E-Newsletter
Winter 2011/12 Edition
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HEADLINE NEWS

WSSPC Lifetime Achievement Award Winners Announced

Dr. John L. Aho, Chairman of the Alaska Seismic Hazards Safety Commission, has been selected to receive the 2012 WSSPC Lifetime Achievement Award in recognition of his over thirty five years of service as a dedicated leader in earthquake engineering and seismic risk reduction policy.

Dr. Jonathan G. Price, Nevada State Geologist and Director of the Nevada Bureau of Mines and Geology, has been selected to receive the 2012 WSSPC Lifetime Achievement Award in recognition of his public policy advocacy and his indefatigable support of seismic safety in Nevada and across the nation.

2012 National Awards in Excellence Winners Announced

WSSPC is pleased to announce the winners of the 2012 National Awards in Excellence, decided by the National Earthquake Conference Awards Selection Committee. Winners will be recognized and receive their award at the Joint 2012 National Earthquake Conference/Earthquake Engineering Research Institute (EERI) Annual Meeting Wednesday, April 11, 2012 during an awards luncheon. The winners are listed by category below.

Overall Award in Excellence for Outreach
Earthquake Country Alliance Public Education Activities
Earthquake Country Alliance
Contact: Mark Benthien, Outreach Director, Southern California Earthquake Center, Executive Director, Earthquake Country Alliance

Award Category: Use of New Technology
ShakeMap and Suite of Accompanying Programs
U.S. Geological Survey, National Earthquake Information Center
Contact: Dr. David Wald, Supervising Research Geophysicist, U.S. Geological Survey, National Earthquake Information Center

Award Category: Research
Utah Earthquake Working Groups
Utah Geological Survey
Contact: Dr. Richard Allis, Director, Utah Geological Survey

Award Category: Mitigation
Project Safe Haven
Washington State Emergency Management Division, University of Washington, and Washington Department of Natural Resources
Contact: John D. Schelling, Earthquake Program Manager, Washington State Emergency Management Division

Award Category: Research
Washington Policy Gap Analysis
Washington State Emergency Management Division
Contact: John D. Schelling, Earthquake Program Manager, Washington State Emergency Management Division

Congratulations to the 2012 National Awards in Excellence winners, and thank you to everyone who submitted an award nomination.

For more information on the 2012 Awards in Excellence winners, visit our website at *http://wsspc.org/Awards/index.html*

NEC Registration Open
The 2012 National Earthquake Conference (NEC) is being held jointly with the Earthquake Engineering Research Institute (EERI) Annual Conference April 10 -13, 2012 at the Peabody Hotel in Memphis, Tennessee.

Registration is available at the rate of $450 through March 15, 2012.

To access the conference brochure, visit *http://2012am.eeri.org/wp-content/uploads/2011/08/2012 _AM_Brochure_complete_011712-reduct.pdf*

For more information and to register, visit *http://earthquakeconference.org/*

WSSPC Annual Meetings
This year's WSSPC Annual Meetings will be held April 10, 2012 at the Peabody Hotel in Memphis, Tennessee, commencing after the National Earthquake Program Managers meeting. The Tsunami Hazard Mitigation Committee meeting date and time is still being determined. The Board and Annual Business Meeting schedule is as follows:

April 10, 2012
- Basin & Range Province Committee: 1:00 p.m. - 3:00 p.m.
- Engineering, Construction & Building Codes Committee: 1:00 p.m. - 3:00 p.m.
- Board Meeting: 3:15 p.m. - 3:45 p.m.
- Annual Business Meeting 4:00 p.m. - 5:30 p.m.

WSSPC Members: if you are unable to attend the Annual Business Meeting, please notify Patti Sutch of who your voting proxy will be at psutch@wsspc.org.

April 11, 2012
Seismic Councils and Commissions Meeting: 6:00 p.m. - 9:00 p.m.

The WSSPC Annual Meeting Schedule and hotel information is available at *http://wsspc.org/programs/current.shtml*. Meeting agendas will be posted as they become available.

See you in Memphis!!

WSSPC Facebook Page
WSSPC has launched a Facebook page. "Like" us to keep updated on important organizational information, dates, deadlines and upcoming events.

Visit our page at *www.facebook.com/wsspc*.

WSSPC NEWS

Dates and Deadlines

March 15, 2012
- Last day to register for the 2012 National Earthquake Conference at the discounted rate of $450.

March 30, 2012
- Comments on WSSPC 2012 DRAFT Policy Recommendations due to WSSPC Office. The DRAFT policy recommendations are available at *wsspc.org/policy/drafts.shtml*

April 10, 2012
- WSSPC Annual Meeting, Peabody Hotel, Memphis Tennessee

April 10, 2012
- National Earthquake Program Managers Meeting, Peabody Hotel, Memphis, Tennessee

April 11, 2012
- Seismic Councils and Commission Meeting, Peabody Hotel, Memphis, Tennessee

April 11-13, 2012
- National Earthquake Conference, Peabody Hotel, Memphis, Tennessee

FEMA Begins Catastrophic Planning for the Cascadia Subduction Zone
Submitted by David W. Plance, Response Planner, FEMA Region IX

Recent high-profile seismic events around the Pacific 'Ring of Fire', and especially the devastating events of March 11, 2011 with the Japan Tohoku earthquake and tsunami, have heightened the attention for similar events along the northwestern coastline of the United States and Canada – specifically, the Cascadia Subduction Zone (CSZ). To address this, the Federal Emergency Management Agency (FEMA) is conducting catastrophic planning for the Cascadia Subduction Zone, an 800 mile thrust fault stretching from northern California to Vancouver British Columbia, that straddles both FEMA Region IX (California) and FEMA Region X (Alaska, Washington, and Oregon).

Since June 2011, FEMA Region IX, headquartered in Oakland, California, has worked in coordination with the California Emergency Management Agency (Cal EMA) to establish a formal planning process for development of what will become the Cascadia Subduction Zone Earthquake and Tsunami Response Plan Annex. This 18 month catastrophic planning effort will require cooperation and coordination with the states of Califor-

nia, Washington, Oregon, Alaska, as well as international coordination with Canada.

This planning builds upon existing local and state planning efforts, including the 2001 Cascadia Logistics Support Protocol (*www.calema.ca.gov/PlanningandPreparedness/Documents/Cascadia2-24-06.pdf*) in California.

This latest CSZ plan will describe a multi-region, multi-state synchronized Federal response. The plan will specifically outline how state, regional and national agencies and organizations will work together in the coordination of joint agency responsibilities, direct a Federal response, and set the conditions for recovery and mitigation efforts following a catastrophic earthquake and tsunami.

To assist in understanding the threat, and to build an effective response, the planning team is drawing upon numerous analytical documents. These include the Cascadia Regional Earthquake Workgroup (CREW) scenario, the Planning Scenario Special Publication 115 from the California Department of Conservation (1995), a Department of Homeland Security, Office of Infrastructure Protection scenario and modeling study from the Homeland Infrastructure Threat and Risk Analysis Center (HITRAC), and a California based Hazards U.S. (HAZUS) study.

As part of the development process, the planning team has conducted intensive information analysis and background research with local, State, Federal, Tribal, and private sector partners. The planners will begin the course of action and problem solving development phase beginning in February 2012 with an expected plan completion of December 2012.

Gordon and Betty Moore Foundation Awards $6 Million for Research Leading to West Coast Earthquake Early Warning System

From the USGS Website

The Gordon and Betty Moore Foundation has awarded $6 million to three West Coast universities to create a prototype earthquake early warning system for the Pacific Coast of the United States. Each university will receive $2 million over three years.

The grant will allow seismologists at the University of California, Berkeley, the California Institute of Technology (Caltech), and the University of Washington, Seattle, in collaboration with the U.S. Geological Survey, to learn about the science of earthquakes and the best way to capture and analyze seismic data in order to give schools, utilities, industries and the general public as much time as possible—most likely seconds to several minutes—before the ground begins to shake.

"The Gordon and Betty Moore Foundation is funding this basic, fundamental science to yield an earthquake early warning prototype that we hope will pave the way for a fully functioning system in the Western U.S.," said Cyndi Atherton, program director for science programs at the foundation. "A warning system has the potential to save thousands of lives and millions of dollars in the event of an earthquake, and we feel it is important to resolve any scientific questions that could stand in the way of implementing such a system."

"The technology and scientific expertise exist to create a sophisticated West Coast earthquake early warning system even more advanced than Japan's now four-year-old system, which functioned well after the magnitude 9.0 Tohoku quake earlier this year," said Richard Allen, director of the Berkeley Seismological Laboratory and a UC Berkeley professor of earth and planetary science. "We are gratified that the Foundation is supporting research that will help us bridge the gap between the current nascent test EEW system in California and a full West Coast ShakeAlert prototype."

ShakeAlert, the current version of an early warning system now being tested by Caltech and UC Berkeley in collaboration with the Southern California Earthquake Center, ETH Zurich and the USGS, opens a pop-up alert on a recipient's computer in the event of a major earthquake, listing quake location and magnitude and the estimated time before shaking should be felt. While people living near the epicenter of a quake will not have much warning, those farther from a large quake could have seconds or tens of seconds of notice before the ground shakes.

