

the New MESSage

Information about the *New Madrid Earthquake Scenarios*
Quarterly Report for July 2010

Selecting our scenarios

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 U.S. Geological Survey (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 Central US Earthquake Consortium (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 each possible scenario earthquake 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, Hazards US (HAZUS – software to estimate losses from various natural hazards including earthquakes), 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 Federal Emergency Management Agency (FEMA) Catastrophic Planning Scenario that

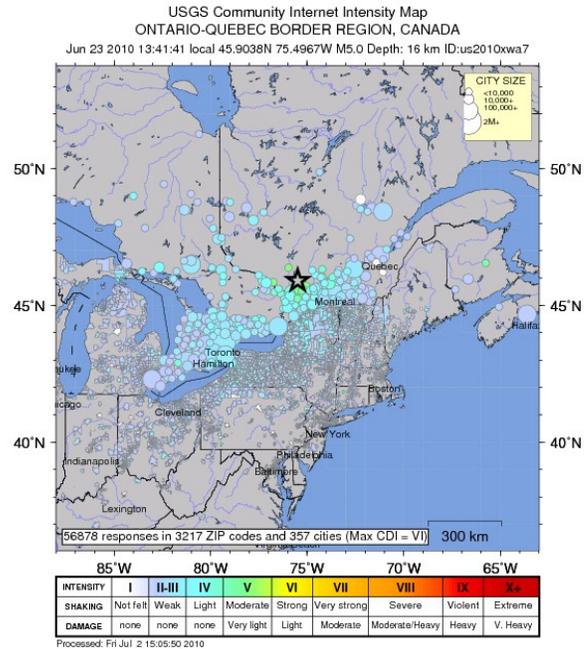
was conducted for the eight CUSEC states. The public would be able to then compare the range of earthquakes that are estimated to affect their community from smaller or more distant earthquakes through the “likely earthquakes” of the NMES to larger hazards of the FEMA Catastrophic Planning Scenario.

Earthquakes? Here?

There are periodic reminders of the large earthquakes that may occur in the Central U.S. The April 18, 2008, Mw 5.4, Mt. Carmel, IL earthquake was one of those reminders. It was felt over a large area of the Central U.S. in 28 states and Canada and caused damage to about 240 structures in Illinois.

An earthquake a few weeks ago occurred in Canada. The June 23, 2010, Mw 5.0, earthquake shook Canada and a large portion of northeastern U.S. The map below is a copy of the USGS’s “Did You Feel It?” responses for the June 23rd event. [“Did You Feel It?” is an important web-based, public impact assessment system. Should you ever feel an earthquake, please report your own impacts to the “Did You Feel It?” site so that your responses along with others will help map the impact of the earthquake quickly.]

Major earthquakes could disrupt public services over a large area. These impaired systems are interrelated in the most damaged areas. The general public may be cut off from critical lifelines, communication, and relief supplies in the aftermath of a major event. Relocation may be required depending on damage levels and seasonal weather. A major earthquake in the central and eastern United States will affect a much greater area than a comparably sized earthquake, on the West Coast, due to the greater distance wave travel in the older, rigid



bedrock. A scenario enables preparedness, mitigation and response planning that can be tailored to specific needs of a region or community.

NMES’ Study

The Executive Committee is creating the NMES. The project is proposed to be a web-based document, so the user may find useful information that will aid them. There will also be links to websites of others that provide important information on earthquake issues, mitigation and other existing scenarios. The Scenarios are plural, because different regional towns and cities will be assessed by the study.

Two Cooperative Actions

The Missouri Seismic Safety Commission (MSSC) is supporting the development of a volunteer-based procedure to resolve building inventory assessments of a few Missouri communities. The purpose of the inventory 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 for the state and for the National Level Exercise to be held in May 2011. The NMES will assist with this assessment. There will be an announcement to seek volunteers to help conduct the inventory assessment in the near future. We are working with FEMA and Missouri communities to establish the date and locations of the inventory assessment.

Working through the MSSC Missouri's Mass Care Committee of the State Emergency Management Agency and a local center of the Salvation Army, the NMES is considering how Washington's State "Map Your Neighborhood" program may be applied in Missouri and other CUSEC states. The program is a useful means for neighbors to assist one another for any type of emergency response.

Scenario Contact Information

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