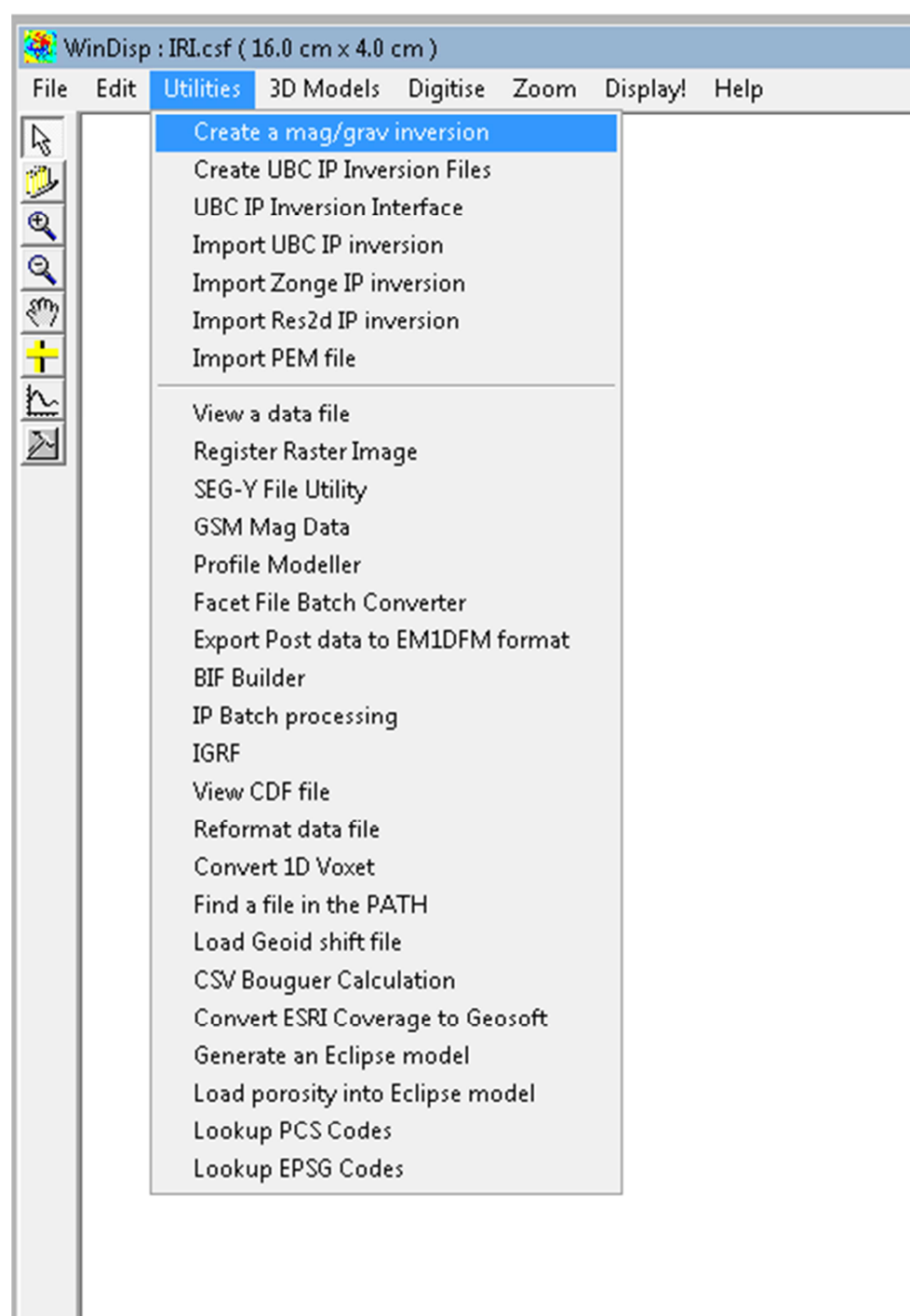


Utility Functions



1. Create Mag/Grav Inversion

3D Mag/Gravity Inversion Setup Utility

File Change Working Directory Switch to Refinement Mode

Parameters Observed Data Topo Data Mesh Create Inversion

Inversion Parameters

Inversion Method: 7: SciComApp MGINv3D Data type: 1: Magnetic

Inversion Mode: Normal 3D

Magnetic Field

Intensity: 0.0 Inclination: 0.00 Declination: 0.00 Calculate IGRF

Depth Weighting

☒ Default ☐ Specified Weighting

Wavelet Compression

☐ Default ☒ Specified Wavelet: daub4 itol: 1 eps: 0.001

Inversion Iteration Parameters

Misfit/Smoothness Trade-off: 1 Maximum iterations:

Alpha Method: Alpha ☐ Default ☒ Specified East: 1 North: 1 Depth: 1 Smallest: 0.0001

Initial Model: null

Reference Model: null

Weighting Matrix: null

☐ Create weighting file Weights: 16,8,4,2,1

Model Bounds

Model Bounds File: null Positivity: Default

Background Removal Method

Background method: None Den/susc value: 0.0000 Base Topo: 0.0

Rock properties lookup table

Properties table: Apply to: Both reference and bounds

Define Coordinate Transform ☐ Generate Inversion Variation Run

2. Create IP Inversion

UBC IP data variable options

Options

Data Column: Apparent Resistivity (obs) (ohm.metre)

Channel Contains: Resistivity

Multiply data value by: 1

Output threshold value: 0

☒ Data Uncertainty = 5 % of data Value

Error Floor: 0 Error is voltage ☐

☐ Data Uncertainty = Error is percentage ☐

Maximum N level: Reading Sense: All

Number of cells/dipole: 2 Format: V 3.0 (Standard)

Depth mesh: 1 18 1

Depth mesh padding: 1,1,2,4,8

☒ Create weighting: 4,4,2,1 4,4,2,1

Output Directory Name: line_10600n_v2_res2d_ubc

Output File Name: line_10600n_v2_res2d_ubc

Cancel Done Create Inversion

3. UBC IP Inversion Interface

The screenshot shows the 'Parameters' dialog box for 'UBC IP Inversion for pole-dipole data'. It contains several sections for configuring the inversion process:

- Inversion Data File:** A text field with a browse button (...).
- Number of Iterations:** A text field containing '15'.
- Chi Factor:** A text field containing '1'.
- Initial Model:** Two radio buttons: 'Use Value' (selected) and 'Use File'. Under 'Use Value', there are text fields for 'Conductivity' (0.005) and 'Resistivity' (200.0). Under 'Use File', there is a text field with a browse button (...).
- Reference Model:** Similar to the Initial Model, with 'Use Value' selected and fields for 'Conductivity' (0.005) and 'Resistivity' (200.0).
- Alpha Values:** Three radio buttons: 'Use default values from DCINV2D' (selected), 'Use specified values', and 'Use dip file'. Under 'Use specified values', there are text fields for 'Alpha s' (0.001), 'Alpha x' (1), and 'Alpha z' (1). Under 'Use dip file', there is a text field with a browse button (...).
- Weight Matrix:** Two radio buttons: 'Use default values' (selected) and 'Use weight file'. Under 'Use weight file', there is a text field with a browse button (...).

