



# THE CUSEC JOURNAL

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THE CENTRAL UNITED STATES  
EARTHQUAKE CONSORTIUM

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## OBSERVING THE BICENTENNIAL OF THE NEW MADRID EARTHQUAKES OF 1811-1812

As the New Madrid Bicentennial (NMB) draws near, CUSEC and our Member States, academia, the private sector and many other state and federal organizations will observe the 200th anniversary of the great New Madrid earthquakes with participation in events hosted throughout the central U.S. The goal of this observance is to increase awareness about the earthquake hazard in the central U.S., and to promote greater preparedness efforts among the region's residents. Organizations participating in the planning of this year-long event include:

*Federal Emergency Management Agency*

*U.S. Geological Survey*

*National Earthquake Hazards Reduction Program*

*Center for Earthquake Research and Information*

*Mid-America Earthquake Center*

*CUSEC Member State Emergency Management  
Agencies*

*CUSEC Member State Geological Surveys*

*Delta Regional Authority*

*Earthquake Engineering Research Institute*

*Private Sector Businesses*

*and many others...*



*One of the changes to the landscape during the 1811-1812 New Madrid Seismic Zone Earthquakes was the formation of Reelfoot Lake in northwest Tennessee. Reelfoot Lake is the largest natural body of water in the state and is well known in the region for fishing and wide variety of plant and wildlife, including bald eagles.*

One CUSEC Member State EMA has decided to take their earthquake awareness campaign on the road. The Indiana Department of Homeland Security (IDHS) is in the process of purchasing a Quake Cottage - a mobile earthquake simulator designed as a storybook cottage with thatched roof resting on a double-axle tandem trailer. Its self-powered, three-dimensional movement is powered by a cam engine which thrusts the two thousand pound house with calculated strength simulating up to an 8.0 earthquake. All of the contents

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Planning for the New Madrid Bicentennial began in October of 2008. Since then, organizers have outlined activities that will span across the year of 2011/2012. CUSEC Member States will host a variety of activities that will include earthquake townhall meetings to discuss the central U.S. earthquake hazard, and how government is addressing this issue, training workshops focused on structural and non-structural mitigation, and public health (and medical) courses.

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are seismically fastened to protect the occupants and demonstrate how violent yet survivable a major earthquake can be, according to *safe-t-proof.com*. While visiting counties in the southwest part of the state vulnerable to earthquakes, IDHS officials are hoping to drive home the importance of preparedness and mitigation to residents in order to help them to avoid the fallout of death and destruction that Haitians are still living with more than five months after their catastrophic earthquake. While distributing earthquake preparedness information through weekly press releases and twitter, the agency also plans to spread their preparedness message through earthquake presentations given in grass-root communities by officials of local county EMAs and fire departments.

Local communities in the areas of New Madrid, Missouri and Reelfoot Lake in Tennessee are teaming up to showcase the bicentennial and have discussed the following potential projects:

- Plays featuring the 1811/1812 earthquakes
- Holding special screenings of several older films earthquake related films
- The creation of historical postcards
- The creation of restaurant placemats that show earthquake-related information
- The creation of 1811/1812 souvenir t-shirts with illustrations of both Reelfoot Lake and the Missouri Bootheel showing how these two communities are connected by the same earthquake hazard

Other contributions to the New Madrid Bicentennial include numerous hands-on products already in development by the U.S. Geological Survey (USGS). These products are:

- New Madrid Field Trip Guide Book
- Map pamphlet that will illustrate the 1811/1812 earthquakes
- Handbook for earthquakes in the central U.S. titled Putting Down Roots in Earthquake Country
- Website that will include a map and a digital interactive timeline about the 1811/1812 earthquakes

The Center for Earthquake Research and Information (CERI) is also working on a new earthquake display for the Reelfoot Lake Visitors Center. This display includes real-time earthquake information, information about the New Madrid Bicentennial and authoritative hazard information from the USGS. Other CERI projects in process include: a documentary on the New Madrid Seismic Zone, regional public service announcements, earthquake poster contest for grades K-12 and various conferences and meetings.

The kick-off for the NMB is set for February 4th, 2011 in St. Louis, Missouri. Right now, you can log onto [www.newmadrid2011.org](http://www.newmadrid2011.org) to find out more detailed information about the kick-off, upcoming bicentennial related events, background information about the 1811/1812 New Madrid earthquakes, earthquake preparedness information and much more.

As an active participant in the New Madrid Bicentennial planning process, CUSEC is excited about a special project with St. Jude Children's Research Hospital and the Institute for Business and Home Safety (IBHS) which will involve building an earthquake resistant home in Memphis, Tennessee. This home will be built to the "IBHS Fortified...for Safer Living" standards, and auctioned off as part of St. Jude's National Dream Home Program. This house will be available for viewing in March of 2012, with its completion planned for June. CUSEC is also coordinating the largest earthquake preparedness drill in central U.S. history aimed at helping the region's residents put everything they've been told about earthquake preparedness into practice. This drill is called the Central U.S. ShakeOut.

## Central U.S. ShakeOut

With more than 40 million people living and working in the central United States, the cross roads of America, a major earthquake could cause unprecedented disruption and devastation.

