



## Association of Environmental & Engineering Geologists San Francisco Section

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ANNOUNCING THE AEG SAN FRANCISCO SECTION  
FEBRUARY 2013 MEETING

### EARTHQUAKE POTENTIAL OF THE GREEN VALLEY AND BARTLETT SPRINGS FAULTS

James Lienkaemper of USGS

#### MEETING DETAILS

##### Restaurant

Sinbad's  
Pier 2 Embarcadero Street  
San Francisco, CA

[Map](#)

##### Date and Time

Tuesday, February 12<sup>th</sup>, 2013  
6:00 pm—Social Hour and Sign-in  
7:00 pm—Dinner  
8:00 pm—Presentation

**Cost:** \$45 Members & Members' spouses; \$50 Non-Members, \$20 for Students

##### Menu

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|---------------------|--------------------|
| 🍷 Salmon Florentine | 🍷 Chicken Picatta  |
| 🍷 Snapper           | 🍷 Shrimp Louis     |
| 🍷 London Broil      | 🍷 Vegetarian Pasta |

**Reservations\*:** To RSVP, please fill out the online form at <http://goo.gl/dJY83> by **12 PM, Friday, February 8, 2013**

**Driving Directions:** From the Bay Bridge, take the Fremont Street Exit and the Folsom Street Ramp. Go left (east) on Folsom Street, then left (north) onto the Embarcadero (Herb Caen Way). The driveway for Sinbad's is on the right, south of the historic Ferry Building. Please watch out for the pedestrians and cyclists when turning into the driveway. Thank you.

**BART Directions:** Exit the Embarcadero Station; walk up Market Street toward the Ferry Building (less than ½ a mile toward the Bay and to the east). Cross Embarcadero and Sinbad's is located next to the Alameda ferry pier on the south side the historic Ferry Building.

**Parking:** \$5 valet parking is available or there are meters located on nearby side streets.

\*Please RSVP in advance. Walk-ins are welcome, but not guaranteed. No shows will be charged.

**See next page for abstract and speaker biography.**

## Abstract

The Bartlett Springs and Green Valley faults of the northern California Coast Range together extend approximately 300 km from Mount Diablo northward to southern Trinity County. Loading at a long-term slip rate of about  $6 \pm 3$  mm/yr, they form the third largest branch of the San Andreas fault system in this region. Fault creep is significant, at about  $3 \pm 2$  mm/yr on the southern Green Valley fault and near Lake Pillsbury on the Bartlett Springs fault, thus aseismically relieving about half of the seismic moment. However the northernmost Green Valley and southernmost Bartlett Springs faults may be more locked (perhaps creeping only 0-2 mm/yr), but their rates are as yet poorly determined. No large historic earthquakes have occurred on either fault, but large paleoearthquakes have recurred on the southern Green Valley fault on an average interval of about 250 yr, but rather irregularly (coefficient of variation  $\sim 0.6$ ). Based on historical analogs, I propose two 2-3 km steps in the northern Green Valley fault may cause such irregular occurrence, by interrupting some but not all larger ruptures. The last such event apparently occurred circa 1600 C.E. along most of the Green Valley fault. The current 30-year probability of a large southern Green Valley fault earthquake is estimated from its earthquake record as 20-25%. The expected size for rupture of just the southern Green Valley fault is about M6.7, but it could be much larger ( $\geq M7.0$ ) if its northern sections (near Lake Berryessa and northward) also rupture.

Access the new USGS mapping of Bartlett Springs fault at: <http://pubs.usgs.gov/ds/541/> and northern Green Valley fault at: <http://pubs.usgs.gov/ds/710/>

## Speaker Biography

Jim Lienkaemper, a research geologist/geophysicist with the U.S. Geological Survey since 1978, specializes in paleoseismic studies for earthquake recurrence, geomorphic mapping of active fault traces, and precise monitoring of aseismic slip on the major faults of northern California. He received his Bachelor's degree in Geology at U.C. Berkeley in 1976 and Master's in 1977 also at Cal in the College of Engineering in Earthquake Engineering and Geophysics.

**Thank you for the RSVP! See you on **Tuesday, February 12<sup>th</sup>, 2013****