

wave attenuation in the Baikal Rift System

The Baikal rift system is undergoing an active tectonic deformation expressed by a high level of seismic activity. This deformation leads to physical and mechanical changes of crustal properties which can be investigated by the seismic quality factor and its frequency dependence. Using a single backscattering model, a seismic quality-factor (QC), a frequency parameter (n) and an attenuation coefficient (δ) have been estimated by analyzing coda waves of 274 local earthquakes of the Baikal rift system. The values of $QC(f)$ and δ were estimated for the whole Baikal rift system and for separate tectonic blocks: the stable Siberian Platform, main rift basins, spurs and uplifts. Along the rift system, the Q_0 -value (QC -factor at the frequency $f=1$ Hz) varies within 72–109 and the frequency parameter n ranges from 0.87 to 1.22, whereas Q_0 is 134 and n is 0.48 for the stable Siberian Platform. The comparison of lateral variations of seismic wave attenuation and geological and geophysical characteristics of the Baikal rift system shows that attenuation is correlated with both seismic activity and heat flow and in a lesser degree with the surface fault density and the age of the crust.

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