What we do now, before a big earthquake, will determine what our lives will be like afterwards. With earthquakes an inevitable part of our future, we must act quickly to ensure that disasters do not become catastrophes.

The primary goal for the Great Central U.S. ShakeOut in April 2011 will be involve more than 1 million people in learning about earthquakes, through a broad-based outreach program, partnership with the media, and public advocacy by hundreds of partners. This event is being organized by CUSEC and our Member States: Alabama, Arkansas, Kentucky, Illinois, Indiana, Mississippi, Missouri, and Tennessee. The ShakeOut will be centered around a simultaneous drop, cover, and hold drill that will be held at 10:15 AM CDT on April 28, 2011. The drill is designed to increase awareness and be a simple thing that can be done easily by many people.

A key aspect of the ShakeOut is the integration of comprehensive science-based earthquake research and the lessons learned from decades of social science research about why people get prepared. The result is a “teachable moment” on par with having an actual earthquake (often followed by increased interest in getting ready for earthquakes). The ShakeOut creates the sense of urgency that is needed for people, organizations, and communities to get prepared, to practice what to do to be safe, and to learn what plans need to be improved.

Not just any drill will accomplish this; it needs to be big. It must inspire communities to come together. It must involve children at school and parents at work, prompting conversations at home. It must allow every organization, city, etc., to make it their own event.

The 2011 ShakeOut drill will be the largest earthquake preparedness event in central U.S. history. Soon, a website detailing ShakeOut drill procedures, registration, and promotion, will be ready at [www.ShakeOut.org/centralus](http://www.ShakeOut.org/centralus). At this website, you will be able to pledge your family, school, business, or

organization’s participation in the drill. Registered participants will receive information on how to plan their drill and how to create a dialogue with others about earthquake preparedness. All organizers ask is that participants register (so they can be counted and receive communications), and at the minimum practice “drop, cover, and hold on” at the specified time.



It is only a five minute commitment for something that can save your life. It all begins with registering, which is free and open to everyone. To sign up to participate in the ShakeOut, visit [www.ShakeOut.org/centralus](http://www.ShakeOut.org/centralus) in the coming weeks.

## National Level Exercise 2011

On the heels of the Central U.S. ShakeOut to be held in April of 2011, the CUSEC Member States are also partnering with the federal government and various other agencies and organizations to conduct the largest emergency management exercise in U.S. history to be focused on a natural disaster.

Scheduled to be conducted in May of 2011, planning for the National Level Exercise —also known as NLE 2011 —officially began in the first quarter of 2009. This five day exercise will test local, state and federal plans and annexes that have been either modified or created as a result of the New Madrid Seismic Zone (NMSZ) Catastrophic Planning Initiative —a project initiated by FEMA to increase national readiness for a catastrophic earthquake in the NMSZ.



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Working groups have been established at the state and federal level to address the following subjects to be tested during the exercise:

1. Scenario Training
2. External Affairs (Public Information and Warning)
3. Private Sector
4. Control and Evaluation
5. Citizen and Community Preparedness
6. EOC Management
7. Medical Surge
8. Long-Term Recovery

Prior to the first Multi-State Concepts and Objectives (Multi-State C&O) —the formal beginning of the exercise planning process that is held to agree upon already-identified type, scope, capabilities, objectives, and purpose of the exercise— meeting in April of 2009, Arkansas, Indiana, Kentucky and Missouri held various types of lead-up exercises such as: local and state level tabletops, district and state level functional exercises, discussion-based exercises and command exercises. A subsequent National Concepts and Objectives (National C&O) Meeting was held in May of 2009 in Washington D.C., bringing together all key players to discuss information about the Exercise Directive. These meetings (Multi-State and National C&O) helped to insure the need for a bottom/local-up approach to exercise planning as well as emphasized the need to recognize the regional nature of the central U.S. earthquake hazard and response.

The completion of the Initial Planning Conferences (IPC) — typically another early step in the planning process which lays the foundation for the exercise. Its purpose is to gather input from the exercise planning team on the scope; design requirements and conditions; objectives; level of participation; and scenario variables, and master scenario events list, or MSEL,— by the CUSEC Member States marked a major step in the planning process. In follow-up meetings from the state IPCs, the CUSEC Exercise Officers Working Group (EOWG) came together in September of 2009 to identify concerns and needs of the states individually and as a group. These concerns were later addressed in depth at the National IPC in Alexandria, Virginia in January of 2010. In between meetings and conferences, the states of Arkansas, Illinois, Indiana, Missouri and Tennessee

conducted joint planning meetings with FEMA, logistics workshops, and functional and tabletop exercises during the fourth quarter of 2009 and the first quarter of 2010. Recently, six out of the eight CUSEC Member States met with representatives from FEMA Regions IV, V, VI and VII at the multi-state mid-term planning conference in Frankfort, Kentucky in June of 2010; where briefings were given about the status of the exercise by state and federal planning partners.

As planning continues for NLE 2011, you can follow its status in more detail by reading our “The Road to NLE 2011” column written by CUSEC Exercise/Training Officer Paul Hogue. This column has been featured in our quarterly journal since the summer of 2009.

