EARTHQUAKE ENGINEERING RESEARCH INSTITUTE

Founded in 1948, EERI's mission is to reduce earthquake risk by (1) advancing the science and practice of earthquake engineering, (2) improving understanding of the impact of earthquakes on the physical, social, economic, political, and cultural environment, and (3) advocating comprehensive and realistic measures for reducing the harmful effects of earthquakes.

LEARNING FROM EARTHQUAKES

Learning from Earthquakes Plenary Session at 2017 69th Annual Meeting

Learning From Earthquakes (LFE), Thursday, March 9, 2017, 8:30AM – 10:00AM

Moderator: Carmen Merlo, Portland Bureau of Emergency Management (M. EERI, 2013)

Speakers: Silvia Mazzoni, UC Berkeley (M. EERI, 2010); Erica Fischer, Degenkolb Engineers (M. EERI, 2010); Forrest Lanning, Miyamoto International (M. EERI, 2009); Dave Brunsdon, Kestrel Group (M. EERI, 1997); Ibrahim Almufti, Arup (M. EERI, 2011); Yu Xiao, Texas A&M University (M. EERI, 2011)

The mission of the Learning from Earthquakes (LFE) Program is to accelerate and increase learning from earthquake-induced disasters that affect the natural, built, social and political environments worldwide. This session will discuss recent earthquakes that EERI participated in reconnaissance work after the 2016 M6.2 Central Italy, 2016 M7.8 Ecuador and 2016 M7.8 Kaikoura earthquakes. This session will also report on the survey findings investigating the resilience and recovery of businesses impacted by the South Napa and Cushing, Oklahoma earthquakes. Session presenters will provide a summary of the reconnaissance work performed, lessons from the earthquakes, and results from a new business resilience survey data collected from the Napa and Cushing earthquakes.
Earthquake Spectra: Preprint Manuscripts

Eight preprint manuscripts have been posted to the Earthquake Spectra website prior to formal publication. The papers to be published are:

- Framework for a Ground-Motion Model for Induced Seismic Hazard and Risk Analysis in the Groningen Gas Field, The Netherlands by Julian J Bommer (M. EERI, 1992), Peter J Stafford, Benjamin Edwards, Bernard Dost (M. EERI, 2016), Ewoud van Dedem, Adrian Rodriguez-Marek (M. EERI, 1999), Pauline Kruiver, Jan van Elk, Dirk Doornhof and Michail Ntinalexis
- Modeling the Residential Building Inventory in South America for Seismic Risk Assessment by Catalina Yepes-Estrada (M. EERI, 2016), Vitor Silva (M. EERI, 2014), Jairo Valcárcel, Ana Beatriz Acevedo, Nicola Tarque, Matías A. Hube (M. EERI, 2005), Gustavo Coronel and Hernán Santa María
- Permissible Parameter Ranges of Access Hole Geometries for WUF-W Connections by Sang Whan Han (M. EERI, 1994) and Nam Hun Kim
- Impact of Earthquake Types and Aftershocks on Loss Assessment of Non-Code Conforming Buildings: Case Study with Victoria, British Columbia by Solomon Tesfamariam (M. EERI, 2008) and Katsuichiro Goda
- Ground Motion Prediction Equations for the Vertical Ground Motion Component Based on the NGA-W2 Database by Zeynep Gülerce (M. EERI, 2005), Ronnie Kamai (M. EERI, 2010), Norman A. Abrahamson (M. EERI, 1984), and Walter J. Silva (M. EERI, 1988)
- Geotechnical Aspects of the 2015 Mw 8.3 Illapel Megathrust Earthquake Sequence in Chile by Gabriel Candia (M. EERI, 2017), Gregory P. de Pascale, Gonzalo Montalva (M. EERI, 2009), Christian Ledezma (M. EERI, 2012)

To read all current preprint manuscripts posted, visit Earthquake Spectra preprints.
If you have questions about Spectra, contact Managing Editor Liz Stalnaker at liz@eeri.org

Share this article

Back to top >
Erasmus+ Master in Earthquake Engineering and/or Engineering Seismology (MEEES)

Applications for the Erasmus Masters in Earthquake Engineering and Engineering Seismology (MEEES) are being accepted, with a deadline of **April 10, 2017**. MEEES is organized by a consortium of European university and research institutions, led by **IUSS Pavia’s UME School** and featuring the participation of the University of Patras (Greece), the University of Grenoble Alpes (France), and the Middle East Technical University (Turkey).

