



E-Newsletter Spring 2010 Edition April 20, 2010

Western States Seismic
Policy Council
801 K Street, Suite 1436
Sacramento, CA 95814
Phone: 916-444-6816
Fax: 916- 444-8077
Email: wsspc@wsspc.org
Website: www.wsspc.org

BOARD OF DIRECTORS 2009-2010

JOHN G. PARRISH
CHAIR

MATTHEW BETTENHAUSEN
JOHN MADDEN
VICKI MCCONNELL
PETE MCDONOUGH
KEN MURPHY
BOB SWENSON

PATRICIA L. SUTCH
EXECUTIVE DIRECTOR

AMY LEWIS
PROGRAM MANAGER

MEMBERS

ALASKA
AMERICAN SAMOA
ARIZONA
BRITISH COLUMBIA
CALIFORNIA
COLORADO
GUAM
HAWAII
IDAHO
MONTANA
NEVADA
NEW MEXICO
NORTHERN MARIANAS
OREGON
UTAH
WASHINGTON
WYOMING
YUKON

WSSPC HEADLINE NEWS

SAVE THE DATE!!

WSSPC's 2010 Annual Meeting with the Natural Hazards Center Workshop

The Western States Seismic Policy Council's 2010 Annual Meeting will be held with the University of Colorado Boulder Natural Hazards Center Workshop in Broomfield, Colorado at the Omni Interlocken Resort July 9-13, 2010. The Center's Workshop brings together hazards researchers and practitioners from many disciplines for lively face-to-face discussions on current issues, including seismic hazards. This year's program will include a plenary session on the Haitian earthquake.

Friday July 9th is reserved for WSSPC Committee, Board and Annual Business Meetings starting at 1:00 in the afternoon, followed by the Awards Banquet in the evening (more on the Banquet, below).

A special session on Earthquake Early Warning is planned for Saturday morning July 10 from 9 am until Noon. The Saturday morning session is open to all for a nominal \$20 registration fee. In the afternoon an invitational Seismic Councils and Commissions meeting will be held, led by John Aho of the Alaska Seismic Hazards Safety Commission, from 1:30 until 4:00 p.m.

The Hazards Workshop is an invitation-only event hosted by the University of Colorado Natural Hazards Center. The WSSPC office has arranged for all WSSPC members (Directors, Representatives, and Affiliates) to receive the introductory email from the Natural Hazards Center. To register for the Workshop and the Earthquake Early Warning session, you must respond to this email, so please look for the e-mail from the Natural Hazards Center.

Other Hazards Workshop events that might be of interest to WSSPC members include:

- Poster sessions held Saturday and Sunday evening;
- The International Research Committee on Disasters (IRCD) Researchers Meeting held immediately following the Workshop from Tuesday, July 13 through Wednesday, July 14.

WSSPC has set up a conference web page that will have information on the WSSPC activities July 9 and 10 at www.wsspc.org/Conference/2010/index.html

Awards Banquet

July 9, 2010 Cash Bar and Dinner 7:00-9:00 p.m. Omni Interlocken Resort, Broomfield, Colorado

The Awards Banquet will honor the three recipients of the WSSPC 2010 Awards in Excellence and will be an opportunity to socialize with friends. The Banquet will be partially subsidized by WSSPC. Tickets will be sold in advance by Amy Lewis (alewis@wsspc.org) in the WSSPC office. Dinner entrée choices are salmon and chicken, and the cost is \$25 payable by check, MasterCard, or Visa. To register for the banquet, please visit the conference web page and complete the banquet registration form. Email, fax or mail your completed form with payment to the WSSPC office. The deadline for purchasing dinner tickets is **July 1** to ensure a meal is available. If you have any dietary requirements, please advise us.

To download the banquet registration form visit,
http://wsspc.org/Conference/2010/Banquet_Reg_Form.doc

Hotel and Travel Information

The meetings will be held at the Omni Interlocken Resort in Broomfield, Colorado, located between Denver and Boulder. Reservations may be made by calling (303) 438-6600 and providing the group name "Natural Hazards Center 2010". A limited number of government rate rooms are available, so make your reservations early for the best selection. The Omni does not have a hotel shuttle.

Ground transportation connections to Broomfield from Denver International Airport can be made from Jeppesen Terminal, where Baggage Claim is located. The SuperShuttle desk is located near the fountain in this terminal. Advance reservations are recommended by calling (800) 525-3177 or (303) 370-1300. Transportation one way is \$26; a round trip is \$46.

Headline News Continued

WSSPC Board meets with FEMA leadership in DC

On March 18th the WSSPC Board met at FEMA Headquarters in Washington, DC with Tim Manning, Deputy Administrator, National Preparedness Directorate; Ed Connor, Acting Assistant Administrator for Mitigation; Ed Laatsch, Chief, Building Science Branch, Mitigation Directorate; and Rick Woolman, Program Specialist, National Preparedness Directorate, to brief FEMA on WSSPC activities and discuss FEMA programs and directions. Attending in person were John Parrish, WSSPC Board Chair; Board members Vicki McConnell and Rod Combellick (for Robert Swenson); and WSSPC Executive Director Patti Sutch. Board member Matthew Bettenhausen and his representative Jim Goltz participated via conference call.

This meeting provided an excellent opportunity to make FEMA's leadership and management aware of WSSPC's policy and outreach accomplishments, and to bring more visibility and support to the state earthquake programs within NEHRP and FEMA. John Parrish and Patti Sutch gave a brief summary of the Board's recent work on policy development and distributed WSSPC fact sheets. The meeting format also provided an opportunity for FEMA program directorates to meet and discuss their programs.

One multi-state issue that WSSPC brought to Tim Manning's attention revolves around FEMA's lack of support for development of site-specific earthquake scenarios that can be used for mitigation and emergency preparedness and response evaluations. It is WSSPC's opinion that FEMA does not support this work adequately through NEHRP funding opportunities nor other FEMA hazards programs. It is our observation that earthquake related research or mitigation projects do not fare well under FEMA's cost benefit analysis for programs such as the Pre-Disaster Mitigation Program.

Ed Connor explained that the formulas developed for the cost benefit analysis (CBA) are skewed toward repetitive loss estimates (e.g., riverine flooding) and are not as robust when calculating infrequent, catastrophic loss estimates (e.g., earthquakes). John Parrish used the example of the Great Southern California ShakeOut, a multihazard disaster triggered by an earthquake, to point out the benefit of the scenarios. The earthquake scenario was developed to include all sectors of public and private organizations and activities. The results were identification of those gaps in response that affect southern California's resiliency to a variety of hazards.

Tim said he believed that there are grants available for developing planning scenarios and if the CBA could be adjusted then perhaps earthquake scenario planning would be more competitive. Ed and Tim agreed to follow up on this and provide a reply to WSSPC.

Ed Laatsch noted that the FY10 NEHRP funding for FEMA was \$8.9 Million. This is approximately 40% of the authorized funding level. WSSPC Board members urged FEMA leadership to advocate through their budget process to increase the appropriation.

Tim Manning finished the meeting by suggesting that the WSSPC Board contact Dr. Sandra Knight, the new Deputy Federal Insurance and Mitigation Administrator in the Mitigation Directorate, and offer to brief her on the Council's activities and concerns. Tim also informed us that he would be meeting with USGS leadership in the near future to discuss earthquake and water programs.

WSSPC Draft Policy Recommendations for 2010 June 7 Deadline

The ten draft policy recommendations that will be voted on by WSSPC members at the Annual Business Meeting are posted on the WSSPC website for a final review and revision. This is your last chance to provide comments and suggestions for changes. The deadline for comments received by the WSSPC office is Monday June 7.

The policy recommendations are on the following WSSPC webpage:

http://www.wsspc.org/PublicPolicy/PolicyRecs/2010/draft_policies_2010.html

WSSPC Policy Survey Results

A survey of the 2008 and 2009 policy recommendations adopted by WSSPC was sent to all WSSPC members to assess the degree of implementation of the policy recommendations by each state. Results of the survey were compiled and posted on the WSSPC website at:

http://www.wsspc.org/PublicPolicy/Survey/2009policyrecsurvey_compiled.pdf

Thanks to all for the excellent response to the survey!

WSSPC Members Participate in Mitigation Strategy Next Steps

As a follow on to the Mitigation White Paper *Recommendations for an Effective National Mitigation Effort* endorsed by WSSPC and 15 other organizations last summer, a meeting was held in Washington D.C. and facilitated by Glen Woodbury, Director, Center for Homeland Defense and Security, to consider the next strategic steps for encouraging hazard mitigation activities. The meeting was

attended by WSSPC Board member John Madden (Alaska EM), Jim Mullen and Mark Stewart (Washington EM) and WSSPC Executive Director Patti Sutch, as well as (among others) representatives from National Emergency Management Association, International Association of Emergency Managers, Federal Emergency Management Agency, International Code Council, Central U.S. Earthquake Consortium, Association of State Flood Plain Managers, and the insurance industry. The attendees developed a vision and mission statement for the alliance, and desired outcomes for national hazard mitigation. Another meeting may be scheduled sometime in the summer of 2010.



