Aftershock Distribution and the Mainshock's Fault Plane by the MJHD Method: Application to the Negros - Cebu Region, Philippines, Earthquake on February 6, 2012

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2012/2/7

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Origin Time (USGS): February 6, 2012 at 17:3:49 UTC
Hypocenter (USGS): 9.964°N, 123.246, 20 km (depth)
Magnitude (USGS): *Mw* = 6.7

Data: 'Latest Earthquakes in the World - Past 7 days' by the US Geological Survey
(Three PHIVOLCS stations were added in the revised version)
Events Relocated: Mainshock and aftershocks until February 7, 4h00m
Method: Modified Joint Hypocenter Determination (MJHD) by Hurukawa and Imoto
Results: Size of aftershock area: 30 km x 15 km
Fault plane: Nodal plane striking NE-SW dipping SE, ~30 km length
Comments: This is an intraplate earthquake in the Eurasian (or Sunda) Plate. The rupture started at the NE end of the fault plane and propagated southwestward.

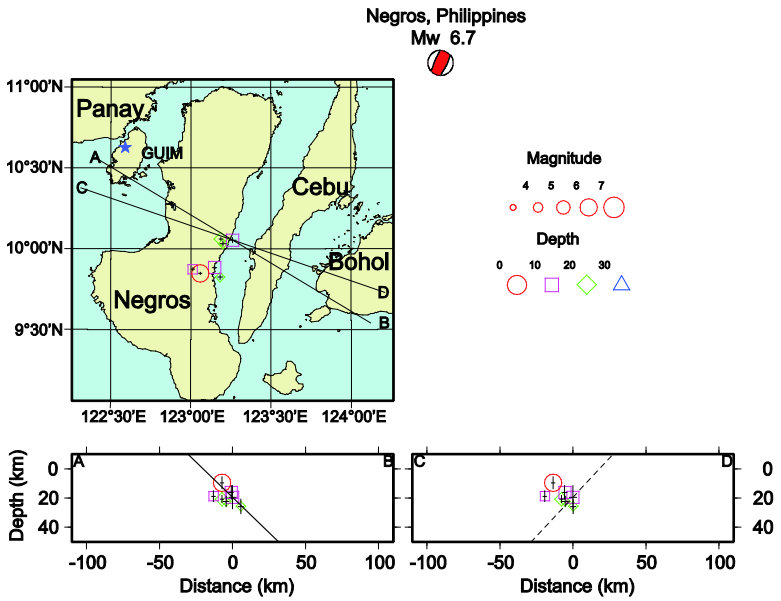

Figure 1. Hypocenters relocated by the MJHD method. Global CMT solutions are also shown. Epicentral distribution and two vertical cross sections along A-B and C-D lines, which are perpendicular to strikes of the two nodal planes, are shown. Two nodal planes are shown by lines in cross sections. The nodal plane corresponding to the fault plane is shown by a thick solid line.

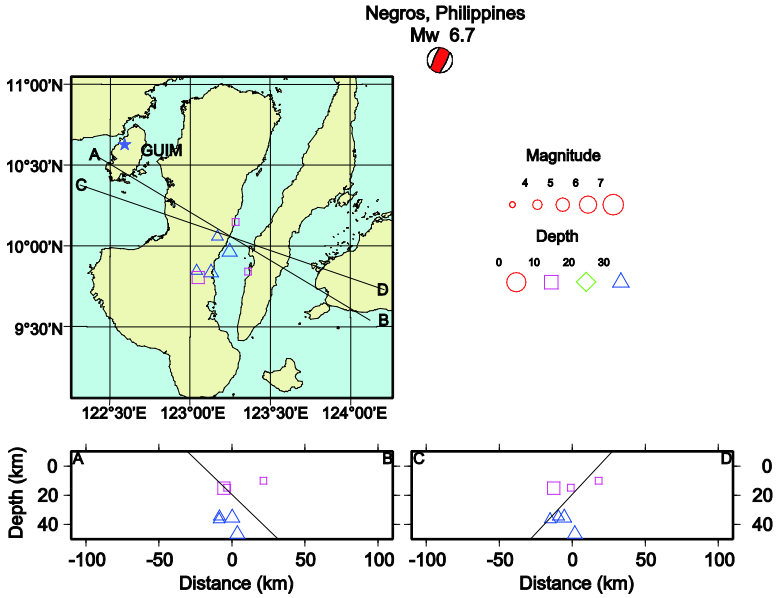

Figure 2. Hypocenters located by the USGS. Two nodal planes are also shown by solid lines in cross sections.

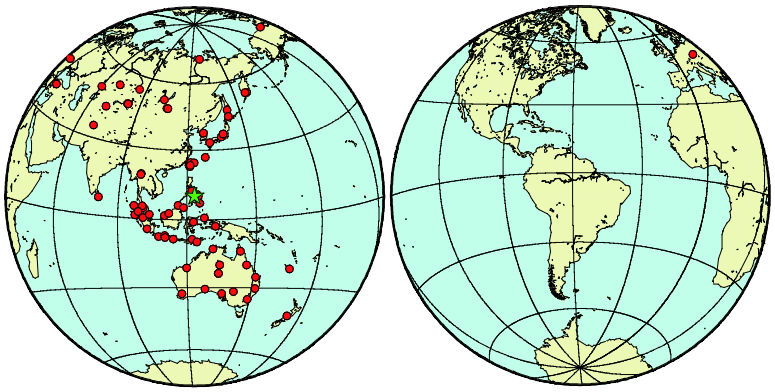

Figure 3. Stations used in relocation.

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.