



## EARTHQUAKE ENGINEERING RESEARCH INSTITUTE NEWSLETTER

Editor Mark Yashinsky  
LFE Insert Editor Sarah Nathe  
Associate Editor Gerald Brady  
Editorial Assistant Eloise Gilland

Earthquake Engineering  
Research Institute  
499 14th Street, Suite 320  
Oakland, California 94612-1934  
Phone: 510/451-0905  
Fax: 510/451-5411  
E-mail: [eeri@eeri.org](mailto:eeri@eeri.org)  
Web site: <http://www.eeri.org>

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### EARTHQUAKE ENGINEERING RESEARCH INSTITUTE

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### News of the Institute

## 9USN/10CCEE: Online Registration Open

Online registration is now available at <http://2010eqconf.org/> for the 9<sup>th</sup> US National/10<sup>th</sup> Canadian Conference on Earthquake Engineering, scheduled for July 25-29, 2010, in Toronto, Canada. It is expected to bring together more than 1,200 researchers, practitioners, and other professionals from a broad range of disciplines to share the latest knowledge and techniques for understanding and mitigating the effects of earthquakes.

Registration fees are \$750 for members of EERI and cosponsoring organizations (the list of cosponsoring organizations is available from the above web page); nonmembers \$950; full-time students, EERI member retirees and EERI member young professionals \$375. Early registration will save you money; after June 15, the registration fee will increase by \$100.

All authors must register; being an author does not mean you are already registered. The author's fee of \$200 that presenting authors already paid will be deducted from the above fees at the end of the registration process.

More than 800 papers have been received and reviewed. If you are an author and have not received notification of the result of the review, please e-mail [eloise@eeri.org](mailto:eloise@eeri.org). Technical sessions will be finalized late in April; the dates and times of specific sessions have not yet been determined.

## Two 2008 *Spectra* Outstanding Paper Awards

The *Earthquake Spectra* Editorial Board and the EERI Honors Committee selected two papers to receive 2008 *Earthquake Spectra* Outstanding Paper Awards.

Published in volume 24:1 (pp. 45-66), the first paper is "Comparisons of the NGA Ground-Motion Relations," by Norman Abrahamson, Gail Atkinson, David Boore, Yousef Bozorgnia, Kenneth Campbell, Brian Chiou, I. M. Idriss, Walter Silva, and Robert Youngs. The Honors Committee stated that the Next Generation of Ground-Motion Attenuation Models (NGA) project was principally accomplished by the NGA model developers, who were the authors of this article in the NGA special issue. The development of improved ground motion prediction models and equations through a large, organized effort involving many agencies and teams represents a major achievement for earthquake hazard mitigation and a model for future endeavors. The project revolutionized the manner in which ground motion relations were developed by improving the manner in which earthquake strong shaking is characterized



First authors of the 2008 outstanding papers, Julian Bommer and Norman Abrahamson.

in shallow crustal earthquake regions worldwide. The NGA project represents five years of multidisciplinary, collaborative research and application in earth science and earthquake engineering. The NGA project has achieved a consensus approach among the many different disciplines and professions involved in seismic safety and earthquake risk reduction. That approach pro-

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## News of the Institute

### John Filson Awarded 2010 Alquist Medal

At the Awards Luncheon during the Annual Meeting in San Francisco, EERI member John R. Filson of the U.S. Geological Survey received the 2010 EERI Alfred E. Alquist Special Recognition Award. Filson was recognized for his sustained commitment to national seismic safety through his leadership within the USGS and the seismology and earthquake engineering communities for over 40 years, and his continuing involvement and valued counsel to the NEHRP program.

A past president of the Seismological Society of America, Filson initiated the US National Seismograph Network, the first such network in the country to provide real-time seismic data. That network has since evolved into the Advanced National Seismic System (ANSS). He was lead seismologist on the 1988 Armenia earthquake reconnaissance mission, and helped orchestrate the USGS response to the 1989 Loma Prieta earthquake. He played a leadership role in the deployment of seismic

strong motion instruments in the USSR, Russia, and China. At the USGS, Filson served as Chief of the Office of Earthquake Studies, Chief of the Office of Earthquakes, Volcanoes, and Engineering, and Coordinator of the Earthquake Hazards Program. At USGS, Filson was esteemed for his excellent advice, guidance, unflinching support, and wisdom with respect to NEHRP.

He retired from the USGS in 2003 but continues part-time work in support of the NEHRP Secretariat at the National Institute of Standards and Technology. He has been the

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### Arthur Frankel Gives 2010 Joyner Lecture

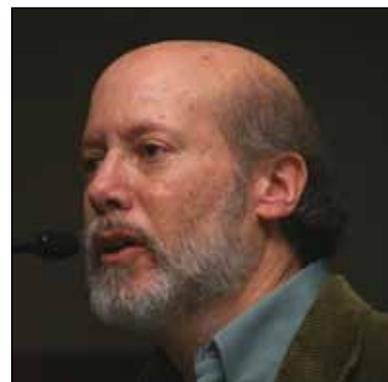
At the 62nd EERI Annual Meeting, EERI member Arthur D. Frankel, senior scientist and research geophysicist at the U.S. Geological Survey, delivered the 2010 William B. Joyner Memorial Lecture, entitled "Progress and Controversy in Seismic Hazard Mapping." Frankel's work has provided a crucial bridge at the interface of earthquake science and engineering that has enabled the production and use of the maps.

