



## EARTHQUAKE ENGINEERING RESEARCH INSTITUTE NEWSLETTER

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### EARTHQUAKE ENGINEERING RESEARCH INSTITUTE

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### News of the Institute

## 9USN/10CCEE Technical Tours

The Technical Program Committee of the 9th U.S. National and 10th Canadian Conference on Earthquake Engineering (9USN/10CCEE) is now in the process of organizing sessions and anticipates that a preliminary program will be developed by mid-May. When it is ready, an announcement will be e-mailed to all authors and EERI members.

Online registration is available from <http://2010eqconf.org/>. During the registration process, you will have the opportunity to choose one or more of the three technical tours described below. There is also a link to information about the Toronto City Pass, which offers a discount rate to attend five of the city's most popular attractions. The two listed tours in Toronto will be complemented by technical presentations on the visited facilities during the conference luncheon.

- **Sky Dome Group Tour:** Sunday, July 25, 3:00 p.m. – 4:00 p.m.  
The SkyDome, now known as the Rogers Centre, features the world's first fully retractable roof that has enabled it to become one of the most versatile entertainment centers in the world.
- **CN Tower Group Tour:** Monday, July 26, 6:30 p.m. – 8:30 p.m.  
The CN Tower is the signature icon of Toronto's skyline. At the time of construction, it was the tallest free-standing structure on land in the world, and remains the tallest in the Americas.
- **Post Conference Tour:  
Niagara Falls Power Plant**  
On Friday, July 30, the bus departs from the hotel at 8 a.m. and returns by 7 p.m. This tour will visit Niagara Falls Power Plant, one of the first hydro-electric power plants. The trip will include a buffet lunch at Queen's Landing Hotel at Niagara-on-the-Lake and leisure time at Niagara Falls.



*Niagara Falls, tour destination.*

### Learning from Earthquakes

## Haiti Earthquake Update

Several EERI members, including Executive Director Jay Berger, participated in a workshop convened by the U.S. National Science and Technology Council's Subcommittee on Disaster Reduction (SDR), focusing on the role of science and engineering in Haiti's reconstruction in the aftermath of the earthquake of January 12, 2010. The key findings from this workshop are available from <http://www.state.gov/p/io/rls/fs/139155.htm>.

Following up on this workshop, EERI wrote a letter to the SDR suggesting three principles related to the design and construction of safe residential housing, public and commercial buildings, and critical infrastructure. These are:

- The U.S. recovery investment should fund buildings that provide life safety protection in disasters. Funding for reconstruction efforts in Haiti should only go to rebuilding projects that, when completed, are earthquake and hurricane resistant.

*continued on page 2*

## Haiti Earthquake Update

*continued from page 1*

- A strategy calling for disaster-resistant building should be promoted so that the broader Haitian community understands the principles of safe construction and demands it.
- The reconstruction agenda and practices of the Office of U.S. Foreign Disaster Assistance (OFDA) and U.S. Agency for International Development (USAID) should be closely aligned with standards recommended by the SDR.

**Three Clearinghouses:** Links to the three clearinghouse sites are:

- <http://www.eqclearinghouse.org/20100112-haiti/>
- <http://www.eqclearinghouse.org/20100227-chile/>
- <http://www.eqclearinghouse.org/20100404-baja/>

Information continues to be posted to both the Haiti and Chile clearinghouses. All three sites are also accessible from EERI's main site by clicking on the three grey boxes in the middle of the home page, [www.eeri.org](http://www.eeri.org). In addition, reports from other organizations will be posted on the clearinghouse sites as they become available. The GEER report on the Chile earthquake is now also available on the above clearinghouse site.

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## Subscribing Member News

### MCEER Signs Haiti Training MOU

EERI Subscribing Member MCEER, together with the University at Buffalo (UB) Office of International Education, has signed a memorandum of understanding with the University of Quisqueya (UniQ) in Port-au-Prince. The MOU provides for the immediate training in ATC-20 rapid building assessment procedures and earthquake engineering fundamentals. The group will also develop longer-term educational programs on seismic design of buildings with a focus on adapted techniques for reconstruction, and will promote academic exchange and cooperation over the next three years.

