

# Mexico quake destroys 50 homes, kills 2

MEXICALI, Mexico (AP) — A powerful earthquake has destroyed 50 homes in a rural farm community, killed at least two people and triggered rumblings in an old volcano long believed extinct, Mexican state judicial police said today.

The temblor, which measured between 6.2 and 6.7 on the Richter scale, hit last night at 8:28 p.m. and lasted almost a full minute, authorities said. The epicenter was 50 miles southeast of this U.S.-Mexico border city.

A girl was killed when the roof of her home collapsed in the farming area known as Oaxaca, about 25 miles south of the border. A man also died there when a railroad bridge fell on his car.

By daybreak, at least 60 people were treated for injuries by the Mexican Red Cross in Mexicali.

Details on the rumblings at the volcano, Cerro Prieto, were sketchy, but the mountain is in the Mexicali area and is the site of an experimental

geothermal power plant.

Authorities said it will be several days before they know the extent of damage or injuries throughout the Mexicali Valley, into which the Colorado River flows.

The All-American Canal, which also carries water from the Colorado into California's Imperial Valley along the border, was reported damaged and there was some flooding in rural areas of the agricultural valley. However, the only damage reported in the

United States was at an electrical transformer which blew out in Brawley.

The quake was felt as far north as Los Angeles.

The rolling motion of the earth lasted 60 to 90 seconds near the epicenter. Buildings swayed and water splashed out of swimming pools in areas of Los Angeles, Orange and San Diego counties.

In Arizona the quake was felt from Yuma to Tucson.

The Imperial Valley, just 60 miles north of the epicenter, suffered \$16 million in damages last October when a quake measuring 6.5 on the Richter scale struck the area.

At the Imperial County Sheriff's office in El Centro, Deputy Lawrence Powell called yesterday's shaking "a good solid rolling."

Powell said as a precautionary measure sheriff's deputies were roping off streets near the county building, which was condemned after the

October quake but not yet torn down.

"This was a rolling earthquake and not a shaking one. There is quite a difference," said a police officer in Calexico.

The Richter scale is a measure of ground motion as recorded on seismographs. Every increase of one full number, for example from 5.5 to 6.5, means the ground motion was 10 times greater. A quake of 5 can cause considerable damage, 6 can be severe and 7 is a "major" quake.

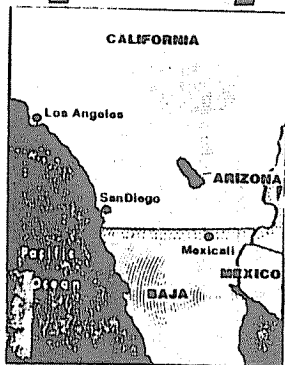
## Big Baja quake jars Southwest

By HUGH GRAMBAU  
TRIBUNE Staff Writer

An earthquake measuring between 6.2 and 6.7 on the Richter scale rocked the Valley of Mexicali last night and sent shock waves rolling through northern Baja California, Southern California, Arizona and Sonora.

Mexicali police reported one death and more than 100 injuries. An 18-month-old child died of head injuries this morning after the temblor collapsed his house in the village of Hidalgo southeast of Mexicali.

Enrique Hage, spokesman for the civilian auxiliary of the Mexican



SHAKEN AREA — Map indicates area shaken by Baja quake. — UPI map

EVENING TRIBUNE

San Diego, Monday, June 9, 1980

homes crumbled around them. Some were cut and bruised, others were hysterical, a spokesman said.

Hage said the heaviest damage was in Oaxaca, 23 miles southeast of Mexicali, and in Delta Station, both in the rich delta lands of the Colorado River.

He discounted reports that ominous rumblings were heard in the extinct Cerro Prieto volcano, the site of a geothermal electrical plant. They were "the same sounds we heard everywhere" during the temblor, Hage said.

Scientists at the Scripps Institution here put the epicenter of the quake at 50 miles southeast of Mexicali, near the mouth of the Colorado River at the northern tip of the Gulf of California, known in Mexico as the Sea of Cortez.

Scripps sent a four-member team to study ground-measuring devices implanted earlier near the center of the quake. A team from the Mexican research station in Ensenada accompanied the group.

Mexicali Police spokesman Raul Flores said that there was no damage there or in San Felipe to the south of the epicenter. Calexico, El Centro and Yuma police also reported no damages.

A power outage overnight in Brawley was reported when a transformer malfunctioned near that Imperial Valley community. The temblor was blamed for the damage. Power in the six-block area had been restored today.

