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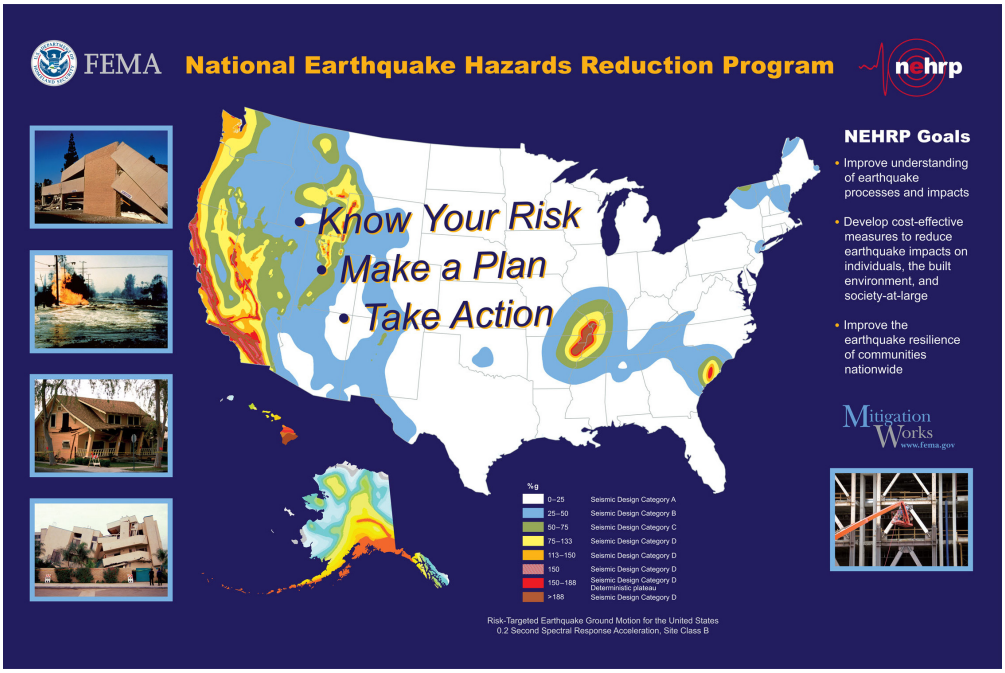
HIGHLIGHTS OF FEMA'S 2008 NEHRP ENDEAVORS

by Larry Hultengren and Gabriel David Javier

Federal Emergency Management Agency



Earthquakes cannot be prevented, but their impacts on life, property, and the economy can be managed.

Congress first authorized the National Earthquake Hazards Reduction Program (NEHRP) in 1977 (Public Law 95-124) to "reduce the risks of life and property from future earthquakes in the United States." The most recent reauthorization, Public Law 108-360, authorized the NEHRP through Fiscal Year (FY) 2009.

The activities of the four NEHRP agencies are led by the National Institute of Standards and Technology (NIST), who together with the U. S. Geological Survey (USGS), National Science Foundation (NSF), and the Federal Emergency Management Agency (FEMA), are part of a process that can be thought of as a research-to-practice pipeline. The NSF and the USGS support the basic research that produces scientific advances. The NIST and FEMA incorporate these advances into applied research that contributes to the development of mitigation tools and information. FEMA and NIST promote and facilitate use of these tools and information by those involved in implementing earthquake mitigation measures. FEMA leads related program implementation efforts including training, dissemination and outreach.

In order to meet these responsibilities, FEMA has been assisting State and local governments for over 25 years; providing tools to estimate potential losses due to earthquakes and other hazards; developing earthquake risk-reduction tools and measures; preparing technical design and construction guidance aimed at improving the seismic safety of new and existing buildings and lifelines (essential utility and transportation systems); and preparing information for and about building codes and practices.

– INSIDE THIS ISSUE –

The following are examples of FEMA's 2008 progress and some insight into 2009 FEMA NEHRP goals and priorities looking forward.

Translating and Implementing Research Results

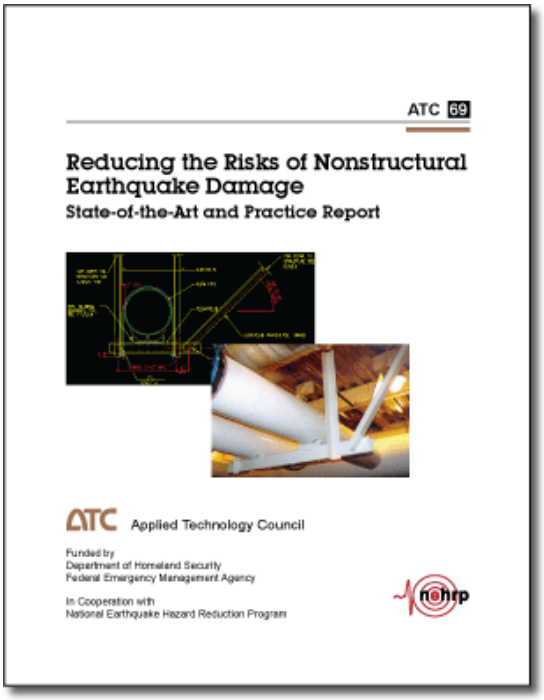
Promoting the implementation of research results is one of FEMA's most important NEHRP responsibilities. One way this is accomplished is through the translation of research results into the development of design and construction guidance products that can be adopted by national codes and standards organizations. The NEHRP Recommended Provisions is the primary resource document to translate NEHRP research results into practice guidelines for the earthquake engineering design community. Our 2009 plans include updating and publishing the NEHRP Recommended Provisions. This document then becomes the basis for the next ICC Code Series revisions – the code revision cycle process beginning in 2010, and culminating with the release of the new ICC Code series in 2012.

