

**EARTHQUAKE ENGINEERING
RESEARCH INSTITUTE**

NEWSLETTER

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News of the Profession

Strong Ground Motion from October 16 Hector Mine Earthquake

The California Division of Mines and Geology reports that strong ground motion from the October 16 Hector Mine earthquake (see related article on this page) was recorded at many CSMIP (California Strong Motion Instrumentation Program) stations. CSMIP Quick Reports are being routinely updated as the data are retrieved and are being posted to the CSMIP ftp site at <ftp://ftp.consrv.ca.gov/pub/dmg/csmip/JoshuaOct99>.

At press time, the latest report contained data from 13 near-real-time CSMIP stations. The largest PGA of the data retrieved so far is 0.19 g at an epicentral distance of 52 km.

News of the Profession

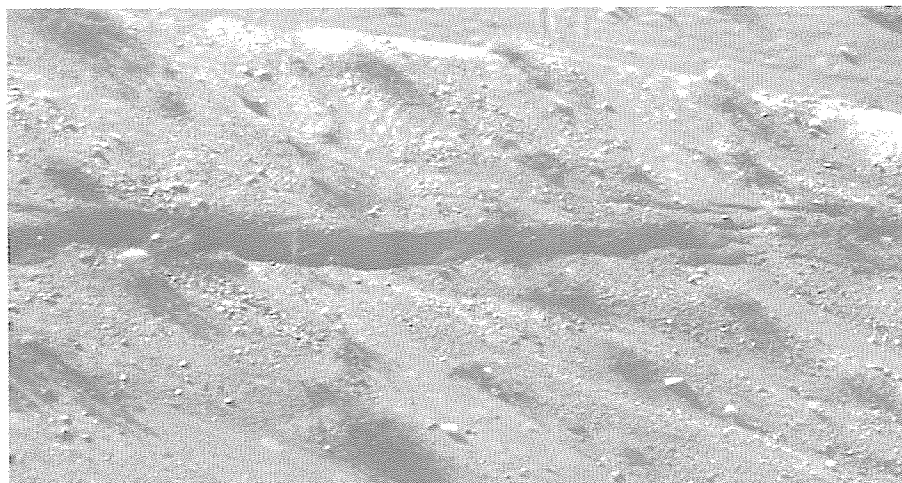
M 7.1 Earthquake Hits Southern California

A magnitude 7.1 earthquake occurred in Southern California at 2:46 a.m. local time on October 16. The epicenter was located in a remote, sparsely-populated part of the Mojave desert, approximately 47 miles east-southeast of Barstow and 32 miles north of Joshua Tree. The event was named the "Hector Mine earthquake" after the mineral mining site where it was centered. Despite its magnitude, the event caused relatively minor damage and very few injuries.

The closest town to the epicenter is Ludlow, a mining town located about 15 miles from the earthquake's epicenter. A number of mobile homes in Ludlow were knocked off their foundations. Southern California Edison reported as many as 180,000 customers suffered power outages because of the earthquake, although only 2500 were without power at mid-afternoon. An Amtrak train travelling 60 miles per hour and carrying 155 people derailed about 8 miles west of Ludlow. There were only four minor injuries, primarily because the train was following a freight train and travelling well below the maximum speed of 90 miles per hour. Officials reported light structural damage to buildings at the U.S. Marine Corps base at Twentynine Palms, near Joshua Tree, and severe damage to a supermarket in Joshua Tree.

The Hector Mine earthquake is not considered an aftershock of the magnitude 7.3 Landers earthquake of 1992, although subsequent analysis will explore the relationship between these two events. The Landers event, centered about 30 miles southwest of the Hector Mine event, killed one person, injured 400, and caused \$100 million in damage.

The earthquake occurred on the Lavic Lake fault, one of a series of faults trending north-northwest through the eastern Mojave shear zone. The rupture, which is within the Twentynine Palms Marine Corps Base, is reported as a 40-km-long surface rupture with a maximum offset of about 4.5 meters. The Lavic Lake fault had not been identified previously as active because there was no evidence the fault had ruptured in the past 10,000 years.



Downward view into gullies, gravel bar, and other laterally offset features showing slip of about 2 meters. (Photo source: Paul "Kip" Otis-Diehl, USMC, Twentynine Palms)