The universities will seek partners in industry to provide extra funding, test the prototype, and provide critical feedback about how they want to receive warning. Google.org and Deutsche Telekom's Silicon Valley Innovation Center have already partnered with the Berkeley Seismological Laboratory to financially support development of the prototype.

The grants from the Gordon and Betty Moore Foundation will help each university tailor its EEW system to the local fault system, addressing issues of rapid detection and prediction of shaking, and delivery of a warning to those in harm's way.

All three universities will utilize their regional seismic networks to improve accurate assessment of earthquakes as they occur, especially large earthquakes. Current EEW systems, for example, act as if quakes rupture at only one point, when in fact, in larger earthquakes, fault ruptures can extend over hundreds of kilometers.

For the full press release, visit *www.usgs.gov/newsroom/article.asp?ID=3041*

California Bay Area Regional Disaster Resilience Initiative
The Association of Bay Area Governments (ABAG) and the 12-county Bay Area public, private-sector and non-profit organizations, and regional agencies and associations are collaborating on a Regional Disaster Resilience Initiative focusing on recovery from a major disaster or incident. The emphasis of the Initiative is on reconstituting lifeline and critical infrastructures, businesses, government services, community institutions, housing and essential services that underpin the region's economy and social fabric to ensure that the Bay Area rebuilds and reshapes its region in a proactive and sustainable way. Funding for the Initiative is provided by the Regional Catastrophic Preparedness Grant Program (RCPGP) of the Bay Area Urban Areas Security Initiative (UASI) and by private sector and other contributions.

For more information, visit *http://quake.abag.ca.gov/resilience/*

Wyoming State Geological Survey Launches HAZUS for Emergency Planners
The Wyoming State Geological Survey (WSGS) has launched an interactive website with results of earthquake damage scenarios that can be used by emergency planners and managers to better prepare for earthquakes in the state. The Hazus Internet map server can be viewed at: *http://ims.wsgs.uwyo.edu/hazus*. Users can create a login for access to search the interactive map databases and reports.

The project team looked at earthquake scenarios on 12 fault systems throughout the state and generated reports that contain information vital to emergency planners and managers. Interactive maps allow users to view areas that are likely to experience the strongest shaking and the potential loss related to the earthquake scenarios.

For the full write-up, visit *www.wsgs.uwyo.edu/News/Dec12_2011.aspx*

FEMA Funds Port Townsend, Washington Seismic Retrofit
From the FEMA website

The U.S. Department of Homeland Security's Federal Emergency Management Agency (FEMA) has announced Pre-Disaster Mitigation Competitive (PDM-C) grant awards totaling $1,199,250 to the State of Washington and the City of Port Townsend to seismically retrofit City Lake Reservoir's water transmission lines. According to FEMA Regional Administrator Ken Murphy, the retrofit is designed to mitigate seismic threats to the reservoir and downstream communities. "The Pacific Northwest is prone to seismic activity, and when experts talk about earthquakes it's not a question of 'if' but rather, 'when,'" said Murphy. "This project includes replacement of 700 feet of outflow pipes, replacement of 16-inch steel pipe with high density polyethylene (HDPE) and the installation of outlet controls. It will significantly reduce the impact of future seismic events in Jefferson County."

FEMA's portion represents 75 percent of the total $1,599,000 project cost, with the City of Port Townsend defraying the $399,750 local share.

For the full press release, visit *www.fema.gov/news/newsrelease.fema?id=58421*

People

2012 New and Returning WSSPC Board Members
Mike Dayton, Acting Secretary, California Emergency Management Agency

John Madden, Director, Alaska Division of Homeland Security and Emergency Management

Vicki McConnell, State Geologist, Oregon Department of Geology and Mineral Industries

Peter McDonough, Senior Engineer, Questar Corporation, Utah Seismic Safety Commission member

John Parrish, Director, State Geologist, California Geological Survey

Bill Shawver, Director, Idaho Homeland Security, joined the WSSPC Board of Directors December 1, 2011.

Robert Swenson, Division Director and State Geologist, Alaska Division of Geological and Geophysical Surveys

New Wyoming State Geologist
Governor Matt Mead named Tom Drean as the Wyoming State Geologist. Drean worked for ConocoPhillips for over 26 years. He has held positions in the Middle East, Africa, Australia, South America, Europe and the United States. He has a Masters of Science from Penn State University where his area of study was geochemistry and a Bachelor of Science from Western Michigan University where his area of study was geology.

For the full press release, visit *http://stategeologists.blogspot.com/*

New British Columbia Chief Geologist
Steve Rowins is the new Chief Geologist and Executive Director of the BC Geological Survey. Steve will lead the Geological Survey in its mandate to attract investment in the mineral resources of BC by undertaking applied geoscience projects and developing and main-

taining world class geoscience databases.

Rowins joined the British Columbia Geological Survey in 2009 as the Director of Cordilleran Geoscience. He is also an Adjunct Professor in the School of Earth & Ocean Sciences at the University of Victoria and his research interests continue to be investigating the key physicochemical processes that control the ultimate grade and tonnage of magmatic-hydrothermal ore systems.

For more information on Steve Rowins, visit *http://www.empr.gov.bc.ca/Mining/Geoscience/Staff/Pages/SteveRowins.aspx*

New WSSPC Contacts

California
Kate Long is the California Emergency Management Agency Earthquake Program Research Specialist.

Julie Norris is the Acting State Hazard Mitigation Officer in California.

New Mexico
L. Greer Price is the Interim Director of the New Mexico Bureau of Geology and Mineral Resources.

Moving On

Jim Goltz, Cal EMA Earthquake and Tsunami Program Manager, Retires

Dr. James (Jim) Goltz has retired from his position as earthquake and tsunami program manager at the California Emergency Management Agency (Cal EMA). Jim was very active with WSSPC and was awarded the 2011 WSSPC Leadership Award for "Inspirational Leadership in Tsunami Hazard Mitigation, Public Awareness, and Emergency Preparedness for the State of California".

Ken Worman, California State Hazard Mitigation Officer, Retires
Ken Worman has retired from his position as the California State Hazard Mitigation Officer at the California Emergency Management Agency.

NATIONAL NEWS

NEHRP Reauthorization
H.R.3479—December 1, 2011, the Committee on Science, Space, and Technology approved H.R. 3479 (formerly introduced by Representative Wu as H.R.1739), the *Natural Hazards Risk Reduction Act of 2011*, authored by Rep. Judy Biggert (R-IL). The legislation reauthorizes the National Earthquake Hazards Reduction Program (NEHRP) and the National Windstorm Impact Reduction Program (NWIRP), supporting the development of hazard reduction measures, and the creation of disaster-resilient communities.

An amendment offered by Rep. Biggert that was unanimously approved strengthens post-earthquake investigation reporting and highlights the contribution of the National Labs to disaster research and development.

Committee Republicans accepted two minority amendments. One addresses earthquake and windstorm preparedness outreach to individuals with special needs, while the other enhances research into fires at the wildland-urban interface. Republicans defeated three minority amendments that would have significantly increased the cost of the legislation. The amendments would have increased the original H.R. 3479 authorization levels for the windstorm and earthquake programs by $224.1 million, and would have increased the authorization level of the earthquake program dramatically above the President's request.

For the full press release, visit *http://science.house.gov/press-release/committee-approves-bill-mitigate-wind-and-earthquake-hazards*

On December 13, 2011, the House Natural Resources Committee Subcommittee on Energy and Mineral Resources held a Legislative Hearing on H.R. 3479. To view the hearing and the witnesses testimony, visit *http://naturalresources.house.gov/Calendar/EventSingle.aspx?EventID=271350*

S.646—The Senate Committee on Commerce, Science, and Transportation passed a Senate version of the measure, the *Natural Hazards Risk Reduction Act* (S.646), on May 5, 2011 with higher authorizations that match with the needs of the programs. The Committee on Natural Resources, since it has jurisdiction over the USGS, will decide whether to hold a markup on the bill. If both measures are approved by the House and the Senate then the chambers will need to meet in conference to work out the differences between the bills. From the American Geosciences Institute Website – Posted 12/14/2011

For the full write-up, visit *www.agiweb.org/gap/legis112/nathazard_hearings.html*

PPD-8 FEMA Forums
From the FEMA website

FEMA and its partners are now working on the next set of Presidential Policy Directive 8 (PPD-8) activities and are seeking your input through their newly-launched online forum. These activities include the creation of National Frameworks for Prevention, Protection, Mitigation, and Response. The frameworks are a deliverable of PPD-8 and set the foundation for the implementation of the mission areas. As part of this, the frameworks lay out key roles and responsibilities among all FEMA partners, including local, state, tribal, territorial and federal governments, the private sector, voluntary, faith-based and community organizations, and the public.

Your ideas and votes help FEMA and its partners understand what works in the real world — in your community, school, or business.

