Association of Environmental & Engineering Geologists
San Francisco Section

ANNOUNCING OUR APRIL 2017 MEETING:

Student Night Presentations

Presenters:
Michael Gardner, University of California Berkeley
Roxanne Renedo, University of Minnesota-Twin Cities
Paul Zimmer, San Jose State University

Posters by:
Poster session open to any participants
(RSVP to vice_chair@aegsf.org)

MEETING DETAILS

Restaurant	**Date and Time**
Spice Monkey	Tuesday, April 11, 2017
1628 Webster Street	6:00 pm—Posters and Sign-in
Oakland, CA	7:00 pm—Dinner
Map	8:00 pm—Presentations

Cost: $45 for AEG members and members' spouses, $55 for non-members, $20 for AEG student members, Free for presenting students. AEG Student Membership is FREE (apply for FREE student membership)

Reservations*: To RSVP, please fill out the online form by **12 PM, Monday, April 10, 2017**

It is highly recommended that you take BART. The restaurant is a short 3 block walk from the 19th Street BART Station (exit from the 18th Street side).

BART Directions: Exit the 19th Street Station from the 18th Street side, walk south on Broadway until you reach 17th Street, turn left on 17th Street and walk two blocks to Webster Street. The restaurant is on the corner of 17th Street and Webster.

Driving/Parking Directions: There are multiple ways to get to the restaurant from your location. Use Google Maps to provide turn-by-turn driving directions. Street parking in Oakland is free after 6pm. A small parking lot is available alongside the restaurant.

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

See next pages for presentation titles and abstracts.

Speakers:

Michael Gardner, University of California Berkeley

Numerical Modeling of Fractured Rock

Discontinuities and geometry greatly affect the behavior of rock in various engineering problems-stability and failure mechanisms of rock slopes, scour of rock from unlined spillways or removability of rock blocks during tunneling. Analyzing these problems requires an explicit description of the discontinuous nature of the rock, the mechanical interactions between individual rock blocks as well as the interaction between the rock and water. To address these complex problems and solve them at real-world scale, it is necessary to employ new computational frameworks that have the ability to scale to the analytical demands at hand. Recent advances in Cloud Computing and new computing architectures make it possible to attempt analyses that can capture the full complexity of these problems and provide new insights into what fundamentally governs the behavior of fractured rock for different applications.

Roxanne Renedo, University of Minnesota-Twin Cities

Exhumation of deeply subducted continental crust

The subduction of continental rocks to ultrahigh-pressure conditions (burial to depths >100 km) is an integral part of the evolution of many orogens, but the processes that exhume these rocks are still highly debated. The Western Gneiss Region of Norway exposes some of the best examples of previously deeply-subducted continental crust. A detailed petrologic and microstructural study of ultrahigh-pressure eclogite and the associated gneiss gives insight into the pressure-temperature-time evolution and exhumation mechanisms of this ultrahigh-pressure terrane.

Paul Zimmer, San Jose State University

Assessing glacial modification of bedrock valleys in the Sierra Nevada, California, using a novel approach

This study employed a semi-automated approach to evaluate the degree of glacial modification of bedrock valleys in the Sierra Nevada, California, by quantifying morphological variability in cross-sectional form assessed from ~27,000 locations throughout the range. Measures of morphology including a shape ratio, a quadratic curve fit, and a power law curve fit were computed for each cross-section along with a novel metric, the V–index, and were compared to mapped glacial extent and bedrock lithology. Results indicate that Quaternary glaciations had a significant effect on bedrock valley morphology that is locally variable and largely independent of lithology at the range scale. Analysis of valley cross-sections and longitudinal profiles further suggest that glaciers in the Sierra Nevada modified pre-existing fluvial valleys primarily through widening. Moreover, the novel V-index is proposed as an alternative to traditional morphological measures due to its utility in describing irregular valley cross-sections and equivalent discriminatory power compared to established techniques for quantifying glacial geomorphology.

Thank you for the RSVP! See you on Tuesday, April 11, 2017!