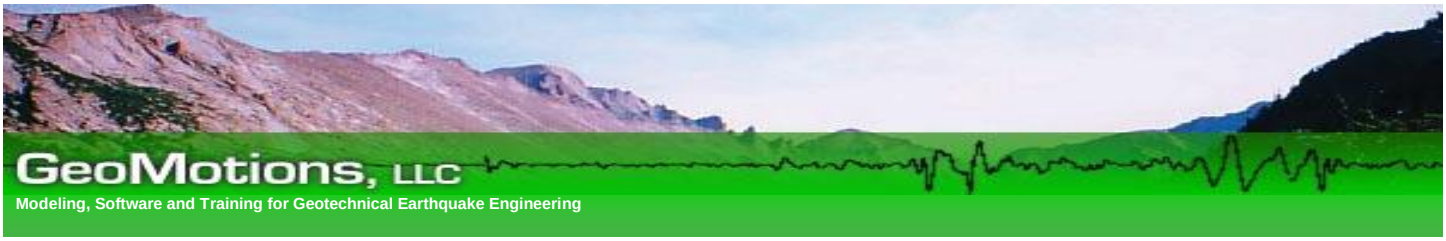


Seismic Site Response Analysis with *GeoMotions Suite 2000*

Thursday, June 9, 2011
Hunan, China

Overview
GeoMotions, LLC invites you to join us at our upcoming short course on Geotechnical Earthquake Engineering, with special emphasis on the practical aspects of 1-D seismic site response analysis.

The course consists of morning and afternoon sessions of lectures that provide some theoretical background information on the subject matter; and, an afternoon session of hands-on computer exercises using the *GeoMotions Suite* software package to evaluate ground response due to seismic loading.

This software suite includes our flagship equivalent-linear and nonlinear & effective-stress site response analyses programs *SHAKE2000* and *D-MOD2000*, respectively; and, *RspMatchEDT*, a program for generation of spectrum-compatible ground motions.

What will you learn?
You will learn from practicing professionals the main aspects of seismic site response analysis from a practical point of view. Topics addressed during the short courses include:

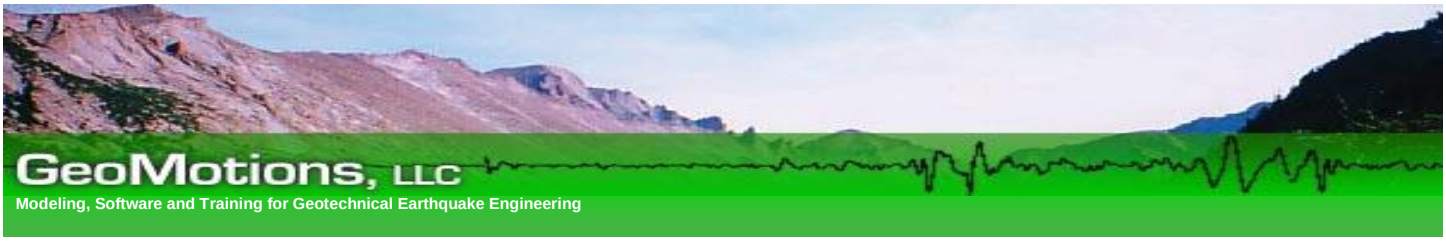
- Evaluation of seismic hazard parameters (probabilistic and deterministic) and development of design ground motions.
- Principles of dynamic modeling (1-D, 2-D, and 3-D).
- Guidelines for the application of seismic site response analysis.
- Evaluation of dynamic material properties and dynamic model parameters.
- Generic (i.e., published) sets of material parameters for site response analyses.
- How to apply SHAKE2000 to solve common earthquake engineering problems.

Course Level
This short course is designed for practicing professionals with formal education in engineering and/or earth sciences.

Instructors
Neven Matasovic, Ph.D., P.E., G.E. is an Associate with Geosyntec Consultants, which is a specialized consulting and engineering firm that has more than 30 offices throughout the U.S. and in Canada, Malaysia, and the United Kingdom. He holds a Ph.D. in Geotechnical Earthquake Engineering (UCLA) and M.S. degree in Structural (Foundation) Engineering. He is co-developer of D-MOD2000, recipient of the 2001 Prakash Foundation Award for Excellence in Practice of Geotechnical Earthquake Engineering, and author/co-author of over 70 technical publications including the Federal Highway Administration (FHWA) guidance document on geotechnical earthquake engineering for highway facilities and of the US Environmental Protection Agency (EPA) guidance document for seismic design of landfills.