Scholarships are available to applicants from all nationalities. For details and the online application procedure, visit [www.meees.org](http://www.meees.org).

Welcome New Members

EERI welcomes members who have recently joined the Institute. If you wish to connect with your fellow members, you can locate their contact information in the [EERI online membership directory](http://www.eeri.org), which requires logging in to the Member Resources Area of the EERI website.

**Regular**
William Cure, Cascadia Risk Solutions, *Risk Analysis*
Ting Yu Hsu, National Taiwan University of Science & Technology
Myunghyun Noh, Korea Institute of Nuclear Safety, Seismologist
Robert Norton, Nishkian Menninger
Daniel Pradel, Ohio State University, *Geotechnical*

**Young Professional**
Diego Buitrago, T.Y. Lin International
Gabriel Candia Agusti, UDD, *Geotechnical*
Jessica Feenstra, Golder Associates, *Seismologist*
Robin Gee, *Seismologist*
Alexander Kagermanov, Eucentre

**E-Affiliate**
Teraphan Orntharmmarath, Mahidol University, *Civil*
Student

Fariha A., McMaster University, Civil
Muhsin Acar, University of Illinois, Geotechnical
Mauricio Alvarez, UCSD
Yuamar Basarah, University of Illinois, Geotechnical
Zakariya Bourara, North Carolina State University
Paolo Bourdeau, SUNY Buffalo
Michael Cerjan, North Carolina State University
Nikhil Chaudhuri, Stanford University, Architect
Foley Chew, SUNY Buffalo, Civil
Dennis Chiu, UC Berkeley, Civil
Dominic Chong, UCSD
Isaac Chung, University of Toronto, Mechanical
Brandon Church, University of Memphis
Brandon Cortez, Stanford University, Civil
Karely Dorado, California State University of Los Angeles, Civil
Sayantani Dutta, University of Illinois
Gloria Faraone, UCSD, Civil
Graham Gatwood, North Carolina State University, Civil
Ashkan Golgoon, Georgia Tech, Mechanical
Guillermog Gonzalez, Cal Poly Pomona, Civil
Erik Guthrie, UCSD
Adam Hansen, University of Nebraska - Omaha, Architect
Jose Hernandez, California State University Los Angeles, Civil
Tyler Hurlbutt, SUNY Buffalo, Civil
Christopher Ibbotson, UC Berkeley, Geophysicist
Okan Ilhan, University of Illinois, Geotechnical
Nicole Johnson, Iowa State University, Civil
Wai Kong, UCSD
Jeffrey Kuo, UCSD, Architect
Christiana Lancaster, North Carolina State University
Nathaniel Leon, University of So California
Alejandro Levesque, UCSD, Mechanical
Gangjin Li, University of Nevada-Reno, Geotechnical
Evelyn Li, Stanford University, Civil
Yuxin Li, University of Illinois, Geotechnical
Shuang Li, Iowa State University, Civil
Zhenhua Li, UCSD
EERI would like to thank donors to the Endowment Fund and acknowledge their recent contributions. EERI's Endowment supports innovative projects that assure the Institute's continuing leadership in the earthquake engineering profession.

The list below reflects recent donations to the Institute.

<table>
<thead>
<tr>
<th>Amount</th>
<th>Donor</th>
</tr>
</thead>
<tbody>
<tr>
<td>$500</td>
<td>David Breiholz</td>
</tr>
<tr>
<td>$300</td>
<td>Ricardo Dobry</td>
</tr>
<tr>
<td>$100 - $250</td>
<td>Omar Cardona</td>
</tr>
<tr>
<td></td>
<td>Linda Emery</td>
</tr>
<tr>
<td></td>
<td>Paul Gilbert</td>
</tr>
<tr>
<td></td>
<td>William Holmes</td>
</tr>
<tr>
<td></td>
<td>Timothy McCrink</td>
</tr>
<tr>
<td></td>
<td>Keiko Morita</td>
</tr>
<tr>
<td></td>
<td>Armin Stuedlein</td>
</tr>
<tr>
<td></td>
<td>Mineo Takayama</td>
</tr>
<tr>
<td></td>
<td>Susan Tubbesing</td>
</tr>
<tr>
<td></td>
<td>Donald Wells</td>
</tr>
<tr>
<td>$100 - $250</td>
<td>Jacobo Bielak</td>
</tr>
<tr>
<td></td>
<td>Edmund Booth</td>
</tr>
<tr>
<td></td>
<td>Andrea Dargush</td>
</tr>
<tr>
<td></td>
<td>Charles Real</td>
</tr>
<tr>
<td></td>
<td>Alexander Uzdin</td>
</tr>
</tbody>
</table>

Thank you for your support!