To participate in the forum and download copies of the National Preparedness Goal and the National Preparedness System, visit *http://fema.ideascale.com/a/ideafactory.do?id=14692&mode=top&discussionFilter=active&discussionFilter=subtree&discussionID=57940*

EQprogram.net Launched

Created by Central U.S. Earthquake Consortium's (CUSEC) earthquake program coordinator, Brian Blake, *EQprogram.net* is intended to be used by State Earthquake Program Managers and their associates. The site provides information on the past and future National Earthquake Program Managers Meetings, earthquake program contacts, and recent earthquakes. It aims to better prepare for and mitigate against earthquakes, as directed by the National Earthquake Hazards Reduction Program (NEHRP).

EQprogram.net is also linked from the WSSPC website at *http://wsspc.org/programs/managers.shtml*

New CREW Board Elected
The Cascadia Region Earthquake Workgroup (CREW) recently elected nine new Board of Directors in July and a new Executive Board in October 2011. Four Supporting Directors representing the U.S. Geological Survey and Federal Emergency Management Agency were also approved. For more information on the CREW Board, visit *http://crew.org/about-crew/board-of-directors*

USGS Director Marcia McNutt on the Importance of Geological Surveys
From the Association of American State Geologists Blog: *http://stategeologists.blogspot.com/2011/11/usgs-director-marcia-mcnutts-statement.html*

The following written statement by USGS Director Marcia McNutt was released on November 22, 2011:

For more than 130 years, the U.S. Geological Survey (USGS) has been working in partnership with State Geological Surveys to provide science information that is vitally important to the U.S. economy, the safety and health of American citizens, and the sustainability and security of their natural resources. The USGS fully recognizes and supports the need for State geological surveys to help meet the growing challenges society faces in its interface with the natural world on a planet undergoing modification from both natural and man-made causes.

The USGS cannot fully implement our mission without the State geological surveys. Over our long and productive history of partnership, we have established successful ways of working together to mutually support our citizenry and reinforce the best features of both Federal- and State-based government, without overlap or duplication. For example, the USGS, with input from States, provides national standards, benchmarks, and datums, such that individual State products can be linked at the State boundaries. However, without the contributions of the States, national maps, data bases, models, and resource assessments would be sparsely populated. This symbiotic relationship allows the State surveys the latitude to determine which data sets are most important to their constituencies, while knowing that those data sets can be linked within a regional context, and that the scientific standards are authoritative.

Partnerships such as this are even more important as resources at the Federal and State level continue to decline. State geological surveys maintain a network of applied geoscience activities throughout the country independent of the distribution of the Federal workforce. By continuing to leverage our resources, information and knowledge, we will help the Nation and States address future economic, sociological, environmental and resource challenges now and for generations to come.

USGS Takes Natural Hazards Risk Reduction Project Nationwide

Through the U.S. Geological Survey's (USGS) Multi-Hazards Demonstration Project for Southern California, scientists and emergency managers worked together to improve warning systems, enhance emergency response, and speed disaster recovery.

During this 5-year pilot project, the USGS brought together scientists, engineers, resource managers, designers, artists, businesses, policy-makers, and communities to get southern California more ready for inevitable natural events.

The USGS has evolved the Multi-Hazards Demonstration Project into a project called Science Application for Risk Reduction (SAFRR), which will build on the successful techniques developed during the 5-year pilot to create the way natural hazard science is applied for the safety, security, and economic well-being of the Nation. SAFRR will work with traditional and non-traditional partners, in research institutions, communities, businesses, and governments, to improve utilization of existing natural hazards information from the USGS, to identify needs and gaps, and to develop new products that increase the use of USGS science.

The scope of SAFRR efforts will vary based on particular needs. Some projects will be very local, some regional, and some national. Scenarios akin to ShakeOut and ARkStorm will remain a cornerstone of activity. These science-based scenarios are recognized internationally as a fundamental shift in the way science can communicate to serve society.

For the full write-up, visit *www.usgs.gov/blogs/features/usgs_top_story/usgs-natural-hazards-risk-reduction-project-goes-national/?from=title*

WSSPC Community Champions of Change

From the FEMA Website

On January 19, 2012, sixteen local leaders who prepare their communities for disaster and build a more resilient nation were honored by the White House as "Champions of Change". The program was created as a part of President Barack Obama's "Winning the Future" initiative. These men and women have demonstrated significant innovation and creativity in working to get their communities ready for the unexpected and embraced the approach of involving all members of their communities in emergency preparedness and response, reaching out to faith-based, tribal, non-profit, private sector and community-based organizations, as well as individual citizens.

Three members of the WSSPC community were recipients of this award:

Mark Benthien

Mark Benthien is Director for Communication, Education and Outreach for the Southern California Earthquake Center, a research center funded by the National Science Foundation and U.S. Geological Survey with over 60 participating institutions and headquarters at the University of Southern California. Mark communicates earthquake knowledge to end-users and the general public in order to increase earthquake awareness, reduce economic losses, and save lives. Many of these efforts are in coordination with members of the Earthquake Country Alliance, a private-public partnership of organizations that provide earthquake information and services, for which Mark serves as Executive Director and lead organizer of the Great California ShakeOut earthquake drill which in 2011 involved more than 8.6 million participants. Mark is also working with the other many regions around the world that are replicating the ShakeOut.

Wendy Freitag

Wendy Freitag is the External Affairs Manager for the Washington State Military Department's Emergency Management Division (EMD). In this role, she oversees statewide emergency management outreach programs which include disaster preparedness public education, private-public partnerships, and public information programs all aimed at encouraging residents of Washington state to undertake preparedness actions in their households and their communities before a disaster strikes. Prior to joining EMD, Wendy spent a decade acquiring hands-on global and national disaster preparedness and response private sector operational experience managing physical security, national crisis management and business continuity projects and teams at Microsoft and the former Washington Mutual Bank.

Brian Blake

Brian Blake serves as Earthquake Program Coordinator with the Central U.S. Earthquake Consortium (CUSEC), which was established under the National Earthquake Hazards Reduction Program. Brian's primary role is to coordinate activities related to earthquake preparedness and mitigation in the eight member states and ten associate states of CUSEC. This involves working with local, state, and federal partners to create and implement programs which help communities prepare for, respond to, and mitigate against the effects of earthquakes. Brian has worked on several multi-year earthquake planning and outreach projects including the New Madrid Seismic Zone Catastrophic Planning Initiative, the New Madrid Bicentennial, and most recently, the *Great Central U.S. ShakeOut.*

For more information on Champions of Change award recipients, visit *www.whitehouse.gov/champions/previous/fema*

Central U.S. ShakeOut wins FEMA Individual and Community Preparedness Award
From the CUSEC website

On October 19, 2011, the U.S. Department of Homeland Security's Federal Emergency Management Agency (FEMA) announced the winners of the 2011 FEMA Individual and Community Preparedness Awards. Formerly called the National Citizen Corps Achievement Awards, the name was changed to reflect FEMA's intent to recognize the innovative and outstanding achievements of all of the individuals, communities, and organizations working to ensure that the United States is better prepared and more resilient. Organized by the Central U.S. Earthquake Consortium (CUSEC) and its Member and Associate Member States, the *Great Central U.S. ShakeOut* won the award for "Outstanding Drill, Exercise, or Event." This honor recognizes the achievements of individuals who work everyday to increase awareness about the earthquake hazard in the central United States and the promotion of greater preparedness efforts among its citizens, businesses and all levels of government.

Leadership from the National Emergency Management Association (NEMA), the International Association of Emergency Managers (IAEM), and FEMA selected this event as an award recipient out of numerous applicants among 36 states, as well as Puerto Rico and the Virgin Islands. Award submissions reflected the whole of community approach to emergency management, and included entries from faith-based, tribal, non-profit, private sector, community-based organizations and individuals. Out of these many submissions, *The Great Central U.S. ShakeOut* was selected as a creative approach to educating and promoting earthquake readiness.

For more information on the awards, visit *www.citizencorps.gov/councils/awards/2011/awardwinners2011.shtm*

ICC Adopts Model Building Code Training for High School Students and Takes the Program Nationwide
A pilot program that began in Maryland to prepare high school students for careers in code enforcement and the construction trades is expanding nationally with the support of the International Code Council (ICC). The Code Council is backing code training for high school students based on a program begun by Harford Technical High School in Bel Air, Maryland, and encouraging technical and vocational high schools to offer similar programs.

The High School Technical Training Program teaches students the importance of building codes in constructing safe and sustainable structures. The curriculum will cover four major construction fields contained in the ICC International Residential Code: building, electrical, plumbing and mechanical. Graduates of the program will have the opportunity to earn an ICC Certificate of Achievement demonstrating proficiency and knowledge.

Since its inception in 2009, the Maryland-based pilot program quickly found success in vocational and technical high schools. Last year, the program graduated 35 students who earned certificates of proficiency. The High School Vocational Training Program expands the pilot program to all vocational and technical high schools nationwide that want to offer a building code-based curriculum. The program increases students' proficiency in building codes while they work toward becoming an ICC Certified Code Professional.

For more information about the High School Technical Training Program, contact Sara Yerkes, ICC Senior Vice President for Government Relations, at *syerkes@iccsafe.org*.

