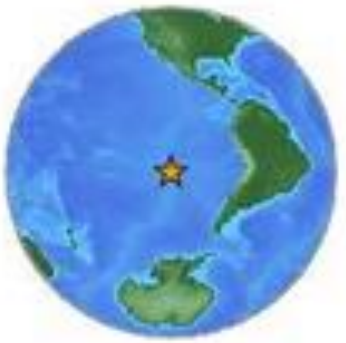
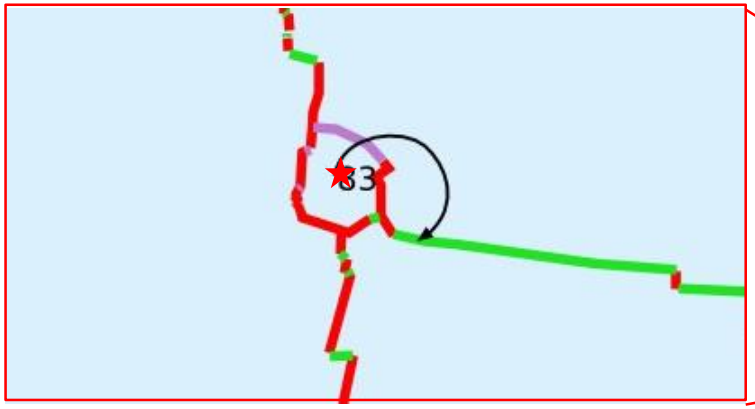
Magnitude 7.1 SOUTHERN EAST PACIFIC RISE

Thursday, October 9, 2014 at 02:14:32 UTC



A major magnitude 7.1 earthquake occurred near the intersection of the Pacific, Nazca and Antarctic Plates. The epicenter (★) was located ~3000 km off the Chilean coast.

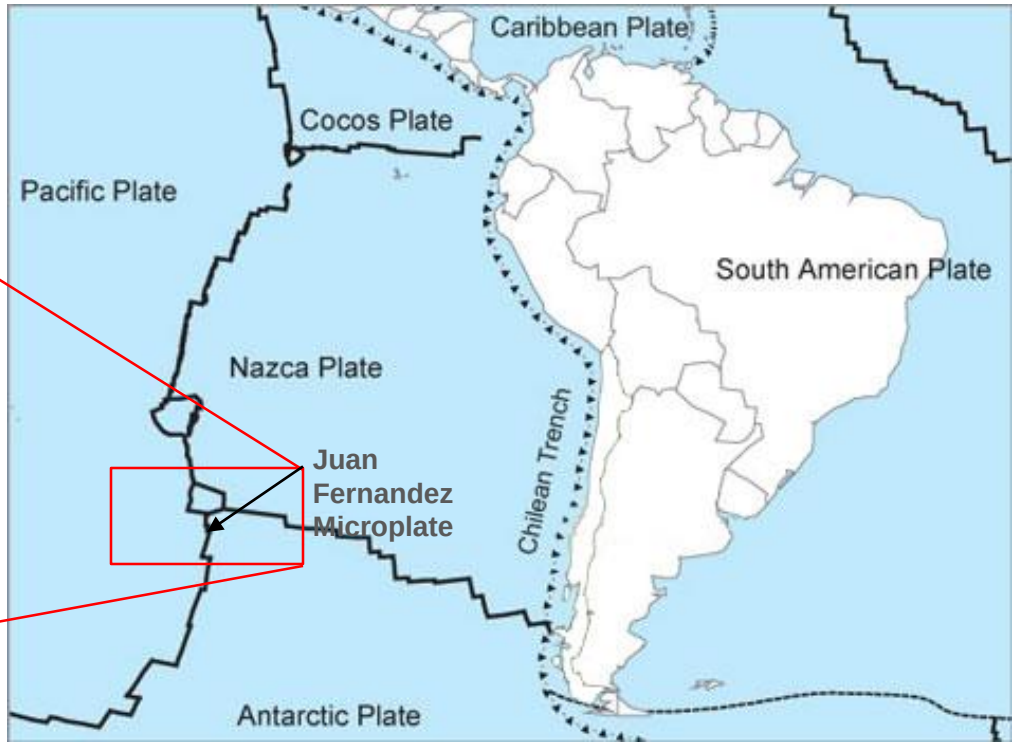
At the location of the earthquake, the Nazca Plate diverges from the Pacific Plate at a rate of 15 cm/yr, in a direction slightly south of due east. This earthquake occurred near the northern boundary of the Juan Fernandez Microplate, which is itself moving in a clockwise direction.