Share this article

Back to top
Register Now - Rates Are Going Up February 7th!

Please join EERI in Portland on March 7-10, 2017 for our 69th Annual Meeting.

View the full program here, highlights include:

**EERI Distinguished Lecture by Lucy Jones, U.S. Geological Survey: "Life Safety in the City: There is more to life than not being crushed"**

The Resilience by Design program adopted by Los Angeles to address earthquake vulnerabilities brought together the earth science, earthquake engineering and public policy professions and worked with hundreds of community organizations to get approval for sweeping seismic resilience legislation. The process elucidated the disconnect between what well-informed members of the community and local governments understand about the earthquake risk and the goals and objectives of mitigation measures like building codes, and what has been implemented in most communities. Since their inception, building codes have been based on a principle that safety is the only valid concern of government. If an owner chooses to build a building that is a total financial loss, that is his prerogative but he cannot kill someone in the process. A key factor is that building codes consider buildings in isolation with impacts only on their owners and tenants. But the reality of a major earthquake is that the failure of a building impacts the whole community through economic disruption, population decreases, and cascading failures of engineered and social systems. This talk will explore a conceptual framework for creating a building code that reflects the realities of earthquake losses and the social dynamics of shared economic decisions.

**William B. Joyner Lecture by Bill Lettis, Lettis Consultants International, Inc. "Seismic Hazard Analysis and Capturing Uncertainty - Just How Uncertain Should We Be?"**

The earthquake engineering community and regulatory agencies are moving, at varying rates, toward risk-informed engineering decisions and design. Risk-informed decision making, in turn, requires that probabilistic seismic hazard analyses explicitly and transparently incorporate uncertainty in hazard-significant seismic source and ground motion parameters. The Earth science community, following the
scientific method, often leads to publication of a “proponent” interpretation or model with little or no expression of uncertainty beyond the limits of the immediate data that were considered in the research. This practice leaves it incumbent on the PSHA analyst (often a consultant) to capture the proper range of uncertainty for a parameter based on the body of published literature or, at times, based on the analyst’s own interpretations of available data. This is an important, often critical, interface issue between the Earth science community and the engineering community. Over time, some published interpretations or models become incorporated into “common belief” and become accepted paradigms whose uncertainties are rarely challenged even when more recent data or studies no longer support (if not outright reject) the original interpretation or model.

Emerging best practice, originating in the nuclear industry, is to use a formal, structured process to capture the center, body and range of uncertainty for inputs to a hazard model. This process engages the Earth science community as resource (e.g., data) and proponent (e.g., interpretation or model) experts, and requires the PSHA analysts to consider whether full parameter uncertainties are captured within the available data or whether uncertainties ought to extend beyond the available data, expert interpretations, and current paradigms.

An overall goal of current PSHA practice ought to be the focus on capturing the full range of uncertainty, so that the next generation of PSHA, which will be constructed with more and better information, will have results that fall within today’s uncertainty limits. This presentation will address some of the issues and questions that have evolved in the assessment of uncertainty and suggestions for a path forward in improved communication of uncertainty between the Earth scientist and the PSHA practitioner.

Learn more on the 2017 Annual Meeting website

EERI Honorary Members: Ashraf Habibullah and Anil Chopra

The EERI Board of Directors has selected Ashraf Habibullah (M. EERI, 1999) and Anil Chopra (M. EERI, 1973) as Honorary Members of the Institute. Honorary Membership is awarded to recognize members who have made sustained and outstanding contributions to the field of earthquake engineering and to EERI and the pursuit of its objectives. Presentation of EERI Honorary Memberships will take place at the 2017 Annual Meeting in Portland, Oregon, during the Honors Ceremony Lunch on Thursday, March 9, at 12:00 Noon.

EERI Honorary Member Ashraf Habibullah has served as Founder, President, and CEO of Computers & Structures, Inc. (CSI) since its incorporation in 1975. Recognized globally as a pioneer in software tools for structural earthquake engineering, CSI provides design support for major projects to thousands of engineering firms in over 160 countries, and its software is widely used in research and education. For many years, under Mr. Habibullah’s leadership, CSI has been EERI’s highest level subscribing member organization. Without fail, Mr. Habibullah and CSI enthusiastically provide support for EERI’s programs and conferences including the Student Leadership Council (SLC) and the Annual Undergraduate Seismic Design Competition (SDC). Each summer, CSI hosts the SLC Planning Retreat at the their offices in Walnut Creek, California.

