



ASSOCIATION OF ENVIRONMENTAL & ENGINEERING GEOLOGISTS

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Announcing the 2014-2015 Richard H. Jahns Distinguished Lecturer



Eldon Gath has been named the 2014-2015 Richard H. Jahns Distinguished Lecturer in Applied Geology. The lectureship is awarded jointly by the Environmental and Engineering Geology Division (EEGD) of the Geological Society of America [GSA (awarded at the Vancouver, BC Annual Meeting, October 2014)] and the Association of Environmental and Engineering Geologists [AEG (awarded at the Scottsdale Annual Meeting, September 2014)]. The purpose of the lectureship is to promote student awareness of Applied Geology. The Jahns' Lectureship has been jointly awarded annually since 1988.

Please consider helping Eldon to contact potentially interested University Geology (Environmental, Geological and Geotechnical Engineering) Departments and professional groups for the topic presentations noted below. (Abstracts are below and available online via AEG & GSA or from Eldon.) Please contact Eldon (gath@earthconsultants.com or 714-412-2653) to discuss a presentation for your organization.

Biography

Eldon, a consulting engineering geologist, has more than 30 years of experience in the identification, investigation, and remediation of geologic hazards, involving land use planning, environmental assessments, field exploration programs, and presentation of findings. He has particular experience with the evaluation of active faults for construction site planning, the development of seismic safety programs and policies, and is currently engaged in efforts to modernize California's 40-year old active fault zoning act (Alquist-Priolo Earthquake Fault Zoning Act).

Eldon is the President of Earth Consultants International, a geological consulting firm [*helping our clients solve complex earth-science problems around the world*] that he co-founded in 1997, following 12 years with Leighton Consulting in AEG 57th Annual Meeting at the Doubletree, Scottsdale, AZ, September 20-28, 2014



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southern California. He has considerable international experience including field projects in Turkey, Panama, Mexico, Costa Rica and Papua New Guinea, as well as project involvement in many others.

Eldon is a graduate of the University of Minnesota, Institute of Technology, with a BS degree in Geology in 1978. He has been in graduate school ever since; MS program at Cal State LA (1982-1990), PhD program at UC Riverside (1993–1996), PhD program at UC Irvine (1998–2008), but despite getting very close, he has never managed to complete the degree due to his busy consulting responsibilities, professional organization involvement, and travel schedules; or conflicted priorities, if you ask his advisors.

Eldon has received several research grants from the U.S. Geological Survey's National Earthquake Hazard Research Program, the Southern California Earthquake Center, and the National Science Foundation for earthquake geology research in California, including paleoseismology of the Whittier fault, tectonic development of the San Joaquin Hills, tectonic geomorphology of the Eastern Los Angeles Basin, and the seismic hazards of the Santa Ana Mountains. He served as the geosciences member on a National Research Council panel to develop the research agenda for the NEES program, he served on the LA County Land Development Technical Advisory Committee for a decade, served on the California Board for Engineering, Land Surveyors and Geologists' Technical Advisory Committee for two years, and has participated multiple times as an Occupational Expert for the US Department of Labor.

Eldon is a frequently invited speaker to local southern California colleges. Since his first professional presentation on the Whittier fault at AGU in 1987, he has given over one hundred presentations before professional, academic, and public groups, and has published dozens of papers on a wide range of geological and professional practice topics, several of which have received awards for outstanding presentations and papers.

In 1995 he was awarded the Aki Award for Outstanding Paper Presentation at the California Academy of Sciences Annual Meeting for *Active tectonic structures in the eastern Los Angeles basin*, then in 2007 received the Outstanding Presentation Award at the AAPG Annual Meeting for *Quaternary geomorphic development and seismic hazards of Orange County, California*. Along with coauthors, he has received the 2010 GSA E.B. Burwell Outstanding Paper Award for *The Geology of Los Angeles*, and the 2012 AEG Claire P. Holdredge Outstanding Paper Award for *Paleoseismology of the Pedro Miguel fault, Panama Canal*. He served as South Coast Geological Society (SCGS) President in 1987, AEG Southern California Section Chair from 1990-1992, AEG Treasurer, Vice President, and President from 1993-1997, received the AEG Floyd T. Johnston Service Award in 2008, was elected a Fellow by GSA in 2011, and was made an Honorary Member of the SCGS in 2012. He is a member of AEG, GSA, AIPG, AAPG, EERI, IAEG, IAPG, AAAS, AGU, SSA, PDAC, and all local geological societies.