At the bottom, there are tabs: 'Inversion Parameters' (selected), 'Progress of Inversion', 'Assess Results', 'Control Inversion', and 'Edit Log'. Below the tabs is a 'Display Information For' dropdown menu set to 'Resistivity', and 'Cancel' and 'OK' buttons.

4. Import UBC IP Inversion

The screenshot shows the 'Import UBC Inversion' dialog box. It is divided into two main sections: 'Inversion Files' and 'Depth of Investigation Files'.

Inversion Files:

- Resistivity/Voltage Inversion Input File:** Text field with a browse button (...).
- Resistivity/Voltage Inverted Model File:** Text field with a browse button (...).
- Resistivity/Voltage Inversion Predicted Data File:** Text field with a browse button (...).
- Chargeability Inversion Input File:** Text field with a browse button (...).
- Chargeability Inverted Model File:** Text field with a browse button (...).
- Chargeability Inversion Predicted Data File:** Text field with a browse button (...).

Depth of Investigation Files:

- Line Number:** Text field.
- Array type:** Dropdown menu set to 'Determine from file'.
- Topo Offset:** Text field containing '0'.
- Allow negative IP values:** Check box (unchecked).
- Inverted section depth:** Text field containing '0'.
- Grid Search Radius:** Text field containing '0'.
- Resistivity Contour Density:** Text field containing '0'.
- Chargeability Contour Density:** Text field containing '0'.
- Inverted Resistivity cell size:** Text field containing '0'.
- Inverted Chargeability cell size:** Text field containing '0'.
- Polygon masking file:** Text field with a browse button (...).

At the bottom, there are three buttons: 'Generate Grids and Layouts', 'Clear the form', and 'Done'.

5. Import Zonge IP Inversion

Import UBC Inversion

Zonge Data Input File

Zonge Inverted Model File

Inversion Files

Depth of Investigation Files

Line Number

Topo Offset 0 Allow negative IP values ☐

Inverted section depth 0 Grid Search Radius 0

Resistivity Contour Density 0 Chargeability Contour Density 0

Inverted Resistivity cell size 0 Inverted Chargeability cell size 0

Polygon masking file

Generate Grids and Layouts Clear the form Done

6. Import res2d IP Inversion

Import res2d IP inversion files

Res2d Inversion output file

Sensitivity cutoff 0

Iteration number 0

Line Number

Topo Offset 0 Allow negative IP values ☐

Inverted section depth 0 Grid Search Radius 0

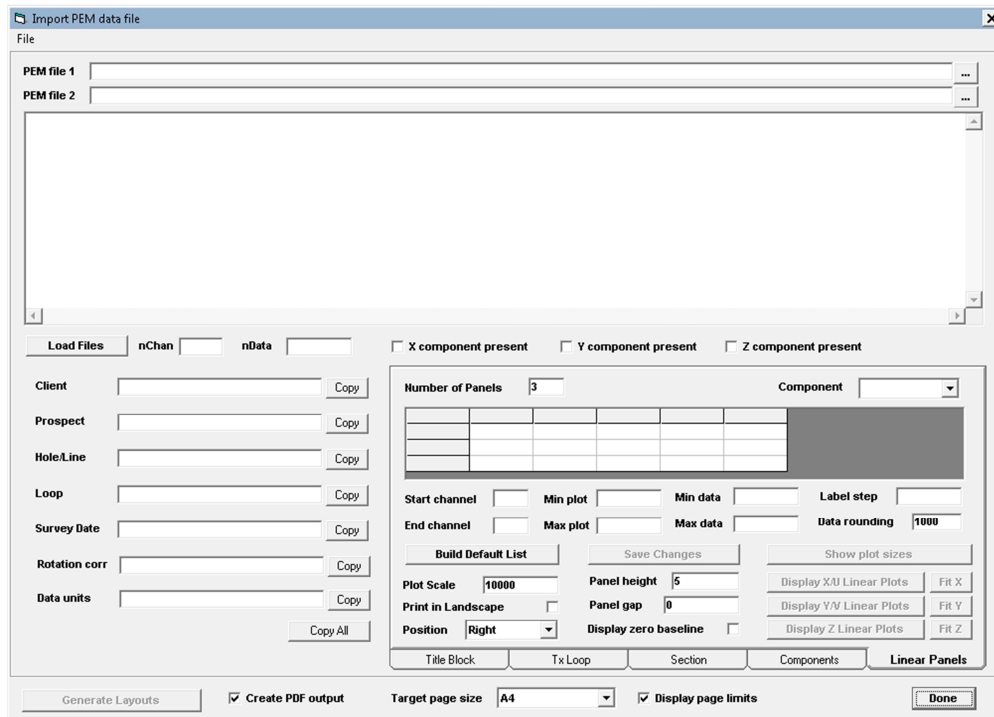
Resistivity Contour Density 0 Chargeability Contour Density 0

Inverted Resistivity cell size 0 Inverted Chargeability cell size 0

Polygon masking file

Generate Grids and Layouts Clear the form Done

7. Import PEM File



The 'Import PEM data file' dialog box is used to load and configure PEM data. It features a 'File' section with input fields for 'PEM file 1' and 'PEM file 2'. Below this is a large empty text area. The 'Load Files' section includes checkboxes for 'X component present', 'Y component present', and 'Z component present', along with input fields for 'nChan' and 'nData'. The 'Client' section contains input fields for 'Client', 'Prospect', 'Hole/Line', 'Loop', 'Survey Date', 'Rotation corr', and 'Data units', each with a 'Copy' button. The 'Number of Panels' section has a dropdown for 'Component' and a grid for panel configuration. The 'Plot Scale' section includes input fields for 'Start channel', 'End channel', 'Min plot', 'Max plot', 'Min data', 'Max data', 'Label step', and 'Data rounding'. The 'Build Default List' section has buttons for 'Build Default List', 'Save Changes', and 'Show plot sizes'. The 'Plot Scale' section also includes a 'Plot Scale' input field, a 'Print in Landscape' checkbox, and a 'Position' dropdown. The 'Display zero baseline' checkbox is also present. The 'Linear Panels' section has buttons for 'Tile Block', 'Tx Loop', 'Section', 'Components', and 'Linear Panels'. The 'Generate Layouts' section includes a 'Generate Layouts' button, a 'Create PDF output' checkbox, a 'Target page size' dropdown, a 'Display page limits' checkbox, and a 'Done' button.

