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Correlation between subsurface physical properties and seismic noise characteristics

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By cross correlating ambient seismic noise data between two stations each station becomes a virtual seismic source and cross correlation measures similarity between two waveforms as a function of time lag applied to one of the waveform. In this study the Windows Selection Method (WSM) allowed to recover the empirical Rayleigh wave train, the Green's function, which is the impulse response along the two receivers. Every pair of station are cross correlated in frequency domain over 900 [sec] long time window. Rayleigh wave trains appear on both negative and positive lag time. Through the frequency-time analysis using narrow band Gaussian filters with varying central frequencies the group velocities are extracted. Much of our knowledge about crust and mantle beneath Poland infers form traditional body and surface wave studies. This presentation describes the shear wave velocity perturbation in subsurface layers through the characteristic of ambient seismic noise.