## **AROUND THE REGION**

### **FEMA Conducts Emergency Public Information Workshop in Illinois**

In preparation for the National Level Exercise in May of 2011, representatives from FEMA Region V hosted an emergency public information workshop on June 2-3 in Carterville, Illinois. The main purpose for this meeting was to begin building a standardized region-wide external affairs protocol that will be adopted by local, state and federal governments and the private sector. Workshop facilitator Tom Mefferd, an Emergency Analyst with FEMA Region V opened with a discussion about the importance of public information officers at all levels sharing facts, controlling rumors and sending an accurate unified message to the public.

“Our objective here is to begin developing a common system,” he said. “So we can speak the same language during the disaster.”

This workshop covered presentations about the central U.S. earthquake hazard, and in particular, how a moderate to major earthquake in the New Madrid Seismic Zone (NMSZ) would affect the CUSEC Member States of Illinois and Indiana. As Mefferd talked about the scenario for the 2011 National Level Exercise (NLE 2011),— a 7.0M earthquake strikes the central U.S. at 2:00 a.m., affecting at least 41 counties in Illinois and Indiana— he highlighted some initial and cascading events such as:

- Households and businesses without power and water
- Natural gas leaks and breaks
- Law enforcement, and hospital facility damage
- The high number of injuries and fatalities
- Road and bridge damage

Officials from FEMA Region V and Headquarters gave a brief overview about the Emergency Support Function for External Affairs,—also known as ESF #15— and the role of the Emergency Alert System (EAS). During the ESF #15 overview, state and local level workshop attendees learned how the federal government will operate during an earthquake disaster and how they can fit into that structure.

“We (FEMA External Affairs) want to put more tools into your (state and local level workshop attendees) toolbox to help you do your job effectively,” Mefferd said.

Following the scenario for NLE 2011, workshop attendees also participated in several exercise modules to identify essential elements needed to send out accurate and timely messages to the public.

## **CUSEC Participates in Memphis Airport Authority Exercise**

At the request of Norma Rushing, Master Coordination Center Officer (MCCO) for Memphis TSA, CUSEC Exercise/Training Officer, Paul Hogue gave presentations on earthquake preparedness for select employees of the Transportation Security Administration (TSA) working at Memphis International Airport on June 29-30.

The presentations were intended primarily for TSA employees with MARS (Military Auxiliary Radio Service) and CERT (Community Emergency Response Team) training. Other airport employees also attended, including Kevin G. McCarthy, Federal Security Director (FSD) for Memphis International Airport. The classes were conducted on Tuesday at the TSA Corporate Building and on Wednesday at the boardroom for the Memphis-Shelby County Airport Authority, located in the terminal. A total of 37 employees attended the class.

According to McCarthy, “At airports throughout the country, the Transportation Security Administration is developing partnerships with state and local government agencies in support of a variety of disaster preparedness planning efforts. Here in Memphis, TSA is working with CUSEC, along with the Memphis Shelby County Airport Authority and many other government agencies to ensure the Memphis International Airport is well-prepared to participate in any regional relief and recovery effort in the aftermath of a New Madrid Seismic Zone event. Our joint emergency communication exercise with CUSEC, as well as the earthquake preparedness briefings CUSEC is providing to the TSA work force, is an important part of this overall effort.”

Hogue gave a similar earthquake presentation to Mississippi residents at the Southaven and Olive Branch libraries earlier this year, which prompted the invitation to speak at this table-top exercise. There are plans for CUSEC to help train all TSA employees in Memphis on earthquake preparedness in a shorter format class in September. Those presentations will be given to approximately 250 TSA employees.

“Working with CUSEC is perhaps one of the most important decisions we could make in preparing to operate safely in an earthquake zone environment,” said Rushing.

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**Transportation  
Security  
Administration**



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“The TSA Memphis MARS and CERT teams are involved in preparedness planning, and CUSEC has provided us with simple steps to ensure earthquake awareness amongst our team members. We are looking forward to the classes in September for the entire TSA Memphis workforce,” she added.

The hour and a half presentation included a briefing on CUSEC, an explanation of the science of earthquakes and the particular threat of earthquakes in the Central U.S., and a portion on safety and personal preparedness using the “Seven Steps to Earthquake Safety” model created by the Southern California Earthquake Center (SCEC). Two videos were also shown, one to illustrate the effects of liquefaction, and the other to illustrate the effects of shaking on homes and offices which do not employ non-structural mitigation or the “Drop, Cover, and Hold” technique.

## **CUSEC Communication Officers Working Group Meet in Tennessee**

The CUSEC Communications Officers’ Working Group met on May 25-26 in Jackson, Tennessee at the West Regional HQ for the Tennessee Emergency Management Agency (TEMA). This was the first face-to-face meeting of the group in two years, though there have been several conference calls in that time.

Six of the eight CUSEC Member States sent representatives. Alabama and Arkansas could not attend due to previously scheduled communications exercises. Bob Stephens of Kentucky is the new chair of the group, taking over from David Wolfe of Tennessee (working group chairs are usually from the same state as the CUSEC Board Chair). Also attending were other personnel from TEMA, including John Johnson, Mark Hollomon, Tom Barnes, and Charlie Bryant, TEMA’s Assistant Director. Paul Hogue from CUSEC facilitated the meeting.