"During our initial building assessment effort in Haiti, it was clear that there was a long-term need to continue assessments of perhaps 100,000 buildings damaged and left standing in the Port-au-Prince region," said Andre Filiatrault, MCEER Director. "We felt that this monumental need could only be addressed by training and unleashing a large force of Haitian engineers to conduct such inspections over the next several months."

The first activity planned under the MOU is a free seminar to be held May 20-22, 2010, in Port-au-Prince. Four specific topics will be addressed: 1) Seismology and Seismicity of Haiti, 2) Earthquake-Resistant Design Principles, 3) Earthquake-Resistant Construction for Haiti, and 4) Overview of the ATC-20 Rapid Building Assessment Methodology. The instructors are Filiatrault and Pierre Fouché, doctoral student and Fulbright Scholar from Haiti who is studying earthquake engineering at UB.

The training in ATC-20 methodology will include participants conducting on-site building assessments. The target audiences for this first seminar are practicing engineers, graduate students, and senior undergraduate students. All materials and instruction will be provided in French. For more information, visit <http://mceer.buffalo.edu>.

## News of the Institute

### Student Resumes Online

As a service to EERI member firms and student members who are exploring the job market, 26 student member resumes have been posted on EERI's web site at <http://www.eeri.org/site/news/resumes>.

Their graduation dates range from Fall 2008 to April 2011. Degrees received or expected are masters for 12, PhDs for 11, and bachelors for 3.

They represent the following universities: Clemson, Georgia Tech (2), New Mexico State, the University at Buffalo, the University of Illinois at Urbana Champaign (2), the University of Michigan (2), the University of Nebraska, the University of Nevada Reno, the University of North Texas, the University of Pittsburgh, the University of Puerto Rico (5), the University of Southern California (2), and the following University of California campuses: Berkeley, Davis, Irvine, and San Diego (2).

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### New Student Chapter at CSU Fullerton

EERI is pleased to announce that a new EERI student chapter was recently established at California State University, Fullerton.

Its faculty advisor is Anne Lemnitzer, assistant professor in the Department of Civil and Environmental Engineering, and its local contact is structural engineer Negal Daniel of John A. Martin and Associates.

Lemnitzer spearheaded formation of the chapter to keep students interested and involved in seismic design after CSU Fullerton fielded a team to compete in the student design competition at the February Annual Meeting in San Francisco.

## Learning from Earthquakes

### Ms 7.1 Yushu, China, EQ of April 14, 2010

*Contributed by Junwu Dai, Yifan Yuan, Qingli Meng, Hongfu Chen, and Sining Huang of the Institute of Engineering Mechanics, China Earthquake Administration.*

On Wednesday April 14, 2010, at 7:49 a.m. local time, an Ms 7.1 earthquake struck the Yushu county of Qinghai Province, China, affecting an area about 4,000 square km in the central part of the Qingzang high plateau with a population of about 100,000 people. It was followed by a sequence of aftershocks felt during the entire time of the search and rescue effort. The event had a shallow focal depth of 14 km and a surface rupture about 19.7 km long.

As of April 22, the earthquake had caused 2,187 deaths (including 207 students), 80 missing, and 12,135 injuries, as well as significant damage to the local residential and public buildings and infrastructure. Damage and casualties were mainly focused in the capital town of Jiegu, through which the fault rupture passed directly.

**Buildings:** Buildings in the Yushu area can be classified into 6 types, according to construction materials:

1. Adobe wall with wood-frame roof, one or two-story residential houses or temple buildings — about 20% of all buildings. They mostly collapsed along the fault rupture;
2. Stone flakes wall with wood-frame roof, single story residential — about 10% of all buildings. They were significantly damaged but did not collapse;
3. Hollow concrete block wall with precast concrete hollow floor and roof, up to six-story residential buildings with or without seismic design — about 70% of all buildings. They mostly collapsed or were seriously damaged along the fault rupture;

4. Bottom R/C frame supported hollow concrete block with pre-cast concrete hollow floor and roof, up to four-story mixed residential and commercial buildings — about 5% of all buildings. Most were seriously damaged or collapsed if not seismically designed (see figure);

5. Brick masonry or hollow concrete block infilled R/C frame, up to six-story school or office buildings seismically designed — about 1%~2% of all buildings. They showed relatively high seismic resistance, as few were seriously damaged; and

6. Confined clay-brick masonry, multi-story public buildings — about 1% of all buildings. They also were relatively lightly damaged compared to buildings constructed with hollow concrete blocks.

