

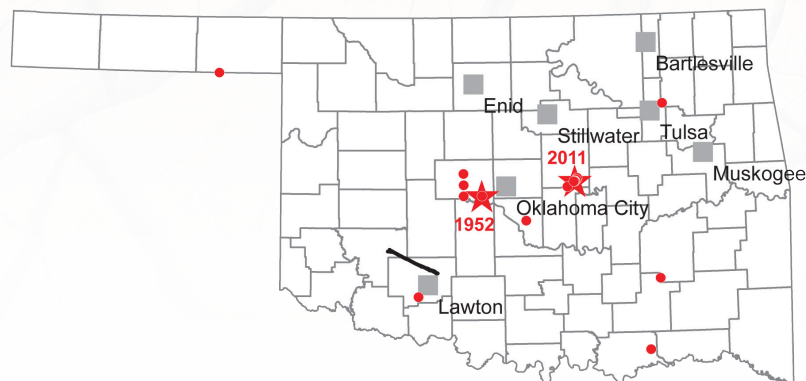
# EARTHQUAKE

## LESSON 2: EARTHQUAKE MYTHS: EARTHQUAKES DON'T HAPPEN IN OKLAHOMA!

People don't think about earthquakes when they think about natural disasters in Oklahoma because each year more damage is done from weather-related hazards such as tornadoes and hail than has ever occurred due to earthquakes. Large earthquakes occur more often on plate tectonic boundaries such as the San Andreas fault in Southern California, but this does not mean that Oklahoma cannot have damaging earthquakes.

On November 6, 2011, a magnitude 5.7 earthquake occurred about 40 miles east of Oklahoma City near Prague, Oklahoma, and was the largest earthquake to occur in historical times in Oklahoma. Hundreds of buildings were damaged and several homes were damaged beyond repair. While earthquakes of this size rarely occur in Oklahoma, there is no way to know when or where a large earthquake will occur. This earthquake is not the only earthquake to have caused damage within Oklahoma. On April 9, 1952, a magnitude 5.4 earthquake occurred about 25 miles west of Oklahoma City and did damage to buildings in Oklahoma City. Both earthquakes were felt over very large regions of the central U.S., and are considered moderate earthquakes. There have been no deaths associated with earthquakes in Oklahoma.

In developing countries, earthquakes of this size can do considerable amounts of damage, destroying thousands of buildings and injuring or killing many people. One such example would be a magnitude 5.7 earthquake that struck San Salvador in 1986 resulting in 1,500 fatalities and 10,000 injuries. Modern building codes and methods within the U.S. help protect people during moderate to large earthquakes. The buildings in and around San Salvador were not built as well as buildings here in Oklahoma, which resulted in so much damage in San Salvador and only minor damage and injuries from Oklahoma's largest historical earthquakes.



Map of Oklahoma showing major population centers in grey boxes and the two largest historical earthquakes as red stars. Locations of earthquakes with magnitudes greater than 4.0 are shown as red circles and the Meers fault is shown as a thick solid-black line.

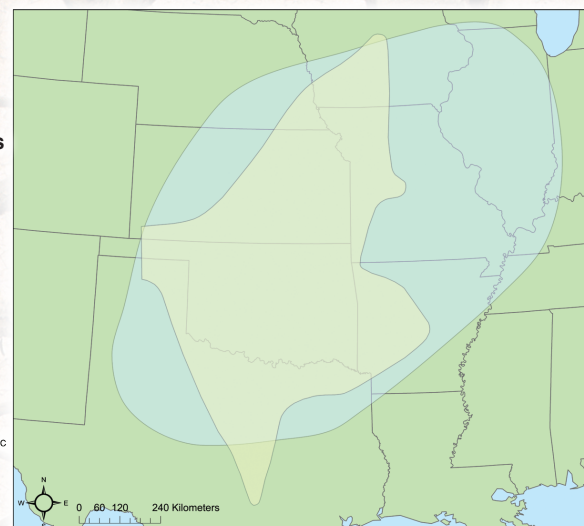
Map showing the areas of the central U.S. where people reported feeling both the 1952 and 2011 earthquakes.

Map of the Central U.S.  
where people reported  
feeling both the  
1952 and 2011 earthquakes



Data from the USGS

Projected Coordinate System:  
USA\_Contiguous\_Albers\_Equal\_Area\_Conic  
Geographic Coordinate System:  
GCS\_North\_American\_1983



The two earthquakes that caused damage here in Oklahoma may be quite small compared to earthquakes that have occurred in the past and could occur in the future. The Meers fault located in southwestern Oklahoma is the only fault known to have had a large earthquake in recent geologic time. The last earthquake to have occurred on the Meers fault was about 1,300 years ago and could have been as large as a magnitude 7. We know this because the fault is visible at the surface and we can obtain ages for the soils which were offset by the earthquake as the fault ruptured to the surface. While large earthquakes may not occur regularly in Oklahoma, they certainly have occurred in the past and could again occur in the future.

Newspapers for this educational program provided by:



### Activity:

1. Examine earthquake myths and interview people about these myths to find out what they think.
2. What would be the best way to get rid of myths?
3. Is there one group of people who tend to believe myths more? Older people? Younger people? Other groups?