The meeting began with a general report from each state on efforts to improve interoperability in their states. Tom Barnes, a former BellSouth employee, described the history and development of digital NAWAS (National Warning System) to the group. David Wolfe from TEMA gave a presentation on their COML (Communications Leader) training efforts. This encouraged a good deal of discussion on the development of this program in other states. John Johnson from TEMA shared a presentation he has developed on the FCC’s narrow-banding initiatives.

Much of the last day of the meeting was occupied with updating the Communications Appendix to the Multi-State Coordination Annex, which will be joined to all the states’ emergency plans. There have been a lot of changes to the communications systems in the states since the creation of that document, so this appendix requires updates a couple of times a year. The group also reached several agreements on sharing information. These include posting information to a new group page on the National Interoperability Information Exchange (NIIX). John Johnson of TEMA offered to help set up that community group. Hogue and Johnson are officers of that group.

## **CUSEC and St. Jude Co-Host Earthquake Mitigation Workshop for Hospitals**



Recognizing that hospitals have unique structural and non-structural components, nearly 40 hospital officials, engineers and representatives from other health-related fields gathered together for the CUSEC sponsored Earthquake Mitigation for Hospitals Workshop at St. Jude Children’s Research Hospital in Memphis, Tennessee on June 29. The purpose of this workshop was to help hospital administrators and staff to become better informed on how to help reduce loss of life and property in the event of a moderate or major earthquake in the central U.S.

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## RECENT CENTRAL U.S. EARTHQUAKE ACTIVITY

| DATE    | LOCATION               | MAGNITUDE |
|---------|------------------------|-----------|
| 4/29/10 | Bentonville, AR        | 2.5       |
| 5/7/10  | Choctaw, OK            | 3.1       |
| 5/10/10 | Dell, AR               | 2.5       |
| 5/12/10 | Charleston, SC         | 2.8       |
| 5/12/10 | Lincolnton, SC         | 2.8       |
| 5/16/10 | Cooter, MO             | 2.8       |
| 5/21/10 | Cave Springs, AR       | 2.6       |
| 5/21/10 | Lebanon, IL            | 2.5       |
| 6/7/10  | Damascus, AR           | 2.5       |
| 6/9/10  | Ridgely, TN            | 2.5       |
| 6/10/10 | Mentor-on-the-Lake, OH | 2.5       |
| 6/14/10 | Bradley, OK            | 3.1       |
| 6/28/10 | Garner, AR             | 3.3       |
| 7/1/10  | Ratliff City, OK       | 2.5       |
| 7/1/10  | Harrah, OK             | 2.6       |
| 7/4/10  | Jones, OK              | 2.6       |

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



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

### DID YOU FEEL IT?

If you recently felt an earthquake, remember to go to the USGS website and log your experience on the “Did You Feel It?” webpage. The information you provide helps scientists understand how the ground shakes at different locations and helps show the wide reaching effects of earthquakes. Visit - <http://earthquake.usgs.gov/dyfi> for more info





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In his opening remarks, Mike Griffin with the CCS Group in St. Louis, Missouri expressed to attendees his own goal for this meeting. “The one thing I want you to take away from this workshop is DO MITIGATION,” he said. “But do it smart.”

Topics covered in this one day workshop included:

- Earthquake Hazard Overview
- Earthquake Program Overview
- Structural Basics
- Non-Structural Elements and Hazards
- Non-Structural Mitigation for Hospitals

Gary Patterson with the Center for Earthquake Research and Information (CERI) explained the central U.S. earthquake hazard and the geological affects in the region after an earthquake. Reflecting back on his experience in responding to previous earthquakes and other natural disasters, Patterson encouraged the audience to always try to stay in a state of preparedness.

“You have to have a plan,” he said. “And you have to work your plan when the time comes.”

CUSEC’s Earthquake Program Coordinator, Brian Blake gave a brief overview of the earthquake program; emphasizing not only the need to know how to respond to earthquakes, but also the need in knowing how to mitigate them. In his presentation, Blake talked about the New Madrid Seismic Zone (NMSZ) Catastrophic Planning Initiative—a scenario-driven planning project, initiated by FEMA, aimed to increase national readiness for a catastrophic earthquake in the NMSZ. He explained the scenario, and the role of Hazards U.S. Multi-Hazard (HAZUS-MH) — a nationally applicable standardized methodology that estimates potential losses from earthquakes, hurricane winds, and floods. He also discussed the financial impacts of a catastrophic earthquake in the region.

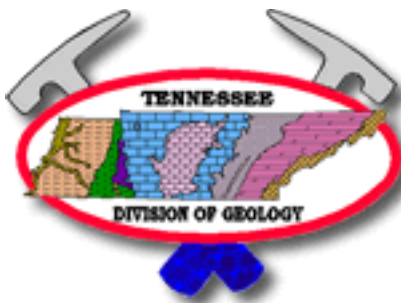
Mike Griffin’s presentation focused on material from FEMA 396: Incremental Seismic Rehabilitation of Hospital Buildings; a resource manual from the agency’s Risk Management Series published in December of 2003. With photos and video demonstrations, Griffin illustrated to the audience how buildings respond to shaking, and showed examples of structural and non-

structural damage. He also talked about post-earthquake expectations regarding building inspections, tagging damaged buildings and post clean-up and repair. In conclusion of his presentation, Griffin presented the audience with tips on how to integrate mitigation into their normal building process.

