

the New MESSAGE

Information about the **New Madrid Earthquake Scenarios**
 Quarterly Report for January - March 2012

Recent New MESSAGE News

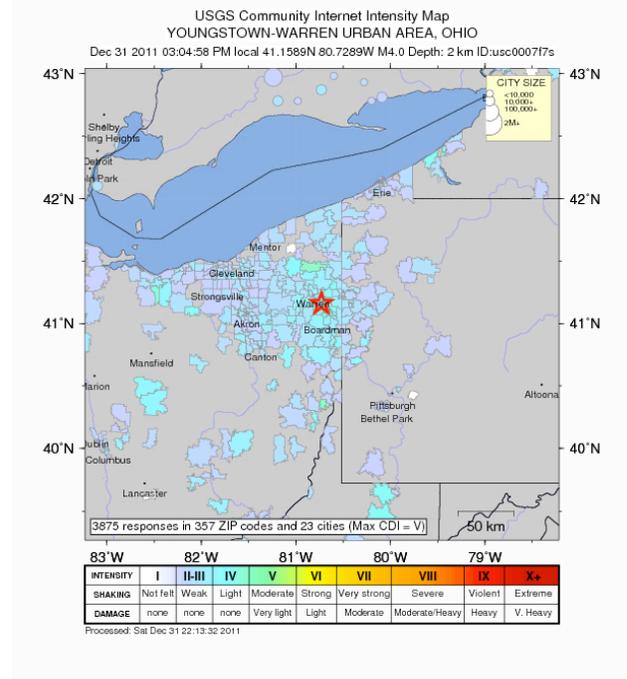
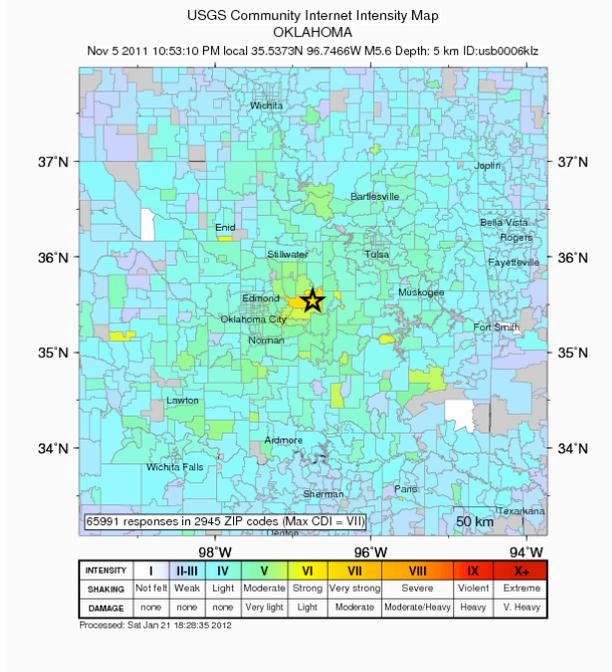
Earthquakes shook central Oklahoma and northeastern Ohio recently. Activities for the two-year Bicentennial of the 1811-1812 New Madrid Earthquake Series continue. The New Madrid Earthquake Scenarios (NMES) continue to progress toward completion in April 2012. The Map Your Neighborhood Program has a major program continuing in Missouri. More discussion follows on these and other items.

Earthquakes? Here?

A moment magnitude (Mw) 4.7 earthquake shook central Oklahoma just after 2 A.M., Saturday morning, November 5, 2011. Near the first shock's location, a Mw 5.6 earthquake occurred at 10:53 P.M., Saturday night. The Mw 5.6 earthquake was the largest ever recorded event in Oklahoma. Monday evening, November 7, 2011, another Mw 4.7 event struck close to the first two at 8:47 P.M. Occasional smaller events are still occurring. The main event's "Did You Feel It?" (DYFI?)

Intensity map notes epicenter and shaking area. The US Geological Survey (USGS) reported "At least 2 people injured, 14 homes destroyed and many damaged in the Shawnee-Sparks area. Parts of US Highway 62 between Meeker and Prague buckled by shaking along pre-existing cracks. An area of approximately 65 sq km in the immediate vicinity of the instrumental epicenter experienced shaking of intensity VIII." The event caused Modified Mercalli Intensity (MMI) VIII damage – "Considerable damage in ordinary buildings[, some] with partial collapse. Damage great in poorly built structures. Fall of chimneys, ... columns, monuments, walls. Heavy furniture overturned." [USGS, 1989]. Aftershocks continue to shake the area.

A Mw 4.0 earthquake struck near Youngstown, OH on New Year's eve at 3:05 P.M. No serious injuries or damage was reported. Aftershocks have been reported into January. The Ohio event's DYFI? Map is provided below.



New Madrid Earthquakes' Bicentennial

The Bicentennial of the 1811-1812 New Madrid Earthquake Series will be associated with numerous activities over more than a year at various sites and locations in our region. Upcoming events include, *regional February 2012 activities* and *the 2012 National Earthquake Conference held jointly with the Earthquake Engineering Research Institute's (EERI's) Annual Meeting*. Obtain information on the "New Madrid Earthquakes' Bicentennial" and a calendar of the events at its website, <http://newmadrid2011.org/>.

