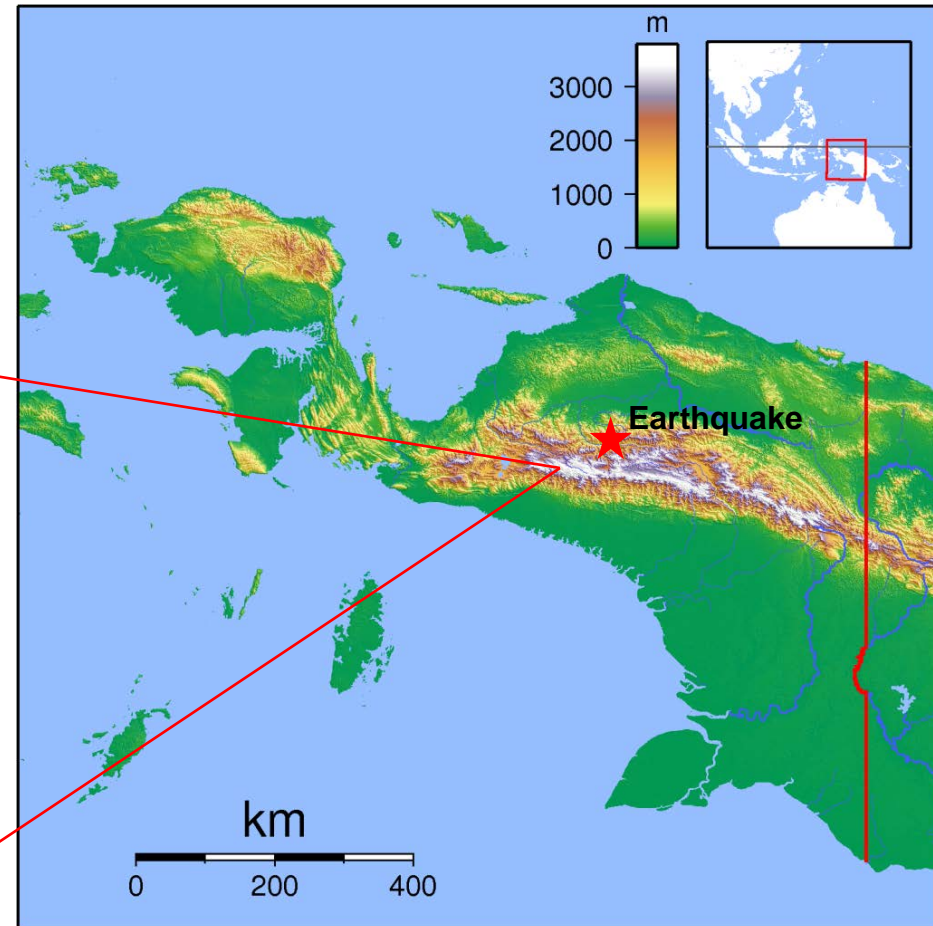


A 7.0 magnitude earthquake struck eastern Indonesia's mountainous West Papua province on Saturday but there were no immediate reports of casualties or damage. The region is sparsely populated.

According to the USGS, the earthquake hit 238 km (147 miles) east of Enarotali and was 68 km (42.3 miles) deep.

**Puncak Jaya**



# Magnitude 7.0 PAPUA, INDONESIA

Saturday, April 6, 2013 at 04:42:36 UTC

Indonesia is an archipelago comprising approximately 17,508 islands. It has 34 provinces with over 238 million people, and is the world's fourth most populous country. Despite its large population and densely populated regions, Indonesia has vast areas of wilderness that support the world's second highest level of biodiversity.