Mr. Habibullah received his M.S. degree in Civil (Structural) Engineering from the University of California, Berkeley (1970) and B.S. degree in
EERI Honorary Member Anil Chopra is the Chancellor’s Professor, and Horace, Dorothy, and Katherine Johnson Professor of Engineering in the Department of Civil and Environmental Engineering at the University of California, Berkeley. He joined the faculty in 1969 and has been a professor in the Structural Engineering, Mechanics and Materials program for over 45 years. His research activities have included studies of structural dynamics, various problems in earthquake analysis and building design, dynamic soil structure interaction, dynamic fluid structure interaction, and earthquake analysis and design of concrete dams.

Throughout his career, Professor Chopra made significant contributions to EERI, having served on the Board of Directors from 1990-1993, and on the Earthquake Spectra Editorial Board. In 2002, he was awarded EERI's Housner Medal. He published the popular EERI monograph, Dynamics of Structures, a Primer, which was followed by his well-known textbook, Dynamics of Structures: Theory and Applications to Earthquake Engineering.

Professor Chopra has authored more than 330 published papers and received more than 30 awards in recognition for his work. He was elected to the National Academy of Engineering in 1984, and awarded the ASCE Norman Medal for the best paper among ASCE journals four times (2013, 2001, 1991, 1979). Professor Chopra has applied his research to practice by serving as a consultant on earthquake engineering projects for numerous governmental and private organizations in several countries. He worked on many high profile projects such as the Panama Canal Expansion, and on dams in California, Oregon, Utah, Australia, Canada, Columbia, Spain, Dominican Republic, and Venezuela.

11NCEE Call for Papers Announced

Eleventh U.S. National Conference on Earthquake Engineering
Integrating Science, Engineering, and Policy
June 25-29, 2018
Los Angeles, California

Purpose
The Eleventh U.S. National Conference on Earthquake Engineering (11NCEE), on the 70th Anniversary of the forming of the Earthquake Engineering Research Institute, will provide an opportunity for researchers and practitioners to share the latest knowledge and techniques
to better understand and mitigate the damaging effects of earthquakes and tsunamis. With the theme “Integrating Science, Engineering, and Policy,” the conference will bring together professionals from the full spectrum of the earthquake community to discuss and debate a multitude of issues related to seismic hazard, risk, mitigation and public policy.

The Earthquake Engineering Research Institute (EERI) is organizing this conference in collaboration with the Southern California Earthquake Center (SCEC). With numerous ongoing efforts in risk mitigation in the region that poses the largest seismic risk in the United States, Los Angeles and Southern California will form an ideal setting for the conference. The conference will provide a unique environment to facilitate synergy between earthquake scientists, engineers and policy professionals from the United States and around the world. This conference brings together professionals from a broad range of disciplines, including architecture, structural engineering, seismology, geology, geophysics, geotechnical engineering, business, public policy, social sciences, regional planning, emergency response planning, and regulation.

**Paper Formats**

The 11NCEE is accepting two paper types for the proceedings. The full paper option has a limit of ten pages, and the extended abstract paper option has a limit of four pages. Paper body text will be Times Roman 12-point and single spaced.

**Call for Papers**

The abstract collection system is now open. Authors must submit abstracts and papers online. The deadline for submission of abstracts is **May 31, 2017**. Authors will receive notification of provisional acceptance of their abstracts by **August 15, 2017**. Final papers, both full and extended abstracts, must be received by **October 31, 2017**. Additional detailed instructions are available on the [conference website](#).

**Special Sessions**

The conference will include a small number of special sessions. Attractive special session proposals cross disciplinary and general topic boundaries, and raise challenging issues. The program committee is particularly interested in special session proposals that relate to the conference theme of integrating earthquake science, engineering, and policy, and those that address the hazards, risks and policies related to Southern California, the setting for the conference. Special sessions can be mini-workshops, panels, debates or other unique and engaging formats.

Those interested in proposing a special session can find directions on the [conference website](#). The deadline for submitting special session requests is **March 31, 2017**. Special session proposers will be notified of acceptance by **April 30, 2017**.

---

**Applications for the 2017 Housner Fellows Program Now Being Accepted**

**What makes you a leader?**

The Housner Fellows Program is seeking six exemplary young professionals from among our members who are dedicated public policy advocates committed to earthquake risk mitigation. Fellows will participate in a Leadership Institute and develop a group project that makes
a real impact in the field. Members from all disciplines are encouraged to apply. As of February 1st, EERI is accepting applications for the 2017 Housner Fellows class. Apply Online.