In another effort, FEMA completed the 90% draft of Quantification of Building Seismic Performance Design Factors (FEMA P695). Two public workshops were held in August to capture review comments and to introduce attendees to the methodology for reliably quantifying building system performance and response parameters for use in seismic design. The final publication is scheduled to be completed, published and available online in late 2009.

Developing and Publishing Design Guidance

The development, publication, and promotion of building design and construction materials, including the development and delivery of training for the building design and construction industry, are signature elements of FEMA's work under NEHRP for the past 30 years. FEMA has developed and published over 200 earthquake design guidance publications on all aspects of earthquake mitigation. FEMA also provides guidance on seismic design and construction, structural and non-structural issues, and the need for affordable seismic retrofitting techniques. In addition, FEMA also conducts related outreach activities to promote training courses and publications.

FEMA is also updating its guidance on mitigating non-structural hazards, Reducing the Risk of Nonstructural Earthquake Damage: a Practical guide, FEMA 74. As a first step in this process, ATC released the ATC 69, State of the Art and Practice Report, which will be used as a basis for the update of FEMA 74. The updated version of FEMA 74 will be produced as an electronic, web-based document and will be available on the FEMA website. The ATC 69 report is available for download at www.atcouncil.org.



An example of a 2008 FEMA NEHRP publication release is Guidelines for the Design of Structures for Vertical Evacuation from Tsunamis (FEMA P646). The goal of the project was to provide design and construction guidance for special facilities that would allow for vertical evacuation from Tsunamis. The guidance provides an alternative mitigation strategy for communities with near source Tsunamis and in low-lying areas without access to high ground. Publications are available free of charge in print or on CD from FEMA Publications Warehouse (800-480-2520).
Most publications can also be downloaded from the FEMA website http://www.fema.gov.

Administering State Grant Programs

FEMA administers a variety of grant programs including the all-hazards Pre-Disaster Mitigation (PDM) Grant Program for States and communities; the Hazard Mitigation Grant Program (HMGP), an all-hazards post-disaster grant program; and the Emergency Management Performance Grants (EMPG) Program. A soon to be released Annual Report of the National Earthquake Hazards Reduction Program (March 2009) highlights successful State earthquake mitigation activities funded under FEMA's grant programs (see www.nehrp.gov).

In 2009, FEMA will re-establish a targeted State assistance program aimed at providing assistance for State earthquake programs intended to support: developing local capability to conduct seismic safety inspection of critical structures and lifelines; promoting, developing, publishing model building codes including adoption and enforcement of codes containing latest seismic safety provisions; State and local education programs and public awareness campaigns

In April 2008 FEMA cosponsored the three-day National Earthquake Conference in Seattle, WA. The event was attended by more than 400 public and private sector professionals. The conference title was "Understanding Earthquakes: From Research to Resilience." Among the many and multi-faceted themes, papers and presentations were: understanding the scientific, engineering, and social research that underlies our ability to assess, mitigate and respond to earthquakes; exchanging information on products meant to facilitate earthquake hazard mitigation and response; and showcasing successful earthquake hazard mitigation and response programs in the public and private sectors. More information is available at www.earthquakeconference.org.

Education, Outreach, and Public Awareness

Education and public awareness are cornerstones of FEMA's NEHRP work. Activities include developing and implementing a training and outreach strategy, including design, construction, and retrofitting audiences; incorporating earthquake awareness and preparedness messages and earthquake mitigation materials into awareness products; and providing education and training support to FEMA regional offices, State and local partners, and other stakeholders.

In FY 2008, FEMA rolled out QuakeSmart, a new initiative designed to encourage business leaders and owners in areas at risk from earthquakes to take actions to mitigate damage to their businesses, provide greater safety for customers and employees, and speed recovery after an earthquake. The goal of QuakeSmart is to build awareness within the business community of the risk and to educate businesses on things they can do to mitigate the impact of earthquakes. Not only can business owners protect their investments and recover more quickly from a disaster, they can save on insurance premiums, significantly reduce the risk of injury or death for themselves, their employees, and customers, and create a more resilient community in which future investment is more attractive. In 2009 FEMA will build on the 2008 program successes by following-up on the survey/questionnaires that were distributed at the four 2008 forums, coordinating a new forum in a major West coast city, and conducting a regional roundtable in a Mid-west city at risk in the New Madrid Seismic Zone.

FEMA continues to provide and advance earthquake Mitigation Training provided through the National Earthquake Technical Assistance Program (NETAP). Through NETAP, FEMA supports the development of training curricula on earthquake mitigation topics and provides courses for state and local officials and businesses throughout the U.S. In FY 2008, there was a high demand for NETAP training courses, including Procedures for Post Earthquake Safety Evaluation of Buildings (ATC-20); Rapid Visual Screening (RVS) of Buildings for Potential Seismic Hazards (FEMA 154); and Earthquake Hazard Mitigation for Nonstructural Elements. Through these and other courses, FEMA's training target for FY 2008 was surpassed.

During 2008, FEMA supported the piloting and release of the new digital/portable electronic application of FEMA 154, known as ROVER (at the University of Utah in Salt Lake City, Utah). "ROVER", which stands for Rapid Observation of Vulnerability and Estimation

of Risk, is an open-source, mobile computing environment that uses Windows Mobile Smartphones and GPS devices, plus a PC-based data server that can send assignments to field users and aggregate field results via wired synchronization or remotely via IP, either daily or on the fly. The database is controlled through a web browser, and resides in the user's office or it can be hosted securely by others. In 2009, FEMA will partner with USGS to pilot ROVER and a new post-earthquake screening tool based on ATC 20, in additional locales and with new partners.