Convergent plate boundary

Divergent plate boundary

Transform plate boundary



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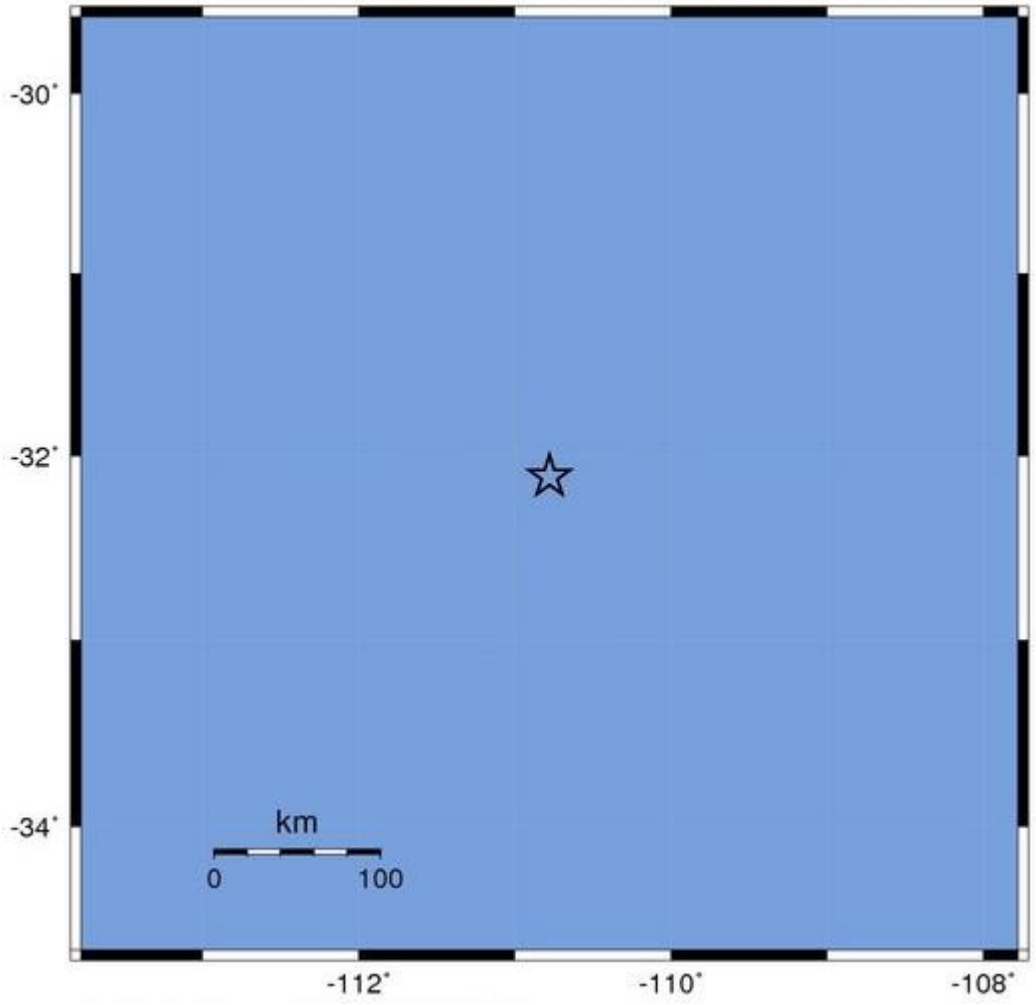
The Modified-Mercalli Intensity scale is a twelve-stage scale, from I to XII, that indicates the severity of ground shaking.

Because of the remote location, no one was shaken by this earthquake.

