

NUHOU KANAKA PUKA

50 Years at UH Mānoa

Department of
GEOLOGY & GEOPHYSICS
University of Hawai‘i, Mānoa
Summer 2009

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Nuhou Kanaka Puka

Nuhou Kanaka Puka (“Alumni News” in Hawaiian) is published by the Department of Geology and Geophysics of the School of Ocean and Earth Science and Technology (SOEST) for its alumni and friends.

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G&G—Celebrating Our 50th Anniversary

The Department of Geology and Geophysics was founded at the University of Hawai‘i in 1959, the same year Hawai‘i became the 50th State, making the 2008-2009 academic year our 50th anniversary. In 50 years we awarded 440 B.A./B.S, 254 M.S. and 198 Ph.D. degrees to students from around the world.

Harold Palmer, a field and structural geologist who contributed to the early understanding of groundwater on Oahu, was the first University of Hawai‘i geologist. He worked for 30 years here prior to the establishment of a department. In 1940, Thomas Jaggar was appointed as a research associate in geophysics after his retirement from the Hawaiian Volcano Observatory (HVO). Both Palmer and Jaggar left legacies of support for students to attend mainland field camps and to promote volcanological research at UH. Agatin Abbott replaced Palmer in 1955 and became the first G&G department chair, serving until 1964. Gordon Macdonald was the department’s second appointee, with responsibilities split between the department of geology and the newly established Hawai‘i Institute of Geophysics (HIG). Macdonald, along with Harold Stearns, mapped the Territory of Hawai‘i and reported on the petrology of the island’s volcanoes for the USGS. He also served as the Scientist in Charge of HVO from 1951-1956. Ralph Moberly was hired in 1959. This 3rd member of the G&G faculty remains an Emeritus Professor today. Ralph, who covered the soft rock courses that Ag and Mac didn’t teach, was enticed to UH by the “overseas” assignment and a whopping \$6,000 salary. In those early years, there were many, intellectually stimulating gatherings of other scientists in the department, including retirees from the mainland, local consultants, naturalists, AGU chapter members, Air Force meteorologists, oceanographers, astronomers, guest lecturers and beer (some things never change). From a seed of 3 faculty, G&G student enrollment grew on the popularity of courses such as Macdonald’s Geology of the Hawaiian Islands, which is still taught today.

In the early 50’s, the U.S. congress appropriated \$3 million to create the Hawaiian Institute of Geophysics (HIG). The Territorial Legislature mandated that this institute conduct basic research and training with application toward Territorial problems. Upon statehood, this mandate became a State statute. State money provided funds for geology classrooms and offices to be included in a new HIG building.

By 1963, the HIG building was complete, a Ph.D. program was instituted; the first geology graduate degrees were awarded in 1965. Originally, geology and meteorology formed a Department of Geoscience in the College of Arts and Sciences. Joint appointments with HIG, a strictly research institution, allowed a reduction in teaching responsibilities, and consequently, greater research opportunities for faculty. Research positions in HIG grew faster than instructional ones in other departments. Departmental policy stressed graduate study collaborations with HIG and less

(continued on page 2)

emphasis on undergraduate programs until the mid-80's. By 1971, the Department of Geology and Geophysics had shed meteorology and become the entity it is today. Then G&G consisted of 19 faculty with 7 instructional positions, with a name reflecting the mix of Geoscience and HIG hires.

The department has evolved through the decades with changes in faculty expertise, funding opportunities, employment prospects for graduates and research directions of HIG. In the beginning, Marine Geology and Geophysics was larger than Solid-Earth Geophysics and Volcanology and Petrology. Smaller subdivisions included Hydrology and Engineering geology, and Geodesy and High-Pressure Geophysics. HIG operated the ships, supported major labs, and effectively shaped the graduate programs of G&G and Oceanography. MGG combined exploration geophysics, tectonics, micropaleontology, petrology, and sedimentology. VP emphasized physical volcanology and igneous petrology. SEG stressed seismology and gravity. Hydrology shifted its research base from HIG to the Water Resources Research Center and Geodesy faded due to lack of funding. Most graduates from the 60's to the 80's were hired by oil companies, exploration geophysics companies, hydrology and engineering firms, and mining companies. HIG also hired UH graduates to fill postdoctoral and research appointments. Others filled federal, state, and foreign government positions. In the late 70's SEG branched out into paleomagnetism to pursue research into seafloor spreading. Geochemists joined G&G just as analytical advances were showing the compositional systematics in natural systems.

An internal reorganization proposal that advocated more state support led to the creation of the School of Ocean and Earth Sciences and Technology (SOEST) in the mid-80's. Growth of the school required a new building—federal earmarks provided funding; circumstances similar to those that created HIG. Years earlier a workshop of local business and government representatives produced a report, "Hawai'i and the Sea", that recommended UH Mānoa establish a college to focus teaching and research on Hawai'i's special advantages. This initial proposal died from opposition from various UH entities. However, in 1985 SOEST prevailed and received support from the UH President, the Board of Regents, and the Hawai'i Legislature. G&G joined SOEST in 1988.

