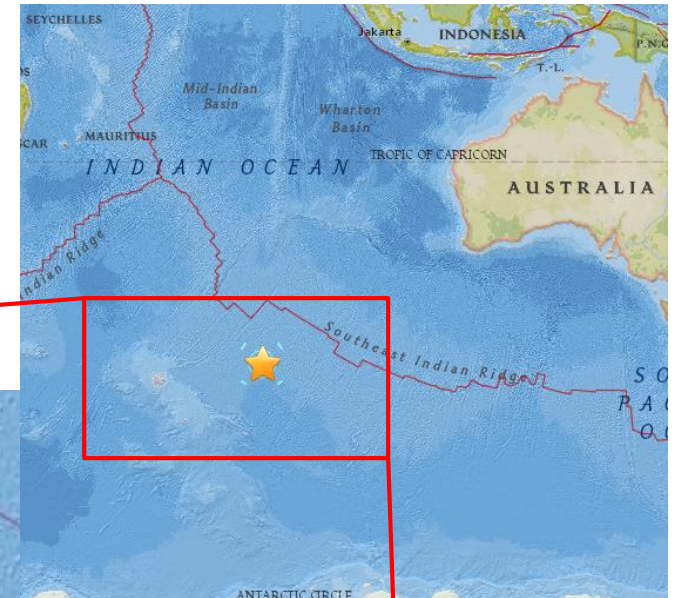
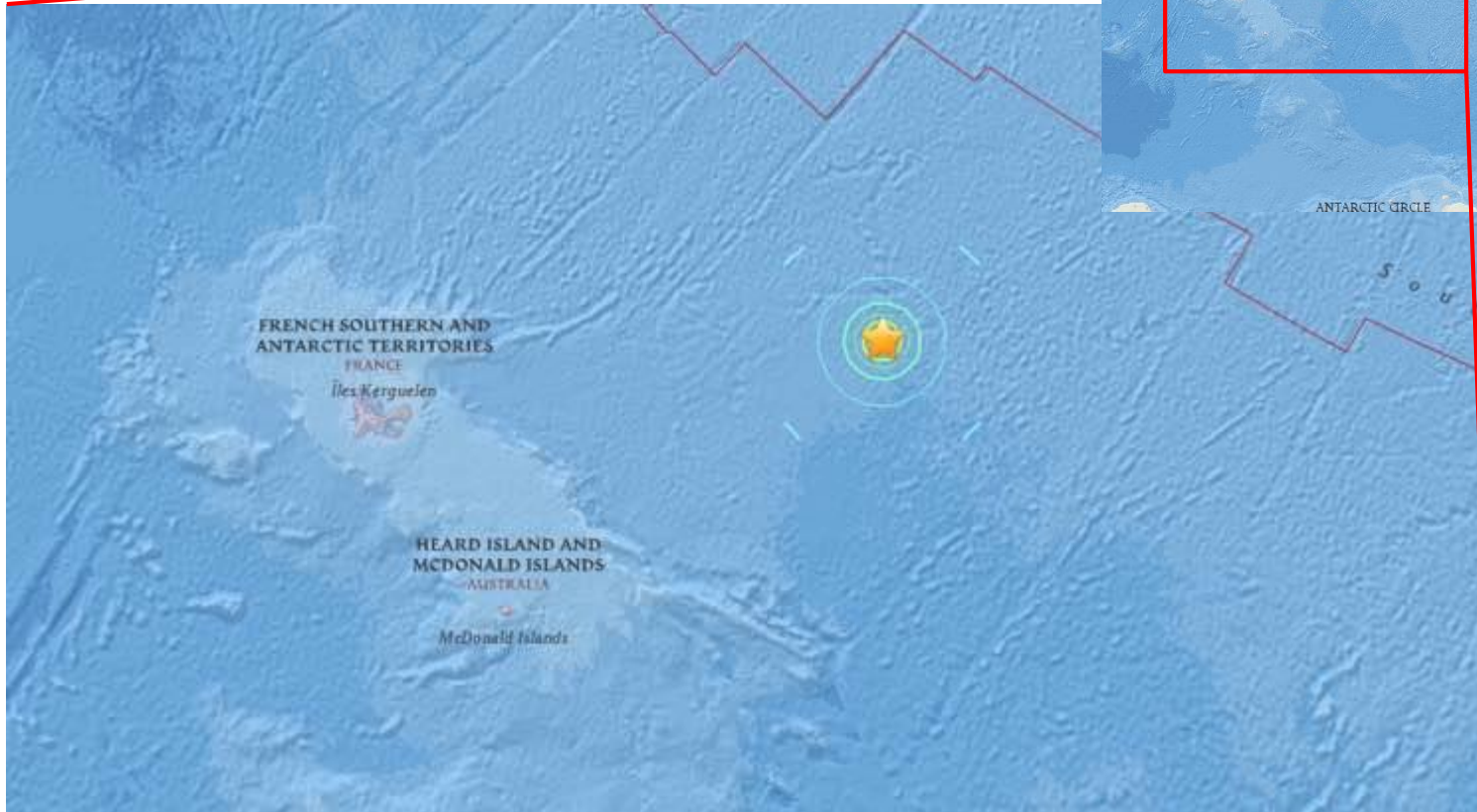


