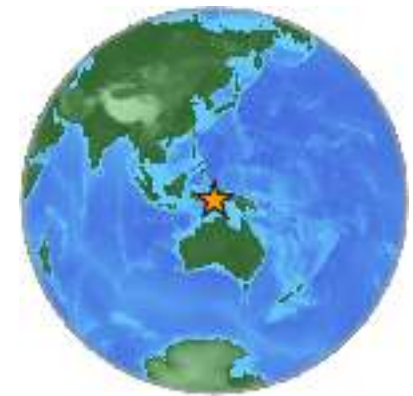


# Magnitude 7.1 BANDA SEA

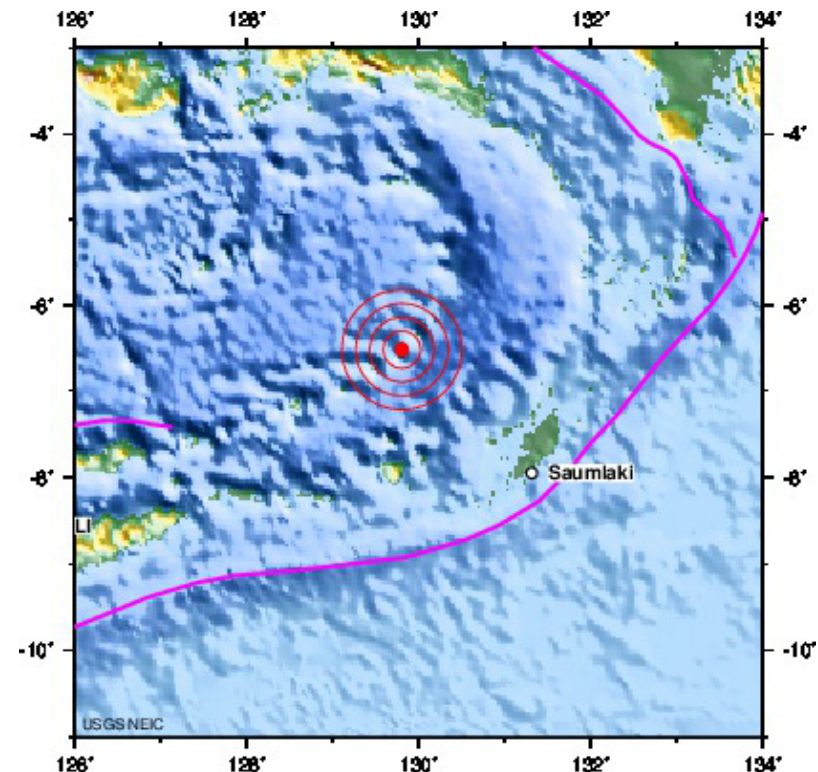
Monday, December 10, 2012 at 16:53:09 UTC



