



Identification of Moho Reflections from Quarry Blasts at Short Epicentral Distances

H. Kampfova (1,2), J. Malek (1), O. Novotny (1,2)

(1) Department of Geodynamics, Institute of Rock Structure and Mechanics, Academy of Sciences of the Czech Republic, (2) Department of Geophysics, Faculty of Mathematics and Physics, Charles University in Prague, Czech Republic
(kampfova@irms.cas.cz)

Previous studies of the Moho depth on the territory of the Czech Republic were based predominantly on deep seismic soundings (DSS) and areal measurements of Moho reflections from quarry blasts at distances close to the critical point, i.e. at distances of about 70 km. The present contribution deals with special measurements of quarry blasts at short epicentral distances. The main attention was paid to large quarry blasts performed at the Tusimice open-pit coal mine in northern Bohemia. The blasts were recorded at the Prisebnice temporal seismic station at a distance of about 18.5 km. The seismograms contain clear onsets of *P* and *S* waves and a prominent group of dispersive surface waves. At times more than 10 s, weak onsets of Moho reflections are observed. To increase the signal-to-noise ratio of these phases, several tens of seismograms were stacked. The travel times and amplitudes of the reflections are compared with theoretical ones computed for the DSS model of the Ore Mountains crustal block. The results are interpreted in terms of the Moho depth and velocity contrast at this discontinuity.