# Magnitude 7.1 SE INDIAN RIDGE

Friday, December 4, 2015 at 22:24:55 UTC

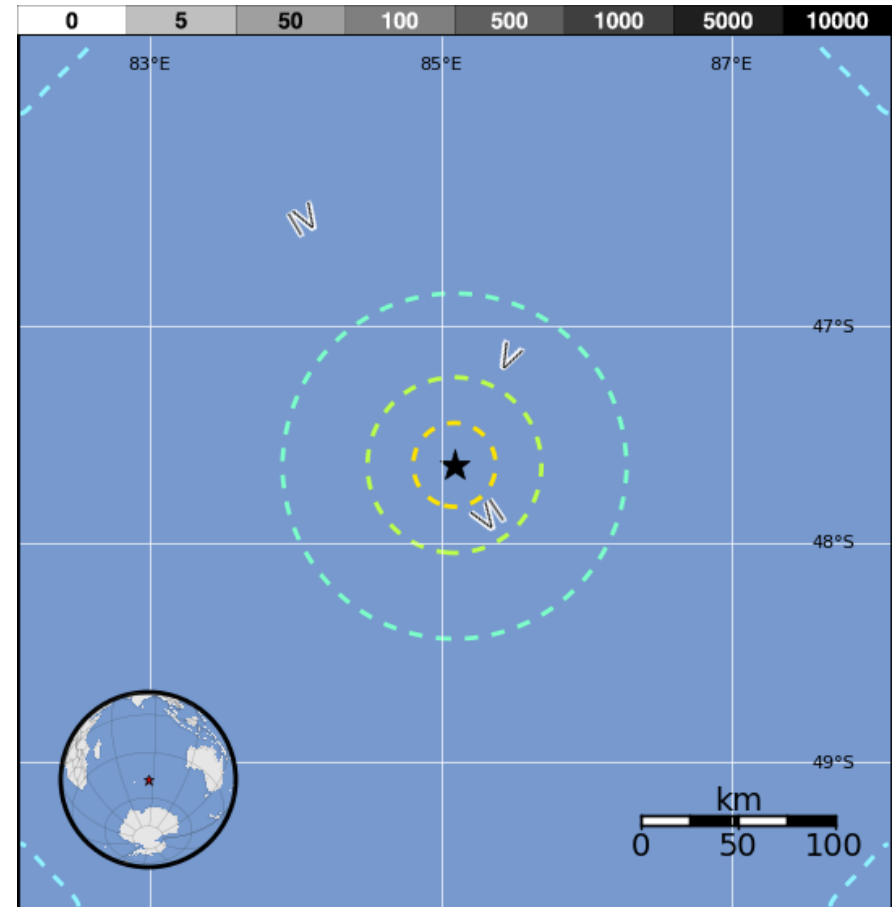
An unusual 7.1 magnitude earthquake struck in the southern Indian Ocean approximately 1022km (635 mi) ENE of Heard Island and McDonald Islands. There is no risk of a tsunami.



