



The Uppermost Earth Crust Structure of Western Bohemia Estimated from the Dispersion of Short-period Love Waves

P. Kolinsky

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

Western Bohemia region attracts geoscientists for its complicated geological structure, mineral springs, post volcanic activity and for periodic earthquake swarms. In the last three years several international seismic experiments have been carried out in this area. Many records of quarry blasts and earthquakes have been gained. This contribution shows examples of short-period Love wave records with filtered fundamental modes gained from local seismic station network in Western Bohemia in recent years. The multiple-filter technique for estimating the dispersion curves of surface waves is presented. It uses the constant relative resolution, optimal, Gaussian filtering in the frequency domain. The technique has been modified to study the short-period surface waves generated by quarry blasts. The matrix method for computing synthetic dispersion curves from layered model of the Earth crust is used as a forward modeling tool for the inversion which is processed by the recently developed Isometric method. 1D structure models have been estimated for selected profiles across the region and the synthetic seismograms of fundamental modes have been compared to the measured ones. Surface wave tomography has been used for estimating shear velocities according to the geological features in the region. These results complement the earlier estimated velocity models of Western Bohemia.