CUSEC would like to thank St. Jude, FEMA, TEMA, CERI, and the participants for their support in making this workshop possible

## MEMBER STATE SPOTLIGHT

### Tennessee Division of Geology



The Tennessee Division of Geology exists to encourage and promote the prudent development and conservation of Tennessee’s geological, energy and mineral resources

by developing and maintaining databases, maps and technical services.

It provides accurate geologic hazard assessments while disseminating geologic information through publications and educational outreach activities. A lineal descendent of the first Tennessee Geological Survey that was established in 1831, the Tennessee Division of Geology is one of the oldest geologic service and research organizations in the country. Organized into four different sections, this survey’s activities include: geologic hazards research, public services, education programs, basic and applied research on geology and mineral resources, and publication of geologic information. This survey also maintains an active educational and public outreach program by providing speakers to schools, civic groups, and other interested organizations.

In 1996, Ron Zurawski was appointed the survey’s director, and oversees its day-to-day operations. He has studied and worked in the field of Geoscience since 1970, and currently serves as a Tennessee Emergency



Management Agency (TEMA) Alternate Emergency Services Coordinator. He is also an active member in the Association of CUSEC State Geologists and several other geological organizations. More about the Tennessee Division of Geology can be found at: <http://tennessee.gov/environment/tdg/>

## **ASSOCIATE STATE SPOTLIGHT**

### **Georgia Geologic Survey**

The Georgia Geologic Survey (GGS) has been a branch of the Environmental Protection Division of the Department of Natural Resources since 1978, and has five primary goals.



- To provide assistance to the Environmental Protection Division (EPD) in protecting, managing, regulating and allocating Georgia's earth and

water resources

- To conduct and encourage relevant environmental and earth and water resource investigations throughout the state, and to publish its findings
- To regulate exploration for petroleum and natural gas
- To assist the director of the EPD in coordinating statewide ground-water policy
- To provide accurate, up-to-date, topographic and digital maps at various scales for the entire state

Dr. William H. McLemore, Director of the Georgia Geologic Survey has more than forty years of experience in the field of Geoscience. As director, he manages the day-to-day operations of the survey. Dr. McLemore is a native of Atlanta, Georgia and has a Ph.D. in Geology from the University of Georgia. To learn more about the Georgia Geologic Survey visit: <http://ggsstore.dnr.state.ga.us/>

## **UPCOMING CONFERENCES, TRAINING, WORKSHOPS, ETC.**

| <b>WHEN</b>     | <b>WHAT</b>   | <b>WHERE</b>         |
|-----------------|---|----------------------|
| July 22         | Arkansas Governors Seismic Advisory Council Meeting   | Jonesboro, AR        |
| July 27-28      | Missouri Public Health Preparedness Conference        | Columbia, MO         |
| August 4        | Region IV New Madrid Tabletop Exercise                | Atlanta, GA          |
| August 10-11    | Catastrophic Mass Care Workshop                       | Jefferson City, MO   |
| August 13       | SAVE Training   | Kansas City, MO      |
| August 19       | ATC20 Post Earthquake Safety Evaluations of Buildings | Little Rock, AR      |
| August 30-31    | 2010 Disaster Preparedness Conference                 | Paducah, KY          |
| September 1     | Governors Annual Be Ready Day Exposition              | Birmingham, AL       |
| September 6     | Labor Day   | CUSEC Offices Closed |
| September 7-9   | TSA Earthquake Training                               | Memphis, TN          |
| September 13-17 | National Guard New Madrid Seismic Zone Conference     | Camp Robinson, AR    |
| September 25    | Prepare America                                       | St. Louis, MO        |

## The Road to NLE 2011



by Paul Hogue  
CUSEC Exercise/Training Officer

The CUSEC Member States continued working on planning for the Tier One National Level Exercise scheduled for May of 2011, commonly known as NLE 2011. This is a huge undertaking involving many participants, planning conferences, strategy sessions, working group meetings, lead-up and follow-on events taking place through the summer of 2011. The exercise will test local, state, and federal plans and annexes that were either modified or created as a result of the Catastrophic Planning Initiative in the CUSEC states over the last few years. To keep readers of our journal well-informed of these activities, this regular column lists major news and events pertaining to the exercise.

The NLE 2011 Multi-State (CUSEC) Midterm Planning Conference/CUSEC EOWG meeting was held in Frankfort, KY on June 15-16, 2010. The meeting attendees included six of our eight states and all four FEMA regions representing the consortium member-states. After briefings from the states and regions on the status of their exercise, Paul Bertovich from the FEMA National Exercise Division briefed on the status of the exercise at the national level, as well as the status of the contracted support personnel that will be going to the state EMA's in support of the state efforts for NLE 2011. A number of topics were discussed before closing the first day of the meeting, including the resource management workshop planned for late 2010, the Great Central U.S. ShakeOut leadup event, the long-term recovery exercises, and the involvement of state geological surveys in NLE 2011 planning, as well as the involvement of USGS in the FEMA regions. The second day consisted of work on multi-state exercise planning concerns, particularly transportation.