Today the G&G occupies three floors in one of the newest facilities on the UH Mānoa campus—the Pacific Ocean Science and Technology (POST) building. G&G has 31 instructional and research faculty, 52 graduate students, and 40 undergraduate students, 14 staff members, and 3 postdoctoral researchers (give or take a few). Currently, G&G research is more diverse than at any point

in our previous history and teaching has evolved to keep up with growing digital information age. Our research facilities are state-of-the-art, collaborations with national and international scientists and students continue to expand, and discoveries on the nature of the Hawaiian Islands and underlying seafloor never cease. The next 50 years are bound to be bright.

Message from the Chair

I want to extend a very special greeting to our **alumni** on the 50th anniversary of the Department of Geology and Geophysics. Despite hard financial times, G&G programs are thriving; research awards to our faculty have nearly doubled from last year, and we have a dynamic population of 36 undergraduate majors and 50 graduate students. We continue to be one of the leading academic programs in the entire UH system.



This year, we welcomed four new faculty members. **Clint Conrad**, a geophysicist studying dynamic processes in Earth's interior; **Hope Jahren**, who studies stable isotope chemistry of many different materials, from fast food to ancient trees (Hope and Clint are married); **Katharina Pahnke**, a paleoceanographer specializing in abrupt climate change and Southern Hemisphere ocean and climate variability; **Henrieta Dulaiova**, who uses geochemical tracers to study groundwater and mixing processes in the coastal zone. The ladies are part of Marine Environmental Geology (MEG) Division. Clint works with our Geophysics & Tectonics (GT) Division.

Despite all the good news, the new fiscal year starting July 2009, portends financial challenges. Budget cuts force us to direct all available funds into staffing. The result is that we have no funds for classroom activities including new lab equipment, field trips, software licenses, computer replacements, audiovisual equipment, and others. Several faculty have taken the extraordinary personal step of directing a portion of their paychecks into the GG account at the UH Foundation.

We've never needed your help more. Link to <https://www.uhf.hawaii.edu/give/giving-gift.aspx> and make a donation (under "Accounts") to the Geology and Geophysics Fund, or use the enclosed "yellow" donation form.

Please accept my very best wishes for a happy 2009/2010! **Chip Fletcher, Chair**

Degrees, Awards & Honors

Undergraduates

Maria Janebo (BS, Fall 2008)
Morgan Smith (BA, Fall 2008)
Tracy-Joy Saguibo (BS, Fall 2008)
Alyson Joos (BS, Spring 2009)
Noah Kippen (BS, Spring 2009)
Erin Miller (BS, Spring 2009)
Mary Tardona (BA, Spring 2009)



Spring/Summer '09 BS Graduates:
 Joos, Tardona, Kippen, Miller, Niklis

Masters of Science

Lisa Swinnard
Geochemical Variations of Kauai Island and South Kauai Swell Volcanics (Advisor: M. Garcia, Summer 2008)
Bradley Romine
Historical Shoreline Trends and Management Implications: Southeast Oahu, Hawaii (Advisor: C. Fletcher, Fall 2008)

Doctor of Philosophy

Rebecca Carey
Conduit, Eruption and Plume Dynamics Throughout the 28-29 March 1875 Eruption of Askja Volcano, Iceland (Advisor: B. Houghton, Fall 2008)



Spring/Summer '09 MS & PhD Graduates:
 Mitchell, Bochiccio, Anchieta, Marske, Bianco

Eric Mittelstaedt

Plume-Ridge Interaction: Shaping the Geometry of Mid-Ocean Ridges (Advisor: G. Apuzen-Ito, Fall 2008)

Aisha Morris

Topographic and Gemorphologic Analyses of Volcanic and Impact-related Landforms on Earth and Mars (Advisor: P. Mouginiis-Mark, Fall 2008)

Adrienne Oakley

A Multi-channel Seismic and Bathymetric Investigation of the Central Mariana Convergent Margin (Advisor: B. Taylor, Fall 2008)

Loyc Vanderkluyzen

Chemical and Isotopic Studies of Deccan Traps Dikes (India) and Louisville Seamounts (South Pacific): Aspects of the Youth and Maturity of Hotspots (Advisor: J. Mahoney, Fall 2008)

Andrea Steffke

Integration of Thermal Infrared Satellite Data with Ground-based Geophysical Data for Understanding Volcanic Processes (Advisor: A. Harris, Spring 2009)

Wendy Stovall

Dynamics and Processes During the 1959 Kilauea Iki Eruption (Advisor: B. Houghton, Spring 2009)

Faculty & Staff

University of Hawaii Tenure (8/1/09)

Robert Dunn
Scott Rowland

University of Hawaii—Certificates for faithful and loyal service

Evelyn Norris (30 years)
Gregory Moore (20 years)
Garrett Apuzen-Ito (10 years)

2009 Veterans National Table Tennis Championships, Norway

Paul Wessel—two bronze medals (teams and doubles) and a fifth place in singles



Student Awards

Agatin Abbott Memorial Award

Presented to an outstanding senior each year in memory of department faculty Agatin Abbott—**Maria Janebo**