He indicated in his lecture that probabilistic seismic hazard maps translate what is known about earthquake sources, faulting, crustal deformation, and strong ground motion into a form that can be used by engineers to design structures. He discussed three examples that illustrate how these maps are developed and applied.

1. The 1996 update of the USGS national seismic hazard maps involved an opening up of the process for producing the national maps with a series of regional and national workshops of geoscientists and other users, as well as use of the Internet to distribute interim maps for review and comment. Through close cooperation between the USGS and the

Building Seismic Safety Council (BSSC), the 1996 maps were the first to be used directly in the design procedures of building codes.

2. The treatment of the New Madrid seismic zone is an area of current controversy in the hazard maps. The consensus of experts is that the geologic evidence of large earthquakes over the past 4,000 years is more compelling than 10-15 years of GPS data that conclude that there is no significant deformation occurring in the area. Frankel has found that there may be significant motion occurring between some of the stations in the New Madrid region. He said a more comprehensive effort is needed at installing more GPS stations in the area.
3. The recent detailed USGS maps for Seattle, Washington, are the first probabilistic seismic hazard maps that incorporate the results of three-dimensional ground-motion simulations. These maps capture important sedimentary-basin effects, soft-soil effects, and rupture directivity effects that will influence patterns of strong shaking and damage in future large earthquakes. They provide a more



*Arthur D. Frankel*

spatially-detailed picture that will be helpful for engineering design, land use planning, and emergency management.

Frankel's was the seventh annual lecture given in honor of Bill Joyner for his distinguished career at the U.S. Geological Survey and his abiding commitment to the exchange of information at the interface of earthquake science and earthquake engineering. The lecture was established by SSA in cooperation with EERI. Frankel will give the lecture again at SSA's April 2010 Annual Meeting in Portland, Oregon. A written version will be published in *Earthquake Spectra* and *Seismological Research Letters*. For more information, visit [http://www.seismosoc.org/about/joyner\\_fund.html](http://www.seismosoc.org/about/joyner_fund.html).

## Alquist Medal to Filson

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leading co-author of the most recent NEHRP Strategic Plan and all NEHRP Annual Reports since NIST assumed its role as the lead NEHRP agency.

Filson attended Rice Institute (now University) and received a Bachelor's degree in geology in 1960. After serving three years as an officer in the U.S. Marine Corps, he enrolled

in graduate school at the University of California, Berkeley, from which he received M.S. and Ph.D. degrees in geophysics. His early professional work was at the MIT Lincoln Laboratory and the Defense Advanced Research Projects Agency developing technical means to monitor arms control agreements.

Filson has received the Meritorious and Distinguished Service Awards of the Department of Interior, the Outstanding Public Service Award of

the Federal Emergency Management Agency, an Exceptional Performance Award of the Central Intelligence Agency, and the Schmidt Medal of the Russian Academy of Sciences.

Filson is a Fellow of the American Association for the Advancement of Science, and has been cited numerous

times for outstanding service within the US government on behalf of seismic safety. He received the Meritorious Service Award from the USGS, the Outstanding Public Service Award from FEMA, and the Distinguished Service Award from the US Department of Interior (DOI), which is DOI's highest public honor.

## Call for Papers

### Structural Health Monitoring Issue

The Indian Society of Earthquake Technology (ISET) *Journal of Earthquake Technology* (<http://home.iitk.ac.in/~vinaykg/iset.html>) will be devoting its December 2010 issue to the theme of Structural Health Monitoring in Earthquake Engineering as applied to full-scale structures. Interested authors are required to submit tentative titles and abstracts of their papers as soon as possible, and PDFs of their manuscripts by June 2010 to Editor, ISET Journal, at [vinaykg@iitk.ac.in](mailto:vinaykg@iitk.ac.in).



*John Filson receives Alquist Medal from EERI President Farzad Naeim.*

## 2009 Shah Family Prize Goes to Baker

The Shah Family Innovation Prize Selection Committee awarded the 2009 prize to Jack Baker, an assistant professor in the Department of Civil and Environmental Engineering at Stanford University. Baker is a young researcher whose unique combined advanced knowledge of structural engineering, seismology, and statistics has allowed him to make an outstanding contribution to the field of seismic risk assessment and communication. His risk modeling methods and approaches are now widely employed in both research and industry as formal tools for modeling and estimating seismic risk and uncertainty, leading to better-informed and more insightful decision making by end users of

all types. He has identified and introduced the pioneering approaches of using the ground motion parameter " $\epsilon$ " and Conditional Mean Spectrum concepts to select and scale ground motions for nonlinear analysis. These concepts are now employed worldwide in seismic risk analysis and performance-based engineering. The impact that his research and results has had and will continue to have is very much related to his formidable communication skills; he has a unique gift in rendering easily understood the most intricate of concepts, even to non-technical audiences. His plans and vision for future research are as ambitious and forward-thinking as his past work, and he is thus certain to continue to play a leading role in the field.

