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.

David Wald to Deliver 2014 EERI Distinguished Lecture


Wald has been a pioneer in developing tools, such as "Did You Feel It?," Shake Map, and ShakeCast, that serve a broad audience including first responders, government officials, utilities, earth scientists, and engineers. More than 70,000 individuals receive ShakeMap alerts in California, Washington, Utah, Hawaii, Nevada, and Alaska.

Wald and Paul Earle developed PAGER (Prompt Assessment of Global Earthquakes for Response), which estimates the number of people subjected to levels of ground shaking within 30 minutes of an earthquake anywhere around the globe. The PAGER report also provides a simplified color coded alert related to the level of the catastrophe using the Earthquake Impact Scale (EIS). This advancement has enabled humanitarian organizations to provide quick and appropriate responses to disasters.

Wald earned a Ph.D. from Caltech after which he worked as a National Research Council postdoctoral research associate, 1993-1995. Wald's experience also includes a position at the USGS in Pasadena, both as a seismologist and visiting associate faculty at Caltech, and a consulting seismologist with Woodward-Clyde Consultants in Pasadena, 1986-1988. He is an excellent speaker and often appears on television in news broadcasts or specials produced by the History Channel, the Learning Channel, PBS, and others to discuss earthquakes, earthquake ground motions, hazards, and damage.
Dr. Wald's groundbreaking work will fit with the "Frontiers of Earthquake Engineering" theme of the 10NCEE in Alaska. His ability to address the needs of many audiences means that he is able to create a talk with broad appeal. His innovative use of technology to address challenging problems will interest students who are truly immersed in the information age.

**Abstract: "Challenges in Estimating Real-time Earthquake Shaking & Impact" Lecture**

The U.S. Geological Survey (USGS) has developed several near-real time earthquake information systems that provide rapid and automated alerting of estimated economic and human impacts following earthquakes. In this talk I describe the four components that rapidly assess an earthquake's impact. First, earthquakes trigger rapid source characterization; second, these source parameters help inform our estimates of shaking-distribution (ShakeMap). Third, losses are modeled by computing populations exposed per shaking intensity level, and country-specific loss functions are used to provide estimates of economic impact and potential casualties (PAGER). Finally, these uncertain loss estimates are communicated in an appropriate form for actionable decision-making among a variety of users.

Several aspects of our problem cannot yet be adequately solved with purely empirical or solely mechanistic approaches. The "physics-based" model components are essential for informing empirical loss models where they are data-limited, and for providing a framework for better understanding the causative pathways that dominate earthquake losses. In the course of explaining the end-to-end strategies and science/engineering we employ, I describe the pragmatic choices made in balancing the uncertainties in and benefits provided by our empirical and physical models. Recognizing and reconciling the complimentary benefits of data-driven versus theoretical problem solving is at the core of our end-to-end earthquake hazard and loss estimates, as it is for a wide variety of other challenges within the earth and engineering sciences.

**Requests**

EERI student chapters will be sent a survey later this year where they can make a request for Dr. David Wald's presentation of his Distinguished Lecture at their school. Other groups who would like to make this request should contact the EERI office at eeri@eeri.org and 510-451-0905.

*Note: See the full list of 2014 EERI Award Recipients at [http://bit.ly/1c3HttF](http://bit.ly/1c3HttF). In the next issue of The Pulse, we will feature the 2014 William B. Joyner Lecturer.*

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**Register Today for 10NCEE and Scenic Technical Tours**

Register today for the Tenth U.S. National Conference on Earthquake Engineering (10NCEE) being held this July in Anchorage, Alaska. For the latest 10NCEE information about Travel Grants, Travel and Lodging, Pre-Conference Events, Thursday Evening at the Alaska Native Heritage Center, and Paper Acceptances, visit the 10NCEE website at [www.10ncee.org](http://www.10ncee.org).

**Technical Tours**

The Earthquake Engineering Research Institute (EERI) and the local 10NCEE organizing committee have planned a number of technical tours for conference participants (listed below). For up-to-date information about technical tours, visit the 10NCEE website at [www.10ncee.org/tours](http://www.10ncee.org/tours).
Full Day Tour: The Mountains and Glaciers of Turnagain Arm and Portage Valley
Date: Monday, July 21, 2014
Time: Depart Anchorage Hilton lobby at 8:00 a.m. and return at approximately 3:00 p.m.
Enjoy a trip back in time exploring the impacts of the 1964 earthquake that are still visible along Turnagain Arm. Before the conference gets going, enjoy a trip traveling through Girdwood and Portage.
Trip Leaders: local experts