File

PEM file 1

PEM file 2

Load Files ☐ nChan nData ☐ X component present ☐ Y component present ☐ Z component present

Client Copy

Prospect Copy

Hole/Line Copy

Loop Copy

Survey Date Copy

Rotation corr Copy

Data units Copy

Copy All

Number of Panels Component

Start channel Min plot Min data Label step

End channel Max plot Max data Data rounding

Build Default List Save Changes Show plot sizes

Plot Scale Panel height

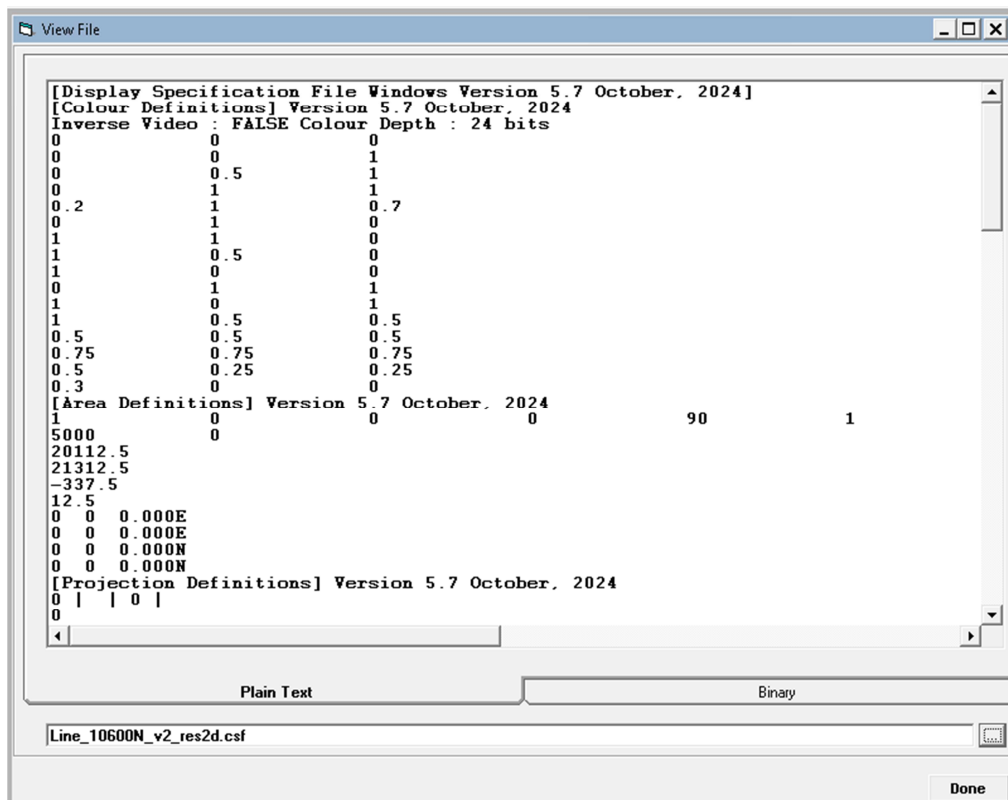
Print in Landscape ☐ Panel gap

Position Display zero baseline ☐

Tile Block Tx Loop Section Components Linear Panels

Generate Layouts ☒ Create PDF output Target page size ☒ Display page limits

8. View a data file



The 'View File' dialog box displays the contents of a data file. It shows a text area with the following content:

```
[Display Specification File Windows Version 5.7 October, 2024]
[Colour Definitions] Version 5.7 October, 2024
Inverse Video : FALSE Colour Depth : 24 bits
0 0 0
0 0 1
0 0.5 1
0 1 1
0.2 1 0.7
0 1 0
1 1 0
1 0.5 0
1 0 0
0 1 1
1 0 1
1 0.5 0.5
0.5 0.5 0.5
0.75 0.75 0.75
0.5 0.25 0.25
0.3 0 0
[Area Definitions] Version 5.7 October, 2024
1 0 0 90 1
5000 0
20112.5
21312.5
-337.5
12.5
0 0 0.000E
0 0 0.000E
0 0 0.000N
0 0 0.000N
[Projection Definitions] Version 5.7 October, 2024
0 | | 0 |
0
```

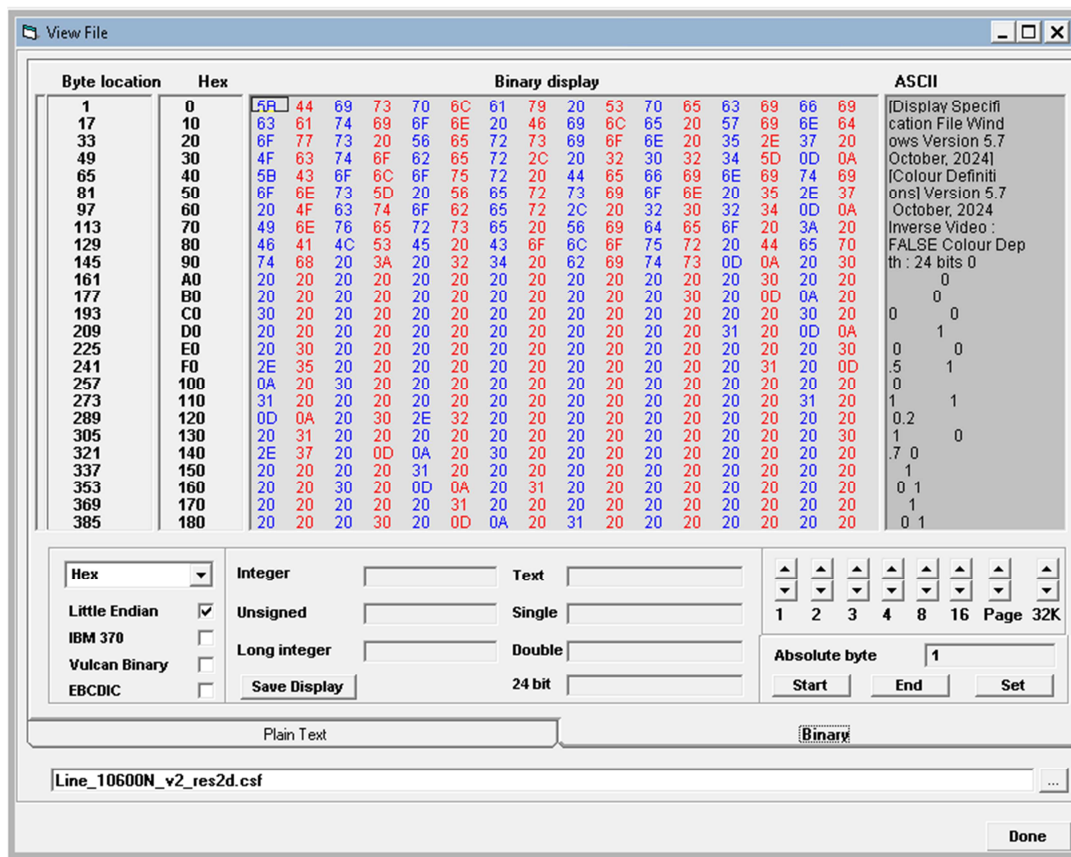
The dialog box has a 'View File' title bar and a 'Done' button. The text area is scrollable.