Endowed by a generous gift from the Haresh Shah family, the Shah

Family Innovation Prize is a cash award granted to younger professionals and academics. For information about the selection committee and past prize recipients, visit [http://www.eeri.org/home/honors\\_shah\\_innovation.html](http://www.eeri.org/home/honors_shah_innovation.html).



*Jack Baker*

## News of the Institute

### 2011: See You in San Diego

Mark your calendar! The 2011 EERI Annual Meeting will be held February 9-12 at the Hyatt Regency La Jolla at Aventine, San Diego, California. Be on the lookout for more information in future newsletters.



## Student Paper Competition Winners

**Graduate category:** W. J. Carrillo of the Universidad Nacional Autónoma de México captured the top prize in EERI's Graduate Student Paper Competition with his paper,

"Backbone Model for Performance-Based Seismic Design of RC Walls for Low-Rise Housing."

Carrillo received a travel grant to present his paper at the 62nd Annual Meeting.



W. J. Carrillo

In his study, Carrillo proposed a performance-based backbone model capable of predicting the seismic behavior of reinforced concrete walls for one and two-story housing. He described the tri-linear model using parameters associated with three performance objectives: diagonal cracking, maximum strength, and ultimate deformation capacity. An iterative linear regression analysis was performed for deriving the empirical equations of this study. He discussed the adequacy of existing models to predict the seismic behavior of RC walls and the limitations of the proposed equations. When the experimental and the backbone curves of studied specimens were compared, it was apparent that the proposed model was capable of predicting the recorded seismic response with sufficient accuracy. Taking into account the practical approach of

the proposed model, it provides a robust tool for designers and code-developers to assess the adequacy of current design procedures and to promote safe, economic, and comfortable housing.

**Undergraduate category:** Jennie K. Lee of the University of California, San Diego, is an undergraduate researcher in the Structural Engineering Department. She won the undergraduate competition with her paper, "Experimental Studies on the Design, Construction, and Seismic Performance of Small-Scale Wind Turbines Used in Developing Countries." Lee received a grant to attend the Annual Meeting.

Her research project built on the activities of the NSF NEESR-II Project: A Seismic Study of Wind Turbines for Renewable Energy. The nongovernmental organizations Engineers without Borders and Practical Action have been introducing wind energy to developing countries such as Peru and Sri Lanka. These newly adopted wind turbines are installed all over the world, including areas of high seismic risk. Her paper presents a preliminary study on small-scale wind turbines, some of which can be used in households, based on published articles from engineering organizations as well as from industry experts. The methods of modeling and analyzing the seismic behavior of a prototype wind turbine on SAP2000 were also discussed. The preliminary design and construction plans of a 300W wind turbine for under \$300 were

proposed.

Contact the EERI office if you would like a PDF of either of these papers.

## Student Chapter News

### USC Wins Membership Contest

The University of Southern California won the EERI Student Membership Contest, which challenged student chapters to see which could attract the greatest number of new student members between September 2009 and the end of the year. USC's total number of new members was 25, followed by Georgia Tech with 18 and the University of Puerto Rico at Mayaguez with 17. The first-place prize was a pizza party hosted by EERI.

A similar contest is on for 2010! Let your fellow students know what a great deal both regular Student Membership and E-Student Membership are, at a cost of only \$50 and \$25, respectively. They provide opportunities that will serve students well in their careers. Visit <http://www.eeri.org/site/membership> for information to share about the numerous benefits. Don't keep EERI a secret!

### New Student Chapter at Nebraska

EERI is pleased to announce that a new EERI student chapter was recently established at the University of Nebraska. Its faculty advisor is Terri Norton of the Construction Systems Department, and its local contact is Gary L. Krause, professor of civil engineering at the university.

## News of the Institute

### Strong Motion Forum News

The Strong Motion Forum, chaired by Marcia McLaren since 2004, is held each year at the EERI Annual Meeting. Open to all conference participants, it has consistently been well-attended and interesting, providing EERI members the opportunity to share ideas and projects.

The term "Strong Motion" no longer refers solely to instrumentation and the data used by engineers and seismologists. Rather, it has been greatly expanded to include tools that provide valuable information to the public worldwide for emergency planning and response, and databases that store and provide data in a user-friendly manner.

The varied topics presented this year at the 2010 Annual Meeting in San Francisco included:

- Vibration monitoring of pile driving at a PG&E facility;
- Improved access to online strong motion databases;
- Two new strong motion networks with goals to increase instrumentation in urban areas and encourage public involvement: Quake Catcher Network (QCN) and NetQuakes;
- New versions of ShakeCast, ShakeMap, and PAGER for rapid dissemination of estimates of strong shaking with big changes to the way ShakeMaps are computed, including MMI as a valid input ("Did you Feel It?"), use of the NGA relations, and inclusion of NetQuakes data;
- A history of seismic hazard mapping of California.

Please contact Marcia at [mkm2@pge.com](mailto:mkm2@pge.com) for further information regarding these presentations, and if you would like to be on the agenda for next year's forum.