Half Day Tour: Hatcher Pass and Tsunami Warning Center
Date: Friday, July 25, 2014
Time: Depart Dena’ina Conference Convention Center at 1:45 p.m. and return to the Anchorage Hilton Lobby at approximately 7:30 p.m.
Following the final 10NCEE presentations, a tour will head north to the Matanuska-Susitna Valley and discuss examples of local damage from the 1964 earthquake. Explore earthquakes and tsunamis in Alaska and beyond at the West Coast & Alaska Tsunami Warning Center.
Trip Leaders: local experts

4-Day Tour: Active Faults and Seismic Hazards in Central Alaska
Date: Saturday, July 26 to Tuesday, July 29, 2014
Time: Depart Anchorage Hilton lobby at 8:00 a.m. Saturday, July 26. Return to Anchorage Tuesday evening, July 29, around 5:00 p.m. As we cannot guarantee the return time of the field trip to Anchorage, please plan on staying in Anchorage on Tuesday night, July 29 (at your own expense).
The route provides memorable views of the Susitna Basin, Alaska Range, Denali National Park, Tanana Valley, Copper River Basin, and the Wrangell Mountains, some of the most dramatic landscapes in the world. (*This trip is dependent on a minimum number of participants. If this quota is not reached by March 15, 2014, the trip will be cancelled and money will be refunded.)
Trip Leaders: Dr. Gary Carver (M. EERI, 2008), Dr. Richard Koehler, Dr. Sean Bemis, and Dr. Douglas Nyman (M. EERI, 1975)

Register today for 10NCEE at www.10ncee.org! We hope to see you in Anchorage this summer.

Welcome New EERI Subscribing Member: Mueser Rutledge Consulting Engineers
EERI would like to take this opportunity to announce new Bronze Subscribing Member: Mueser Rutledge Consulting Engineers.
Mueser Rutledge Consulting Engineers (MRCE), founded in 1910 in New York City, is the first firm in the United States to combine a geotechnical specialty with structural foundation design engineering. Today MRCE remains a leader in the field they pioneered, providing structural design of foundations and waterfront structures and complete geotechnical studies. By combining geotechnical engineering with structural foundation design engineering, MRCE specializes in complicated sites, especially in urban areas.
To view the full list of EERI Subscribing Members, visit: https://www.eeri.org/about-eeri/subscribing-members/.
Scott Ashford Appointed New Dean of OSU's College of Engineering

Scott Ashford (M. EERI, 1992), head of the School of Civil and Construction Engineering at Oregon State University, was appointed dean of OSU's College of Engineering. The appointment of Ashford, who is the Kearney Professor of Engineering at OSU, is effective immediately. Ashford previously served as interim dean of the college in 2011-12. Ashford succeeds Sandra Woods, who will remain a tenured OSU professor.

Ashford, who is an alumnus of OSU, joined the engineering faculty in 2007. His research focus has been on enhancing public safety and reducing economic loss from earthquakes, tsunamis, and coastal hazards. He helped create the Cascadia Lifeline Program to help Oregon businesses, governments, and utilities prepare for a major earthquake and possible tsunami.

After working in private industry for seven years, mostly with CH2M-HILL, Ashford earned his Ph.D. from the University of California, Berkeley. He was on the faculties of the Asian Institute of Technology in Thailand for two years and the University of California-San Diego for 11 years, before returning to OSU.

Sabah Randhawa, OSU provost and executive vice president, announced the leadership transition on Friday.

"I am confident that Scott Ashford will provide the leadership needed to advance the strategic direction and priorities of the college," Randhawa added. "Going forward, it is essential to build a leadership team within the college that shares a sense of direction and purpose."

To read the full press release, visit the OSU website at http://bit.ly/1hMlhZz.

Share this article
EERI Team to Study Indicators of Recovery in New Zealand

An EERI team is convening in New Zealand this month to observe and understand how stakeholders in the country are measuring, monitoring, and acting upon data-driven indicators of recovery after the Canterbury earthquakes. The team will spend time in Christchurch and Wellington to meet with New Zealand experts about the collection and management of data, including its usefulness; data exchangeability; and limitations for measuring and monitoring all aspects of recovery from the Canterbury earthquake sequence.

The EERI New Zealand team is being led by Scott Miles (M. EERI, 2009), Western Washington University, and includes Chris Poland (M. EERI, 1998), Degenkolb Engineers; Liesel Ritchie (M. EERI, 2012), Natural Hazards Center; Yu Xiao (M. EERI, 2011), Texas A&M University; and Nick Hedley (M. EERI, 2014), Simon Fraser University. The group will be looking at all aspects of the recovery and the team members bring a wide range of expertise including: structural engineering, sociology, social capital, well-being, urban planning, economic development, recovery financing, geography, spatial data, data synthesis, crowd-sourcing and "informal" data, lifelines, urban developments, and schools.

