences in 2004. Jeff is the 2011 recipient of the C. C. Patterson Award for "a recent innovative breakthrough in environmental geochemistry of fundamental significance," presented by the Geochemical Society. Jeff was recognized for his research on measurements of gases trapped in ice as a means of understanding environmental conditions, environmental change, and the mechanisms behind environmental changes.

Although initially trained in tectonics, Jeff has made his definitive mark in paleoclimatic studies. In particular, he is one of the leading experts in the world in analyzing the isotopic record of climate change from ice cores. One of Jeff's great contributions has come in what may seem like an esoteric area: diffusion of gases. For example, by measuring the characteristic fingerprint of temperature-induced gas diffusion in trapped air bubbles in Greenland ice, Jeff was able to make the first accurate estimates of temperature change across rapid, decadal-scale climate transitions. He has also shown that abrupt changes in the Asian monsoon are recorded in the isotopes of atmospheric oxygen. His insights on the magnitude and pace of abrupt climate changes in the past provide a critical background for understanding human impacts on modern climate.

For his outstanding achievements in delineating the pace and nature of climate change and for his attention to the geochemical details that allow his results to stand the test of time, we are delighted to recognize Jeff as a very distinguished alumni.

Every effort has been made to insure accuracy. Please notify our office of any errors or omissions at (805) 893-4604 or at brofferio@geol.ucsb.edu

2010/2011 Earth Science Fund Drive

We had a great response to our funding appeals last year. It is gratifying to see our alumni taking a lasting and consistent interest in their department. When I explain to potential donors that we have substantial commitment of support from our alumni, it makes us believable about our needs and we are taken seriously. The department has benefited in particular from employer matching gift programs. Be certain to check with your company when you make your gifts this year!

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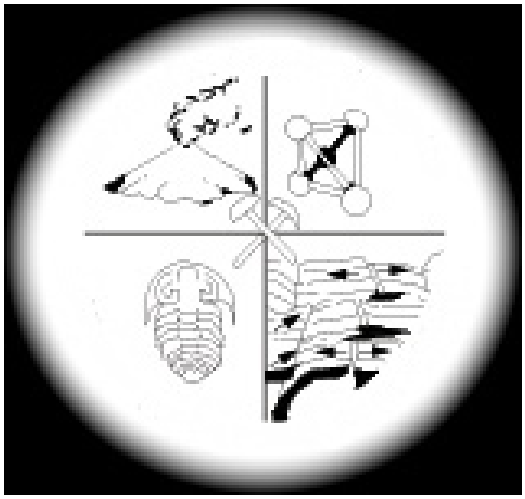


WHAT ARE THE ALUMNI DOING?

Douglas "Gus" Tolley, c/o F09 BS, began his masters degree in Fall 2011 in the Hydrology Program at New Mexico Tech, with John Wilson as his advisor.

Garrett Gamache, c/o W11 BS, began his studies at Texas A & M in the Fall 2011 to get his masters degree in Geomorphology.

Youri Yoon, c/o S11 BS, is working as a dental assistant and will eventually continue on to dental school.

Amelia Lanza, c/o M11 BS, will continue on to graduate school in the Fall 2012 to get a degree in energy resource engineering.

Scott White, c/o 2001 PhD, got tenure at the University of Southern Carolina

Brianne Catlin, c/o M08 MS, is in Australia working for HESS Oil Company.

Suzanne Carbotte, c/o W92 PhD, was named Bruce Heezen Senior Scientist at Lamont Earth Observatory at Columbia University, also RIDGE 2000 Distinguished lecturer and recently Birch lecture at AGU.

Will Amidon, c/o F04 MS, completed his PhD at Caltech, married on June 26, 2010 to Susan Parsons, and is an assistant professor at Middlebury College, Vermont.

Dan Scheirer, c/o F94 PhD, is a research geophysicist for USGS in Menlo Park, CA.

