

Aftershock Distribution and the Mainshock Fault Plane by MJHD method: Application to the September 29, 2009 Samoa Islands Region Earthquake

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SAMOA ISLANDS REGION

Origin Time (USGS): September 29, 2009 at 17:48:10 UTC

Hypocenter (USGS): 15.509°S, 172.034°W, 18 km

Magnitude (Global CMT): $M_w = 8.1$

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

Events Relocated: Mainshock and aftershocks until Sep. 29 23:59

Method: Modified Joint Hypocenter Determination (MJHD) by Hurukawa

Results: Aftershock area: 200 km x 150 km

Fault plane: Nodal plane dipping southwestward

An intraplate earthquake in the Pacific plate

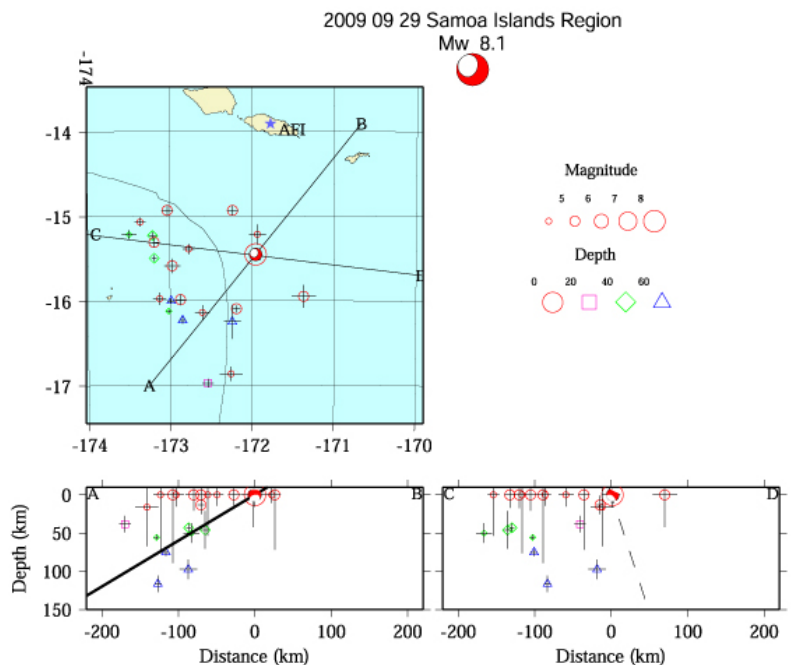


Fig. 1. Hypocenters relocated by the MJHD method. Global CMT solution is also shown. Epicentral distribution and two vertical cross sections along A-B and C-D lines, which are perpendicular to strikes of the two nodal planes, are shown. Two nodal planes are shown by lines in cross sections. The nodal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

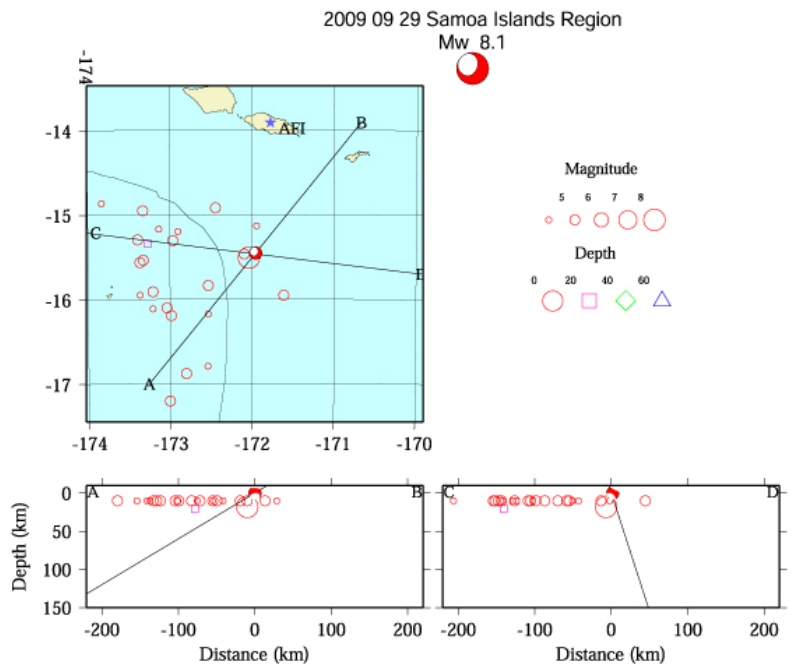


Fig.2 Hypocenters located by USGS. Two nodal planes are also shown by solid lines in cross sections.

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.