## New EERI-Geo-Institute Agreement

A signing ceremony during the Annual Business Meeting on February 5 made official a partnering agreement between EERI and the Geo-Institute of ASCE that seeks to advance their mutual interests in the mitigation of earthquake hazards. The agreement means that EERI and G-I are committed to work together toward the following goals:

- Continuing dialogue between the G-I and EERI at national, state and local levels to advance science, education and technology.
- Expanding the network of the continuing education opportunities for members.
- Identifying common interests and issues relating to the practice of geotechnical earthquake engineering and earthquake hazard mitigation.
- Improving public education and promoting sound public policy on earthquake hazard mitigation issues.



*EERI President Farzad Naiem (in front), EERI Executive Director Jay Berger, and G-I President Edward Kavazanjian (right) during the signing of the EERI/Geo-Institute Partnering Agreement.*

The agreement is a beginning point, meant to change as circumstances and priorities warrant, and will be reviewed by both associations annually.

To see the full agreement, including the protocol listing projects, activities and joint interests that the signatories have identified, visit [www.eeri.org/](http://www.eeri.org/).

## Outstanding Papers

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vides the framework for strong motion characterization and a coherent seismic design methodology, which directly affects the seismic safety of the general population.

The second honored paper is "The Use and Misuse of Logic Trees in Probabilistic Seismic Hazard Analysis" (PSHA) by Julian Bommer and Frank Scherbaum (24: 4, pp. 997-1009). The Editorial Board agreed that the paper "answers many provocative questions concerning the use of logic trees in PSHA for determining design ground motions.

It questions accepted patterns of practice in designing logic trees that have become assimilated by many individuals who appear to be unaware of the pitfalls of their assumptions. The fundamental requirement that logic tree branches should be mutually exclusive and collectively exhaustive is difficult to achieve given the epistemic uncertainties of the underlying parameters. The article raises awareness of the implications of using logic trees in PSHA, and reminds the readers of the prerequisites for their correct use. The article has been written in very lucid and succinct style, and is immediately useful for the community of earthquake engineers."

## Learning from Earthquakes

### Lessons from 2nd Haiti Team

Under the leadership of Reggie DesRoches, EERI Board Member and professor of civil engineering at the Georgia Institute of Technology, the 19 members of the multi-disciplinary team spent six days in Port-au-Prince and surrounding communities. (See insert in this *Newsletter* for the report from the first team.)

The reconnaissance team was organized under the umbrella of EERI's Learning from Earthquakes Program, supported by the National Science Foundation since 1973. The EERI team coordinated its efforts with ASCE's Technical Council on Lifeline Earthquake Engineering (TCLEE) team, in Haiti at the same time.

Below are some of the EERI reconnaissance team's preliminary observations:

- Despite destruction of nearly a third of the buildings in Port-au-Prince, migration of 500,000 people out of the city, and approximately one million people living in displaced person camps, the life of Port-au-Prince goes on, in terms of informal markets, clean-up activities, and cash-for-work programs.
- Nearly two months after the earthquake, shelter, food, and water

needs of displaced persons remain a high priority not being completely met by the government and NGOs.

- 13 out of 15 government buildings collapsed. Not only does this leave the government without meeting space, but in many cases, records were completely destroyed.
- A substantial number of low-rise residential structures survived the earthquake with little to no damage. Despite poor material qualities and craftsmanship, seemingly small differences in construction techniques and detailing, as well as site soil quality, spelled success or collapse.
- Modern engineered structures such as the Hotel Karibe, Hotel Oasis, and Digicel performed relatively well, indicating that poor construction and lack of code implementation were key factors in the collapse of many buildings.
- Residential construction is often done poorly by the families living in it. The people seem eager to learn how to rebuild safely. Pictorial guidance on basic construction practices would be beneficial.

- Haiti has no building code, although some architects, engineers, or builders have voluntarily used US or European codes. While permits are required and issued for some buildings, there is no plan check. There is no planning or zoning code in any jurisdiction. Limited national or local laws such as building setbacks are periodically passed.

EERI members and others have been assisting with rebuilding, developing training programs, and working on appropriate codes and building practices.

A report of the team's observations will be an insert in the May 2010 *Newsletter*. In the meantime, observations and findings are being posted on the EERI clearinghouse site at: <http://www.eqclearinghouse.org/20100112-haiti/>.



Damage in Jacmel (photo: Martin Hammer).



Damage and partial collapse at UN Development Programme Annex (photo: Ayhan Irfanoglu).



Training program for masons (photo: Craig Totten).

## Learning from Earthquakes Team Returns from Chile

EERI's Learning from Earthquakes Program, with funding from NSF, sent a large team to Chile the week of March 14-20 to document the effects of the massive  $M_w$  8.8 earthquake that struck that country on February 27. Under the leadership of Jack Moehle of UC Berkeley, Rafael

Riddell of the Catholic University in Santiago, and Ruben Boroschek of the University of Chile, the team broke into smaller focused groups, looking at the following aspects:

- various construction technologies (reinforced concrete, masonry and steel);
- hospitals and health care delivery;
- nonstructural impacts;
- bridges;
- social and policy impacts;
- the impact of the tsunami on structures.

