The 12th International Symposium on Geo-disaster Reduction

5-6 September 2014
Fullerton, California, USA

Call for Registration

College of Engineering and Computer Science at California State University, Fullerton in collaboration with Geo-Institute Los Angeles Chapter of the American Society of Civil Engineers and International Consortium on Geo-disaster Reduction (ICGdR) are going to organize the 12th International Symposium on Geo-Disaster Reduction in Fullerton, California, USA on September 5th and 6th, 2014. This series of international symposiums have been an instrumental forum for the advancement of geo-disaster reduction. Geoscientists and engineers from all over the world have contributed and benefited significantly during these events in the past. The forthcoming event is going to be another building block to enhance geotechnical engineering knowledge and to further understand geo-disaster reduction. The symposium organizers request all geoscientists and geo-engineers to submit their registration form(s) including all necessary details within the deadline. Your kind cooperation will greatly help us to plan and coordinate this important event successfully. Please register online through http://icgdr14.com/registration.

Symposium venues

The ISGdR-12 symposium will take place in Fullerton, California, USA. An optional field excursion will be organized from Fullerton to some interesting geo-disaster area within Orange County.

Symposium format

Following the past format of this symposium, thematic oral and poster sessions have been planned within a single venue. Parallel sessions will be avoided as far as possible in order to provide all participants an opportunity to learn from all presentations. There will be two keynote lectures and six invited lectures to cover various geo-disasters such as Rainfall Induced Landslides, Earthquake Induced Landslides, Debris Flow Disasters, Disaster Awareness, Seismic Ground Shaking Associated Disasters, Climate Change, Floods, and Dams/Levees. Accepted full papers of the symposium, after a regular peer review process, will be published in the International Journal, Geoenvironmental Disasters (http://www.springer.com/environment/journal/40677). Top three papers submitted in the symposium will be identified for the best paper award and the authors of those papers will be recognized during the closing ceremony.

Keynote speaker 1

Prof. Jonathan Bray, Faculty Chair of Earthquake Engineering Excellence at the University of California, Berkeley, has accepted an invitation from the organizers to deliver a keynote lecture in ICGdR-12. He earned engineering degrees from West Point (B.S.), Stanford University (M.S. in Structural Engineering), and the University of California, Berkeley (Ph.D. in Geotechnical Engineering). His expertise includes liquefaction and its effects on structures, the seismic performance of earth and waste fills, earthquake fault rupture propagation, earthquake ground motions, seismic site response, and post-earthquake reconnaissance. Dr. Bray has been a registered professional civil engineer since 1985 in Virginia and 1990 in California. He has served as a consultant on several engineering projects and peer review panels, and he has served as an expert geotechnical engineer in several legal cases. Consultancies include the California High-Speed Train Project Technical Advisory Panel, Advisor to the New Zealand Earthquake Commission, Transbay Tower Structural Design Review Team, and the BART Earthquake Safety Program Peer Review Panel. Additionally, he has served as the Vice-President of the Earthquake Engineering Research Institute and as a member of the Advisory Committee on Earthquake Hazards Reduction. Professor Bray has authored nearly 300 research publications. He has received several honors, including the ASCE Peck Lecture Award, SSA-EERI Joyner Lecture Award, ASCE Huber Research Prize, Packard Foundation Fellowship, and NSF Presidential Young Investigator Award.

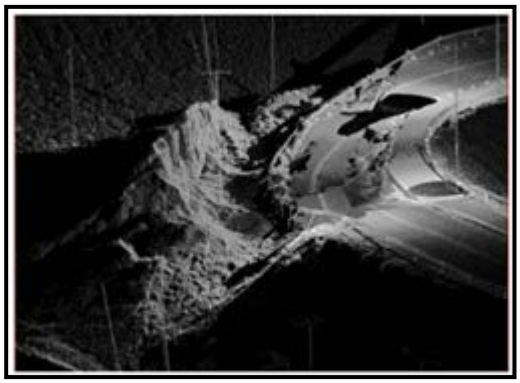
His presentation will be titled, "*Turning Disaster into Knowledge*."

Abstract

Advancing hazard-resistant design demands an understanding of what happens when a disaster occurs. Documenting and sharing the key lessons learned from extreme events around the world contributes significantly to advancing research and practice in hazards engineering. The detailed mapping and surveying of damaged areas provides the data for well-documented case histories that drive the development of many of the design procedures used by geotechnical engineers.