Have You Renewed Your EERI Membership for 2017?

Please be sure to renew your EERI Membership!

EERI memberships expire on December 31 of each year. We greatly value our members, and extend a grace period to ensure that everyone can find the time to renew. However, the grace period ends soon. If you have not had a chance to renew for 2017, please take a moment now to do so. For your convenience, we offer several options for renewing your membership:

- The simplest way is to refer back to the email renewal reminder you received on January 10, which will direct you to a pre-filled form created just for you.
- Login to EERI Membership Website to complete your renewal.
- Call (510) 451-0905 or email Juliane Lane, EERI Membership Coordinator, for assistance.

We hope you will continue to support EERI and renew your membership for 2017.

Together, we can reduce earthquake risk for our communities.

NEWS OF THE PROFESSION

Links to Recent News and Views

Eight Recent Stories, Reports, or Opinions from Around the Web

1 Washington's 30-Year Earthquake Drill for the'Big One' - Order Studies, Ignore Them, Repeat (The Seattle Times) Seismic Neglect: Washington Gov. Jay Inslee orders a new report on seismic danger, adding to a paper trail of recommendations that have largely been ignored for decades. Read More
Mt. Everest: Scientists to Measure Height After Nepal Earthquake (CNN) The world’s tallest mountain may have shrunk following the 2015 Nepal earthquake. Read More

What's Keeping Those Freeway Interchanges Up in an Earthquake? (LAist) The California Department of Transportation has spent nearly 30 years identifying and retrofitting some 12,000 state-owned bridges and overpasses to ensure this nightmare scenario doesn't happen again. Read More

New Earthquake Powers Will Force 300 Building Owners to Strengthen Within a Year (National) Roughly 300 high-risk buildings in the Wellington region will need to be brought up to code within a year, Building and Construction Minister Nick Smith has announced. Read More

Earthquake Repairs Biggest South Island Railway Project in 'Generations' (National) November earthquake has sparked the largest railway works in the South Island since the Main North Line was completed more than 70 years ago. The railway line between Picton and Christchurch was one of the longest building projects in New Zealand history, spanning both world wars and the Great Depression. Read More

New Construction Standing up to Earthquakes, Experts Say (Tulsa World) Stringent modern structural standards have largely mitigated the impact earthquakes are having on new buildings and homes in the State of Oklahoma. Read More

Protesters in Rome Slam Quake Handling as Hotel Avalanche Toll Hits 25, Survivors Recount Roar, Darkness (Reuters AP) People from the earthquake-ravaged zones of central Italy demonstrate against the slow bureaucracy of the government in sending economic help to the area during a protest in Rome on Wednesday (January 25, 2017). Read More

Human Induced Earthquakes on the Rise (EcoWatch) Today, earthquakes caused by humans occur on a much greater scale. Events over the last century have shown mining is just one of many industrial activities that can induce earthquakes. Read More

Follow these steps to add EERI Calendar to your own Google calendar.

1. Open Google Calendar
2. On the left, above “My Calendars,” click Add + and then From URL.
3. Enter the EERI calendar's address in the field provided. EERI Calendar ics link

https://calendar.google.com/calendar/ical/eeri.org_s9151tit0ab26dnf2epn25d7rg%40group.calendar.google.com/public/basic.ics

Share this article

Back to top >
Monday, April 27, 2020 - April 30
SSA 2020 Annual Meeting
SSA 2020 Annual Meeting
27-30 April 2020 — Albuquerque, New Mexico
The 2020 Annual Meeting will be held in Albuquerque, New Mexico.
Check back later for more information.

Friday, May 15 2020 5:00 PM - May 16 2:00 AM
2020 Los Angeles Tall Buildings Conference
The 2020 Los Angeles Tall Buildings Structural Design Council conference will cover a variety of topics related to recent advances in structural design of tall and special buildings. Learn more: www.latallbuildings.org

Monday, September 14, 2020 - September 18
17th WCEE
The 17th WCEE will be hosted in Sendai, Japan, from September 14th to 18th 2020. Check http://www.iaee.or.jp/ for more information.

Sunday, February 07, 2021 - February 10
ASCE/UCLA San Fernando Earthquake Conference
For more information: http://lifelines2021.ucla.edu/

Wednesday, March 17, 2021 - March 19
EERI Annual Meeting