Gustavo A. Ordonez, P.E., received his B.S. in Civil Engineering from the University of San Carlos of Guatemala and his M.S. degree in Geotechnical Engineering from Oregon State University. He has 20 years of professional experience with emphasis on the field inspection of existing dams and on the evaluation of their static and seismic adequacy under current engineering standards. He is developer of the SHAKE2000 & RspMatchEDT programs and co-developer of the D-MOD2000 program.

Invited Speaker (Local Practice)
Liping Yan, Ph.D., P.E. G.E., is a Civil Engineering Associate at Los Angeles Department of Water and Power in California, U.S.A.; and, a Guest Professor at Southwest Jiaotong University in China. His research projects have related to soil constitutive relations, numerical analysis on seismic stability of earth dams and embankments, dynamic analysis on soil-structure interactions, and development and implementation of improved seismic design and retrofit procedures for bridge abutments and footings. Since 1990, Dr. Yan has been consulting for both public and private clients. His experience covers a broad spectrum of geotechnical and earthquake issues for design and construction. Currently Dr. Yan serves as a member on the ASCE Geo-Institute's Earthquake Engineering and Soil Dynamics Committee.



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Hunan, China

Registration Information

- Advance registration and payment are required. Registration will be on a first-come/first-served basis. Space is limited to 20 participants.
- To pre-register, send an e-mail to: **training@geomotions.com**
- **Cost of one *SHAKE2000* and one *RspMatcheEDT* license and hard lock key is included in the registration fee. *D-MOD2000* can be purchased separately.**
- The registration fee is $650.00 USD for payment by a U.S. bank issued-check or bank wire; or, $700.00 USD for credit card payment. Please contact us for credit card and bank wire payments.
- Cancellations accepted and partial refunds provided on/or before May 30, 2011. A $100.00 handling fee will be deducted from refunds. After that date, either: 1) no refunds will be offered, instead another person(s) may substitute those unable to attend; or, 2) the software will be shipped to the registered participant.
- **Short course participants are required to bring their own laptops (for participation in the hands-on software training sessions).**
- A working knowledge of computers and experience in the use of software for the design and/or analysis of engineered structures is required from the participants.
- The short course will be held at the same venue as for the GeoHunan International Conference II.
- **Conference registration is not included with the short course fee.**
- In the event the course is cancelled by GeoMotions due to insufficient enrollment, the registration fee will be refunded in full. GeoMotions is not responsible for any other expenses associated with a cancellation.
- For additional information please send us an e-mail at:

training@geomotions.com

Agenda
Thursday, June 9th

Registration **7:30**

1. Introduction and Objectives **8:15**

2. Seismic Hazard Parameters and Development of Design Ground Motions **8:30**

- Introduction and Basic Definitions
- Source Identification and Characterization
- Source and Path Parameters
- Use of Common Attenuation and Duration Models
- Evaluation of Seismic Hazard Parameters
- Development of Design Ground Motions
- Comparison of Various Methods
- Discussion/Questions

Coffee Break **9:45**

3. Site Response Models and Dynamic Soil Properties **10:15**

- Site Characterization
- Representative Soil Profile
- Soil and Bedrock Parameters for Site Response Analysis
- Shear Wave Velocity Profile
- Unit Weight Profile
- Shear Modulus, Modulus Reduction and Damping
- Sensitivity of Site Response Analysis to Input Parameters
- Example Problem – Turkey Flat Site Response Case History
- Discussion/Questions

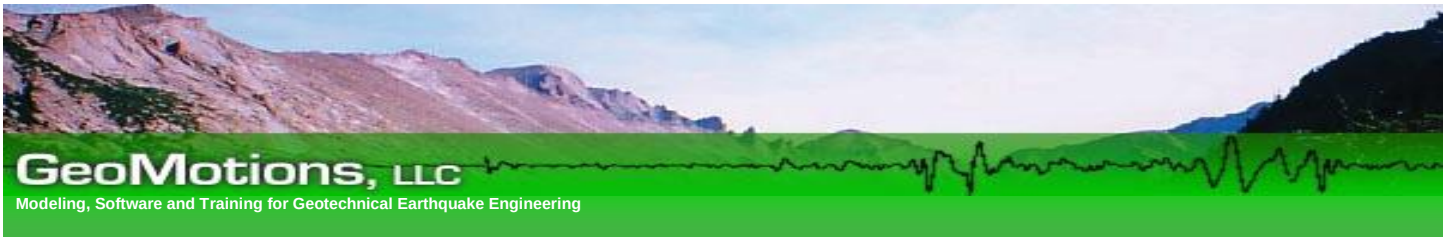
4. Local Practice **11:15**

- Explanation of Local Codes as Applied to Site Response Analysis
- Explanation of Attenuation Relationships that are Used Locally
- Other Relevant Issues (Chinese SPT vs. $N_{1,60}$)

