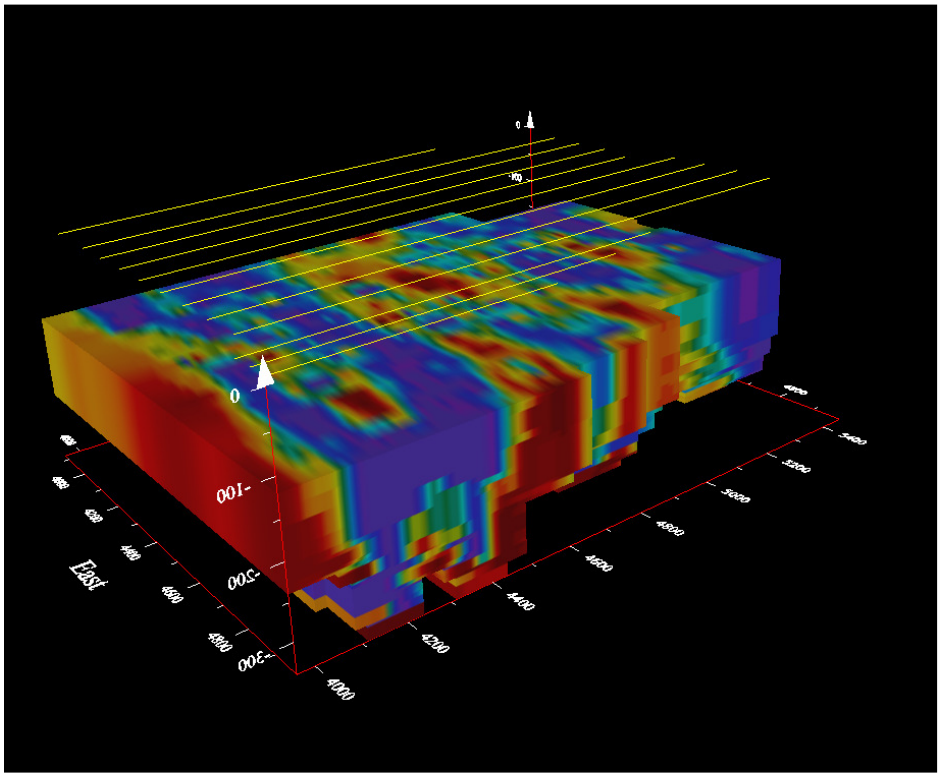
PETROSEIKON
Geophysical exploration

EMIGMA V8.x Premium and Professional Series

EMIGMA for Resistivity/IP

February 2014



3D Resistivity Inversion Sliced at 100m depth

The Resistivity/Induced Polarization package is available as part of EMIGMA Premium or Professional Complete, as a standalone product or an add-on to other EMIGMA licenses. It allows for various survey configurations (dipole-dipole, pole-dipole, gradient, borehole, cross-hole, Schlumberger, Wenner) and with 3D Inversion it offers a full range of functionalities required for the successful interpretation of IP/Resistivity data. One can work with DC data, time domain or frequency domain data.

Includes functionality for MIP.

Cross-hole and surface to borehole are available as extensions.

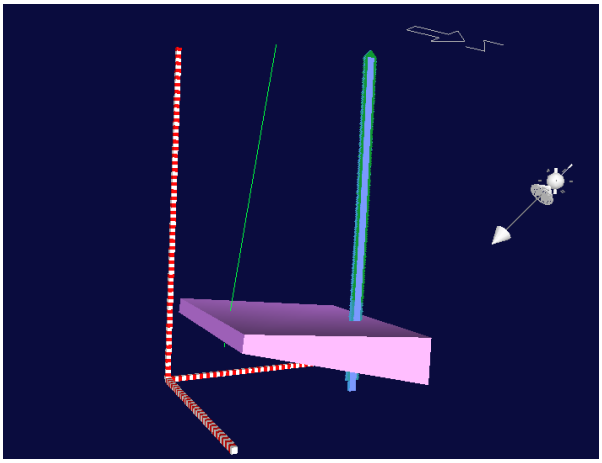
Unlimited survey size with Premium! (inHole, Xhole and Surface to Borehole)
50,000 points with Professional! (ground surveys only)

