



ASSOCIATION OF ENGINEERING GEOLOGISTS

MEETING
ANNOUNCEMENT &
SPEAKER ABSTRACT



SACRAMENTO

Section Meeting Date: February 22, 2005, 6:00 - 9:00 PM (**Tuesday**)

Meeting Location: **Hukilau Island Grill**, 1501 16th Street (southwest corner at O Street), downtown Sacramento.

Meeting Time:	6:00 - 6:45	Sign-In & Social Hour
	6:45 - 7:45	Dinner & Announcements
	7:45 - 8:30	Talk & Slide Show
	8:30 - 8:45	Questions & Answers



Water-Mineral-Biota Interactions in Modern and Ancient African Lakes

SPEAKER: Daniel Deocampo, Ph.D.,
Department of Geology
California State University, Sacramento

Abstract

Geochemical interactions between water, minerals, and organisms at or near the Earth's surface are fundamental controls on water quality. Several basins in East Africa provide some of the world's best examples of such controls in dry, volcanic landscapes, where ecosystems are typically entirely dependent on groundwater discharge for long periods of time. Ngorongoro Crater is a World Heritage Site, and home to thousands of large vertebrates including zebra, wildebeest, elephant, lion, and many others. Chemical analyses of ground and surface waters at Ngorongoro and elsewhere in the region provide evidence of the dissolution and precipitation of minerals, and the effects of organisms. Most solutes simply increase in concentration as evaporation proceeds at the surface, but several solutes are drawn out of the water into solid phases: especially calcium, magnesium, and silica. These appear to form carbonates, magnesium silicates, and biogenic silica, respectively. The processes that control these

mineral reactions are sensitive to biological effects, such as CO₂ release in swamps. Aspects of water quality, such as natural fluoride hazards, are also important to local indigenous (Maasai) communities, and the growing ecotourism trade in the region. Work over the last few years shows the importance of geoscience as local and national authorities implement a mixed land-use policy integrating wildlife conservation, indigenous land use, and ecotourism.

Understanding the geochemistry of modern lakes in the region provides useful perspectives on reconstructing details of ancient landscapes in East Africa. These include paleolakes such as at Olduvai Gorge, Olorgesailie, and Lake Turkana, basins that also provide much of the fossil evidence from the past few million years. By understanding how minerals can form in modern systems, the paleochemistry of ancient paleo-lake waters can be reconstructed. Recent advances have especially been made with the detailed chemistry of authigenic clay minerals, which precipitate from water. Chemical analysis of such ancient clays can provide evidence of the salinity and alkalinity of the ancient waters in which they formed. This is providing some important evidence on the paleoenvironment of human evolution - especially the environmental context in which technology first emerged among our ancestors. Using this approach, we can also for the first time reconstruct ancient changes in paleohydrology at a level of detail that can be used to compare with high-resolution offshore records of climate change from deep-sea cores. This is allowing us to test hypotheses of how climate changed, and how it may respond to future changes, especially in dryland areas that may be particularly sensitive to changes in hydrology.



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Dr. Daniel Deocampo

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Dr. Daniel Deocampo is the most recent professor to join the faculty at California State University, Sacramento, specializing in the fields of low-temperature and environmental geochemistry, limnogeology, clay mineralogy, Quaternary paleohydrology, geology of human evolution. He earned his undergraduate degree in Geological Sciences from Tufts University in 1994 and went on to receive both his M.S. degree and Ph.D. in Geological Sciences from Rutgers University. In addition, Dr. Deocampo worked has spent time working at the USGS in Reston, VA, the Natural History Museum in London and the National Museum of Natural History at the Smithsonian Institution in Washington DC.

Dr. Deocampo's past research interests have focused on how water, minerals, and organisms interact in near-surface continental environments, and how such interactions leave evidence in the sedimentary record. His research has been applied to a variety of environmental and paleoenvironmental problems in modern and ancient lake basins around the world. Dr. Deocampo's research field areas included the Ngorongoro Crater and Olduvai Gorge in Tanzania, several other East African lakes, the Great Salt Lake in Utah, and Paleolake Barstow, a Miocene paleolake in southern California.

Since coming to California, he has begun applying his geochemical approach to current local environmental problems, including mercury in the Cache Creek watershed and lead in urban Sacramento.

A Message from Your Board

Proposed Elimination of the Board of Registration for Geologists and Geophysicists Why Is This Important to AEG Members?

