$SurfSeis^\text{©}$ software was developed at the Kansas Geological Survey to process seismic data using the multichannel analysis of surface waves (MASW) method.

Surface waves have historically been the bane of near-surface reflection seismologists. With the development of MASW at the Kansas Geological Survey has come an explosion in research and use of the MASW method for application to engineering, groundwater, and environmental problems. Scientists from around the world have shown the utility of surface waves as signal rather than noise on multichannel seismograms. Our third generation ($SurfSeis \, 3^\text{©}$) will be released soon with industry-leading features and capabilities.

$SurfSeis^\text{©}$ Capabilities

- Data conversion
  - SEG2 to KGS
  - SEGY to KGS
  - KGS to SEGY
- Headers (edit)
- Resample
- Geometry Assignment
- Analysis
  - Spectra
  - Overtone
  - Velocity (linear)
  - Dispersion curve best fit

- Display
  - Wiggle trace variable area
  - Wiggle only
  - Trace-by-trace spectra

- Processing
  - Filter (trapezoid, F-k, velocity)
  - Mute
  - AGC

- Dispersion Curve
- Inversion
  - 1-D
  - 2-D

$SurfSeis^\text{©}$ uses passive or active seismic data recorded with vertical geophones.

Dispersion-curve estimations are phase velocity plotted against frequency.

Using a continuous acquisition style, a series of 1-D vertical profiles can be gathered and interpolated.

Inversion of dispersion curve yields 1-D vertical profile.
Only commercial software capable of handling higher modes.

Available in SurfSeis 3©
- Fundamental and higher mode observation
- Inversion using higher modes – greater resolution
- Inversion using \textit{a priori} density information
- New menus and friendly dialogs complementing existing interface; smoother operation; faster code
- Improved compatibility with other KGS seismic software (i.e., WinSeis, SeisUtil, seismodeler)
- Hardware key (USB dongle)

Suggested Reading on Higher Modes

SurfSeis 3.0©
Release: July 2010

Upgrade from SurfSeis© v1 or v2—$750; new purchase—$3,750. Appropriate shipping and handling costs apply. Upgrade pricing available with current serial number.

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