In FY 2008, FEMA continued to actively promote and support state and local use of Hazards United States-Multi Hazard (HAZUS-MH). The HAZUS-MH Earthquake Model provides estimates of damage and loss to buildings, essential facilities, transportation lifelines, utility lifelines, from population based earthquake scenarios or probabilistic earthquakes. The importation (into HAZUS-MH Earthquake Model) of ShakeMap data, made available online through the USGS, to produce near real-time earthquake risk analysis, is a recent advancement to HAZUS. In 2008, FEMA conducted two demonstration projects in Utah and Washington that used ShakeMap and HAZUS-MH to generate near real time risk prediction maps for emergency response. These detailed prediction maps can also be utilized by state, regional, and local authorities in emergency response exercises to better prepare for future earthquakes.

In 2009 FEMA is preparing a training course to accompany Designing for Earthquakes: A Manual for Architects (FEMA 454). FEMA 454, published in December 2006, explains the principles of seismic design for those without a technical background in engineering and seismology, which is aimed for practicing architects, architectural students, and faculty in architectural schools that teach structures and seismic design.

Developing Performance-Based Seismic Design Guidance (PBSD)

An important component of FEMA's responsibilities, and an area identified as a NEHRP strategic priority, is the development and translation of NEHRP-funded research results into PBSD guidance and other materials for new and existing buildings. The PBSD initiative will result in a new performance assessment methodology and guidelines to be used in evaluating how a building (new or existing) is likely to perform in a given earthquake. More specifically, the new methodologies will facilitate performance-based seismic design procedures and guidelines to assist in the design of buildings to meet desired performance goals. Some of the advantages and uses of the new methodology includes the consideration of uncertainties inherent in both the hazard and the actual building response, and it permits the design of new buildings or upgrade of existing buildings with a realistic understanding of the risk of casualties, occupancy interruption, and economic loss that may occur as a result of future earthquakes. The PBSD project is a multi-year effort and is based on the Next-Generation Performance-Based Seismic Design Guidelines, Program Plan for New and Existing Buildings (FEMA 445).

Looking Forward: FEMA and NEHRP Strategic Priorities

In FY 2009 and beyond, FEMA will be focusing on strategic priorities identified in the NEHRP Strategic Plan, including the further development of PBSD and the facilitation of improved earthquake mitigation at State and local levels.

NEHRP has established that the creation and maintenance of a repository of important post-earthquake reconnaissance data is one of its Strategic Priorities that is included in its Strategic Plan, as funding allows. In 2008 FEMA took actions in support of this initiative by sponsoring the development of scoping workshops and documents for a system known

as the Post-Earthquake Management System (PIMS) under the auspices of the American Lifelines Alliance (ALA) and the National Institute of Building Sciences (NIBS). The upcoming PIMS report will provide the framework for building and operating a post-earthquake data retrieval system – to catalog, preserve, and disseminate important event data.

FEMA also continues to improve its earthquake mitigation information website (www.fema.gov/hazard/earthquake/index.shtm), which is linked to the www.nehrp.gov website. It includes sections designed to inform the public, emergency management personnel, businesses, and federal, state, and local agencies of ongoing activities in earthquake mitigation by all of the NEHRP agencies and their partners. FEMA will continue to post NEHRP technical and non-technical publications on the site.

The opportunity to contribute to the challenging task of creating a safer, more prepared national community is valued and appreciated by FEMA not only for the inherent good that it produces, but also for the its association with so many other dedicated individuals and organizations who give so much of themselves to that task.

For this reason and more FEMA looks forward to the New Year and supporting NEHRP in its efforts to reduce the risk of life and property from future earthquakes in the United States.

Around the Region

USGS Announces New Coordinator for Memphis Office

Recently, the USGS announced that Martitia Tuttle has been selected as the next USGS Regional Earthquake Coordinator for the Central and Eastern U.S.

Dr. Tuttle comes to the USGS from M. Tuttle and Associates, where she has served as the Director and Principal Investigator for almost 10 years. Prior to that, Tish held research positions at the University of Maryland and Lamont-Doherty Earthquake Observatory.

Tish is a recognized leader in the field of paleo-seismology and studies of earthquake hazard in the central and eastern U.S.. Her research has led to improved age estimates of paleo-liquefaction features and the development of a paleo-earthquake chronology for the New Madrid Seismic Zone. She has also done extensive work in Canada, New England, and Puerto Rico. She serves as an expert consultant to the Nuclear Regulatory Commission on source characteristics and earthquake hazard. She has authored over twenty peer-reviewed manuscripts in professional journals, and she serves on the Editorial Board for Geology.

Dr. Tuttle has Bachelor's Degrees from Portland State University (Geology) and Oregon State University (Soil Science), a Master's Degree (Earth Science) from the University of California, Santa Cruz, and a Doctorate of Philosophy (Geology) from the University of Maryland. Tish will assume the position as the USGS Scientist in Charge of the Memphis Office in early February.

The Coordinator's position was previously held for a number of years by Dr. Eugene "Buddy" Schweig, who transferred to Denver, Colorado in 2007. CUSEC would like to wish Dr. Tuttle the best of luck in her new position with the USGS.

In 2004, Dr. Tuttle was part of the National Earthquake Conference, and led discussions during the conference field trip. Participants got first hand views of the results of her field work of geologic earthquake features in the St. Louis area.

USGS
science for a changing world

MEMBER STATE SPOTLIGHT ~ MISSISSIPPI

by Suzanne Lewis
Earthquake Program Manager
Mississippi Emergency Management Agency

Although the number of earthquakes known to have been centered within Mississippi's boundaries is small, the state has been affected by numerous shocks located in neighboring states. The New Madrid Seismic Zone (NMSZ) earthquakes of 1811 and 1812 was felt in Mississippi as far south as the Gulf Coast and caused the banks of the Mississippi River to cave in as far as Vicksburg. Mississippi Emergency Management Agency (MEMA) continues to focus on programs essential to earthquake hazard reduction. The program is broad in scope; it includes public awareness and education, training, preparedness, response and recovery planning and mitigation initiatives. Federal, state and local partnerships play an important role in accomplishing objectives of the program. One of the main goals of the agency's earthquake program is to build the best possible working relationship with the emergency management directors of those counties who may be affected by a NMSZ event.