View File

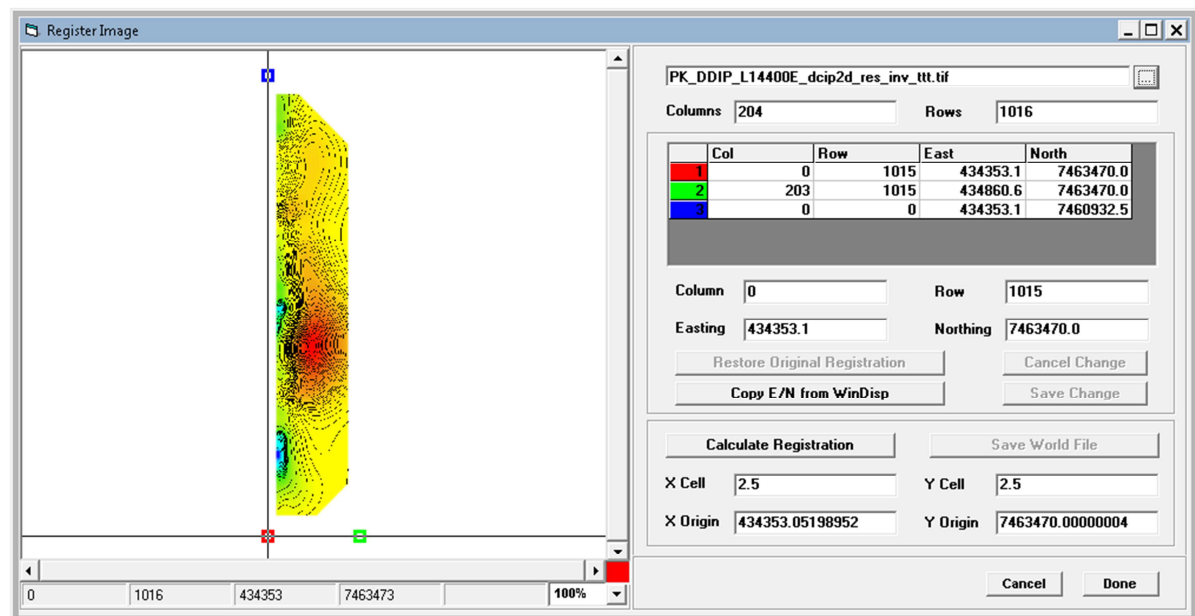
Plain Text Binary

Line_10600N_v2_res2d.csf

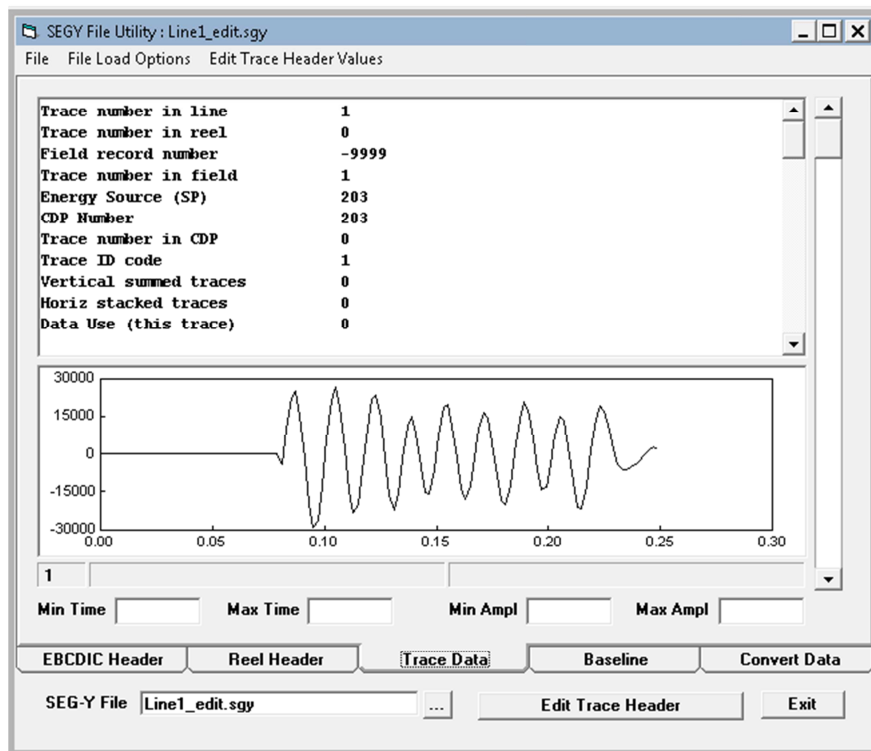
Done



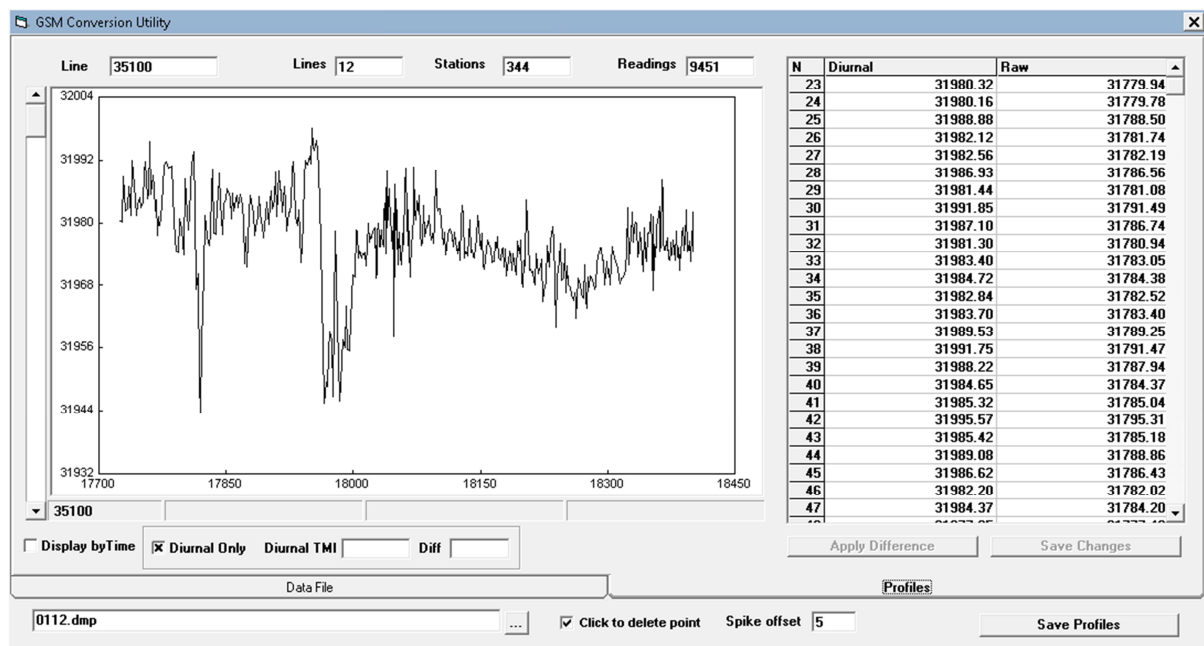
9. Register a Raster File



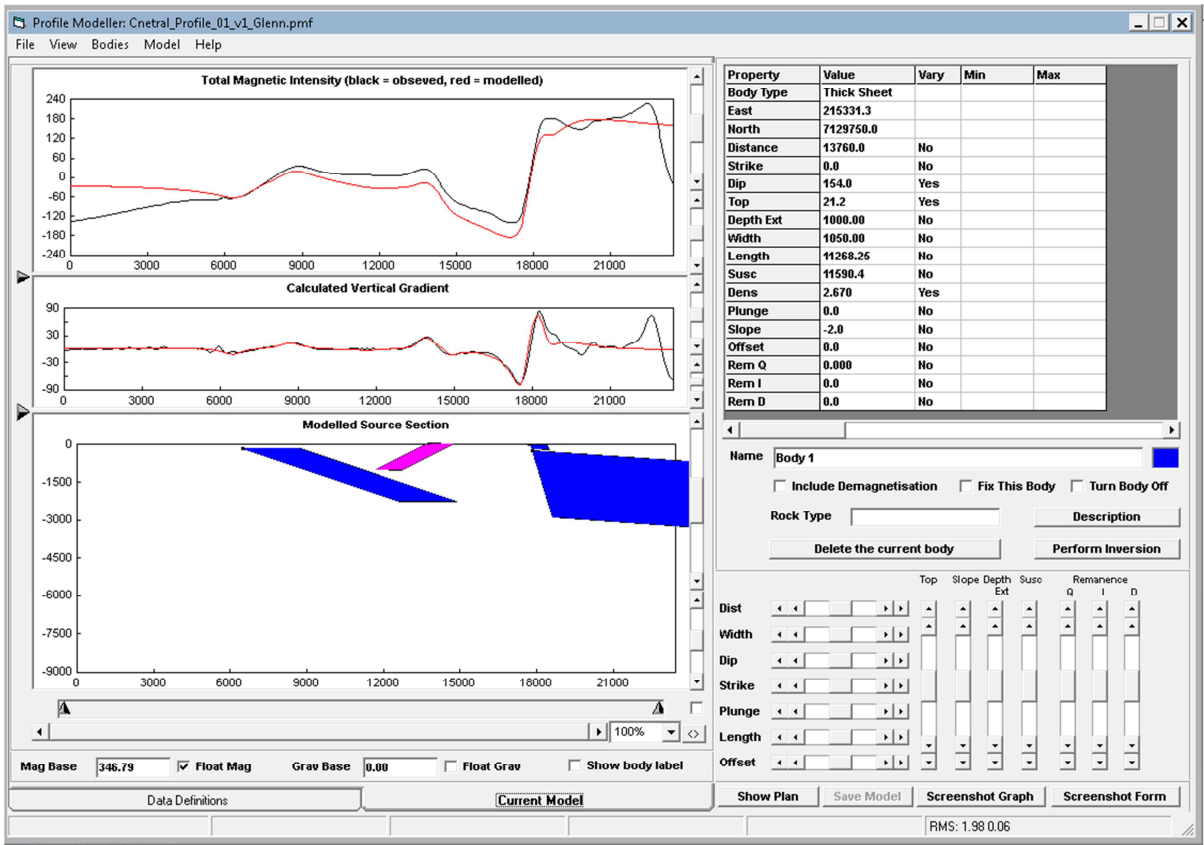
10. SEG-Y File Utility



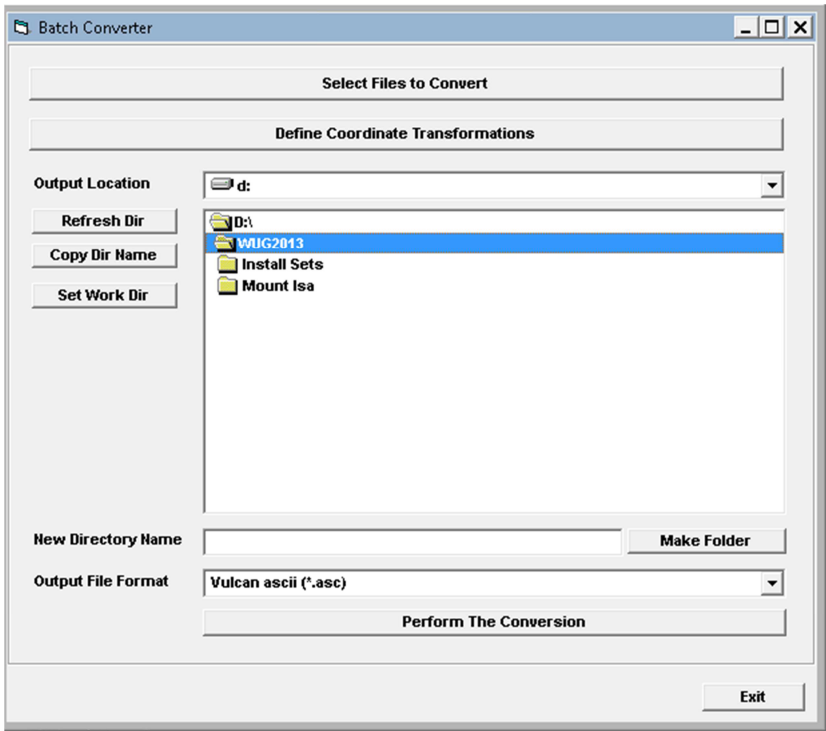
11. GSM File Conversion Utility



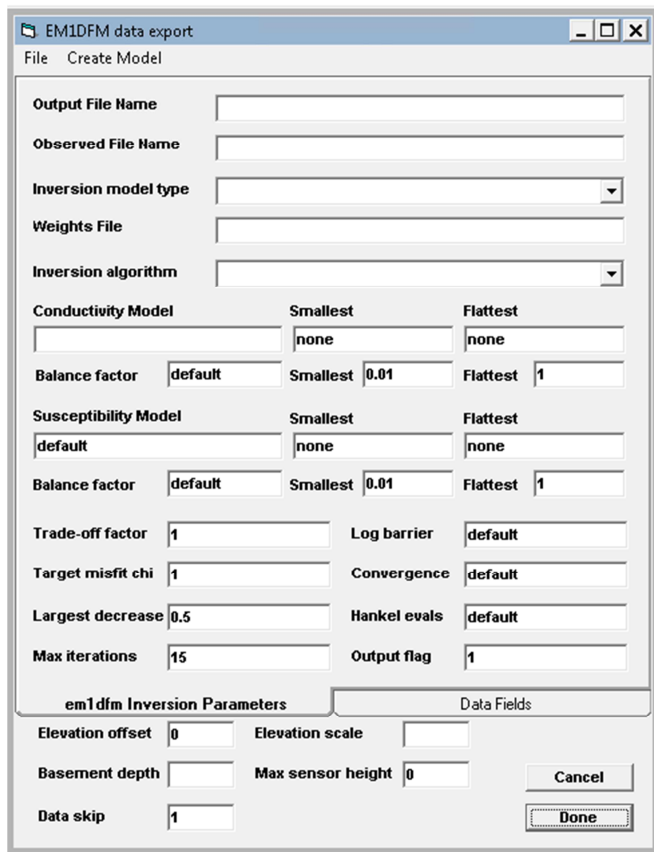
12. Mag/Grav Profile Modeller



13. Facet File Batch Converter



14. Export Posted Data to EM1D Format



EM1DFM data export

