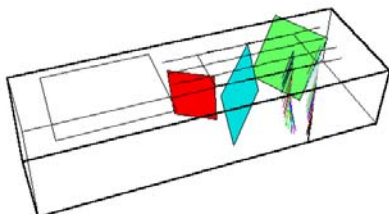
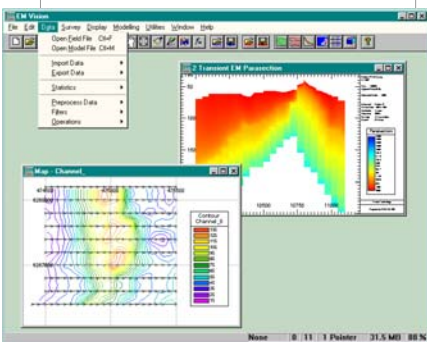
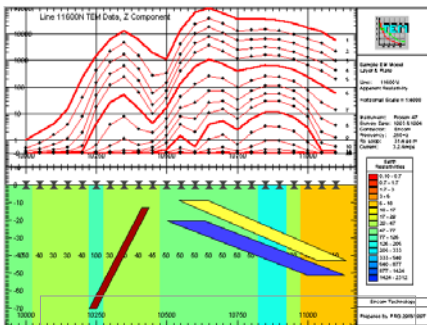
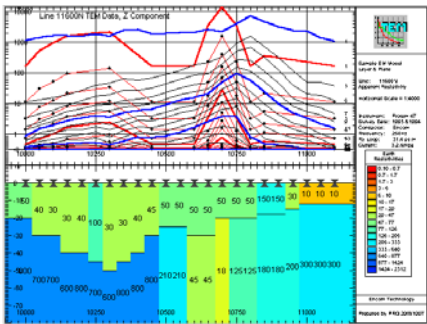




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**EM Vision** is an interactive software product for displaying and interpreting transient EM data. The software is the result of collaborative research by CSIRO (The Commonwealth Scientific and Industrial Research Organisation), Encom and the exploration industry through AMIRA (Australian Minerals Industries Research Association Ltd).

**Increased Functionality**

EM Vision operates under Windows® with flexible options for data display and interpretation.

**Data and Survey Control**

Data can be input from standard EM instrument files or located AMIRA format files. EM components and multiple traverses can be read. Survey configurations such as borehole, fixed loop, in-loop, coincident loop and slingram are supported. Selection criteria for the processing of repeat readings is provided via a spreadsheet interface linked to graphical displays of the data.

Other pre-processing options include half-space removal, convolution and FFT filtering and loop effect corrections.

**Definable Instruments**

EM Vision supports a wide range of standard instruments. Included are SIROTEM Mk 2 and 3, EM-37 and PROTEM, Crone, Zonge GDP-xx and ARTEMIS. In addition, it is possible to define instruments by a configurable transmitter waveform and receiver delay time file defined graphically or by text.

**Flexible Views**

Data can be displayed as log-log or log-linear profiles, stacked profiles, contour maps and pseudosections of voltage, apparent resistivity and conductivity. Graphically selected individual readings can be displayed as decay curves and

analyzed by power, exponential and linear fits. Batched profiling enables large survey jobs to be displayed and printed with titles and annotation.

**Powerful Modelling**

Forward and inverse EM modelling are provided. Forward modelling offers plates, block models or layered earths while inverse modelling is available for layered earths. Three-component EM borehole or surface modelling is supported.

Real time graphics displays of observed and computed responses (or apparent resistivities or conductivities) are presented during layered inversion. If inappropriate inversion seed models are initially selected, the inversion can be halted, the model revised, and inversion re-initiated.

Comparisons between theoretical and observed data responses are easily created using various displays.