In addition, the team collaborated with an NSF-RAPID supported team that is working on the instrumentation of additional buildings as well as the GEER (Geo-engineering Extreme Events Reconnaissance) team that in-

vestigated soil and geologic conditions. Each team included one or two students or faculty from the Catholic University or the University of Chile.

Preliminary reports from the various groups are available on the Chile Clearinghouse website at <http://www.eqclearinghouse.org/20100227-chile/>. A report summarizing the team's observations will be an insert in the June 2010 *Newsletter*.

A video recording of the first briefing that took place at UC Berkeley on March 30 has been posted on <mms://media.citris.berkeley.edu/PEER> for viewing on demand. This seminar was jointly organized and hosted by the Pacific Earthquake Engineering Research Center (PEER), EERI, and GEER. Additional web-based briefings (webinars and webcasts) will be announced over the next few months.

### Publication

## Free Report on L'Aquila Earthquake

A complimentary copy of the *Progettazione Sismica* special issue on the L'Aquila earthquake of April 6, 2009, is available in English from [http://www.eucentre.it/index.php/component?option=com\\_wrapper/Itemid,427/lang,it/](http://www.eucentre.it/index.php/component?option=com_wrapper/Itemid,427/lang,it/). It includes articles on seismicity, site effects, performance of buildings and infrastructure, and reconstruction of L'Aquila. Published by the IUSS Press, *Progettazione Sismica* is Italy's first professional journal on earthquake-resistant design.



Overturned building in Concepción (photo: Guillermo Franco).



Collapse of 500-ft. bridge in Tubul from strong shaking (photo: Scott Ashford).



Below: Damage from the tsunami (photo, left: Eduardo Miranda; right: G. Franco).



## News of the Institute

### Summary of the Minutes of the Board of Directors Meeting of December 16, 2009

President Farzad Naeim called the meeting to order at 8:34 a.m. Also present were Directors Thalia Anagnos, William Anderson, Reginald DesRoches, S. K. Ghosh, Jack Moehle, Secretary/Treasurer Marshall Lew, outgoing Executive Director Susan Tubbesing, incoming Executive Director Jay Berger, and Publications Manager Eloise Gilland. Directors Masayoshi Nakashima and Andrew Whittaker were unable to attend.

**Publications sales report:** The sales report of November 30, 2009, indicated total sales of \$45,469, compared to \$35,677 at the same time last year, a 27% improvement, primarily due to having a full year of sales of the 2008 monograph, *Soil Liquefaction During Earthquakes*.

**Membership report:** According to the most current Membership Report, membership is holding steady. Moehle and DesRoches will contact colleagues who teach large earthquake engineering classes at major universities and urge them to promote student membership, and the staff will develop packages with Young Professional membership information for distribution to faculty at selected universities.

**TCLEE report:** Curt Edwards of TCLEE requested EERI reinstate the coordination of TCLEE and EERI reconnaissance investigations that occurred for a few years up until recent earthquakes.

**Committees vacancies and appointments:** Naeim observed that the International Activities Committee could give advice on strategies for the campaign to promote E-Affiliate membership, such as recommending visits to

select countries.

The Board concurred that the Research Policy Committee could be dissolved and reconstituted if needed.

Anderson, the Board contact for the Social Science Research Committee, suggested that part of its charge should be recruiting new members to EERI, as there is a shrinking pool of social scientists working on earthquakes as opposed to other hazards that have struck the United States in recent years.

The Board reviewed Marjorie Greene's report of December 7, 2009, regarding chairs and memberships on the following four committees for which she is the staff resource.

- Naeim proposed a change in structure for the Information Technology Committee along the lines of having a core of three IT professionals, along with three younger members. As IT is the most important element in EERI increasing its visibility, it could be used to promote membership and inspire young professionals to be creative on EERI's behalf. The Board approved of Naeim's proposal to re-organize the IT Committee.
- Naeim indicated his agreement with Greene's recommendation on a new approach to replacing the two Special Projects and Initiatives Committee members now rotating off: appointing one younger member and one senior member. Naeim will approach two members approved by the Board.
- The Board approved of the Shah Prize Selection Committee's recommendation for the committee to have a broader, more international perspective, including the committee's suggestions of people to approach to serve.
- The Board approved of the recommendations made in Greene's

report to re-organize the LFE Committee. An additional senior person on the committee could be a vice chair to provide backup and continuity.

**Secretary/Treasurer's Report: Overview of Revenue and Expense Report:** Lew pointed out that on the Combined Balance Sheet dated November 30, 2009, the excess revenue over expenses amount of \$206,209 means that EERI will not be in the red for the year. The reasons for this agreeable situation are primarily the higher-than-budgeted revenue from technical seminars, lower-than-budgeted expenses for publications, and a tightening up of office expenditures.

The combined balance sheet showed an opening fund balance of \$174,613 increased by \$206,209 in revenue over expenses. EERI's total liabilities of \$532,832 combined with the total fund balance of \$380,822 equaled \$913,653. The Endowment Program's total liabilities in the amount of \$353,229 combined with the total fund balance of \$1,040,315 equaled \$1,393,544. The balance of the combined association, endowment, and technical programs equaled \$2,307,197.

