



Complex 3D crustal model of Asia region

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The Southern and Central Asia is tectonically complex region with great collision between Asian and Indian plates and its evolution is strongly related to the active subduction along the Pacific border. Previous global crustal model (CRUST 2.0.) for Asia region have resolution 2x2 degree. Model AsCRUST-08 (Baranov et al., 2008) of Central and Southern Asia with resolution of 1x1 degree was sufficiently improved in several regions and we built integrated model of the crust for Asia region. Also we add several regions in North Eurasia as Mongolia, Kazakhstan and others. For such regions as Red and Dead sea, Northern China, Southern India we built regional maps with more detailed resolution. It was used data of deep seismic reflection, refraction and receiver functions studies from published papers. The existing data were verified and crosschecked. As the first result, we demonstrate a new Moho map for the region. The complex crustal model consists of three layers: upper, middle and lower crust. Besides depth to the boundaries, we provide average P-wave velocities in the upper, middle and lower parts of the crystalline crust. Limits for Vp velocities are: for upper crust 5.5-6.2 km/s, for middle 6.0-6.6 km/s, for lower crust 6.6-7.5km/s. Also we recalculated seismic P velocity data to density in crustal layers using rheology properties and geology data.

Conclusions:

Moho map and the velocity structure of the crust are much more heterogeneous than in previous maps CRUST 2.0. (Bassin et al., 2000), and CRUST 5.1. (Mooney et al., 1998). Our model offers a starting point for numerical modeling of deep structures by allowing correction for crustal effects beforehand and to resolve trade-off with mantle heterogeneities.

This model will be used as a starting point in the gravity modeling of the lithosphere and mantle structure.

[1] A. Baranov et al., First steps towards a new crustal model of South and Central Asia , Geophysical Research Abstracts,

Vol. 10, EGU2008-A-05313, 2008, <http://meetings.copernicus.org/egu2008/>

[2] Bassin et al., The Current Limits of Resolution for Surface Wave

Tomography in North America, // EOS Trans AGU. 2000. 81(48), Fall Meet. Suppl., Abstract F897. (<http://mahi.ucsd.edu/Gabi/rem.html>)