SurfSeis©

SURFACE WAVE PROCESSING SOFTWARE
for use with Microsoft® Windows™

SurfSeis© software was developed as a product of our research at the Kansas Geological Survey (KGS). It was written to process both active and passive seismic data to obtain shear-wave velocity (Vs) models, using the multichannel analysis of surface waves (MASW) method, which was also originally conceived and developed at the KGS. Surface waves have historically been the bane of near-surface reflection seismologists. With the development of MASW has come a global explosion in research and use of the MASW method for application to engineering, groundwater, and environmental problems. **Our sixth generation (SurfSeis© 6.0 – 6.7) provides industry-leading features and capabilities.**

Current Capabilities

Dispersion Curve Imaging
- Phase-shift method
- Advanced
- HRLRT (for multi-modes and shorter spreads [higher lateral resolution])

Inversion of four wave types for **shear-wave velocity (Vs)**
- Fundamental mode
- Higher modes

2-D Vs Imaging
- Normal
- Kriging – Advanced and Simple
- Inversion of Rayleigh-wave attenuation for Qs (and Qp for special cases)

View 2-D Results
- Vs and Shear Modulus
- Vs30 and SPT N
- Vp/Vs and Poisson's ratio with a priori Vp

Seismic Data General Processing
- Bandpass and FK filters, Mute
- AGC and trace-by-trace frequency spectra

Seismic Data Utilities
- Data type conversion options
- Geometry assignment
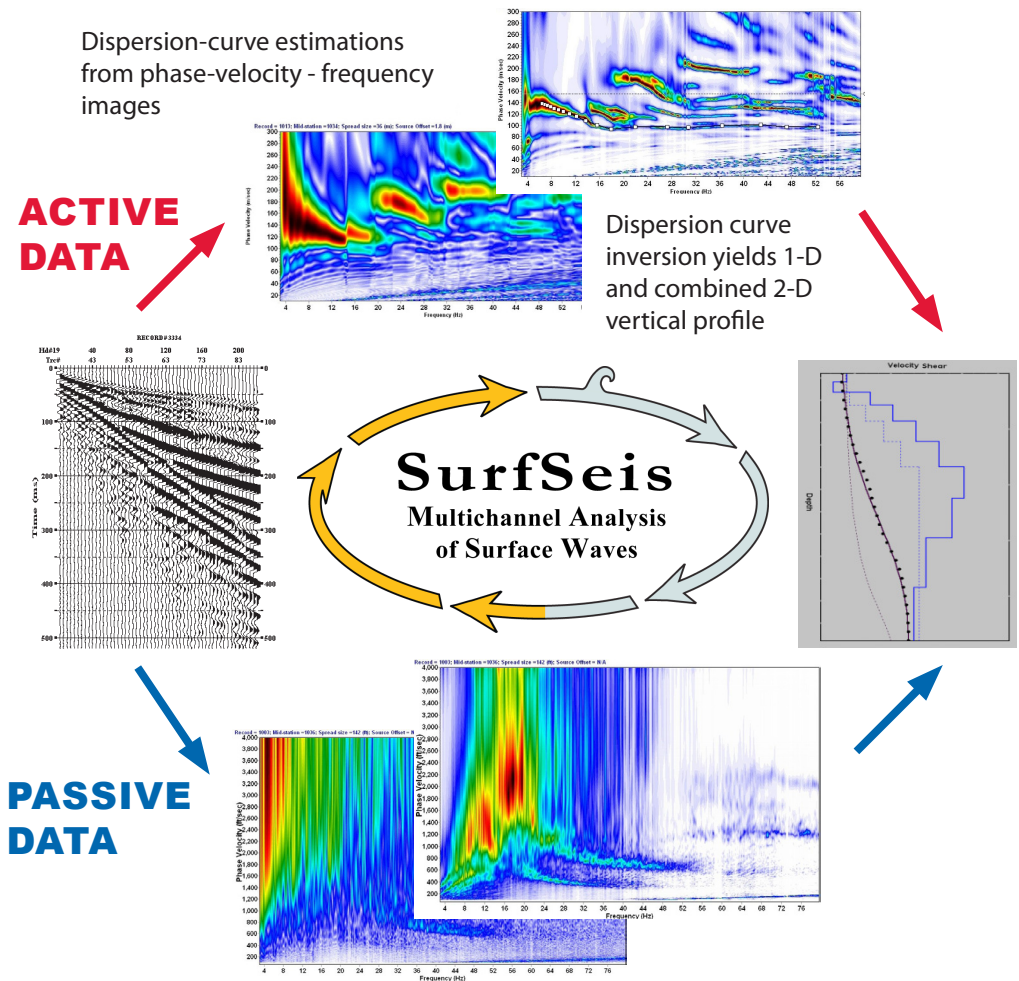- Various display options