Construction materials are the most critical challenge to recovery, due to the high altitude (4,000 m [13,000 feet] above sea level) and cold weather in the affected area.

**Roads and bridges:** G214 is the only highway from Xining, the capital city of Qinghai Province, to the epicenter. Within 3-5 days immediately after the earthquake, this highway was heavily crowded due to the huge number of escaping vehicles from the disaster area and the incoming search-and-rescue personnel from outside areas. The local Batang airport became the most important link between the disaster area and the outside world. Along the fault rupture, most bridges were damaged due to the lateral drift of their decks, but fortunately transportation was not seriously affected.

**Power supply:** Hydro-electric power was the only power supply to the



*Bottom frame-supported hollow concrete block building collapsed.*

Yushu area before the earthquake. Subsequently, serious damage was identified to power and water supply lines and the main reservoir dam. Most water was released to maintain the dam's safety. Consequently, power was not available for a relatively long period after the earthquake, even though the lines were repaired very quickly.

## Announcement

### Liu Huixian Scholarship Award

The Huixian Earthquake Engineering Foundation (HEEF) in China and the US-China Earthquake Engineering Foundation (USA) are pleased to announce the Liu Huixian Earthquake Engineering Scholarship Award for graduate students from China, the United States, and Singapore. Students selected for the award will be issued a certificate and RMB 10,000 (approximately US\$1,450) from the two foundations.

2010 applicants must obtain recommendations from their institutions and submit applications to HEEF by July 30, 2010. A panel of experts selected by both foundations will determine the final awardees by September 30, 2010. More information and applications may be obtained from [hxeef@iem.ac.cn](mailto:hxeef@iem.ac.cn). Awardees will be announced on this web site and that of the Institute of Engineering Mechanics, China (<http://www.iem.ac.cn/>).

## Learning from Earthquakes

### M7.2 Baja California EQ of April 4, 2010

*Contributed by Caltrans geologist Martha Merriam.*

Easter Sunday afternoon (April 4, 2010, 3:40 p.m. local time) was interrupted by an M7.2 earthquake occurring at the shallow depth of 10 km about 65 km south of the US-Mexico border in a sparsely populated region of Baja California Norte. The El Mayor-Cucapah earthquake was also felt throughout southern California, southern Nevada, and Arizona. Two deaths resulted from the earthquake.

The earthquake location is consistent with a rupture of the southern end of the Laguna Salada fault (southern extension of the Elsinore fault), although most observed ruptures have been on minor faults that are part of the same fault system. This area is known to be tectonically

active, being the principal boundary between the North American and Pacific plates. The fault rupture extended 75 km northwest from the epicenter and through the US-Mexico border. Preliminary offset measurements were 1.1 m vertical and 0.78 m horizontal. Two cm of coseismic slip was reported on the San Andreas fault about 200 km north of the epicenter.

Secondary geologic effects included shallow landslides and widespread liquefaction in the low-lying agricultural areas near the border. Landslides caused massive dust clouds over the Cucapah Mountains and were videotaped by numerous travelers on the main north-south highway near the gulf side of the Baja Peninsula. Damage to agriculture in the Mexicali Valley as a result of liquefaction is considerable. An estimated 300 km of canals are damaged, and most of this year's crops are expected to be lost because of an inability to water them.

Flooding of agricultural land with water from sand boils and other sources has resulted in standing water, which kills plants. Fields are no longer level, and will require earthwork and leveling before gravity-controlled irrigation can resume. 300,000 families are thought to be largely out of business because of the earthquake.

Accelerograph stations operated by the USGS and other agencies as well as 12 stations managed by the Network of Northwest Mexico (Ranma) del CICESE located 12 to 140 km from the epicenter recorded the main event and more than 6,000 aftershocks so far. The close-in recordings will add to understanding of near-field ground motion.

