Geophysical Research Abstracts, Vol. 9, 06323, 2007
SRef-ID: 1607-7962/gra/EGU2007-A-06323

Moho reflections at short epicentral distances from strong quarry blasts in the central Ore Mountains

H. Kampfová (1,2), J. Málek (1), **O. Novotný** (2)

(1) Institute of Rock Structure and Mechanics, Acad. Sci. Czech Republic, V Holešovičkách 41, 182 09 Prague 8, Czech Republic (malek@irsm.cas.cz), (2) Department of Geophysics, Faculty of Mathematics and Physics, Charles University, V Holešovičkách 2, 180 00 Prague 8, Czech Republic (on@karel.troja.mff.cuni.cz)

Previous studies of the Moho depth on the territory of the Czech Republic were based on deep seismic sounding method (DSS) and measurements of Moho reflections from blasts at epicentral distances of 80 – 120 km. The present paper deals with special measurements of Moho reflections at short epicentral distances of about 16 km. The seismic waves were generated by strong quarry blasts at the Tušimice open-pit coal mine in the central part of the Ore Mountains, Czech Republic, and recorded at the Přísečnice temporal seismic station. The seismograms contain clear onsets of P and S waves and a prominent group of short-period surface waves. Weak onsets of Moho reflections of P and S waves are observed at travel times of about 10 s and 17 s, respectively. To increase the signal-to-noise ratio of the reflected waves, filtering and stacking of seismograms were applied. The mean ratio of the P- to S-wave velocities in the crust was found to be $v_p/v_s = 1.78$. Using the DSS velocity model of the Ore Mountains block, the observed travel times of the reflections yield a crustal thickness of 30 km only. This confirms a very thin Earth's crust and the absence of "mountain roots" in the central part of the Ore Mts. region.