

Magnitude of the North Chile Earthquake Tsunami of April 1, 2014

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¹None

In seismic gap, a tsunami was generated off the coast of North Chile at 23:46(UTC)on April 1, 2014. The epicenter of the main shock was located at 19.642 S, 70.817W with a depth of 20.1 km and earthquake magnitude of M8.2 (USGS). The source area estimated by means of an inverse refraction diagram is 400 km length, extending N-S direction on the bathymetric line of 3,000 m. This location covers the source area of the 1877 tsunami. The tsunami began with up-direction at five tidal stations around the source area. It suggests that the sea-bottom of the source area uplifted. Judging from the attenuation of tsunami height with distance, tsunami magnitude to be $m=3$ that the grade is the mean value for earthquake magnitude. Magnitude of another tsunami accompanying with aftershock (M7.7) is $m=2$. Tsunami heights caused by the main shock are 200 cm at Arica and 184 cm at Iquique ,that values are normal for tsunami magnitude. According to tidal records (NOAA), about 60 cm at Hawaii , Fr. Polynesia and Iwate-Kuji are conspicuously large. The pattern of amplitude distribution is similar to other Chilean tsunamis.

Keywords: Tsunami source area, Tsunami magnitude, Distribution of tsunami heights