

Aftershock Distribution and the Mainshock's Fault Plane by the MJHD Method: Application to off the West Coast of Northern Sumatra, Indonesia, Earthquake on April 11, 2012

2012/4/12

HURUKAWA Nobuo

Building Research Institute (BRI), Japan

Earthquake Information

Origin Time (USGS): April 11, 2012 at 08:38:37 UTC

Hypocenter (USGS): 2.311°N, 93.063°E, 22.9 km (depth)

Magnitude (USGS): $M_w = 8.6$

Data: 'Latest Earthquakes in the World - Past 7 days' by the US Geological Survey

Events Relocated: Mainshock and aftershocks until April 11, 23h59m

Method: Modified Joint Hypocenter Determination (MJHD) by Hurukawa and Imoto

Results: Size of aftershock area: EW 400 km x NS 350 km

Fault plane: Unknown

Comments: This is a strike-slip intraplate earthquake in the Indian Plate and in the outer rise of the Sunda Trench

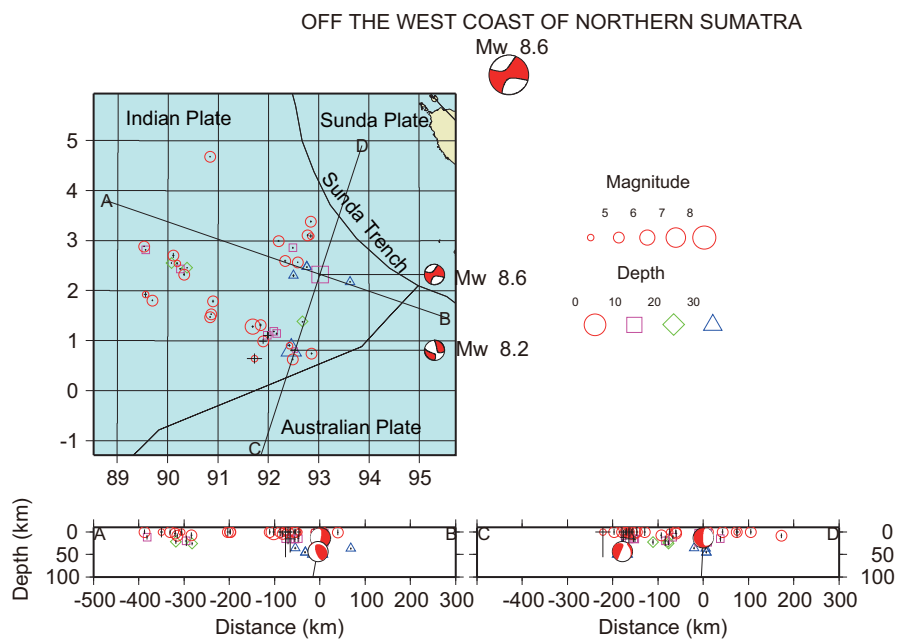


Figure 1. Hypocenters relocated by the MJHD method. USGS W Phase Moment Tensor Solutions are also shown. Epicentral distribution and two vertical cross sections along A-B and C-D lines, which are perpendicular to strikes of the two nodal planes, are shown. Two nodal planes are shown by lines in cross sections.

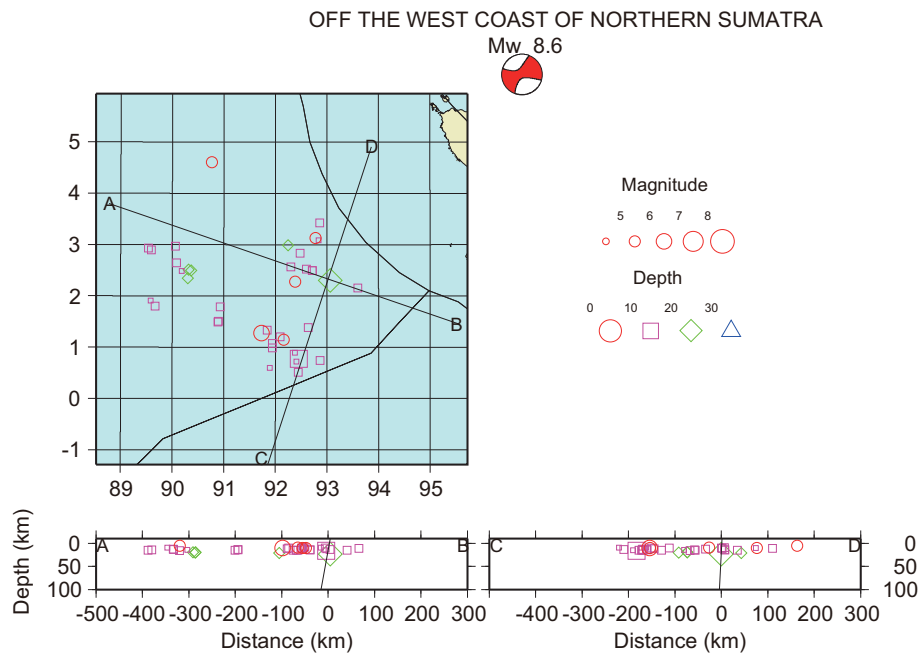


Figure 2. Hypocenters located by the USGS. Two nodal planes are also shown by solid lines in cross sections.

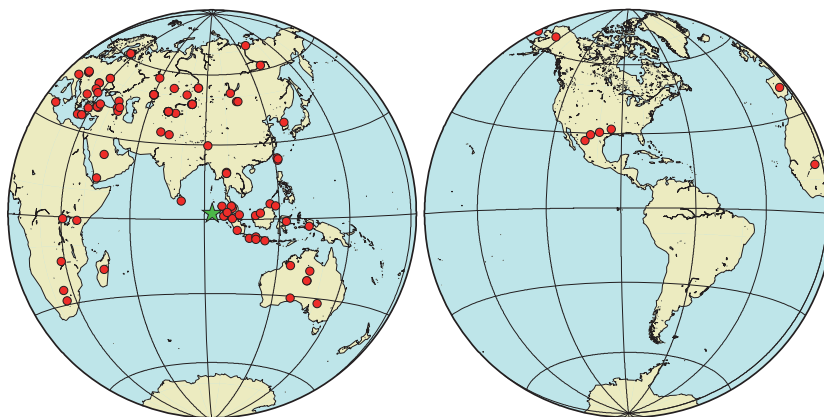


Figure 3. Stations used in relocation.

References

- Hurukawa, N., Quick aftershock relocation of the 1994 Shikotan earthquake and its fault planes, *Geophys. Res. Lett.*, 22, 3159-3162, 1995.
- Hurukawa, N. and M. Imoto, Subducting oceanic crusts of the Philippine Sea and Pacific plates and weak-zone-normal compression in the Kanto district, Japan, *Geophys. J. Int.*, 109, 639-652, 1992.