

## Learning from Earthquakes

# Earthquake Swarm Shakes Reno, Nevada

Caltrans' geologist Martha Merriam contributed this report.

Beginning on February 28, 2008, a swarm of small to moderate earthquakes has shaken the Mogul-Somerset area just west of Reno. According to University of Nevada Reno seismologist Glenn Biasi, no clearly mapped fault has been associated with the swarm, and

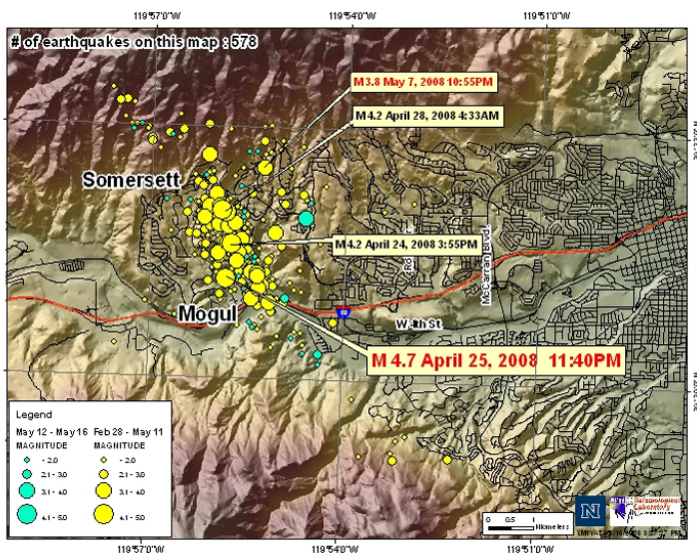


Figure 1. Earthquake swarm (<http://www.seismo.unr.edu/>).

no evidence of surface rupture has been found during geologic reconnaissance. The events have been occurring in a 10-km-long 2- to 3-km-wide zone. Fault plane solutions and the alignment of seismicity are consistent with right-lateral strike-slip motion on a northwest-striking fault.

Because of the location and the unusually shallow initial depths of seismicity, UNR began installing portable recorders near the epicenter, from a few hundred meters to about 2 km from the zone of activity. Four sites with broadband and strong-motion sensors were in place to record the M4s and the M4.7 "main shock." Six more instruments have now been added. The data gathered from these close-in stations, particularly from the larger events will be important in estimating near-fault ground motion. Structural damage has been reported only for a couple of homes, but hundreds of homes experienced some level of nonstructural damage, such as cracked plaster or damaged contents. A trend has been suggested that homes on the cut side of hill slopes fared better than those on the fill sides of the same streets.

As of this writing, the swarm is continuing. The rate of small earthquakes

Cumulative Numbers of Earthquakes of Different Magnitudes Near Mogul

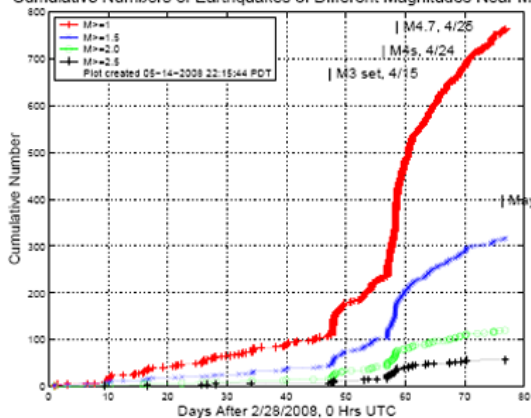


Figure 2. Source: G. Biasi, UNR.

(Figure 2) is greater now than before the largest earthquake occurred.

Double-difference locations have been developed for the swarm by David von Seggern of UNR. They show greater detail of the fault structure than is evident in the catalog relocations. They may be seen in a 3-D viewer at <http://www.seismo.unr.edu/htdocs/monitoring/mogul/3d.html>.