

How is *ParkSEIS* different from *SurfSeis* and other software tools?



The ParkSEIS software processes the MASW seismic data to generate subsurface shear-wave velocity (V_s) profiles. The software is developed by [Dr. Choon Park](#), the lead author of the multichannel analysis of surface waves (MASW) method published in [GEOPHYSICS](#) (Park et al., 1999) when Dr. Park was working as a research scientist at the Kansas Geological Survey (KGS). He also developed the [SurfSeis](#), the first MASW software package released at KGS in 2000. Dr. Park left KGS in 2006 and founded Park Seismic LLC that has been providing the MASW data-analysis services and software tools.

Since the MASW development about two decades ago, the worldwide applications and research updated theories and practices of MASW significantly. The ParkSEIS has continuously incorporated all these updates through the evolution of its predecessor SurfSeis. During the last 15-year evolution, the rigorousness in the analysis results and also in the user experience of graphical user interfaces (GUI's) have been well established through its in-house use to provide the data-process services.

The ParkSEIS is a much more advanced and reliable tool in all key processing steps (e.g., [field geometry setup](#), [dispersion](#), inversion for [1-D](#) and [2-D](#) profiles, etc.) than any other software currently available in the market. MASW modeling in [seismic data](#) and [dispersion curve](#) has been added that one can utilize to cross-check the processing results and evaluate the feasibility of a potential project. The user interfaces have been significantly improved based on the long-time experience of processing MASW data. Special processing algorithms such as [back-scattering analysis \(BSA\)](#) and [common-offset section](#) have been added for anomaly detection (e.g., voids and weak zones) and quick evaluation of lateral velocity changes. The [fully-automated-analysis mode](#) of ParkSEIS has become available using the artificial intelligence (AI) algorithm facilitated by its use over a few thousand data sets from different parts of the world. One can use it for a project that needs the result in a fast and consistent manner. During the manual process's learning stage, one can also use it to build confidence in crucial decision-making steps. A complete set of help files is available at every vital stage of analysis in [user guides](#) and [video tutorials](#).

The followings summarize the key features of ParkSEIS. One can find full features posted on the software [website](#).

1. [Active](#), [Passive](#), and [Active-Passive](#) for [1D](#) & [2D](#) cross section, [ReMi](#)
2. [Automatic Dispersion and Inversion, 1D Vs Profile & 2D Vs Cross section for Active, Passive, and Active-Passive](#)
3. [Bedrock Velocity Evaluation of \$V_s\$ and \$V_p\$](#) (Frequency summation)
4. [Field Geometry Setup with Graphical Wizard Approach](#)
5. [1D shear wave velocity profile, \$V_s\$ 30m as per NEHRP & EURO CODE](#)
6. [2D S-Velocity \(\$V_s\$ \) Cross Section](#)
7. 2D [Young's Modulus](#) (E) & [Shear Modulus](#) (μ) Cross section
8. [2D Topo \(Elevation\) Correction](#)
9. [2D P-Velocity \(\$V_p\$ \) Cross section\(Conversion\)](#)
10. [2D Back Scattering Analysis cross section](#)
11. [2D Common-Offset Section](#)
12. [Modeling Dispersion Curve \(Fundamental and Higher Modes\)](#)
13. [Modeling Multichannel Seismic Data](#)
14. [Modeling Dispersion Image](#)