



*May 3, 2010
Issue 2 Volume 2*

Over the past few months it seems that earthquakes have dominated the news headlines. With so many earthquakes you might be wondering what an earthquake really is and why they can cause so much damage. In this issue of *ACCOOP News* we will discuss how earthquakes operate, familiarize ourselves with earthquake terms and learn how you can know when an earthquake occurs in your area.

What is an Earthquake?

Earthquake is a term used to describe both sudden slip on a fault and the resulting ground shaking and radiated seismic energy caused by the slip, or by volcanic or magmatic activity, or other sudden stress changes in the earth.

Earthquakes are one of the most costly natural hazards faced by the Nation, posing a significant risk to 75 million Americans in 39 States.

The risks that earthquakes pose to society, including death, injury, and economic loss, can be greatly reduced by (1) better planning, construction, and mitigation practices before earthquakes happen, and (2) providing critical and timely information to improve response after they occur.

Resource: <http://www.usgs.gov/hazards/earthquakes/>

Earthquake: Know Your Terms

Familiarize yourself with these terms to help understand earthquakes and their disastrous force.

- ***Aftershocks***

Aftershocks are earthquakes that follow the largest shock of an earthquake sequence. They are usually smaller than the mainshock and within 1-2 rupture lengths distance from the mainshock. Aftershocks can continue over a period of weeks, months, or years. In general, the larger the mainshock, the larger and more numerous the aftershocks, and the longer they will continue.

- ***Liquefaction***

A process by which water-saturated sediment temporarily loses strength and acts as a fluid, like when you wiggle your toes in the wet sand near the water at the beach. This effect can be caused by earthquake shaking.

- ***Magnitude***

The magnitude is a number that characterizes the relative size of an earthquake. Magnitude is based on measurement of the maximum motion recorded by a seismograph.

Magnitude represents an earthquake's overall energy and size. Seismic intensity represents the size of tremors that happen at a specific location.

To understand the differences between these two terms, think about a light bulb. The total amount of light given off by a 40 watt or 100 watt light bulb is its magnitude. However, whatever type of light bulb you have, it will get darker the farther you are from it (because less energy is reaching you) , and it will get lighter the closer you are to it (because more energy is reaching you). The light that hits at each spot is equivalent to an earthquake's seismic intensity.