The full press release is available at *www.iccsafe.org/newsroom/News%20Releases/NR-11302011-HighSchoolProgram.pdf*

Lucy Jones Featured in Smithsonian Magazine
Lucy Jones, senior science advisor for risk reduction at the U.S. Geological Survey, is featured in the February 2012 edition of *Smithsonian* magazine. The article highlights "the Earthquake Lady's" career and her areas of expertise: earthquake forecasting and denial. Jones spent the early part of her career researching earthquake forecasting, but has since moved on to communicating risk and the need to prepare to those folks living in denial of the threat.

"Lucy brings magnetism to what is normally a dull subject: preparedness," says Paul Schulz, CEO of the American Red Cross of Greater Los Angeles, whom Jones recently accompanied to Chile to study the impact of its 8.8 magnitude quake in 2010. On that trip, thousands of miles from home, a woman approached Jones and asked for her autograph.

For the full article, visit *www.smithsonianmag.com/science-nature/Meet-Lucy-Jones-the-Earthquake-Lady.html#ixzz1kKZTAi6S*

MITIGATION & RESILIENCE

Nationwide Emergency Alert System Test
From the FEMA Website

On Wednesday, November 9, 2011 the first-ever Nationwide Emergency Alert System (EAS) Test was conducted across the United States and territories at 2:00 p.m. Eastern. The purpose of the Test was to assess the readiness and effectiveness of the system for the President to address the public during times of extreme national emergency. Radio and television broadcasters, cable, satellite, and wireline providers across the country (commonly known as EAS Participants) participated in the Test.

FEMA originated an Emergency Action Notification simultaneously to 61 Primary Entry Point (PEP) stations that serve as national-level relay points. These PEP stations rebroadcasted the message in their coverage area to local primary stations and other monitoring stations. The Test was not a pass or fail measure, but an exercise to proactively identify mitigation strategies and address the limitations of the current EAS. Although the test message was heard and seen by millions of Americans, many technical areas were identified for improvement, including audio quality, State monitoring assignments and designations, and EAS device configuration. An important lesson learned from the first-ever Test was that when all technical areas are properly addressed, the National EAS functions as intended and can be improved.

Future testing of EAS will incrementally integrate other technologies that are Common Alerting Protocol-based for a more resilient and effective system.

Key Successes

- All Primary Entry Point stations were connected during the Test and over 90% were able to receive and relay the EAS message.
- The majority of EAS Participants across the country were able to receive and relay the test message.
- Active participation of the EAS Community assisted in station and facility-level improvements before and after the Test.
- The EAS Community took a proactive role in informing a FEMA Integrated Public Alert and Warning System EAS Best Practices Guide and providing public information on the Test.
- The Test elevated public awareness, providing important information on EAS within the landscape of public alert and warning.

Lessons Learned

- Outreach to the EAS Community was essential to communicate expectations, develop EAS device best practices, and reinforce the purpose of testing.
- When all technical areas of the system are properly addressed, the National EAS functions as intended and can be improved.
- Regular and frequent testing of EAS is essential to identify mitigation strategies for a more resilient and effective system.
- EAS improvement is a process that takes time and requires a coordinated effort of diverse participants at multiple levels with varying roles and responsibilities.
- Coordinated State and Territory-wide EAS Tests in Alaska, Virgin Islands, Puerto Rico, and Nevada were essential to understand the limitations of EAS well in advance of the Test.

For more information on the test, visit *http://www.fema.gov/emergency/ipaws/eas_info.shtm*

Volunteers Sought for California Tsunami Scenario
The U.S. Geological Survey, the National Oceanic and Atmospheric Administration, the California Geological Survey, and other entities are developing a detailed California Tsunami Scenario that will depict a realistic outcome of a likely large tsunami affecting the west coast of the United States, including Alaska and Hawaii. Project participants include researchers, officials, and practitioners from government, industry, and academia. The project is entertaining offers of volunteer assistance and technical collaboration from the earthquake engineering community. Eight working groups, coordinated by a steering committee, cover earthquake source, tsunami geologic field work, tsunami modeling and hydrology, civil engineering, emergency management and education, social vulnerability, economic and business impacts, and policy. Interested volunteers should contact the appropriate coordinator, whose names can be found at *http://urbanearth.gps.caltech.edu/tsunami/*.

Engineering & Building Codes

Seismic Inventory of California Concrete Buildings Identifies Potentially Unsafe Buildings
The Concrete Coalition, a network of individuals, governments, institutions and agencies, has completed a seismic inventory of non-ductile concrete buildings in 23 California counties and 2 additional California cities with the highest seismicity and exposure. According to their findings, as many as 17, 000 concrete buildings in California, including vital infrastructure, may be vulnerable during a major earthquake. To view the report, visit *www.eeri.org/wp-content/uploads/Concrete_Coalition_Final_0911.pdf*

Rapid-Assessment Placard System to be Revised
A serious miscommunication regarding the proper use of the post-earthquake rapid-assessment placard system has been discovered followed the September 2010 and February 2011 earthquakes in Christchurch, New Zealand. Green placards indicating buildings were safe for re-entry were placed on the Canterbury Television and Pyne Gould Corporation buildings following the September 2010 earthquake. Folks returned to business as usual in both buildings, though not without hesitation. In the months between the quakes employees at Canterbury Television expressed their concern with the building's constant shaking when trucks would pass and the visible cracks in the walls. Both buildings collapsed in the February 2011 quake killing 133 people in total.

The rapid-assessment placard system was developed in the 1970s and first used after the 1989 Loma Prieta earthquake in the San Francisco Bay Area. Officials quickly inspect buildings and assign a red, yellow or green tag to indicate whether people are banned from the building, can gain restricted access or are able to go back to work.

The father of the system, Oakland-based structural engineer Ron Gallagher, said it's often about triage, and officials sometimes make judgment calls based on instinct while trying to juggle assessments of hundreds of buildings. The responsibility for a full inspection, he added, lies with building owners.

On a visit to Christchurch after the February quake, Gallagher found problems.

"We heard from a number of people that when the public viewed a green tag, they thought it meant the building was safe from future earthquakes," he said. "That's not the way the placard system is used, or is meant to be used."

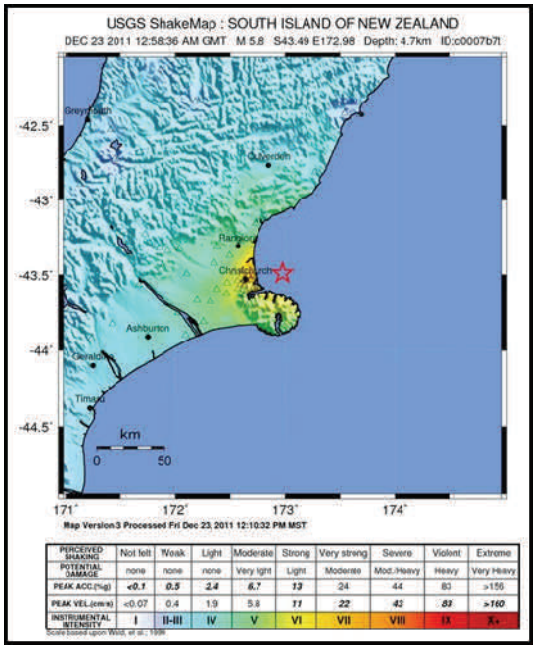
Jim Barnes, who oversees the placard system for the California Emergency Management Agency, also visited Christchurch after the disaster. He said his agency is planning changes based on what was learned in Christchurch.

"We have not noticed this sort of misunderstanding with the 'Inspected' tag before, but now that it has come to light, we can see how it could happen," he wrote in an email.

For the full article, visit *www.cbsnews.com/stories/2011/10/11/ap/asia/main20118403.shtml*

EARTHQUAKE & TSUNAMI NEWS

Christchurch, New Zealand



ShakeMap of the December 23, 2011 M5.8 Christchurch, New Zealand earthquake.

December 23, 2011 Christchurch Earthquakes
A series of strong earthquakes struck the New Zealand city of Christchurch, 10 months after an earlier quake devastated the city center.

The U.S. Geological Survey said the initial quake on December 23, 2011 measured M5.8 but there was no tsunami alert issued and no immediate reports of widespread damage in the city.

Local reports suggested the quake rattled buildings, sending goods tumbling from shelves and prompted holiday shoppers to flee into the streets.

The first quake struck in the afternoon, 16 miles north of Christchurch and 2.5 miles deep, the U.S. Geological Survey said. Minutes later, a M5.3 aftershock hit, and about an hour afterwards the city was shaken by another M5.8 tremor. Both aftershocks were less than 3 miles (5 km) deep.

The city's airport was evacuated and all shopping centers shut down as a precaution.

For the full article, visit *www.guardian.co.uk/world/2011/dec/23/new-zealand-earthquake-christchurch/print*

Aftershocks Rock Christchurch
A series of aftershocks to begin 2012 could be the last straw for some earthquake-weary Christchurch residents, Mayor Bob Parker says.

On January 2, 2012, the region was hit by dozens of quakes, the largest a M5.5 which struck just before 6 a.m. All were centered at sea off New Brighton.