2012 National Earthquake Conference Planning Begins

Planning is underway for the 2012 National Earthquake Conference, March 2012, in Memphis, Tennessee. The Central U.S. Earthquake Consortium (CUSEC) is leading the Steering Committee composed of the Executive Directors of CUSEC, Northeast States Emergency Consortium (NESEC), Cascadia Region Earthquake Workgroup (CREW), Earthquake Engineering Research Institute (EERI), WSSPC, and representatives from FEMA and the USGS. The theme for the conference is: *Historic Earthquakes: Learning from the Past to Protect the Future*. Dates and hotel information and future program progress will be posted on the conference website at www.earthquakeconference.org as it becomes available.

WSSPC NEWS

Oregon

\$15 Million in Seismic Rehab Grants for Oregon

Thirteen public education buildings and eleven emergency services facilities in Oregon will receive funds totaling \$15 million dollars for seismic rehabilitation. The Seismic Rehabilitation Grant Program (SRGP) provides funds to strengthen public school and emergency service buildings.

In 2001, Oregon voters approved Ballot Measures 15 & 16 amending the Constitution to allow for the state to lend credit through general obligation bonds for seismic rehabilitation of public education buildings and emergency services buildings. Subsequently, Senate President Peter Courtney sponsored a series of

companion bills directing a statewide seismic risk assessment, methodology and direction to implement the Seismic Grants Program.

“The Seismic Rehabilitation Grants Committee did a tremendous job reviewing and scoring the numerous applications that were submitted for funding,” Courtney said. “We have a responsibility to keep Oregonians as safe as possible and this is a step in the right direction.”

The committee made its recommendations for funding to Ken Murphy, Director of Oregon Emergency Management who, after thorough review, approved their recommendations.

“This is a very positive step towards saving lives and property in Oregon and could not have been accomplished without Senator Courtney,” Murphy said. “We owe him a debt of gratitude.”

Senator Courtney received WSSPC Awards in Excellence in 2001 and 2010 in Legislation for his efforts.

To read the full press release, visit www.oregon.gov/OMD/OEM/plans_train/docs/oregon_seismic_grant_news_release021810.pdf

Multi-Year Tsunami Mapping and Outreach Program Comes to Oregon Coast

The Oregon Department of Geology and Mineral Industries (DOGAMI), in partnership with Oregon Emergency Management and the National Weather Service, are enhancing and expanding tsunami preparedness for Oregon coastal communities with a new program called *TsunamiReady, TsunamiPrepared*.

Funded by a multi-year, multi-million dollar grant from the National Tsunami Hazard Mitigation Program, *TsunamiReady, TsunamiPrepared* will accelerate the remapping of the Oregon coast for tsunami inundation using state-of-the-art computer modeling and laser-based terrain mapping (LiDAR). The outcome will be the creation of new, more accurate tsunami evacuation maps for the entire 362 mile length of the Oregon coast.

The new program will be administered by DOGAMI in collaboration with Oregon Emergency Management, the Oregon Coastal Zone Management Association and the National Weather Service.

For the full press release, visit www.oregongeology.org/sub/news&events/archives/press-release-2010-02-12.pdf

Twenty Percent of Oregonians Insured for Earthquakes

According to an Oregon Department of Consumer and Business Services (DCBS) survey, only about 20 percent of Oregonians have earthquake insurance.

January marked the 310th anniversary of a 9.0 Cascadia Subduction Zone earthquake, causing damage from the North Coast of California to British Columbia. According to James Roddey, Earth Sciences Information Officer with the Oregon Department of Geology and Mineral Industries, these events occur every 300-600 years, putting Oregon in that window for the next major quake.

“No one knows for sure when a major earthquake will strike but Oregon homeowners may want to at least talk to their insurance agent about this coverage,” said Teresa Miller, administrator of the Insurance Division of the DCBS.

According to the article, consumers who wait to buy insurance until after a tremor will be too late: Insurance companies typically suspend sales of earthquake insurance for a period of time after a seismic event.

For the full January 15, 2010 press release, visit <http://egov.oregon.gov/DCBS/news.shtml>

California

CalEMA Tests Tsunami Warning Communications in Northern California

On Wednesday, March 24, 2010, the California Emergency Management Agency (Cal EMA) joined local and national emergency management partners to test the tsunami warning communications systems in Del Norte, Humboldt and Mendocino Counties. The test was part of California’s Tsunami Awareness Week and was a cooperative effort between Cal EMA, NOAA’s National Weather Service, California Broadcasters Association and local emergency management officials in those north coast counties.

For the full press release, visit [www.oes.ca.gov/Executive/Public/oespressroom.nsf/PDF/Cal+EMA+Joins+Local+and+National+Partners+to+Test+Tsunami+Warning+Communications+in+Northern+California+/\\$file/TsunamiTest_03.23.10.pdf](http://www.oes.ca.gov/Executive/Public/oespressroom.nsf/PDF/Cal+EMA+Joins+Local+and+National+Partners+to+Test+Tsunami+Warning+Communications+in+Northern+California+/$file/TsunamiTest_03.23.10.pdf)

CalEMA Activated SOC for Chile Tsunami

The CalEMA activated the State Operations Center (SOC) and its Coastal and Southern Regional Emergency Operations Centers (REOC) in response to the Tsunami Advisory for the immediate coast California following the 8.8 earthquake that occurred off the coast of Chile.

A “Tsunami Advisory” means that a tsunami capable of producing strong currents or waves dangerous to persons in or very near the water is imminent or expected – as opposed to a more serious “Tsunami Warning,” which is issued as a means of providing an advance alert to areas that could be severely impacted by destructive tsunami waves.

For the full press release, visit [www.oes.ca.gov/Executive/Public/oespressroom.nsf/PDF/Cal+EMA+Activates+State+Operation+Center+in+Response+to+Chilean+Tsunami/\\$file/TsunamiRelease2_02.27.10.pdf](http://www.oes.ca.gov/Executive/Public/oespressroom.nsf/PDF/Cal+EMA+Activates+State+Operation+Center+in+Response+to+Chilean+Tsunami/$file/TsunamiRelease2_02.27.10.pdf)

Study Shows Californians Need to Increase Earthquake Preparedness Efforts

From the CalEMA website

According to a recent California Earthquake Preparedness Survey conducted by the University of California Los Angeles (UCLA) School of Public Health for the State of California on behalf of the California Emergency Management Agency, the California Seismic Safety Commission and the California Volunteers, a majority of Californians have taken initial steps toward earthquake preparedness but more than 60 percent of Californians have not done enough to make their homes safer and guard their personal finances in preparation for an inevitable, large-scale earthquake.

State and local public safety and emergency management agencies are better prepared than ever before; however, California residents have focused on easy preparedness activities such as collecting supplies and making back-up copies of important documents and have not done more difficult and expensive activities such as securing the contents of their home or purchasing earthquake insurance, according to the survey.

Key findings of the survey were:

- Fewer than 20 percent of households have structurally reinforced their homes or had their homes inspected for earthquake resistance.
- Only 40 percent keep the recommended minimum of three gallons of water stored per person.
- Fewer than 20 percent of California households have purchased earthquake insurance.
- More than 80 percent of households have first aid kits, flashlights and batteries in their house but only 40 percent of Californians have made family disaster plans.

More information can be found at <http://calemanews.wordpress.com/2010/03/05/study-reveals-californians-must-increase-earthquake-preparedness/>

Hawaii

ISO Releases LOCATION Tsunami Service

Insurance Service Office, Inc. (ISO) has released LOCATION Tsunami Service, a new geographic service designed to indicate whether a property is within the Tsunami Evacuation Zone defined by the State of Hawaii. LOCATION is the most widely used GIS underwriting database in the U.S. property/casualty industry.

For more information, visit www.iso.com/Press-Releases/2010/ISO-Introduces-New-Tsunami-Lava-and-Premium-Tax-Services.html

Colorado

Colorado Purchases Four New Seismic Stations Submitted by Vince Matthews, CGS

The Colorado Geological Survey in collaboration with the University of Colorado, Colorado State University, Colorado College, and the Colorado Division of Emergency Management has purchased four of the EarthScope TA stations in Colorado. We have completed landowner agreements with stations T25A-1 near Trinidad, S-22A-2 near Creede, Q24A-1 near Divide, and N23A-2 near Red Feather Lakes. IRIS will be contracted for ongoing maintenance.