Many design methods are based on insights gleaned from observations from past events. Field observations are particularly important in the discipline of geotechnical engineering, because it is difficult to replicate in the laboratory soil deposits built by nature over thousands of years. Much of the data generated by an extreme event is perishable and therefore must be collected within a few days of the occurrence of the event. Thus, engineers should be ready to investigate the next important extreme event.

Adapazari, Turkey (1999 Kocaeli EQ)



LIDAR image Ruta 5 (2010 Chile EQ: R. Kayen)

Keynote speaker 2

Dr. Jonathan P. Stewart is Professor and Chair of Civil Engineering at UCLA. His expertise is in ground motion characterization, site effects, soil-structure interaction, performance of earth structures, and seismic ground failure. He is currently the Chief Editor of Earthquake Spectra. His presentation will be titled, "*Lessons learned on ground motions from large interface subduction zone earthquakes*."

Abstract

In this presentation, I will review the results of analyses of ground motions recorded during the large interface subduction zone earthquakes in Maule Chile (M 8.8, 2010) and Tohoku Japan (M 9.0, 2011). I will also describe how these analyses influenced the selection of ground motion prediction equations (GMPEs) for subduction zone regions in the Global Earthquake Model (GEM) project organized through the Pacific Earthquake Engineering Research Center (PEER). The work discussed in this presentation is largely presented in prior publications by Boroschek et al. (2012), Stewart et al. (2013a), and Stewart et al. (2013b).

Invited Lecturer 1

Professor Ko-Fei Liu received Bachelor degree from National Taiwan University and graduated from Massachusetts Institute of Technology with PhD degree in 1981. Then he returned to Taiwan to teach in National Taiwan University, department of Civil Engineering. He has been the vice chairman of the Department of Civil Engineering, deputy division head of the Slopeland Disaster Reduction Division in the National Science and Technology Center for Disaster Reduction (NCDR) and now the head of Hydrotech research institute. He has published more than 160 papers in international journals and conference proceedings and was invited speaker/keynote lecturer in many international conferences and symposiums. He was the host of many international conference including the very successful the 2nd debris flow hazard mitigation conference in 2000. His recent research area concentrates on debris flow modeling and monitoring, rheological measurements as well as innovative education. His presentation will be titled, "*Large scale sediment transport: Combine landslide area- volume relation, debris flow simulation and river sediment calculation to find large watershed sediment movement and storage change*."

Invited Lecturer 2

Jeffrey R. Keaton has degrees in Geological Engineering, Geotechnical Engineering, and Geology. He has been employed by consulting firms for over 40 years and has been a Principal in AMEC's Los Angeles office since 2001. He holds the Envision™ Sustainability Professional Credential and is licensed as a professional engineer and a professional geologist in several states. Jeff is a member of the Steering Committee of Geotechnical Extreme Event Reconnaissance (GEER) Association. He is a member of the ASCE Committee on Sustainability and chair of its Strategic Communications Subcommittee. He is chair of the Geo-Institute's Committee on Sustainability in Geotechnical Engineering, and past chair of the Geo-Institute's Technical Coordination Council, as well as chair of the IAEG Commission No. 1 (Engineering Geological Characterization and Visualization), past president of the Association of Environmental & Engineering Geologists, past chair of the

Environmental & Engineering Geology Division of the Geological Society of America, past chair of the Transportation Research Board Exploration and Classification of Earth Materials Committee and Engineering Geology Committee. He is a member of the Executive Committee of the Engineering Accreditation Commission of ABET. His presentation will be titled, "*The March 22, 2014, Oso Landslide, Washington: an Overview of the GEER Response.*"