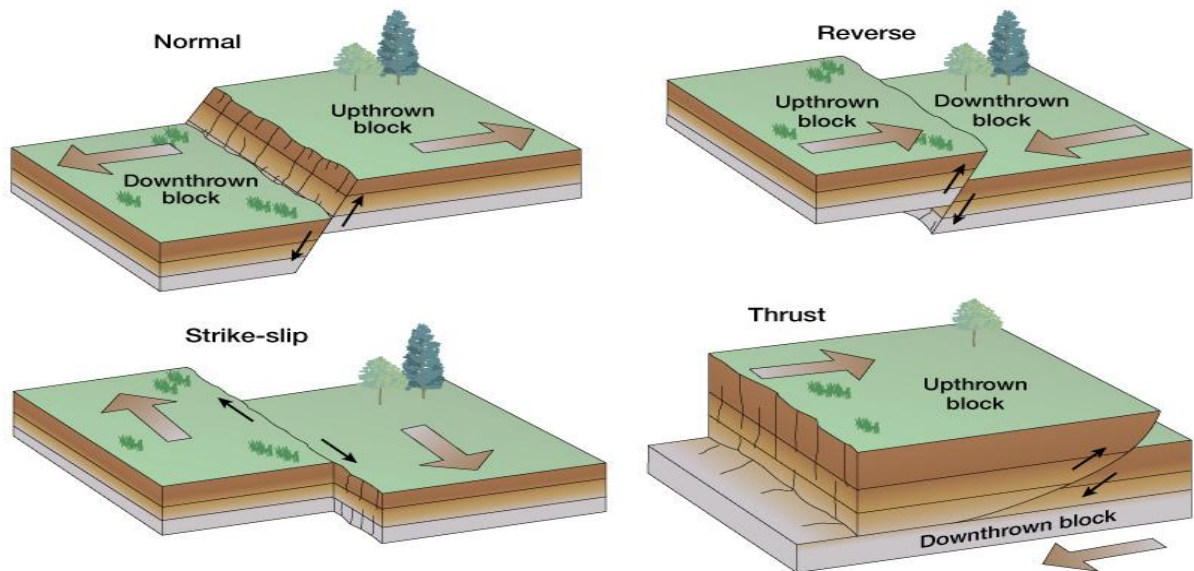
- ***Richter scale***

The Richter magnitude scale was developed in 1935 by Charles F. Richter of the California Institute of Technology as a mathematical device to compare the size of earthquakes. The magnitude of an earthquake is determined from the logarithm of the amplitude of waves recorded by seismographs. Adjustments are included for the variation in the distance between the various seismographs and the epicenter of the earthquakes. On the Richter scale, magnitude is expressed in whole numbers and decimal fractions. For example, a magnitude 5.3 might be computed for a moderate earthquake, and a strong earthquake might be rated as magnitude 6.3. Because of the logarithmic basis of the scale, each whole number increase in magnitude represents a tenfold increase in measured amplitude; as an estimate of energy, each whole number step in the magnitude scale corresponds to the release of about 31 times more energy than the amount associated with the preceding whole number value

Above Resource: <http://www.usgs.gov/hazards/earthquakes/>

- **Fault**

- ✓ A fault is a fracture along which the blocks of crust on either side have moved relative to one another parallel to the fracture.



Significant Earthquake facts and impacts:

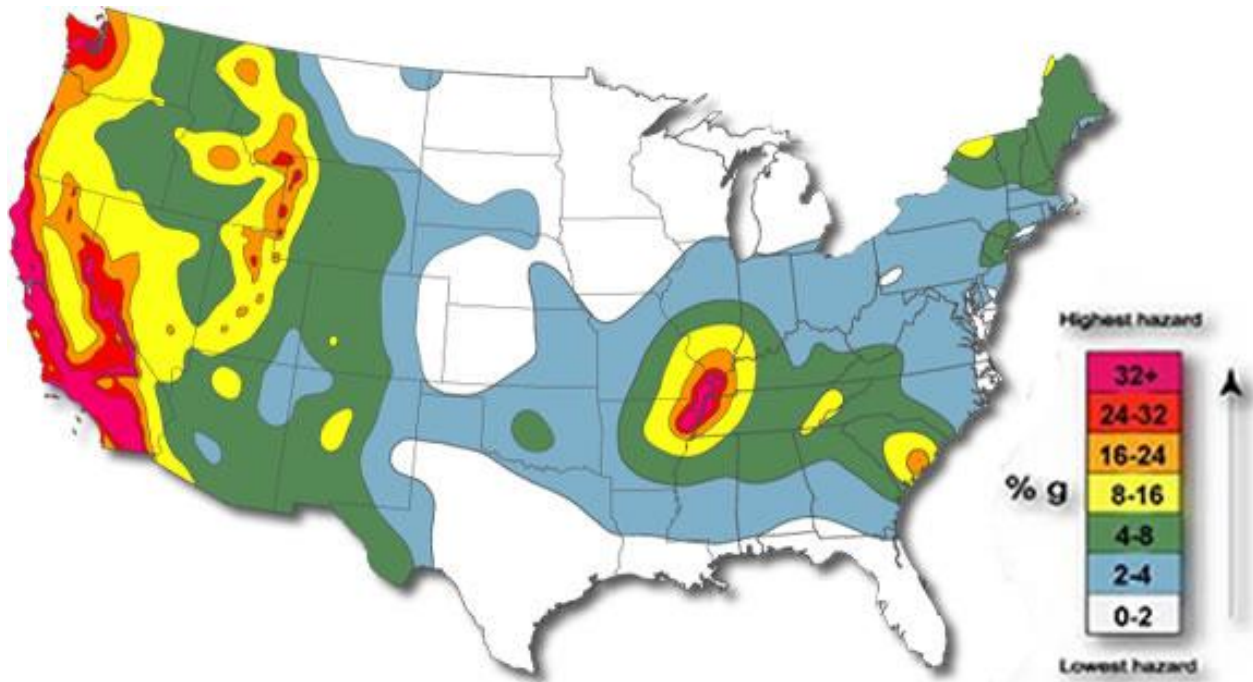
- ✓ More than 75 million Americans in 39 States face significant risk from earthquakes.
- ✓ The magnitude 6.7 Northridge, California earthquake in January 1994 killed 33, injured 9,000, and displaced over 20,000 people.
- ✓ Repeats of historic U.S. earthquakes, such as the 1906 San Francisco earthquake or the 1811–1812 New Madrid earthquakes, could cause up to \$500 billion in damage.
- ✓ The Federal Emergency Management Agency has estimated future annual earthquake losses in the United States at \$5.6 billion a year.
- ✓ The largest recorded earthquake in the United States was a magnitude 9.2 earthquake in Prince William Sound, Alaska, on March 28, 1964.
- ✓ In 1985, a swimming pool at the University of Arizona in Tucson lost water from sloshing, or a “seiche,” caused by a magnitude 8.1 earthquake in Michoacan, Mexico, 1,240 miles away.
- ✓ Alaska is the most earthquake-prone State and one of the most seismically active regions in the world, experiencing a magnitude 7 earthquake almost every year and a magnitude 8 or greater earthquake every 14 years (on average).
- ✓ In the United States, there are an average of six magnitude 6 or greater and 57 magnitude 5 or greater earthquakes each year.

