

Wednesday's earthquakes establish a new seismic precedent

Indonesia quake reportedly triggered two quakes in California.

Gary London, Los Angeles City Buzz, 4-12-12

Wednesday may have begun a new era in our understanding of earthquakes, seismology and plate tectonics.

The powerful 8.6 Indonesia quake and 8.2 aftershock was an extraordinary event, according to two well-known seismologists. This was the strongest quake ever recorded on what's known as a "strike-slip" fault, a situation where two blocks of earth's crust slide horizontally past each other along a vertical plane.

"Previous to this time, we've never seen a strike-slip quake larger than a magnitude 8.1," said Tom Heaton, a seismologist at the California Institute of Technology. According to Dr. Lucy Jones, a seismologist at the U.S. Geological Survey, this explains why the tsunami associated with this quake was minimal, only 30 inches high. The lack of vertical motion did not disturb or displace significant amounts of seawater.

The world's largest earthquakes and tsunamis are typically associated with subduction zones, areas where one part of the earth's crust is being forced underneath another. The vertical motion associated with this type of quake causes a shock wave to travel across broad oceanic distances with resultant tsunamis over 30 feet high. Such was the case in Japan last year, and in a total of nine instances in the the 21st century.

California's notorious San Andreas fault is also a "strike-slip" fault

Wednesday was a very busy day for seismologists. Two strong quakes shook Mexico, the first in the western state of Michoacan had a magnitude of 6.5 and was recorded at a depth of 12.4 miles. A second quake measuring 6.9 off Baja California had a shallower depth of 6.2 miles. If that wasn't enough, a 5.9 tremor was observed in the Pacific off the Oregon coast.

But perhaps most surprisingly...is the conclusion reached by seismologists that two small quakes in California on Wednesday were actually triggered by the Indonesia quake. It is believed that as the waves from the distant Indonesia quake passed beneath California, they set off two 2.6 quakes. One was near Bakersfield, the other north of San Francisco. "That happened as the surface waves from Indonesia were traveling through here. We can see it on our records," said USGS's Dr. Lucy Jones.

Yet another aftershock was reported off the coast of Indonesia Thursday morning, registering 5.3.

Plans for an earthquake warning system for California continue to be on hold, due to budget deficiencies and lack of funding.