The EM Vision Display and Analysis core module can be used with the following options:

**Multi-Layer Modelling**

Forward and inverse modelling of real and complex layered earths

**Multi-Plate Modelling**

Simulation of responses from multiple coupled and uncoupled targets in air and layered earths

**Block Modelling**

Fully coupled multiple 3D blocks in a multi-layered complex earth host

**Downhole Modelling**

Single or 3-component vector data with modelling for coupled and uncoupled plate conductors in air or layered earths

**Data Import**

- Industry standard AMIRA format support
- Standard instrument files - SIROTEM, EM-37, PROTEM (analogue or digital), Crone, Zonge GDP-xx and ARTEMIS
- Support for up to 256 data channels
- Support for B and dB/dT data
- Grid import from ASEG-GXF, Geosoft, Geopak, ER Mapper and Encom
- Work session files
- Backdrop Encom EGF and HPGL plot files

**Data Processing**

- Review and edit data files with an easy-to-use spreadsheet tool
- Repeat reading options - user select, last, first, average, median, and select by standard deviation
- Half-space calculation
- High, low, band pass, Fraser and Hilbert filters
- Arithmetic operations between channels and data sets
- Instrument data conversions
- Decay curve and residual curve fitting using power, exponential and linear functions

**Survey and Instruments**

- Standard survey configuration support for in-loop, fixed, coincident, slingram and borehole
- Instrument specifications for SIROTEM Mk 2 and 3, EM-37, PROTEM, Crone, Zonge GDP-xx and ARTEMIS
- User definable instruments supported
- Instrument specifications include decay times, initial delay, ON/OFF time, rise times
- Transmitter and receiver waveforms can be defined graphically or by text editing

**Data Display**

- Log-log and log-linear profiles with channel selection
- Control over line styles, scaling, colours, symbols etc
- Decay and apparent resistivity displays for individual, graphically selected readings
- Contoured maps of selected channel voltage, apparent resistivity, dB/dT or conductivity
- Depth slicing using conductivity or resistivity derived depths
- Pseudosection displays of voltage response, apparent resistivity or conductivity-depth sections
- Optional image or posting of data
- Stacked profiles of voltage or resistivity for selected channels
- Vector displays of theoretical and borehole component responses
- Log displays of borehole EM responses
- Batch control of profile printing with titling and annotation
- Variable substitution to provide intelligent plot file creation

**Forward Modelling Features**

- Graphical or menued plate and layer positioning
- Perspective and section/plan views for plate and layer models
- Compute on demand with algorithm selection
- Comparative displays of theoretical responses with observed data in profiles, contours or decays

**Inverse Modelling Features**

- Graphical or list selection of readings and channels for input control
- Batched computation or compute on command
- Real time comparison of decay voltage or apparent resistivity during iterations
- Inversions can be halted if the model is inappropriate
- Models can be revised and the inversion re-initiated

**Optional Modelling Algorithms****SPASYM**

- Forward modelling of a sphere in air or in a conductive half space
- For Coincident Loop and In Loop configurations

**PLASI**

- Forward modelling of multiple, uncoupled plates in air using a single eigencurrent
- For Coincident Loop, In Loop, Fixed Transmitter, Slingram and Downhole configurations

**OZPLTE**

- Forward modelling of multiple uncoupled plates in air using multiple eigencurrents
- For Coincident Loop, In Loop, Fixed Transmitter, Slingram and Downhole configurations

**LAYER**

- Forward modelling of layers & complex earths
- For Coincident Loop, In Loop, Fixed Transmitter, Slingram and Downhole configurations

**GRENDL**

- Forward and inverse modelling of layers
- For Coincident Loop and In Loop configurations

**BEOWLF**

- Forward and inverse modelling of layers & complex earths
- For In Loop, Fixed Transmitter and Slingram configurations

**LEROI**

- Forward modelling of multiple, coupled plates in a two-layer earth
- For Coincident Loop, In Loop, Fixed Transmitter, Slingram and Downhole configurations

**MARCO**

- Forward modelling of multiple coupled blocks in a multi-layered earth
- For Coincident Loop, In Loop, Fixed Transmitter, Slingram and Downhole configurations

**Acknowledgements**

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