Robin Nagy, c/o W08 MS, is pursuing her PhD at Utah State University with Prof. Carol Dehler looking into Precambrian fossil record of the western U.S.

Ken Davis, c/o M03 MS, following his Peace Corps work in Ukraine , is in the EPA Office of International Affairs where he is the coordinator for international environmental issues.

Bryan Norman, c/o M10 BS, entered the masters program here at UCSB in the Fall 2011 working with Phil Gans and John Cottle.

John Zayac, c/o F06 MS, has been elected the department chair at Pierce College.

Jamie Persico, c/o F10 BS, just started working as a Staff Geologist with Technicon Engineering Services.

Christie Villanueva, c/o M11 BS, is going to the University of Minnesotta- Twin Cities this Fall 2011 to get her masters degree.

Brian Clarke, c/0 F09 PhD, is working on his postdoc at the University of Potsdam in Germany. Doing work in Argentina. He got married on March 18, 2011 to Vickie Hormuth.

Dick Heermance, c/o W07 PhD, is an Assistant Professor at Cal State University, Northridge. Research in western China. Got married on May 7, 2011 to Dr. Robinson Cecil.

Colin Amos, c/o S10 PhD, has a NSF postdoc at UC Berkeley with Roland Burgmann in InSAR processing. Got married on May 21, 2011 to Dr. Christine Hancock.

Alison Duvall, c/o M03 MS, has completed her PhD at the Univ of Michigan and is beginning a CIRES postdoc at the Univ of Colorado.

Joseph Goode, c/o S11, is now working as a geologist with Hess in Houston, TX.

Dylan Rood, c/o M07 PhD, is an NSF postdoc at UC Irvine and Research Scientist at the Center for Accelerator Mass Spectrometry at Lawrence Livermore National Lab. He and his wife, Daisy Pataki (c/o W07, MS) will be moving at year's end to Glasgow where he will be a researcher in the AMS facility of the Scottish Universities Environmental Research Centre.

James Worthington, c/o M11 BS, started his PhD with Paul Kapp at the University of Arizona, studying tectonics. He also attended the Summer of Applied Geophysical Experience through Los Alamos National Laboratory this past June.

Ben Melosh, c/o F09 MS, is pursuing a PhD at McGill University in Montreal .

Monica Erdman, c/o W11 MS, started a PhD program in the Fall 2011 at Rice University working with Prof. Cin-Ty Lee.

Kristof Igloi, c/o M10 BS, has been working for Venoco as a Geology Technician since March 2011.

Sarah Fowler, c/o M08 PhD, is a research scientist at ETH Zurich working on geothermal energy.

Richard Lease, c/o F10 PhD, is a postdoc at Tubingen, Germany. He got married on June 15, 2010 to Karen Vasko. He's doing research in the Eastern Andes and he will be moving to the USGS in Alaska in March 2012.

Dean Nevins, c/o W09 PhD, is chair of the Computer Science Department at Santa Barbara City College, president of the faculty Senate, and serves on the Goleta School Board.

Milene Cormier, c/o F94, is a faculty member at the University of Missouri, Columbia.

Monica Heintz, c/o W11, has been hired as a geologist at ARCADIS in Lakewood, CO.

Beth Pratt-Sitaula, c/o F05 PhD, moved to Pullman, WA to join her husband Ajay who works for Schweitzer Engineering Laboratories.

Bill Craddock, c/o S06 MS, completed his PhD at Penn State in 2011 and is working full-time for the USGS.