The quake was felt throughout San Diego County, as far east as Tucson and as far north as Los Angeles.

"It was just an ordinary Gulf of California earthquake," said Jerry King of the Institute of Geophysics and Planetary Physics at Scripps, which part of the University of California at San Diego.

King said a preliminary measurement of 6.75 on the Richter scale was made by a measuring device at Palomar Mountain Observatory. California Institute of Technology in Pasadena reported an intensity of 6.2 for the quake.

"This is approximately the same size as the El Centro earthquake in October, but a little further to the south," said King.

He said the quake occurred along the Cerro Prieto fault, which is part of the San Andreas fault system.

The El Centro quake reg-

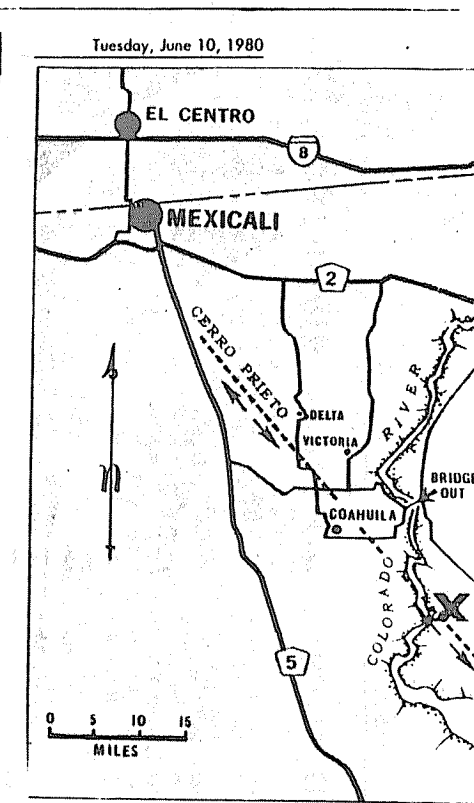
istered 6.4 on the Richter Scale.

At the All America Canal on the California side of the border, canal manager Bob Wilson said no damage resulted from the quake.

"We got people on the radio last night and made surveillance at that time and at daybreak today," said Wilson. "We have not seen any problems."

He said water was being delivered today to farms throughout the Imperial Valley and that the only evidence of the quake was "the shaking we all felt last night."

Imperial County Agriculture Director C.M. Finnell said there had been "lots of rumors" of damage.



Map shows where Sunday's earthquake (X) was centered along the Cerro Prieto Fault, about 50 miles southeast of Mexicali. \*\*SAN DIEGO UNION\*\*

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INDEPENDENT (AM), PRESS-TELEGRAM (PM)/TUES. JUN 3, 1980

### Two earthquakes rattle Southland

PASADENA (AP) — Two small earthquakes only seconds apart Tuesday morning rattled Southern California and Mexico, said Dennis Meredith, spokesman for the Caltech seismology lab here.

There were no immediate reports of damage from either earthquake, which Meredith said were not connected. The second quake was centered near Newhall, where a deputy at the sheriff's station said, "We hardly felt it."

The first tremor, registering 3.1 on the Richter scale, was at 9:43 a.m. about 50 miles south of San Diego, just over the border in Mexico.

The second came 14 seconds later, centered about 30 miles north of Los Angeles. It registered 3.5.

called Cerro Prieto, about 25 miles south of Mexicali. Francisco Suarez, an Ensenada-based geologist who has been studying a geothermal steam field adjacent to the old volcano, said no evidence of new volcanic activity in the area had been reported by geological associates in

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# Expert Says Odds Rise On Major Quake In State

By CLIFF SMITH  
Staff Writer, The San Diego Union

Sunday's Mexicali Valley earthquake increased the likelihood of a major quake in Southern California within 50 years, a noted La Jolla earth scientist said yesterday.

Dr. James Brune, associate director of the Institute of Geophysics and Planetary Physics at Scripps Institution of Oceanography, said the strain released in the quake Sunday night was unquestionably transferred to the infamous San Andreas Fault between the south end of the Salton Sea and a point near San Bernardino.

That 150-mile-long section of the fault has never slipped substantially in the region's 200-year history, Brune noted. Thus, it is frozen or "stuck" and loaded with ever-accumulating strain that inevitably has to be relieved.

Brune calls the section "one of the world's most dangerous seismic gaps" and said it could produce a tremor equal to or greater than the magnitude 8.3 San Francisco earthquake of 1906.