Modified Mercalli Intensity	Perceived Shaking
X	Extreme
IX	Violent
VIII	Severe
VII	Very Strong
VI	Strong
V	Moderate
IV	Light
II-III	Weak
I	Not Felt



USGS Estimated shaking Intensity from M 7.1 Earthquake

Image courtesy of the US Geological Survey

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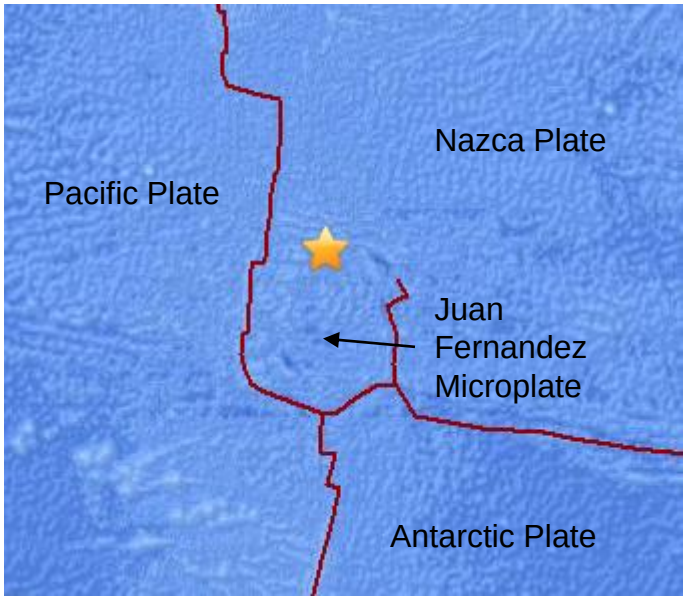
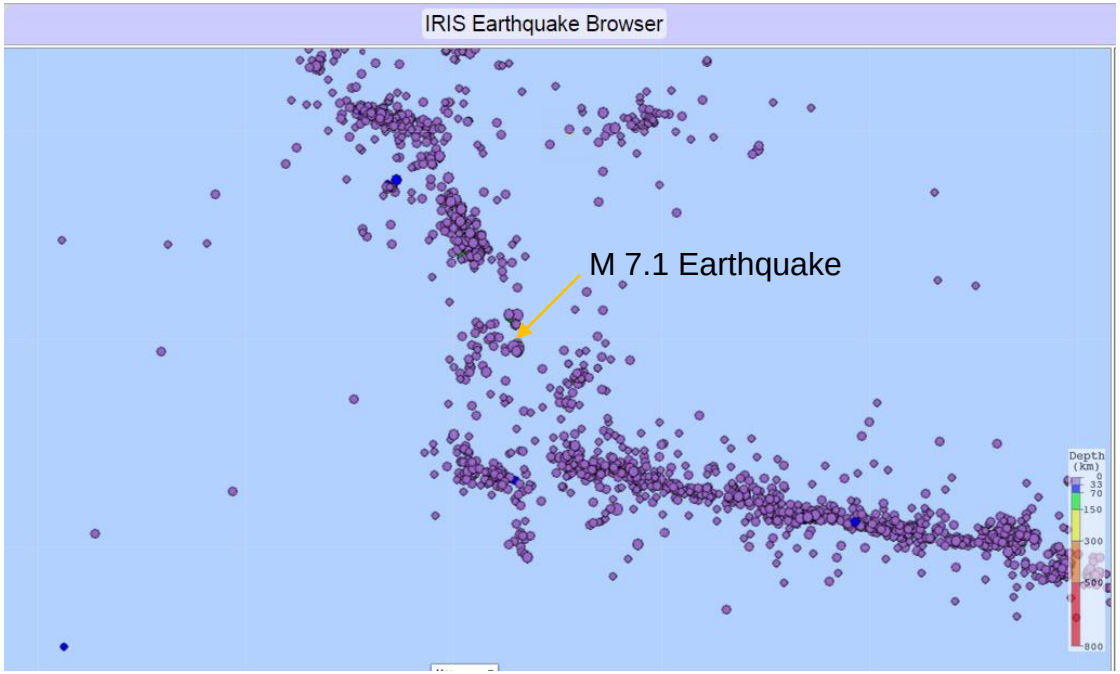
This earthquake resulted from oblique thrust faulting at a depth of approximately 15.5 km. According to the USGS, moderate sized earthquakes are not uncommon in this region, though events of this size are rare. Fifteen other M 6+ earthquakes have occurred within 500 km of this earthquake over the past century – until today none had been larger than a M 7.0 in March 1920, 400 km south of the this earthquake.