File Create Model

Output File Name

Observed File Name

Inversion model type

Weights File

Inversion algorithm

Conductivity Model Smallest Flattest

Balance factor default Smallest 0.01 Flattest 1

Susceptibility Model Smallest Flattest

Balance factor default Smallest 0.01 Flattest 1

Trade-off factor 1 Log barrier default

Target misfit chi 1 Convergence default

Largest decrease 0.5 Hankel evals default

Max iterations 15 Output flag 1

em1dfm Inversion Parameters Data Fields

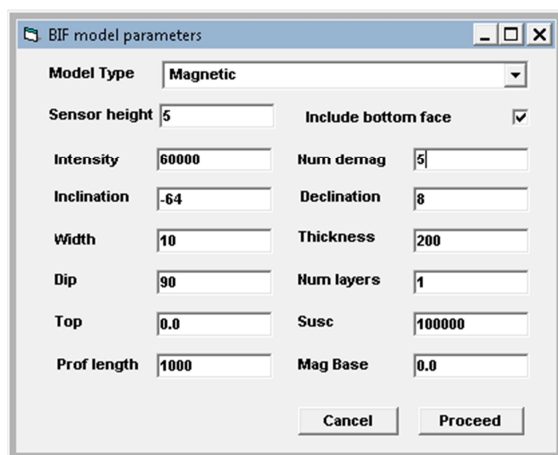