In addition to participating in Earthquake Awareness Week in January 2009, MEMA is also participating in the New Madrid Seismic Zone Catastrophic Earthquake Planning Initiative. Mississippi has held three local workshops followed by a state workshop. Currently county planning workshops are being conducted to assist county directors in the development of an earthquake annex to be included in their county comprehensive emergency management plan. Before being appointed to the position of MEMA Executive Director by Governor Haley Barbour in 2006, Mike Womack served as Deputy Director and as the Agency's Response and Recovery Director. He was also designated as the State Coordinating Officer during Hurricanes Katrina and Ivan and as Deputy State Coordinating Officer for two additional major disaster declarations. Womack is a native of Hernando, Mississippi and received a Bachelor's Degree in Music from the University of Mississippi. He was commissioned a Second Lieutenant from Officer Candidate School at Fort Benning, Georgia and retired in 2001 a full time Lieutenant Colonel from the Mississippi Army National Guard after 29 years in active and reserve military service. Womack is a member of the Mississippi Civil Defense/Emergency Management Association, Regional Vice President for the National Emergency Management Association and serves on their Legislative Committee, member of the CUSEC Board of Directors, the National Guard Associations of Mississippi and the United States, and the United States Army Armor Association where he holds the Order of St. George, signifying significant contributions to the advancement of the Cavalry and Armor Units. Womack and his wife Joanie have a daughter, two sons and four grandchildren.

Suzanne C. Lewis is the Earthquake Program Manager for the State of Mississippi. Lewis joined MEMA's staff in December of 2001 as a Public Assistance Specialist in the Recovery Division. She later served as the Community Planner under the Preparedness, Training and Exercise Bureau with responsibility to all eighty two counties for planning efforts. She has spent more than a year working with local governments in their effort to revise, update and maintain plans after Hurricane Katrina. Currently, she is assigned as the Earthquake Program Manager, a position she has held since March 2006. She continues to work with those counties in Mississippi identified as part of the NMSZ. Lewis has a Bachelor of Science in Education from Mississippi College.

Mike Womack
Director
Mississippi Emergency Management Agency

Suzanne Lewis
Earthquake Program Manager
Mississippi Emergency Management Agency

Associate State Spotlight North Carolina

The CUSEC Associate State of North Carolina is no stranger to earthquakes. Evidence of seismic activity dates back to March of 1735, and at least 21 earthquakes have caused damage somewhere in the state. During the series of the great New Madrid earthquakes in 1811 & 1812, the single-men's building in Salem Village received severe cracking from the floor to the ceiling. Other seismic activity in the state includes a 5.5M earthquake—the state's largest quake to be centered in North Carolina—that shook the western part of the state on February 21, 1916.

Although North Carolina's last damaging earthquake was in May of 1981—a 3.5M in Henderson County—the state's emergency management agency remains involved in the central and eastern U.S. earthquake awareness/preparedness effort. North Carolina's Division of Emergency Management (NCEM) Earthquake Program Manager, Tiawana Ramsey supports the agency's earthquake public awareness effort with her participation in the yearly National Earthquake Program Managers Meeting. Working with NCEM's internet technology group, Ramsey ensures that information about hazard mitigation, emergency kits and what to do when an earthquake strikes is available to the public via online.

Also, as a member of the Emergency Management Association Compact (EMAC), NCEM will provide CUSEC member states with resources ranging from medical supplies to housing assistance in the event of a New Madrid catastrophic earthquake.

Doug Hoell was appointed NCEM Director in July of 2005 and has worked in emergency management since 1978. For more information about NCEM visit www.ncem.org

New Madrid Seismic Zone Catastrophic Planning Update

by Mike Calvert
CUSEC Planner

CUSEC Member States are completing their earthquake plans and finishing their state and local workshops, where they help county and city planners with their local plans.

Regional workshops are expected to be completed in May, with FEMA Region V holding the first regional workshop in late February. As the state plans are completed, we are working on the CUSEC Multi-State Coordination Annex (MSCA). It will share earthquake response information and the status of state actions supporting the CUSEC Board's Multi-State Planning Priorities.

CUSEC functional associations and working groups (Communications, Geologists, Public Information, Operations, Transportation, and Public Health) are responsible for MSCA appendices. Most of these groups met telephonically or in person during the fall to map out what each group will add to the MSCA.

Planning for the 2011 national level exercise is also proceeding. This exercise will be based on a catastrophic NMSZ event. State and local government, voluntary organizations, and businesses will want to get involved in the planning for this exercise and plan on participating.

While it may require a considerable investment of time and effort, the dividends received in increased preparedness in general and in improved capability to respond to a catastrophic earthquake could be thousands of saved lives. Please see the next article in this newsletter on the 2011 exercise. CUSEC appreciates FEMA's strong support of this catastrophic earthquake response planning effort, and their continuing support of the upcoming regional workshops and 2011 national level exercise.

The 2011 Exercise

by Paul Hogue
CUSEC Training/Exercise Officer

The CUSEC member-states are working closely with FEMA officials on a major earthquake exercise scheduled for May of 2011. The exercise, currently referred to as NLE 2011 (National Level Exercise 2011), will test newly created or modified catastrophic plans for dealing with an earthquake in the New Madrid Seismic Zone. This will be the first National Level Exercise focused on a natural hazard. "Our state exercise officers have really done a great job of pushing the effort to make sure we have a successful exercise," said Jim Wilkinson, Executive Director of CUSEC. "All of our states see the importance of this exercise as the natural next step in the ongoing planning process for a catastrophic event."