"That section or gap has never broken in historic time and sooner or later it has got to slip," Brune said.

So, when will the next big slip and attendant earthquake occur?

"The odds are very high that it is going to come in the next 100 years and it could be tomorrow," Brune answered.

"In fact, the odds are pretty high that it will come in the next 50 years."

Brune also noted the less-likely possibility that "the whole (fault) system could lock up for a couple of hundred years," forestalling the coming big tremor.

Brune said essentially the same thing last October, following the magnitude 6.6 Imperial Valley earthquake, which unleashed roughly twice as much energy as Sunday's magnitude 6.2 tremor.

Brune said the only significant new evidence bearing on the danger posed by the "gap" is data collected by Dr. Robert Sharp of the U.S. Geological Survey showing that the San Jacinto Fault has been far more active for the past several thousand years than was previously believed.

The San Jacinto Fault is west of the San Andreas and parallel to it.

Sharp's data show that the San Jacinto Fault has slipped an average of about 2 1/2 centimeters, about one inch, a year.

Brune pointed out that this is not nearly enough to account for the approximately 2 1/2 inches of movement that takes place annually along the fault zone as one huge plate of earth crust west of the fault moves north relative to the plate on the other side of the fault.

Thus, the best evidence is that 1 1/2 inches of strain a year is accumulating in the gap.

Initial reports on the earthquake included unattributed observations of "rumbblings" within a dormant volcano

called Cerro Prieto, about 25 miles south of Mexicali.

Francisco Suarez, an Ensenada-based geologist who has been studying a geothermal steam field adjacent to the old volcano, said no evidence of new volcanic activity in the area had been reported by geological associates in the area.

Dr. Gordon Gastil, a San Diego State University geologist, said, however, that the reported rumbblings could have been noisy gas emissions from underground triggered by the quake.

Gastil noted that recent studies by SDSU geologist Carl Strand established that such emanations and "mud volcanoes" have occurred in the area many times in this century.

Volcanic ash in the area, however, indicates that the last actual volcanic eruption of molten rock occurred about 17,000 years ago.

Dr. Michael Walawender, a volcano expert at SDSU, said it was highly unlikely that the quake could bring Cerro Prieto to life.

Scientists at California Institute of Technology said the quake could be linked to the October earthquake as well as to increased quake activity recently in California.

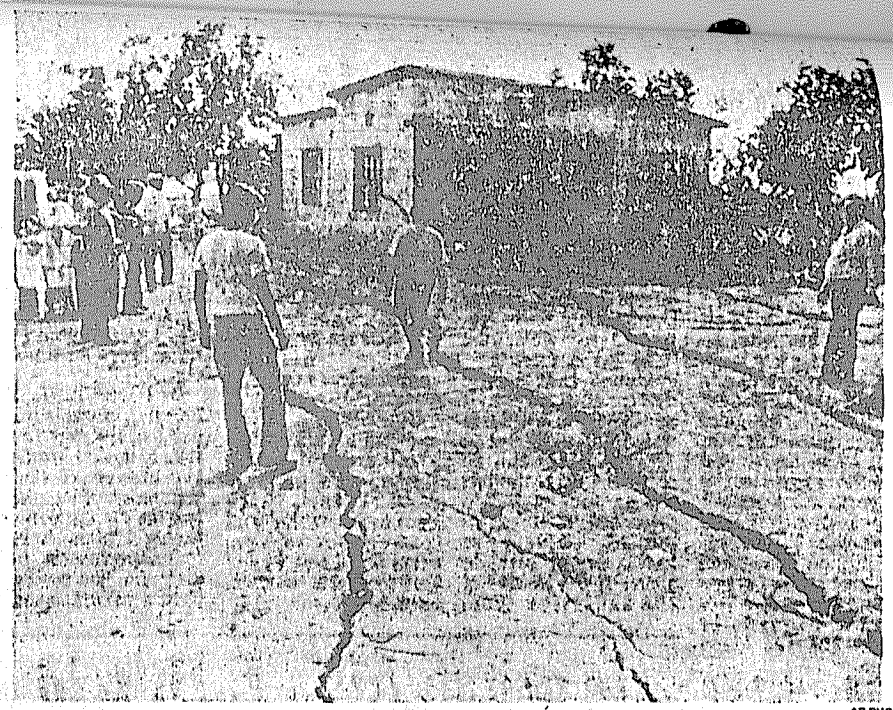
The Caltech scientists noted that two times before, in 1915 and 1940, major quakes on the Imperial Fault in Imperial Valley had been followed within a year by earthquakes on the Cerro Prieto Fault, where Sunday's quake was centered, about 50 miles south of Mexicali.