These four stations coupled with the four backbone stations, and the two stations in Moffat and Kit Carson Counties that IRIS is leaving in place should greatly enhance NEIC's ability to detect, locate and analyze earthquakes in Colorado. This acquisition was strongly supported by the Colorado Earthquake Hazard Mitigation Council.

New Mexico

LANL Mitigating Earthquake Hazards

By John Fleck, Albuquerque Journal Staff Writer

In an effort to reduce the risk of a potentially catastrophic radiation release in the wake of a major earthquake, the Los Alamos National Laboratory (LANL) has reduced the amount of plutonium allowed at Technical Area 55, one of two complexes devoted to plutonium work, and will be launching upgrades of safety systems in the concrete blockhouse.

The Plutonium Facility was built in the 1970's, to meet 70's era earthquake standards. Since then, scientists have learned that major earthquakes in the Los Alamos area are more frequent than previously thought. In an October 2009 report, safety auditors from Defense Nuclear Facilities Safety Board revealed that a worst-case accident involving an

earthquake and subsequent fire could lead to radiation doses at least 100 times above safe limits in the surrounding communities.

No price tag has been set for the work, but federal budget documents submitted to Congress on Feb. 1 suggest the final cost could be more than \$100 million.

For the full article, visit www.allbusiness.com/international-relations/weapons-arms-military-weapons/13882252-1.html

Utah

H.B. 072 - Utah Seismic Hazard Inventory Bill

Utah Representative Larry Wiley has sponsored H.B. 072 – Utah Seismic Hazard Inventory. Many of Utah's schools were built to the standards of what are now outdated building codes, and prior to seismic regulations. The Bill calls for the Rapid Visual Screening (RVS) to provide a standardized means to identify the most vulnerable buildings and get them on the radar screen for seismic retrofit. Once the schools in need of retrofit have been identified, a plan for the retrofits can be implemented.

A PDF of H.B. 072 is available at <http://ussc.utah.gov/publications/RVS%20Utah%20Schools%202010.pdf>

Multi-State Projects

Virtual USA

The states of Alaska, Idaho, Montana, Oregon and Washington partnered with the U.S. Department of Homeland Security (DHS) on a component of the Virtual USA Initiative, led by the Science and Technology Directorate's Command, Control and Interoperability Division (CID). The pilot project seeks to develop a capability among the participating states that enables information sharing by leveraging existing federal, state and local technologies, as well as emerging ones. The Pacific NW Pilot's first phase (ending September/October 2010) will establish through a real time demonstration that the required technology and governance are in place for seamless information sharing in the event of an emergency.

For more information, visit www.safecomprogram.gov/NR/rdonlyres/303C3A35-A3E1-42E1-877D-3C738EAE87FB/0/TCIPPressReleaseFinalDistribute_d2210.pdf

NTHMP Tsunami Awareness Week

The National Tsunami Hazard Mitigation Program (NTHMP) declared March 21-27, 2010 National Tsunami Awareness Week. State-by-state awareness events and information, including governor's proclamations, are available at the NTHMP website at <http://nthmp.tsunami.gov/tsunamiweek.html>

WSSPC Member News

Degenkolb Engineers Receives Awards for Top Seismic Strengthening Projects

From the ATC Website

In conjunction with the ATC&SEI Conference on Improving the Seismic Performance of Existing Buildings and Other Structures, a gala dinner at the historic San Francisco Ferry Building was held on December 10th 2009 celebrating "New Innovations in Seismic Strengthening Over the Last Decade." With the support of Engineering News Record, awards were presented to practitioners in public and private practice. Degenkolb Engineers, a long-time WSSPC Affiliate Member, was awarded "Top Project of the Last Decade Involving the Seismic Retrofit of an Existing Steel Structure for Confidential Semi Conductor Manufacturing Building," and "Top Application of the Principles and Practice of Energy Dissipation Technology Over the Last Decade" with the Crosby Group for the Caltrans District 4 Building, Oakland, California.

For the complete list of award winners, visit www.atcouncil.org/index.php?option=com_content&view=category&layout=blog&id=46&Itemid=127

Ron Lynn Receives STAR Award

Ron Lynn, International Code Council (ICC) Board President and Director of Development Services, Building Official for Clark County, Nevada and WSSPC Liaison to the Nevada Earthquake Safety Council, has received FIATECH's Superior Technological Achievement Award (STAR). FIATECH is a consortium of industries and companies, including leading providers of engineering, design, and construction services, and a clearinghouse for breakthrough ideas. Each year individuals who provide critical support and valuable contributions to FIATECH that benefit the entire capital projects industry are honored with STAR awards.

Lynn, through his role as President of the International Code Council (ICC), was instrumental in helping FIATECH's Streamlining Project achieve its goal to provide state and local governments with model regulations that allow a single plan review for replicable buildings. These types of buildings,

including big box stores, hotel chains, homebuilders and Habitat for Humanity, are repetitively built across the nation with little to no variation in their structure, components or configuration.

To read the full press release, visit www.iccsafe.org/newsroom/News%20Releases/NR032210-STAR.pdf

Bill Lund Receives Governor's Metal Award

Bill Lund, Senior Scientist at the Utah Geological Survey (UGS) and WSSPC Representative, was presented with the Utah Governor's Award by the State Advisory Council for Science and Technology on January, 5, 2010.

Medals are awarded to individuals who have made significant contributions to the furthering of the science and technology industry within the State of Utah through knowledge, education and industry. "Over the years [Lund] has been involved in a multitude of studies of geology, studies statewide. Although his specialties evolved into earthquake faults and how to identify them, he's an expert in all geological hazards that exist in Utah," said Kimm Harty, who nominated Lund for the award.

On receiving the award, Bill said, "To me it was a real honor and I was happy for myself and for the survey because the survey does an exemplary job and it was nice to see it recognized."

A copy of the full article can be purchased at: <http://pqasb.pqarchiver.com/thespectrum/access/1936269461.html?FMT=ABS&date=Jan+09,+2010>

Mike Stickney in the News

Mike Stickney, Director of the Earthquake Studies Program at the Montana Bureau of Mines and Geology, was featured in a Montana local news article for the Helena Independent Record. Stickney briefed a group of 30 law enforcement and public officials on the Montana and Helena Valley seismic hazards, noting that his department measured 1,500 earthquakes in Montana in 2009, and that there are approximately 45 faults in Western Montana capable of producing major earthquakes.

For the full article, visit www.helenair.com/news/local/article_4ef005d8-1d26-11df-8c39-001cc4c002e0.html

NATIONAL NEWS

House Approves NEHRP Bill

On March 2, 2010 the House of Representatives approved H.R. 3820, *The Natural Hazards Risk Reduction Act of 2010*, which reauthorizes the National Earthquake Hazards Reduction Program and the National Windstorm Impact Reduction Program. The following is from House's press release of the same date.

"The impact of natural hazards on communities can be devastating," stated bill cosponsor and House Science and Technology Committee Chairman Bart Gordon (D-TN). "This bill brings greater coordination to federal natural hazards R&D efforts. It directs the relevant agencies to develop a multi-hazards research agenda and identify where common research approaches are appropriate across different types of hazards. This will enable a research agenda where the lessons learned in one disaster can be applied to help prevent damage from another."

"As we saw last month in Haiti and just this weekend in Chile, earthquakes can strike without warning, causing massive damage and many casualties. Mitigation efforts, like advanced building codes, are crucial to preventing loss and injury," said bill author Technology and Innovation Subcommittee Chairman David Wu (D-OR). "The adoption of mitigation measures is the crucial last step in preventing losses from natural disasters. H.R. 3820 includes provisions to develop ways to cost-effectively retrofit existing structures and secure lifelines, as well as provisions for research to identify the best methods to encourage home owners, businesses, and communities to plan for natural disasters and adopt mitigation measures."

The bill reauthorizes the National Earthquake Hazards Reduction Program, which was created in 1977 and has been responsible for the development of seismic codes and standards to enable buildings and other infrastructure to better withstand earthquakes. The reauthorization will allow the U.S. Geological Survey, FEMA, the National Science Foundation (NSF), and the National Institute of Standards and Technology (NIST) to continue their efforts to develop and promote earthquake mitigation measures. Specifically, this reauthorization addresses key challenges in earthquake mitigation, including developing methods to retrofit existing structures, securing infrastructure, and encouraging people in earthquake-prone areas to invest in preparedness and mitigation measures.

To view the full press release, visit:
<http://science.house.gov/press/PRArticle.aspx?NewsID=2757>

Alaskan Congressman Introduces Volcano Monitoring Legislation

Alaskan Congressman Don Young introduced H.R. 4847 March 17, 2010, which would provide for the establishment of the National Volcano Early Warning and Monitoring System. This bill is the House version of S. 782 introduced by Senator Lisa Murkowski April 2, 2009.