USGS Centroid Moment Tensor Solution





40 years of regional seismicity – most < M 6.0

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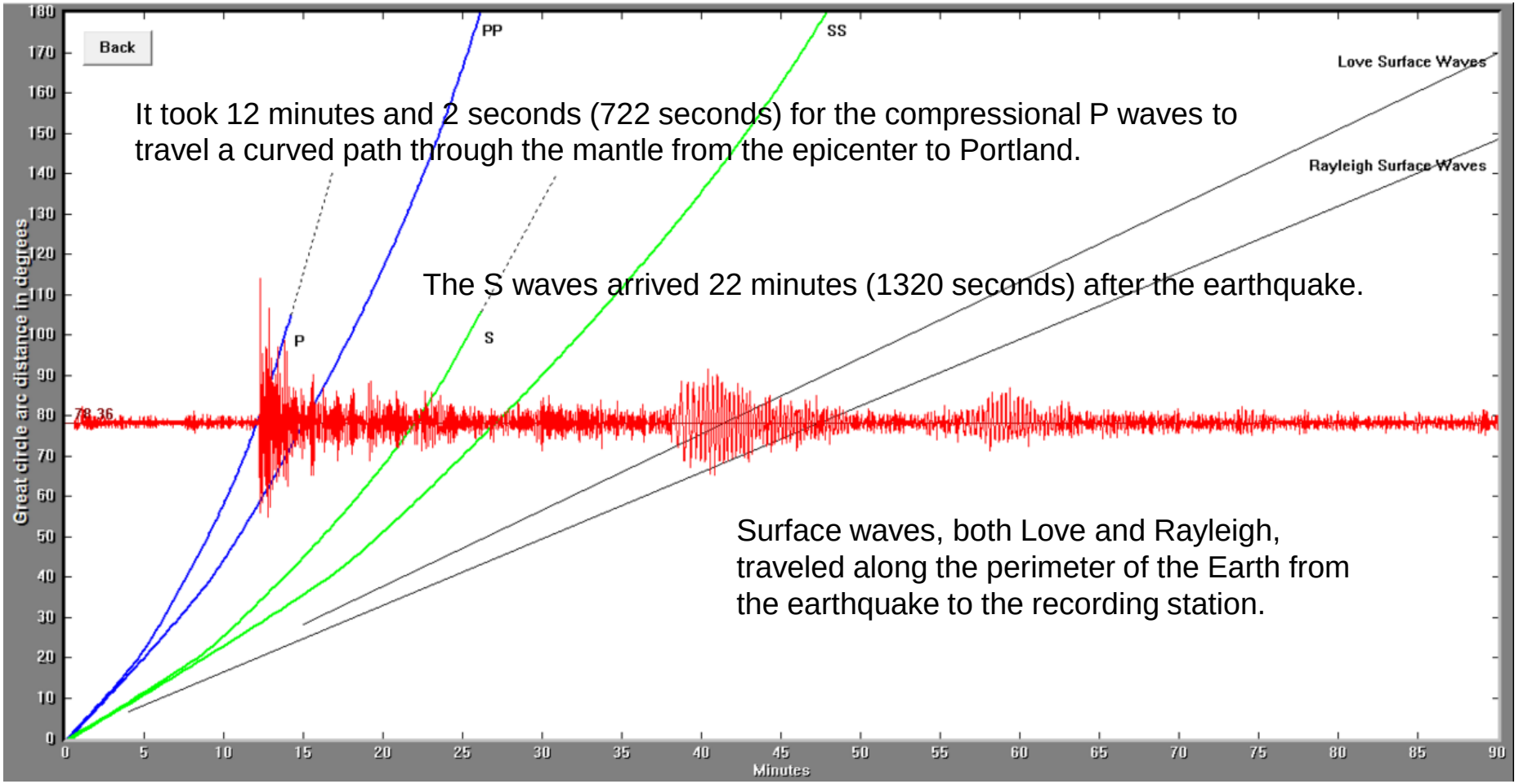
The record of the earthquake on the University of Portland AS-1 seismometer is illustrated below. Portland is about 8706 km (5409 miles, 78.44 degrees) from the location of this earthquake.



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