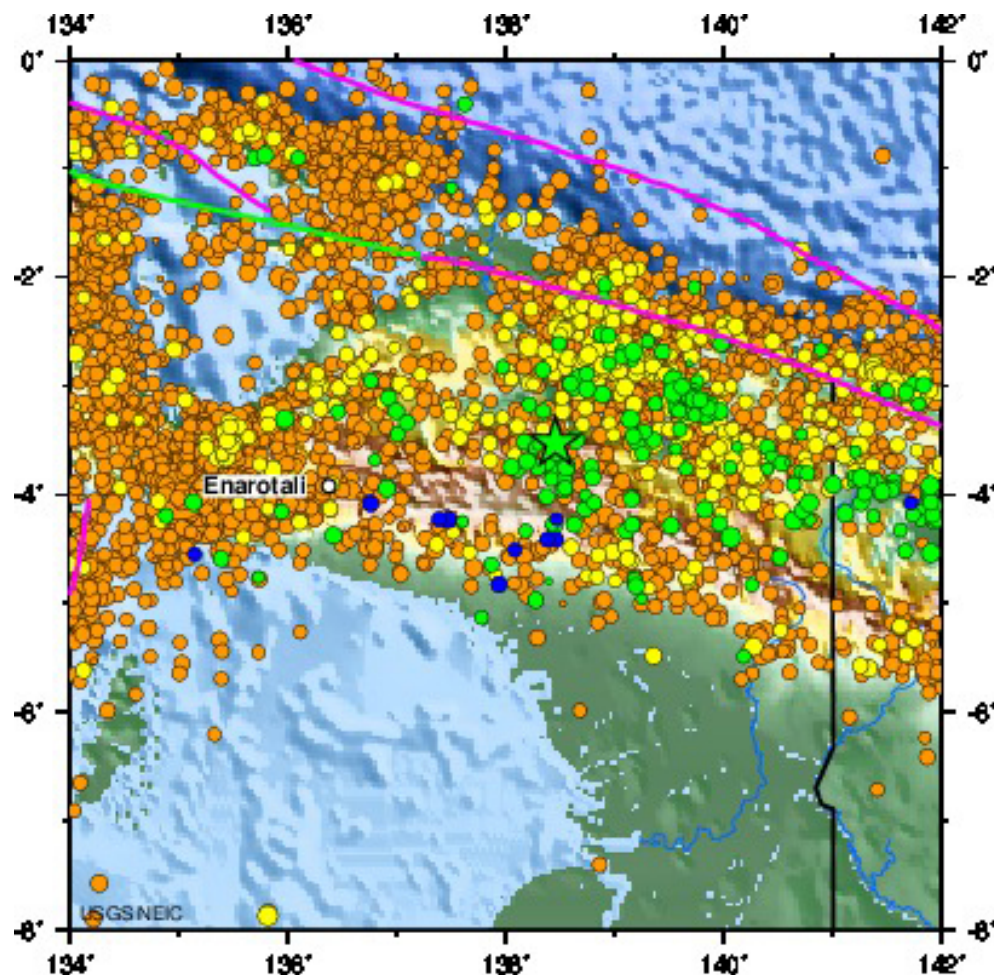


## Earthquake and Historic Seismicity

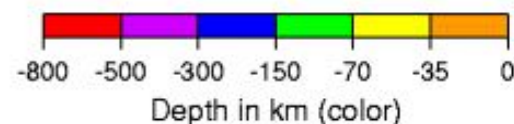
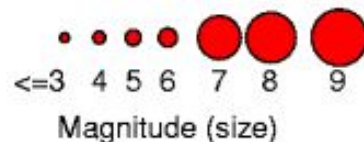
This earthquake epicenter (green star), is plotted on the map with regional seismicity since 1990.

According to the USGS National Earthquake Information Center, there have been 22 M7.5 or larger earthquakes recorded in the New Guinea region since 1900.

The largest earthquake in the region was a M8.2 shallow thrust fault event in the northern Papua province of Indonesia that killed 166 people in 1996.



