

Was L.A. Earthquake a Precursor to the 'Big One'?

Experts Say It's Impossible to Tell Whether Small Quakes Are a Sign That Bigger Ones May Follow

Daniel B. Wood, Christian Science Monitor, 3-20-10

The magnitude 4.4 earthquake centered about 10 miles southeast of downtown Los Angeles early Tuesday morning was typical for Southern California, very much in the range of those occurring every couple of months on average, say earthquake experts.

"The only thing remarkable about today's quake is that it occurred in a highly populated area, woke up millions of people, and attracted a lot of news media attention," says Kate Hutton, staff seismologist at Caltech Seismological Laboratory.

The big question being bandied about by media organizations and bloggers is whether the quake, which hit just after 4 a.m. local time, is a sign that the "Big One" is coming. That seems to be a matter of opinion.

Some say that because energy has been released, the chances of a mega-quake are less, because pressure has been released. Others say that seismic activity "stutters along" and therefore may signal bigger activity to come.

"No one can predict these bigger quakes," says Frank Galgano, chair of the department of geography and the environment at Villanova University in Villanova, Pa., "even people studying it for their whole lives."

Unlikely LA Quake Related to Earthquake Activity Elsewhere

The Indian Ocean quake that caused a giant tsunami in 2004, for instance, had no warning, Mr. Galgano says. A sudden, 55 ft. vertical shift happened in the ocean floor that sent waves crashing as far away as Indonesia, India and Africa.

His opinion is that Tuesday's activity is a sign that the chances are better than not that another one is close behind. But he cautions that, "it's just too hard to really say."

But experts are confident that the quake, which hit just after 4 a.m. local time, is unlikely to be related to earthquake activity anywhere else in the world.

"Each tectonic plate moves along at a steady rate and each plate boundary accumulates strain and releases it in earthquakes on its own random 'schedule,'" she says. "When we look at the world-wide seismicity, the most obvious feature is that it is random. There may be some 'triggering' in local areas, but there does not appear to be much if any long-range influence. In other words, the Haiti earthquake did not trigger the Chile earthquake, and so forth."

Expert: Chile and S. Calif. Quakes Not Related

Galgano points out that the Chile and Southern California quakes are not related because they represent two completely different sets of plates. In Chile, the Nazca plate and the South American plate are colliding head-on, forcing the Nazca (oceanic side) plate under the South American plate, forming the Andes Mountains and the volcanic activity in that area.

The head-on nature of that quake put it in the category of much bigger seismic rating – it measured 8.8 on the Richter scale.

But in Southern California, the North American and Pacific plates are colliding laterally, with the North American plate sliding toward the Southwest and the Pacific plate moving toward the northwest. "They still bump, but one nestles under the other," Galgano says.