Elevation offset 0 Elevation scale

Basement depth Max sensor height 0

Data skip 1

Cancel Done

15. BIF Builder



BIF model parameters

Model Type Magnetic

Sensor height 5 Include bottom face ☒

Intensity 60000 Num demag 5

Inclination -64 Declination 8

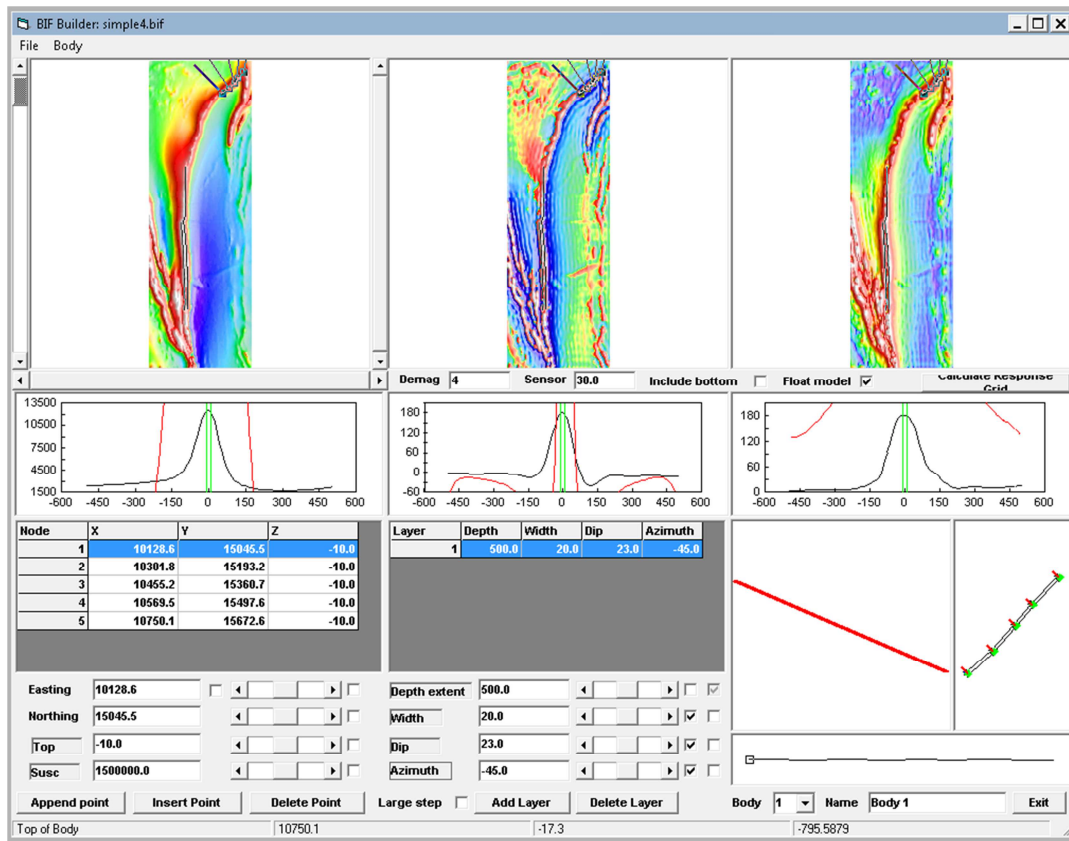
Width 10 Thickness 200

Dip 90 Num layers 1

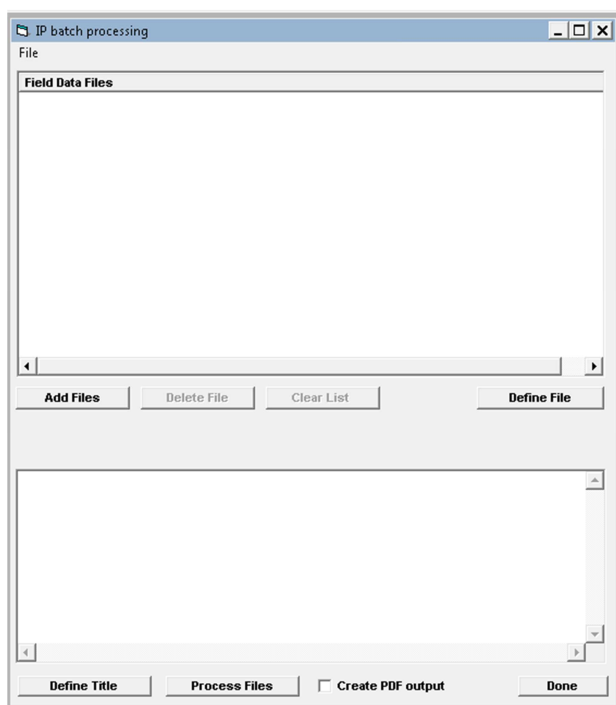
Top 0.0 Susc 100000

Prof length 1000 Mag Base 0.0

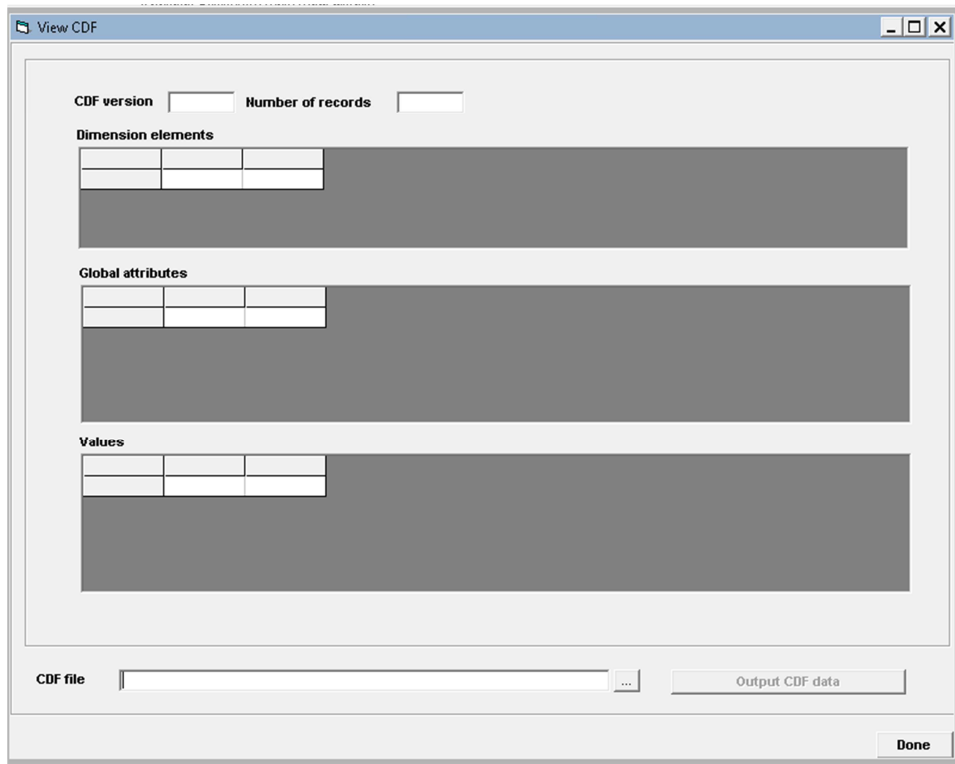
Cancel Proceed



16. IP Batch Processing



17. View CDF Files