"We all saw the disruptions caused by Mount Redoubt last year," said Rep. Young. "Hundreds of flights were canceled, and Alaskans lived in a smoky fog for weeks. Fortunately, such inconveniences were the only result of Redoubt's continued eruptions but we never know what the future holds. No one thinks of volcanoes when they think of the vast Alaskan landscape, but Alaskan volcanoes make up over three-quarters of U.S. volcanic eruptions, and the United States is only third in the world when it comes to active volcanoes. By making this investment into safety and well-being of those living in these areas, we can reduce the chances of a tragedy in the future."

For the full write up, visit www.akbizmag.com/from-our-elected-officials/43-government-news/2668-rep-young-introduces-volcano-

Congressional Hazards Caucus Alliance Public Briefing

On April 21, 2010 the Congressional Hazards Caucus Alliance will hold a public briefing themed "Reducing Volcano Risks: Progress since the Cataclysmic Eruption of Mount St. Helens." The Senate Briefing will be given by Alaska Senator Lisa Murkowski, Co-Chair, Congressional Hazards Caucus, and sponsor of S. 782, a bill to provide for the establishment of the National Volcano Early Warning and Monitoring System.

The Briefing is sponsored by the Geological Society of America, the American Geological Institute, the American Geophysical Union, and the Association of Environmental & Engineering Geologists.

For more Information: Please contact Dr. Craig Schiffries of the Geological Society of America at 202-669-0466 or cschiffries@geosociety.org.

National Hazards Caucus Haiti Briefing

A Congressional Hazards Caucus Briefing themed *Science, Preparation, and Resilience: What we can learn from the Haitian Earthquake of 2010* is being held Thursday, May, 6 2010 from 10:30am-12:00pm and 2:00pm-3:30pm. The briefing will cover the background of earthquake research and prediction in Haiti and the Caribbean, potential future seismic activity, risk mitigation, and the prospect of early warning systems. Rebuilding earthquake-resistant structures, building codes, and how they contribute to

lives lost or saved will also be discussed. WSSPC is co-sponsoring this event. Please RSVP to Elizabeth Landau at the American Geophysical Union: elandau@agu.org 202-777-7535.

NSF Learning from Haiti Webcast

The NSF will host three Haiti researchers in a webcast discussing their work in Haiti and around the world. They will be joined by NSF social scientist Dennis Wenger, who will discuss how U.S. and global agencies use such information to save lives. The webcast will air April 27, 2010 at 2:00pm EDT at <http://www.science360.gov/live/>. To learn more about the speakers and their work, visit www.nsf.gov/news/special_reports/haiti2010/

FEMA and NOAA Meet with European Partners on Large Scale Disaster Preparedness

Federal Emergency Management Agency (FEMA) Administrator Craig Fugate, Deputy Administrator Tim Manning, and Associate Administrator Bill Carwile joined representatives from the NOAA National Weather Service, Swedish emergency management agencies, and representatives from the European Commission for a workshop in Boulder in February to discuss preparedness and ways to ensure effective communication in the event of a widespread catastrophic disaster.

“Emergency management is a team effort, and never is that more true than when you’re working across international lines,” said Administrator Fugate. “This workshop provided an opportunity to strengthen partnerships and improve lines of communication so we can better respond to large scale emergencies. Disasters don’t recognize borders, so working together is crucial for keeping both Americans and people around the world safe.”

For the full press release, visit www.fema.gov/news/newsrelease.fema?id=50500

White House Long-Term Disaster Recovery Working Group

From www.disasterrecoveryworkinggroup.gov

At the President's request, the Secretaries of Homeland Security (DHS) and Housing and Urban Development (HUD) are co-chairing a White House Long-Term Disaster Recovery Working Group composed of the Secretaries and Administrators of more than 20 departments, agencies and offices. This high-level, strategic initiative will provide operational guidance for recovery organizations as well as make suggestions for future improvement. An intensive stakeholder outreach effort during October and November, 2009, involving State, local, and Tribal government representatives, as well as a wide array of private organizations and private non-profit organizations, has informed these efforts.

The goal is to ensure a more resilient Nation – one in which individuals, communities, and our economy can adapt to changing conditions as well as withstand and rapidly recover from disasters.

In coordination with FEMA, the White House Long-Term Disaster Recovery Working Group has issued a draft of the *National Disaster Recovery Framework*, a report focused on engaging state, local and tribal governments, nonprofit partners, the private sector, and the public to enhance the nation’s ability to recovery from disasters.

To learn more about the White House Long-Term Disaster Recovery Working Group, visit www.disasterrecoveryworkinggroup.gov

A PDF version of the Draft *National Disaster Recovery Framework* is available for download at <http://disasterrecoveryworkinggroup.gov/ndrf.pdf>

EARTHQUAKE & TSUNAMI NEWS

Seismic Events

American Samoa

EERI Special Report on American Samoa

The Earthquake Engineering Research Institute (EERI) released a special edition report on the September 29, 2009 American Samoa earthquake and tsunami. The eight page report includes information on general and structural damage, a breakdown of factors that reduced or exacerbated community impact, and observations of Tonga’s northernmost islands, the Niua Group.

To download your copy of the EERI report, visit www.eeri.org/site/images/eeri_newsletter/2010_pdf/Samoa-Rpt.pdf

American Samoa Disaster Assistance

By March 2010, disaster assistance to American Samoa from the Federal Emergency Management Agency (FEMA) topped \$33 million, with another \$107 million in the pipeline for distribution. The tsunami that struck the island following the September 29, 2009 earthquake disabled the local power plants; destroyed 248 homes and 28 rental units; and damaged another 2,750 dwellings. One school was destroyed and another four suffered substantial damage. Roads, bridges, churches, and everything in the waves' paths were damaged to varying degrees. To read the full press release, visit <http://www.fema.gov/news/newsrelease.fema?id=50627>

\$1.2 Million to American Samoa for Post-Tsunami Disaster Recovery Initiatives

On February 25, 2010 Secretary of the Interior Ken Salazar announced that the Department would provide \$1.2 million in special assistance to the Government of American Samoa for post-tsunami disaster recovery projects.

Assistant Secretary for Insular Areas Tony Babauta signed the grant award that provides \$340,000 that will enable the American Samoan Department of Human and Social Services to establish a comprehensive, long-term mental health system for tsunami victims. Additionally, \$860,000 will assist in a collaborative effort with the University of Hawaii to complement, strengthen and sustain disaster recovery initiatives and improvements and establish an electronic system for safeguarding employee records and data.

To read the full press release, visit http://www.doi.gov/news/pressreleases/2010_02_25_release.cfm

Northern California

EERI Releases Special Report on January 9, 2010 Offshore CA Earthquake

EERI has released a special report on the January 9, 2010 offshore Northern California earthquake. The 12 page report includes details on the earthquake, building damage, initial response and emergency services, recovery tracking, and geotechnical information. As of January 15, earthquake losses for Humboldt County are estimated at \$30 million. This report is available at www.eeri.org/site/images/eeri_newsletter/2010_pdf/January_9_OffshoreNorCal.pdf

GEER Report on January 9, 2010 Offshore CA Earthquake Released

The Geo-Engineering Extreme Events Reconnaissance (GEER) report on the January 9, 2010 offshore Northern California earthquake has been released. To view this report, visit http://peer.berkeley.edu/news/2010/geer_report_available.html

Wyoming

Yellowstone Earthquakes

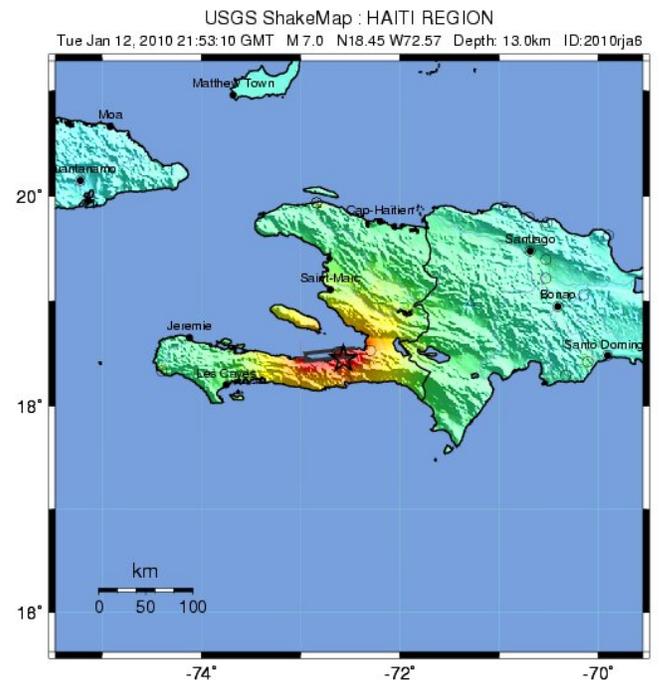
From the USGS Website

Recent earthquakes on the west side of Yellowstone caldera are considered part of the intense January/February 2010 earthquake swarm of ~2,350 earthquakes. Earthquakes in this area continue to occur at a very reduced rate since the January main

swarm sequence. During the month of March 2010, 66 earthquakes were located in the region. The largest event was a magnitude 2.7 on March 29th. A slight increase in earthquake occurrence has occurred in April 2010 with more than 30 earthquakes recorded in the area of the earlier swarm. The largest of these events was a magnitude 3.3 on April 3, but none of the March-April events have been reported felt. The rate of earthquake occurrence in this swarm is not unusual for Yellowstone where more than 80 independent swarms have been identified in the past 25 years.