For more information, visit EERI's clearinghouse web page <http://www.eqclearinghouse.org/20100404-baja/>. An insert on this event will be included in the July *EERI Newsletter*.

## M<sub>w</sub> 6 Elazig, Turkey, EQ of March 8, 2010

*Contributed by investigators from the Kandilli Observatory and the Earthquake Research Institute at Bogazici University, Istanbul, Turkey.*

An M<sub>w</sub> 6.0 earthquake occurred on March 8, 2010, at 04:32 a.m. local time, in Elazig province of the Basyurt-Karakocan region of Turkey. Immediately after the earthquake, a team from the Kandilli Observatory and the Earthquake Research Institute went to the affected area. To download their comprehensive report, visit [http://www.koeri.boun.edu.tr/depremmuh/eqspecials/elazig/8Mart2010\\_Elazig\\_earthquake\\_eng.pdf](http://www.koeri.boun.edu.tr/depremmuh/eqspecials/elazig/8Mart2010_Elazig_earthquake_eng.pdf).

The fault mechanism solution of the earthquake indicates a left-lateral strike-slip mechanism consistent with the East Anatolian fault with which it is associated. About 300

villages have been affected, 42 people died, and 137 people injured.

Nine stations belonging to the Turkey National Strong Motion Network recorded the main shock. The acceleration records have been distributed through the network's web site, <http://daphne.deprem.gov.tr>. A maximum PGA value of 6.6%g was recorded at an epicentral distance of 12km.

The official numbers of houses with light, moderate, and heavy damage are 3854, 1561, and 3007, respectively. The earthquake-affected region consists of small villages of R/C frame and unreinforced brick, concrete block, and adobe masonry construction. Most of the URM buildings are old and not well maintained.

The main reasons for damage are (1) improper material and construction techniques, and (2) location of villages on steep and risky locations for landslides or on flat but saturated soil conditions.

The most common damage type is partial collapse of load-bearing walls due to out-of-plane shaking. Even if load-bearing walls withstood the earthquake, wide cracks prevent use of the buildings.



*Destroyed two-story adobe house.*

## Learning from Earthquakes

### $M_w$ 6.4 Taiwan EQ of March 04, 2010

Contributed by Juin-Fu Chai, Che-Min Lin, Keng-Chang Kuo, Fan-Ru Lin, Yu-Wen Chang, Yao-Sheng Yang, Ker-Chun Lin, and Chu-Chieh Jay Lin (M. EERI) of the National Center for Research on Earthquake Engineering (NCREE)

**Overview:** On March 4, 2010, at 8:18:53.0 CST (00:18:53.0 UTC), an  $M_w$  6.4 earthquake took place in the mountain area of Kaohsiung in southern Taiwan. According to the Central Weather Bureau (CWB), the epicenter of the main shock was located at 23.00°N and 120.73°E, about 17.0 km SE of Jiashian Township. The revised focal depth was estimated at 22.6 km. The earthquake was felt throughout Taiwan. The ground shaking level recorded at the nearest station was CWB Intensity V. However, the maximum ground acceleration was up to 0.31g (Intensity VI) recorded at CHN1 station located 29 km NW of the epicenter. There were over 300 aftershocks detected in the two days after the earthquake, and 25 with  $M_L$  greater than 3.0 occurred within five days of the main shock, the largest having  $M_L$  5.7. Most aftershocks were located along the WNW-ESE direction.

The earthquake occurred between the Western Foothill and the Central Mountain areas of Taiwan. The Western Foothill is a foreland fold-thrust belt on the Eurasian Plate produced by its collision with the Philippine Sea Plate. Although the Western Foothill is one of the major seismic belts of Taiwan, the seismicity of the area around the epicenter is relatively low. The largest historic event was the 1964  $M_L$  6.3 Paiho earthquake, which occurred about 15 km NNW of this one. The Chaochou fault is close to the epicenter, but the depth and focal mechanism of the earthquake are not consistent with this fault. The fault plane solution indicates a thrust fault with NW-SE strike and dipping NE. An unknown fault or a transfer fault zone may have produced the earthquake.

