

USArray Operating Stations as of April 8, 2010

REAL-TIME STATION STATUS: To view a map of current Transportable Array stations, visit www.earthscope.org and click on the "EarthScope Today" map.

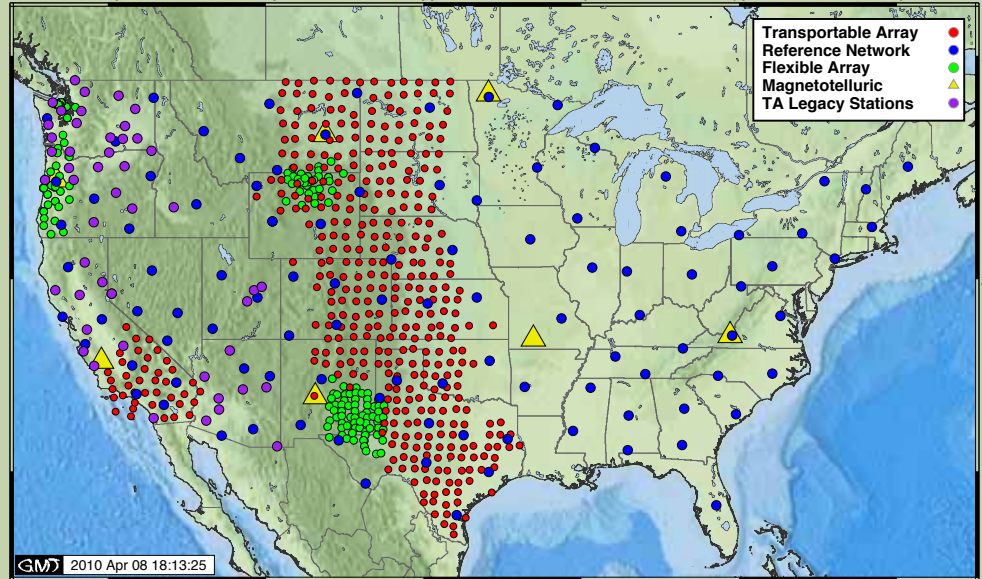
To view seismograms recorded at a USArray station, go to www.usarray.seis.sc.edu/ and enter the station code. You can also enter a zip code to view the recordings from the USArray station closest to that area.

To select a station from a map and view its seismograms, go to www.iris.edu/activeearth/content/es_TA_status.phtml. Click on a station location (red dot) and view today's or yesterday's data.

TRANSPORTABLE ARRAY COORDINATING OFFICE:

usarray@iris.edu 1-800-504-0357

Where is USArray?



featured science:

The Midwest Wakes Up to... Earthquakes!

On February 10, 2010, at 4:00 am in the morning, a magnitude 3.8 earthquake lightly shook northern Illinois in the area near Virgil and Lily Lake. The quake was felt by many people in Chicago, more than 40 miles away, and as far away as several neighboring states.

Initially, it was thought that the epicenter was by Hampshire, but the location was difficult to determine because of the scarcity of professional seismic stations in northern Illinois and surrounding states. Therefore the US Geological Survey, the authoritative government agency responsible for locating earthquakes, included recordings from educational seismometers residing in regional middle schools and universities to constrain the location of the event. As this information became available, the earthquake's epicenter and magnitude were revised two or three times before it was determined that the event occurred in Virgil.

This relatively small earthquake caused the public and the media to wonder how the event might be related to other small earthquakes in the Midwest, such as those that more frequently occur in the New Madrid Seismic Zone just south of Illinois or the series of six events that occurred recently in Oklahoma (see Figure 2-1). Scientific analyses of geological observations revealed that both Oklahoma and northern Illinois became part of North America around 1.7 billion years ago. The area was tectonically active for most of the subsequent few hundreds of millions of years – much in the same way that the western US has been growing in extent and height for the past 200 million years or so. But the Midwest has been relatively stable since a large volcanic event, the so-called mid-continent rift, occurred about one billion years ago. It is possible that some of the scars from this earlier tectonic activity now host the small earthquakes that occur from time to time throughout the Midwest. While these earthquakes relieve small amounts of stress in the relatively stable crust, the cause of small earthquakes in places like Illinois and Oklahoma, and those in the more active New Madrid Seismic Zone, is not entirely understood. The earthquakes in these parts of the Midwest may or may not have a similar origin.

As EarthScope and the Transportable Array move into and through the Midwest, scientists hope to learn more about the region's hidden ancient fault scars as well as the underlying, relatively rigid mantle. This knowledge will improve earthquake location and characterization in the Midwest and contribute to our understanding of the formation and evolution of the North American continent and the processes that cause earthquakes and volcanism. ■

By Suzan van der Lee and Xiaoting Lou, Department of Earth and Planetary Sciences, Northwestern University.

Figure 2-1. The locations of recent earthquakes in the Midwest are shown by red stars. The blue triangles are Transportable Array stations and the purple lines mark areas of similar geology and topography. The earthquake that occurred on March 2 lies in the New Madrid Seismic Zone along the Mississippi River west of Tennessee.

