



## The seismic quality factor in Baikal rift system

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The seismic quality factor ( $Q_C$ ) and the attenuation coefficient ( $\delta$ ) of the lithosphere in Baikal rift system (BRS) have been studied analyzing coda waves, using the single backscattering model. For this purpose from regional earthquake catalogue were selected 274 local events with magnitude  $M=3.1-5.4$ , occurred within 2001-2007. The  $Q_C$  values were estimated at central frequencies 0.3, 0.75, 1.5, 3, 6, 12 Hz and eight lapse time windows from 20 to 90 sec with a step of 10 sec for all BRS area and for different tectonic blocks (Siberian craton, rift basins, uplifts, main active faults). Epicentral distances varies within 15-300 km. The quality factor  $Q_0$ , the value of  $Q_C$  at 1 Hz, calculated at different lapse time windows for all studying area show a significant variation from  $(103\pm 9)$  to  $(325\pm 25)$  and attenuation coefficient  $\delta$  from 0.009 to  $0.003 \text{ km}^{-1}$ , corresponding to lapse time window lengths of 20 and 90 sec, respectively. Also lateral variations of  $Q$ -factor connected with upper crust structure are observed. Comparison  $Q$ -factor for BRS and different tectonic region showed that  $Q(f)$  for rift system is agree with ones for tectonic active regions (Japan, Caucasus, Andaman islands and others) while  $Q(f)$  for Siberian craton is agree with ones for stable regions (North Iberia, Canadian shield, Indian shield and others). As a result of our study the frequency dependent attenuation model was obtained. The lateral variations of  $Q$ -factor are dependent on the degree of Cenozoic tectonic activity of the structures and the age of the crust for non active blocks. Observed changes of  $Q$ -factor for different lapse time windows are explained crustal vertical heterogeneity and its decreasing with depth. Maximal attenuation is observed for main active faults.