

# SeisImager/SW

## Surface Wave Analysis Software



Surface waves are easy to record and loaded with information about the subsurface. With SeisImager/SW, data processing is simple, putting the answers you seek at your fingertips.

SeisImager/SW includes both active source and passive source (microtremor) data analysis capability. The higher frequency data from a sledgehammer source that travels through shallower depths can be combined with lower frequency data from microtremors that travel through greater depths. The combination of results provides one high-resolution plot of S-wave velocity ( $V_s$ ) over all depths sampled. The data processing is easy and straight-forward with a wizard that walks you through the steps using default parameters that are suitable for most cases, but are fully user-adjustable as needed.

In addition to the core processing flows, SeisImager/SW includes HVSr analysis functions and allows the user to build  $V_s$  models and examine the effects of velocity variations. Borehole data such as P-wave velocities and blow counts (N-values) can also be correlated.

For deeper investigations as great as 1 km, microtremors can be recorded for longer periods (10+ minutes) with the Geometrics Atom Passive Seismic System. Common Time Blocks (CTBs) of microtremors are then processed with SeisImager/SW using the new long-record Spatial Autocorrelation (SPAC) capability.

Beyond the main functions, SeisImager/SW is packed with advanced processing including higher mode analysis, HVSr inversion, joint Raleigh-Love wave analysis of 3-component MAM data, and ambient noise tomography.

### Features & Benefits

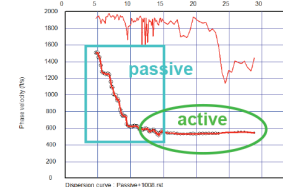
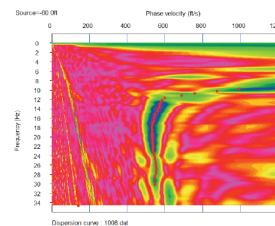
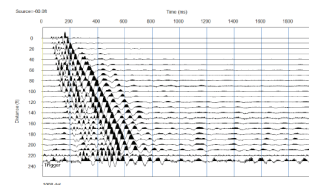
- Calculates phase velocity and automatically picks dispersion curve.
- Performs inversion to iteratively seek 1D  $V_s$  curve or 2D  $V_s$  cross-section.
- Allows active and passive source dispersion curves to be combined for a high-resolution result over all depths sampled.
- Flexible geometry options suit a wide range of site configurations and conditions.
- Handles a range of microtremor data record lengths for investigations to depths as great as 1km.
- Analyses are based on robust methods: frequency domain tau-p and CMP cross-correlation for Multi-channel Analysis of Surface Waves (MASW); Spatial Autocorrelation (SPAC) for Microtremor Array Measurements (MAM).
- Includes editing and QC functions, and velocity modeling.
- No fees for support, maintenance, or upgrades.

### Applications

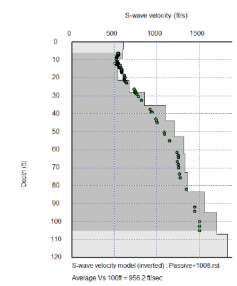
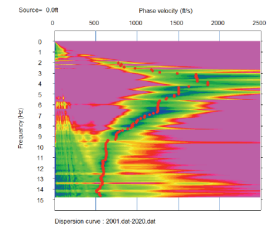
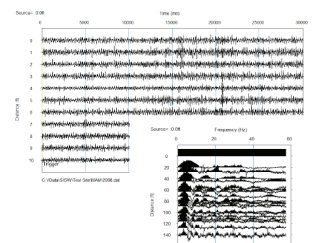
- Vs30/ Vs100 site classification.
- Foundation engineering.
- Microzonation studies.
- Void detection.
- In-fill and landfill investigation.
- Stratigraphic and lithologic studies.
- Deeper surveys of geologic structure.

**Now Includes Long-Record SPAC for Processing Deep Microtremor Data**

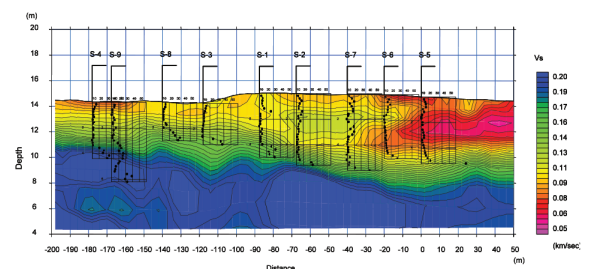
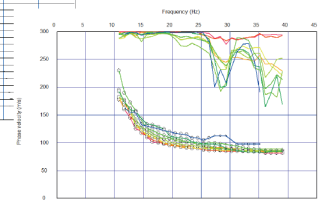
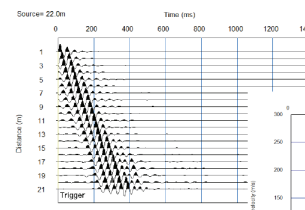
### Multi-channel Analysis of Surface Waves (MASW)



