

Researcher: Odds against major quake here for awhile

From staff and wire reports

New evidence appears to confirm the theory that the Oct. 17, 1989 earthquake did not strike along the San Andreas fault, but rather a previously unknown, deeper fault.

The discovery could mean the Loma Prieta quake, which measured 7.1 on the Richter scale, failed to relieve seismic strain that has built up along the San Andreas, and could affect forecasts in the region, a scientist said.

David P. Schwartz, a geologist at the U.S. Geological Survey in Menlo Park, presented his findings Monday in San Diego at a meeting of the Geological Society of America.

Thorne Lay, director of the Institute of Tectonics at UC Santa Cruz, called Schwartz's pronouncement "well-known stuff" in the research

community.

He reaffirmed that the "odds are on our side the Santa Cruz area will not experience another magnitude-7 or larger earthquake in the next few decades."

The reason, said Lay, is that the portion of the San Andreas fault that runs through the Santa Cruz Mountains is near the surface.

Even if the rupture of the deeper, Loma Prieta fault in 1989 added pressure to the San Andreas fault, a future shift on a fault so near the surface likely would result in a 6.0-magnitude quake or smaller, said Lay.

And there is a chance, Lay said, that the Loma Prieta fault rupture released some strain in this section of the San Andreas.

The Loma Prieta quake killed 63 people and caused \$5.9 billion in

damage, according to the state Office of Emergency Services. One estimate puts total economic losses at \$10 billion.

Schwartz said the movement of the quake was different than that of earlier quakes that struck along the San Andreas fault.

Schwartz, who has been digging exploration trenches across the San Andreas in Santa Cruz Mountains near Watsonville, discovered traces of a large earthquake that ruptured the ground there long before the great earthquake of 1906, possibly as early as 1650, he said.

USGS geologist Carol Prentice, who has been digging similar trenches across the San Andreas fault near Point Arena, about 170 miles to the north, has found traces of what may be the same quake identified by Schwartz.

Both trenching expeditions revealed evidence that the earth was ripped in the style seismologists call "right-lateral strike slip," where the ground on the far side of a fault moves abruptly to the right during a quake.

The horizontal ground motion is typical of quakes along the San Andreas, and it marked the 1906 quake as well as the earlier one, the scientists said.

If in fact the 17th-century quake occurred over a distance as great as 170 miles, its magnitude must have been close to that of the 1906 quake, and the "recurrence rate" of great earthquakes along the San Andreas would appear to be about 250 years, Schwartz estimated. The 1906 quake was believed to have had a magnitude of 8 or higher.

Lay said history reveals that sci-

entists "tend not to see size-7 quakes occurring in the same area," but, "on the other hand, it's not completely unknown."

Lay warned Santa Cruz area residents to "maintain an awareness" and to "not become complacent just because we've experienced a large event" two years ago.

He added, however, that he believes the greater danger is to the north, along the San Francisco Peninsula.

That portion of the San Andreas fault, said Lay, hasn't ruptured since the big 1906 earthquake, and it did not slip during the Loma Prieta quake.

"It was pushed along by Loma Prieta," said Lay, which "increases the likelihood" of a sizable earthquake in that area in the next 30 years.

REFERENCE

10 - SANTA CRUZ SENTINEL
October 22, 1991