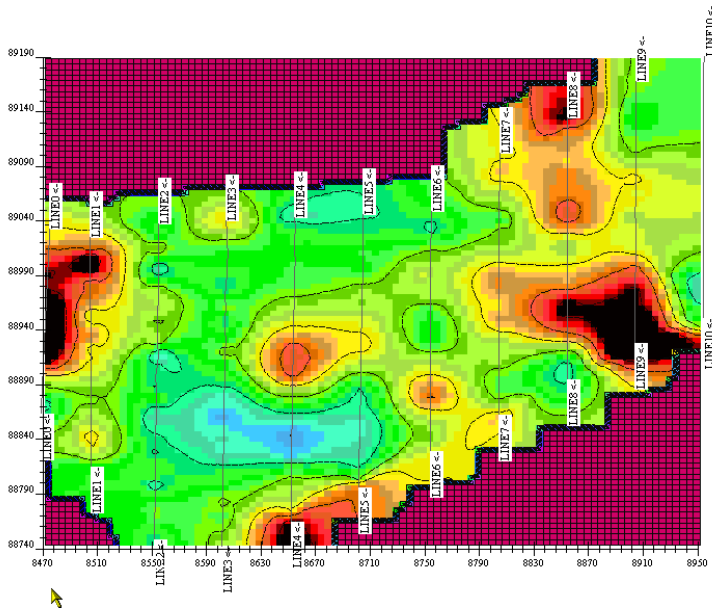


**EMIGMA for FEM**



The FEM package supports Ground and Borehole (Premium) FEM and is available as an add-on to other Premium series licenses.

Ground FEM allows for various survey configurations. Coil pairs can be horizontal coplanar (EM31/34/38, Gem2, AEM, Max-Min), vertical coplanar (EM31/34/38, Gem2), horizontal co-axial (AEM), broadside co-axial (fixed-wing AEM, EM38), null-coupled (DualEM), vertical co-axial plus virtually any configuration that you may desire. The transmitter and receiver can be housed in the same case or separated by 10s to 100s of meters. Depending on the system, single or multiple frequencies are sampled. Borehole FEM includes both fixed and moving configurations. The transmitter is either a large loop set on the surface ground with the receiver moved in the borehole or a dipole moved along with a 3-component receiver in the same borehole at a constant separation. The cross-hole configuration is also available.

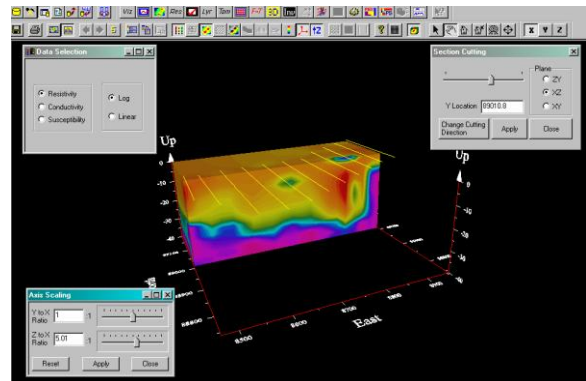
**Unlimited Survey Size!**

**DATA IMPORT**

- Data imports from ASCII files or manufacturers format

**DATA PROCESSING AND CORRECTION**

- 1D digital and spatial filters, 2D spatial filters
- Data interpolation
- Simple and weighted averaging decimation
- Data Corrector tool combining dynamic spreadsheets and line plotter for data cleaning, missing data interpolation and simultaneous plotting of different data channels for fast cross-analysis



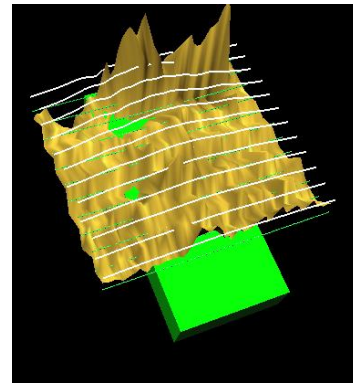
- ProfileModifier for analyzing and cleaning up your survey points and quick data overlays

## DATA DISPLAY AND ANALYSES

- Grids: Natural Neighbor, Delauney Triangulation, Shepard, Minimum Curvature and Thin-Plate-Splines
- Display of Apparent Resistivity as a surface or spatial contour
- Display of 3D inversion models sliced and diced in the 3D Visualizer
- PEXShow tool - 2D representation of geoelectric sections
- Contours: 2D and 3D surfaces
- Line plots
- Easy comparison of inversion to data or model to data
- Residual plots
- Model removal from data for enhanced anomaly imaging

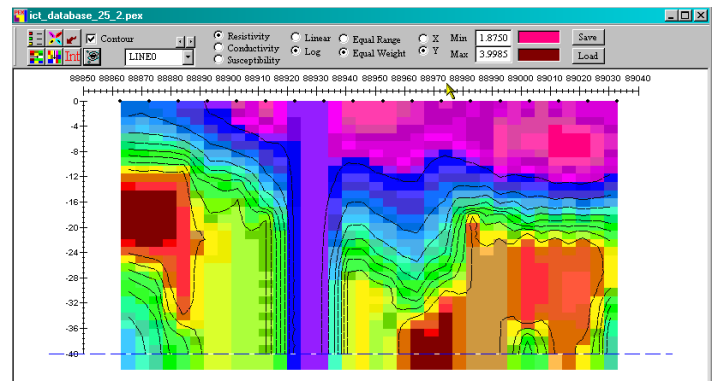
## 3D MODELING

- Fast and accurate 3D simulations: model suite generation and batch mode
- Unlimited prism, plate and polyhedra targets  
*Polyhedra: pipes (hollow cylinders with or without lids), ellipsoids, shells, bullets, landmines, drums, spheres, general polyhedra...*
- Multiple body interactions
- Modeling of topography effects
- Modeling of magnetic effects in EM data
- Ability to handle full contrast between host and bodies
- Interactive 3D visual model building tool



## 1D INVERSION

- Multi-Component and/or Multi-Frequency inversions, Inphase/Quadrature or Quadrature only
- Three algorithms to choose from
- Smooth Occam resistivity inversion with fixed layer thickness
- Smooth Occam joint susceptibility/resistivity inversion with fixed layer thickness with user defined starting models



- Underparametrized Marquardt inversions – invert for thickness and/or resistivity
- User defined starting models

- User defined parameters for inversion
- Full resistivity and thickness constraints
- Spatial smoothing capabilities
- Suite of minimization techniques
- Incorporation of GPS\_Z information

## CDIMAP

- Apparent Resistivity Tool – a half-space mapping technique for generating apparent resistivities as a function of frequency
- Sengpiel Depth-Sections – a resistivity pseudosection technique for generating resistivities as a function of pseudo-depths ( only airborne)

## EXPORTS

- Export of images to postscript files, raster or Geotiff formats
- Export of modeled, inverted, processed data or grids to XYZ ASCII files
- Geosoft exports
- GeoTutor exports
- Scalable or unscalable hardcopies