The USGS PAGER map shows the population exposed to different Modified Mercalli Intensity (MMI) levels.

Nobody was affected by this earthquake.

MMI	Shaking	Pop.
I	Not Felt	--*
II-III	Weak	--*
IV	Light	0k
V	Moderate	0k
VI	Strong	0k
VII	Very Strong	0k
VIII	Severe	0k
IX	Violent	0k
X	Extreme	0k

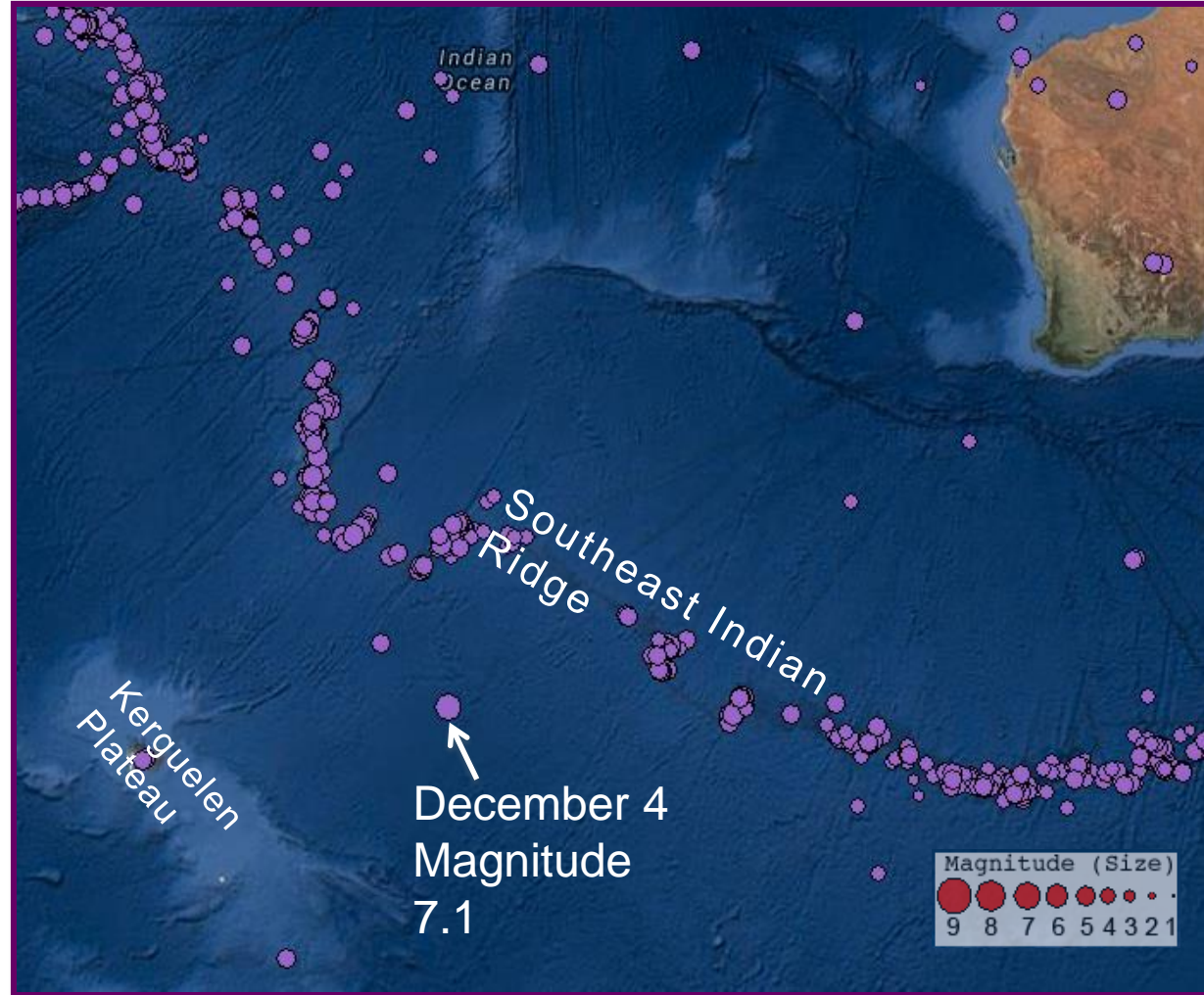


The color coded contour lines outline regions of MMI intensity. The total population exposure to a given MMI value is obtained by summing the population between the contour lines. The estimated population exposure to each MMI Intensity is shown in the table.

