

Interactive Workshop

1:15pm - 5:00pm

July 22, 2000

Reliability Analyses and Computer Applications in Geotechnical Engineering

This workshop will provide the opportunity to learn more about recent advances in reliability analysis and computer analysis in geotechnical engineering. The workshop will cover the following:

- **Basic introduction to the use of computers in Geotechnical engineering. (1/2 hour).**
- **1-D Dynamic amplification/soil response. Determination of soil properties, empirical correlation, non-linear effects. Hands on with the computer program UFSHAKE. Examples for typical soil profiles, different ground motions, etc. (2 hours)**
- **Development of site specific response spectra. Example of bridge structure. (1 hour).**
- **Level ground liquefaction assessment. Equations, theory, computer program LIQFAC, and how to combine it with UFSHAKE for better analysis. Example problems and some ideas about remediation. (1 1/2 hours).**

Workshop Leader: Dr. Alfredo Urzua
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Dr. Urzua received his MS and Ph.D. from MIT. He is a civil engineer specializing in Geomechanics, Geotechnical, Earthquake Engineering, Reliability Analyses and Computer Applications in Engineering. He is proficient in the application of Finite Element and Finite Difference methods for dynamic soil response, groundwater modeling flow, seepage analysis, and soil structure interaction. Recent experience includes developing and implementing a GIS system for the organization of subsurface data for a major highway department, installation and management of geotechnical and strong motion instrumentation for dams, slopes and other constructed facilities, seismic analysis and dynamic soil response for bridges and dams; seismic hazard assessments; regional groundwater modeling and development of flow nets and seepage patterns; developing computer aided design procedures for liquefaction evaluation, and geotechnical productivity tools for major government agencies. He has been an invited lecturer and provided short courses at several national and international conferences which include MIT, RPI, U.S. Corps of Engineers, Boston Society of Civil Engineers, Naval Facilities Command, Bureau of Reclamation, Colombia, Ecuador, Chile, Mexico, Dominican Republic, Venezuela, Taiwan and Jordan. Dr. Urzua is the co-author of the book Productivity Tools for Geotechnical Engineers, Vol. I.