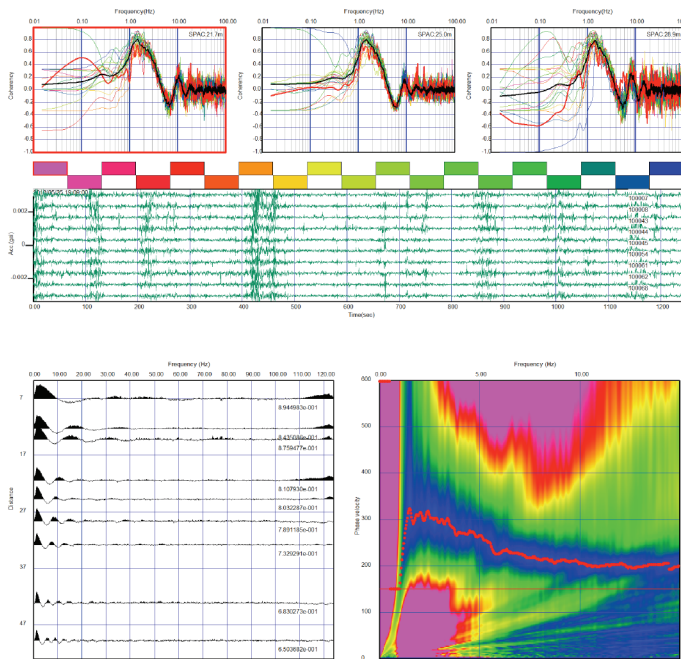
### Microtremor Array Measurements (MAM)



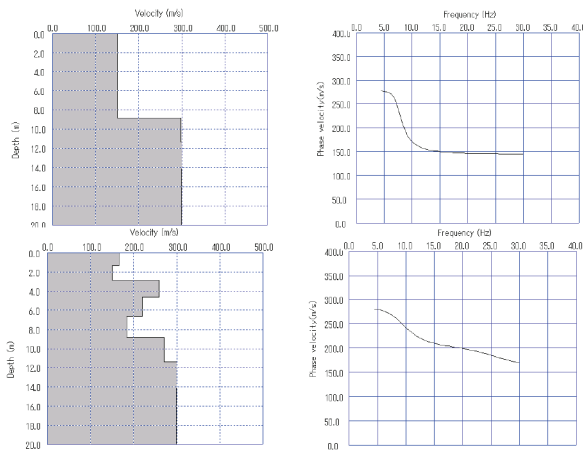
Collect one active source record and 20 passive source records to calculate a 1D  $V_s$  curve.



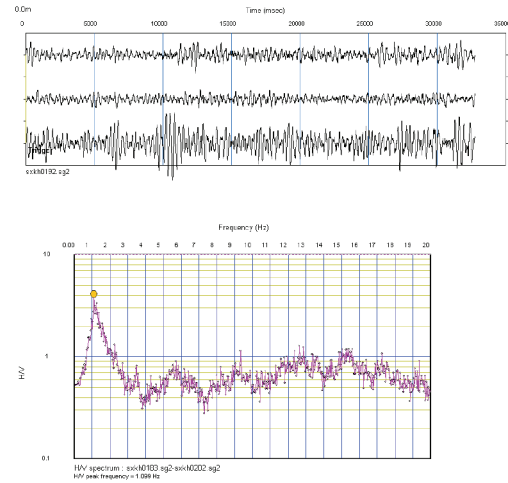
Collect a series of MASW records to calculate a 2D  $V_s$  cross-section.



Using long-record SPAC, calculate phase velocity for 10+ minutes of microtremor data.



Create synthetic Vs models and dispersion curves to examine the effects of velocity variations.



Collect 3-component data for HVSR analysis.

## SeisImager/SW Software Packages for Windows

**Demonstration version:** May be launched 15 times, capable of 1D Multi-channel Analysis of Surface Waves (MASW).

**1D version:** Capable of 1D MASW, 1D Microtremor Array Measurements (MAM), and HVSR analysis.

**2D version:** In addition to 1D version, also capable of 2D MASW.

**Plus version:** In addition to 2D version, also capable of long-record Spatial Autocorrelation (SPAC) of Common Time Block (CTBs).

**Pro version:** In addition to Plus version, also capable of higher mode analysis and HVSR inversion.

**3C version:** In addition to Pro version, also capable of processing 3-component MAM data and joint Raleigh-Love wave analysis.

**3D version:** In addition to 3C version, also capable of 2D and 3D analysis of MAM data (ambient noise tomography).

**Rental version:** Runs for 40, 75, or 250 hours.

Specifications subject to change without notice. SeisImagerSW\_v3 (0121DU)



[www.geometrics.com](http://www.geometrics.com)

**GEOMETRICS INC.** 2190 Fortune Drive, San Jose, California 95131, USA  
Tel: 408-954-0522 • Fax: 408-954-0902 • Email: [sales@geometrics.com](mailto:sales@geometrics.com)

**GEOMETRICS EUROPE** 20 Eden Way, Pages Industrial Park, Leighton Buzzard LU7 4TZ, UK  
Tel: 44-1525-383438 • Fax: 44-1525-382200 • Email: [chris@georentals.co.uk](mailto:chris@georentals.co.uk)

**GEOMETRICS CHINA** Laurel Geophysical Instruments Limited  
8F. Building 1, Damei Plaza, 7 Qingnian Road, Chaoyang District, Beijing, 100025 China  
Tel: +86-10-85850099 • Fax: +86-10-85850991 • [laurel@laurelgeophysics.com.cn](mailto:laurel@laurelgeophysics.com.cn)