Abstract

The Oso Landslide in Snohomish County, Washington, is among the most significant geologic disasters in recent U. S. history. It is one of many landslides that have occurred on valley slopes above the North Fork of the Stillaguamish River. The Oso Landslide occurred on a slope with documented history of intermittent landslide movement since the 1940s; slope movement in 2006 blocked the river and caused shallow flood damage to some of the nearby homes. The Oso Landslide generated vibrations at 10:37 A.M. local time on 22 March 2014 that were recorded on nearby seismograph stations; it became a rapidly moving, unchannelized debris flow that spread out as it travelled about 1 km across the valley, damming the North Fork of the Stillaguamish River, destroying and carrying away about 50 homes, and burying about 1.5 km of State Highway 530. In early May 2014, the recovery efforts were suspended after 41 confirmed deaths but with 2 persons still missing. Developing and advancing strategies for adapting to weather-triggered earth surface processes requires an understanding of what led to the collapse of the slope to enhance public safety and so that communities and infrastructure systems can be designed for greater resiliency. The National Science Foundation-supported Geotechnical Extreme Events Reconnaissance (GEER) Association (www.geerassociation.org) by 31 March 2014 assembled a team of seven professionals to investigate the landslide; authorization to access the landslide area was granted to the GEER team in early May 2014. The primary focus of the GEER team is to document short-lived geotechnical features and make the findings publically available through the GEER website. The team's report will describe plausible precipitation, geologic, groundwater, and geotechnical models, impacts to infrastructure, and hazard-communication aspects of the disastrous landslide event.

Invited Lecturer 3

Dr. Timothy D. Stark has been a Professor of Civil and Environmental Engineering at the University of Illinois at Urbana-Champaign since 1991. His research interests include the static and seismic stability of natural and manmade slopes, three-dimensional slope stability analyses, shear strengths for slope stability analyses, and earthquake-induced liquefaction and post-liquefaction strength of cohesionless soils. Dr. Stark has received a number of awards for his research, teaching, and service activities including the Thomas A. Middlebrooks Award from the American Society of Civil Engineers (ASCE), 2013 and 1998; Associated Editor of the Year by the ASCE Journal of Geotechnical and Geoenvironmental Engineering, 2011; elected Fellow by the ASCE, 2005; R.M. Quigley Award from the Canadian Geotechnical Society, 2003; R.S. Ladd ASTM Standards Development Award from the ASTM, 2013, 2011, and 2002; Walter L. Huber Research Prize from ASCE, 1999; University Scholar Award from the University of Illinois, 1998; News Correspondent Award, ASCE, 1995; Dow Outstanding New Faculty Award from the American Society for Engineering Education, 1994; Xerox Award for Faculty Research, College of Engineering, University of Illinois, 1993; Arthur Casagrande Professional Development Award from the ASCE, 1992; Edmund Friedman Young Engineer Award for Professional Achievement, from the ASCE, 1991; and a U.S. Army Corps of Engineers Research Fellow, 1987 and 1991. His presentation will be titled, "*Recent Research on 3D Slope Stability Analyses.*"

Abstract

This presentation will present recent research results on 3D slope stability analysis for static and seismic stability analyses. In particular, this presentation will use field case histories to show the difference between two- and three-dimensional factors of safety is most pronounced in translational failures. Two- and three-dimensional slope stability analyses of field case histories and a parametric study of a typical slope geometry show that commercially available three-dimensional slope stability programs do not account for: (1) shear resistance along the sides of the sliding mass; (2) stress-dependent strength envelopes; and (3) internal forces in the slide mass. These limitations can affect the calculated factor of safety for a translational failure mode. A technique is presented to overcome some of these limitations and provide a better estimation of the 3D factor of safety. Field case histories are presented to show the importance of using a three-dimensional analysis in inverse analyses and design of slopes with complicated topography, shear strength conditions, and/or pore-water pressures.

Invited Lecturer 4

Dr. Ning Lu is well known internationally for his work on stresses in variably saturated porous media. His primary research interest is to seek common threads among basic soil physical phenomena including fluid flow, chemical transport, heat transfer, stress, and deformation. He pursues understanding of these phenomena at fundamental levels, including unifying atomic-scale potentials, inter-particle forces, and engineering-scale stresses in soils. He has been working on challenging engineering problems in chemical transport in clayey soil, underground nuclear waste isolation, residential house foundation damage by expansive clays, and, most recently, precipitation-induced shallow landslides. He teaches regularly on mechanics and hydrology of variably saturated porous media with the textbook Unsaturated Soil Mechanics (John Wiley and Sons, 2004) .He also teaches vadose zone hydrology and landslides with the textbook Hillslope Hydrology and Stability (N. Lu and J.W. Godt, Cambridge University Press, 2012). His presentation will be titled, "*Advancing the Predictability of Infiltration-induced Slope Instability.*"

