

mechanism of generation of infrasound signal from earthquake 5 December 2014, Mongolia

Moderate shallow earthquake occurred December 5, 2014 (MW=4.9) in the north of Lake Hovsgol (Mongolia). The infrasonic signal with duration 140 seconds was recorded for this earthquake by infrasound station “Tory”. Source parameters of the earthquake (seismic moment, source radius, displacement) were received by spectra analysis of direct body waves. The analysis of seismograms and amplitude variations of the surface waves allows finding the effect of the propagation of the rupture in the earthquake focus, the azimuth of the rupture propagation direction and the velocity of displacement in the earthquake focus are determined. The results of modeling of the surface displacements caused by the earthquake, and high effective velocity of infrasound signal (~625 m/s) indicates that its occurrence is not caused by the down movement of the earth’s surface in the epicentral region, but by the effect of the secondary source. The position of the secondary source of infrasound signal is defined on the northern slopes of the Khamar-Daban ridge according to the data about the azimuth and time of arrival of acoustic wave at the station “Tory”. The interaction of surface waves with the region topography is proposed as the most probable mechanism of formation of the infrasound signal.

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Track Classification: Analysis of Sources and Scientific Applications