The trip is the first case study as part of an NSF-funded project, "Seismic Observatory for Community Resilience — A Program to Learn from Earthquakes." The project will help EERI understand the infrastructure necessary to facilitate measuring and monitoring recovery after future earthquakes. The final outcome of the project will be a guideline for establishing a "resilience observatory" after a disaster that includes guidance on how EERI can work with local agencies to help establish these observatories.

Opportunity to Serve on EERI Project Advisory Committees

EERI is currently recruiting members for new advisory committees that are being formed to provide guidance for two projects—the Concrete Coalition and the California Earthquake Clearinghouse. The advisory committees will help EERI staff set priorities for these two projects and provide guidance as the projects move forward. If you are interested in serving on either of these advisory committees, please complete the online survey by March 10, 2014 at www.surveymonkey.com/s/EERI_Advisory_Committees. A few more details on each project follow.

The Concrete Coalition
This project has been underway for several years. In an earlier phase, the focus was on conducting inventories...
of older concrete buildings in California cities. A database of damaged concrete buildings was developed in a later phase at http://db.concretecoalition.org/. In a most recent phase, the focus has been on developing a website and online tool kits that can help governments understand options for dealing with the most vulnerable of these buildings. In addition, volunteers have explored techniques to categorize buildings using photos and Google Earth. More information about the project and its phases is available at www.concretecoalition.org.

The advisory committee will meet via conference call no more than monthly. There may be one face-to-face meeting early in the year. EERI members who are interested in older concrete buildings, both in terms of improving the understanding of their vulnerability and in helping develop policy options, are encouraged to apply.

The California Clearinghouse
EERI has received funding from this project from the USGS for several years. EERI is one of 5 managing partners of the Clearinghouse, along with the California Geological Survey, the USGS, the California Office of Emergency Services, and the California Seismic Safety Commission. Recent activities have centered on developing working relationships with many state, local, and federal agencies and on using the UICDS technology to transfer data among interested organizations.

EERI would like to create an advisory committee for this project that will focus specifically on EERI's role after a future damaging earthquake. What are the data collection tools that are most useful for EERI members, what type of training needs to be developed, how will EERI contribute information to emergency responders, what are the options for long-term storage of data collected at the Clearinghouse, etc.

While the focus of this committee will be on California, many of these issues are directly applicable to EERI's reconnaissance mission in other states. Thus not all committee members need to be based in California.

The advisory committee will meet via conference call no more than monthly. There may be one face-to-face meeting early in the year. EERI members who are interested in earthquake reconnaissance protocols, data collection tools, data display, and data management options are encouraged to apply.

Save the Date: California Earthquake Clearinghouse Workshop for First Responder Agencies
The California Earthquake Clearinghouse and its partners are hosting a one-day workshop for local first responder agencies on April 17, 2014 in Oakland, CA. The workshop offers a hands-on technology interchange opportunity. The goal of the workshop is to introduce local (city/county) First Responder agencies to tools for sharing spatial incident response information using the technologies that have been demonstrated in our Clearinghouse exercises.

The morning will include introductions to and demonstrations of a suite of data collections and sharing tools, and the afternoon will provide attendees the opportunity to use the tools to view and share data-related relevant use cases, e.g., major earthquakes. The workshop will be followed by a networking reception. There is no cost to attend the meeting and the workshop will also be broadcast online for those unable to attend in person.
In late February, six preprint manuscripts were posted on the *Earthquake Spectra* website prior to their formal publication. The list of new preprint manuscripts, including authors, follows:

- "Semi-Empirical Nonlinear Site Amplification from NGA-West 2 Data and Simulations" by Emel Seyhan (M. EERI, 2010) and Jonathan P. Stewart (M. EERI, 1994)


- "Nonlinear Horizontal Site Amplification for Constraining the NGA-West2 GMPEs" by Ronnie Kamai (M. EERI, 2010), Norman A. Abrahamson (M. EERI, 1984), and Walter Silva (M. EERI, 1988)


- "Summary of the ASK14 Ground-Motion Relation for Active Crustal Regions" by Norman A. Abrahamson (M. EERI, 1984), Walter Silva (M. EERI, 1988), and Ronnie Kamai (M. EERI, 2010)

ANNOUNCEMENTS

NRC Community Workshop: State of the Art and Practice in Earthquake Induced Soil Liquefaction Assessment

The NRC Committee on State of the Art and Practice in Earthquake Induced Soil Liquefaction Assessment will be holding a community workshop March 10–11, 2014 at Arizona State University in Tempe, Arizona. The purpose of this workshop is to inform the committee on issues about which it will be deliberating.

