

Coda Q lapse time dependence in the lithosphere of the North Caucasus

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Abstract The coda Q calculated results for the North Caucasus region were compared with the theoretical model of vertical profile of turbidity and Q_c by A.A. Gusev (1995). It was established that, in general, there is a correspondence between the average Q_c values of the North Caucasus with the predicted A.A. Gusev model. However, there are also differences, for lapse time starting from 60 s, Q_c stops continuously increasing and forms a plateau or reaches “saturation”. This effect is associated with the propagation of seismic waves in the mantle, the structure of which is more viscous and homogeneous than the earth’s crust. As a result, of such features, the total energy loss due to attenuation is dominating by internal absorption, which has a constant value, and scattering is minimal. due to the viscous and homogeneous structure of the mantle. For smaller zones associated with different tectonic structures, the “saturation” effect is also observing, but at other LT values, which may be due to the distribution of heterogeneities in medium and their size.

Keywords Coda, earthquakes, North Caucasus, theoretical model, lapse time of coda window.

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