EIKON TECHNOLOGIES

**EMIGMA V11.x Premium and Professional Series**

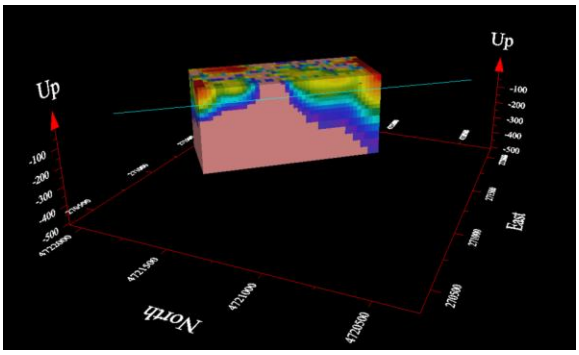
## EMIGMA for Resistivity/IP/MIP/MMR

***2025***

The Resistivity/Induced Polarization package is part of EMIGMA Premium Complete or Ground Complete or as a standalone product. It allows for a wide-rage of survey configurations (*e.g.* dipole-dipole, pole-dipole, pole-pole, gradient, surface-to-borehole, cross-hole, Schlumberger and Wenner arrays). The forward modeling capabilities are unparalled, including all the responses of a grounded source including strong resistivity contrasts, IP effects of host and background, EM effects, and magnetic effects. The application offers 3D Inversion for Resistivity for all configurations. 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/MMR and Ground to Surface data

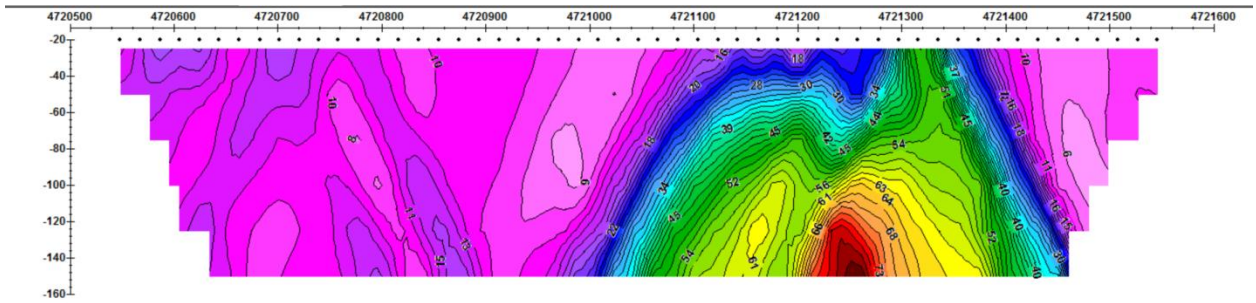
Cross-hole is available as an extension




**3D Resistivity Cross Section**

## SURVEY DESIGN

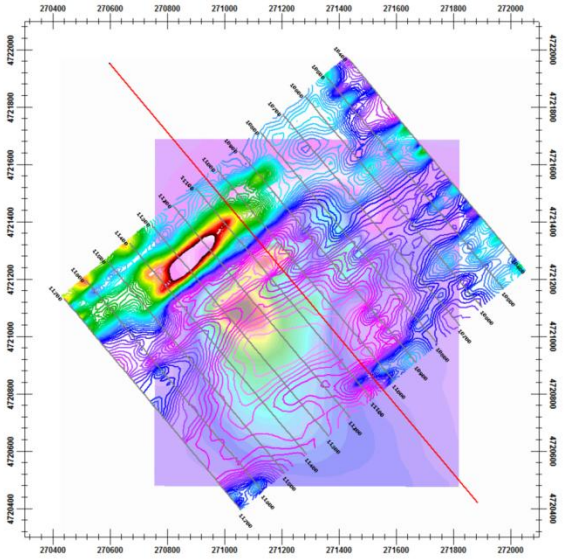
- Dipole-Dipole, Pole-Dipole, Pole-Pole, Gradient (arbitrary geometry)
- Wenner, Sclumberger
- Up to 100 N-spacings allowed
- Single Profile (2D) or multi-profile (3D) surveys allowed
- Surface to Borehole and Borehole to Borehole and inHole surveys
- DC data, frequency domain or time domain
- Crosshole Radio Imaging – electric or magnetic antennae to 1.2MHz