William T. Coulbourn Fellowship

Endowed by friends and family in memory of department alumnus and faculty member William T. Coulbourn—**Jacque Kelly**

Harold T. Stearns Fellowship

Endowed by longtime department friend for the purpose of supporting student research on geological and geophysical problems in Hawaii and the Pacific Basin—**Jonathan Weiss** and **Sarah Yasui**

J. Watumull Scholarship

Awarded annually to the department's outstanding graduate student from an endowment from the Watumull Foundation—**Michael Chandler**

ARCS—Awarded by the Achievement Rewards for College Scientist Foundation. **Toby Lee Award in Geology**—**Thomas Shea**



C. Fletcher (Chair), T. Shea, M. Chandler, and S. Yasui

NSF Graduate Research Fellowship

Three years of funding for Ph.D. dissertation *Investigation of the Cooling Mechanics of Complex Lava Flows*—**Elise Rumpf**

2009 Retirees

Longtime faculty members Fred Duennebieer and Loren Kroenke recently retired from the school, after 39 and 46 years of service, respectively, closing a major chapter in marine geophysics at SOEST. We extend our wholehearted mahalo to Loren Kroenke with his contagious energy and inspiring spirit of discovery, and Fred Duennebieer with his insightful, passionate, caring, and humble approach to science and education.



Fred and Teri Duennebieer

Fredrick Duennebieer Fred obtained his B.S. in Physics from Trinity College, CT and then his M.S. and PhD degrees from the University of Hawai‘i in 1965-1972. He joined HIGP in 1975 and then the GG faculty in 1981, where he has served ever since. Fred’s early career was with the NASA Apollo lunar program as part of a team that deployed seismometers on the Moon to detect “moonquakes”. His work in planetary geophysics continued with 4 Apollo missions and the Viking Mars Seismic Experiment. Fred next applied his expertise in seismic remote sensing to applications in the ocean basins, where he became widely recognized for his pioneering work in developing ocean bottom seismometers, including the first to installation in a deep ocean drill hole of the Ocean Drilling Project. His more recent work has involved using retired telecommunication cables to provide power and two-way data communications to seafloor observatories for continuous, real-time monitoring of the seafloor environment. Hawai‘i-2 Observatory recorded seismic tremors and acoustic signals from 1998-2003, and Station ALOHA, 100 km north of Oahu, has been nearly continuously recording since 2007.

Fred’s service and education efforts matched his commitment to research. He chaired the GG Department from 1993 to 1996, and also served as Associate Chair and on a wide array of committees. Fred excelled in the

spirit of education that GG strives for. He taught a wide range of courses, served on over 60 graduate committees, and was principal advisor to 16 graduate students. Former advisee Jacqueline Caplan-Auerbach (a professor at Western Washington University) says “He is truly passionate about education, science and most of all, students. He worked tirelessly to keep students in science and to celebrate their strengths... [making him] a secondary mentor to an enormous number of graduate students. Within SOEST he is universally known to be the ideal advisor”.

Loren Kroenke Loren began his UH career, as a M.S. student in 1960, after obtaining a B.S. in Geology at the University of Wisconsin.

He joined the faculty of HIGP in 1972. Loren got off to an early start, being considered for tenure prior to officially receiving his Ph.D. He dedicated much of his scientific career to studying the structure and evolution of the Ontong Java Plateau and surrounding ocean basin through mapping, active seismic exploration, and drilling, becoming one of the world’s experts in ocean basin volcanic structures. His most recent work with Paul Wessel in using “hotspotting” and other methods to track the evolution of the Pacific plate has made a lasting impact in tectonophysics worldwide. In all, Loren has surveyed, sampled, and insonified the Pacific basin on 68 cruises between Honolulu, California, Alaska, Chile, Australia, Japan, French Polynesia, Pohnpei, Guam, Midway, Majuro, and countless other islands throughout the Pacific.



New Faculty in G&G

Assistant Professor **Clint Conrad** joined the G&G faculty in August 2008. A geophysicist, Conrad uses geological and geophysical observations to constrain the modes of deformation that occur within Earth's dynamic interior. As a result, Clint is involved in a wide variety of solid-earth problems. Some examples include:

- The forces that drive tectonic plate motions
- Plate deformation at subduction zones
- Mantle controls on seismicity and volcanism
- Surface deformation due to glacial melting
- Geologic consequences of global mantle flow
- Mantle controls on sea level and climate
- Convection within rocky planetary interiors

Originally from Philadelphia, Conrad received a B.A. at UC Berkeley (1994), a Ph.D. from MIT (2000), and did postdoctoral work at Caltech and the University of Michigan. Conrad was an assistant professor at Johns Hopkins University in Baltimore from 2005 until 2008, when he joined the G&G faculty at UH. Within G&G, Conrad has already begun to build his research group, which includes postdoctoral scholars Todd Bianco and Joost van Summeren, undergraduate Julia Fiedler, and incoming graduate student Svetlana Natarov. Conrad will be contributing to the teaching efforts of the Geo-



physics and Tectonics group, and will be teaching Structural Geology and Continuum Mechanics in the coming year.