By Eric Chase

Since our Chairperson is on an extended overseas trip this month, your Executive Board has asked me to prepare a message for this month's newsletter on the topic of the Governor's proposed changes to the way the profession of geology and geophysics is regulated in California, and specifically why these changes are important to our membership. These are "interesting" times for practicing geologists in California. For review, the Governor has proposed to eliminate the Board of Registration for Geologists and Geophysicists (BGG), along with the State Mining and Geology Board and 86 other State Boards and Commissions, in his Government Reduction Proposal 1 (GRP-1), and in some as yet non-specified way will relegate these activities to the Department of Consumer Affairs. For a better capture of the issues being raised than I could ever offer see BGG Executive Officer Paul Sweeney's January 25, 2004 letter to the Little Hoover Commission (on the BGG website, www.geology.ca.gov/), and perhaps even better the California Council of Geoscience Organizations' Executive Director Jane Gill-Shaler's January 19, 2004 letter to Sen. Liz Figueroa (who chairs the Little Hoover Commission currently reviewing GRP-1) on the CCGO website <http://CCGO.org>.

So why is this important to us, the members of the AEG Sacramento Section? As professional consultants, regulators and managers practicing geology in California, we must continue to meet the current standards of care relevant to the work we do. These standards of care have evolved over many decades of professional practice. California is the laboratory where the pressures of urbanization first collided with the significant challenges of large-scale development in problematic hillside terrain, the laboratory in which seismic impacts were severe and greatly significant in design, and where engineering geologists and their civil engineering colleagues are truly required to operate at the highest levels of practice, well beyond the standard of care, in order to proceed safely. California was also the laboratory in which solutions for dealing with large-scale chlorinated solvent impacts were developed, as these contaminants impacted groundwater resources in Silicon Valley and the San Gabriel Groundwater Basin. In the almost 60 years since AEG was founded, right here in Sacramento, we who practice geology in California have set the bar for the standard of care in many areas of geologic practice, and other states have followed and continue to follow our lead.

As a leader in these and other important areas of geologic practice, California cannot afford to have its licensing and enforcement functions compromised. In my opinion the Governor would be making a huge mistake in relegating the functions of the BGG directly to the Department of Consumer Affairs, a huge bureaucracy, and doing so without any requirement that experts be involved in geologic and geophysical licensing and enforcement functions. The interests and safety of the people of California would not be served by such a change. We need technically competent professionals involved at all times in these functions, just as we have now. Public scrutiny of these important tasks will be impaired or even prevented, a right currently protected by statute. The inherent centralization of authority might subject registered professionals to the whims of the political appointees who would be in direct control of our practice.

We have to ask ourselves what might happen. In my view, cases would become bogged down in bureaucratic mud, resulting in less enforcement, and perhaps also resulting in enforcement by bureaucrats rather than by competent professionals. The Department of Consumer Affairs states, on its website, that it will seek the collective input of existing board members and interested parties during the transition period. What does this convey to you? There is no language in GRP-1 specifying that input is required from any practicing geologist for licensing or enforcement functions. It is left to the political appointees and other employees at DCA to decide. I cannot accept this, nor should practicing professionals or the people of California.

I have been involved, as have perhaps a number of you, as an expert witness in cases where geologic practice has gone awry, cases where incompetent practitioners or unexamined/unlicensed individuals have designed things that fail. I have seen people's lives traumatized, and people's lives lost, as a result of incompetent practice. We need the examination process, and we need to keep it strong and relevant. We need the enforcement function to be directed by qualified experts, and for our citizenry we need public oversight and scrutiny of those functions.

For the reasons I have cited herein, fighting this ill-conceived and sweeping action is fundamentally important to me. I truly hope that it is similarly important to all of you.

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Or you can sign up online at:

www.aegsacto.org

Subject: February 2005 AEG Sac Section Meeting

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1501 16th Street (southwest corner at O Street), downtown Sacramento

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Questions & Answers

Dinner Options:

- \$18 - **Caribbean Salad** (mixed greens, papaya, blue cheese, honey roasted macadamia nuts and poppy seed dressing)
- **BBQ Chicken Sandwich** with fries
- \$23 - **Blackend Mahi-Mahi**
- **Outrigger Steak**

All meals come with appetizer of chips and salsa. Soda/Iced Tea is included in the meal price.

Costs shown are for AEG members (with RSVP). Non-members and Walk-Ins add \$2*

Notes*: First 5 RSVP Students Eat For Free; Student RSVPs: \$5 Student Walk-Ins: \$10
Alcoholic beverages for those over 21 are available at the facility on a cash basis.

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<<http://www.aegsacto.org>>
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