EiKon NEWS - May 2002

Archive: **May 2002**

Introducing EMIGMA V7.5

Development on EMIGMA has progressed at a rapid level this year. We are excited to announce the release of our latest version V7.5 Premium Edition. Please see page 2 for a complete product description.

Development Focus for 2002

EiKon Technologies has plans to develop a number of new tools for magnetics and gravity data including:

- Develop a suite of advanced magnetic processing techniques with gradients
- Use gradients to enhance our 3D magnetic inversion and forward modeling
- Continue research on data griding
- Handle measured and derived vector data
- Further develop remanent magnetization

Look forward to the following features currently in development

- Ability to define a susceptibility or resistivity gradient inside your polyhedras
- 1D TEM inversions with volume display
- 3D Resistivity inversions
- V7.5 training materials

One of our greatest strengths is our expertise in algorithm development. We have and will continue to use these skills to develop interpolation algorithms to optimally represent your geophysical data, with a focus on the presentation of 3D data.

- Continue development of volume interpolation for data viewing of
    - 3D Inversions
    - Multi-line 1D Inversions
    - Any multi-line data with multiple time channels, separations or frequencies

We are also using our expertise in digital processing to link closer to the data acquisition stage to provide a processing stream to enhance data quality.

Feedback

We welcome your feedback and comments as they help to make a better product for all.

Training

We are offering training courses this summer on our EMIGMA V7.5 Premium edition. Please contact Danielle Parker to schedule training for your group.

From EiKon Technologies

EMIGMA V7.5 Complete Premium

3D Interpretation Platform for Mag, EM, IP, VLF, Resistivity, MT and CSAMT

State-of-the-art 3D Visualization, 2D and 3D Griding and Interpolation.
Fast and Accurate 3D Simulations over a wide range of geological scenarios.
Flexible and intuitive user interface. 1D+3D Inversion.

DATA MANAGEMENT

Data Imports

- Easy-to-use calibrated data imports from your ASCII files or manufacturers format
- Allows direct interactive modeling of your airborne, surface and borehole data
- Export xyz files

NEW: UTM coordinates with up to 4 significant digits
NEW: import all your data types from a Geosoft grid files
NEW: import Gravity data
NEW: export to Geosoft grid file

Data Management

- Access Database backbone
- Large data set handling software engine

NEW: data statistics
NEW: Line breaking tool for streamed data

Data Processing/Filtering

NEW: Smoothing and decimation
*NEW: *FFT (Fast Fourier Transforms)* * for licensed users of Mag Processing tools only*
*NEW: *High-pass and low-pass filters*
*NEW: *Reduction-to-the-pole, Analytic signal, etc*
*NEW: *Upward and downward continuations*

Data Extraction

NEW: graphically extract data segments

Data Correction

- **Remove bad data points, reverse sign, apply shifts, multiply, etc, etc**

NEW: Dynamic Spreadsheet/Line Plot view

DATA DISPLAY/ANALYSES

3D Mapping

- View your data in 3D space, as profiles, vectors, true 3D surfaces or contoured surface with your 3D structure representation
- Allows detailed analyses of anomaly position, shape and amplitude
- View up to three data channels

2D/3D Contouring

- Grid and Contour your data and residuals with advanced Natural Neighbor, Delauney Triangulation Shepard & True-to-Data Griding
- Generate Pseudo-Sections, Depth Images and Bostick Transformations

*NEW: *Gradient-enhanced griding when measured magnetic gradients are available*
*NEW: *Derive gradients from total magnetic field data*
NEW: 3D volume contours of your 1D and 3D inversions with slicing/dicing tools.

Line Plotting

- Comprehensive XY Plotter for plotting your data, decays, positions and fiducials

  NEW: automated gradient, vector and TMI plotting

- Plot to scale
- Multiple plots per page
- Save plotting defaults for rapid plotting of model suites

GUI Interface - Innovative, Intuitive User Interfaces for Windows 95/NT/98/2000

3D MODELING

Modeling for Magnetics, VLF, IP, EM and Resistivity
Rapid modeling within a full contrast range from massively conducting targets within a resistive environment to resistive targets inside a conducting earth, for unlimited plate, prism and polyhedra anomalies.

MAGNETICS
full 3D magnetics modeling including demagnetization effects, magnetic channeling and magnetic body interactions. Accurate for both small and large susceptibilities.
NEW: faster 3D magnetic modelling
NEW: include remanent effects and derivatives.

IP/RESISTIVITY 3D modeling including EM effects for frequency and time domain.
TEM 3D modelling including Mag effects for Fixed/Moving Large Loop - Crone, Geonics, UTEM, Sirotem etc.., GEOTEM, Questem, Zonge, 3D Borehole.
FEM 3D modelling for Max-Min, Horizontal Loop, Airborne Systems - Dighem, High Sense etc..., Melis System - for dipole, bipole and loop transmitter and receiver configurations.

Includes a model building tool in 3D space
Modeling capabilities include variations in resistivity, Cole-Cole parameters and permittivity

ENHANCED MODELING

- Topography and Polyhedra Primitives - model complex geological anomalies and topography for more realistic modeling.
- Volumetric Induction Modeling - Model conductors with volume ILN prisms.

  NEW Polyhedras: pipes (hollow cylinders with or without lids), ellipsoids, shells, bullets, landmines, drums, spheres, prisms, plates, general polyhedras...

- Model Suite Generator - Rapidly build layered earth and plate model suites varying resistivities, thicknesses, strike, strike length, dip, dip extent, plunge and conductance.
- Super Engine - model large data sets

1D FEM/MT/CSAMT and Resistivity INVERSION

Generate Conductivity Depth Sections and 3D Volumes with slicer/dicer capabilities

- Multi-layer Inversions (up to 19 layers of non-uniform thickness)

- Use all frequencies, inphase and quadrature, and coplanar and coaxial components
- Include susceptibility effects with our joint Susceptibility/Apparent Resistivity Inversion

TEM PSUEDO INVERSION

NEW: Contour your TEM decay constants for pseudo inversion

3D MAGNETICS INVERSION

Generate 3D volume models of susceptibility from your magnetic data with linear and non-linear inversion tools:

- Full 3D grided inversions

  NEW: Magnetization Vector Inversions

- Optimization & Direct Matrix Inversion
- Physical sensitivity functions
- Iterative non-linear solutions
- Iterative born approximations
- Suite of minimization techniques
- removal of non-susceptible cells