A wide variety of Earth observations serve as both constraints and inspiration for Clint's work, so he is eager to discuss research projects with students, faculty, and alumni from throughout G&G and SOEST. See Dr. Conrad's faculty webpage <http://www.soest.hawaii.edu/GG/FACULTY/conrad> for more information.

A. Hope Jahren is delighted to join the faculty of G&G as a Professor of Geobiology starting July 2008. Her research program focuses on the stable isotope chemistry of novel substrates, ranging from ancient trees, to single-celled organisms, to human blood. Using the stable isotopes of carbon, nitrogen, oxygen, and hydrogen, she seeks to illuminate the processes that change matter from the living to the non-living pool—and back again. Her new laboratory will probe the ways in which the stable isotope signatures of living (or once-living) tissue give information about the organisms' metabolic status including, most recently, human nutrition. Dr. Jahren brings with her a large research group, featuring William M. Hagopian, who has been her technician and lab manager since 1996. In addition, within her lab are Dr. Brian Schubert (postdoc, Ph.D. Binghamton University), Dr. Glendon Hunsinger (postdoc, Ph.D. Binghamton University), Dr. Robert Panetta (postdoc, Ph.D. Concordia University), Rebecca Kraft (Ph.D. student), Caleb King (undergraduate, University of Hawai'i), Katrina Foelber (undergraduate, Johns Hopkins University), Ashley Ellenson (undergraduate, Columbia University) and Anika Greve (undergraduate, Keil University). Hope earned her B.A. in Geology at the University of Minnesota (go gophers!) and her Ph.D. at UC Berkeley in 1996. Since then she was an Assistant Professor at Georgia Tech (1996-1999), and Assistant through Full Professor at Johns Hopkins (1999-2008), before relocating to UH-Mānoa. She looks forward to new teaching, research,



and service adventures in the upcoming decade—“it’s a good time to be an environmental scientist!” See Dr. Jahren’s faculty webpage <http://www.soest.hawaii.edu/GG/FACULTY/jahren/> for more information.

Henrieta Dulaiova joined the Department’s Marine and Environmental Geology division as an Assistant Professor in January 2009. Before coming to Hawai‘i she was a postdoctoral scholar at the Woods Hole Oceanographic Institution in Massachusetts. She received her Ph.D. in Oceanography from Florida State University in 2005 and her MS in Nuclear Engineering from the Czech Technical University in 1997. She combines her experience in environmental radiochemistry, geochemistry and oceanography (1) to develop isotopic methodologies for tracing groundwater discharge into the ocean, (2) study coastal mixing and water residence times, and (3) investigate fluxes of shelf derived components offshore, including nutrient inputs into the coastal zone, and explain biogeochemical processes in subterranean estuaries. She works on groundwater in various environments around the world and is a member of international groups assessing submarine groundwater discharge, a field with implications for coastal management and the sustainability of Hawai‘i’s water resources.



Henrieta also studies the transport of coastal components offshore. She has studied iron fluxes from the Antarctic margin and the effect of this natural iron fertilization on the carbon cycle in the Southern Ocean. She also has an ongoing project to trace iron released from the continental margin in the eastern tropical Atlantic Ocean. You can read more about her research at <http://www.soest.hawaii.edu/GG/FACULTY/hdulaiov/>.

Henrieta enjoys collaborating in multidisciplinary projects, interacting with colleagues, students and the public. She has been participating in various outreach programs such as summer schools and education of the public about radioactivity in the environment, coastal and groundwater pollution and marine sciences in general. Husband Peter and Henrieta became new parents on May 9, 2009, with the arrival of baby Emma.

Katharina Pahnke joined the department in December 2008 as an Assistant Researcher from Lamont-Doherty Earth Observatory (LDEO) of Columbia University, where she was a Doherty Associate Research

Scientist. She received her Ph.D. in 2004 from Cardiff University in Wales, and spent 2 years as a postdoc at MIT and then LDEO. Katharina’s work focuses on improving the understanding of abrupt changes in Earth’s climate and ocean circulation during the recent geologic past (Pleistocene-Holocene). In order to reconstruct these changes, she analyses geochemical ‘proxies’ (e.g., Mg/Ca, $d^{18}O$, $d^{13}C$, dD , Nd isotopes) in deep-sea sediment cores that document past changes in temperature, precipitation, and water-mass conditions. Her most recent focus has been on the use of neodymium (Nd) isotopes as a water-mass tracer, both in marine sediments and modern seawater. This has allowed her to reconstruct changes in the northward advection of intermediate water formed in the Southern Ocean, which plays a crucial role in the oceanic global overturning circulation and abrupt climate switches.

Katharina is coordinator of the international intercalibration of seawater Nd isotopes and rare-earth elements (dissolved and particulate) under the GEOTRACES program. She recently participated in a Honolulu to San Diego cruise to collect seawater for this effort, and hopes to fund a 2010 cruise to study the distribution, sources and sinks of Nd in the North Atlantic.

In her free time, Katharina rides her road bike around the island and up the many ridges and mountains. In April, she finished second in her first bicycle race, a time trial up Tantalus Drive.

