

## New Madrid Bicentennial Boosts Awareness and Planning

*This is the second of two articles about developments in the New Madrid Seismic Zone, where activities are commemorating the 200<sup>th</sup> anniversary of the great earthquakes that rocked the region in 1811 and 1812.*

Anniversaries have the power to temporarily open minds to new thoughts linked to past events. The anniversaries of major earthquakes have become windows of opportunity for promoting awareness of seismic hazards and reduction of associated risks. Planning, which is the foundation of effective risk reduction, has become a prime focus of these observances.

The New Madrid Bicentennial (NMB) is a series of events and activities taking place throughout the central United States this year and next. It is taking advantage of the opportunity presented by the first important anniversary of the great New Madrid earthquakes to occur since the National Earthquake Hazards Reduction Program (NEHRP) was established in 1977. With strong support from NEHRP, NMB activities are promoting a balanced planning agenda encompassing earthquake hazard awareness, mitigation, preparedness, response, and recovery.

### Kicking Off the NMB

The bicentennial officially began in St. Louis on February 11, 2011, at the conclusion of a week-long outreach tour conducted by the Federal Emergency Management Agency (FEMA), the Central United States Earthquake Consortium (CUSEC), and the Insurance Institute for Business and Home Safety (IBHS) in cooperation with state and local partners. At four events held in five of the states that surround the New Madrid Seismic Zone (NMSZ), local residents and business owners learned why and how they should make plans and take actions to protect people and property from earthquake hazards.

The kickoff event, held as part of the 18<sup>th</sup> annual *Earthquakes: Mean Business* seminar hosted by Saint Louis University with support from the U.S. Geological Survey (USGS) and others, introduced bicentennial activities, resources, and participants. More than 30 entities are involved in organizing NMB activities, including NEHRP, the American Red Cross, IBHS, regional earthquake research centers, and emergency management agencies and

geological surveys from states surrounding the NMSZ. Key organizational roles have been shouldered by USGS, the University of Memphis Center for Earthquake Research and Information, and CUSEC, which is supported by FEMA and represents the states most affected by central U.S. seismicity (Alabama, Arkansas, Illinois, Indiana, Kentucky, Mississippi, Missouri, and Tennessee).

Two important resources introduced at the kickoff are the NMB website (<http://newmadrid2011.org/>), created through CUSEC-led collaboration, and the publication *Putting Down Roots in Earthquake Country—Your Handbook for Earthquakes in the Central United States*, developed by USGS. The website provides access to a wealth of information relating to NMB events, the great earthquakes of 1811 and 1812, what scientists are learning about seismic activity in the central United States, the status of building codes in the region, and how residents and businesses can prepare for potentially damaging earthquakes. A number of related resources can also be accessed on or from the site, including press releases, posters, videos, and publications.

The *Putting Down Roots* booklet provides a comprehensive, well-illustrated, and highly readable look at seismic hazards and risks in the central United States, and at what can and should be done in homes, schools, and workplaces to reduce these risks. The publication examines when, where, and why earthquakes have occurred in the region; what influences the intensity of earthquake shaking and how shaking can affect the environment, infrastructure, buildings, and people; and steps that can be taken before, during, and after earthquakes to lessen injuries, damage, and disruption.

### Shaken Out and Exercised

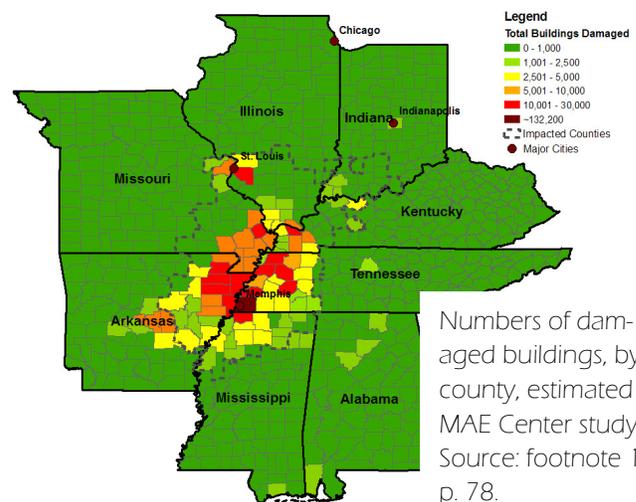
Two of the biggest events planned for the bicentennial have already occurred. The Great Central U.S. ShakeOut took place on April 28, 2011, and the [National Level Exercise 2011](#) (NLE 11) was held during May 16–20. The ShakeOut was the largest earthquake drill ever held in the central United States, with more than 3 million people participating across 11 states. Participants practiced the potentially lifesaving “drop, cover, and hold on” maneuver that experts recommend everyone be prepared to execute at the first sign of earthquake shaking.