For more information, visit <http://volcanoes.usgs.gov/yvo/activity/>

Haiti



Map Version 10 Processed Thu Mar 4, 2010 04:10:14 PM MST - NOT REVIEWED BY HUMAN

PERCEIVED SHAKING	Not felt	Weak	Light	Moderate	Strong	Very strong	Severe	Violent	Extreme
POTENTIAL DAMAGE	none	none	none	Very light	Light	Moderate	Moderate/Heavy	Heavy	Very Heavy
PEAK ACC.(%g)	<.17	.17-1.4	1.4-3.9	3.9-9.2	9.2-18	18-34	34-65	65-124	>124
PEAK VEL.(cm/s)	<0.1	0.1-1.1	1.1-3.4	3.4-8.1	8.1-18	18-31	31-80	80-116	>116
INSTRUMENTAL INTENSITY	I	II-III	IV	V	VI	VII	VIII	IX	X+

M7.0 Haiti Earthquake

On January 12, 2010 a magnitude 7.0 earthquake rocked Haiti near Port-au-Prince, the nation's capital, leaving much of southern Haiti devastated. According to official estimates, 222,570 people were killed and another 300,000 injured; 1.3 million were displaced. The quake left 97,294 houses destroyed and 188,383 damaged in the Port-au-Prince area and in much of southern Haiti. This includes at least 4 people killed by a local tsunami in the Petit Paradis

area near Leogane. As of February 23, the USGS reported 59 aftershocks of magnitude 4.5 or greater, sixteen of which had magnitudes of 5.0 or greater.

For more details on the Haiti earthquake, visit <http://earthquake.usgs.gov/earthquakes/recenteqsww/Quakes/us2010rja6.php#summary>

Haiti Tool Kit

The National Institute of Building Sciences (NIBS) has asked the U.S. codes and standards community to help provide guidance in the reconstruction of Haiti. The Institute put out a call to the industry for assistance in the development of a toolkit to help guide Haiti in rebuilding. The Institute will deliver the toolkit to U.S. Secretary of State Hillary Rodham Clinton so that the Department of State could present it to Haiti for the reconstruction of its buildings and structures. For more information on the toolkit, visit <http://www.nibs.org/index.php/newsevents/haititoolkit>

UNISDR: Ten Percent of Relief Should be Allocated to Building Safer Houses, Hospitals and Schools

From www.unisdr.org/news/v.php?id=12669

The United Nations International Strategy for Disaster Reduction (UNISDR) is working with donors and UN partners to ensure that Haiti's schools, hospitals and houses will be rebuilt in a manner that integrates strategic planning to mitigate multi-hazard risks.

"It will take a minimum of ten years to rebuild Haiti but it is important to start building safer schools, hospitals and critical infrastructure now. It costs much less to integrate disaster risk reduction principles into the design of new construction than to retrofit existing buildings. The 2009 Global Platform on Disaster Risk Reduction recommended allocating ten percent of relief aid to disaster risk reduction. It is our hope that 10 percent of the estimated US \$10 billion reconstruction effort will focus on reducing Haiti's vulnerability to disasters, which are a recurring threat to the Haitian people," said Margareta Wahlström, UN Special Representative of the Secretary-General for Disaster Risk Reduction.

Just as collapsed buildings and unstable land were the prime contributing factors to the high death toll during the Haitian earthquake, so too is corruption another concern that must be addressed. "We also need to ensure that corruption does not undermine reconstruction efforts, particularly as the building sector in Haiti has witnessed severe corruption cases in the past. Cutting corners and using sub-standard building practices contributed to the significant loss of life," said Wahlström.

To read the full article, visit www.unisdr.org/news/v.php?id=12669

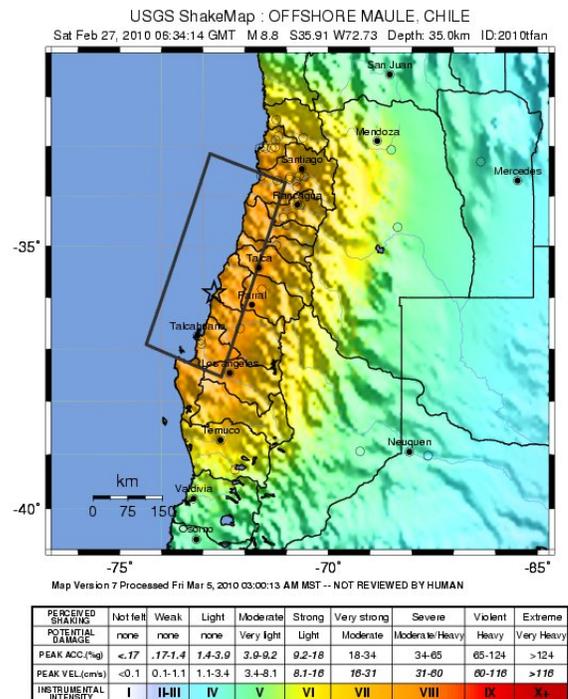
Salvation Army Proposes Green Shelters

As Haiti's rainy season approaches, The Salvation Army is making it a priority to transition 20,000 refugees from a tent camp into temporary shelters and has submitted a proposal to USAID for funding to provide 10,000 transitional shelters for these people.

The Salvation Army proposal would use salvaged timber killed by mountain pine beetles in Colorado. This would create jobs in Colorado while providing a green and environmentally conscious solution for the use of the wood. The Salvation Army would train crews and hire local workers in Haiti to construct the shelters which would not only provide jobs, but also provide technical skills for Haitians to use in future construction projects. These transitional housing units will provide a safer and more structurally sound environment than has been available to many Haitians.

For the full write-up, visit www.salvationarmyhaiti.org/

Chile



M8.8 Offshore Maule, Chile Earthquake

On Saturday, February 27, 2010 at 3:34 local time a magnitude 8.8 earthquake struck offshore Maule, Chile. At least 507 people were killed, and many others injured. At least 200,000 houses were damaged by the earthquake and tsunami in the Concepcion-Valparaiso area. The quake was felt in much of Chile and Argentina, as well as in parts of

Bolivia, southern Brazil, Paraguay, Peru and Uruguay. A Pacific-wide tsunami was generated and caused minor damage to boats and a dock in the San Diego area, California.

For more information on the Chile earthquake, visit the USGS website at <http://earthquake.usgs.gov/earthquakes/recenteqsww/Quakes/us2010tfan.php#details>

Strong motions measured by the Center for Engineering Strong Motion Data (CESMD) is available on their website: www.strongmotioncenter.org/cgi-bin/ncesmd/iqr_dist_DM2.pl?IQRID=Chile_27Feb2010&SFlag=0&Flag=2

Dr. Lori Dengler Leads Chile Reconnaissance Team

Dr. Lori Dengler, Chair of Humboldt State University's Department of Geology and Director of the Humboldt Earthquake Information Center, led a reconnaissance effort in Chile from March 25 – April 4, 2010 to review the impacts of the recent earthquake and tsunami, and to improve readiness along the Pacific North Coast. Throughout her trip, Dr. Dengler blogged her findings at the Redwood Coast Tsunami Workgroup website. To view her blog, visit www.humboldt.edu/rctwg/blog.

Virginia Water Well Reacts to Chile Earthquake

Water in Christianburg, Virginia wells rose up to four inches and then dropped about two feet during the M8.8 Chilean earthquake, reports David L. Nelms, groundwater specialist at the U.S. Geological Survey in Richmond. The Christiansburg well is so sensitive to earthquakes around the world that the USGS has a website showing all the quakes it has responded to and by how much (va.water.usgs.gov/earthquakes/index.htm)

What makes this occurrence unique, according to Nelms, was the response of water wells that had not responded to earthquakes in the past.

