Efficiency Of Integrated Seismic Methods Approach To Near-Surface Characterization

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Surface seismic methods are among the most popular, widely accepted, geophysical methods for near-surface characterization. The most practical and effective way to perform in-situ measurements and data processing using different seismic methods as are seismic refraction, seismic reflection and MASW method in an integrated approach is presented in this paper. Each method has some advantages and limitations, but their application in an integrated approach provides higher accuracy in subsurface modeling. The same seismic equipment and, in most of the cases, the same acquisition parameters were used, enabling time and cost effective survey for subsurface characterization. The choice of these parameters was not random. Experimental research by use of the above-mentioned seismic methods was carried out in a long period in order to define the optimal parameters for successful application of an integrated technique in future research. During this survey, particular attention was paid to the influence of the acquisition parameters on the dispersion image resolution in the MASW surveys and extraction of an effective dispersion curve.

The results of the performed surveys at characteristic locations in R. North Macedonia are presented to show the efficiency of the combined methods approach.