All eight states will be conducting at least a functional exercise, and most intend to have some full-scale activities at specific locations in their states. Functional exercises are complex exercises conducted with decision-makers, commanders, and response personnel in a realistic scenario, but with field operations simulated. Full-scale exercises are the same as functional exercises, but with actual deployments of response personnel and their equipment to test and practice their response capability.

The federal government has designated this as a Tier One exercise, which means that all appropriate departments and officials of the federal government will participate. Federal participation will be at least at the functional level, while some agencies will take part in full-scale activities.

The CUSEC Exercise Officers' Working Group (EOWG) has met several times since December 2007 to structure the basics of the exercise, and to ensure the planning is done from the bottom-up. This group has worked hard to keep exercise planning within the standards established by the Homeland Security Exercise and Evaluation Program (HSEEP). They have met with officials from FEMA's National Exercise Division (NED) to make sure there are no conflicts to derail the exercise, and to ensure that the states and the federal government are "on the same page."

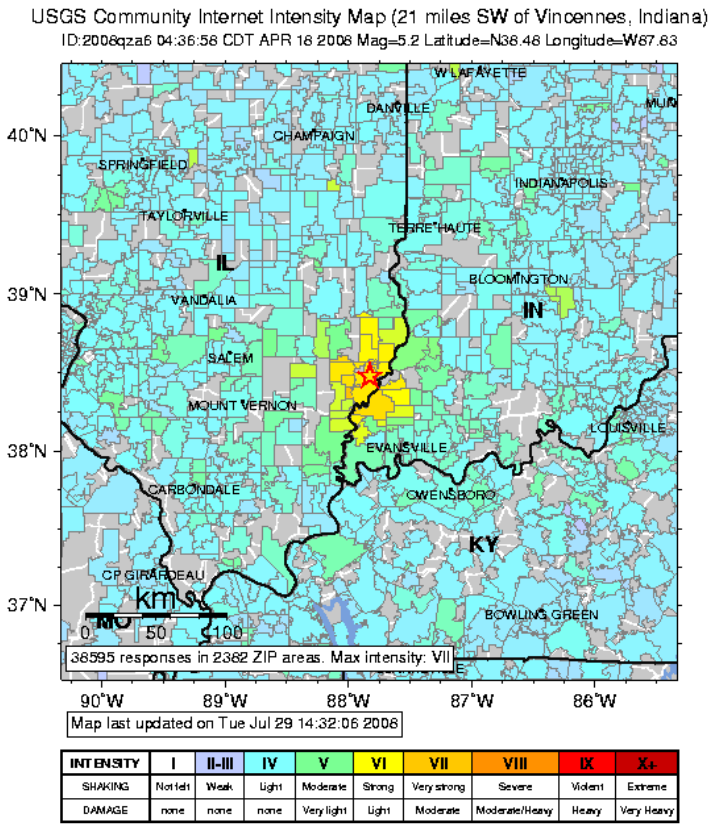
Early on, the EOWG set the goals of making sure that all exercise participants follow the same scenario, timeline, and objectives. Most of what the group has proposed has been endorsed by the CUSEC Board of Directors. The NED has used many of these proposals and incorporated them into their planning for NLE 2011. The states have already shown their influence on the process by helping convince FEMA to change their five-year exercise schedule and move the earthquake exercise from 2010 to 2011. This will allow for the federal plans coming out of the Catastrophic Planning Initiative for the New Madrid region to be exercised.

A Look Back at 2008

CUSEC would like to thank you (the public), for your interest in staying abreast about the on-going earthquake awareness/preparedness efforts in the central U.S. Approximately 1815 people have downloaded our quarterly news journal and approximately 125,000 people have visited our website this year. As you have read in our previous journals, 2008 has been a busy and productive year for CUSEC and its member states. Five out of eight states—Arkansas, Kentucky, Mississippi, Missouri and Tennessee—set the stage early in the year with their observance of Earthquake Awareness Week— (Month in the state of Missouri). Governors of each participating state issued Earthquake Awareness Proclamations urging central U.S. residents that pre-disaster preparation is the key to minimizing deaths, injuries, property damage and economic loss. The activities for Earthquake Awareness Week/Month included:

- Town hall meetings
- School earthquake drills
- Earthquake workshops & classes
- Earthquake awareness exhibits
- Disaster preparedness public forums

The above activities received excellent media coverage because news outlets had the opportunity to interview earthquake experts and local central U.S. residents as well as capture great video of hands on exhibits and school earthquake drills. CUSEC member states are currently making plans for activities— to be held in February—for Earthquake Awareness Week/Month 2009.



April 18 Earthquake

The most significant event to occur in 2008 in the central U.S. happened in the early morning hours of this past spring.

Many residents were shaken awake around 4:36 a.m. on April 18 by a 5.2 magnitude earthquake that occurred near the town of West Salem, Illinois, about 60 miles northwest of Evansville, Indiana. While there was only minor damage to buildings and no major injuries, residents were reminded that the central U.S. is indeed earthquake country with similar infrastructure vulnerabilities as earthquake prone areas in the western part of the country.

Coincidentally, at the time of the earthquake, CUSEC Director Jim Wilkinson was on an earthquake related field trip in the affected area with public and private sector officials. Several members of the field trip felt the earthquake, and the timing of the event served as a good example to the group that earthquakes really do happen in the central U.S.