New Faculty - - - Alex Simms

Alex Simms is originally from Tahlequah, Oklahoma on the flank of the Ozark Plateau. He completed a B.S. in geology at Oklahoma State University where he first became interested in sedimentary systems. After a few summers working in the oil patch of Oklahoma, he moved to Houston, Texas in 2001 to pursue a PhD at Rice University. At Rice University he was awarded a National Science Foundation Graduate Fellowship while working with John Anderson documenting the impacts of sea-level and climate change on the Late Pleistocene/Holocene coastal deposits preserved in the incised valleys of the Gulf of Mexico. While studying at Rice, he also had the opportunity to spend a few months working with Kurt Lambeck at the Australian National University modeling the impacts of glacio-hydro-isostasy on the sea-level history of the Gulf of Mexico. After completing his PhD, Alex accepted a position as an Assistant Professor at Oklahoma State University in the fall of 2005. At OSU, he continued his work on the coastal deposits of the Gulf of Mexico but also started working on reconstructing the glacial history of Antarctica based on marine and coastal deposits. Alex missed the coast and accepted a position at UCSB in the fall of 2010.

Alex's interests lie in using the sedimentary record to reconstruct the Earth's history. He primarily uses cores, outcrops, and seismic data to document changes in the sedimentary record. He is particularly interested in developing new ways of using the sedimentary record to reconstruct sea-level and climate change through time. Recently, he has developed two new approaches to reconstructing sea-level change based on optically stimulated luminescence of the underside of cobbles within raised beaches and using siliciclastic algal mats as sea-level indices in shallow marine settings. With his students he has also worked on Permian eolian deposits, Quaternary fluvial terraces, and ancient subkas.

IN MEMORIAM

George Robert Tilton

1923-2010
Professor of Geochemistry Emeritus, UCSB

George R. Tilton, renowned geochemist and Professor Emeritus at UCSB, passed away on October 12, 2010. A premier researcher and highly respected teacher, his passing leaves a void in the Department of Earth Science and great sadness among his many friends.

Tilton was born on 3 June, 1923 in Danville, Illinois, the youngest of four children of Edgar Josiah Tilton II and Caroline Lenore Burkmeyer. He attended public schools in Illinois including high school in Danville. George was completing the two-year program at Blackburn College when World War II then in progress intervened. He was called up for active duty in the U.S. Army in February, 1943, and underwent training at various posts before assignment to the 26th Infantry Division (the "Yankee Division"). His outfit was shipped to Europe in August, 1944 and attached to General Patton's 3rd Army at the completion of its sweep across France. He saw action in Alsace until being wounded in November. His decorations include the Combat Infantryman's Badge and the Purple Heart.

Tilton¹s academic education resumed after his army discharge in October, 1945. He earned a B.S. in Chemistry at the University of Illinois and a PhD (chemistry) at the University of Chicago. George then conducted research in isotopic geochemistry at the Carnegie Institution of Washington (Wash. D.C., 1951-65) before accepting a professorship at the University of California, Santa Barbara. He served as professor of geochemistry in the Department of Geological Sciences during 1965-91, including a four-year term as department chairman.

His doctoral dissertation at Chicago involved the uranium content of meteorites. His analytical studies there pioneered use of the mass spectrometer to determine the isotopic composition of uranium in meteorites (fragments of planetary bodies) and terrestrial crystalline rocks. His work at Chicago with colleague Clair Patterson led to two momentous achievements based on isotopic compositions and ratios of meteoritic uranium and lead. They were the first to date the age of the solar system (including earth) at 4.56 billion years a figure that has remained little changed for more than half a century. Also, they pioneered the uranium-lead isotopic method of dating terrestrial igneous and metamorphic rocks, an achievement that has made possible the age calibration of tectonic events during the earth¹s prolonged geologic evolution..

During Tilton's long tenure at UCSB he has taught undergrad and graduate classes and continued research in geochronology (isotopic dating of rocks) and isotopic tracer studies of the origins of igneous rocks. That research blended with his supervision of numerous graduate-student PhD dissertations, involving joint field projects in the eastern and western U.S., Canada, Peru, the Alps, and eastern and northwestern China. His academic honors include election to the National Academy of Sciences in 1977, President of the National Geochemistry Society in 1980, recipient of the UCSB Faculty Research Lectureship in 1981, Honorary Doctor of Science degree at the Federal Institute of Technology, Zurich (Switzerland) in 1984, and Humboldt Foundation Awards for studies at the Max Planck Institute, Germany, in 1989 and 1993. His hobbies included hiking, backpacking, and canoeing. He was fond of classical music, and he sang for many years with the Santa Barbara Oratorio Chorale.