Brune said the earthquake here had only an indirect connection to the earthquakes in Washington State associated with the Mount St. Helens volcanic eruption.

As to the earthquake death risk to San Diegans from any future major quake on the San Andreas, Brune said this:

"If you have ever been on a freeway, you are taking a bigger risk than you are by living in San Diego.

"In fact, the risk of dying in traffic is 1,000 times greater. An average of about 30 people are killed in earthquakes each year. But 30,000 die in traffic each year."



RESIDENTS of Colonia Hidalgo, Mexicali, Mexico; look over cracks in the ground where an earthquake struck Sunday night.

—AP PHOTO

## MEXICO QUAKE — A RERUN OF 1940 AND 1915

By GEORGE ALEXANDER  
Times Science Writer

The earthquake that struck the northern parts of Baja California during the evening of June 8 formed a pattern of seismicity with other recent temblors in the Imperial and Owens Valleys of California strikingly similar to sequences that occurred in the areas in 1940 and 1915.

Last Sunday's shock, a 6.2 event on the Richter scale of magnitude, happened on the Cerro Prieto Fault near the Mexican border city of Mexicali. That fault is parallel to, but offset from, the Imperial Valley Fault on the U.S. side of the border, where a magnitude 6.6 earthquake struck last Oct. 15.

In between these temblors, there was a cluster of three magnitude 6 events in the Mammoth Lakes area of the Owens Valley, more than 400

miles to the northwest of the U.S.-Mexico border, over the last Memorial Day weekend.

Back in 1940-1941, according to Kate Hutton, a Ph.D. staff seismologist at Caltech, and Carl Johnson, a U.S. Geological Survey scientist based at Caltech, a similar series of events happened.

It began with a magnitude 6.7 shock on the Imperial Valley Fault May 18, 1940. That was followed by a 6.0 tremor in Northern Baja, possibly on the Cerro Prieto Fault or some other fracture system, Dec. 7 that same year. And then on Sept. 14, 1941, a swarm of earthquakes, the biggest registering 5.9 and 6.0, hit near Bishop and Mammoth Lakes vicinity.

This same basic scenario was played out in 1915, the two scientists said. A pair of approximate magnitude 6.2 earthquakes shook the El Centro area in the Imperial Valley on June 22 that year, followed by a magnitude of nearly 7.8 shock in the Pleasant Valley, Nev., area Oct. 2 and a magnitude 7.1 event in Baja Nov. 20.

A similar series of magnitude 5 and 6 earthquakes also hit the Imperial

Valley, Baja California and Eastern Sierra-Great Basin territories over the 1954-1956 time span, but these events were not as large or as conspicuous in their timing as the 1915, 1940-1941 or the most recent sequences.

Hutton, in a telephone interview, said it was very doubtful that the initial earthquake in these sequences triggered the subsequent events, like the first domino toppling the other dominoes in a line.

Rather, she said, all these different (in time) sequences probably resulted from some larger force at work in the earth deep below the brittle crust. As this force propagated upward over a broad region, such as the western edge of the North American Continent, the weakest parts of that brittle crust broke first—and would tend to do the same thing when the force is applied again.

By searching through past seismic records, Hutton said, it might be possible to identify recurring patterns for other regions and thus indicate areas more likely to experience earthquakes.

## For the Record

Only one earthquake—not two—struck the Baja California region Sunday, June 8. The confusion apparently arose from the different estimates made by Caltech and the Scripps Institution of Oceanography of its Richter Scale magnitude, 6.2 and 6.7 respectively, and the times reported by these two scientific organizations—8:28 p.m., PDT—and by a San Diego television station, 8:32 p.m. PDT. Wire services interpreted these estimates and times as two separate earthquakes and The Times printed this incorrect dispatch.

## Mexico Clears Area of Quake

MEXICALI, Mexico (AP)—More than 100 families have been ordered evacuated from earthquake-devastated rural areas threatened by damaged irrigation canals and levees.

Mexican officials directed endangered families to move northward

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along the Colorado River until emergency levees could be constructed along 40 miles of canals.  
Mexican officials also appealed to the United States to cut down Colorado River flow to prevent more flooding.