Also in April of 2008, more than 400 people representing emergency management, engineering, science and the corporate sector met in Seattle, Washington for the National Earthquake Conference. With the theme of Understanding Earthquakes: From Research to Resilience, conference objectives focused on:

- Understanding earthquake research
- Exchanging ideas about tools for earthquake hazard & risk
- Showcasing successful programs
- Learning from past disasters & building community resiliency

The next National Earthquake Conference will be held in February of 2012 in Memphis, Tennessee. This conference will help commemorate the 200th Anniversary of the great New Madrid Earthquakes that occurred in the central U.S. during the winter of 1811 and 1812. You can visit www.newmadridbicentennial.org for more information about this upcoming event.

In May, CUSEC Executive Director, Jim Wilkinson, testified to the U.S. House of Representatives Subcommittee on Energy and Mineral Resources in an oversight hearing prompted by destruction caused by earthquakes in the U.S. and around the world. He gave a brief overview of the central U.S. earthquake hazard and the impact that a major earthquake would have on the region.

Also during the year, three CUSEC Member State emergency management agencies—Alabama, Indiana and Kentucky—received new directors who continue to dedicate their agency's resources to earthquake public awareness and preparedness through informational materials, workshops and meetings with other local, state and federal organizations. CUSEC Member States completed most of their state planning workshops in support of the NMSZ Catastrophic Planning Initiative. FEMA Regional Planning Workshops are set to begin in February. The focus will be to integrate the results of the individual state planning workshops to create a regional earthquake response plan. Throughout 2008, CUSEC has participated at various levels in its Member State activities. Looking forward into 2009, CUSEC will continue to work closely with its governmental and non-governmental partners to promote greater earthquake awareness and preparedness among central U.S. residents.

Arkansas to Receive New Earthquake Monitors

by Arkansas Department of Emergency Management

Little Rock, Ark. – In December of 2008, Governor Mike Beebe released $300,000 in General Improvement Funds to purchase six broadband seismic monitors that will detect and locate earthquake activity throughout Arkansas. The Arkansas Geological Survey will place the monitors throughout the state to improve measuring capabilities in areas between existing stations around the New Madrid Seismic Zone in Northeast Arkansas and those in Oklahoma.

"Although Arkansans may not think about earthquakes often, our proximity to the New Madrid zone makes them a realistic concern for our State," Governor Beebe said. "Our emergency responders already train and prepare for earthquakes. These seismic monitors will give us better information about the small tremors we experience now and help us prepare for stronger earthquakes that could impact Arkansas in the future."

The earthquake data collected by the new monitors will be shared with researchers and the public on a regular basis. The Geological Survey will also post updated maps of recent seismic activity online.

CUSEC and CDC to Host Post-Earthquake Public Health and Medical Issues Course in Arkansas

CUSEC, in cooperation with the Centers for Disease Control and Prevention (CDC), is presenting a one-day class titled "Disaster Medicine 101: Post-Earthquake Public Health and Medical Issues in the New Madrid Seismic Zone." It will be held at the Arkansas Department of Health Auditorium on February 4, 2009, in conjunction with Arkansas' Earthquake Awareness Week sponsored by the Arkansas Department of Emergency Management. The class will begin at 8:30 a.m. and conclude around 4:00 p.m.

The class is a big-picture overview of public health concepts related to the earthquake threat in the New Madrid Seismic Zone. It is open to first responders, medical professionals, public health officials, emergency managers, and others concerned with public health issues following an earthquake. The instructors are recognized experts from the federal, state, and local levels of government. Topics for the class include:

- The New Madrid Earthquake Threat and the Effects on Key Infrastructure
- Rapid Assessments and Disease Surveillance Activities during a Major Disaster
- Role of the Environmental Health Specialist During a Disaster
- Earthquake Disaster-Related Injuries and Injury Prevention
- Disaster Mental Health Consequences: Protecting the Responders

All those interested in attending the class in Little Rock or via the video-conferencing sites in Arkansas are to register through the Arkansas Department of Health learning management system known as A-TRAIN. They can either link to the site through http://register.cusec.org or at https://ar.train.org. The class number on the A-Train site is 1015426.

The class size in Little Rock is limited to 200, and all registrations will be taken online on a first-come/first-served basis. The class will also be available on a limited basis via video-conferencing by IP to other states. Check with your state public health agency for details.

The course is part of an ongoing effort to address catastrophic planning issues related to the earthquake threat in the central U.S. This is the third presentation of the course. CUSEC and CDC are also working on a course called "Disaster Medicine 201," addressing medical issues following an earthquake, with the pilot to be presented in Memphis this May.

For more information about the class, call CUSEC at (901) 544-3570.

– RECENT CENTRAL U.S. EARTHQUAKES –

DATE	LOCATION	MAGNITUDE
10/25/08	Howardville, MO	2.5
10/25/08	New Market, TN	2.5
10/25/08	Hardy, AR	2.7
10/31/08	Maryville,TN	2.8
11/02/08	Rockport, AR	2.7
11/06/08	Phillipsburg, MO	2.8
11/10/08	Midtown, TN	2.5
11/14/08	Hayward, MO	2.6
11/15/08	Hector, AR	2.9
11/21/08	Casa, AR	2.5
12/03/08	Damascus, AR	2.5
12/16/08	Goose Creek, SC	3.6
12/18/08	Mascot, TN	2.9
12/18/08	New Market, TN	2.9
01/07/09	Clinton, AR	2.7
01/09/09	Glenn Allen, MO	2.5
01/12/09	Narrows, VA	2.3
01/16/09	Covington, TN	2.8

IF YOU FEEL AN EARTHQUAKE, REMEMBER TO:
DROP, COVER, & HOLD ON FOR MAXIMUM SAFTEY

Visit http://www.dropcoverholdon.org to learn more ~ Image Courtesy Southern California Earthquake Center

EARTHQUAKE AWARENESS WEEK 2009

Earthquake Awareness Week activities will take place in late January and throughout February of 2009. States holding activities include - Arkansas, Kentucky, Mississippi, Missouri, and Tennessee. For more information on what is happening, visit our website or contact your State Earthquake Program Manager.