**Building damage** was concentrated on residential and school buildings that mostly suffered cracks to walls or columns. Two three-story RC buildings collapsed in the disaster area. One had parking in the first story and collapsed from the soft-story effect; the other collapsed during the  $M_L$  5.7 aftershock.

For school buildings, the short-column effect caused typical diagonal shear cracks on columns along the direction of walkways or corridors. The figure above shows typical damage to hallway columns in a school building caused by the soft-story effect.

**Nonstructural damage:** A damage survey on nonstructural components was conducted on eight hospitals, ten schools, and two college libraries located in the area where the PGA reached 80gal (seismic intensity V according to the CWB). These buildings remained structurally intact or sustained only minor damage. Major damage to suspended ceilings occurred around the perimeter adjacent to structures, where runners deformed and detached from moldings and ceiling panels fell off. In addition, out-of-plane deformation occurred in several parts of the ceiling system.

Damage to piping systems and elevators was common. Four hospitals sustained broken pipelines and two were severely flooded due to broken sprinklers. The elevators were unserviceable in two hospitals due to short circuits in control panels. One school suspended classes because poisonous gas leaked from overturned tables in a laboratory.



Typical damage to corridor columns.

## Publication

### New Journal: *Earthquakes & Structures*

The inaugural issue of the new quarterly journal *Earthquakes & Structures* has been published by Techno-Press, based in Korea. EERI members Stavros Anagnostopoulos, Izuru Takewaki, and Jerome Lynch are the chief editors for Europe, Asia, and America, respectively. EERI member S. C. Liu is the honorary editor-in-chief. The scope of topics for the journal are the following: characterization of strong ground motion; quantification of earthquake demand and structural capacity; design of earthquake-resistant structures and foundations; experimental and computational methods; seismic regulations and building codes; seismic hazard assessment; seismic risk mitigation; site effects and soil-structure interaction; assessment, repair and strengthening of existing structures, including historic structures and monuments; and emerging technologies, including passive control technologies, structural monitoring systems, cyberinfrastructure tools for seismic data management, experimental applications, and early warning and response.

The journal can be ordered from <http://technopress.kaist.ac.kr>; subscriptions for individuals are \$120 for print or online versions; \$143 for both.

## News of the Membership

### Award Honors Adeli

To honor EERI member Hojjat Adeli's 25 years of dedicated service and leadership as editor-in-chief of *Computer-Aided Civil and Infrastructure Engineering*, as well as his contributions as a distinguished researcher and scholar, Wiley Blackwell Publishers has established the annual Hojjat Adeli Award for Innovation in Computing. It will be awarded to authors of the most innovative paper in the previous year of the journal, beginning in 2011 for the 2010 volume. The award will consist of a framed certificate and \$500.

### Research Award for Maheshwari

EERI member B.K. Maheshwari, associate professor of soil dynamics in the Department of Earthquake Engineering at the Indian Institute of Technology Roorkee, was recently awarded the 2009 Shamsheer Prakash Research Award for his significant contributions to the field of dynamic soil-pile-structure interaction, particularly for his introduction of material nonlinearity in analysis and design. Maheshwari joined IIT Roorkee's faculty in 2004, after he had received his Ph.D. from Saitama University, Japan, and completed a post doctoral fellowship at Washington University in St. Louis, Missouri. He has published more than 50 research articles.

## Announcements

### Calls for Papers

**Grouting & Deep Mixing 2012:** A call for papers has been announced for the 4th International Conference on Grouting and Deep Mixing, to be held February 15-18, 2012, in New Orleans, Louisiana. EERI is a cooperating organization for this conference being organized by the International Conference Organization for Grouting and the Deep Foundations Institute. Proposed session topics include grouting and deep mixing for seismic retrofit and remediation as well as ground treatment in seismic retrofit and structural support. Abstracts not exceeding 500 words are due June 30. For the complete call, visit <http://www.dfi.org/conferencedetail.asp?id=163>.

**Special Session at EASEC-12:** Authors are invited to submit abstracts (deadline May 15) to the special session on "Seismic Performance of Lifelines and Industrial Facilities," which will take place during the 12th East Asia-Pacific Conference on Structural Engineering and Construction (EASEC-12) in Hong Kong January 26–28, 2011. For more information, visit [http://bccw.cityu.edu.hk/easec12/wp\\_special\\_session.asp](http://bccw.cityu.edu.hk/easec12/wp_special_session.asp).