This workshop is open to the public, but seating is limited. Web participation during plenary workshop sessions will be possible. If you are interested in attending this workshop in person or remotely, please register with Eric Edkin (eedkin@nas.edu) so that you may be included among the participants and to make sure you have the most up-to-date information.

Browse the National Academies of Science website for information about this National Research Council (NRC) committee at http://www8.nationalacademies.org/cp/projectview.aspx?key=49573.

NEES/EERI Webinar: Adaptive Passive Stiffness Shaping and Apparent Weakening for Seismic Protection

Presenters: Satish Nagarajaiah (M. EERI, 1994), Rice University; Andrei Reinhorn (M. EERI, 1986) and Michael Constantinou, University at Buffalo; Michael Symans (M. EERI, 1996), Rensselaer Polytechnic Institute; Douglas Taylor (M.EERI, 1998), Taylor Devices; Jian Zhang (M. EERI, 1999), UCLA

When: Monday, March 17, 2014
Time: 1:00 – 2:30 p.m. Pacific Time (U.S. & Canada)

Traditionally researchers have focused on supplemental damping systems for earthquake protection. The NEES-Adapt-Struct team has focused on the development of supplemental adaptive stiffness systems for stiffness shaping in structures and apparent weakening for seismic protection. This webinar presents various stages of development of the concept of adaptive passive stiffness shaping achieved through the introduction of supplemental negative and positive tangential stiffness, and the design
procedure for implementing it in various structures. The team at Rice University, University at Buffalo, RPI & UCLA funded through the NSF NEES program have developed a practical and true negative stiffness system.

The aim of the current project was to develop a true negative stiffness system and mimic "yielding" while retaining the main structure either in the elastic range or in the mildly inelastic range with reduced inelastic excursions—leading to a new concept called "apparent weakening." The webinar presents the invention of the Negative Stiffness Device (NSD) and process that lead to the invention of the NSD—a creative process of innovation by a team of researchers. The innovation of apparent weakening concept is presented. Detailed analytical and shake table test results are presented to show the effectiveness of the new and innovative concept of adaptive negative-positive tangential stiffness which allows stiffness shaping in structures and apparent weakening for earthquake protection. Effectiveness of NSD in base isolated structures, inelastic single and multistory buildings, and based isolated bridges is demonstrated using experimental and analytical results obtained in the NEES-Adapt-Struct project external link icon. Watch videos of the NEES-ADAPT(ive)-STRUCT(ures) project at YouTube RiceDSNG channel external link icon.

To register for this webinar, visit the NEES website at www.nees.org/events/details/260 external link icon.

There is no cost to attend this webinar. PDHs will be available from EERI after the webinar for $30.

OPPORTUNITY FOR GRADUATE STUDENTS

NIST Engineering Lab Student Trainee: Call for Applications

The National Institute of Standards and Technology (NIST) Engineering Laboratory (EL) seeks a graduate student interested in earthquake engineering for a student appointment in support of its role in the National Earthquake Hazards Reduction Program (NEHRP). The student will conduct research supervised by a research structural engineer within the NEHRP group at NIST.

The student must hold an undergraduate degree in Civil, Architectural, or Structural Engineering, which included courses in steel and concrete design and must have completed a graduate course in structural dynamics.

Topics to be studied may include: (1) refinement of approximate structural period relationship for use in determining design-level lateral earthquake forces, (2) critical investigation of the rules for distributing design-level lateral forces that consider vertical irregularities in the structural lateral system, and (3) analysis of collapse for performance-based seismic engineering.

Submit Your Application

Applications should be submitted through www.USAJOBS.gov external link icon. Further details for this job can be found at
This is a paid position with competitive compensation based on the student's qualifications. The student will work at the NIST campus in Gaithersburg, MD for approximately 10–12 weeks. This position is for the summer of 2014. Additional information about the NEHRP group at NIST can be found at [http://www.nist.gov/el/nehrp](http://www.nist.gov/el/nehrp).

**Questions**

Contact **Dr. Matthew Speicher** (M. EERI, 2004) at speicher@nist.gov if you have questions about the projects that are the subject of the student appointment.

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**CALENDAR**

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

1. Open [Google Calendar](https://calendar.google.com)
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](https://calendar.google.com/calendar/ical/eeri.org_s9151tit0ab26dnf2epn25d7rg%40group.calendar.google.com/public/basic.ics)
4. Click *Add Calendar*. The calendar will appear on the left side under "Other calendars."

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**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.](https://www.usajobs.gov/GetJob/ViewDetails/362994400)

**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