



Vibroseismic research of the deep structure of the Earth's crust and upper mantle of the territory of Siberia

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The paper presents the results of vibroseismic research of the deep structure of the Earth's crust and upper mantle of the territory of Siberia. Field investigations using powerful 40–60 tons force transportable vibrators have been carried out by Siberian Branch of the Russian Academy of Sciences. For the period of 20 years, a considerable data volume is accumulated in various regions of Siberia (Sayan region, Altay-Sayan and Okhotsk-Chukotski regions). Use of powerful transportable vibro-sources was developed into effective working technology. Optimal transportation unit was developed for work in hard-to-reach areas on the base of high performance cross-country vehicles. Data processing revealed quality wave fields for both longitudinal and shear waves reflected from a reference boundary in the Earth's crust and Moho which were recorded for 0 – 300–400 km source-receiver offsets. Data show high stability and repeatability. Many data sets were recorded using both explosions and vibro-sources at different offsets and in presence of tectonically active zones. A database of records registered in near-field zone was accumulated for various geology (from low-velocity sediments to crystal rocks). It is presented some examples of using powerful transportable vibrators, including deep sounding and monitoring data, recording equipment, and observation systems.