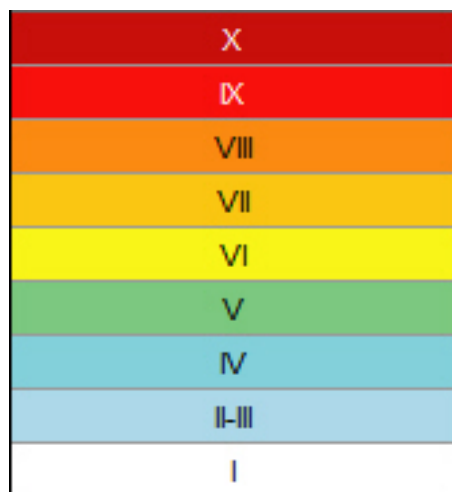
Seismicity 1990 to Present



## Ground Shaking Intensity

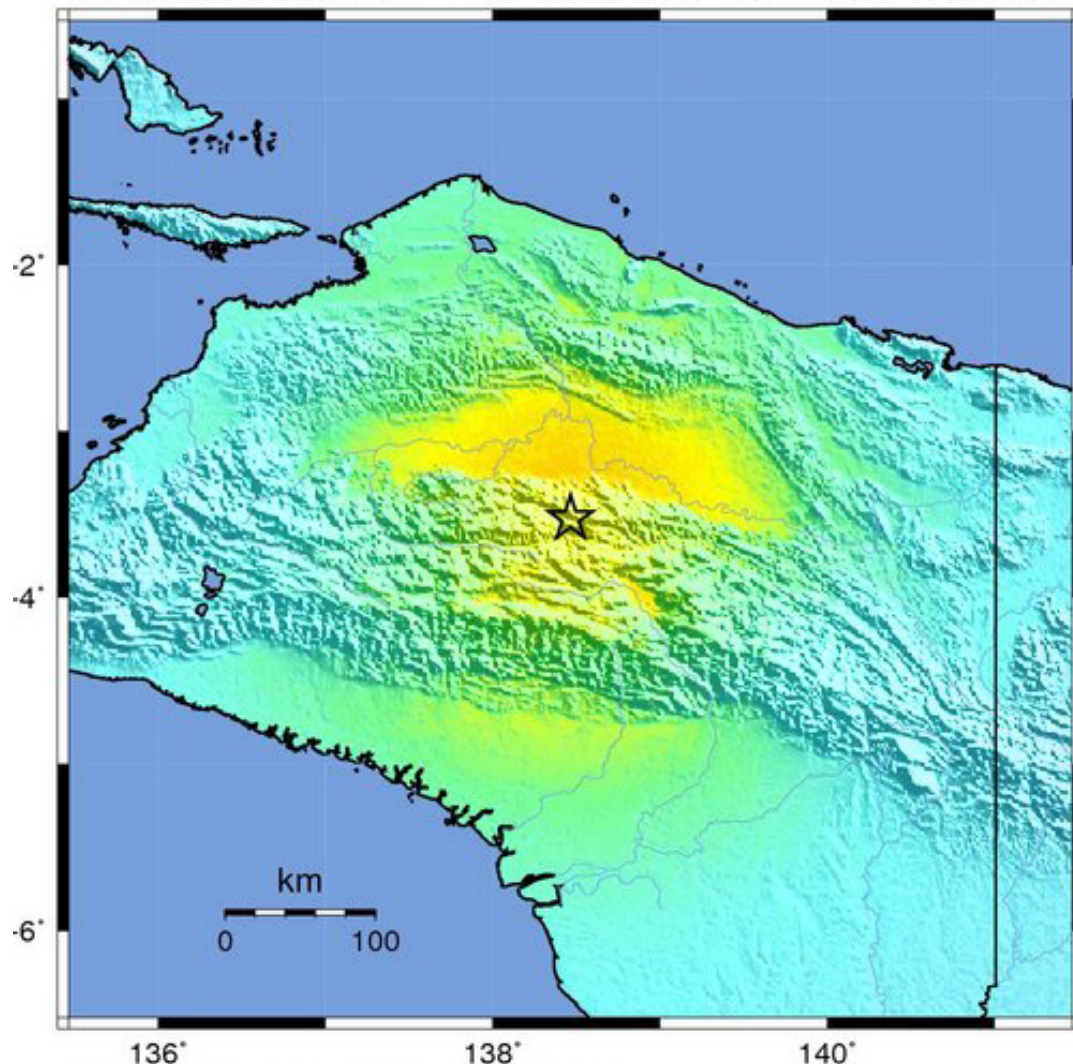
The Modified-Mercalli Intensity scale is a twelve-stage scale, from I to XII, that indicates the severity of ground shaking. The area nearest the epicenter of this earthquake experienced strong to very strong ground shaking.