Katharina is looking forward to the great opportunities at UH for continuing and expanding her research, as well as to further exploring the beautiful islands of Hawaii.



Katharina Pahnke, Mt. Everest Base Camp, Tibet 2007

Distinguished Alumnus: Donald (Don) M. Hussong

I went to the Hawaii Institute of Geophysics in 1964 directly after receiving a BSE in Geological Engineering from Princeton University. I had ideas of studying coastal processes and beach erosion, but was almost immediately drawn into marine geophysics, where there were numerous support opportunities. It was a wonderful time to be at HIG, with the whole new world of seafloor spreading and crustal formation just beginning to be understood and quantified. Within days of arriving I was sent to sea on the *R/V Teritu*, setting off explosive charges to run a seismic profile off the windward coast of Oahu. This was the beginning of many years of working with explosives for reflection and refraction studies worldwide—and many adventures that would be impossible today. In 1965 I was called to Director George Woollard's office with grad students Loren Kroenke and Bill Ebersole to see if we would like to go from Hawai'i to the Solomon Islands via the Ontong Java Plateau to try to "learn interesting things" about the huge gravity anomaly that had been recently detected there. We towed a "sparker" sound source and a single channel seismic streamer behind the 65-foot schooner *Machias*, recording beautiful data from the quiet sail boat—but our celestial navigation during many cloudy days often placed us many tens of miles from where we thought we were.

I completed my Master's thesis in 1967 under Doak Cox, mapping the depth to the Maui and Hawai'i water tables by electrical resistivity profiling. I then moved back into explosion refraction seismic studies for most of my Ph.D. under George Sutton. Again, the research opportunities seemed almost limitless, including taking the UH research vessels *Mahi* and *Kana Keoki* and the Russian *R/V Vityaz* to various locations throughout the Pacific. I was about to start a Nazca Plate Project off South America when Ralph Moberly said I needed to stay in Hawai'i long enough to complete my dissertation, get my Ph.D., and join the research faculty at HIG. More time at home

gave me the opportunity to have three beautiful daughters, Carissa in 1970, Jennifer in 1971, and Marni in 1972. I continued to do explosion seismic refraction surveys after my degree, including a seismic transect of the Mariana Trench in 1975. I participated in various panels for the International Decade of Ocean Drilling (IDOE) and was co-Chief Scientist with Seiya Uyeda of the University of Tokyo for Leg 60 of the Deep Sea Drilling Project that completed a drillhole transect across the Mariana Arc in 1978, adding new dimensions to the years we had spent mapping the seafloor and crustal structure in the area. Patty Fryer was our lead petrologist.

The first multibeam echo sounder systems were being deployed in the late 1970's by the US Navy to make (classified) maps of many areas of the world, including the Mariana Arc and back-arc basin. We had access to these secret maps, which showed how crude our single beam bathymetry maps were. Although the Navy decided in 1980 that one of these



Don and his wife, Senia, plan to sail their recently acquired boat around the NW Pacific during their retirement.

multibeam systems could be deployed on the *R/V Kana Keoki*, noise levels turned out to be too high and the system was assigned to Scripps. We were extremely disappointed at the prospect of continuing to acquire second-rate data. At about the same time, however, we learned that a Seattle company had built a low frequency, long range side-scan sonar system called SeaMARC/I for Lamont Doherty Geological Observatory at Columbia and they thought they could adapt it to acquire swath bathymetry. An NSF proposal in late 1980 by Chuck Helsley, Fred Duennebie, Joe Gettrust, Grant Blackinton, and I to build the SeaMARC II swath bathymetric side-scan sonar system was funded, and with additional ONR support, built and deployed by early 1982. SeaMARC II was a great success, and after several early HIG cruises, became a popular research tool, with a large team of engineers and data handling experts. The group decided to start a private company in 1985, Seafloor Surveys International (SSI), to build and operate sonar mapping systems. Among the early systems we built was a large 12kHz version of SeaMARC II for the Univ. of Tokyo that they called Izanagi and deployed in 1989. SSI rode the wave of the submarine telecom boom through the 1990's and built more swath systems, including a 12kHz system for the Japanese Maritime Defense Agency, a full-ocean depth 100kHz system for the Univ. of Tokyo, and four more systems for our own use. The company moved to Seattle in 1990 and joined the Fugro worldwide group of survey and geotechnical companies in 1995. I retired as President of FSSI in 2007, but continue to consult part time. Grant Blackinton is still with the company he helped found, still building advanced survey systems, including a new AUV. It has been a great ride that all began at UH.

Donald Hussong, the G&G Distinguished Alumnus for 2008-09 academic year, has been a leader in the development and use of seafloor mapping systems and in geophysical studies of the Pacific basin.

