

Effects of the Khubsugul Earthquake of 5 December 2014, $M_w = 4.9$, Mongolia

Seismoacoustic effects of the Khubsugul earthquake of December 5, 2014 (51.37N, 100.63E, $MW=4.9$) were studied. Earthquake occurred in the Khubsugul basin at the depth 3 km. Acoustic signal was registered by the infrasound station “Tory” located at the distance 175 km from the epicenter. Travel time of acoustic waves is about 280 s. Apparent velocity of infrasound signal propagation is ~625 m/s. We assumed that the epicentral area may not be acoustic wave radiation source and modeled the signal partly as a seismic and partly as an acoustic. For the calculations velocity of acoustic waves was assumed to be 300 m/s and surface waves – 3.2 km/s. According to the calculations, the emergence of acoustic waves in the atmosphere are expected to 80-85 km radius from the receiver. On the trace “source-receiver” these distances correspond to the northern slope of the Khamar-Daban ridge (southern board of the Turan depression). The difference in height here is 1700 meters. It can be concluded that infrasound signal was radiated by the slope of the mountain ridge, and the high apparent velocity of acoustic waves is explained by the fact that the signal is propagated in the crust as seismic.

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