Abstract

Two major advancements in slope stability analysis are highlighted. The first is the capability to handle transient field of effective stress in variably saturated slopes under rainfall conditions. Using effective stress analysis preserves the rigor, simplicity and practicality of the classical slope stability methodologies. The second is to quantify field of local factor of safety (FS), which radically departs from the classical one-FS for one slope paradigm and allows identification of failure initiation and progression zone in slopes. Two field cases, one near Seattle, Washington, and the other near a continental divide in Colorado, will be used to illustrate the validity, accuracy, and simplicity of these advancements for slope stability analysis.

Invited Lecturer 5

Dr. Fawu Wang is Professor and Director of the Research center on Natural Disaster reduction at Shimane University, Japan. He obtained his D. sc. from Kyoto University in 1999. He had been faculty member at Kyoto University and Kanazawa University in Japan, and Changchun University of earth Science in China. He is an editor of landslides and Editor-in-chief of Geo-environmental Disasters. He is the current Secretary General of the International Consortium on Geo-disaster Reduction. He has authored over 100 papers and conference

proceedings on geo-disaster mitigation. His presentation will be titled, "*Premonitory Phenomena of Landslide Dam Failure by Piping*."

Abstract

Landslide dams are formed as a result of downslope movement of landslide materials into deep confined valleys. It has been reported that the longevity and stability of landslide dams depend on several factors which include the rate of seepage through the impoundment, size, shape, volume and material composition of the impoundment, and rate of inflow into the newly formed lake. Landslide dams can fail by piping, overtopping and sliding, depending on the nature of the materials composing the dams. Abrupt failure of landslide dams may result in flooding in the downstream area.

Many approaches have been used to predict the stability of landslide dams and detailed knowledge of the internal structures of landslide dams could aid in making better disaster management forecast although some researchers reported the difficulty of assessing internal compositions of landslide dams. In this talk, three approaches to find out premonitory phenomena of landslide dam failure caused by piping will be presented. They are, 1) microtremor chain array survey (MCAS) to detect the internal structure of landslide dam; 2) self-potential measurement to detect groundwater flowing; and 3) monitoring on groundwater level change in the landslide dam and turbidity change at the downstream side of the landslide dam to predict the possible failure of the landslide dam.

Invited Lecture 6

Dr. David Bowman, Professor and Dean, College of Natural Science and Mathematics, California State university, Fullerton holds a B.S. and Ph.D. in geology from the University of Southern California and conducted postdoctoral work in the Tectonics Lab of the Institut de Physique du Globe de Paris (Institute for Earth Physics) in Paris, France, where he held a Chateaubriand Postdoctoral Fellow from the French Embassy to the United States. his research specialty is earthquake physics; his current research interests are earthquake stress interactions and rupture propagation in branched fault systems, regional seismicity associated with large earthquakes, the formation and evolution of fault systems, and time-dependent seismic hazard analysis. His research has taken him to fieldwork in exotic locales such as New Zealand, northern Tibet, central Greece, and the San Fernando Valley. Dr. Bowman has authored numerous papers on earthquake seismology with students and colleagues from around the globe and has given an uncounted number of presentations on earthquake safety to community groups across southern California. He is a member of the American Geophysical Union, the Seismological Society of America, and the Southern California Earthquake Center where he currently sits on the Board of Directors.

STUDENT BEST PRESENTATION AWARD

Top three student presentations will be awarded during the closing ceremony.

