

# 'Odd duck' Indonesia quake surprises scientists

April 11 2012, By ALICIA CHANG , AP Science Writer

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(AP) -- The massive earthquake off Indonesia surprised scientists: Usually this type of jolt isn't this powerful.

The biggest earthquakes tend to occur in [subduction zones](#) where one plate of the Earth's crust dives under another. This grind produced the 2004 magnitude-9.1 Indian Ocean disaster and the magnitude-9 Japan quake last year.

Wednesday's magnitude-8.6 occurred along a strike-slip [fault line](#) similar to California's [San Andreas Fault](#). Scientists say it's rare for strike-slip quakes, in which blocks of rocks slide horizontally past each other, to be this large.

"It's clearly a bit of an odd duck," said [seismologist](#) Susan Hough of the U.S. Geological Survey in Pasadena, Calif.

As one of the world's most seismically active places, Indonesia is located on the Pacific "Ring of Fire," an arc of volcanos and fault lines encircling the Pacific Basin. Pressure builds up in the rocks over time and is eventually released in an earthquake.

Wednesday's quake was followed by a magnitude-8.2 aftershock. Both were strike-slip quakes.

"A week ago, we wouldn't have thought we could have a strike-slip earthquake of this size. This is very, very large," said Kevin Furlong, a

professor of geosciences at Penn State University.

So large, in fact, that the main shock went into the history books. Record-keeping by the USGS National Earthquake Information Center ranks Wednesday's shaker as the 11th largest since 1900. It's probably the largest strike-slip event though there's debate about whether a similar-sized Tibet quake in 1950 was the same kind.

A preliminary analysis indicates one side of the fault lurched 70 feet past the other - a major reason for the quake's size. By contrast, during the 1906 magnitude-7.8 San Francisco earthquake along the San Andreas - perhaps the best known strike-slip event - the ground shifted 15 feet.

The Sumatra coast has been rattled by three strong strike-slip quakes since 2004, but Wednesday's was the largest.

**More information:** Earthquake page: <http://earthquake.usgs.gov/>

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