### Modified Mercalli Intensity



### Perceived Shaking

**Extreme**  
**Violent**  
**Severe**  
**Very Strong**  
**Strong**  
Moderate  
Light  
Weak  
Not Felt



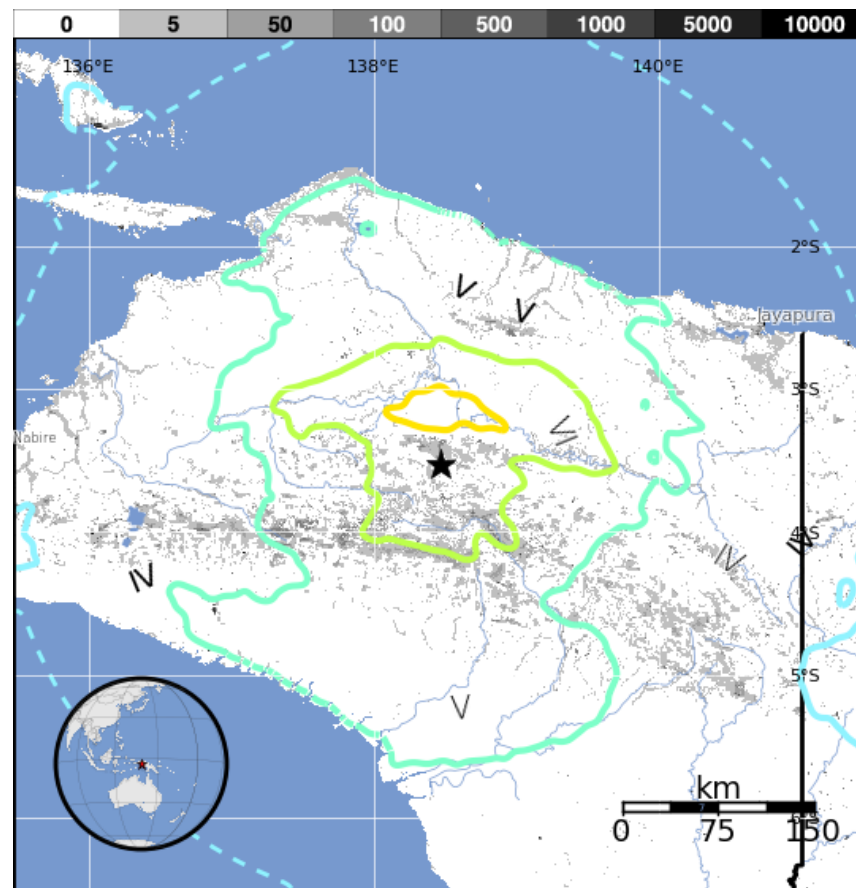
USGS Estimated shaking Intensity from M 7.0 Earthquake

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

Fortunately, the population within the MMI VII (Very Strong) zone is only about 4,000 people while the population within the MMI VI (Strong) zone is nearly 200,000 people.

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 below.