USGS

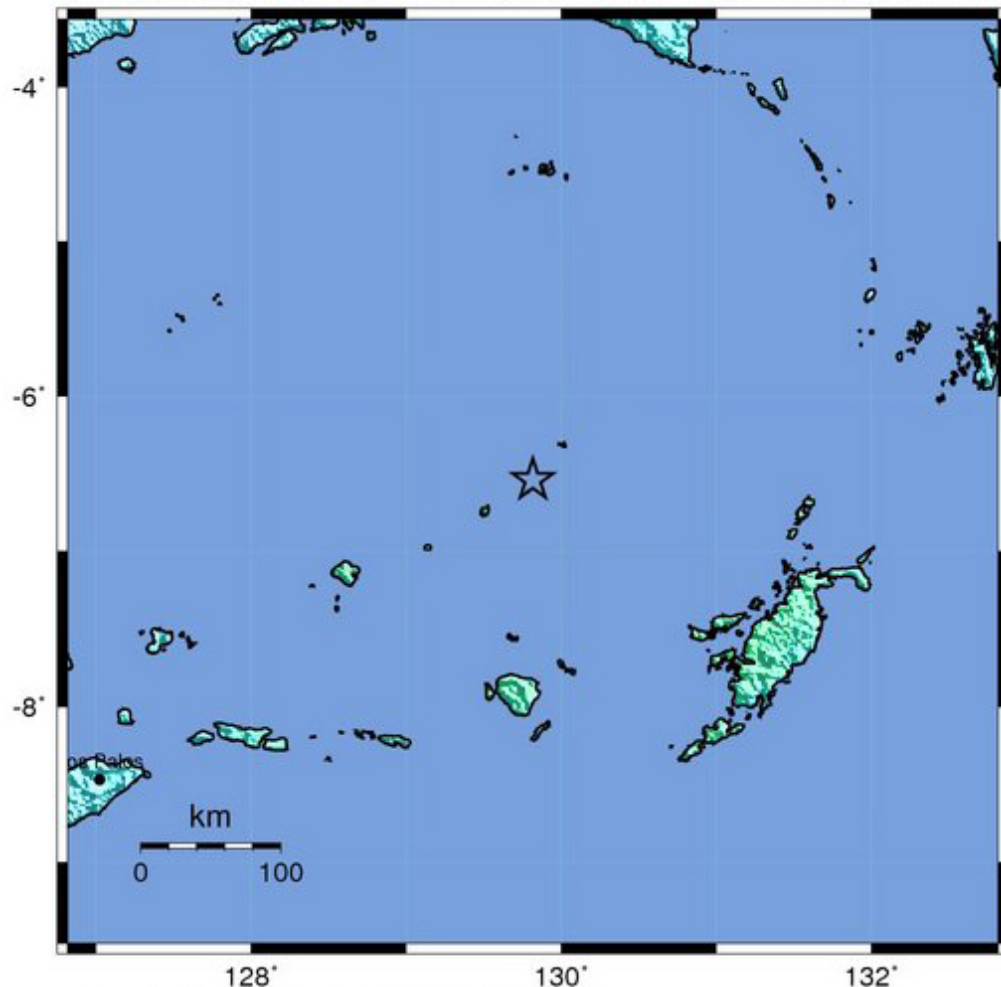
A 7.1-magnitude earthquake struck offshore Tuesday morning (1:53 am local time) with the epicenter 236 km (147 miles) northwest of the city of Saumlaki. The earthquake was reported at a depth of 159.3 km (99 miles).

The was no tsunami warning issued for this earthquake.



Shaking intensity scales were developed to standardize the measurements and ease comparison of different earthquakes. The Modified-Mercalli Intensity scale is a twelve-stage scale, from I to XII. Lower numbers represent imperceptible shaking while XII represents total destruction. A value of IV, as experienced by areas closest to this earthquake indicates a level of shaking that is felt by most people.

