



## **A software to measure phase-velocity dispersion from ambient-noise correlations and its application to the SNSN data**

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Graphical software for phase-velocity dispersion measurements of surface waves in noise-correlation traces, called GSpecDisp, is presented. It is an interactive environment for the measurements and presentation of the results. It measures phase-velocity dispersion curves in the frequency domain based on matching of the real part of the cross-correlation spectrum with the appropriate Bessel function. The inputs are time-domain cross-correlations in SAC format. It can measure two types of phase-velocity dispersion curves; 1- average phase-velocity of a region, and 2- single-pair phase velocity. The average phase-velocity dispersion curve of a region can be used as a reference curve to automatically select the dispersion curves from each single-pair cross-correlation in that region. It also allows the users to manually refine the selections. Therefore, no prior knowledge is needed for an unknown region. GSpecDisp can measure the phase velocity of Rayleigh and Love waves from all possible components of the noise correlation tensor, including diagonal and off-diagonal components of the tensor.

First, we explain how GSpecDisp is applied to measure phase-velocity dispersion curves. Then, we demonstrate measurement results on synthetic and real data from the Swedish National Seismic Network (SNSN). We compare the results with two other methods of phase-velocity dispersion measurements. Finally, we compare phase-velocity dispersion curves of Rayleigh waves obtained from different components of the correlation tensor.