The map on the right shows epicenters of the most recent 1000 earthquakes in this region.

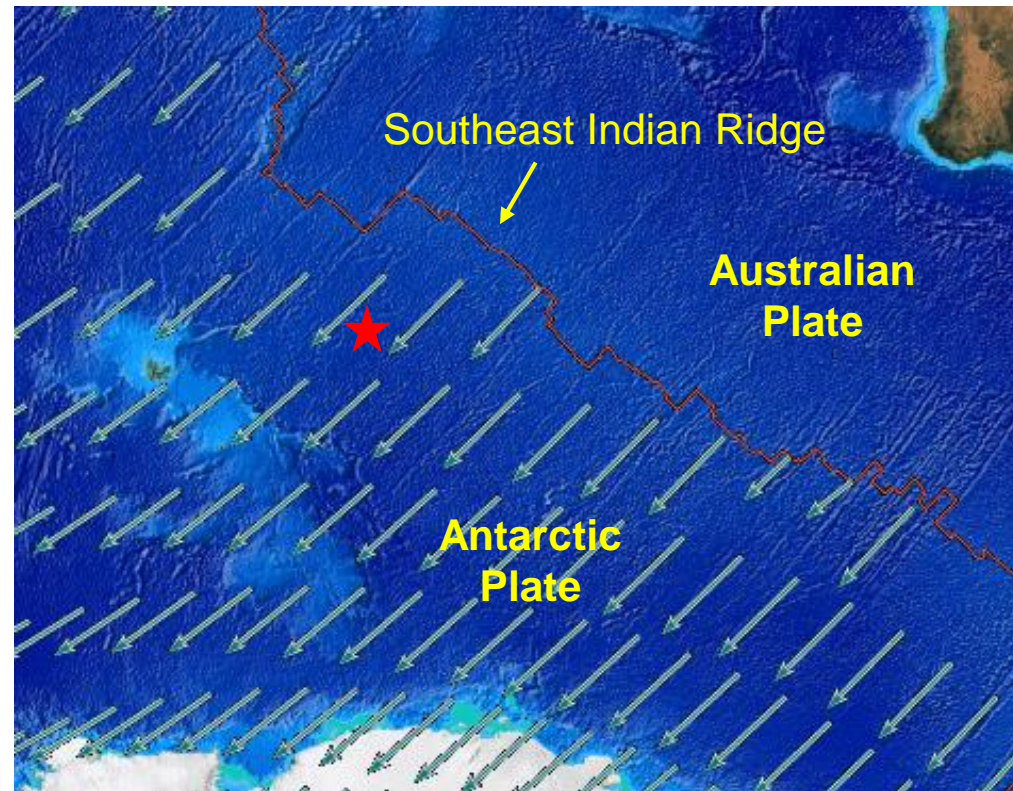
The December 4, 2015 earthquake is unusual in two respects. No earthquakes larger than M5 are known to have occurred within 400 km of this earthquake over the previous century.

It is also located between the Southeast Indian Ridge and the Kerguelen Plateau. This earthquake is thus an “intraplate” event.



The blue arrows show the motion of the Antarctic Plate with respect to the Australian Plate. The epicenter of the earthquake is shown by the red star.

