



The Official

OREGON SECTION AEG NEWSLETTER

October Meeting Details

Date: Tues. October 19th

Location: Old Market Pub

6959 SW Multnomah

Portland, OR

6:00 pm Social

6:45 pm Dinner

7:30 pm Presentation

Dinner: Pizza & Salad

\$20 Dinner (\$5 Students)

Reservations:

mwegner@corforntconsultants.com
with "AEG Reservation" in
the subject line or 971-222-
2047 by 4pm October 14th

**There is a \$2 surcharge for
those who do not reserve by
the deadline.**

Upcoming Meetings:

November - Stephen Hay

December - TBA

**January - Charlie Hammond &
George Machan**

February - Yumei Wang

March - Rob Witter

April - Student Night

May - TBA



The October Guest Speaker is Eldon Gath from Earth Consultants International—Topic: Quantification of Coseismic Fault Displacements on the Pedro Miguel Fault, Through the Panama Canal Expansion Project's Borinquen Dam

As part of the seismic hazard investigation component for the Panama Canal Expansion Project's design studies, we completed detailed paleoseismic investigations of the Pedro Miguel fault. The N-S trending Pedro Miguel fault transects the existing Panama Canal through Miraflores Lake, midway between the Pedro Miguel and Miraflores Locks. The fault not only poses a severe shaking hazard to the Panama Canal, it also crosses through the proposed footprint of Borinquen Dam, a critical part of the expansion program. Borinquen Dam is composed of four discrete dam segments, totaling nearly 5 km in length. It will contain the new 6.7 km long approach channel to the new Pacific Lock, preserving the Gatún Lake water elevation at 10.6 meters above the current Miraflores Lake.

Our studies of the fault involved over 70 geologically logged trenches, including four locations where we excavated the fault in 3-D to determine earthquake recurrence, displacement magnitudes and fault slip kinematics. The Pedro Miguel fault poses a significant hazard to the project. We

were able to determine that it has had three surface-rupturing earthquakes in the last 1600 years, with the last event almost certainly occurring on May 2, 1621 AD. These three events all had 2-3 meters of right-slip displacement, with 8-9 meters cumulative and at a slip rate of about 5 mm/yr. The fault exploits weak, low-angle, west-dipping bedding planes of the La Boca Formation to rupture through to the surface as a series of north-stepping, en-echelon, west-dipping fault petals that roll over near the surface to almost horizontal. The challenge for the dam's design will be to correctly understand the specific geology of the fault-crossing location to be able to predict the fault rupture kinematics, and then to use deformation modeling to understand how that rupture will transfer into the dam's earthen structure. The talk will focus on the geological investigations, the methodology of 3-D fault trenching, the challenges of doing so in a tropical environment with 3-4 meters of annual rainfall, and despite all, the fun our team had in working on such an important world class project.



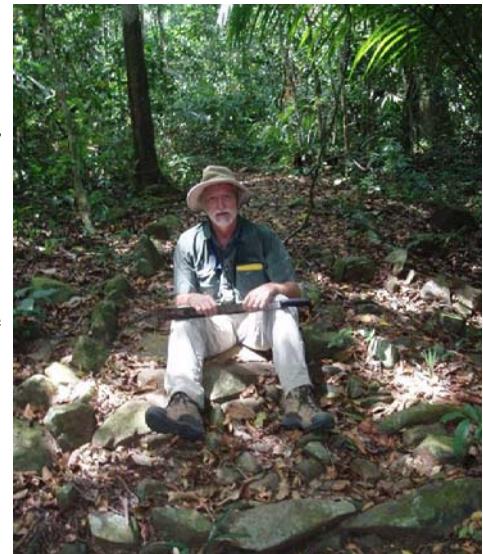
"Keen observation is at least as necessary as penetrating analysis"

Karl Terzaghi



Bio: Eldon Gath

Eldon Gath, President of Earth Consultants International, has 30 years of consulting engineering geology experience, including projects in six different countries, principally involving active fault investigations, seismic hazards, and geological site characterization. He has a BS degree in Geology from the University of Minnesota, 20 years of post-graduate work in various California colleges, and California PG and EG licenses. He is also heavily involved in professional practice organizations, including the Association of Engineering Geologists' President in 1996-97. Mr. Gath represented the Geoscience and Planning disciplines on the National Academy of Sciences, National Research Council's Engineering and Infrastructure Committee to Develop a Long-Term Research Agenda for Earthquake Engineering, and is currently serving on the Technical Advisory Committee on Geology and Geophysics for the California Board for Professional Engineers and Land Surveyors. He has been a consultant to the Panama Canal Authority for the past 6 years, heavily involved in design studies for the Panama Canal Expansion Project and a complete reassessment of the seismic hazard of the original Panama Canal structures.



Message from the Chair

You thought the end of September was humid in the Pacific Northwest? Try Charleston, SC this time of year. I was in Charleston last week for the National AEG conference and I attended the Board of Directors meeting (I made it out just before tropical storm Nicole hit the area). It's one of my duties as the Oregon Section Chair and I was happy to attend. Geologists work hard and they play hard. We attended business during the day and enjoyed ourselves at night. It was also a great opportunity to meet with geologists from around the country, learn who is who, network, and have fun. Charleston is a beautiful city that is rich with history and I enjoyed walking around the area soaking up the sights when time allowed. Next year the meeting will be in Anchorage, Alaska and what a great place to enjoy some geology and good people.

I must mention that two of our students (Serin Duplantis and Kate Mickelson) and a recent former student (Rachel Pirot) won awards at the national meeting. Congratulations Ladies!

Are you ready for this month's presentation? Please welcome Eldon Gath.

Lisa Glonek
Oregon AEG Section Chair

"Keen observation is at least as necessary as penetrating analysis"

Karl Terzaghi



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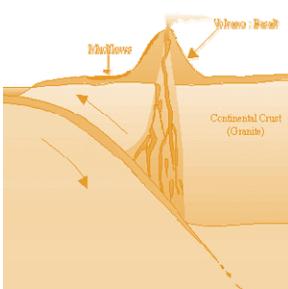
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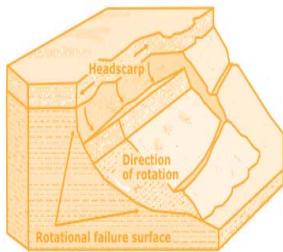


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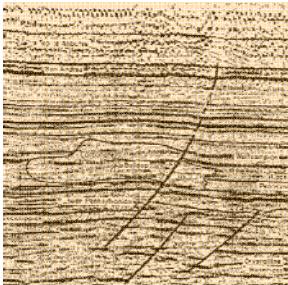
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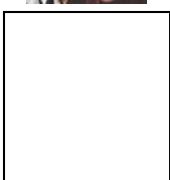
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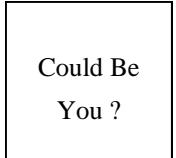
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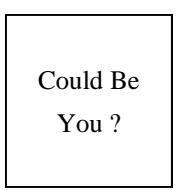
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The Oregon Section Newsletter

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