The "View CDF" dialog box is used to view CDF files. It contains fields for "CDF version" and "Number of records", and three sections for "Dimension elements", "Global attributes", and "Values". Each section has a table with three columns and a large gray area for details. At the bottom, there is a "CDF file" field with a browse button, an "Output CDF data" button, and a "Done" button.

CDF version Number of records

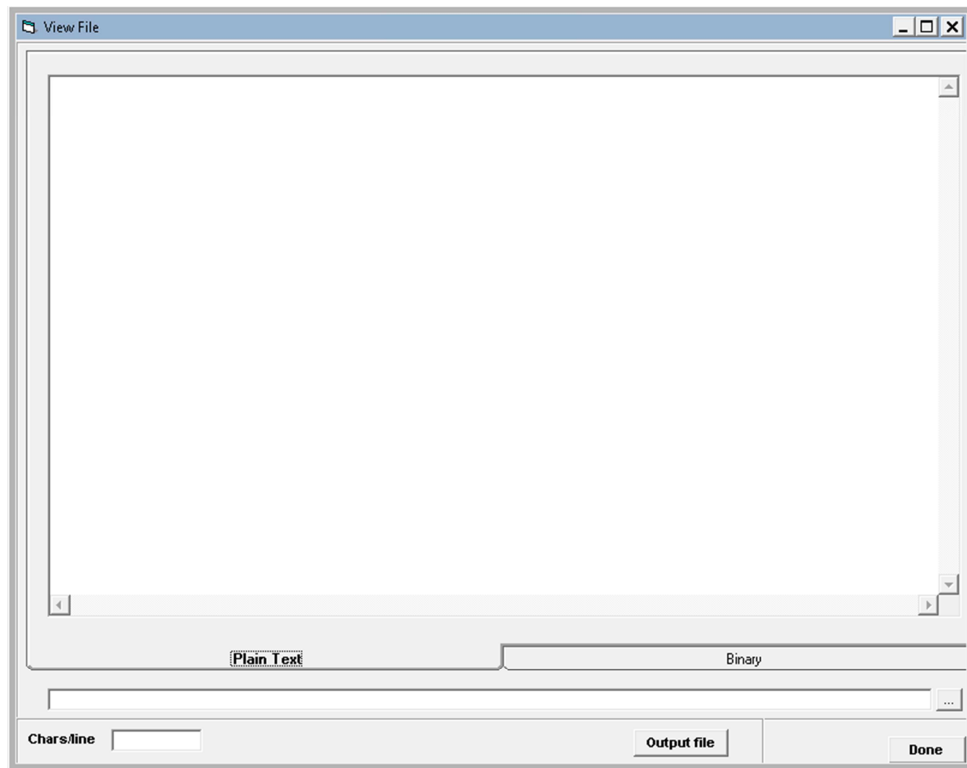
Dimension elements

Global attributes

Values

CDF file ...