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

USGS PAGER

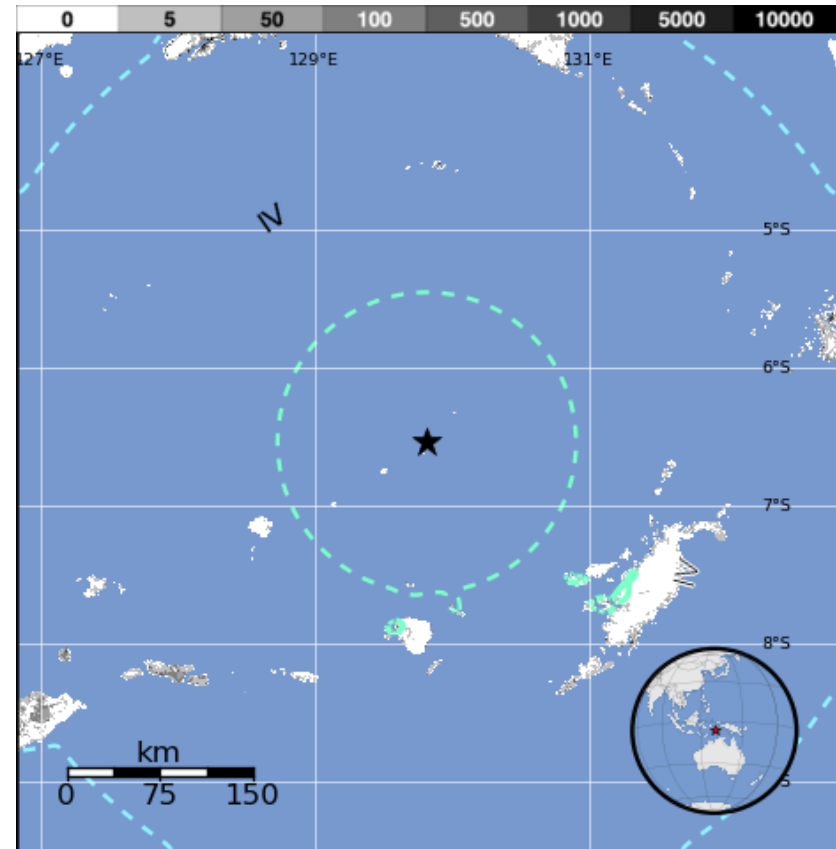
The USGS PAGER map shows the population exposed to different Modified Mercalli Intensity (MMI) levels. MMI describes the severity of an earthquake in terms of its effect on humans and structures and is a rough measure of the amount of shaking at a given location.

Overall, the structures in this region are vulnerable to earthquake shaking, though some resistant structures exist.

