UNIVERSITY of HOUSTON

ALLIED GEOPHYSICAL LABORATORIES

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Research Interests: Seismic Refraction, MASW, FOMS

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Abstract

My interest is in the MASW method and seismic refraction survey. The MASW method is effective for obtaining an S-wave velocity profile at the near-surface. By using the dispersive property of Rayleigh waves, we could extract the phase velocities from the different periods at each common midpoint and obtain the S-wave velocity profile. The seismic refraction obtains a P-wave velocity profile by creating a model and inversing the travel-time of first arrivals at each receiver. According to the site lithology, the model can be a layered medium or a continuum. In previous studies, we used both velocity profiles and Vp/Vs values to analyze soil changes before and after soil liquefaction. The results clearly showed that sand volcanos had caused shear wave velocity anomalies. My next step would like experiment whether the data of the fiber-optic motion sensing (FOMS) can be used to obtain the velocity profiles. Other interests include the full waveform inversion, multi-component seismic exploration, and machine learning.

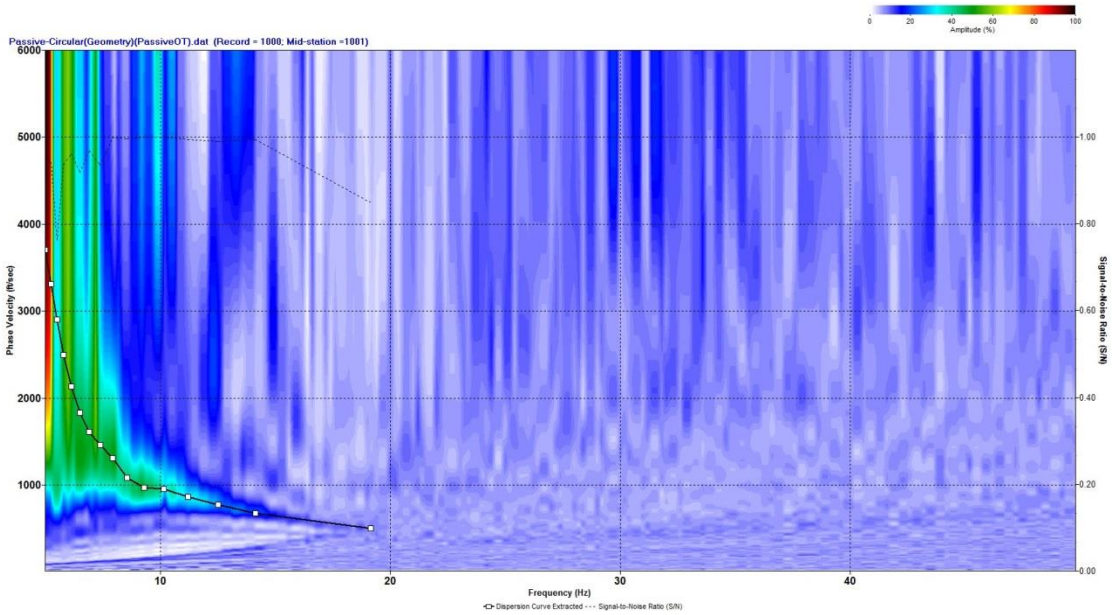

Figure 1. Dispersion curve form a circular array. (from SurfSeis3 sample data)