**Investment report and overview:** Lew said EERI's funds are conservatively invested and did not lose as much as other investments in the volatile stock market. Looking ahead to 2010, he noted that more liquefaction seminars are scheduled as well as seminars on FEMA rehabilitation guidelines and one or more NEHRP briefs. Tubbesing predicted good revenues from seminars in 2010.

**Executive Director's Transition:** Berger reported that his first two weeks as incoming Executive Director have been good and that the transition is going well. Tubbesing has been very responsive to his questions and concerns. He and Tubbesing will be going to Washington, D.C., January 11-14. Naeim will go to D.C. with Berger in the second quarter.

**NEHRP Reauthorization update:**

Tubbesing reported that the reauthorization has been delayed. The House Science and Technology Committee's Subcommittee on Technology and Innovation made major changes to the legislation in the last round, turning it into a multi-hazard program, reducing by 30% authorized levels for each NEHRP agency and no additional funding for NIST's leadership role.

Both the NEHRP Coalition and EERI refused to endorse it. ASCE liked its provisions on wind and did endorse it. Berger and Tubbesing have appointments in January with staffers for all the relevant House and Senate committees.

**2012 Memphis National Earthquake Conference (NEC):**

Tubbesing reported that the organizing committee for the 2012 NEC in Memphis headed by CUSEC is beginning to move forward.

**Honor's Committee nominations:**

The Board approved of the following Honor's Committee nominations: Robert V. Whitman for the Housner Medal, John R. Filson for the Alquist Medal, Craig Comartin and James O. Jirsa for Honorary Membership, and David Boore for the Bruce A. Bolt Medal.

The committee received two nominations for the 2008 Outstanding Paper Award from the *Spectra* Editorial Board: the paper by Bommer and Scherbaum in the November issue and one from the February NGA special issue. While the Board approved of the Bommer and Scherbaum paper receiving the award, it will ask the Honors Committee for guidance on the NGA paper nomination, as the committee had also nominated the NGA Ground Motion Project for a second Alquist award.

**Shah Prize Committee nomination:**

The Board approved the nomination by the Shah Prize Selection Committee of Jack Baker to receive the Shah Family Innovation Prize.

**SPI Committee Grant:** The Board reviewed a report from the Special Projects and Initiatives Committee. Of the 19 proposals submitted, five stood out. The three recommended projects are:

1. Tutorial on straw bale construction. This \$20,000 proposal would complete a 2009 project and provides a good wrap-up to disseminate useful information.
2. Confined Masonry Network. This \$25,000 proposal would enable the completion and wider dissemination of two publications on confined masonry that have the potential to improve greatly the seismic performance of low-rise construction in developing countries.
3. Toward a Useful Taxonomy of West Coast Concrete Building Types. This \$20,000 proposal would supplement data recently collected by the Concrete Coalition for Bay Area cities to try to identify and model concrete building types.

The Board approved funding all three proposals. Moehle recused himself from the vote, as he is listed on one of the proposed oversight committees.

**2010 Annual Meeting Update:**

The 2010 Annual Meeting program is online and has been mailed to all EERI members. Organizing Committee chair David Friedman is enthusiastic, session moderators are contacting their speakers, and the entertainment will be great.

**Joint US/Canada National Conf.:**

Gilland reported that the paper review process is slowly getting underway because of difficulties in coordinating schedules during the holidays. There may be as many as 300 reviewers of abstracts available to review approximately 700 papers.

**Housner Bequest Proposal:** The Board reviewed the recommendation to implement an EERI Housner Fellows Program drafted by the ad hoc committee that deliberated on

how to spend the \$250,000 Housner bequest, chaired by Tom Tobin, who joined the Board meeting by telephone.

The Housner Fellows Program would train new generations of leaders and advocates for earthquake safety. A management committee would direct the program. Tobin said the idea is to start small, with some staff support. During the initial years, the Housner bequest could be spent at a level of \$50,000 a year for five years to get it rolling, plus perhaps some support from the Endowment Fund. It would perhaps require \$100,000 a year to operate eventually. The fellows would keep their own jobs, with their expenses paid but not their time.

The Board expressed support for many of the ideas in the recommendation, such as advancing the ability of engineers to be advocates, broadening their perspectives, providing skills and knowledge, and creating a cohort of leaders who form lifelong connections, interact with each other and with mentors, and make things happen.

The Board also expressed concern that the recommendations are beyond EERI's capability and would compete with EERI's other needs. While the framework of their proposal is more than EERI has the capacity to take on, the Board will try to find ways to achieve the same goals, and will constitute a committee to investigate options.

**Finalities:** This was the last Board meeting for Tubbesing, Anagnos, and Ghosh. Anagnos thanked everyone for the opportunity of working with them. The Board expressed thanks to Tubbesing for all she has done for EERI in her 22 years as Executive Director. Naeim adjourned the meeting at 4:00 p.m.



## Subscribing Member News

### PEER-CEA Contract for NGA West 2

The Pacific Earthquake Engineering Research Center (PEER) has signed a major research contract with the California Earthquake Authority (CEA) to carry out a multi-disciplinary, multi-year research program to improve Next Generation Attenuation models for active tectonic regions. This NGA-West 2 project follows-up on and extends work completed in a previous program coordinated by PEER, NGA-West, which resulted in major advances in seismic hazard estimation for the western United States.