Regional February 2012 Activities

Several events are being developed. Two larger, regularly-scheduled events are noted.

Earthquakes: Mean Business is a business seminar held at St. Louis University, St. Louis, MO. The seminar will be held on Friday, February 3, 2012. The agenda and registration are available at www.cvent.com/events/earthquakes-mean-business-2012/event-summary-dae7fa1644c84f93ada7af6df4f3e5a7.aspx.

The Great Central US ShakeOut will be held Tuesday, February 7, 2012. Please register and conduct the short drill at your home, school or business. More info may be obtained at www.shakeout.org/centralus/.

The 2012 National Earthquake Conference (NEC) & EERI's Annual Meeting

The NEC will be held jointly with EERI's Annual Meeting in Memphis, TN on April 11 through 14, 2012. There are discounted fees for early registration. Also register for your hotel room early. Important Central U.S. seismic studies and developments will be released at the meeting. The New Madrid Earthquake Scenarios' reporting will be made at these meetings. Information on both events is available at the Bicentennial or EERI websites (<http://2012am.eeri.org>).

NMES' Study

The Executive Committee is creating the New Madrid Earthquake Scenarios (NMES). The

project, a web-based document, will be completed for the NEC. The report's intent is to provide useful information in preparing for earthquakes and responding to many levels of various disasters. The Scenarios are plural, because different regional towns and cities will be assessed by the study.

The locations of the Scenarios have been resolved as six areas with these counties: Madison & Jackson Counties, IL, Vanderburgh County (Evansville), IN, McCracken County, KY, St. Louis City & County and Scott County, MO, and Shelby County (Memphis), TN.

The "likely earthquake hazard" to be assessed in the NMES has been determined as two earthquakes. A Mw 6.3 event within the New Madrid Seismic Zone or a Mw 6.0 within the Wabash Valley Seismic Zone have nearly a 50% chance of occurrence in any 50-year period. Ground motions have been assessed for the larger impact of either of these two earthquakes with an epicenter as close as reasonable to the site county. The likelihood of the resulting ground motions at each of the NMES' counties are not equal to one another and are much more conservative than a 50% chance in 50 years. This is a similar process as the catastrophic earthquake studies to which the NMES' impacts will be compared. The ground motions will be used to appraise the NMES' impacts. The ground motions for these scenarios' locations have been produced by Dr. Chris Cramer, University of Memphis, and have been adjusted with comments from the USGS.

The NMES will use the loss-estimation program, Hazards US (HAZUS – Federal Emergency Management Agency's (FEMA's) software to estimate losses from various natural hazards including earthquakes), to develop the impacts from the "likely earthquake hazards." Such loss estimates will be major study findings for the NMES. The Heartland HAZUS Users' Group (HHUG) has the input and output of the National Level Exercise 2011's (NLE 11's) HAZUS runs. The HHUG will run the Catastrophic Earthquake of the NLE 11 to be certain that their output is the same as the

provided output. The HHUG is completing the NMES' loss estimates for the selected counties at this time. The results will allow the general public and businesses to understand worst possible disruptions from likely earthquake hazards within 50 years. Communities and businesses may prepare for many of the disruptions through the use of existing guidelines and recommendations.

Two Cooperative Actions

An effort has been undertaken to spread the "Map Your Neighbor" (MYN) Program to states around the New Madrid Seismic Zone, as a public outreach component of the NMES. Working through the Missouri Seismic Safety Commission (MSSC), Missouri's Mass Care Committee of the State Emergency Management Agency and other organizations, the NMES has developed a demonstration of the Washington's State MYN Program for Missouri. The program is a useful means for neighbors to assist one another for any type of disaster response. Neighbors can assist one another before first responders can get to their area. The first Missouri printing of the 9-Step Neighbors' Disaster Response Form is available for use by other states or municipalities. Facilitators' Training for regional MYN coordinators, Hosts' Orientations, and MYN presentations in Missouri are being held. The American Society of Civil Engineers and its St. Louis Section have provided grants for advertising and promoting MYN in the St. Louis area. St. Louis City & County Public Libraries are lending MYN resource binders for the program. Anyone in the region interested in bringing the MYN program to his/her own neighborhood may contact Greg Hempen for more information.

The MSSC is supporting the development of a volunteer-based procedure to resolve the count of building-types and their distribution in a few Missouri communities. The purpose of the structure-type assessment is to compare actual data to the HAZUS default data for Missouri census tracts. Comparison would allow an evaluation concerning potential revision of the

default inventories, if there were significant differences. Such corrections may lead to better resolution of the estimated losses due to any disaster. Material is continuing to be sought from assessors' offices to proceed. The inventory assessment group is seeking digital assessment data to place in another format for database use. The group will be working with FEMA and Missouri communities to establish the date and locations to check the assessment database once it is developed. This inventory is on a temporary hiatus until after the NMES reporting is completed.

Scenarios' Contact Information

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