

Rayleigh wave velocity maps beneath the Caucasus from the Caucasus seismic network (CNET)

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Abstract Ambient noise surface wave tomography is a widely used method for determining the velocity structure of the upper layers of the Earth. It is based on the fact that the cross-correlation function (CCF) of noise at two stations, averaged over a long time interval, determines the Green's function of the surface wave. This allows us to estimate the group and phase velocities of surface waves on the paths between stations. The method was applied to the records of the vertical components of 67 seismic stations of the Caucasian network CNET network, which were obtained during 2018. The cross-correlation functions for all interstation paths were calculated. The dispersion curves of group and phase Rayleigh velocities for periods from 5 to 30 s were obtained by means of frequency-time analysis. The lateral distribution of the velocities was received for periods from 7 to 22 s, which correlate with velocity structure at depths of 5-25 km. The group and phase velocity maps for Rayleigh wave for periods 7, 10, 12, 14, 17, 22 s are presented.

Keywords Seismic noise, dispersion curves, Rayleigh waves, surface wave tomography.

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