

Magnitude Scale of the Southern Peru Earthquake Tsunami of June 23, 2001

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[1] None

The large tsunamigenic earthquake occurred in southern Peru at 20:33(GMT) on June 23, 2001. According to the USGS report, the epicenter was 16.2S,73.6W with Magnitude Ms 8.2 (Mw 8.4). Inundation heights reached about 5m along the Camana River estuary. Double amplitudes on the tide-gauge records were 250cm at Arica, Chile, and 70cm at Callao, Peru. Small tsunamis were also observed at the tidal stations in Japan about 21.5 hours after the earthquake. The maximum double-amplitudes were 20-58cm in North Japan.

The tsunami source area estimated by the inverse refraction diagram lies along the Peruvian coast, extending 310km which nearly agrees with the aftershock area. Judging from the author's method based on the attenuation of tsunami height with distance, the tsunami magnitude is determined to be $m = 3$. The tsunami grade is normal for the earthquake magnitude. Therefore the source area was located in the SW direction, the directivity effect toward Japan is small comparing with the Chilean tsunamis.

The present tsunami was generated in the seismic gap. In future, it is indispensable to take precautions against the seismic activity in the North Chilean region.