

MAIN RESULTS OF DEEP SEISMIC SOUNDING ON THE TERRITORY OF CENTRAL ASIA

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Over the past 30 years a series of long range seismic refraction/ wide angle reflection and near vertical coincident reflection experiments were conducted across territory of Central Asia. As a result of generalized reconstruction it was established: 1. Many (6-12) basic reflection, refraction and multiplexing borders within of Earth crust of region. 2. Waveguide layer, revealed everywhere in the earth crust with thickness 4.5 km and velocity 5.7-5.9 km/s, which correspond to granite-gneiss sublayer. 3. Remnants of suboceanic crust on the south of Aral-Ghissar fault, where has been revealed high velocity cone shaped ledge (8.35 km/s) at the depth 19-22 km. Underneath of structure normal crustal reflections were observed. The depth of Moho boundary is equal 40 km at this site. 4. Relief of Moho boundary surface is dipping gently from southwest(28-40km) to east-southeast Alay range - 60-70km, Pamir – 65-85km, Hindukush-70-82km. Thinning of earth crust in limits of large depressions (Karakum-Tadjik - 40-48km, Turgay – Middle Syrdarya - 37-40km, Ferghana-43-48 km. Presence of mantle overthrust sheets (South Caspian - 28-30 km, Karabogaz-Gol-30-35 km, Karakum-35 km, South east Aral-33-35km, Gazli-32-34km and others. Normal values of Moho surface velocities are 7.8-8km/s, except Karabogaz-Gol (8.2-8.4 km/s) and Pamir-Hindukush zone of mantle earthquakes (7.7-7.8 km/s) 5. Layering of mantle – $M_0=7.7-7.8$; $M_1 = 6.4-7.5$; $M_2 = 8.1-8.4$; $M_3 = 8.6-8.7$ km/s with thickness 5-6 km. 6. Existence of thick (40km) astenosphaera layer in the depth interval 240-280 km in limits of Pamir-Hindukush zone. At the top and bottom this layer is limited by high velocity layers (9.3-10.6km/s).