George met Elizabeth Jane Foster at the University of Illinois in 1947, they were married on February 7, 1948 in Chicago, and they have parented five children. George is survived by Elizabeth Tilton his wife of 62 years --, by daughters Linda Tilton Sisson (Eugene, OR) and Helen Tilton O'Connell (Eureka, CA), by sons David Foster Tilton (Trout Lake, WA) and John Robert Tilton (Carpinteria, CA), and by seven grandchildren.

Clifford Hopson, Emeritus Professor of Earth Science

Colleagues of Professor Tilton remember George

Department of Geology Faculty, 1975

(Left-Right, Standing): Bill Wise, Dick Fisher, John Crowell, Mike Fuller, Conrad Gebelin, Stan Awramik, Bruce Luyendyk, Jim Mattinson, Art Sylvester; (Left-Right, Seated): Cliff Hopson, George Tilton, Ron Day, Jim Boles

Summer Field Camp, 1976, students in Deep Spring Valley after flight over Poleta Fold's.

From left to right: Tony Nelson, Tim Smale, Duane Chase, Ernie Duebendorfer, Chris Buckley, Larry Mott, Jan Alfson

Visit http://www.geol.ucsb.edu/DeptHistory/HOME_DEPT_HIST.html for Department History and more pictures.

LIST OF MS/Ph.D. DISSERTATIONS
(Spring 2010 - Present)

Jennifer McGraw- S10 - Hacker
Exhumation Depths of the Lower Crustal Domes of the Pamir

Dylan Rood - S10 - Burbank
Spatiotemporal Patterns in Glaciation and Deformation Across the Sierra Nevada- Walker Lane Transition

Richard Lease - M10 - Burbank
Signatures of Mountain-Building: Middle Miocene Reorganization of Deformation, Erosion, and Deposition on the Northeastern Northeastern Tibetan Plateau

Celso Alvizuri - F10 - Archuleta
Observation of Rayleigh Wave Azimuthal Anisotrophy

Alice Koerner - F10 - Busby
Cenozoic Evolution of the Sonora Pass to Dardanelle Region, Sierra Nevada, California: Paleochannels, Volcanism and Faulti

Elizabeth Lovelock - F10 - Tiffney
Geology, Geochronology, and Paleobotany of the Moonlight and Susanville Fossil Flora Localities, Northern Sierra Nevada, California

Christopher Stubbs - F10 - Luyendyk
Spatial Distribution of Near-shore Gas Seepage from Sub-sea Permafrost in the Laptev Sea Shelf, Arctic Ocean

Jennifer Bradham - W11 - Wyss
A New Ntostylopid and Two Species of Periphragnis (Mammalia: Notoungulata) from the Tinguiririca Fauna of Chile

Monica Erdman - W11 - Hacker
Velocity Anisotropy in Basin and Range Lower Crust from Electron Backscatter Diffraction

Jiana ten Brinke - W11 - Keller
Effects of Invasive Reed Arundo donax on Rivers in Southern California

Jennifer Van Pelt - W11 - Gans
Structure and Stratigraphy of the Southern Mitchell Range, Central Mohave Desert, California

Steven Arauza- S11 - Hacker
Absence of Trace-Element Zoning Identifies Reset Lu-Hf and Sm-Nd Garnet Ages

Joseph Goode - S11 - Burbank
Interactions of Tectonics and Rivers with the Surface of the Earth: Studies from Nepal, New Zealand's South Island, and the Naryn Basin, Kyrgyzstan