2008-2009 Research and Teaching Highlights

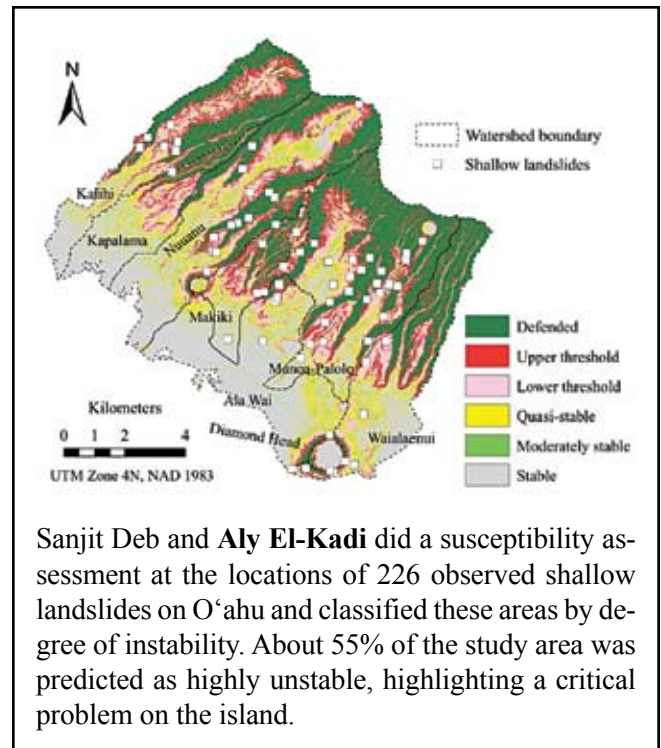


Paul Wessel's Fall 2008 graduate seminar on plate tectonics used a novel approach by involving 8 guest lecturers from around the world to give remote talks from their home institutions using Skype. Students found Skype seminars exciting and motivating, as it gave them a chance to ask questions directly to the scientists who wrote the papers they reviewed. The 8 hour-long podcasts are freely available to the public via iTunes University (Search for "Univ. of Hawaii", "SOEST", "Public Course Lectures"). Here, Dr. Bernard Steinberger discusses his latest work on deciphering absolute plate motions and true polar wander from his office in Norway, 11 time zones away from Hawai'i.



GG Chair **Chip Fletcher** was on a 4-week field assessment of the atoll islands of Micronesia in April/May 2009. His report to the U.S. Forest Service examines food and water security, climate risk management, and adaptive strategies among the low lying communities in the western Pacific. Much to the amusement of his colleagues, Chip failed to adapt to the local attire.

The first observations of a deep-sea volcanic eruption were made in May 2009 at the summit of West Mata volcano, which sits at 1200m water depth in the northeast Lau basin. **Ken Rubin** led the petrology component of the multidisciplinary, NOAA/NSF eruption response team sent to observe and map volcanic deposits and to study water chemistry and marine life at the site.



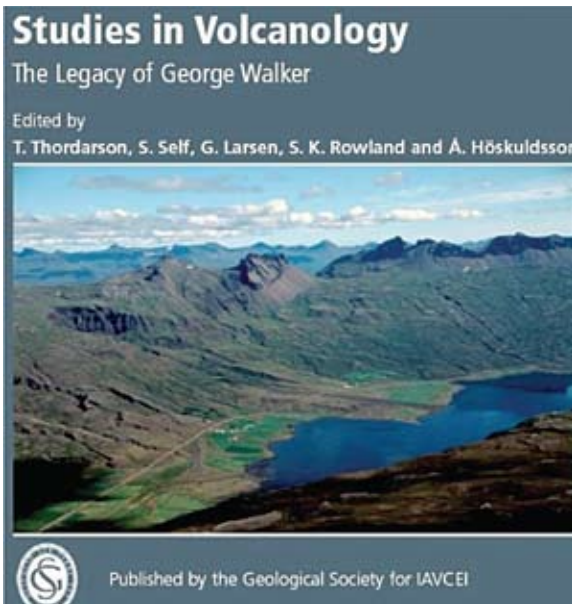
Hope Jahren and her student **Rebecca Kraft** conducted a year-long experiment on the carbon and nitrogen stable isotopes of fast food to gain insight into the source and process of meat and materials used for manufacturing. This study from 6 major U.S. cities, coast-to-coast, yielded insight into the extreme dependence of fast food production upon corn-based agriculture, despite dissemblances promoted by the corporations.





A new summit eruption of Kīlauea began in March, 2008. **Bruce Houghton, Mike Garcia, and Rebecca Carey** with HIGP faculty **Cecily Wolfe, Ben Brooks, and Sarah Fagents** are working with USGS colleagues on this small, but exceptionally well-constrained eruption. This image (on the left) by **Matt Patrick** (PhD '05) shows one of the most powerful explosive eruptions at 8:45 am on October 12, 2008.