To read the full article, visit <http://hamptonroads.com/2010/03/water-well-reacts-distant-chile-earthquake>

NSF Dispatches Rapid Response Oceanographic Expedition to Chile Earthquake Site

From the National Science Foundation (NSF) website

Scientists funded by the National Science Foundation (NSF) and affiliated with the Scripps Institution of Oceanography (SIO) at the University of California at San Diego are undertaking an expedition to explore the rupture site of the 8.8-magnitude Chilean earthquake.

The rapid response cruise is possible because the vessel *Melville* is currently in Chilean waters, where a research team has been conducting an investigation of the geology and biology of the Chilean margin.

"This rapid response cruise is a rare opportunity to better understand the processes that affect the generation and size of tsunamis," said Julie Morris, NSF division director for Ocean Sciences. "Seafloor evidence of the quake will contribute to understanding similar earthquake regions worldwide."

An important aspect of the rapid response mission involves swath multibeam sonar mapping of the seafloor to produce detailed topographic maps. Data from mapping the earthquake rupture zone will be made public soon after the research cruise ends, Morris said.

Several years ago IFM-GEOMAR researchers conducted a detailed multibeam mapping survey off Chile. Their data will be valuable for comparisons with the new survey to expose changes from the earthquake rupture, say researchers.

For the full article, visit www.nsf.gov/news/news_summ.jsp?cntn_id=116628&org=OLPA&from=news

Mexico

M7.2 Sierra El Major Earthquake

A 7.2 magnitude earthquake rocked Sierra El Major, or Northern Baja California, Mexico, Sunday, April 4, 2010 at 3:40 pm local time. Two people were killed and 233 were reported injured in the Mexicali area. The quake was felt throughout Southern California, Arizona, Nevada, and Baja California Norte, Mexico.

The Southern California Seismic Network (SCSN) reports that, as of April 14, 2010, there have been more than 4,000 earthquakes associated with this event.

For more information, visit <http://www.scsn.org/2010sierraelmajor.html>

Sources for Further Reading

The following links contain information collected by earthquake and disaster assistance organizations that have reported on the above earthquake events.

[USGS Updated Assessment of the Earthquake Hazard and Safety in Haiti and the Caribbean](http://www.usgs.gov/newsroom/article.asp?ID=2413)
<http://www.usgs.gov/newsroom/article.asp?ID=2413>

USGS Haiti Field Observations

<http://earthquake.usgs.gov/regional/nca/seminars/2010-02-11/>

EERI Special Report on the Haiti Earthquake

http://www.eeri.org/site/images/eeri_newsletter/2010_pdf/Haiti_Rpt_1.pdf

EERI Haiti Earthquake Clearinghouse

<http://www.eqclearinghouse.org/20100112-haiti/>

EERI American Samoa Tsunami and Earthquake Clearinghouse

<http://www.eqclearinghouse.org/20090929-samoa/author/ldengler>

EERI Chile Earthquake Clearinghouse – This site provides a link to the Chile EERI/PEER/GEER Reconnaissance Briefing Video

<http://www.eqclearinghouse.org/20100227-chile/>

EERI Baja California Earthquake Clearinghouse

<http://www.eqclearinghouse.org/20100404-baja/>

GEER Earthquake Reconnaissance Report Page

http://research.eerc.berkeley.edu/projects/GEER/Post_EQ_Reports.html

Natural Hazards Observer Article on Haiti

March, 2010 Edition, Pages 8-11

http://www.colorado.edu/hazards/o/archives/2010/mar_observerweb.pdf

MCEER Haiti Page –

Includes a comprehensive list of links.

<http://mceer.buffalo.edu/infoservice/disasters/Haiti-Earthquake-2010.asp>

MCEER Chile Page–

Includes a comprehensive list of links.

<http://mceer.buffalo.edu/infoservice/disasters/Chile-Earthquake-2010.asp>

Incorporated Research Institution for Seismology (IRIS) Teachable Moments

<http://www.iris.edu/hq/retm>

Salvation Army Haiti Page

<http://www.salvationarmyhaiti.org/>

Salvation Army Chile Blog

<http://blog.salvationarmyeds.org/?tag=chile>

American Red Cross Three Month Report on Haiti

http://www.redcross.org/www-files/Documents/pdf/international/Haiti/HaitiEarthquake_ThreeMonthReport.pdf

UNISDR Haiti Information

<http://www.unisdr.org/news/v.php?id=13249>

Degenkolb Engineers Earthquake Blog

<http://www.degenkolb.com/blog/>

Boston University Haiti Blog

https://www.nes.org/news/detail/haiti_blog_illustrates_conditions_after_january_earthquake/

International Tsunami Information Center Chile Page

<http://ioc3.unesco.org/itic/contents.php?id=667>

NOAA Center for Tsunami Research Chile Page

<http://nctr.pmel.noaa.gov/chile20100227/>

Community News

San Andreas Fault Reveals New Earthquake Information

From the National Science Foundation Website

Recent studies of stream channel offsets along the San Andreas Fault reveal new information about fault behavior--changing our understanding of the potential for damaging earthquakes.

"These research results challenge the widely accepted characteristic earthquake model and could transform our understanding of fault behavior," said David Fountain, program director in the National Science Foundation (NSF)'s Division of Earth Sciences, which funded the research.

"The results show a substantially reduced estimate of time between large earthquakes on the south-central San Andreas Fault, which implies more frequent smaller earthquakes than previously believed. This in turn has significant implications for earthquake hazards in southern California."

Rather than seeing the same slip repeat in characteristic ways, they found that the slip varied from earthquake to earthquake.

This makes forecasting future earthquakes harder because geologists cannot rely on the assumption of constant behavior for each section.

For the full write up, visit

http://www.nsf.gov/news/news_summ.jsp?cntn_id=116246

CREW Members Warn of Earthquake Complacency

An editorial article entitled: *Puget Sound must not be complacent in the face of the earthquake threat*, by Cascadia Region Earthquake Workgroup (CREW) members Andre LeDuc, John D. Schelling (WSSPC Representative from Washington Military Department, Emergency Management Division), and

Cale Ash appeared in The Seattle Times, March 4, 2010. The authors warn of the dangerous geological similarities between the Puget Sound, Chile and Haiti regions, and note that earthquake risk isn't just dependent on the natural events, but the vulnerability of the environments and how well communities prepare and respond.

To read the article, visit
http://seattletimes.nwsourc.com/html/opinion/2011259504_guest05leduc.html

Underwater Communication Network May Sense Tsunamis

According to a study led by Manoj Nair of the University of Colorado, tsunamis send electric signals through the ocean that appear to be sensed by communication cables on the seabed.

"We estimate that the 2004 tsunami induced voltages of about 500 millivolts (mV) in the cables. This is very small compared to a 9-volt battery, but still large enough to be distinguished from background noise on a magnetically quiet day," Nair said. "By monitoring voltages across this network of ocean cables, we may be able to enhance the current tsunami warning system."

Nair cautioned that much research is still needed to effectively isolate the tsunami signals from other sources.

To read the full article, visit
www.noaanews.noaa.gov/stories2010/20100119_tsunami.html

Five Years after the Indian Ocean Tsunami

From the UNISDR website.

Five years after the devastating December 2004 tsunami struck the coasts of Thailand, Indonesia and Indian Ocean island communities, Margareta Wahlstrom, Special Representative of the UN Secretary-General for Disaster Risk Reduction says, "The affected countries and communities have largely recovered, and warning systems are now in place, not just for tsunamis, which are relatively rare, but also linked to those for tropical cyclones, storms, and floods."

Other regions at risk to tsunamis have also paid attention to the Indian Ocean experience. As a result, the Intergovernmental Oceanographic Commission is now coordinating work on new warning systems for the Caribbean and the Northeast Atlantic and Mediterranean Sea. Initiatives to upgrade national capacities for warning and response are also underway in Pacific Ocean countries.

As a result of the international consortium approach, which is in line with the Hyogo Framework, considerable progress has been made on the technical

aspects of the early warning systems. However, less has been achieved on necessary mitigation measures such as rebuilding in safe locations, putting building codes into practice, and establishing evacuation routes. Without these, the impacts and losses for coastal populations and structures from another tsunami or severe storm still could be very high. Also, warning systems need to take a more people-centered "end-to-end" approach in order to systematically reach the people who are most at risk.

To read the full write-up, visit
<http://unisdr.org/news/v.php?id=12159>

RESOURCES & PUBLICATIONS

WSSPC Member Publications & Resources

2008 Wells, NV Earthquake Lessons Learned

The NESG has released *Lessons Learned from the 2008 Wells, Nevada Earthquake*. The 16 page document is available at
www.nbmng.unr.edu/nesc/Lessons_Learned_2008_Wells_Eq_final_Doc_6January2010.pdf

CalEMA and CGS Tsunami Resources

The California Emergency Management Agency (CalEMA) and California Geological Survey (CGS) have produced a combination of tsunami awareness materials, available for download at the CGS website. Resources include educational materials, statewide tsunami inundation maps, and a user-friendly website where you can enter your address to find out if you live in an area at risk to earthquakes, flooding, fire, and tsunami inundation.