The new NGA-West 2 project addresses several important issues, including modeling of directivity and directionality; verification of NGA-West models for recent small, moderate, and large-magnitude events; scaling of ground motion prediction equations (GMPEs) for different levels of damping; development of GMPEs for vertical ground motion; treatment of epistemic uncertainty; and evaluation of soil amplification factors in NGA models versus NEHRP site factors. The NGA-West 2 program started on March 1, 2010, and will conclude in 30 months.

The results of this program will be of great interest to the earthquake engineering community, as the improved models are expected to be reviewed by USGS for consideration in future updates of the U.S. National Seismic Hazard Maps and incorporation in the building code. Throughout the project there will be various public workshops to solicit feedback and advice from various stakeholders and future users of the attenuation models. All earthquake engineering professionals and academics are encouraged to follow the progress of the NGA-West 2 program and participate in these workshops. At the conclusion of the program, PEER will run an active dissemination campaign to ensure that the community is aware of the resulting research findings.

For more information, visit <http://peer.berkeley.edu> or contact PEER Outreach Director Heidi Faison, [hfaison@berkeley.edu](mailto:hfaison@berkeley.edu).

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### AIR Worldwide Positions

EERI Subscribing Member AIR Worldwide seeks candidates for the following three positions in their offices. For more information on all and to apply, visit <http://www.air-worldwide.com/Careers.aspx>.

**Senior Research Earthquake Engineer** in the Boston office. Involves developing, enhancing, and managing vulnerability component and overall model performance of AIR's earthquake portfolio risk analysis models that cover worldwide regions, working closely with a team of structural engineers, seismologists, and specialists in financial application of probabilistic earthquake risk assessment. Required: Ph.D. in earthquake and/or structural engineering.

**Principal Engineer/Senior Engineer** in the San Francisco office. Involves developing and managing in-house portfolio risk analysis models for natural disasters and participating in consulting and research-oriented projects, working closely with a team of structural engineers and specialists in the application of probability and statistics. Required: Ph.D. or M.S. in structural engineering and 5+ years experience.

**Seismologist** in the Boston office's Research & Modeling Department (job code: EQ\_S): Involves working with a team of seismologists, civil and structural engineers, and other professionals to develop seismic risk analysis models used to estimate losses from natural catastrophes. Required: 2+ years of experience and a Ph.D. in seismology or a related field.

## News of the Profession

### NEHRP Clearinghouse

The National Earthquake Hazards Reduction Program (NEHRP) agencies have launched the NEHRP Clearinghouse at <http://www.nehrp.gov/library/clearinghouse.htm> for the purpose of providing an electronic source of publications that have been produced with NEHRP agency support and deposited with the National Technical Information Service (NTIS). The NTIS database contains 2,092 FEMA, NBS/NIST, NSF, and USGS-sponsored earthquake research publications dating back to 1977.

Metadata for all of these documents are contained in the NEHRP Clearinghouse database. Searchable PDF files for 1,412 documents are now available for download. The remaining documents will be added in the near future, as older documents are digitized. The metadata and publications were compiled by NTIS and acquired by NEHRP as part of an interagency agreement between the National Institute of Standards and Technology (NIST) and NTIS.

With the NEHRP Clearinghouse, users may locate these publications in the NTIS database, review abstracts, and download searchable PDF files quickly and free of charge. It is likely that there are many such publications that are not a part of the NTIS collection and therefore are not included in this system. The NEHRP agencies hope to locate copies of such documents, digitize them, and add them to the clearinghouse as resources permit. In addition, many peer-reviewed journal articles have been published based on the results of NEHRP-sponsored projects; links to those articles are not included.

Send general inquiries and all feedback to [info@nehrp.gov](mailto:info@nehrp.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

#### APRIL

16. Khan Lecture, Lehigh Univ. [www.lehigh.edu/frkseries](http://www.lehigh.edu/frkseries) (9/09)

20-22. ATC Workshop, Hawaii. <https://www.atcouncil.org/> (3/10)

20-23. 2010 SSA Annual Meeting, Portland, Oregon. [www.seismosoc.org/meetings/2010/index.php](http://www.seismosoc.org/meetings/2010/index.php). (6/09, 2/10)

30. Soil Liquefaction Seminar, Se-caucus, NJ. [www.eeri.org](http://www.eeri.org) (1/10, 3/10)

#### 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.** See this page. (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)

#### JULY

11-15. 5th Int'l Conf. on Bridge Main-

tenance, 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)

#### 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

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

#### 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 Conf. on Geotech. EQ Eng. (5-ICEGE), Santiago, Chile. Info: [www.5icege.cl](http://www.5icege.cl) (11/09)

##### FEBRUARY

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

### News of the Institute

## Student Travel Grants

The following students or young professionals received travel scholarships, funded by FEMA, to attend the 2010 EERI Annual Meeting:

