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Application of Multichannel Analysis of Surface Waves to S-Phase Wave Anisotropy Estimation

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Abstract

The Multichannel Analysis of Surface Waves (MASW) is an increasingly used technique for recognition of a shallow geological structure and estimation of geotechnical parameters, *e.g.*, *S*-wave velocity, layer density, layer thickness, shear modulus, estimated *P*-wave velocity, and estimated Poisson ratio. MASW surveys were carried out in two limestone quarries in the southern part of Poland. The experimental areas are characterised by a simple geological structure: consolidated Triassic limestone. Measurement profiles were arranged as a shapely six-pointed star. For each survey line, 12 geophones with 2-meter (Deposit 1) and 3-meter (Deposit 2) spacing were applied. The research allowed to compare *P*- and *S*-wave velocity changes with the main crack systems in the studied rock masses.

Key words: surface waves, Rayleigh waves dispersion curve, MASW, genetic algorithm, *S*-waves anisotropy.

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