The group also finalized several recommendations on NLE 2011 to the CUSEC Board to be presented at their meeting on July 7-8, 2010, which the board subsequently approved. These included detailed recommendations on the way forward with the long-term recovery portion of the exercise, a request for FEMA NED to identify and streamline the control

and communications systems for the exercise, and two recommendations on damage to commercial power and communications during exercise play.

In this past quarter, there were several lead-up exercises in our states. These included:

**AR** - A cabinet-level TTX on March 25

**MO** - Two joint planning meetings with FEMA Region VII, including an MPC

**IN** - A logistics workshop in April, and a public information officers' workshop in June, as well as an MPC in May.

**TN** - An interoperability conference in May, and a logistics operating unit workshop in June

In a related exercise, though not an official lead-up event to NLE 2011, the Memphis-Shelby County Airport Association (MSCAA) held a tabletop exercise (TTX) on May 17, based on a catastrophic earthquake scenario and the initial response at Memphis International Airport. Nearly 120 response and emergency officials from the airport and the surrounding area, as well as first responders and private industry personnel, attended. There were several speakers for the event, including Chief David Whitaker from Memphis Fire Department (Airport), Randy DiGirolamo, Senior Manager/FedEx, Nathan Luce, Engineer/MSCAA, and Paul Hogue of CUSEC.

According to Connie Brown, Airport Operations Duty Manager at MSCAA, "Exercises ensure that all parties understand and are knowledgeable of respective roles and responsibilities...exercises that narrate a specific disaster are commonly used to validate a process. We tried to show the validation of response times, organization, and administrative processes." CUSEC cooperated closely with Brown and other officials at MSCAA in helping develop the exercise.



*Participants from the recent MSCAA Exercise*

## NMSZ Catastrophic Planning Update - Multi-State Coordination

*By Mike Calvert  
CUSEC Emergency Planner*

Our focus this quarter was on earthquake-related issues affecting more than one state, and for the most part affecting all eight CUSEC states. Mississippi and Tennessee met to explore what impact they could expect affecting boarding communities and how they can work together after an earthquake to address this issue. The Communications Working Group, Exercise Officers Working Group, Operations Officers Working Group, and State Transportation Task Force (all consisting of a member from each CUSEC state) met in person in May or June. The State Public Health Officers got together on a conference call in May to lay the ground work for a new group which will have their first meeting in July. The Geographic Information Systems (GIS) Working Group also met by conference call.

In both Mississippi and Tennessee, the areas expected to be heavily impacted by an earthquake are near state lines but far from the state capital. Their adjoining state workshop March 30 and April 1 addressed common post-earthquake issues and areas where they can share resources or help each other. Since it may take days for state assistance and weeks for Federal assistance to arrive after a catastrophic earthquake, this effort may result in many lives saved. FEMA participated and assisted through their Regional Exercise Support Program.



*CUSEC Executive Director Jim Wilkinson speaks to a group at a recent planning meeting in Frankfort, Kentucky.*

The Communications Officers Working Group met in Jackson TN in May. This meeting is addressed in a separate article on page 6. The Exercise Officers Working Group held a Multi-State Midterm Planning Conference (MPC) for National Level Exercise 2011 (a NMSZ earthquake event) in June; this event is also addressed in the Road to NLE 2011 column on page 10.

The Operations Officers Working Group met in June in Sikeston, Missouri. They drafted two appendices to the CUSEC Multi-State Coordination Annex. They discussed a post-earthquake Common Operating Picture (COP) for the CUSEC Member States. They will also explore the Department of Homeland Security's Unified Incident Command and Decision Support <http://www.uicds.us/> system for sharing information among multiple emergency operations center (EOC) software applications. Finally, they met in joint session with the CUSEC State Transportation Task Force (STTF) to discuss common concerns and for the U.S. Army Corps of Engineers presentation on developing a prototype plan for removing river navigation channel obstructions caused by bridge collapse.

As previously mentioned, the STTF met jointly with the Operations Working Group for a small portion of their meeting in June in Sikeston MO. U.S. Department of Transportation and FEMA representatives also attended and participated. Each state shared the status of their earthquake preparations, their participation in National Level Exercise 2011, and they discussed similarities and differences in their earthquake response plans. They agreed to update their emergency routes and the CUSEC map. They will also build and maintain a list of transportation mode points of contact in the CUSEC states. They will meet again later this year if funding permits. In addition, they are exploring possible Federal funding, which they had in the past.

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As you can see, some of our working groups are quite active. We've been working to set up a new Public Health Officers group for quite a while, and we're nearly there. Dr. William Hacker, Commissioner, Kentucky Department for Public Health, hosted a conference call in May for his counterparts in the CUSEC states. An initial meeting of the group is scheduled for July. This effort could pay huge dividends in lives saved after an earthquake and increased multi-state cooperation.

It is gratifying to see our states working together like this to prepare for earthquakes. The meetings and workshop mentioned above facilitated valuable contacts and exchanges of information between key subject matter experts, making it easier for them to work together across state lines when responding to a disaster. As a result of sharing information and ideas, all eight states are much better prepared than they would be if each had prepared alone. We will continue to help our states collaborate, and hope to be able to sponsor more in person meetings periodically.