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Abstracts:

Eldon is offering a broad range of talks, including several that focus on the process and methodology of the work that would be suitable to a classroom presentation, as well as several results-oriented science talks that would be good for a graduate symposium. All talks are aimed for 45 minutes, though questions and discussions can go on forever if interest remains and schedules permit. The talks offered are:

The Santa Ana Mountains: Indenter Tectonics and the Earthquake Hazards of “The OC”

This talk explains the tectonic geomorphic evolution of Orange County in Southern California over the past one million years. The talk is an analysis of the modern seismic hazards and causal mechanisms for the recent earthquakes, and proposes a new collisional indenter model to explain the interaction of strike-slip and thrust faults in the eastern Los Angeles Basin. The talk concludes with a question as to how the implications for broadly distributed ground deformation, predicted by this model, will affect landuse planning, and how and what engineering geologists will need to do address this issue.

Tectonic Geomorphic and Paleoseismic Investigations for the Panama Canal

This talk summarizes five years of geological exploration in Panama to quantify the fault hazards to the Panama Canal and the Canal Expansion Project, using tectonic geomorphic mapping and analysis, paleoseismic trenching, and seismic hazard analysis. Faults that were investigated include the Gatún, Limón, Azota, Pedro Miguel, Miraflores, and Agua Blanca. The talk will illustrate techniques of field reconnaissance, trench site selection, 3-D trenching of strike slip faults, and how to assemble into a seismic hazard model. If extra time is available, an overview of the Panama Canal and the Canal Expansion Project can also be presented.

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Quantitative Kinematic Investigation of the AD 1621 Pedro Miguel Fault Rupture for Design of the Panama Canal's Borinquen Dam

This talk focuses on a detailed analysis of the AD 1621 Panama Viejo earthquake, how the source fault was identified using archeoseismology along the Camino de Cruces (Spanish trail), and how several quantitative 3-D paleoseismic trenching studies of the Pedro Miguel fault were used to quantify the coseismic displacement kinematics of that earthquake for design of a major Canal expansion project dam across the fault. The talk presents a successful case study of the use of tectonic geomorphology, paleoseismology and archeology to advance the awareness of earthquake risk for a globally important infrastructure project – the Panama Canal. Portions of the talk are based upon the paper: Rockwell, T., E. Gath, T. Gonzalez, C. Madden, D. Verdugo, C. Lippencott, T. Dawson, L.A. Owen, M. Fuchs, A. Cadena, P. Williams, E. Weldon, and P. Franceschi, 2010, Neotectonics and Paleoseismology of the Limón and Pedro Miguel faults in Panamá: Earthquake Hazard to the Panama Canal; Bulletin of the Seismological Society of America, Vol. 100, No. 6, pp. 3097-3129, doi: 10.1785/0120090342. *[Received the 2012 Claire P. Holdredge Award from the Association of Engineering Geologists for a publication that is judged to be an outstanding contribution to the Engineering Geology profession.]*

Active Faulting and Beverly Hills High School: An Unexpected Journey into Geo-Ethics

This talk is oriented towards the ethics of hazard disclosure, using the case of an "Active Fault Map" that was recently released by a public agency, and which showed multiple active faults through Beverly Hills High School, plus numerous other high rise buildings in the Century City area of western Los Angeles. The High School immediately undertook a comprehensive fault hazard investigation; the methodology and findings of which are detailed in this talk. How this public release was handled, and the on-going consequences of its release, are the core of the talk. But when it is shown that none of the "active faults" were actually observed in making the map, and that none have yet been found in the flurry of geological investigations the map triggered, is when the real ethical questions start.

Natural Hazard Identification, Impact Analysis, and Risk Assessment for Community Disaster Mitigation Planning

This talk presents the methodology of hazard map preparation for use by city and county governments for land use planning, hazard mitigation, and loss prevention. Examples will be shown for several southern California cities and counties, including active fault and seismicity, landslide and slope instability, flooding, wildfire, liquefaction, tsunami, and other types of hazard maps. These maps provide the foundation for all public Safety Elements in California and for Disaster Mitigation Plans nationwide. Illustrating the hazard, communicating how hazard becomes risk, and helping our communities mitigate that risk is a critical skill set for engineering geologists to develop.

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Engineering Geology: An Overview of the Profession

This talk presents an overview of the broad scope of the engineering geology profession, based on my personal experience from 35 years as a consulting engineering geologist working in Turkey, Portugal, Costa Rica, Mexico, Papua New Guinea, Panama, the western US, and more to come. Note that I have never worked in a large company or in government, but have frequently worked for them, [and I do not do hazardous waste], so my paradigms are based on only a modest sample set of the various career opportunities out there. But it has been a fun career so far. This talk is fast, shallow, and opinionated – suitable for an informal [think pizza] setting of students interested in what types of projects and jobs are out there, what I think is important academically, how to get in front of the hiring bus, and just an opportunity to talk and answer questions.

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