After a disturbed night, Cantabrians endured more shaking throughout the day including a strongly felt M4.8 aftershock about 7:00 p.m., centered 20 kilometers east of Christchurch out to sea and 15 km deep.

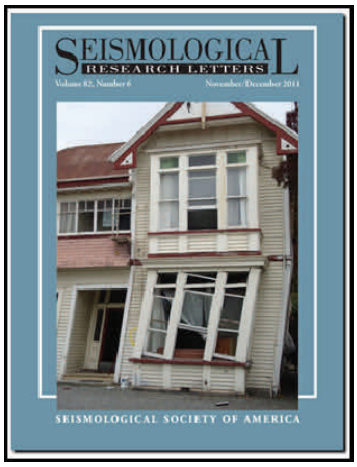
The 15 km-deep 6:00 a.m. quake cut power to thousands of Christchurch homes for about two hours, but caused no significant damage to buildings.

Police southern communications team leader Hemi Waretine said the M4.8 aftershock at 7:00 p.m. also did not cause any extra damage.

The shaking came after seismic activity that has increased since the December 23, 2011 earthquakes struck the area.

For the full article, visit *www.stuff.co.nz/national/christchurch-earthquake/6208968/Shocks-could-trigger-exodus*

SRL Special Issue on the February 22, 2011 M6.2 Christchurch Earthquake Now Available



Volume 86, number 6 of *Seismological Research Letters (SRL)*, a special focused issue on the February 22, 2011 M6.2 Earthquake in Christchurch, New Zealand, is now available online at *GeoScienceWorld.* The issue features 19 articles on the quake as well as four electronic supplements which are available on the SSA website. Visit the online table of contents for links to article abstracts, full text PDFs and electronic supplements at *www2.seismosoc.org/FMPro?-db=srl_index.fp7&-lay=TOC&-format=/srl_index/toc_dispNEW.html&Volume=82&Issue=6&TOC=1&-SortField=ToC_Sort&-SortField=Start%20Page%20Number&-Max=all&-find*

Eastern Turkey

M7.1 Earthquake Strikes Eastern Turkey
From the December 2011 EERI Newsletter

A M7.1 earthquake rocked the Van region of eastern Turkey on October 23, 2011. The quake claimed 604 lives. The town of Ercis, located about 30 km NNW from the estimated epicenter, was hit hardest with 191 buildings subject to rescue and recovery operations. The main city of Van, located about 25 km SW from the estimated epicenter, was relatively spared with no more than six building collapses reported.

While there have been numerous aftershocks in the primary faulting region, November 9, 2011 a M5.7 earthquake occurred about 15 km south of the main city of Van claiming an additional 40 lives, and causing 25 additional building collapses (22 of which were condemned following the quake on October 23).

A team of EERI members found that the vast majority of buildings were made of reinforced concrete, and that many of the damaged buildings suffered from fundamental design errors, including inadequate lateral load-resisting systems, soft stories at ground level (open and tall ground stories for commercial use), floor torsion, mezzanine-level construction resulting in disproportionate loading of structural elements, flexible joist floors with infills, and captive columns. The team also found widespread substandard construction practices, including inappropriate reinforcing detailing and poor quality concrete, suggesting the absence of proper inspection and quality control during the construction process.

For the full write-up, see page 4 of the EERI December 2011 Newsletter at *www.eeri.org/wp-content/uploads/Dec11.pdf*

M7.1 Turkey Earthquake Clearinghouse
The Earthquake Engineering Research Institute (EERI) has created a clearinghouse for the M7.1 earthquake that struck the Van region of Turkey on October 23, 2011. The clearinghouse is accessible at: *www.eqclearinghouse.org/2011-10-23-eastern-turkey/*

Trinidad, Colorado

Preliminary Damage Report of M5.3 Earthquake Near Trinidad, Colorado Now Available
The Preliminary Damage Report of the August 22, 2011 M5.3 earthquake near Trinidad, Colorado is now available at *http://geosurvey.state.co.us/hazards/Earthquakes/Documents/Preliminary%20Damage%20Report%20of%20the%20Mw%205-3%20Triniadad%20Earthquake.pdf*

Virginia

FEMA Public Assistance Authorized for Louisa County
From the FEMA Website

Public Assistance is now authorized for Louisa County, Virginia officials of the Federal Emergency Management Agency (FEMA) and the Virginia Department of Emergency Management (VDEM) announced.

President Obama's November 4, 2011 declaration of a major disaster authorized Individual Assistance for residents of Louisa County who suffered earthquake-related losses. That declaration has now been amended to authorize Public Assistance (PA) as well.

In Louisa County, the PA funds are expected to help offset costs of repairing the Thomas Jefferson Elementary School, the Louisa County High School, and other public facilities that sustained earthquake damages. Additionally, PA funds will help commonwealth and county governments recover costs of repairing damage to critical infrastructure, removing debris, and providing emergency services.

For the full press release, visit *www.fema.gov/news/newsrelease.fema?id=59480*

Tohoku, Japan

Tohoku Quake Increases Tokyo Earthquake Threat
According to a new article in the journal *Science*, March's M9 Tohoku earthquake bequeathed a huge amount of stress to faults offshore and across central Japan. Researchers reported that the redistributed stress activated distant, long-quiescent faults, the first time that has been recorded. Most disturbingly, the stress instantly raised the risk of a major quake on some faults, including one beneath greater Tokyo and its 30 million people.

To view the article, visit *www.sciencemag.org/content/334/6063/1617.2.summary*

Unusual Earthquake Gave Japan Tsunami Extra Punch, Stanford Scientists Say
From *The Earth Scientist*
By Louis Bergeron, *Stanford Report*

The earthquake and tsunami that hit Japan on March 11, 2011 were generated on a fault that didn't rupture in the usual fashion, according to a study by researchers at Stanford University and the University of Tokyo. The rupture initially shot westward, then slowed markedly in that direction while the fault began rupturing rapidly eastward. The "flip-flop" fault motion first shook Honshu violently, then deformed seafloor sediments on the fault plane with such force that they triggered the huge tsunami. What researchers don't know is what the odds are that comparable faults could behave in a similar fashion.

The fault on which the Tohoku-Oki earthquake took place slopes down from the ocean floor toward the west. It first ruptured mainly westward from its epicenter – 32 kilometers (about 20 miles) below the seafloor – toward Japan, shaking the island of Honshu violently for 40 seconds.

Surprisingly, the fault then ruptured eastward from the epicenter, up toward the ocean floor along the sloping fault plane for about 30 or 35 seconds. As the rupture neared the seafloor, the movement of the fault grew rapidly, violently deforming the seafloor sediments sitting on top of the fault plane, punching the overlying water upward and triggering the tsunami.

"When the rupture approached the seafloor, it exploded into tremendously large slip," said Stanford geophysicist Greg Beroza. "It displaced the seafloor dramatically. This amplification of slip near the surface was predicted in computer simulations of earthquake rupture, but this is the first time we have clearly seen it occur in a real earthquake."

Beroza said the sort of "two-faced" rupture seen in the Tohoku-Oki earthquake has not been seen in other subduction zones, but that could be a function of the limited amount of data available for analyzing other earthquakes.

Following the Japanese earthquake, aftershocks as large as magnitude 6.5 slipped in the opposite direction to the main shock. This is a symptom of what is called "extreme dynamic overshoot" of the upper fault plane, Beroza said, with the overextended sediments on top of the fault plane slipping during the aftershocks back in the direction they came from.

"We don't see these bizarre aftershocks on parts of the fault where the slip is less," he said.

For the full article, visit the Fall 2011 edition of *The Earth Scientist* at *http://pangea.stanford.edu/sites/default/files/Earth%20Scientist%20Fall%202011.pdf*

WSSPC Members Present on Lessons Learned from the 2011 Japan Earthquake and Tsunami
October 21, 2011 WSSPC Board Member John Madden, Director of the Alaska Division of Homeland Security and Emergency Management, and WSSPC Member Jim Mullen, Director of Washington Emergency Management Division, gave a presentation at the Council of State Governments 2011 National Conference on the 2011 Japan Earthquake and Tsunami. Their session ex-

plored lessons learned from the event and ways the U.S. might respond to a disaster of that magnitude.

To view the presentation, visit *http://knowledgecenter.csg.org/drupal/content/lessons-learned-japans-earthquake-and-tsunami-0*

Japan Tsunami Debris Reaches Washington Beaches
Debris from the March 11, 2011 Tohoku, Japan tsunami has reached the Washington coast. In early December a large black float about the size of a 55lb drum was found by a crew cleaning a beach east of Neah Bay. The floats have since been found on Vancouver Island. Oceanographers explained that the floats traveled quickly because they sit on top of the water and catch the wind. Heavier debris is expected to reach the U.S. West Coast in 2013.

For the full article, visit *www.krem.com/news/northwest-news/Japan-tsunami-debris-found-along-Washington-Coast-135706413.html*.