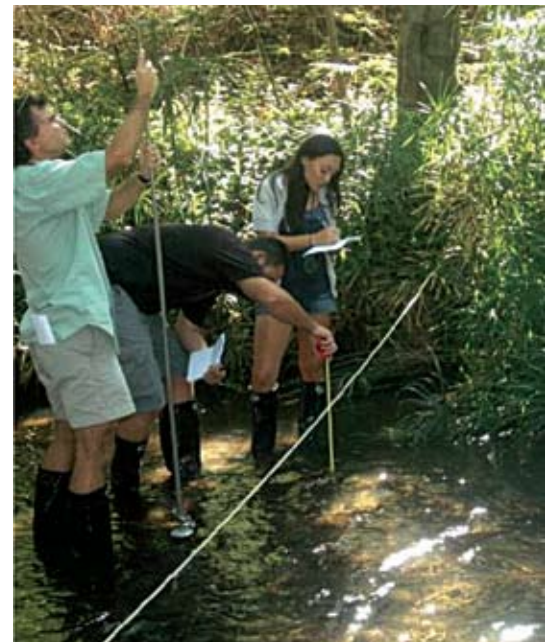
Robert Dunn led a 6-week seismic and geophysical mapping cruise aboard the *R/V Marcus C. Langseth* in Feb-March, 2009 to the Eastern Lau Spreading Center. Eighty-four ocean-bottom seismometers were deployed and over a million seismic data points were collected during the L-SCAN Experiment. The data will be used to image the crustal and upper mantle magmatic system. Other UH participants included **Fernando Martinez** (HIGP), and GG students **Michaela Conley, Jonathan Sleeper, and Reagan Austin**. (right)



A new book commemorating the volcanological contributions of George P. L. Walker, former Macdonald Professor of Volcanology in the Geology and Geophysics department, was edited by current faculty **Scott Rowland** and former faculty members **Thorvaldur Thordarson** and **Steve Self**, among others.



Julia Hammer and UH Engineering faculty **David Garmire**, tested the ability of SiC chips to withstand submersion in basaltic lava (see before and after melting photos to left). The next experiment in the Experimental Petrology Laboratory will determine whether temperature, strain, and other sensor types can likewise survive 1200°C and prolonged contact with silicate melt.



Scott Rowland and the Work of Water class measure stream flow in Mānoa Stream (above).

GG DEPARTMENT ACTIVITIES and FIELD TRIPS



The GG Picnic, May 17, 2009, Bellows Beach. It rained really hard but the ocean was beautiful.

The traditional GG Softball game—Grads vs. Faculty—was postponed for 2009. Alternative sport activities included aerobic, volleyball, swimming, body-surfing, and eating yummy grilled food. Mahalo to Erin Miller (BS '09) and friends for cooking.

Geology Club's latest t-shirts "Exploring Orogenous Zones and Hotspots Worldwide" are available by mail (\$18) or in POST 701 (\$15).



GG 130 & GG 460 near the Kupapa'u ocean entry during a joint field trip to Kilauea, May 2009



GG 305 participants at Badwater in Death Valley, March 2009



Participants in GG 601 on White Island active volcano, New Zealand. The group spent 10 days studying the physical volcanology of Taupo Volcanic Zone, the world's most active locus of rhyolitic volcanism.



GG 305 students Mary Tardona, Erin Miller, and Mark Raymond mapping Rhyolite Ridge



(left) GG 101L students conducting a leveling survey of Wai'alaie beach park, and (right) measuring stream flow in an 'auwai near the UH campus

Alumni News...

1960s

Floyd McCoy (MS '65) this summer, is on-board a Greek oceanographic survey ship mapping the seafloor east of Crete. Floyd continues as a Professor of Geology and Oceanography and Chair of Natural Sciences at Windward Community College. **Alexander Malahoff** (PhD '65) is Chief Executive of GNS Science, a research institute owned by the New Zealand government and the government's principal Earth-systems advisor and research center.

1990s

Peter Bromirski (PhD '93) is a geophysical oceanographer at Scripps, is "using some seismology to help look at trends and variability of ocean waves and storms, climate change, and related stuff." **Scott Moncrief** (BA '94) works for EA Engineering, Science and Technology as a Deputy Program Manager in Honolulu. **Chris Okubo** (BS '97) is a research geophysicist in the Astrogeology Research Program of the U.S. Geological Survey. He is investigating the mechanics of deformation and groundwater interaction on Earth and other planets and is a targeting specialist for the HiRISE camera on-board the Mars Reconnaissance Orbiter. **Jordan Muller** (MS '99) visited Hawai'i for a couple of weeks in January for "business" travel. He is living in the Washington, D.C. area and is Senior Director of Analytic Operations at Kestrel Enterprises. He and his wife Meg have a one year old girl. **Joseph Ingignoli** (MS '99) is in the army, deployed to Afghanistan. **Susannah Mistr** (MS '99) visited Hawai'i in January for a surf vacation and to visit friends. She is living in Baltimore MD and doing her residency in optometry.