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Problems that can result from an earthquake

- ✓ Tsunami
- ✓ Liquifaction
- ✓ Ruptured pipelines
- ✓ Utility outages due to down lines and destroyed infostucture
- ✓ Transportation system problems: road damage, subway and trains inoperable due to damage. Planes unable to take off or land due to damaged runway.

The closest fault that could yield major damage to our state is the New Madrid Fault Zone, which protrudes from north east Arkansas down south to around central Arkansas.



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Earthquake Notification Service

Would you like to receive a notice whenever an earthquake occurs in your area? You can sign up for the Earthquake Notification Service from the United States Geological Survey by following the link below. You can customize the alerts that you receive though email or text messages based on the earthquake magnitude and location. <https://sslearthquake.usgs.gov/ens/>

Arkansas Continuity of Operations Program Training Schedule

COOP New User

Learn the components of building continuity of operations plans and how to use the Living Disaster Recovery Planning System (LDRPS).

May 12, 2010 8:30-12:00

June 30, 2010 8:30-12:00

Pandemic Flu – facts, planning, & exercises

A good class for planners & staff! Learn about the types of flu, why pandemic flu is a threat and how we can prepare.

May 20, 2010 8:30-12:00

Get It Done, COOP Planning Workday

Please make sure you have already uploaded your employees to your plan before attending this class. Bring any portion of your plan and we will step through adding the data to the system. To obtain an upload template, please contact Amber.

June 23, 2010 8:30-12:00

COOP Workshop

Need an afternoon to work on your COOP plan with some guidance? Workshops are held after every class session in the DIS training room.

May 12, 2010 1:00-4:00

May 20, 2010 1:00-4:00

June 23, 2010 1:00-4:00

June 30, 2010 1:00-4:00

To register or ask about the location of these classes contact Amber Styles-Emberson:

amber.styles-emberson@arkansas.gov or calling 501-683-0502.

Unless noted otherwise, all training sessions are held in the MAC Building, #1 Capitol Mall, DIS 3rd floor training room

We are available by appointment to help you with your plans individually and we can customize training to fit the needs of your agency or district.

Cancellations: Due to the demand of courses please notify Amber Styles-Emberson 24 hours prior to the class if you are unable to attend for any reason.