Japan to Rebuild Failed Sea Barrier
Kamaishi, Japan's $1.6 billion breakwater was put to the test March 11, 2011 after the Tohoku, Japan earthquake unleashed a massive tsunami. The earthquake-resistant structure is a mile long, 207 feet deep, and rises 20 feet above the surface of the water. Its construction was meant to protect Kamaishi from tsunami waves and revitalize the former steel town as an international shipping port. Tragically, the breakwater failed under the first 30-foot-high wave and quite possibly contributed to the massive 60-foot waves that engulfed communities north of Kamaishi.

Despite critics' arguments against the project, Toyko has decided to rebuild the breakwater as part of Kamaishi's reconstruction at a cost of at least $650 million. Proponents argue that if the breakwater is not rebuilt, people and businesses will move away from Kamaishi for fear of another tsunami. The population of Kamaishi has suffered a huge decline over the past 40 years, dropping from 100,000 to less than 40,000 today, leaving many others to argue that instead of rebuilding a faulty breakwater, the people should move away from the coast.

For the full article, visit *www.nytimes.com/2011/11/03/world/asia/japan-revives-a-sea-barrier-that-failed-to-hold.html?pagewanted=all*

Chile

MAE Center Report on February 27, 2010 Chilean Earthquake Now Available
From the MAE Center website.

The Mid-America Earthquake (MAE) Center reconnaissance report on the Maule, Chile earthquake of February 27, 2010 is now available. The report includes observations of the MAE Center team on the damaged ports, buildings, bridges, and historical structures. A detailed chapter on engineering seismology develops spectrum-compatible ground motions for various sites in Chile that are proposed for use in risk assessment studies. Two bridges and a building structure that exemplified the most commonly observed failures are selected, advanced numerical models are built, and inelastic dynamic analyses are conducted to provide further insight to the field observations. The report also features a dedicated chapter on transportation networks, roads and embankments where the performance is assessed using field data. Another chapter focuses on the role of media after the earthquake and provides useful insight on the response of the affected population to communicate in the aftermath of a disaster.

To download the report, visit *http://mae.cee.illinois.edu/news/ReconnaissanceReport.html*

Haiti

Build Change and Degenkolb Engineers Partner to Help Rebuilding Haiti
Build Change, the international non-profit social enterprise that designs earthquake-resistant houses in developing countries, has partnered with Degenkolb Engineers, a leading structural design engineering firm, to provide technical assistance and training services to the Government of Haiti following the devastating January 12, 2010 earthquake.

Build Change and Degenkolb have been working with the Haitian Ministry of Public Works, Transport & Communications (MTPTC) to help increase its capacity to rebuild after the M7.0 earthquake left over 316,000 dead, displaced over 1 million residents, and destroyed over 80% the country's main capital of Port-Au-Prince and its surrounding towns.

So far, the Build Change/Degenkolb/MTPTC partnership has produced:

- A rapid seismic evaluation and retrofit procedure with construction details suitable for typical Haitian low-rise masonry construction.
- Extensive, detailed input on the Yellow House Repair Guideline, a tool used to repair houses deemed

by the Haitian Government as damaged, but repairable.

- Structural engineering design resources for MTPTC, such as design drawings, design rules, bills of quantity, cost estimates and construction quality checklists for the four common construction systems used in Haiti: reinforced concrete, confined masonry, reinforced masonry, timber frame, and retrofitting solutions.
- Training of 58 MTPTC engineers in evaluation and retrofit solutions, done in partnership with the United Nations Office for Private Services.
- Completion of the design of a full scale wall testing facility whereby MTPTC engineers can evaluate the performance of typical construction, and demonstrate the efficacy of improved designs and retrofit techniques.

Dr. Hausler is pleased with what Build Change has been able to accomplish with Degenkolb's support and concludes that "Build Change will continue to work with Degenkolb to help strengthen MTPTC's capacity and help Haiti rebuild its country".

For the full write-up, visit *www.degenkolb.com/2011/10/17/build-change-partners-with-degenkolb-engineers-to-support-haitian-government-in-rebuilding-efforts/*

Special Issue of EERI's Earthquake Spectra on the 2012 M7.0 Haiti Earthquake Released

The October 2011 special issue of volume 27 of *Earthquake Spectra* is devoted to the devastating Mw 7.0 earthquake that struck Haiti on January 12, 2010. Edited by Reginald DesRoches of the Georgia Institute of Technology and Mary Comerio of the University of California, Berkeley, the 507-page issue begins with an introductory article that provides an overview of the historical, seismological, geotechnical, structural, lifeline-related, and socioeconomic factors that contributed to the catastrophe, as well as the many challenges that must be overcome to enable Haiti to recover. Detailed analyses of these issues are presented in the subsequent 23 papers, divided into four major topics: (1) seismology and geotechnical aspects, (2) damage assessment, (3) buildings and infrastructure, and (4) social impacts.

For the full press release, visit *www.eeri.org/wp-content/uploads/Haiti-EQ-issue-of-EQ-Spectra.pdf*.

To place an order ($30 for EERI members, $50 for non-members), visit *www.eeri.org/cds_publications/catalog/product_info.php?products_id=337*.

RESEARCH

San Andreas Fault Mysteries Begin to Unravel

From the USGS Website

Differences in seismic activity along the San Andreas fault appear to be related to strength variations in the lower crust and upper mantle, as suggested by new findings in the Dec. 1 edition of *Nature*.

U.S. Geological Survey scientist Paul Bedrosian, along with colleagues Michael Becken, Oliver Ritter, and Ute Weckmann from the GFZ German Research Centre for Geosciences, Potsdam, Germany, used an electromagnetic geophysical method to image subsurface conductivity within the crust.

"Segmentation of the San Andreas fault was first identified more than 40 years ago based on distinct patterns of seismicity. This work links mantle fluids, possibly resulting from ancient subduction along the California coast, and their interaction with the crust, as the driver behind the observed differences. This is really exciting as it illustrates how past structure and tectonics effects present-day dynamics along the San Andreas fault," said Bedrosian.

Fluid influx is implicated as a driving force behind the processes that ultimately define seismic segmentation. The findings may help to explain why motion along the fault results in earthquakes on some segments and less harmful creep on others.

"Decades ago USGS researchers explored the strong dependence of water on the strength of the rocks in the deep crust and upper mantle, with the firm conviction that this effect would be key to understanding fault mechanics," said USGS Director Marcia McNutt. "Now finally with new technology available to map the in situ distribution of water at depths inaccessible to geologic observation, we have an excellent example of how an investment in basic research will pay off in a very practical understanding of a long-standing mystery that affects lives and property."

The area studied is a transition zone between segments of locked and creeping behavior along the San Andreas fault, and includes a zone of pronounced seismic tremor. The data provide evidence of fluids migrating into the creeping section that appear to originate from a region that is also responsible for stimulating tremors. The results are consistent with the hypothesis that high fluid pressures play a crucial role in the weakening of faults.

"Understanding how large and possibly dangerous fault systems, like the San Andreas fault, work in all their complexity is a grand challenge. The San Andreas fault is a key natural laboratory for studying large transform

faults, as many geo-scientific methods are tested here to provide different pieces of the puzzle. I hope that our results will trigger similar research along other major active fault systems around the world," said Weckmann.

The full article is available to *Nature* subscribers at: *www.nature.com/nature/journal/v480/n7375/full/nature10609.html*

Models Expose California Earthquake Vulnerabilities
Tom Jordan, Director of the Southern California Earthquake Center, and his team have used millions of processor hours on the nation's largest supercomputers to model the seismic waves large earthquakes generate. In early December, the team was granted 10 million processor hours on Intrepid, the IBM Blue Gene/P supercomputer at Argonne National Laboratory, through the Department of Energy's Innovative and Novel Computational Impact on Theory and Experiment program.

The modelers aim to forecast big quakes' ground motion and answer the practical question of whether fault rupture tends to run toward or away from population centers.

In a recent simulation on DOE's Jaguar supercomputer at Oak Ridge National Laboratory, 436 billion computational elements represented Southern California and the structure of its sedimentary basins.

"We calculated the waves excited by a magnitude 8 earthquake rupture of the entire southern San Andreas Fault," Jordan says.

"Based on our calculations, we are finding that the basin regions, including Los Angeles, are getting larger shaking than is predicted by the standard methods," Jordan says. "By improving the predictions, making them more realistic, we can help engineers make new buildings safer."

For the full article, visit *http://ascr-discovery.science.doe.gov/bigiron/quake4.shtml*

Earthquakes Claim 60% of Disaster Deaths in Last Decade
According to a study posted in *The Lancet* online journal, earthquakes have claimed more than 780,000 lives in the last decade, accounting for nearly 60% of all disaster related deaths. In addition to these deaths, the quakes directly affected another two billion people.

The M7.0 earthquake that struck Haiti January 12, 2010 was the deadliest, killing 316,000. The December 26, 2004 Indian Ocean tsunami generated by a M9.0 earthquake claimed the second most at 227,000 lives. The third highest was the M7.9 event that rocked China's Sichuan province killing 87,500.

The review study seeks to give emergency responders and policymakers a snapshot of the scale of earthquakes as a health priority, and to warn doctors about the kind of injuries they are likely to confront.

