

STRUCTURAL AND GEOPHYSICAL PROPERTIES OF THE CRUST IN PLATFORM AREAS IN RUSSIA

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The maps of the depth to basement and to Moho boundary, the map of velocity discontinuity in the top of the basement, the map of velocities in the uppermost mantle, the map of average silica content in consolidated crust and the map of quality properties (Q factor) in the crust were created for the platform areas of Russia in scale 1:10,000,000. The East-European and Siberian cratons that have Archean-Early Proterozoic crystalline crust, the Timan-Pechora sedimentary province in which the age of consolidated crust is pre-Late Cambrian, and the West-Siberian sedimentary mega-basin developed on Early Proterozoic to Middle Paleozoic crust are the major geologic units in the area of study. In this area, the thickness of sedimentary cover varies from 0 to 18 km. In the cratons, the depth to the Moho varies from 30-32 km to 48-50 km, while beneath the sedimentary provinces and basins it is from 30 to 44 km. The compressional wave velocities from 6.0 to 6.4 km/s in the top of the crust of the cratons display the spacing of different types of crystalline, metamorphic and igneous rocks. In the areas of sedimentary provinces and basins, the velocity values from 5.6 to 5.8 km/s define the basement to consist predominantly of sedimentary rocks metamorphosed to greenschist facies. The velocities below the Moho are from 7.8 to 8.6 km/s, and anisotropy of velocity exists within the several places. The silica content in wt % in the crust displays the blocks of the crust, while the Q factor derived from compressional wave record data shows the fault zones, tectonic belts, and lineaments.