*Image courtesy of the US Geological Survey*



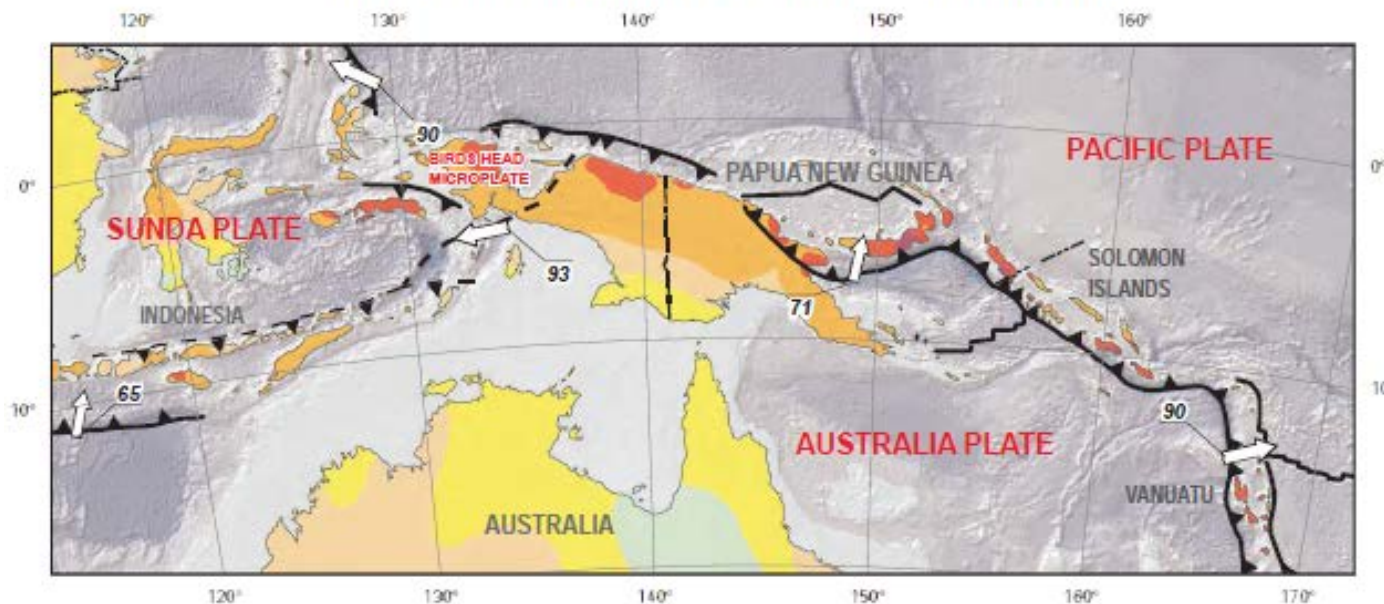
Estimated <a href="#">Modified Mercalli Intensity</a>	I	II-III	IV	V	VI	VII	VIII	IX	X
Est. Population Exposure	--*	43k*	1,097k*	456k	198k	4k	0k	0k	0k
Perceived Shaking	Not Felt	Weak	Light	Moderate	Strong	Very Strong	Severe	Violent	Extreme

# Magnitude 7.0 PAPUA, INDONESIA

Saturday, April 6, 2013 at 04:42:36 UTC

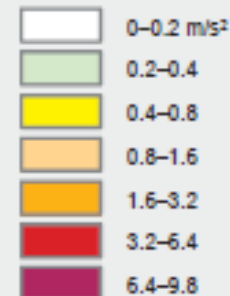
On a broad scale, the Pacific, Philippine, and Australia plates in this region meet in a complex arrangement of subduction zones in the western Pacific Ocean. The Pacific Plate subducts beneath the Papua – New Guinea area at the northern fringe of the Australia Plate. In detail, there are numerous microplates (fragments of larger plates) with convergent and transform (strike-slip) boundaries between them.

