

Chilean quake caused several California quakes

Susanne Rust, California Watch, 2-28-11

Although they are nearly 10,000 miles apart, the magnitude 8.8 Chilean quake of 2010 triggered smaller microquakes here in California.

Just hours after the megaquake shook Chile, toppling buildings and generating tsunamis, dozens of small quakes were recorded throughout the San Joaquin Valley.

And researchers at the Georgia Institute of Technology say the two are connected.

Although recent studies have shown that large quakes in one part of the globe can send ripple effects to other parts, this new study takes that knowledge one step further.

Reporting in the journal *Geophysical Research Letters*, scientists Zhigang Peng, Chunquan Wu, and Chastity Aiken show that it's not just the initial surface waves emitted from a large temblor that cause smaller earthquakes to be triggered elsewhere, but subsequent waves as well.

If you think about the earth as a big, liquid ball, imagine that ball getting hit with a large rock. That rock would make an initial splash and then send waves out and away from the point of impact.

Scientists have known that those initial waves – the waves that take the shortest path from one location to the next – could cause small earthquakes elsewhere.

But Peng and his colleagues wondered what happened when those waves came full circle. So, a wave that was initially sent one way will travel around the big ball and eventually come back to where it started, and then circle again.

According to Peng and his colleagues, those waves have an effect too. And they could see that as the waves passed the Coso geothermal field in Central California, minor quakes were triggered.

“These waves can circle around the world several times,” said Peng. “In this case, it is not only the first cycle of waves that trigger the micro-quakes, but secondary and third cycles, too.”

He said that although the quakes triggered weren't large, this information does help geophysicists better understand how events in one place can trigger events elsewhere and how earthquakes interact.

He said he and his colleagues will expand their study to look at other parts of the globe to see what effects the Chilean earthquake triggered elsewhere.