**Inversion Section**

## DATA IMPORT

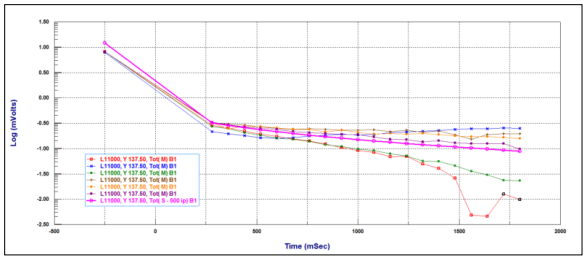
- Time Domain IP - IRIS , Scintrex IPR10/11/12, GDD and Phoenix formats or as a generic ASCII text columnar formats from QCTool
- Frequency Domain IP**,**
  (native Zonge .or Phoenix or ASCII text format)
- Resistivity Data (Zonge, SYSCAL, generic ASCII XYZ)
- Xhole and Surface to Borehole geometries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

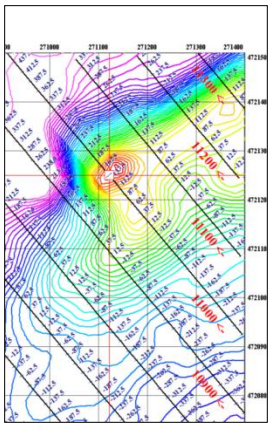


**Apparent Resistivity with magnetic data underlay**

## 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



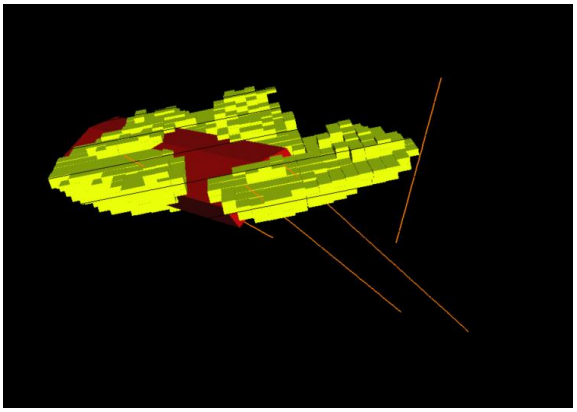
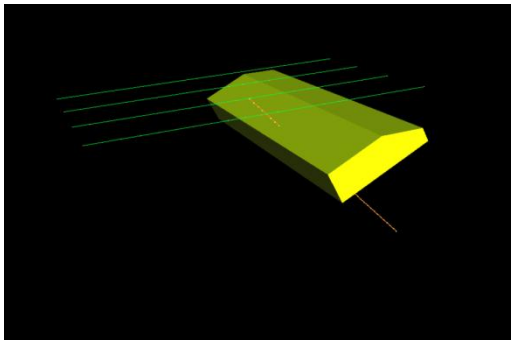


Expansive Plotting Capabilities

## 3D MODELING

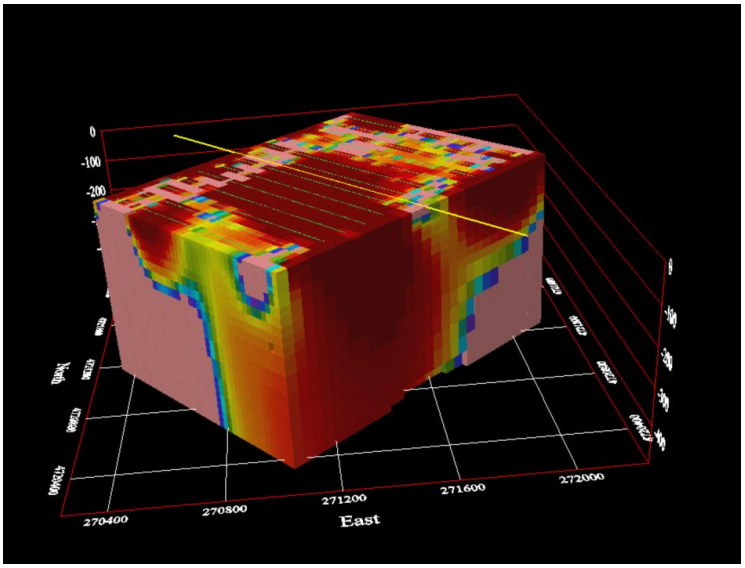
EMIGMA's tools for 3D modeling of both Resistivity, MMR, IP and MIP are exceptional. The solutions are stable for electrodes near or inside anomalies; they are fast and accurate and on the IP side include many of the physical effects unavailable in other applications. With EMIGMA, you can model the so-called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