For the full article, visit *www.news24.com/SciTech/News/Earthquakes-claim-60-of-deaths-20111103*

To download the study from *The Lancet*, visit *www.thelancet.com/journals/lancet/article/PIIS0140-6736(11)60887-8/abstract*

IBHS Research: Fire Following Earthquake
The Insurance Institute for Business and Home Safety (IBHS) has just released a study highlighting the causes of earthquake-related fires, including ignition by natural gas or electrical elements, and focuses on preventing ignitions through mitigation.

To review the study, visit *www.disastersafety.org/research/article?articleId=3756*

RESOURCES & PUBLICATIONS

Alaska

ADGGS Annual Report Released
The Alaska Division of Geological and Geophysical Surveys 2011 Annual Report is now available for download at *www.dggs.alaska.gov/webpubs/dggs/ar/text/ar2011.PDF*

New Alaska Tsunami Inundation Maps
Tsunami Inundation Maps for Whittier and western Passage Canal, Alaska are now available at *http://www.dggs.alaska.gov/webpubs/dggs/ri/text/ri2011_007.PDF*

Idaho

IGS Annual Report Released
The Idaho Geological Survey 2011 Annual Report has been released and is available for download at *www.idahogeology.org/uploads/Annual_report/IGS_Annual_Report_FY2011.pdf*

Utah

New Geologic Map of the Provo Area, Utah Valley, and central Wasatch Range

The Utah Geological Survey (UGS) has released a new full-color preliminary geologic map covering about 1800 square miles of diverse geology and landscape in parts of Utah, Wasatch, and Salt Lake Counties. The map encompasses large tracts of Forest Service, Bureau of Land Management, and state public lands, important watersheds and wilderness areas, and densely populated cities and towns.

Geologic hazards such as slope failures, landslides, and active earthquake faults including the Provo segment of the Wasatch fault, are present throughout the map, but are most prevalent along the populated Wasatch Front and Utah Valley portion of the map. The map also shows geologic resource features, such as major quarries, gravel pits, mines, and oil wells.

For the full write-up and to order your copy, visit *http://geology.utah.gov/whatsnew/news/new1211.htm*

Wyoming

Wyoming State Geological Survey Releases 10 New Geologic Maps

The Wyoming State Geological Survey has published 10 new maps for specific areas in Wyoming, providing geologic information to address water, aggregate and mineral resources, surficial processes, and earthquake hazards, as well as a map on a potential new geothermal area for energy production in northwest Wyoming.

This year's WSGS statemap collection ranges from surface maps depicting the condition of rocks and deposits found on the surface of the land, to bedrock geology maps for specific regional areas. The maps are available to purchase in both print and CD/DVD formats.

For more details on the maps and to order your copies, visit *http://www.wsgs.uwyo.edu/News/Nov16_2011.aspx*

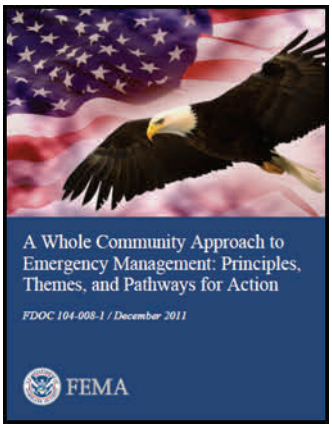
Other Regions and Organizations

QuakeSmart Tool Kit

Developed by the Federal Emergency Management Agency National Earthquake Hazards Reduction Program, QuakeSmart is an initiative to help businesses in at-risk seismic communities start and maintain earthquake mitigation efforts. The QuakeSmart Toolkit provides actionable and scalable basic guidance and tools to the private sector about the importance of earthquake mitigation and the simple things that they can do to reduce the potential of earthquake damages, injuries, and financial losses. Information contained in this toolkit walks the user through a three-step process: 1) identify your risk; 2) make a plan; and 3) take action. This toolkit was specifically developed to encourage businesses to incorporate earthquake mitigation in their decision making and planning process to enhance their all-hazards resilience, particularly from an earthquake event.

For more information, visit *www.fema.gov/library/viewRecord.do?id=4958*

A Whole Community Approach to Emergency Management



The Federal Emergency Management Agency (FEMA) has released FDOC 104-008-1: *A Whole Community Approach to Emergency Management: Principles, Themes, and Pathways for Action.* This document presents a foundation for increasing individual preparedness and engaging with members of the community as collaborative resources to enhance the resiliency and security of our Nation through a Whole Community approach. The document is intended to promote greater understanding of the approach and to provide a strategic framework to guide all members of the emergency management community as they determine how to integrate Whole Community into their daily practices.

For more information and to download your copy, visit *http://www.fema.gov/library/viewRecord.do?id=4941*

Geospatial Platform Prototype Released
From the Department of the Interior Website

The federal government and its geospatial partners have released *www.geoplatform.gov*, a prototype Geospatial Platform website combining map-based data and tools with the latest Internet technologies to deliver geospatial information in a simple, understandable package. Users—including the public, federal agencies and their partners—can easily find federally-maintained geospatial data, services and applications, as well as access data from across State, Tribal, Regional and local governments.

Through the website, users can create their own maps by combining their data with public domain data and can collaborate in public and private groups with others who share their interests. Maps assembled through the Geospatial Platform can be shared with others through web browsers and mobile technologies. All of this is possible without requiring users to install software on their own computers.

For the full write-up, visit *www.doi.gov/news/pressreleases/Federal-Geographic-Data-Committee-Launches-New-Geospatial-Website.cfm*

Call for Papers: Earthquake Spectra Special Issue on the Tohoku, Japan, Earthquake
Earthquake Spectra will be publishing a special issue on the March 2011 Tohoku, Japan, Earthquake. Papers are invited on the earth science, engineering, and social and economic sciences aspects of the earthquake and its aftermath. All papers should be submitted online through the *Earthquake Spectra* manuscript submission web page: *http://eqs.msubmit.net*. When the manuscript is uploaded, authors must select "Tohoku Earthquake" from the drop-down list for special issues.

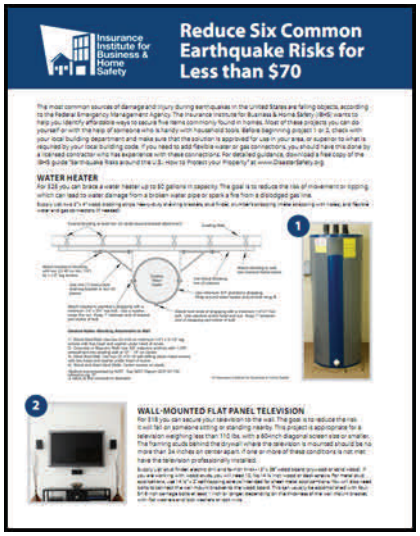
All papers to be reviewed must be received by **April 1, 2012**. Questions regarding paper content should be directed to the guest editors for the special volume, Rich Eisner (*richeisner@gmail.com*) and James Mori (*mori@eqh.dpri.kyoto-u.ac.jp*). If you have questions about using the online manuscript submission system, please contact EQS's Managing Editor Liz Hogan Stalnaker at *liz@eeri.org*

ImageCat Launches SeismiCat
ImageCat is now offering SeismiCat, an online single-site tool enabling engineers, owners, lenders, and insurers to examine and manage seismic risks to individual and multiple real estate properties. SeismiCat includes ATC-13, CODA, and HAZUS-MH [NIBS] damage models with USGS ground motion data.

The SeismiCat database allows users to save all the data and reports for each site. The whole client team can collaborate and find information through the web quickly, from any location at any time. ImageCat will process the ShakeMap and provide alerts when an earthquake may have damaged one of the buildings in the client database. All the data for the site and structures are saved for reuse in periodic portfolio-wide seismic risk evaluations, done offline using the SeismiCat multisite tool. This multisite tool reveals correlated risks and facilitates improved decision-making from among risk-mitigation alternatives.

For more information, visit *www.imagecatinc.com/wp-content/uploads/2011/12/SeismiCat-Announced.pdf*

New IBHS Document: Reduce Six Common Earthquake Risks for Less than $70
The Insurance Institute for Business & Home Safety (IBHS) has released a new document: *Reduce Six Common Earthquake Risks for Less than $70*. The document identifies affordable ways to secure five items commonly found in homes, including hot water heaters, flat screen televisions, and bookcases.



To view the document, visit *www.disastersafety.org/content/data/file/IBHS_earthquake_under-70.pdf*

CONFERENCES, WORKSHOPS AND EVENTS

DHS Cutting Edge Resiliency Tools Webinar
Date: February 1, 2012
Time: 2:00 p.m. - 4:00 p.m. EST
Location: Web

The Department of Homeland Security, Science & Technology (S&T) Directorate is hosting the Cutting Edge Resiliency Tools Webinar on February 1, 2012 from 2:00 p.m. to 4:00 p.m. eastern standard time. This Webinar will feature Integrated Rapid Visual Screening (IRVS), Owners Performance Requirement (OPR) Tool and Urban Blast Tool (UBT), three new tools developed to improve the security and resilience of our nation's buildings and infrastructure. The tools provide scores for risk and resilience and are capable of analyzing and compiling a range of high-performance requirements, including safety (earthquakes, floods, winds, and fire), security (explosives, ballistics and chemical, biological and radiological), environmental footprint and energy conservation, sustainability, durability, and continuity of operations.