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*

Population Exposed to Earthquake Shaking

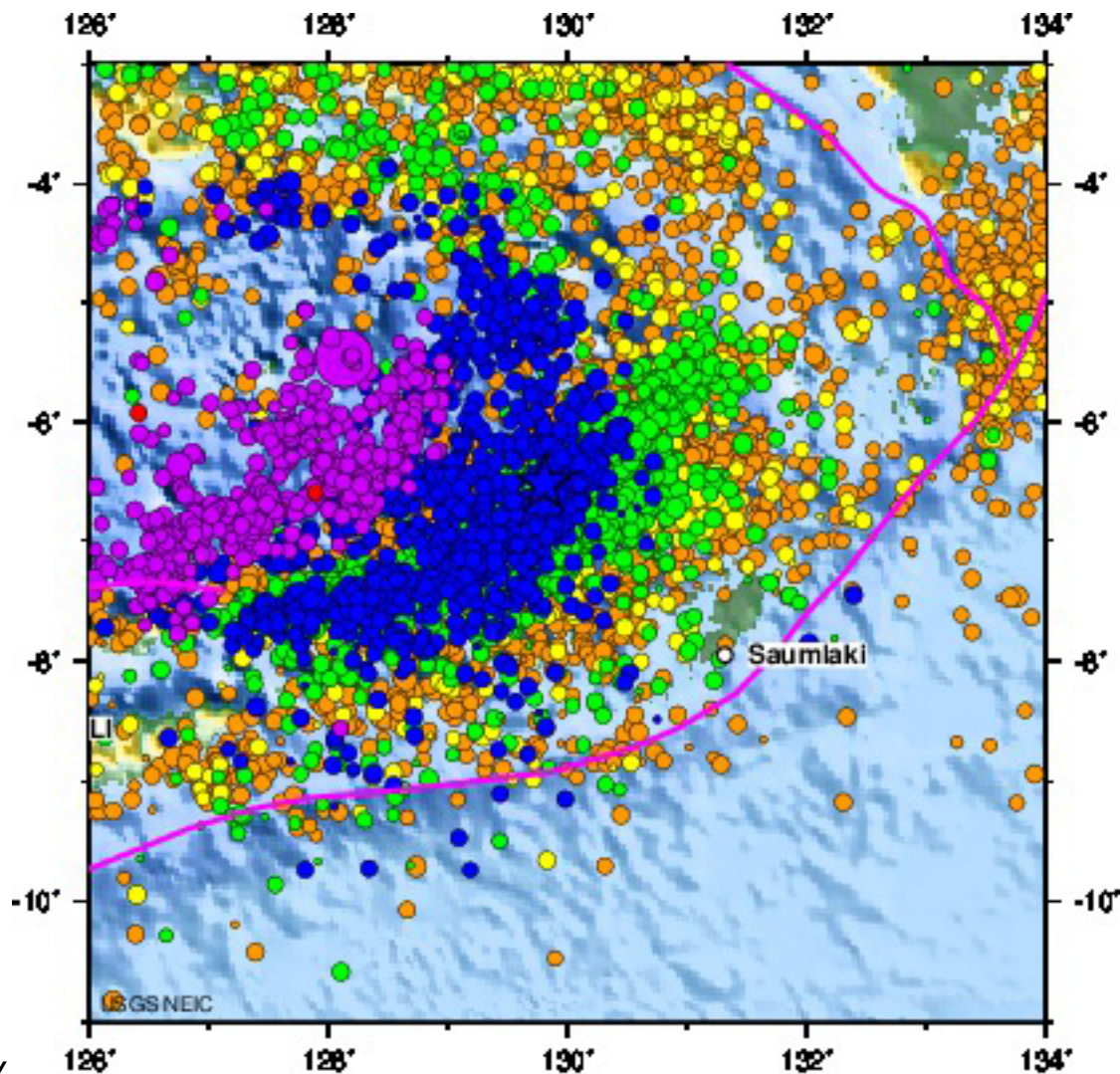


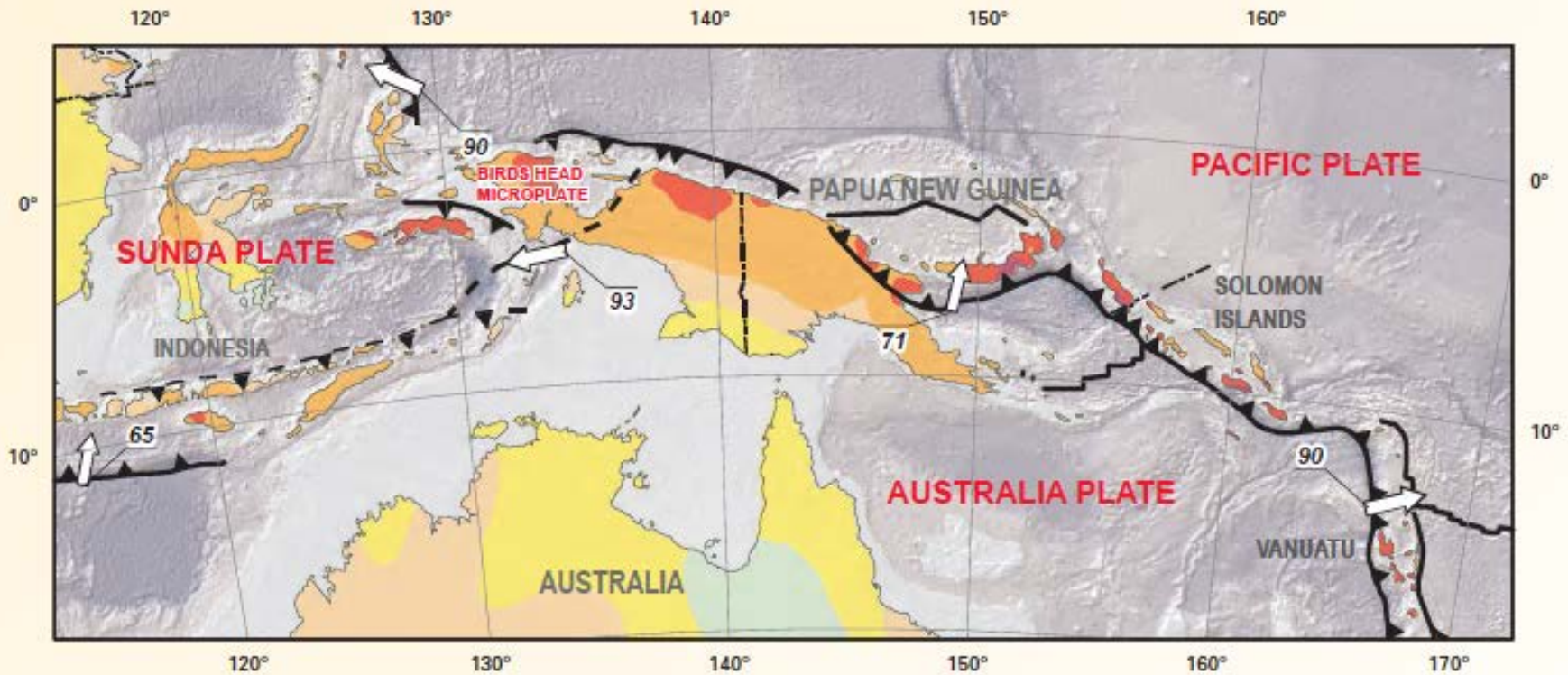
Estimated <a href="#">Modified Mercalli Intensity</a>	I	II-III	IV	V	VI	VII	VIII	IX	X
Est. Population Exposure	--*	12k*	617k*	28k	0	0	0	0	0
Perceived Shaking	Not Felt	Weak	Light	Moderate	Strong	Very Strong	Severe	Violent	Extreme