## SEISMIC HAZARD AND RELATIVE PLATE MOTION

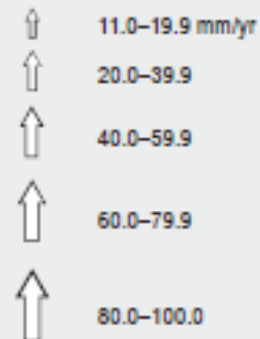


### FIGURE EXPLANATION

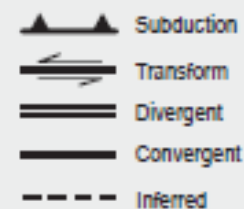
#### Peak ground acceleration



#### Relative plate motion



#### Plate boundaries



# Magnitude 7.0 PAPUA, INDONESIA

Saturday, April 6, 2013 at 04:42:36 UTC

The Australia-Pacific Plate relative velocity is approximately 110 mm/yr towards the northeast. This convergence is accommodated by shortening and uplift across a 250–350 km-wide band of northern New Guinea, as well as by subduction of the Pacific Plate beneath New Guinea at the New Guinea trench.

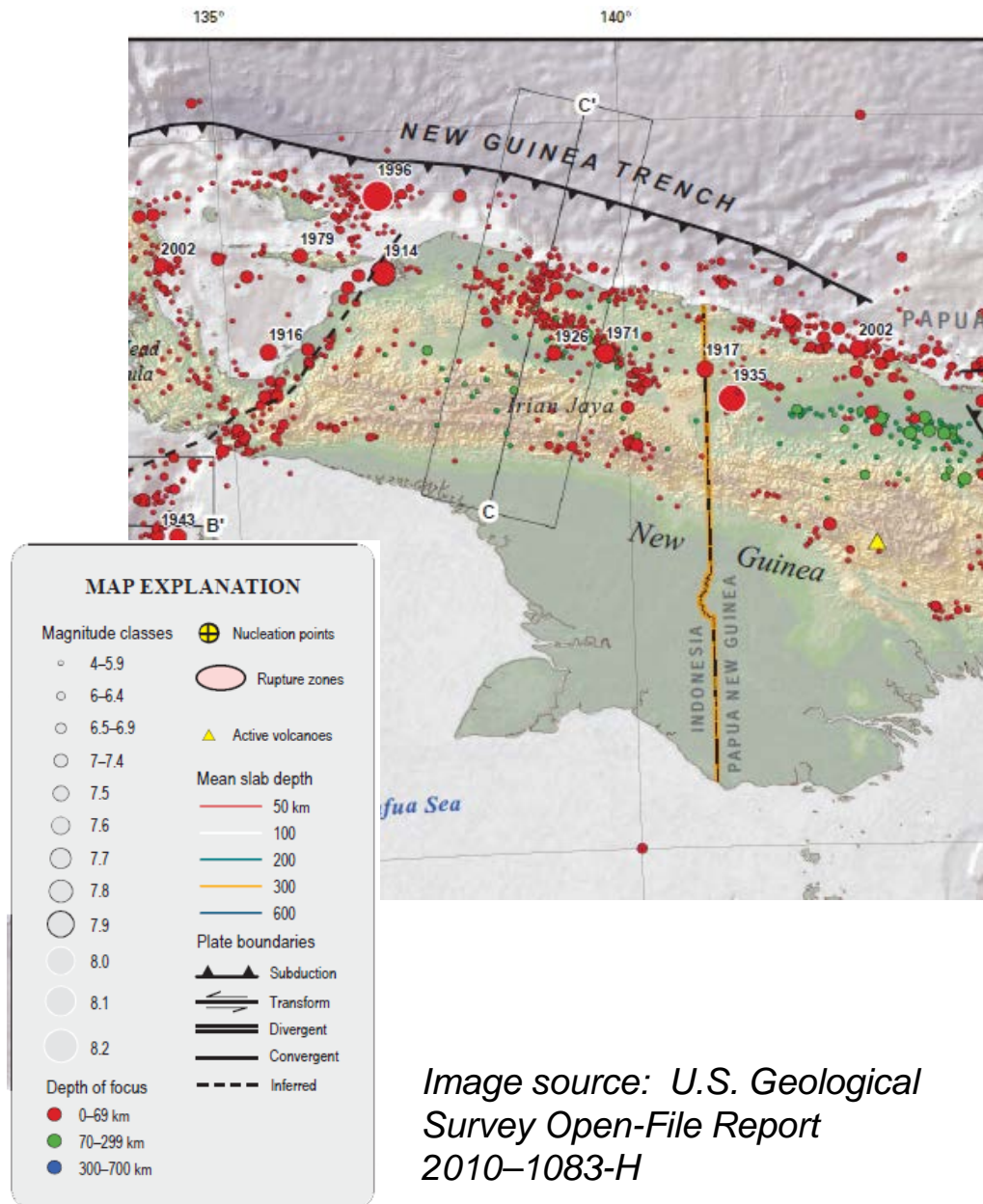
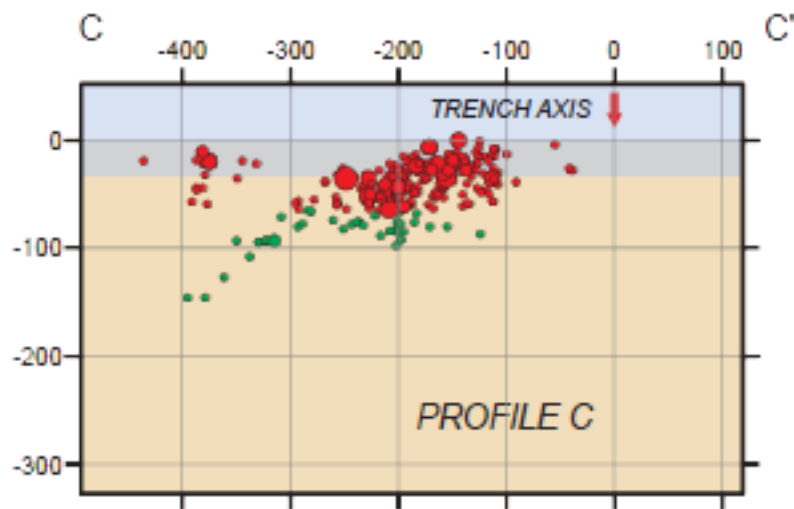
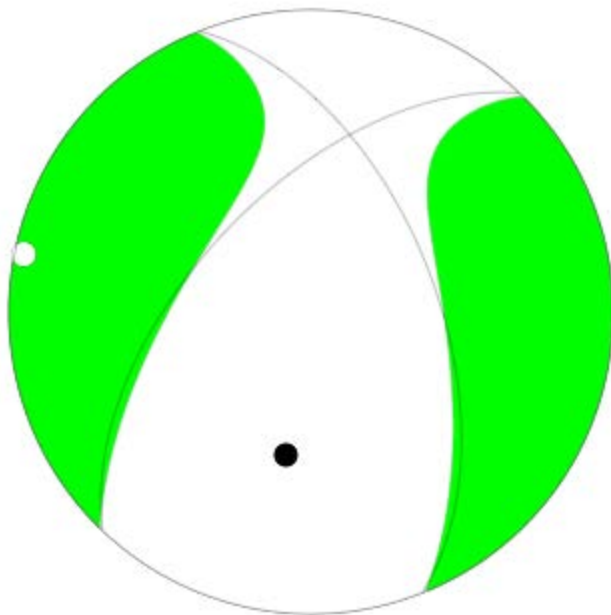


Image source: U.S. Geological Survey Open-File Report 2010-1083-H

The focal mechanism of this earthquake indicates that a dominance of normal (extensional) faulting occurred during this earthquake. Although convergence between the Australia and Pacific plates dominates the regional tectonics, the complexity of plate interactions and microplates of the area can lead to local strike-slip and extension. The normal faulting observed for this earthquake is proof of that complexity.



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 dots represent the axis of maximum compressional strain (in black, called the "P-axis") and the axis of maximum extensional strain (in white, called the "T-axis") resulting from the earthquake.

An introduction to focal mechanisms can be found in the animation at following URL:

[http://www.iris.edu/hq/programs/education\\_and\\_outreach/animations/25](http://www.iris.edu/hq/programs/education_and_outreach/animations/25)



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