Monica Heintz - S11 - Valentine
Rates of Aerobic Methane Oxidation in the Waters of the Santa Monica Basin and Alaskan Arctic Lakes Measured with a Tritium-Based Radiotracer Technique

Katherine Spencer - S11 - Hacker
Exhumation History of the Western Gneiss Region, Norway from Titanite Geochronology

2010-11 Departmental Graduate Awards

G.K. Gilbert Award
Joseph Goode

Harry Glicken Memorial Award
Jaron Lucero

Richard and Eleanor Migues Graduate Field Research Award
Graham Hagen-Peter

George Tunell Endowed Fellowship
Jesse Mosolf

Wendell Woodring Memorial Award
Daniel Luna

Preston Cloud Memorial Award
Steven Arauza, Jorge Crempien, Stephanie Diaz, Blair Paul, Katherine Spencer, Rebecca Streit, Tanya Taylor

Lloyd and Mary Edwards Field Studies Fellowship
Rebecca Streit

RV Fisher Award
Benjamin Martin

Geophysics Award
Guangfu Shao

Alumni Graduate Award for Research Excellence
Jeffrey Creamer, Joseph Goode

Fugro West Award
Stephanie Diaz

Coast Geological Society Award
John Moore

Graduate Award Recipients, 2011.

Graham Hagen-Peter receives the Migues Award

Undergraduate Award Recipients, 2011

Robert Maksimow receives the Norris & Bushnell Awards.

2010-11 Departmental Undergraduate Awards

William Bushnell Memorial Scholarship
Robert Maksimow

Robert M. Norris Prize in Field Geology
Robert Maksimow

Outstanding Graduating Senior
Helen Thomas, Christie Villanueva

Outstanding Academic Achievement
Joseph Dargel, Joshua Noble, Helen Thomas, Christie Villanueva, Kyle White, James Worthington, Katherine Zeiger

Distinction in the Major Award
Helen Thomas, Christie Villanueva, James Worthington, Katherine Zeiger

Charles Douglas Woodhouse Award
James Worthington

Venoco Field Scholarship
Kevin Ambrose, Peter Haproff, Justin LaForge, Amelia Lanza, Christie Villanueva

Department Field Award
Brett Bonotto, Luke Merrill

Coast Geological Society Award
James Worthington

Graduate Student Fellowships

UCSB Continuing Student Fellowships

(2011)

