

Spatio-temporal variations of short-period S waves attenuation field structure in the region of North-Korean Pungeri nuclear test site

© 2025 Yu.F. Kopnichev¹, I.N. Sokolova²

¹IPE RAS, Moscow, Russia; ²GS RAS, Obninsk, Russia

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Abstract We have been studying spatio-temporal variations of shear wave attenuation field structure in the area of North-Korean Pungeri nuclear test site. We processed recordings of underground nuclear explosions (UNEs), obtained by two stations: VLA and MDJ at distances up to 400 km. The ratios of maximum amplitudes of Lg and Pg waves for frequency of 1.25 Hz (Lg/Pg parameters) were determined. It was shown that values of Lg/Pg parameters for UNEs recordings diminished abruptly from 2006 to 2017. It is supposed that this effect is connected with ascending deep-seated fluids in the lithosphere, stipulated by intensive artificial influence of the UNEs onto the earth's crust. It was established that mean values Lg/Pg are higher essentially for the UNEs aftershocks than for the explosions. A comparison of the attenuation field characteristics in the regions of the Pungeri and Semipalatinsk test sites is carried out.

Keywords Nuclear test sites, explosions and earthquakes, waves Lg and Pg, deep-seated fluids.

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Information about authors

Kopnichev Yuri Fedorovich, Dr., Professor, Chief Researcher of the Schmidt Institute of Physics of the Earth of the Russian Academy of Sciences (IPE RAS), Moscow, Russia. E-mail: yufk777@mail.ru

Sokolova Inna Nikolayevna, Dr., Chief Researcher, Head of the Laboratory of the Geophysical Survey of the Russian Academy of Sciences (GS RAS), Obninsk, Russia. E-mail: SokolovaIN@gsras.ru