

EMIGMA for Land CSEM and CSAMT

The CSEM/CSAMT software package is available as part of EMIGMA EM for Oil and Gas, as a standalone product or an add-on to other EMIGMA software licenses.

In some communities, land controlled source surveys, are termed CSAMT and here the electric and magnetic fields are most often provided as a ratio or impedance for interpretation. In other communities, these surveys are termed CSEM, and in these communities the fields are used independently mirroring the older LOTEM surveys. EMIGMA may deal with all of these individual peculiarities between different paradigms.

Unlimited survey size!

Data Import

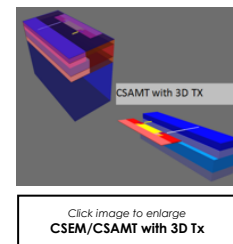
- ASCII and QCTool imports
- Native Zonge and Phoenix imports

Data Processing and Correction

- 1D digital and spatial filters - Mean, Median, Gaussian and Savitzky-Golay
- Smoothing and Decimation
- Data Corrector tool combining dynamic spreadsheets and a line plotter for data cleaning, missing data interpolation and simultaneous plotting of different data channels for fast cross-analysis
- Geophysical survey merging

3D Modeling

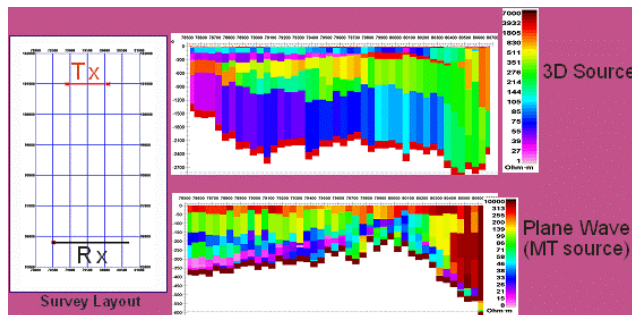
- 3D simulations of any combination of E fields, H fields and Z impedance
- Model suite generation and batch mode
- Unlimited prism, plate and polyhedra targets
- Multiple body interactions
- Modeling of topography effects
- Ability to handle full contrast between host and bodies
- Interactive 3D geophysical model building tool



3D CSEM/CSAMT Inversion

- Inversion includes not only the inversion algorithm but also a corresponding forward algorithm used in the inversion process. Two forward algorithms are provided for weak and strong scattering.
- Joint inversion of scalar E and H or vector E and H as well as multiple transmitters

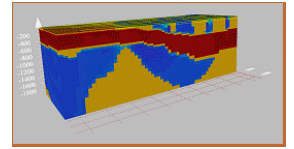
1D CSEM/CSAMT Inversion



- Smooth Occam technique with fixed layer thickness
- Underparametrized Marquardt technique with full resistivity and thickness constraints
- Invert for E field, H field or Z impedance using the 3D source
- User defined starting model and inversion parameters

Data Display and Analyses

- 3D data display as profiles, vectors, true 3D surfaces or contoured surface with 3D structure representation
- Section cutting of 3D model displays in the 3D Visualizer
- Pseudo-sections, depth images
- PEXShow tool - 2D representation of Resistivity/CSAMT inversions with easy-to-switch-to susceptibility and conductivity sections
- PseudoSection tool
- Grids: Natural Neighbor, Delauney Triangulation, Minimum Curvature and Thin-Plate-Splines
- Contours: 2D and 3D surfaces
- Line plots
- Residual plots



For more detailed data display capabilities, see **EMIGMA Complete**