



Hawaii quake blamed on volcanic stress

Tectonic shakers don't have a regular pattern and are harder to predict

By **Alicia Chang**
 Associated Press

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Hawaii's Big Island is rattled by thousands of minor earthquakes a year, mainly from volcanic eruptions. But the strongest and most destructive types — like Sunday's magnitude-6.7 that caused blackouts and landslides — are rare and are caused not by eruptions, but by the buildup of stress deep in the crust as volcanoes grow and spread, experts say.

The Big Island is the youngest in a ring of volcanoes stretching some 3,500 miles across the Pacific Ocean. As new island volcanoes form and old ones are carried away, the process can sometimes release pent-up pressure in the form of quakes.

"If you think of it as piling up more and more dirt, it's eventually going to slide," said seismologist Kate Hutton of the California Institute of Technology.

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The Big Island is commonly rocked by quakes in the 3- and 4-magnitude range that are triggered by volcanic eruptions. Prior to Sunday's shaker, volcanic activity in the area had been relatively quiet, according to the U.S. Geological Survey's Hawaiian Volcano Observatory.

Since January 2005, scientists have recorded fewer than 10 quakes a week beneath the summit of the world's largest volcano, 13,677-foot Mauna Loa. As for Mauna Loa's neighbor, Kilauea, scientists recorded no significant change in seismic activity before or after Sunday's quake.

Volcanic earthquakes — those triggered by eruptions — are usually detected by the hundreds of swarms of temblors that occur several hours or days before an eruption. The type of quake seen on Sunday, a tectonic earthquake, does not occur in any regular pattern and is harder to predict.

Hawaii remains vulnerable to quakes

In some other parts of the world, such as Southern California, volcanoes play little or no role in earthquakes. These quakes are caused instead when the plates that make up the Earth's crust grind against each other and break or slip.

Scientists said a possible explanation for Sunday's quake is that, as volcanoes grow over time, their weight presses down on the crust, which can then give way.

"It's like someone sitting on mattress," said Jim Kauahikaua, scientist in charge of the USGS Hawaiian Volcano Observatory. "The crust is flexed by the weight of the island."

Hawaii's largest quake on record was an 1868 magnitude-7.9 temblor that spawned a tsunami and numerous landslides. Seventy-seven people died, according to the USGS. In 1951, a magnitude-6.9 quake severely damaged houses and churches on the Kona coast.