Ruptured Earth -- in the aftermath of the Chilean earthquake

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On 27 February 2010, a gargantuan 8.8 earthquake struck south-central Chile, the fifth largest event ever recorded by modern seismology.

Now, a new study provides first-hand confirmation that the February earthquake ruptured a very long fault along the coast of Chile, but that its effects on coastal land varied; with a rise of land to a higher elevation in the South and an opposite sinking down of the Earth's surface in the North.

The findings will help geologists and seismologists gain a deeper understanding of what triggers large earthquakes.

In a Brevium, Marcelo Farías and researchers from Chile, France, and Germany report measurements from 33 sites related to the earthquake, all made within in a month of the rupture.

The measurements reveal that uplift or and elevation of land occurred closer to the coast, while sinking occurred farther inward, toward land.

This pattern is broadly similar to measurements made following many other great earthquakes, and is consistent with a fault slip that lies along a 500 km section of the Chilean coast that coincides with previous earthquakes in 1835 and 1928.

More information: "Land-Level Changes Produced by the Mw 8.8 2010 Chilean Earthquake," by M. Farías et al. *Science*, July 30, 2010.

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