**Workshop on SSI for Nuclear Power Plants:** A call for abstracts (deadline May 31) has been issued for a Workshop on Soil-Structure Interaction (SSI) Knowledge and Effect on the Seismic Assessment of Nuclear Power Plants' Structures and Components, scheduled for October 6-8, 2010, in Ottawa, Ontario, Canada. It is being organized by the Canadian Nuclear Safety Commission and the U.S. Nuclear Regulatory Commission. Topics to be addressed include the interface between seismology and engineering in seismic assessment, nonlinear behavior of soil/backfill material, site effects, comparisons of SSI approaches, and treatment of base isolation. For more information about the workshop, registration, and abstract submittal, visit <http://www.nea.fr/nsd/workshops/SSI/>.

**Young Engineers Conference:** The Society of Earthquake and Civil Engineering Dynamics of the United Kingdom calls for abstracts to be submitted for the Young Engineers Conference to be held at University College London on November 4, 2010. The deadline for receipt of abstracts (maximum 500 words) is May 31. The conference will focus on structural dynamics (experimental, numerical, practical); geotechnical earthquake engineering (experimental, numerical, practical); seismology and risk assessment; and seismic retrofit. £100 and £50 prizes will be given to the two best presented papers. To qualify, the lead author and presenter must have been under 35 years old on January 1, 2010. For more information, visit [www.cege.ucl.ac.uk/events/yec](http://www.cege.ucl.ac.uk/events/yec).

## Subscribing Member News

### CSI Online Training

EERI Platinum Subscribing Member Computers and Structures is hosting the following software training programs online in May and June 2010.

To register for all three, visit <http://orders.csiberkeley.com/SearchResults.asp?Cat=20>.

- **SAFE V12**, May 5 (1 to 2 p.m.), May 19 (10 to 11 a.m.), June 3 (1 to 2 p.m.), June 17 (10 to 11 a.m.) PDT, \$35 per person (group registration not available): An integrated tool for designing reinforced and post-tensioned concrete floor and foundation systems.
- **SAP2000 Introduction to Bridge Modeler**, May 5 (10 to 11:30 a.m.), May 19 (1 to 2:30 p.m.), June 3 (10 to 11:30 a.m.), June 17 (1 to 2:30 p.m.) PDT, \$95 individual/\$500 group: Introduces the steps to create a linked bridge model.
- **SAP2000 Seismic Bridge Design**, May 6 (1 to 3 p.m.), May 21 (10 a.m. to 12 noon), June 4 (1 to 3 p.m.), June 18 (10 a.m. to 12 noon) PDT, \$95 individual/\$500 group: For users who want to become more familiar with the seismic loading and analysis of bridge models.

## Announcement

### NIST Vacancy

The National Institute of Standards and Technology (NIST) seeks candidates for the position of Director of the Disaster and Failure Studies Program in the Building and Fire Research Laboratory (BFRL). This is a highly challenging and rewarding senior management position.

Detailed information about the position (including duties, qualifications, and evaluations) and instructions for applying are available at the USAJOBS web site (<http://www.usajobs.gov/>), where applicants must apply to announcement NIST-BFRL-2010-0012. It will close on May 7, 2010.

If you would like to discuss this opportunity further, contact BFRL Director S. Shyam Sunder at [sunder@nist.gov](mailto:sunder@nist.gov).

## CALENDAR

The issue containing the first appearance is indicated at the entry's end. Items listed for the first time are shown in bold.