To learn more about these resources and download your copies of the materials, visit
www.conservation.ca.gov/cgs/geologic_hazards/Tsunami/Inundation_Maps/Pages/Index.aspx

Wyoming Earthquake Database Internet Mapping Service

Submitted by Seth Wittke, WSGS

The Wyoming Geological Survey (WSGS) has released the Wyoming Earthquake Database Internet Mapping Service (IMS). This database includes earthquake locations from three sources: the WSGS 100 Years of Earthquakes in Wyoming (1871-1970), Advanced National Seismic System (ANSS) Composite Earthquake Catalog, and the EarthScope Array Network Facility (ANF). The USGS Quaternary Fault and Fold Database is also included in the IMS to show the locations of active faults in

the state. This service has been created to provide information to community planners, federal and state personnel, and the public, in order to educate them of past earthquakes in Wyoming.

Questions and comments can be directed to Seth Wittke at wittkesj@uwyo.edu or by phone at (307) 766-2286 ext. 244. The IMS is available at <http://www.wsgs.uwyo.edu/GIS/IMSprojects>

Alaska Seismic Hazards Safety Commission 2010 Report

The Alaska Seismic Hazards Safety Commission has released their 2010 report to the Governor and State Legislature. The report is available at www.dggs.alaska.gov/download/ashsc_meetings_minutes/ASHSC_2010_annual_report.pdf

NESC Drop Cover and Hold Animation

Wayne Carlson, Nevada Earthquake Safety Council (NESC) board member, showed an animated video of his song "Drop, Cover, and Hold," which students in the *Advanced 3D Animation* class at Carson High School turned into a video. Wayne wrote and sang the song, and the students worked on the animation from the beginning of December 2009 through February 9, 2010.

The minute and 35 second long video is available for viewing and downloading on the NESC website at www.nbmng.unr.edu/nesc/

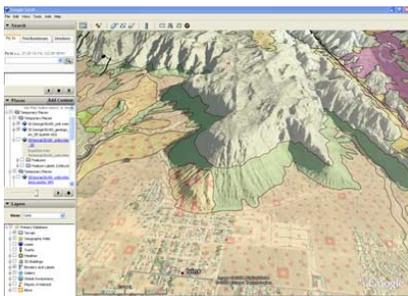
Geologic Map and Virtual Field Trip of the Greater St. George-Zion National Park Area

The Utah Geological Survey has just released a map presenting southwestern Utah's geology in unprecedented detail. There is also an innovative 3-D version of the map and a virtual field trip for online viewing.

The 3-D version of the map utilizes Google Earth, allowing users to "fly" over the map to see how the geology drapes over the deep canyons and high plateaus. In addition, the user can take a virtual field trip that contains popup explanations and photographs of highlighted areas.

For more information on these publications, visit <http://geology.utah.gov/whatsnew/news/new0210d.htm>

To view the virtual geologic map and field trip, visit the UGS website at http://geology.utah.gov/geo_guides/st_george/index.htm



Credit:
Utah
Geological
Survey

DOGAMI Releases Tsunami Workshop Report

The Oregon Department of Geology and Mineral Industries (DOGAMI) has released Open-File Report O-10-02, *Tsunami Evacuation Building Workshop, September 28-29, 2009, Cannon Beach, Seaside, and Portland, Oregon.*

The report covers the first ever regional workshop addressing tsunami vertical evacuation as a new means to protect people and improve community recovery. This two-day workshop was sponsored by the Cascadia Region Earthquake Workgroup (CREW), WSSPC, DOGAMI, and Oregon Emergency Management (OEM) and other organizations, and included participants from the Pacific Northwest, California, Hawaii and British Columbia.

For more information on the report, and to obtain your copy, visit www.oregongeology.org/sub/news&events/archives/press-release-2010-02-16.pdf

DOGAMI Releases Detailed Map of Oregon Coast

DOGAMI has published Open-File Report O-10-01, *Map of Oregon Coast Showing Topography and Bathymetry.* This is a map of the entire Oregon coast, with a vivid color depiction of the offshore bathymetry. In addition to bathymetry, this map shows locations of state parks, highways, cities and communities, offshore fault lines, the Cascadia Subduction Zone, underwater features and county boundaries. To order your copy of Open File Report O-10-01, visit www.naturenw.org/cgi-bin/quikstore.pl?store=maps&product=001676

Credit:
DOGAMI



Other Publications & Resources

NEHRP Clearinghouse

The National Earthquake Hazard Reduction Program (NEHRP) Clearinghouse provides an electronic source of earthquake-related publications that have been produced with NEHRP agency support and deposited with the National Technical Information Service (NTIS).

The NTIS database contains 2,092 FEMA, NBS/NIST, NSF, and USGS-sponsored earthquake research publications dating back to 1977. Metadata for all of these documents are contained in the NEHRP Clearinghouse database.

Users may locate NEHRP-supported publications in the NTIS database, review abstracts, and download searchable PDF files of the publications quickly and free of charge.

Visit the NEHRP Clearinghouse at www.nehrp.gov/library/clearinghouse.htm

Predicting the Unpredictable: The Tumultuous Science of Earthquake Prediction

Publisher: Princeton University Press
ISBN: 878-1-4008-3180-7

Susan Hough, seismologist with the Southern California Earthquake Center and American Geophysical Union fellow, explains the challenges of earthquake prediction despite the rapid advances in earthquake science in her newly released book *Predicting the Unpredictable: The Tumultuous Science of Earthquake Prediction*.

For more information on this publication, visit <http://press.princeton.edu/titles/8990.html>

FEMA E-74

FEMA E-74 *Reducing the Risks of Nonstructural Earthquake Damage—A Practical Guide*, Fourth Edition, has been released. The *Guide* has been designed for the internet and explains the sources of earthquake damage that can occur in nonstructural components and provides information on effective methods for reducing risk associated with nonstructural earthquake damage. It is intended for use by a non-engineer audience, including building owners, facility managers, maintenance personnel, store or office managers, corporate or agency department heads, and homeowners.

To view this e-document, visit www.fema.gov/plan/prevent/earthquake/fema74/guide.htm

Quadrennial Homeland Security Review Report

The Department of Homeland Security has released the *Quadrennial Homeland Security Review Report: A Strategic Framework for a Secure Homeland*, outlining the strategic framework to guide the activities of participants in homeland security toward a common end. This document focuses on disaster resilience in its “Mission 5: Ensuring Resilience to Disasters.”

To learn more or download your copy of this document, visit www.dhs.gov/xabout/gc_1208534155450.shtm

California Port Tsunami Threat Report

From the Executive Summary

The Joint Institute for the Study of the Atmosphere and Ocean (JISAO) and NOAA/Pacific Marine Environmental Laboratory (PMEL) have released *Distant Tsunami Threats to the Ports of Los Angeles and Long Beach, California*. A tsunami impact to the ports of Los Angeles and Long Beach would potentially cause significant damage and disrupt port operations for an extended period of time. Potential damage to the ports, and the disruption that would likely occur today, would have severe repercussions for the economy of the State of California, which relies heavily on port activities for revenue, trade, and employment.

A detailed sensitivity study has been performed with synthetic tsunamis generated by M_w 9.3 earthquakes along Pacific Ocean subduction zones to identify probable maximum tsunamis. A total of 322 synthetic scenarios were investigated. Of these 322 scenarios, tsunamis from 11 source regions in Alaska, Chile, Philippines, Manus, New Zealand, and Vanuatu are identified as having the potential to generate a tsunami significant to the ports of Los Angeles and Long Beach, so these are investigated in detail.

To download the report, visit <http://nctr.pmel.noaa.gov/state/ca/uslu3532.pdf>

NGDC Develops New Tsunami Inundation Digital Elevation Models of Cordova, Alaska

The National Geophysical Data Center has developed two high-resolution coastal digital elevation models (DEMs) of Cordova, Alaska. These integrated bathymetric-topographic DEMs are part of an ongoing collaboration across NOAA to support the tsunami forecast and warning system being developed by the Pacific Marine Environmental Laboratory for the Tsunami Warning Centers.

