

P- and S-Wave Receiver Function Study of the Crust and Mantle Structure Beneath the Transbaikalia

In this study we present preliminary results on the structure of the crust and upper mantle in Transbaikalia. The research area lies within the Baikal Rift Zone. We present research based on data collected by seismic stations of the Selenginskaya local network during 2-5 years. We use the receiver function (RF) technique in the LQT ray-oriented coordinate system (Vinnik, 1977). The seismic records from distant earthquakes are uniformly filtered, deconvolved and stacked using appropriate moveout corrections. We used events with a magnitude ≥ 5.5 Mw and epicentral distances range from 35 to 90 degrees. This technique allows us to constrain crustal and mantle structures and determine the Moho depth around stations by analyzing the Ps and Sp converted phases generated at discontinuities in the earth interior. The converted phases of P410s and P660s arrived later than predicted by global model which may indicate lower velocities in the upper mantle. We present preliminary interpretation of 1D P- and S-wave velocity models up to a depth of 350 km in terms of the complex tectonic and geodynamic evolution of the Baikal Rift Zone. Further studies will include joint P and S receiver function analysis of this area along the profile.

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