

Upper mantle of Baikal and Transbaikalia according to the area data of seismological research

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Abstract According to the areal interpretation of seismological data from sufficiently strong earthquakes, new information on the velocity structure of the upper mantle of the Baikal and Trans-Baikal regions is presented. Based on the results of a tomographic interpretation of the travel times of P and S waves from the Mokhorovichich border, maps of the boundary velocities of longitudinal and transverse waves in the Baikal and Transbaikalia, the ratios of the velocities of the P and S waves (V_p/V_s), and the distribution of the Poisson's ratio (σ) are constructed. The boundary velocity in the northwestern, northern, and northeastern parts of the research area (within the Baikal rift zone) according to longitudinal and transversal waves has lower values of 7.80-7.95 km/s and 4.45-4.55 km/s, respectively. In the upper mantle of the southeastern part of the area, the mantle block is about 600x600 km in size with high longitudinal and transversal wave's velocities of 8.40-8.45 km/s and 4.80-4.85 km/s respectively, and increased values of V_p/V_s and σ . The assumption of its nature as a plate of eclogites (or eclogite-like rocks) in the region of the Mongol-Okhotsk orogenic belt is justified. The results were compared with materials from other research.

Keywords Baikal and Transbaikalia, border of Mokhorovichich, seismological data, boundary velocities of P and S waves, Poisson's ratio.

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