ARKANSAS

WHEN	WHAT	WHERE
February 3	Earthquake Awareness Talk	Little Rock
February 4	Disaster Medicine 101	Little Rock
February 5	Drop, Cover, Hold Drill	Little Rock
February 6	ATC20/FEMA 154 Workshop	Jonesboro

KENTUCKY

WHEN	WHAT	WHERE
February 3	Schools Drop, Cover, Hold Drill	Statewide
February 3	ATC20/FEMA 154 Workshop	Lexington

MISSISSIPPI

WHEN	WHAT	WHERE
January 26	Press Release/Media Event	Tunica

MISSOURI

WHEN	WHAT	WHERE
January 31	Earthquake Exhibit	Cape Girardeau
February 5	MO Seismic Safety Commission Meeting	St. Louis
February 5	St. Louis Mapping Project Meeting	St. Louis
February 6	Earthquakes Mean Business Seminar	St. Louis
February 6	SAVE Coalition Meeting	St. Louis
February 7	Earthquake Presentation	Leasburg
February 12	ATC20 Course	Ft. Leonard Wood
February 19	Earthquake Town Hall Meeting	Kansas City
February 23	Earthquake Presentation	Potosi
February 24	Non-Structural Mitigation Workshop	Sikeston
February 27	Earthquake Awareness Event	Perryville
March 6	Non-Structural Mitigation for Hospitals	St. Peters

TENNESSEE

WHEN	WHAT	WHERE
February 9	W. TN Seismic Safety Commission Mtg.	Jackson
February 9	Public Service Announcements	Memphis Area
February 12	Disaster Preparedness Conference	Memphis
February 13	ATC20 Workshop	Memphis

CUSEC Receives Grant for Earthquake Awareness and Planning

In the Fall of 2008 CUSEC received a grant from the Motorola Foundation. The grant will be used to support Earthquake Awareness and Outreach programs, as well as Multi-State Planning efforts in the CUSEC Member States.

The Motorola Foundation is the philanthropic arm of Motorola, Inc., global communications manufacturer and systems provider. Through the foundation, Motorola maintains relationships with local, national and international non-profit organizations — to extend resources to communities in need and to help expand the scope of their missions. For more on the foundation, visit their website at -www.motorola.com/giving.

CUSEC is pleased to announce this grant. Look for more information on upcoming programs in our next newsletter.

CUSEC Participates in Homeland Security Conference

Memphis, Tenn. - CUSEC Executive Director Jim Wilkinson facilitated earthquake presentations at a local conference hosted by the Department of Homeland Security in Memphis on December 10, 2008. Nearly 20 emergency management officials from the southeast region of the country met for their annual Protective Security Advisors (PSA) meeting to discuss nationally significant infrastructure and measures to protect and/or mitigate the consequences associated with a significant earthquake along the New Madrid fault line. The PSA's represent DHS' Office for Infrastructure Protection and work proactively with federal partners, state/local jurisdictions and Critical Infrastructure and Key Resource owner/operators to identify and implement protective strategies at nationally significant critical infrastructure. On a day dedicated to earthquakes, representatives from CUSEC, US Geological Survey, the Center for Earthquake Research & Information, the Mid-America Earthquake Center, the Delta Regional Authority and Virginia Tech University presented information to conference attendees that included:

- the central US earthquake hazard
- the USGS capabilities, tools & services
- the 2011 National Tier One Exercise
- post-earthquake regional social and medical/mass care impacts
- post-earthquake regional causalities and building damage

Tennessee Emergency Management Agency's Earthquake Program Manager, Cecil Whaley briefed conference attendees on TEMA's role and responsibilities in the earthquake program as well as the agency's operations response plan.

Rex Nelson, co-chairman of the Delta Regional Authority, summarized his organization's mission which is to improve life for the residents of 252 counties and parishes in parts of the following eight states: Alabama, Arkansas, Illinois, Kentucky, Mississippi, Missouri and Tennessee. He also talked about the present day challenges and vulnerabilities of the central U.S. rural communities; and the consequences of a major New Madrid earthquake.

In his presentation, Jim Riley with Riley and Associates gave a snapshot of the vulnerabilities of the central U.S. electrical grid system and explained how post-earthquake damage to the grid could impact the region as well as the entire country.

Oliver Boyd (bottom right) from the USGS presents earthquake hazard information to conference attendees.

CUSEC Tidbits: Re-Living the Earthquake Experience

by Garland Reed, President
Mid-South Hispanic Chamber of Commerce

As was the custom during the weekdays, the working families in this upscale subdivision of Cali, Colombia had just begun to get comfortably situated in bed for a nights rest in order to be up early the next day, full of renewed energy to head out to work for the adults and to school for the children. Even the live-in maids which every household employed had finished their evening work and were at last in their own quarters for the night.

Cali, a small city nestled against the foot of the majestic Farallones mountain peaks in a tropical valley, enjoys year round spring temperatures and is filled with colorful flowers blossoming all year and exotic birds bring in each day with beautiful melodic songs. We were living in the neighborhood call La Flora, and that evening the city was quiet and the only thing to be heard were sounds of nocturnal insects and the songs of night birds. At about 10 pm, when we heard the house twisting, with instant and great fear we jumped out of bed, grabbing nothing and ran out of the house into the street. Under the swaying street lights our many neighbors were already there. Then my most powerful impression was the unusual first time sight of my neighbors, men and women, out in the street in their pajamas, people I had only seen in executive wardrobe. The earth did not tremor anymore, so after about fifteen minutes everyone gradually, cautiously went back inside their homes. No house sustained damage but it was a frightening, unforgettable experience.