### 2010

#### MAY

10-14. Risk Mitigation & Sustainable Development Conf., Trieste, Italy. [http://cdsagenda5.ictp.trieste.it/full\\_display.php?smr=0&ida=a09145](http://cdsagenda5.ictp.trieste.it/full_display.php?smr=0&ida=a09145) (1/10)

14. CSI Seminar on Trends, NYC. <https://seaony.org/programs/> (3/10)

14. Soil Liquefaction Seminar, Atlanta, GA. [www.eeri.org](http://www.eeri.org) (1/10, 3/10)

21. Soil Liquefaction Seminar, Chicago, IL. [www.eeri.org](http://www.eeri.org) (1/10, 3/10)

22-27. 10th Chilean Conf. on Seismology & EQ Eng., Valdivia-Santiago, Chile. [www.achisina2010.uchile.cl](http://www.achisina2010.uchile.cl) (5/09)

24-29. 5th Int'l Conf. on Recent Advances in Geotech. EQ Eng. & Soil Dynamics & Symp. in Honor of I.M.

Idriss, San Diego, CA. Info: [5geoeqconf2010.mst.edu](http://5geoeqconf2010.mst.edu). (4/08, 1/09, 11/09, 2/10)

30-June 3. IDRC, Davos Switzerland. Info: [www.idrc.info](http://www.idrc.info) (4/10)

### JUNE

2-4. Conf. on Structures in Fire (SiF'10), East Lansing, MI. Info: [www.egr.msu.edu/sif10](http://www.egr.msu.edu/sif10) (1/10)

20-23. 20th World Conf. on Disaster Mngmt (WCDM), Toronto, Canada. Info: <http://www.wcdm.org/> (11/09)

28-29. NEES Education Outlook & Training Summer Workshop. W. Lafayette, IN. Info: [https://www.nees.org/events/event\\_detail/EOT\\_Summer\\_Workshop/](https://www.nees.org/events/event_detail/EOT_Summer_Workshop/) (5/10)

### JULY

11-15. 5th Int'l Conf. on Bridge Maintenance, Safety & Mngmt (IABMAS), Philadelphia, PA. Info: <http://www.iabmas2010.org> (11/08)

25-29. 9th U.S. Nat'l & 10th Canadian Conf. on EQ Eng., Westin Harbour Castle Hotel, Toronto, Canada. Info: <http://2010eqconf.org/> See page 1. (2/08, 7/08, 1/09, 3/09, 6/09, 8/09, 10/09, 1/10, 4/10, 5/10)

### AUGUST

8-11. 2010 Eng. Mechanics Conf., USC, Los Angeles, CA. Info: <http://viterbi.usc.edu/emi2010/> (11/09)

11-13. Int'l Workshop on Conservation of Heritage Structures Using FRM and SHM, Ottawa-Gatineau. Info: <http://www.ishmii.org/CSHM3/CSHM3home.html> (9/09)

30-Sept. 3. 14th Eur. Conf. on EQ Eng. (14ECEE), Skopje-Ohrid, Macedonia. Info: [www.eaee.boun.edu.tr/eaee.htm](http://www.eaee.boun.edu.tr/eaee.htm) (12/08, 10/09)

### SEPTEMBER

5-9. 32nd Gen'l Assembly of Eur. Seis. Com. (ESC 2010), Montpellier, France. [www.esc2010.eu](http://www.esc2010.eu) (5/09)

16-18. Int'l Conf. on Urban Habitat Construction under Catastrophic Events, Naples, Italy. Info: [www.civ.uth.gr/cost-c26/](http://www.civ.uth.gr/cost-c26/) (02/10)

22-25. SEAOC Convention, Indian Wells, CA. Contact Matthew Skokan at [mskokan@sbise.com](mailto:mskokan@sbise.com). (2/10)

### OCTOBER

6-8. Workshop on Soil-Structure Interaction (SSI) Knowledge and Effect on the Seismic Assessment of Nuclear Power Plants' Structures and Components, Ottawa, Canada. See page 6. (5/10)

7-9. NEES/PEER Joint Annual Meeting. San Francisco, CA. Info: [www.nees.org](http://www.nees.org) (5/10)

12-15. Deep Foundations Inst. 35th Annual Conf., Hollywood, CA. Info: [www.deepfoundations2010.org](http://www.deepfoundations2010.org) (1/10)

### NOVEMBER

4. Young Engineers Conference, London, United Kingdom. See page 6. (5/10)

### DECEMBER

18-20. 11th Int'l Symp. on Structural Eng. (ISSE-11), Guangzhou, China. Info: <http://www.isse-11.org> (2/10)