- 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
- High frequency sphere algorithm including all magnetic 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

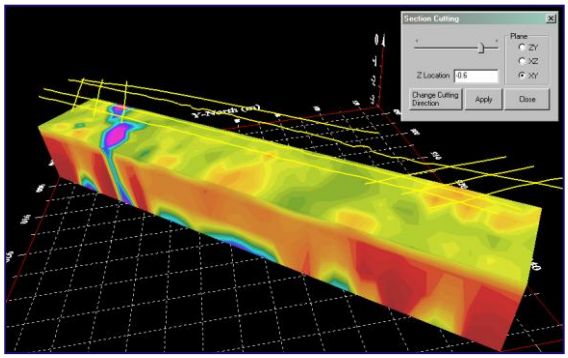
- Not just Born or potential field inversion
- Strong scattering effects
- Supports dipole-dipole, pole-dipole and pole-pole surveys
- Surface to Borehole
- User defined starting model and inversion parameters
- Output model resistivity constraints




Gradient Survey Inversion

## 1D Resistivity INVERSION

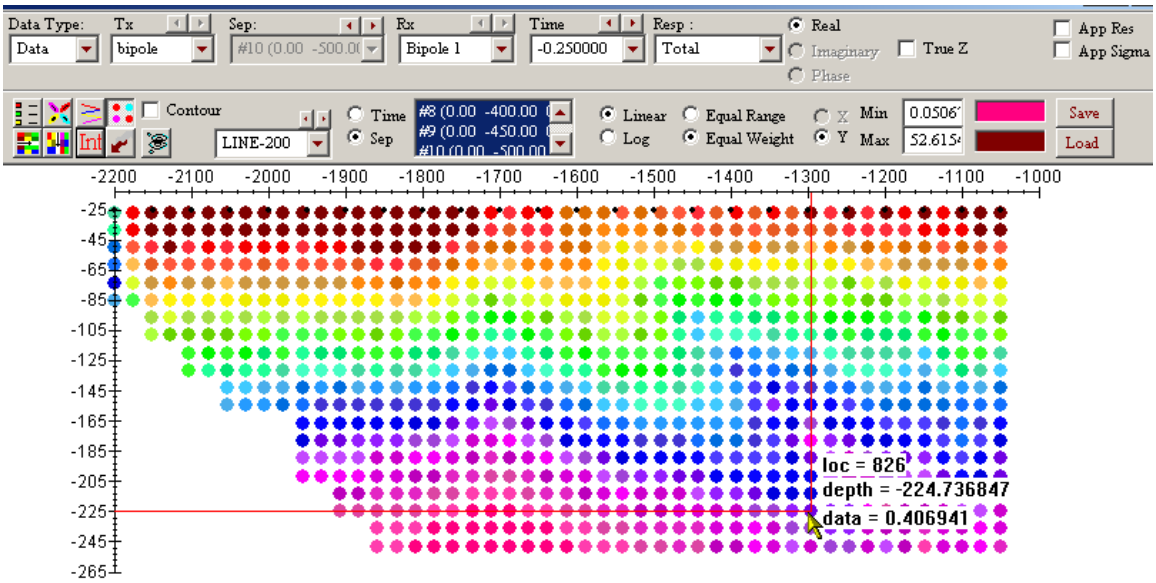
- Resistivity depth inversions and 3D volumes
- Smooth Occam technique with fixed layer thickness
- Underparametrized Marquardt technique with full resistivity and thickness constraints
- User defined starting model and inversion parameters



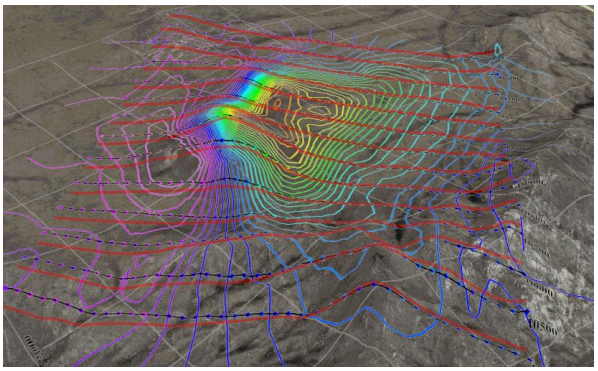

Stacked 1D Inversion Volume

## 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



**IP Response overlay on Google Earth**