Juan Arias, University of Reno  
 Juan Carlos Batista, University of Puerto Rico  
 Vahid Bisadi, Texas A&M University  
 Haitham Dawood, Washington State University  
 Charles Devore, University of Southern California  
 Matthew Fadden, Univ. of Michigan  
 Jose Carlos Faz, University of California Irvine  
 Simon Ghanat, Arizona State Univ.  
 Edwin Guerra, University of British Columbia  
 Tahereh Heidari, Clemson University  
 Scott Henderson, Young Professional  
 Anne Lemnitzer, Young Professional  
 Ian Prowell, UC San Diego  
 Fabian Rojas, University of Southern California  
 David Saftner, Univ. of Michigan  
 Jose Sanchez, University at Buffalo  
 Nick Sherron-Groves, UC Berkeley  
 Amir Soltani, University of Pittsburgh  
 Timothy Wright, Georgia Institute of Technology

### Announcement

## Davos 2010

Sponsored by UN agencies, the next biennial International Disaster and Risk Conference (IDRC) will be held in Davos, Switzerland, May 30-June 3, 2010, with the theme "From Thoughts to Action." For more information and to register, visit [www.idrc.info](http://www.idrc.info).



**EARTHQUAKE ENGINEERING  
 RESEARCH INSTITUTE**  
 499 14th Street, Suite 320  
 Oakland, CA 94612-1934  
**ADDRESS SERVICE REQUESTED**

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**News of the Institute**

**Annual Graphics Competition Winners**

The winner of EERI’s 2009 Annual Graphics Competition was the Earthquake Engineering Research Group (EERG) at the California Institute of Technology, led by Swaminathan Krishnan, assistant professor of civil engineering and geophysics. EERG pursues fundamental research with applications to end-to-end simulation of earthquakes and structural response using high-performance computing. End-to-end simulations consist of holistically simulating the earthquake process, starting with fault rupture, generation and propagation of seismic waves to sites of interest, simulating the structural response, and estimating (1) the losses due to damage and (2) the opportunity cost due to interruption of structure usage.

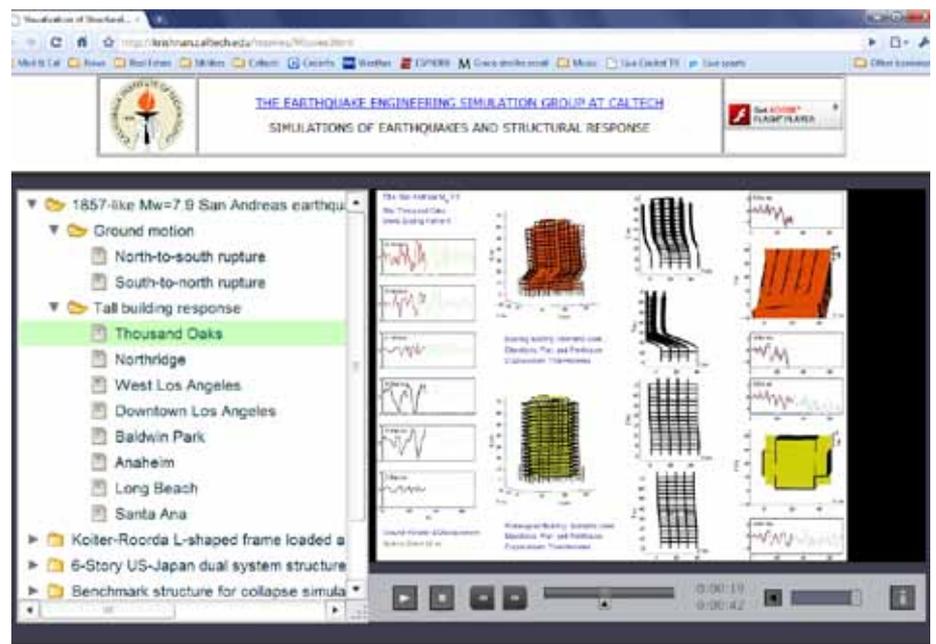
Second place finishers were G. S. Prinz and P. W. Richards of Brigham Young University for their system-level modeling of steel-braced frame structures. Third prize was awarded to Luis Gonzalo Mejia C., a consulting structural engineer in Medellin, Colombia, for the booklet: *Basic Principles of Earthquake Action and Protection*.

The first-place project, entitled “Simulations of Earthquakes and Structural Response,” is a visualization portal depicting various simulations

conducted by the EERG. Noteworthy movies include: (a) the seismic wave propagation into the Los Angeles basin from the computational recreation of the 1857 magnitude 7.9 earthquake on the San Andreas fault; (b) response of tall steel moment-frame buildings to the ground shaking at various locations in the basin from this event, as well as from the Great Southern California ShakeOut earthquake (collaborators included EERI member Rob

Graves of URS Corporation and Ken Hudnut of the USGS); and (c) the computational recreation of the response of a six-story full-scale structure subjected to the Tohoku University accelerogram recorded during the Miyagi-Ken-Oki earthquake of 1978. The pseudo-dynamic test was conducted at the Building Research Institute in Japan, under the auspices of the US-Japan Cooperative Research Program.

To view the winning entry, visit <http://krishnan.caltech.edu> and click on the “Movies” button.



Web site for viewing “Simulations of Earthquakes and Structural Response,” the winning Graphics Competition entry.