Lunch (on your own) **12:00**

5. Site Response Analysis (SHAKE2000) Hands-on Training **13:00**

- Software Features
- Training Objectives & Outline Dynamic Model Building Assignment of Input Motion
- Example Model/Problem
- Acceleration & Shear Stress Time Histories
- Response Spectra



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Coffee Break **15:00**

6. **Introduction to Advanced Analyses in Geotechnical Earthquake Engineering** **15:15**
   - Basic Definitions
   - Why and When is Nonlinear Analysis Required?
   - Why and When is Effective-Stress Analysis Required?
   - When are 2-D and 3-D Analyses Required?
   - When Soil-Structure Interaction Effects Should not be Ignored?
   - What are the Limitations of 1-D Nonlinear (and Effective-Stress) Models?
   - How to Analyze 2-D and 3-D Problems with 1-D models
   - Effective-Stress Analysis – Relevant Models and Theoretical Background.
     - Dynamic Response Model
     - Viscous Damping Model
     - Stress-Strain Model
     - Irregular Stress-Strain Behavior Rules
     - Pore Water Pressure (PWP) Generation Models (Sand and Clay)
     - PWP Dissipation Model (Sand, Clay, and Composite Soil Deposits)

Closure **16:45**
- Questions/Answers

GeoHunan International Conference II
Emerging Technologies for Design, Construction, Rehabilitation, and Inspections of Transportation Infrastructures

June 9-11, 2011 • Hunan, China
http://tti.tamu.edu/conferences/geohunan11/

Hosted by:
Changsha University of Science and Technology,
in Cooperation with
Zhangjiajie-Huayuan Expressway

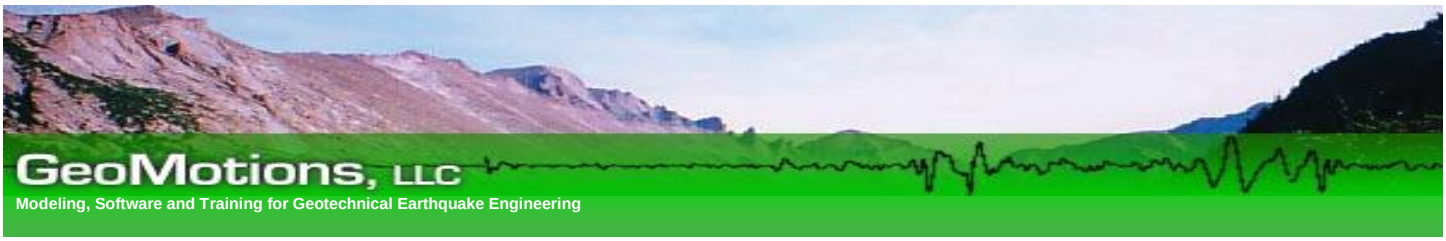
This emerging technique conference for design, construction, and Inspection of transportation Infrastructures is endorsed by a number of leading international professional organizations.

One of the main objectives of the transportation authorities is to provide safe transportation facilities for effective and efficient movement of people and goods. This conference will provide a showcase for recent developments and advancements in design, construction, and safety Inspections of transportation Infrastructures and offer a forum to discuss and debate future directions for the 21st century.

Conference topics cover a broad array of contemporary issues for professionals involved in bridge, pavement, geotechnical, tunnel, and emerging techniques for safety Inspections.

You will have the opportunity to meet colleagues from all over the world for technical, scientific, and commercial discussions.

Hunan is one of the largest commercial provinces and economic centers of China. It is being developed into a modern international economic, financial, and trade center. Recent rapid construction in China has provided great opportunities for bridge, pavement, geotechnical, and tunnel engineers to use their knowledge and talents to solve many challenging problems involving highway bridge structures, pavements, materials, ground improvement, slopes, excavations, and tunnels with innovative solutions and cutting-edge technologies.



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Thursday, June 9, 2011
Hunan, China

Contact Information:

Name of Firm, Organization or Individual: _____

Mailing Address: _____
Street Address

_____
City State/Province Zip Code Country

_____
Telephone E-mail

Registration ($650.00 check/wire; $700.00 credit card):

	Name of Attendee	E-mail	Fee
1.	_____		$ _____
2.	_____		$ _____
3.	_____		$ _____
		Subtotal:	$ _____
	Group Discount: Firms or organizations registering 2 or more attendees deduct $50.00 per attendee	_____ x 50.00	- $ _____
		Total:	$ _____

Payment Information:

Please, make check payable to: **GeoMotions, LLC** - Mail this form and payment to: **GeoMotions, LLC**
Attn: Hunan-6/11
3640 Arbor Dr. SE
Lacey, WA 98503
U.S.A.