

MASW technique on prospective scale

Sebastian Białas, Mariusz Majdański, Edward Gaczyński

Institute of Geophysics, Polish Academy of Science

The Multichannel Analysis of Surface Waves (MASW) is one of seismic survey methods that use the dispersion curve of surface waves in order to describe the stiffness of the surface. It is used mainly for geotechnical engineering scale with total length of spread between 50 - 450 m and spread offset between 1 - 100 m, the hummer is the seismic source on this surveys. The standard procedure of MASW survey is: data acquisition, dispersion analysis and inversion of extracting dispersion curve to obtain the closest theoretical curve. The final result includes shear-wave velocity (V_s) values at different depth along the surveyed lines. The results achieved during standard MASW procedure says that this method can be used on much bigger scale as well. The different methodology of this analysis requires only much stronger seismic source.

Comparison of MASW method extended to the prospective scale with LVL refraction methodology is the main goal of this work. The MASW data experiment included the measurement of seismic waves recorded by 4.5 Hz version of vertical geophones. The seismic records are common receiver gathers with the shots intervals of 25 meters and consist of 48 seismic traces, standard vibroseis and explosive methods were used as the seismic source. The experiment was carried out on the Braniewo 2014 project in north of Poland.