## **The New Message**

### **Information about the New Madrid Earthquake Scenarios**

*by Greg Hempen*

*New Madrid Chapter*

*Earthquake Engineering Research Institute*

A scenario is a brief narrative, or story, that describes the impacts of a hypothetical event. By establishing specific magnitude, time and location, an earthquake scenario can project impacts on the physical, built and social environment. Scenarios are often used to determine how a specific earthquake will affect a community.

The Executive Committee of the New Madrid Earthquake Scenarios (NMES) has been working with the USGS to select appropriate scenario earthquakes. These earthquakes would be used to assess the hazards for our localities interested in the hazard information.

The scenario events being considered presently are "likely" earthquakes. We define "likely earthquakes" as those events that have previously occurred and much more likely to occur than possible catastrophic earthquakes. The model being considered as "likely

earthquakes" are moment magnitude (Mw) 6.3 events any where on the three fault limbs of the New Madrid Seismic Zone and Mw 6.0 earthquakes any where within the Wabash Valley Seismic Zone. Both of those two earthquakes would be used to develop bedrock motions at the closest distance from the scenarios' communities to the three faults or the areal Wabash Valley Seismic Zone. The USGS National Hazard Mapping attenuation models would be used to determine the earthquake motions on bedrock.

Information from either the USGS Hazard Mapping Projects or the CUSEC State Geologists' Soil Mapping study would allow the bedrock shaking to determine the ground- surface earthquake motions. The largest of the ground-surface earthquake motions due to the "likely earthquakes" would be used to determine the "likely earthquakes" hazards for the selected communities.

Each selected community would have an estimate of possible losses from the "likely earthquakes." These selected communities each would have its own scenario. The communities presently involved with the NMES are the three USGS Hazard Mapping Cities (Evansville, IN, Memphis, TN & the St. Louis Metropolitan area, IL & MO), and Paducah, KY and Sikeston, MO. A town in both Arkansas and Illinois are also considering involvement.

The NMES will use the loss-estimation program, HAZUS-MH, to develop the impacts from "likely earthquakes" upon the chosen study communities and will be a major study finding for the NMES. The described impacts will allow the general public and businesses to understand the likely disruptions from an earthquake that is likely in their lifetimes. Communities and business may prepare for many of the disruptions through the use of already existing guidelines.


The hazards from the "likely earthquakes" for the NMES localities could also be compared the FEMA scenarios that were developed for the NMSZ Catastrophic Planning Initiative. The public would be able to then compare the range of earthquakes that are estimated to affect their community from smaller or more distant earthquakes through the "likely earthquakes" of the NMES to larger events like the FEMA Catastrophic Planning Scenario.

For more information on the NMES, contact Greg Hempen at [hempen69@sbcglobal.net](mailto:hempen69@sbcglobal.net)









## 2010 Disaster Preparedness Conference

**CONFERENCE MISSION:**

- To continue to re-educate residents living in the six-state area of the earthquake threat (including Illinois, Arkansas, Missouri, Kentucky, Tennessee, and Indiana) in the New Madrid and Wabash Valley Seismic Zones
- To continue to expand the reach of the program and inform residents of all ages, including business owners, what they can do individually to be prepared for, cope with and survive any natural disaster.


**Register Before August 13<sup>th</sup>**  
**Conference Dates are August 30 & 31, 2010**

**Location:** First Baptist Church, 2890 Broadway Street, Paducah, Kentucky

**Registration Fee:** ONLY \$25.00 per person (Meals Included)

**Hotel Information:** A group of rooms has been reserved at Drury Suites, 2930 James-Sanders, Paducah, KY (Exit 4) To book your room, call 1-800-325-0720 or go to [www.druryhotels.com](http://www.druryhotels.com), click the Reservation tab, choose group reservation and enter group number **2089419**. Register by Friday, August 13, 2010 to get the special \$70 rate.

To register for the conference, you can email [preparesi@illinois.edu](mailto:preparesi@illinois.edu) or contact Linda Poston at 618/833-6363 or [prepare.extension.illinois.edu](http://prepare.extension.illinois.edu)







## OTHER NEWS

### EMForum Meeting Focuses on Critical Infrastructure and Key Resources

Darrell Darnell, Associate Vice President for Safety and Security at George Washington University, led the discussion on EMForum.org's latest topic on June 23. More than 50 meeting attendees listened as Darnell discussed points from his presentation "Critical Infrastructure and Key Resources: Protection and Resilience." Main points that were covered included:

#### *Network-Centric Organizations / Interdependencies*

Networks such as transportation, banking and finance, economic growth and average income

#### *Urban Systems*

For example, with the estimation that by 2030, 60 percent of the world's population will live in cities; concentration of economic assets and people make them highly susceptible to damage from national disasters

#### *Ambiguity of defining risk and costs associated with investments in protection and resilience*

For example, fragile communities are more likely to be susceptible to disaster or attack and to disruption and more likely to experience subsequent weakness and failure in the aftermath of an attack (Chile/Haiti)

#### *Resilience*

Defined as the capability of a system to maintain its functions and structure in the face of internal and external change and to degrade gracefully when it must (Allen and Fink)

#### *Protection*

Defined as actions to mitigate the overall risks to critical infrastructure and key resources assets, systems, networks, functions or their interconnecting links resulting from exposure, injury destruction, incapacitation, or exploitation (NIPP)

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With funding seen as a major driver in community resiliency, Darnell pointed out that critical decisions about rebuilding communities after a disaster are a top priority. He also emphasized the importance of pre-disaster preparedness; that we (Americans) are stakeholders in our communities, and we can lessen the negative affects of disasters by integrating mitigation into our daily routines. “I think we are resilient as a nation,” he said. “But we tend to become resilient after something happens. We have to ask ourselves, do we want to continue this model?”