School students and staff (preschool through college) made up about 90 percent of the participants; others included private citizens and employees of government agencies, medical facilities, businesses, and other organizations. In addition to teaching individuals how to protect themselves during earthquakes, the ShakeOut was intended to encourage individuals and organizations to make plans and take actions to prepare for and mitigate the impacts of future earthquakes. Participants registered for the event online at <http://www.shakeout.org/centralus/>, where they had access to information and resources related to earthquake preparedness as well as the drill. CUSEC and participating states organized the ShakeOut with sponsorship support from FEMA, USGS, and the National Science Foundation.

NLE 11 was the culmination of one of the largest multi-jurisdictional planning projects ever undertaken in the United States. The multiyear, FEMA-led NMSZ Catastrophic Earthquake Response Planning Project is improving the Nation's ability to respond to and recover from a major earthquake in the central United States. This project has engaged numerous federal, state, and local government agencies and private-sector organizations in an unprecedented, carefully orchestrated series of workshops that have incorporated earthquake hazard awareness and produced fully coordinated earthquake response and recovery plans for the region.

During the NLE 11 exercise, which simulated the impacts of a catastrophic NMSZ earthquake, the new response plans were tested in relation to the following key functions: coordinated incident management, communication among responders, communication with the public, citizen evacuation and sheltering-in-place, mass care (feeding and sheltering), critical-resource logistics, and medical care. Thousands of "players" took part at more than 50 sites located in federal offices in and around Washington, D.C., and in public- and private-sector facilities throughout CUSEC-member states. The exercise also provided an opportunity for subject-matter experts, including several from NEHRP agencies, to further inform participants about earthquake hazards and risks in the NMSZ and how different government agencies would be able to assist in the daunting response and recovery process.

The simulated adversities that participants contended with were based on a comprehensive scientific assessment of the likely effects of a major NMSZ earthquake. This study was completed in 2009 by researchers at the University of Illinois Mid-America Earthquake (MAE) Center and other universities in cooperation with FEMA, CUSEC, USGS, the U.S. Army Corps of Engineers, and state geological surveys in the region.<sup>1</sup> By identifying the types of losses that could be expected from damaging earthquakes occurring today, the assessment clarified the seismic risks associated with NMSZ hazards and the justification for improving the development and implementation of mitigation and preparedness plans.



### It's Not Over Yet

Bicentennial activities will continue on into next year across the NMSZ, just as large earthquakes and aftershocks did 200 years ago. Newly developed recovery plans will be reviewed and tested through FEMA-led seminars and exercises to be held later this year. A highlight of 2012 activities will be the [National Earthquake Conference](#), scheduled for April in Memphis. This event, supported by NEHRP, will be held in conjunction with the annual meeting of the Earthquake Engineering Research Institute. Also in Memphis, St. Jude Children's Research Hospital is partnering with CUSEC and IBHS to build a new home featuring seismic-resistant construction as part of the hospital's 2012 [Dream Home Giveaway](#) fundraising program.

<sup>1</sup> Amr S. Elnashai and others, *Impact of New Madrid Seismic Zone Earthquakes on the Central USA*, MAE Center Report No. 09-03, October 2009, <http://mae.cce.uiuc.edu/publications/2009/09-03.htm>.

For more information, visit [www.nehrp.gov](http://www.nehrp.gov) or send an email to [info@nehrp.gov](mailto:info@nehrp.gov).



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