Dean's Fellowship
Graham Lederer

Graduate Division Dissertation Fellowship
Jeffrey Creamer

Science & Engineering Research Grant Program
G. Burch Fisher

Graduate Research Mentoring Program
Jesse Mosolf

Extramural Fellowships

Ford Foundation Fellowship
Stephanie Mendes , 2011-2014

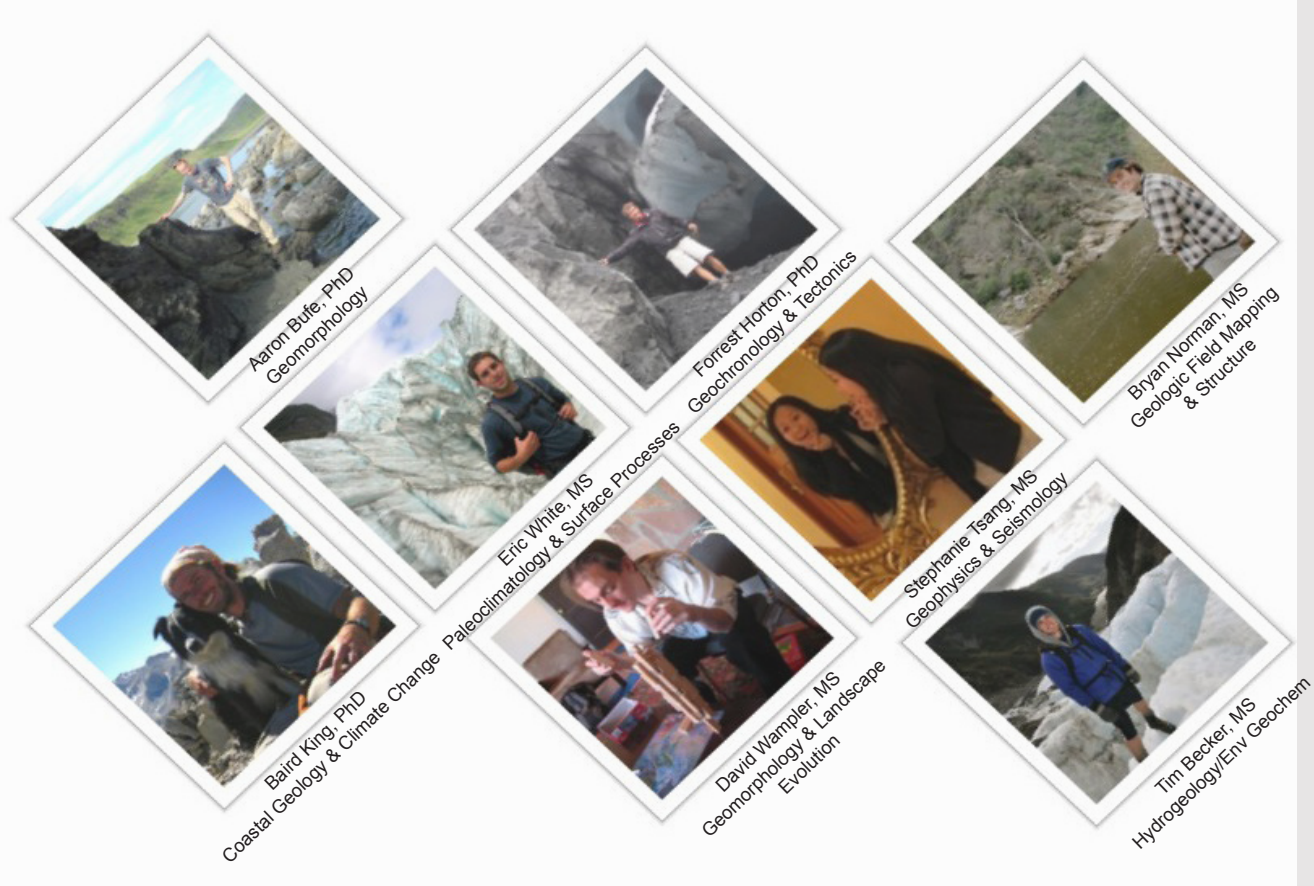
NSF Graduate Research Fellowship Program
Daniel Livsey, 2011-2014
Forrest Horton, 2010-2013
Jessica Thompson, 2009-2012
Rebecca Streit, 2009-2012

NASA Earth and Space Science Fellowship (NESSF)
G. Burch Fisher, 2009-2012

NSF Louis Stokes Alliance For Minority Participation Bridge to Doctorate
Lauren Miller, 2010-12

Fulbright U.S. Student Program
Daniel Luna

2011 Incoming Graduate Students



DEPARTMENT HIGHLIGHTS

Department Picnic
Faculty vs. Grads Softball Game

The crowd enjoys some good ole bbq.

Carlye grills some veggie kabobs, sausages, and tri-tips.

Monica runs to first base.

The short-stop tries to baserunner out Frank.

Undergraduates: Kate, Paige & Amelia played for the faculty & staff team.

Adam congratulates the chair, Ralph, on winning the game: Faculty/Staff (19) vs. Grads (7).

GEOLOGY 118/119: SUMMER FIELD TRIP TO POLETA FOLDS & WHITE MOUNTAINS

Summer Field Students 2010

Students begin their day with field mapping.

Prof. Phil Gans lectures during mid-hike.

Student Bryan Norman inspects a rock.

The class takes a lunch break.

The students work on their projects.