## Earthquake and Historical Seismicity

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

There have been over 50 earthquakes of M6 or larger within 250 km of this earthquake in the past 40 years. Six of those events have been greater than M7, however, none of these magnitude 7+ earthquakes are known to have caused significant damage or fatalities.



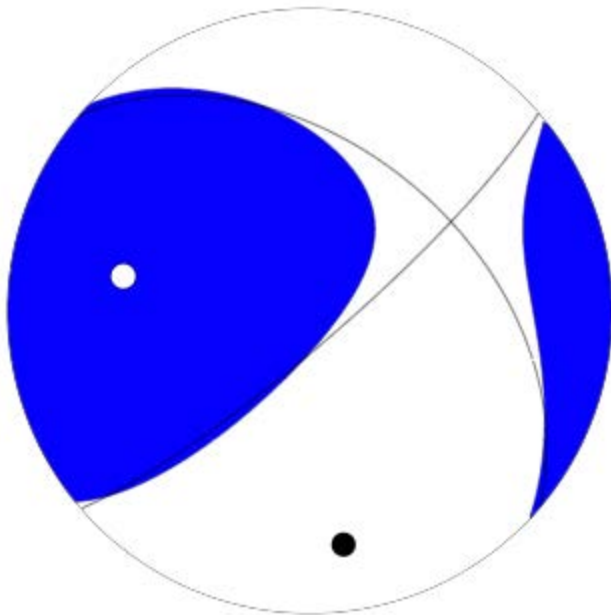


Map from USGS Open-File Report 2010-1083-H *Seismicity of the Earth 1900–2010 New Guinea and Vicinity*

Quote from USGS: This “M 7.1 earthquake northwest of Saumlaki, Indonesia, occurred as a result of predominantly strike-slip faulting at intermediate depths (170 km) near the complex plate boundary between the Australia and Sunda plates in the eastern Banda Sea. At the location of this earthquake, the Australia plate moves towards the north-northeast with respect to Sunda at a velocity of approximately 76 mm/yr. Motion between the two plates is dominantly convergent, and sections of the Australia plate have subducted beneath Sunda; the ... earthquake likely represents faulting within the interior of that subducted slab.”

This earthquake was predominantly strike-slip faulting at intermediate depths (170 km) near the complex plate boundary between the Australia and Sunda plates in the eastern Banda Sea.

Earthquakes with depths between 70 and 300 km are commonly termed “intermediate” depth events, as opposed to “shallow” (0-70 km) and “deep-focus” (greater than 300 km) earthquakes. In this region of eastern Indonesia, earthquakes can reach depths of over 500 km.



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.