Garland Reed is the Founder and President of the Mid-South Hispanic Chamber of Commerce located in Memphis, Tennessee. The Chamber promotes regional economic development of Mid-South Hispanic businesses by providing access to resources and opportunities for growth, procurement and networking internationally. For more information on the Chamber, visit http://www.midsouthhispanic.com

Other News

NEES to Host Annual Meeting in Hawaii

In conjunction with the National Science Foundation (NSF), Civil Mechanical & Manufacturing Innovation (CMMI) Conference: Research & Education in a Flat World, the Network for Earthquake Engineering Simulation (NEES) will host its 7th annual meeting in Honolulu, Hawaii on June 23-25. This meeting will provide an opportunity for the NEES community to interact with researchers from other sectors and showcase the impact of NEES on seismic mitigation. Plenary session topics for the meeting will include:

- NEES in a Multi-Hazard World
- NEES Success Stories & Innovations
- NEES in a Flat World
- NEES: Advancing Performance & Resiliency Worldwide
- Emerging Frontiers in Research

Visit www.cmmigranteeconference.org for more information about the 7th annual NEES meeting.

New Release of iSeismograph is Now Available

from the Network for Earthquake Engineering Simulation Website

A new release of iSeismograph is now available that addresses installation and other known issues. iSeismograph allows anyone to record, view and automatically save real-time streams of earthquake acceleration data. It now installs easily on any Macbook or Macbook Pro; a single click on the installation jar file will immediately bring up an install wizard to guide you through the process.

The disk footprint of the installation has also dropped from roughly 50 megabytes to 11. We anticipate these modifications will go a long way towards making any Macbook/Pro an on-demand iSeismograph, thereby enhancing it as an educational and demonstration tool.

iSeismograph is currently available only for Apple Macintosh laptop computers, as they are the only platform at present which ships standard with embedded accelerometer hardware. Interested users can download iSeismograph at the following location: http://it.nees.org/software/iSeismograph

UPCOMING CONFERENCES, TRAINING, WORKSHOPS, ETC

WHEN	WHAT	WHERE
January 26-30	Mississippi Earthquake Awareness Week Activies	Throughout MS
January 26-30	AL Association of Emergency Managers Conference	Tuscaloosa, AL
February 1-28	MO Earthquake Awareness Month Activities	Throughout MO
February 4	Disaster Medicine 101 Course	Little Rock, AR
February 1-7	AR Earthquake Awareness Week Activities	Throughout AR
February 11-14	EERI Annual Meeting	Salt Lake City, UT
February 11-14	WSSPC Annual Meeting	Salt Lake City, UT
February 9-13	TN Earthquake Awareness Week Activities	Throughout TN
February 13	ATC20 Workshop	Memphis, TN
February 24-26	FEMA Region V Catastrophic Planning Workshop	Indianapolis, IN
March 11-12	FEMA Region VII Catastrophic Planning Workshop	Jefferson City, MO
March 24-27	Missouri State Emergency Management Conference	Branson, MO
May 4-6	FEMA Region IV Catastrophic Planning Workshop	Atlanta, GA
June 23-25	NEES 7th Annual Meeting	Honolulu, HI

Visit the CUSEC website at www.cusec.org to learn more about upcoming events...

DATES TO MARK

Earthquake Awareness Month – January/ February 2009. CUSEC Member States participating in earthquake awareness activities during February include Arkansas, Kentucky, Missouri, Mississippi, and Tennessee. Activities will include exhibits, earthquake related training and workshops, media events, and other public outreach efforts. For more information, contact CUSEC or your state Earthquake Program Manager at *www.cusec.org*

Disaster Medicine 101 – February 4, 2009. CUSEC, the CDC, and the Arkansas Department of Emergency Management, will present a Disaster Medicine 101 course in Little Rock, AR The class is a one-day general overview of public health concepts related to the earthquake threat in the New Madrid Seismic Zone and is open for registration. For more information, visit the CUSEC registration portal at *http://register.cusec.org*

New Madrid Seismic Zone Catastrophic Planning – Spring 2009. The NMSZ Catastrophic Planning Initiative is moving into the Regional Planning Phase as State and Local planning concludes. The Regional Workshops will be taking place in Atlanta, GA, Jefferson City, MO, Indianapolis, IN, and Arkansas (location TBD) to bring together key organizations to address the issue of responding to a catastrophic earthquake on the New Madrid Seismic Zone.

The Central United States Earthquake Consortium is a not-for-profit corporation established as a partnership with the Federal government and the eight member states: Alabama, Arkansas, Illinois, Indiana, Kentucky, Mississippi, Missouri, and Tennessee; and nine associate member states: Georgia, Iowa, Louisiana, South Carolina, North Carolina, Ohio, Oklahoma, Nebraska and Virginia. The Federal Emergency Management Agency provides the basic funding for the organization.

CUSEC's purpose is to help reduce deaths, injuries, damage to property and economic losses resulting from earthquakes occurring in the central United States. Basic program goals include: improving public awareness and education, mitigating the effects of earthquakes, coordinating multi-state planning for preparedness, response and recovery, and encouraging research in all aspects of earthquake hazard reduction.

STAFF

Jim Wilkinson	**Executive Director**
Peggy Young	**Associate Director**
Brian Blake	**Program Coordinator**
Jennifer Brumley	**Administrative Assistant**
Gwen Nixon	**Accounting**
Alisa Nave	**Public Outreach Coordinator**
Paul Hogue	**Exercise/Training Officer**
Mike Calvert	**Emergency Planner**

CUSEC Phone Number:	**(901) 544-3570**
Toll Free	**(800) 824-5817**
Fax	**(901) 544-0544**
Email	**cusec@cusec.org**
Website	**www.cusec.org**

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Missouri Emergency Management Agency

Please send comments and suggestions to cusec@cusec.org

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Central United States Earthquake Consortium
2630 E. Holmes Road
Memphis, Tennessee 38118

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