Research Tools
- Multi-mode Monte-Carlo inversion
- Modeling
  - » Dispersion-curve estimations from layer models (check if Vp matters)
  - » Comparison of calculated vs. imaged dispersion curves ("effective" mode)

Dispersion-curve estimations from phase-velocity - frequency images

ACTIVE DATA

Dispersion curve inversion yields 1-D and combined 2-D vertical profile

SurfSeis
Multichannel Analysis of Surface Waves

PASSIVE DATA

Visit our website for information on FREE workshops, publications, and new exciting features.
http://www.kgs.ku.edu/software/surfseis

Now in *SurfSeis*© 6

a

b

c
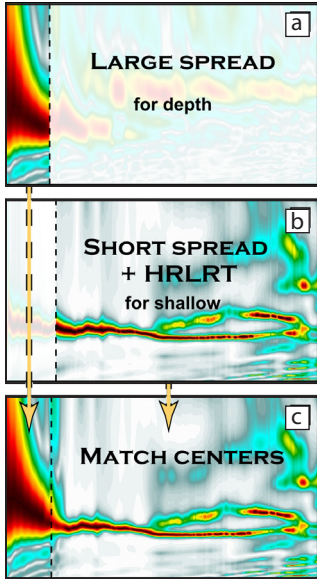
Stitching Dispersion-Curve Images

a) Using a low-frequency portion from a larger-spread conventional-transform image and
b) the high-frequency portion from a shorter-spread HRLRT image
c) with the stitching tool creates a blended image that exhibits a wide frequency range fundamental mode trend.

This new image (c) contains both low frequencies for greater depth estimates and high frequencies for shallow depth estimates and improved lateral resolution because of the shorter spread.
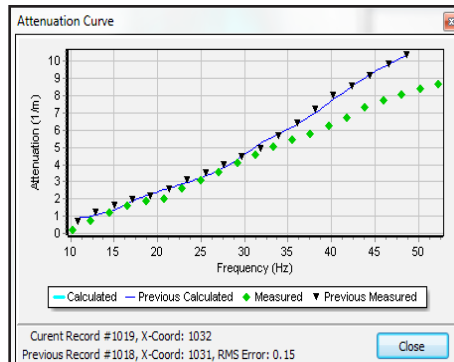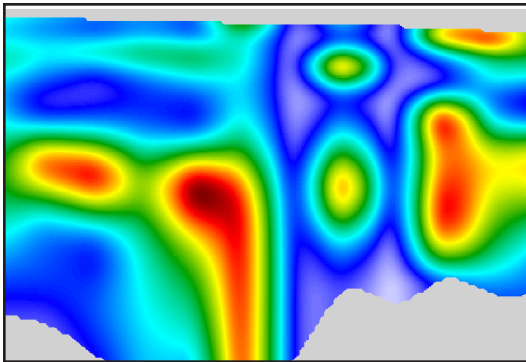
FOR A QUOTE, SELECT FROM THE FOLLOWING:

Ver. 6.0 - standard software
Ver. 6.1 - includes Love wave
Ver. 6.2 - includes HRLRT
Ver. 6.3 - includes Love wave and HRLRT
Ver. 6.4 - includes Qs
Ver. 6.5 - includes Love wave and Qs
Ver. 6.6 - includes HRLRT and Qs
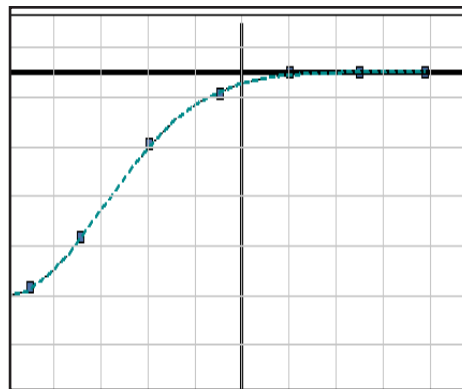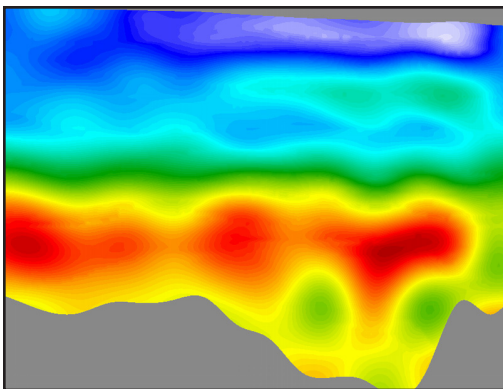Ver. 6.7 - includes Love wave, HRLRT, and Qs

Qs from Attenuation Measurements

SurfSeis 7
Projected Release - May 2020

2D Kriging Interpolation Optimized by Statistical Estimations

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