For more information contact Lisa.A.Taylor@noaa.gov or visit www.ngdc.noaa.gov/products/ngdc_news.html

NOAA produces "Tsunami", a new Science On a Sphere (SOS)® presentation

The National Geophysical Data Center (NGDC), in partnership with the National Tsunami Hazard Mitigation Program (NTHMP) and other NOAA partners, has produced "Tsunami", a new Science On a Sphere (SOS)® presentation to commemorate the 5th anniversary of the devastating 2004 Indian Ocean Tsunami. The narrated production uses global data sets, graphics and animations to describe the 2004 event and take viewers through a future tsunami scenario originating from the Cascadia Subduction Zone off the U.S. west coast. "Tsunami" is about 8 minutes in length and can be viewed on the Science On a Sphere (SOS)® website at

www.nnvl.noaa.gov/MediaDetail.php?MediaID=361&MediaTypeID=2

TCLEE Session Slides

Session slides from the TCLEE 2009 conference are now available at

<http://content.asce.org/conferences/tclee2009/>

ATC/SEI Paper Abstracts and Presentations

The ATC&SEI Conference on Improving the Seismic Performance of Existing Buildings and Other Structures took place on December 9-11, 2009 in San Francisco, California. Paper abstracts and presentations are available at

www.atcouncil.org/index.php?option=com_content&view=article&id=200:atcasei-hold-inaugural-conference&catid=46:organizational-news&Itemid=127

MORVEL – 20 Years in the Making

Richard Gordon, Rice University geoscientist, and collaborators Chuck DeMets of the University of Wisconsin-Madison and Donald Argus of NASA's Jet Propulsion Laboratory in Pasadena, Calif., have just put the finishing touches on a new model of the Earth. The model, dubbed "MORVEL" for "mid-ocean ridge velocities," offers a precise description of the relative movements of the Earth's tectonic plates.

"We live on a dynamic planet, and it's important to understand how the surface of the planet changes," said Gordon, Rice's W.M. Keck Foundation Chair in Geophysics. "The frequency and magnitude of earthquakes depend upon how the tectonic plates move. Understanding how plates move can help researchers understand surface processes like mountain-building and subsurface processes like mantle convection."

To read the full article, visit

www.media.rice.edu/media/NewsBot.asp?MODE=VIEW&ID=13947&SnID=1011156791

CONFERENCES, WORKSHOPS AND EVENTS

AGU Chapman Conference on Giant Earthquakes and Their Tsunamis

Dates: May 16-24, 2010

Locations: Valparaíso, Viña del Mar, and Valdivia, Chile

The conference is intended to promote scientific understanding of earthquakes of magnitude 9 (giant earthquakes) and of associated tsunamis. Though global in scope, the conference will use Chilean subduction zones to help focus discussions of where and why these earthquakes occur. Topics will include subduction-zone properties previously interpreted as controls on maximum earthquake size; patterns of earthquake recurrence in relation to the region's earthquake and tsunami history; and hazard assessments for building codes and tsunami safety.

For more information, visit

www.agu.org/meetings/chapman/2010/acall/

Fifth International Conference on Recent Advances in Geotechnical Earthquake Engineering and Soil Dynamics

Dates: May 24-29, 2010

Location: San Diego, California

Professionals from 40 or more countries from around the world are anticipated to present recent research findings. The exchange of information during the conference will advance the state-of-the-art and practice in several areas and will give definitive direction to future work. Earthquake, civil, structural and geotechnical engineers, geologists, scientists, teachers, builders, contractors and other professionals worldwide are invited to attend and join in the discussion at this conference.

For more information, visit

<http://conference.mst.edu/5geoeqconf2010/>

2010 IRIS Annual Workshop

Dates: June 9-11, 2010

Location: Snowbird, Utah

The 2010 Incorporated Research Institutions for Seismology (IRIS) Workshop will celebrate the 25th anniversary of IRIS - and look ahead to an exciting future for the Earth sciences. With the recent publication of *Seismological Grand Challenges in Understanding Earth's Dynamic Systems*, the IRIS Consortium of over 110 U.S. universities has a very special opportunity: to use these Grand Challenges to shape plans for continuing evolution of the facilities that support geophysical research.

For more information, visit

www.iris.washington.edu/hq/iris_workshop/

9th US National and 10th Canadian Conference on Earthquake Engineering

Dates: July 25-29, 2010

Location: Toronto, Ontario, Canada

Registration is now open for the 9th US National and 10th Canadian Conference on Earthquake Engineering. The Technical Program Committee is pleased to announce that nearly 800 papers have been submitted to the online submission web site. The committee estimates 1,500 attendees from all over the world. They are planning for approximately 100 technical sessions, including several panel discussions, augmented by two plenary sessions and six special sessions with invited speakers, as well as poster sessions.

For more information and to register for the conference, please visit <http://2010eqconf.org/>

WSSPC is a supporting organization of this event.

Mark Your Calendar!!

April 21-23, 2010

SSA Annual Meeting, Portland Marriott Downtown Waterfront Hotel, Portland, Oregon
www.seismosoc.org/meetings/2010/index.php

April 22, 2010

Utah Seismic Safety Council Meeting, Kletting Room of the Senate Building, Salt Lake City, Utah
<http://ussc.utah.gov/whatsnew.html>

May 13, 2010

California Seismic Safety Commission Meeting, Sacramento, California

May 11-13, 2010

18th Annual Conference National Voluntary Organizations Active in Disaster (National VOAD), Orlando, Florida
www.nvoad.org/

May 16-24, 2010

AGU Chapman Conference on Giant Earthquakes and Their Tsunamis, Best Western Marina del Rey Hotel in Viña del Mar, Chile
www.agu.org/meetings/chapman/2010/acall/index.php

May 18-20, 2010

Utah Public Safety Summit, Ogden Eccles Conference Center, Ogden, Utah
<http://publicsafety.utah.gov/>

May 24-29, 2010

5th International Conference on Recent Advances in Geotechnical Earthquake Engineering and Soil Dynamics and Symposium in Honor of I.M.Idriss, San Diego, California
<http://conference.mst.edu/5geoeqconf2010/>

May 20, 2009

Nevada Earthquake Safety Council Meeting, Las Vegas, Nevada

June 20-23, 2010

World Conference on Disaster Management, Metro Toronto Convention Centre, Toronto, Ontario, Canada
www.wcdm.org/

June 27-July 1, 2010

102nd Annual Association of American State Geologists Meeting, New Brunswick, New Jersey
www.regonline.com/Checkin.asp?EventId=841750

July 9, 2009

WSSPC 2010 Board, Committee and Annual Business Meetings, Omni Interlocken Resort, Broomfield, Colorado

July 9, 2010

WSSPC Awards in Excellence Banquet, Omni Interlocken Resort, Broomfield, Colorado

July 10, 2009

WSSPC Earthquake Early Warning Session, Omni Interlocken Resort, Broomfield, Colorado

July 10-13, 2010

Natural Hazards Workshop, Omni Interlocken Resort, Broomfield, Colorado
www.colorado.edu/hazards/workshop/

July 14-15, 2010

California Seismic Safety Commission Meeting, Sacramento, California
www.seismic.ca.gov/

July 24, 2010

ATC Meeting, San Francisco, CA

July 25-29, 2010

9th US National & 10th Canadian Conference on Earthquake Engineering: Reaching Beyond Borders, Westin Harbour Castle Hotel, Toronto, Canada - WSSPC is a co-sponsor of this event.
<http://2010eqconf.org/>

August 25, 2009

Nevada Earthquake Safety Council Meeting, Reno, Nevada

September 9, 2010

California Seismic Safety Commission Teleconference
www.seismic.ca.gov

September 14-17, 2010

California Emergency Services Association Annual Meeting, Monterey, California
www.cesa.net/conferences.cfm?color=st

September 20-25, 2010

Association of Environmental & Engineering Geologists Annual Meeting, Francis Marion Hotel, Charleston, South Carolina
<http://aegweb.org/i4a/pages/index.cfm?pageID=4565>

October 2010

Idaho Earthquake Preparedness Month

October 2010

NEMA Annual Conference, Peabody Hotel, Little Rock, Little Rock, Arkansas
www.nemaweb.org/?2068

October 21, 2010
California ShakeOut
www.shakeout.org/

October 23, 2010
ATC Meeting, New York, New York

October 30-November 4, 2010
International Association of Emergency Managers 58th
Annual Conference & EMEX 2010, Hilton Palacio del Rio
& Henry B. Gonzalez Convention Center, San Antonio,
Texas
www.iaem.com/events/annual/intro.htm

October 31-November 3, 2010
Geological Society of America Annual Meeting, Denver,
Colorado
www.geosociety.org/meetings/2010/index.htm

November 17, 2010
Nevada Earthquake Safety Council Meeting, Las Vegas,
Nevada

December 2010
American Geophysical Union Fall Meeting, San Francisco,
California

December 9, 2010
California Seismic Safety Commission Meeting,
Sacramento, California
www.seismic.ca.gov/

Request for Newsletter Submissions

If you have a newsworthy item for the next eNewsletter,
please forward it to Amy Lewis, Program Manager at:
alewis@wsspc.org