2000s

Sev Ulitski (BS '02) is the do-everything guy for a local documentary film crew, and is "pondering re-entry into geology." **Michael Dahilig** (BS '03) has been re-appointed as a member of the UH Board of Regents in 2009 through 2013. He is a deputy county attorney with the County of Kaua'i focusing on planning and land use matters. **Donielle Chittenden** (BS '03) is a project coordinator with URS Corporation's Environmental Division the topic of A recent Transition Hawaii article (see http://www.transitionhawaii.com/pathways/natural_resources/donielle_chittenden). She married Eli Comeau on June 21, 2009. **Jennifer Olson** (BS '03) writes: "Do-

ing wonderful! I have been in Kailua for about 1½ years now, still work here in Waimanalo (at Cultural Surveys Hawai'i) and paddle for Kailua Canoe Club. Work is busy and life is good." **Darcy Hinkley** (BS '04) was married in June 2009. Fellow graduates **James Finan** (who has spent the past few years sailing the high seas), **Jeremy Kimura** (a geologist for the State of Hawai'i), and **Ken Natividad** (a USGS seismologist in Colorado) all attended. **Sarah (Wilson) Welna** (BS '04) was married last summer. She reports that she works as a Geological Services Coordinator for **Kraemer Mining & Materials, Inc. in Minnesota**. **Junaid Dawud** (BS '04) is the head driller and geologist at ESN Pacific in Honolulu. Aly El-Kadi and his Hydrogeology class thank him for his coming in on his day off to demonstrate the technology. **Eden Feirstein** (BS '04) was married on the island of Puerto Rico in February, and is working as an environmental protection specialist (hydrologist) for the District of Columbia. **Jennifer Engles** (PhD '04) until recently an Assistant Professor in G&G, welcomed baby Hannah, born March 30, 2009. She almost made it to the end of the Spring 2009 semester teaching two sections of GG101 with 150 students. When she returns from maternity leave in September, she will be working part time with Dr. Steven Stanley as a Junior Specialist. **Ole Kaven** (MS '04) is finishing his Ph.D. at Stanford and has accepted a position with the U.S. Geological Survey. **Nancy Adams** (PhD '05) is an agent for the FBI in New York City. **Chris Gregg** (PhD '05) is an Assistant Professor of Geology in the Department of Geosciences, East Tennessee State University. **Julia Sable** (PhD '06) is a curator for the Museum of Science in Boston. **Nicole Lautze** (PhD '06) is taking up a NSF international postdoc in Rome. **Kolja Rotzoll** (PhD '07) received a Certificate of Honorable Mention for his Ph.D. Dissertation from the 2009 Universities Council on Water Resources (UCOWR) Dissertation Awards in Natural Science and Engineering. **Toshihiro Ike** (PhD '07) is now in charge of 3D seismic data processing at the Japan Oil Gas and Minerals National Agency (JOGMEC) in Chiba, Japan. **Steve Sahetapy-Engle** (PhD '07) works at Earth Tech, along with other GG graduates **Nate Adams**, **Pete LaPlaca**, **Carrie Plath**, and **Rachel Gilhooly**. **Craig Senter** (BS '08) works for USGS Water Resources in downtown Honolulu. **Rebecca Carney** (PhD '08) joined UC Berkeley as a new postdoc in 2009. **Wendy Stovall** (PhD '09) began her internship with NOAA in Honolulu this Spring. **Adrienne Oakley** (PhD '08) and **Chris Bochiccio** (MS '09) were married in Connecticut in June 2009, and have relocated to the East Coast. Adrienne will begin a teaching career; Chris will be pursuing his Ph.D.

Mark Your Calendars!

SOEST Open House is happening October 16-17, 2009.

It's our 10th Open House; our theme is "The POWER of 10!" SOEST is home to the academic departments of Geology & Geophysics, Oceanography, Meteorology, and Ocean & Resources Engineering, as well as several related research institutes. The SOEST Open House presents a diverse array of entertaining and educational "hands-on" activities for children of all ages, which highlight the research conducted by our faculty, students, and staff. Your family and students will learn about volcanoes, tsunamis, El Niño, planetary exploration, hurricanes, coastal erosion, and marine ecosystems to mention just a few topics, through a variety of hands on activities, videos, posters, and interactive demonstrations. All may visit state-of-the-art laboratories and hear about cutting-edge research from the scientists who are making the new discoveries!

The SOEST Open House is only offered every two years. We hope that you and your friends, classmates, and family will be able to join us for this great event on the UH Mānoa Campus. *E komo mai.*

Please look for program updates at our Open House website: <http://www.soest.hawaii.edu/openhouse/>. For more information, please contact Tara Hicks Johnson at (808) 956-3151; email: hickst@hawaii.edu.



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Address Correction Requested

THE SCHOOL OF OCEAN AND EARTH SCIENCE AND TECHNOLOGY
INVITES YOU TO OUR

10th SOEST OPEN HOUSE

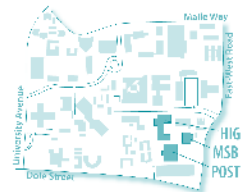
as we explore the "Power of 10!"



Oct. 16, 2009 • 8:30 am to 2 pm

Oct. 17, 2009 • 10 am to 2 pm

• Come learn about volcanoes, tsunamis, El Niño, planetary exploration, hurricanes, coastal erosion, marine ecosystems, and so much more! • There will be hands-on activities and demonstrations for kids of all ages to enjoy. • Meet the actual scientists who are making the discoveries and tour their state-of-the-art facilities.



For more information visit www.soest.hawaii.edu/openhouse or contact Tara Hicks Johnson at hickst@hawaii.edu or 956-3151