In the later portion of his presentation, Darnell explained why he thinks that awareness, leadership, planning and resource allocation are the four key elements needed in implementing protection and resilience into earthquake prone communities. He also addressed questions from meeting attendees that pertained to long-term recovery planning, the change in public/private sector partnerships and ways Americans’ lack of preparedness for disasters have been measured. For more information about EMForum.org, visit: <http://www.emforum.org>

## **FEMA Publications Available on CD**

The Department of Homeland Security’s Federal Emergency Management Agency (FEMA) is pleased to announce that three new CD-ROM compilations of FEMA earthquake resources are now available at no cost from the FEMA Publications Warehouse:

- Earthquake Publications for Teachers and Kids, FEMA P-710CD
- Earthquake Publications for Individuals and Homeowners, FEMA P-711CD
- Earthquake Publications for Community Planners and Public Policy Makers, FEMA P-712CD

To view or download other National Earthquake Hazards Reduction Program (NEHRP) publications and products or to sign up for updates on earthquake risk mitigation publications, news, and events, visit Earthquake Publications and Tools at, <http://www.fema.gov/plan/prevent/earthquake/publications.shtm>.

## **RECENT CUSEC GEOCACHE COMMENTS**

Geocaching, a high-tech treasure hunting game, is played throughout the world by people who try to locate hidden containers with GPS devices and then log their experiences, or “finds” online. In 2007, CUSEC placed our first earthquake geocache at our headquarters. Since then, we have placed earthquake themed geocaches in seven of eight member states. The caches are visited regularly, with hundreds of visits during the spring and summer months. Some comments from our cache visitors this summer include -



- AR - *“Great location for a cache”*
- IL - *“What a really nice cache this was. A nice hide all the way around...”*
- IN - *“I loved this place. We will absolutely be back!”*
- KY - *“Very neat way to share some good information. Took a pamphlet.”*
- MO - *“This is in my Top 10 of the best-constructed and placed Geocaches I’ve found.”*
- MS - *“This is a great cache. One of the best stocked related to educational info!”*
- TN - *“My education is lacking when it comes to earthquakes. I have pamphlets to read now. :)”*

## DATES TO MARK

**The 2010 Disaster Preparedness Conference** will be held in Paducah, Kentucky on August 30-31, 2010. This conference will provide up-to-date information those near the New Madrid and Wabash Valley Seismic Zones and provide information about what they can do individually to be prepared for, cope with and survive any disaster. For more information contact [poston@illinois.edu](mailto:poston@illinois.edu).

**The Great Central U.S. ShakeOut** CUSEC is planning a Drop, Cover, and Hold drill for residents in the central U.S. This drill, known as the "ShakeOut" will be held at 10:15am on April 28, 2011. With a goal of 1 Million participants, this drill will be the largest ever held in the central U.S. The ShakeOut web-site will be available soon at [www.shakeout.org/centralus](http://www.shakeout.org/centralus). We encourage all interested parties to participate.

**200th Anniversary of the 1811-1812 New Madrid Seismic Zone Earthquakes** - Ongoing throughout 2011-2012. In 2011-2012, there will be events held throughout the central United States observing the 200th anniversary of the great 1811-1812 New Madrid earthquakes. Many organizations will participate in the events, which will include national conferences, earthquake exercises, public outreach events, and more. For more information visit the CUSEC website.

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 ten associate member states: Georgia, Iowa, Kansas, 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

|                         |                                    |
|-------------------------|------------------------------------|
| <b>Jim Wilkinson</b>    | <b>Executive Director</b>          |
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*Please send comments and suggestions to [cusec@cusec.org](mailto:cusec@cusec.org)*

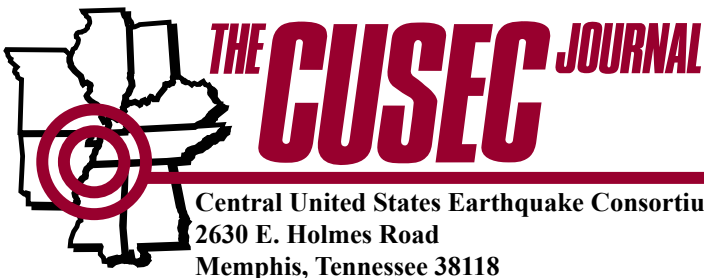
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Cascadia Regional Earthquake Workgroup  
Center for Community Earthquake Preparedness  
Centers for Disease Control and Prevention  
Center for Earthquake Research and Information  
Federal Highway Administration  
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