SURVEY DESIGN

- Dipole-Dipole, Pole-Dipole, Pole-Pole, Gradient (arbitrary source geometry)
- Wenner, Sclumberger
- Up to 100 N-spacings allowed
- Single Profile (2D) or multi-profile (3D) surveys allowed
- PREMIUM version offers additionally – Surface to Borehole and Borehole – to Borehole and inHole surveys as well as other non-standard geometries
- DC data, AC data in time or frequency domain
- Crosshole Radio Imaging – electric or magnetic antennae to 1.2MHz

DATA IMPORT

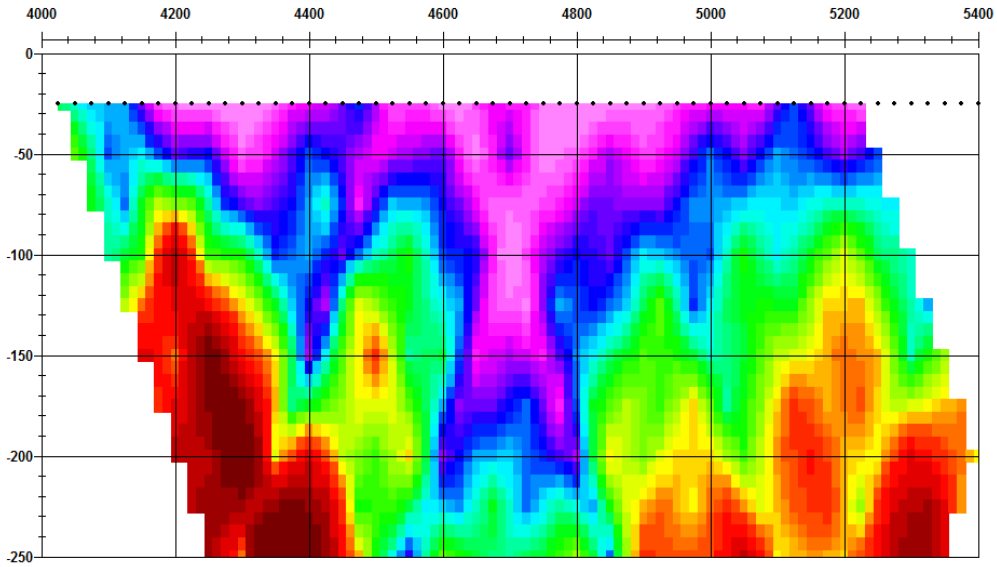
- Time Domain IP - ELREC6 , Scintrex IPR10/11/12 and GDD formats or as a generic ASCII text columnar format, from QCTool
- Frequency Domain IP
  (native Zonge .avg or ASCII text format)
- Resistivity Data (Zonge, SYSCAL, generic ASCII XYZ)
- Xhole and Surface to Borehole geometries
- Imports from QCTool (allowing extensive editing and re-organization capabilities prior to import to **EMIGMA**



XHOLE RADIO IMAGING

DATA PROCESSING AND CORRECTION

- 1D digital and spatial filters - Mean, Median, Gaussian and Sovitzky-Golay
- Smoothing, Filtering, Outlier Removal, Data Editing and Sorting and many other processing functions
- Survey merging to merge profiles or merge data from different days



UNIQUE PSEUDOSHOW TOOL

3D MODELING

EMIGMA's tools for 3D modeling of both Resistivity and IP are exceptional. The solutions are stable for electrodes near or inside anomalies; they are fast and accurate and on the IP side include many of the physical effects unavailable in other applications. With EMIGMA, you can model the so-called EM effects, off-time or out-of-phase resistivity contrast effects and you can also obtain MIP solutions.