For more information and to register, visit *www.nibs.org/index.php/nibs/newsevents/events/Entry/Cal_140*

Building a More Resilient State to Earthquake Hazards: The Resilient Washington State Initiative
Date: February 22, 2012
Time: 10:00 a.m. - 11:00 a.m. PST
Location: Web

Join the Cascadia Region Earthquake Workgroup for the second in the Earthquake Recovery and Mitigation Webcast Series. John Schelling, Earthquake/Tsunami Program Manager for Washington State Emergency Management will be the speaker on February 22, 2012 from 10:00 a.m. to 11:00 a.m. PST with the following presentation: *Building a More Resilient State to Earthquake Hazards: The Resilient Washington State Initiative.*

The Washington State Seismic Safety Committee (SSC) initiated a project in 2009 with the purpose of providing a long-lasting blueprint for improving Washington's resilience to damaging earthquakes. Such a framework includes more effective seismic mitigation policies and recommendations for legislation to improve and enhance statewide seismic safety within a 50-year time frame. Using a new definition of 'resilience' and five guiding values, the Resilient State Committee engaged key experts and stakeholders within Critical Services, Housing & Economic Development, Transportation, and Utilities Sectors in public and private industry to:

- Evaluate the current condition of infrastructure in the state relative to earthquake resilience.
- Develop targets for the desired level of performance.
- Develop target time frames for the restoration of services.
- Provide recommendations for statewide action to achieve desired targets.

The Resilient Washington State effort was inspired by a similar effort undertaken by the San Francisco Planning and Urban Research Association (SPUR).

Registration is available at: *https://crewevents.webex.com/mw0306ld/mywebex/default.do?siteurl=crewevents*

For questions or additional information regarding this webinar, please contact CREW Administrator, Heidi Kandathil, *hkandathil@crew.org* or 206.790.0923.

Past Meetings

ACEHR December Meeting Materials
Meeting materials for the Advisory Committee on Earthquake Hazards Reduction (ACEHR) December 20, 2011 meeting are available at *www.nehrp.gov/committees/dec_2011.htm*

CREW Webcast Available on YouTube
The Cascadia Region Earthquake Workgroup is hosting a Webcast Series on Earthquake Recovery and Mitigation over the next year. Jay Wilson, Hazard Mitigation Coordinator for Clackamas County, Oregon kicked off the series on December 7, 2011. This presentation highlights the catastrophic impacts from a M9.0 earthquake and tsunami to coastal areas of NE Japan. Discussion addresses the loss of emergency and other government functions and observations from the perspective of a local emergency manager from Oregon.

To view the webcast, visit *www.youtube.com/watch?v=mYh2PUTGmOg&feature=youtu.be*

Opportunities for EarthScope in Alaska Workshop
A workshop entitled "Opportunities for EarthScope Science in Alaska in Anticipation of USArray" was held May 16-17, 2011 in Austin, Texas in advance of the 2011 EarthScope National Meeting. The goals of the workshop were to discuss science goals that can be addressed using EarthScope data from Alaska, building on the EarthScope Science Plan for 2010-2020; expand the breadth of community providing input to EarthScope; provide general recommendations for deployment of

USArray Transportable Array in Alaska; provide an opportunity to develop cross-disciplinary personal contacts and stimulate future scientific collaborations; and highlight "Exceptional Scientific Opportunities" in smaller breakout sessions.
The workshop report and whitepapers are now available for download at
www.iris.edu/hq/Alaska_Workshop_2011/

Exercise Pacific Wave 11
Exercise Pacific Wave 2011 (PacWave 11) was held November 9-10, 2011 as a multi-scenario exercise that allowed all Pacific Tsunami Warning and Mitigation System (PTWS) countries to exercise. With 38 countries confirming their participation, this was the largest number of countries to exercise since the Pacific started its international warning and communication exercises in 2006 and 2008.

PacWave 11 aimed to strengthen each country's preparedness and response to local and regional tsunamis, which can wreak havoc in minutes as we saw in the 2009 Samoa, 2010 Chile, and 2011 Japan tsunami disasters. During PacWave11, the Pacific Tsunami Warning Center and West Coast/Alaska Tsunami Warning Center, and Japan's Northwest Pacific Tsunami Advisory Center issued tsunami alerts for ten tsunami source scenarios from around the Pacific. Countries then exercised their decision-making protocols to issue national warnings to their stakeholders and the public. In some countries, exercises continued down to the local levels and included community and school evacuations.

For the full write-up, visit
http://itic.ioc-unesco.org/index.php?o ption= com _ content&view=article&id=1686&Itemid= 2333&lang=en

MARK YOUR CALENDARS!

February 7, 2012
Great Central U.S. ShakeOut
www.shakeout.org/centralus/register/

March 8, 2012
California Seismic Safety Commission Meeting
www.seismic.ca.gov/

March 25-30, 2012
National Emergency Management Association Mid Year Emergency Management Policy Leadership Forum, Hilton Alexandria Mark Center, Alexandria, VA
www.nemaweb.org/

April 9-11, 2012
Idaho Catastrophic Planning Exercise

April 9-11, 2012
Partners in Emergency Preparedness Annual Conference, Greater Tacoma Convention & Trade Center, Tacoma, Washington
http://conferences.wsu.edu/emergencyprep

April 10, 2012
National Earthquake Program Managers Meeting, Peabody Hotel, Memphis, Tennessee, 8:00a.m.—2:00pm.
http://eqprogram.net/2012-meeting-info/

April 10, 2012
WSSPC Basin & Range Province Committee Meeting, Peabody Hotel, Memphis, Tennessee,
1:00 p.m.-3:00 p.m.

April 10, 2012
WSSPC Engineering, Construction & Building Codes Committee Meeting, Peabody Hotel, Memphis, Tennessee, 1:00 p.m. - 3:00 p.m.

April 10, 2012
WSSPC Board Meeting, Peabody Hotel, Memphis, Tennessee, 3:15 p.m. - 3:45 p.m.

April 10, 2012
WSSPC Annual Business Meeting, Peabody Hotel, Memphis,
Tennessee, 4:00 p.m. - 5:30 p.m.

April 11, 2012
National Awards in Excellence and WSSPC Lifetime Achievement Awards Luncheon, Peabody Hotel, Memphis, Tennessee, 12:00 p.m. - 1:30 p.m.

April 11, 2012
Seismic Councils and Commissions Meeting, Peabody Hotel, Memphis, Tennessee, 6:00 p.m. - 9:00pm

April 11-13, 2012
National Earthquake Conference, Peabody Hotel, Memphis Tennessee

April 17-19, 2012
Seismological Society of America Annual Meeting, San Diego, California
www.seismosoc.org/

May 9, 2012
Nevada Earthquake Safety Council Meeting, Las Vegas, Nevada
www.nbmg.unr.edu/nesc/

May 9-11, 2012
Geological Society of America Rocky Mountain Section Meeting, Albuquerque, New Mexico
www.geosociety.org/Sections/rm/2012mtg/

May 10, 2012
California Seismic Safety Commission Meeting
www.seismic.ca.gov/

June 13-15, 2012
Incorporated Research Institutions for Seismology (IRIS) Workshop, Boise, Idaho
www.iris.edu/hq/news/story/2012_iris_workshop_-_boise_idaho_-_june_13-15_-_save_the_dates

June 20-22, 2012
Golden Gate Bridge, Highway and Transportation District "Public Works For Public Learning" International Conference, San Francisco, California

June 26-29, 2012
45th Rock Mechanics/ Geomechanics Symposium, San Francisco, California
www.armasymposium.org/docs/sponsorship_ops.pdf

July 12, 2012
California Seismic Safety Commission Meeting
http://www.seismic.ca.gov/

August 8, 2012
Nevada Earthquake Safety Council Meeting, Las Vegas, Nevada
www.nbmg.unr.edu/nesc/

September 13, 2012
California Seismic Safety Commission Meeting
http://www.seismic.ca.gov/

October 5-10, 2012
National Emergency Management Association Emergency Management Policy Leadership Forum, *http://www.nemaweb.org/*

November 4-7, 2012
Geological Society of America Annual Meeting, Charlotte, North Carolina
www.geosociety.org/meetings/2012/

November 8, 2012
California Seismic Safety Commission Meeting
http://www.seismic.ca.gov/

November 14, 2012
Nevada Earthquake Safety Council Meeting, Las Vegas, Nevada
www.nbmg.unr.edu/nesc/

2013

January 07 - 10, 2013
Building Innovation 2013 - National Institute of Building Sciences Conference & Expo, Washington Marriott at Metro Center - Washington, D.C.
www.nibs.org/index.php/nibs/newsevents/events/Entry/Cal_136

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Request for Newsletter Submissions
If you have a newsworthy item for the next eNewsletter, please forward it to Amy Lewis, Program Manager by **March 30, 2012** at: *alewis@wsspc.org*