### 2011

#### JANUARY

10-13. 5th Int'l Geotech. EQ Eng. Conf. (5-ICEGE), Santiago, Chile. Info: [www.5icege.cl](http://www.5icege.cl) (11/09)

26-28. 12th East Asia-Pacific Conference on Structural Engineering and Construction (EASEC-12), Hong Kong. See page 6. (5/10)

#### FEBRUARY

9-12. EERI Annual Meeting, San Diego, CA. Info: [www.eeri.org/site/2011-annual-meeting](http://www.eeri.org/site/2011-annual-meeting) (4/10)

#### JUNE

27-July 8. 25th IUGG Assembly, Melbourne, Australia. Info: <http://www.iugg2011.com/> (6/09)

#### JULY

4-6. 8th European Conf. on Structural Dynamics (EURODYN 2011), Leuven, Belgium. Info: [www.eurodyn2011.org](http://www.eurodyn2011.org) (1/10)

#### 2012

#### FEBRUARY

15-18. 4th International Conference on Grouting and Deep Mixing, New Orleans, LA. See page 6. (5/10)



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## Publication

### ***Safer Homes, Stronger Communities***

A new book published by the World Bank entitled *Safer Homes, Stronger Communities: A Handbook for Reconstructing after Natural Disasters* is available for sale from EERI. It provides advice on how to ensure that reconstruction empowers communities to rebuild in a way that greatly reduces the risk of future disasters. Written for policy makers and project managers engaged in

major reconstruction programs, the 216-page handbook provides guidance on the roles and responsibilities of various actors, and explains what the scope of a reconstruction policy should be and how decisions in each aspect of reconstruction contribute to larger reconstruction goals. Guidance is also provided on options that should be considered in each aspect of reconstruction, and examples of

where they have been used in other reconstruction projects.

The handbook includes more than 100 short case studies collected from global experts with recent experience in housing reconstruction, illustrating how the policies and ideas have been implemented. It also includes links to technical information. To place an order, visit [https://www.eeri.org/cds\\_publications/catalog/](https://www.eeri.org/cds_publications/catalog/). EERI members will get a 20% discount off the list price of \$30.

## NEES News

### **NEEScomm Opens in Purdue**

On April 16, Purdue University dedicated the newest research building at its Discovery Park that houses eight separate research units, including the George E. Brown, Jr. Network for Earthquake Engineering Simulation (NEES — [www.nees.org](http://www.nees.org)). The dedication marked the official move of NEEScom headquarters to Indiana.

The hall, which cost \$25 million, was funded by gifts, the university's capital reserve for buildings, and \$4 million from the state. Julio Ramirez, NEES director, said the space provides an interactive office for about 25 employees to oversee work on campus and at the 14 NEES research equipment sites.

## Subscribing Member News

### **FM Global Seeks Scientists, Sponsors GEM**

**FM Seeks Research Scientists:** The Research Division of EERI Subscribing Member FM Global in Norwood, Massachusetts, is seeking applicants with strong technical and communication skills to support its engineering, risk management, and loss prevention needs. The firm's open positions require individuals with Ph.D. degrees to plan and conduct both basic and applied research related to structural engineering, earthquake engineering, wind engineering, flood, and aggregate analysis. All positions require a significant research record and solid background in probability and statistics, knowledge of model verification and validation principles and practices, project management experience, and written and verbal communication skills. Interested candidates should email resumes to Tiara Adducie at [tiara.adducie@fmglobal.com](mailto:tiara.adducie@fmglobal.com). For more information, visit [www.fmglobal.com/careers](http://www.fmglobal.com/careers).

**FM Sponsors GEM:** Global Earthquake Model (GEM) recently announced that FM Global had become one of its platinum sponsors. GEM is working to meet the need for global, open-source risk assessment by developing an authoritative standard for calculating and communicating earthquake risk. A leading insurance company that supports risk management solutions, FM Global is GEM's first private sponsor, joining the five private founders that funded GEM from its inception: MunichRE, Zurich Financial, AIR Worldwide (also an EERI Subscribing Member), Willis, and Eucentre. GEM seeks to extend participation in its cooperative public-private partnership to ensure that it considers the views and needs of as many stakeholders as possible.