



Association of Environmental & Engineering Geologists
San Francisco Section

ANNOUNCING THE AEG SAN FRANCISCO SECTION
MAY 2010 MEETING

**Geology in Dam Engineering. An Evolving Contribution of
Engineering Geology for Safety and Efficiency**
2010 Jahns Distinguished Lecturer: Dr. Paul Marinos

MEETING DETAILS

Restaurant

Sinbad's

Pier 2 Embarcadero Street

San Francisco, CA

[Map](#)

Date and Time

Tuesday, May 11th, 2010

6:00 pm—Social Hour and Sign-in

7:00 pm—Dinner

8:00 pm—Presentation

Cost: \$40 AEG members, \$50 non-members, \$20 Students

Reservations*: To RSVP, fax or e-mail Sachiko Tanikawa by **12 PM, Friday, May 7th**.
(fax: 1-866-400-4068, email: treasurer@aegsf.org) with the following information:

Name: _____ Phone/e-mail: _____

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: \$4 valet parking is available or metered parking is available on and around the Embarcadero.

*To assist us with reservations and to help the restaurant with the set-up, please RSVP in advance. Walk-ins are welcome. No shows and late cancellations will be charged.

See next page for abstract and speaker biography.

2010 Jahns Distinguished Lecturer Dr. Paul Marinos

Geology in Dam Engineering. An Evolving Contribution of Engineering Geology for Safety and Efficiency

ABSTRACT

“To avoid the shortcomings associated with present practice requires first of all expert translation of the findings of the geologist into physical and mechanical terms. Next it requires the evaluation of the existing geologic conditions; and finally to assume for the design of the structure the most unfavorable possibilities.

These mental operations represent by far the most important, most difficult, and most neglected tasks in the field of dam foundations” (Terzaghi, 1929)

This statement can be repeated today but the phrase “most neglected” is no longer true. Indeed developments are impressive with a sound understanding from all parties on the significance of knowledge of the geological conditions and the ground properties and behavior. Dams are among the civil engineering structures with the greater interaction with the ground and environment, increasing the responsibility of Engineering Geologists to translate geological findings into engineering design input. The lecture will consider all aspects of the involvement of engineering geology for both the site of the dam and the area of its reservoir.

For the site the information required refers to the quality of the foundation, the stability of the abutments, the watertightness of the foundation and ridges, the stability of the area of appurtenant structures, the specification of geological hazards and the reconnaissance for appropriate construction material.

The selection of the appropriate dam type is a vital decision. The function of each of the dam types and the significance of the geological conditions for such decisions is discussed.

Past dam failures, mostly due to neglect, ignorance or underestimation of geological features are always excellent in terms of lessons learned. A review is given of the causes of dam failures, from data of the International Commission of Large Dams, with discussion of some major failures around the world.

The geology of each dam site is unique. Even if it looks identical to another site, there will be differences in geological detail and, quoting again from Terzaghi, “*minor details constitute elements of major significance*”. In this context the features and particularities of most common rocks are presented together with the variety of the elements of the structure a site may present, illustrated by case histories.

The assessment of permeability of the site and the criteria for the need of a grout and/or drainage curtain constitute an important chapter for the engineering geologist in site investigation, design and construction.

For the reservoir area the scale of consideration is totally different and regional hydrogeologic understanding is essential. A number of cases are presented with an emphasis on the existence of old river beds in different location and on karstic carbonate rocks. Instability of the mountain slopes around the reservoir may lead to disasters and important case histories are presented together with the countermeasures that can be undertaken.

SPEAKER BIOGRAPHY

Dr Paul Marinos received a Mining Engineering degree from the School of Mines of the National Technical University of Athens, Greece in 1966, a postgraduate degree in Applied Geology from the University of Grenoble, France, and his Doctorate in Engineering Geology from the same University in 1969. He worked for French and Greek design and construction companies until 1977 and then was elected as Professor at Democritus University in Northern Greece. Since 1988, Dr. Marinos has been Professor of Engineering Geology in the School of Civil Engineering in the National Technical University of Athens and has served as head of the Geotechnical Section of the School for several years. From 2001 to 2004 and from 2006 to 2008 he was the Director of a Graduate Course in Tunneling and Underground Construction. He was a visiting Professor in the Geology Department of the University of Grenoble (1987) and of the School of Mines in Paris (2003).

Dr Marinos is a member of AEG and GSA and fellow of the Geological Society of London. He is a past President of the International Association of Engineering Geology and the Environment (IAEG), immediate past president of the Geological Society of Greece and honorary member of the International Association of Hydrogeologists (IAH).

Dr Marinos and his team conduct research on a variety of applications of geology to engineering, mainly rock mass characterization, weak rock properties and behavior, with special emphasis to tunnel design. His work also covers landslides, dam geology, and engineering in karstic terrain. His other significant interest is the protection of historic monuments and archeological sites. Dr Marinos has authored or co-authored over 300 papers in journals or major conference proceedings. He was a key or invited lecturer in more than 40 conferences or special events. He has given lectures to University Courses or Workshops, among them the Federal Technical University (EPFL) in Lausanne, Switzerland, the Polytechnico of Turin, Italy, the University of Durham, U.K., the University of Coimbra, Portugal, the University of Kobe, Japan, the Black Sea University Romania, the Aristotle University of Thessalonica, Greece, and the Griffiths University, Australia. He has edited proceedings published by international publishers. Dr Marinos is a member of the Editorial Board of a number of prominent journals as "Engineering Geology", "Bulletin of the International Association of Geology", "Landslides", "Environmental Geology", "Rock Mechanics" and from 2009 "Environmental and Engineering Geosciences".

Dr Paul Marinos has extensive industrial experience having served as consultant, independent reviewer and member of consulting boards or panel of experts on major civil engineering projects in Greece, France, India, Iran, Jordan, Morocco, Portugal, Saudi Arabia, South East Asia, Spain, Sweden, and Turkey.

Thank you for the RSVP! See you on Tuesday, May 11th!