Detailed Program

Time	Room: Pavilion A	Room: Pavilion B	Room: Pavilion C
September 5, 2014			
8:30-9:00	Inaugural Program		
9:00-10:00	Keynote Lecture 1		
10:00-10:30			Coffee Break/Exhibition
10:30-11:15	Invited Lecture 1		
11:15-11:30	Presentation 1	Presentation 4	
11:30-11:45	Presentation 2	Presentation 5	
11:45-12:00	Presentation 3	Presentation 6	
12:00-13:30			Lunch/Exhibition
13:30-14:15	Invited Lecture 2		
14:15-14:30	Presentation 7	Presentation 10	
14:30-14:45	Presentation 8	Presentation 11	
14:45-15:00	Presentation 9	Presentation 12	
15:00-15:30			Coffee Break/Exhibition
15:30-16:15	Invited Lecture 3		
16:15-16:30	Presentation 13	Presentation 16	
16:30-16:45	Presentation 14	Presentation 17	
16:45-17:00	Presentation 15	Presentation 18	
17:30-19:00			Welcome Reception
September 6, 2014			
9:00-10:00	Keynote Lecture 2		
10:00-10:30			Coffee Break/Exhibition
10:30-11:15	Invited Lecture 4		
11:15-11:30	Presentation 19	Presentation 22	
11:30-11:45	Presentation 20	Presentation 23	
11:45-12:00	Presentation 21	Presentation 23	
12:00-13:30			Lunch/Exhibition
13:30-14:15	Invited Lecture 5		
14:15-14:30	Presentation 25	Presentation 28	
14:30-14:45	Presentation 26	Presentation 29	
14:45-15:00	Presentation 27	Presentation 30	
15:00-15:30			Coffee Break/Exhibition
15:30-16:15	Invited Lecture 6		
16:15-16:30	Presentation 31	Presentation 34	
16:30-16:45	Presentation 32	Presentation 35	
16:45-17:00	Presentation 33	Presentation 36	
17:30-19:30	ICGdR Meeting		

Important deadlines

August 10, 2014 Symposium early bird registration and full payment of registration fee
August 15, 2014 Full paper submission deadline
August 22, 2014 Symposium late registration and full payment of registration fee

Registration and payment information

All interested individuals and potential participants are required to submit an online Registration Form before August 10th, 2014. Payments can be made using our online payment system. Registration forms and the payment system can be found at http://icgdr14.com/register.

Alternatively, please fill the registration form, *make your check payable to "Geo-Institute Graduate Student Organization CSUF"* and send to:

12th ISGdR Organization Committee
C/O Dr. Binod Tiwari
Civil and Environmental Engineering Department
California State University, Fullerton
800 N State College Blvd., E-419
Fullerton, CA 92831

Registration costs
Full conference registration: $300
Late registration: $350
One-day registration: $200 ($250 for late registration)
Student registration: $25/day ($40/day for late registration)

Registration includes all technical sessions, lunch, the welcome reception and the conference proceedings, in a digital format.

Cancellation and refund policy

Cancellation and refund policy for a situation when a participant needs to cancel his/her participation for some unavoidable circumstances is as follows.

Cancellation before August 22, 2014: Full refund of the applicable fee amount (after deducting any applicable PayPal or bank costs). For the refund of credit card payment, the refund policy of PayPal online payment system (www.paypal.com) will be followed.

Cancellation after August 22, but before August 29, 2014: Only 50% refund of the applicable fee amount (after deducting any applicable PayPal or bank costs). For the refund of credit card payment, the refund policy of PayPal online payment system (www.paypal.com) will be followed.

After August 29, 2014: There will be NO refund.

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College of Engineering and Computer Science, California State University, Fullerton
American Society of Civil Engineers, Geo-Institute Los Angeles Chapter
International Consortium on Geo-disaster Reduction

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Civil & Cons. Eng. Mgmt. Department, CSU, Long Beach
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Dr. Patrick, Wassmer, Université de Strasbourg, France

Contact details

For technical conference details and any questions about the conference content, please contact the chair:

Dr. Binod Tiwari
Email: btiwari@fullerton.edu

For questions regarding logistics, travel and registration, please contact the conference secretaries:

Ms. Beena Ajmera: bajmera@vt.edu
Ms. Sneha Upadhyaya: upadhyayasneha@csu.fullerton.edu

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5 - 6 September 2014, Fullerton, California, USA

Chair: Dr. Binod Tiwari

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Please *make your check payable to "Geo-Institute Graduate Student Organization CSUF"* and send to:

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One-day registration (prior to August 10):	$200
Late (after August 10)	$250
Student registration (prior to August 10):	$25/day
Late (after August 10)	$40/day

For further information, please contact the conference secretaries.

Alternatively, please submit complete registration forms to:
Ms. Beena Ajmera at bajmera@vt.edu
or Ms. Sneha Upadhyaya at upadhyayasneha@csu.fullerton.edu