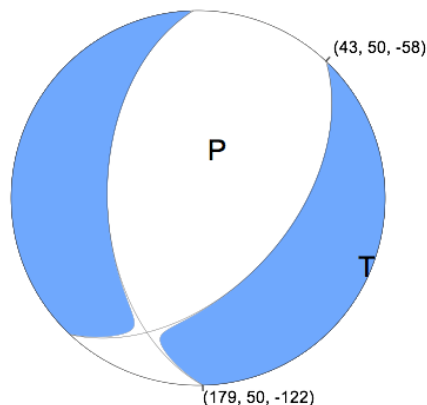
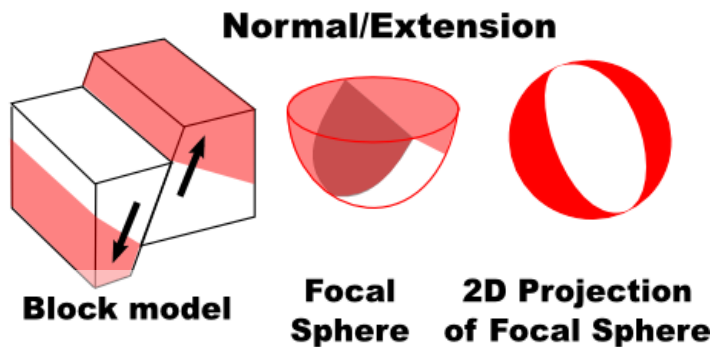
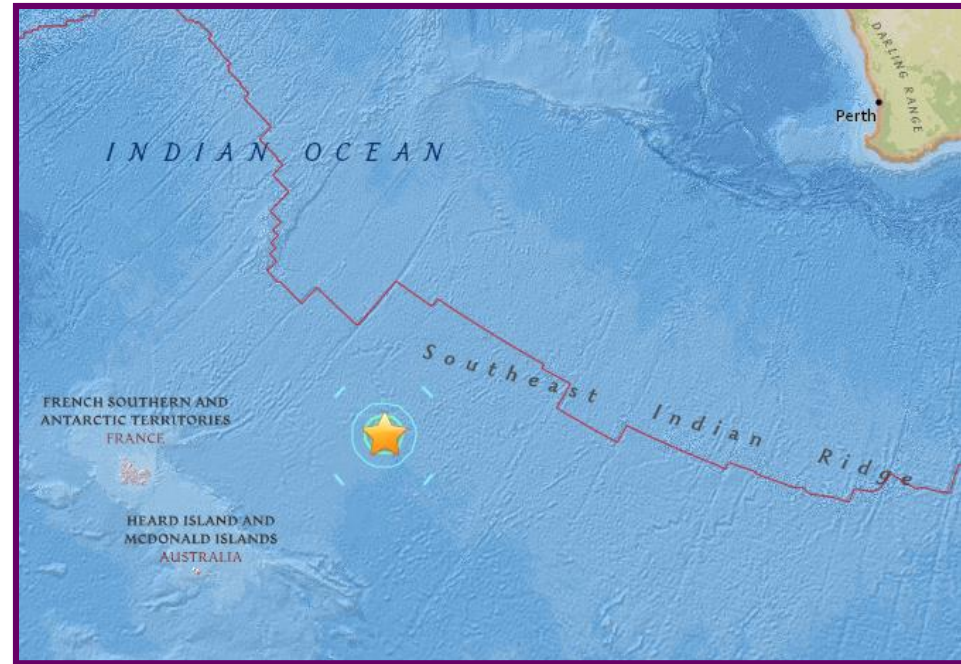
At the location of the earthquake, the Antarctic Plate is moving approximately southwestward at a rate of 66 mm/yr with respect to the Australian Plate.