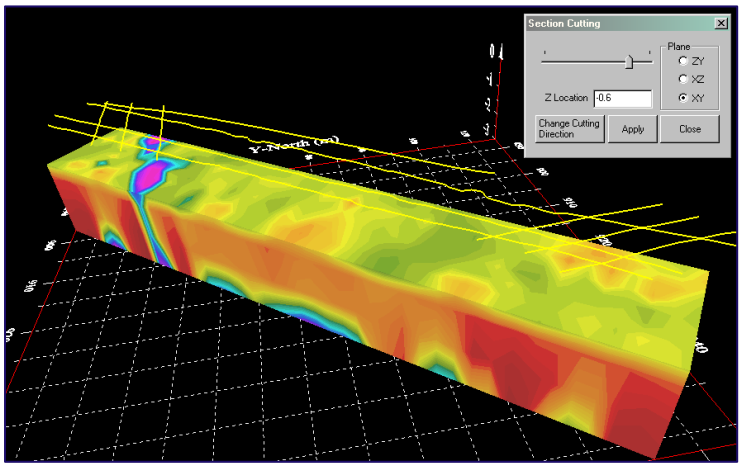
- Fast and accurate 3D simulations: model suite generation and batch mode
- Unlimited prism, plate and polyhedra targets
  e.g. pipes (hollow cylinders with or without lids), ellipsoids, shells, bullets, landmines, drums, spheres, general polyhedra...
- Multiple body interactions
- Modeling of topography effects
- Frequency- and time-domain IP
- Magnetic effects in IP/Resistivity data
- Variations in resistivity and Cole-Cole parameters
- Ability to handle full contrast between host and bodies
- Interactive 3D model building tool

3D RESISTIVITY INVERSION

- Supports dipole-dipole, pole-dipole and pole-pole surveys
- User defined starting model and inversion parameters
- Output model resistivity constraints

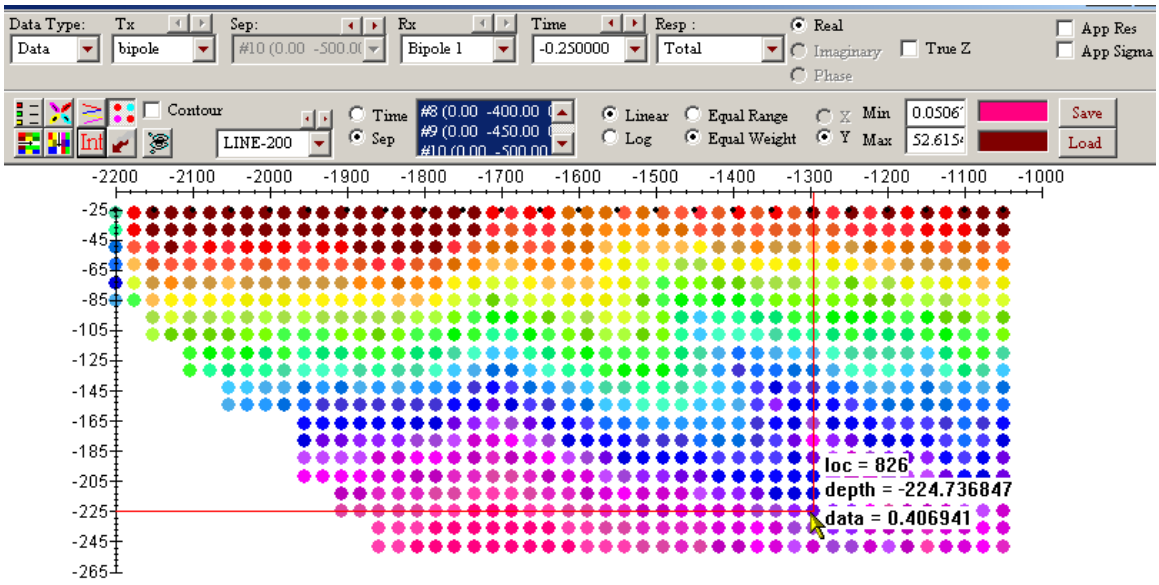
1D Resistivity INVERSION

- Resistivity depth inversions and 3D volumes
- Smooth Occam technique with fixed layer thickness
- Underparametrized Marquardt technique with full resistivity and thickness constraints
- User defined starting model and inversion parameters
- Two forward techniques



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 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