

The Earthquake of December 14, 2004 (M6.1) at Southern Rumoi District, the Northern Part of Hokkaido

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A shallow-inland earthquake (MJ=6.1) occurred at 14:56 on December 14, 2004 (JST) in southern Rumoi district, the northern part of Hokkaido, Japan. There have been no earthquakes having magnitude 6 or more in shallow inland Hokkaido since 1967. In order to investigate the detailed spatial distributions of aftershocks, we performed the temporary seismic observation from December 14 to February, 2005. Wide band and wide dynamic range accelerometers were installed at 9 temporary stations. The hypocenters of aftershocks were determined by using temporary stations and 2 permanent stations near the source area. Aftershocks were concentrated in the area of 10km x 10km and the depth between 2 km and 8km, and they were distributed on an east-dipping plane.

During the main shock, many strong ground motion records were obtained by the high-dense seismic networks such as K-NET and KiK-net. We constructed spatial distributions of peak ground accelerations (PGA's), peak ground velocities (PGV's) and seismic intensities using high dense network data and found that high PGA, PGV and seismic intensity were mainly seen at the northern side of the epicenter. We also investigated the characteristics of seismograms of the main shock and found that the S-waves consist of two pulses originates in the source process. These features strongly suggested that the fault rupture propagated from the hypocenter to north. We estimate the source process by using the empirical Green's function method.