# Magnitude 7.1 SE INDIAN RIDGE

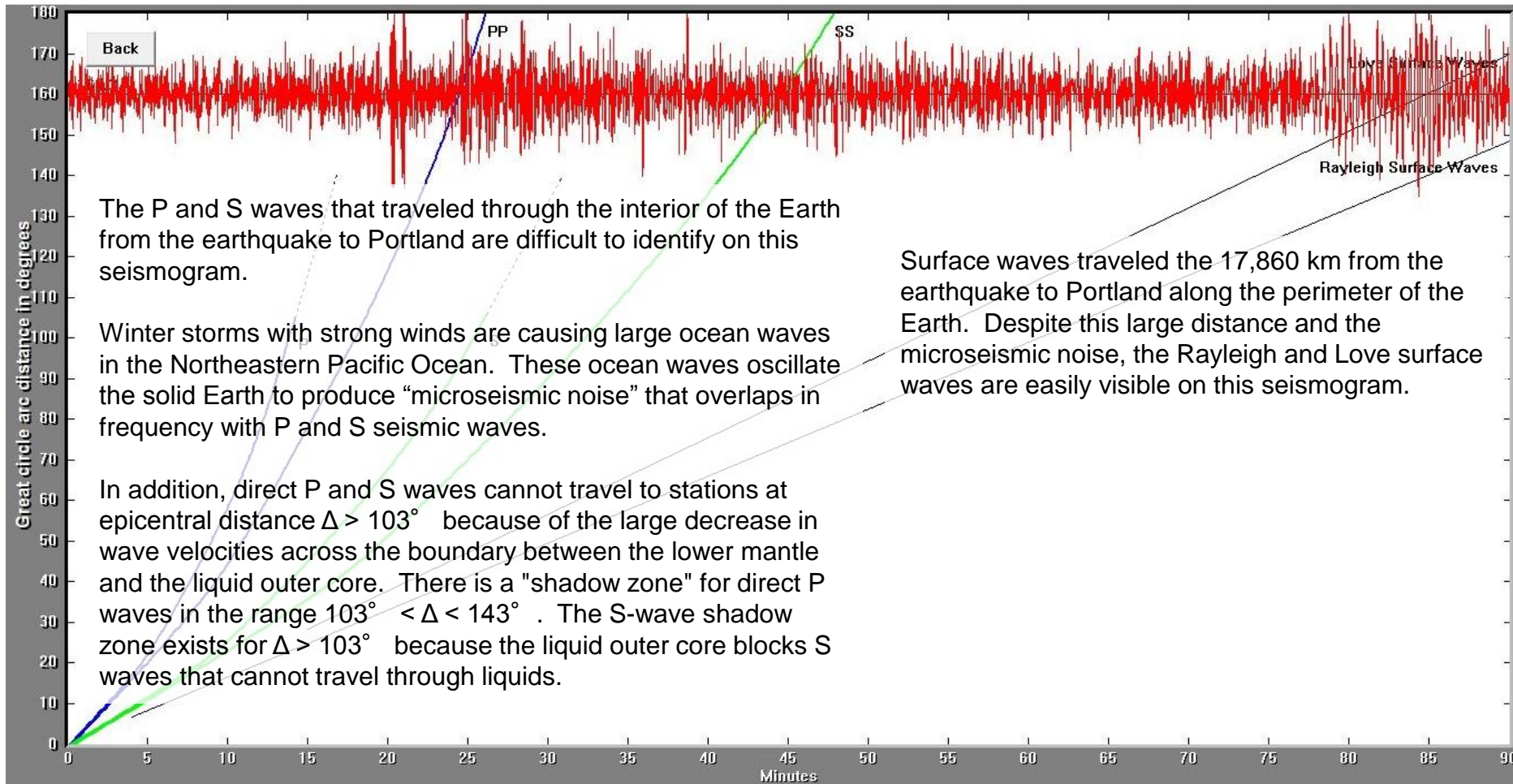
Friday, December 4, 2015 at 22:24:55 UTC

This earthquake occurred as a result of normal faulting due to extensional forces within the Antarctic Plate. The origin of these extensional forces is uncertain.



Shaded areas show quadrants of the focal sphere in which the P-wave first-motions are away from the source, and unshaded areas show quadrants in which the P-wave first-motions are toward the source. The letters represent the axis of maximum compressional strain (P) and the axis of maximum extensional strain (T) resulting from the earthquake.

The record of the earthquake on the University of Portland seismometer (UPOR) is illustrated below. Portland is 17,860 km (11,098 miles,  $160.9^\circ$ ) from the location of this earthquake. Relevant animations are referenced in the *Notes* to this slide.



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