18. Reformat Data File

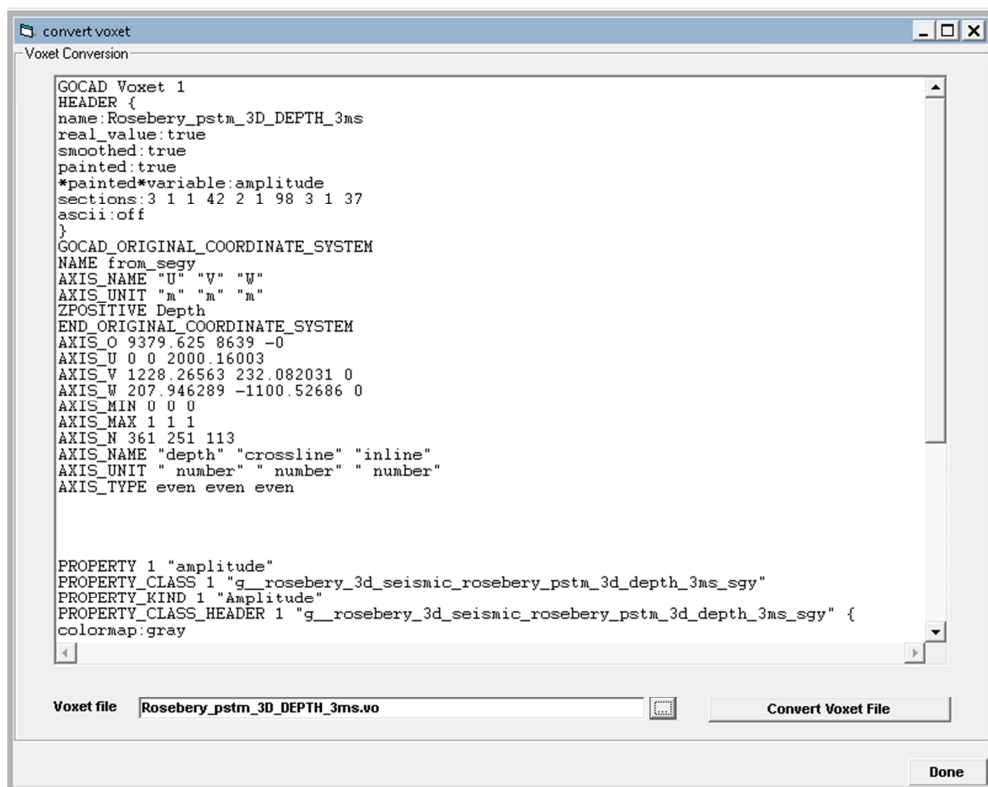


The "View File" dialog box is used to view data files. It features a large text area for the file content, a "Plain Text" tab, and a "Binary" tab. At the bottom, there is a "Chars/line" field, an "Output file" button, and a "Done" button.

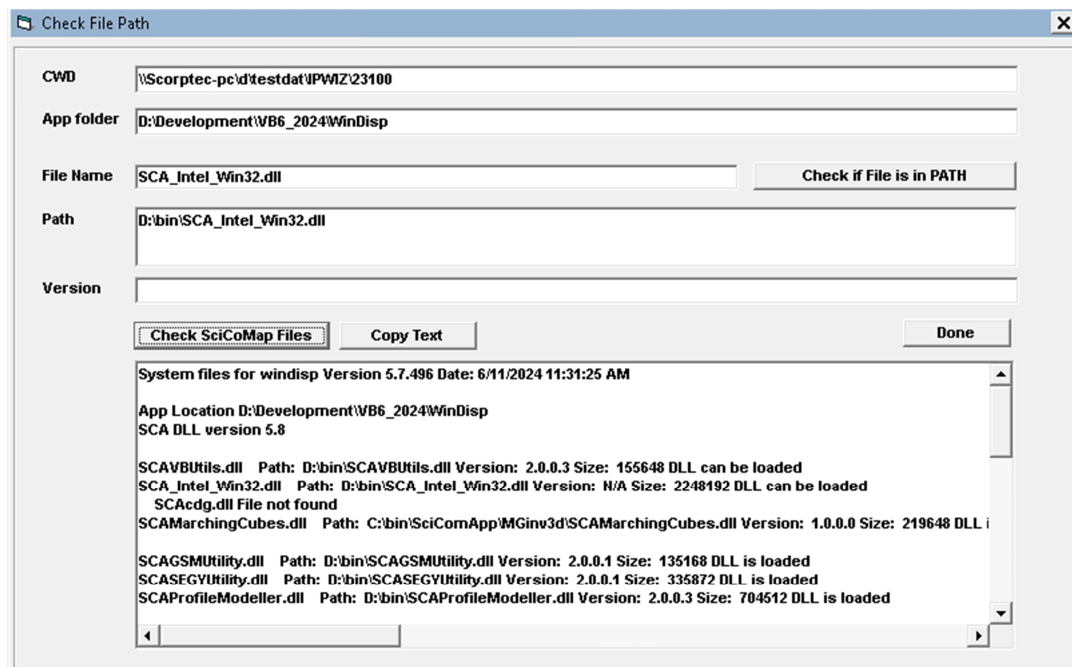
View File

Chars/line

19. Reformat 1D Voxet File



20. Find File in Path



21. Load Geoid Shift File

22. CSV Bouguer Correction

The dialog box is titled "Calculate Bouguer For data File". It contains the following fields and options:

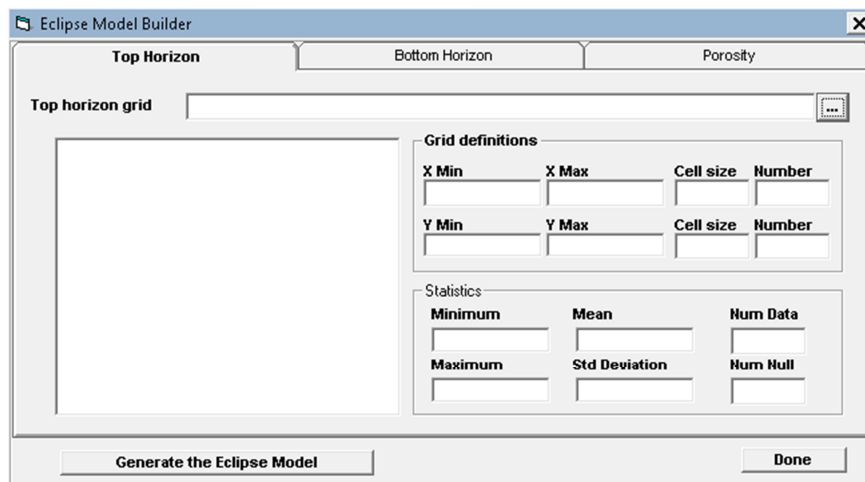
- File Name:** A text field with a browse button.
- First data line:** A text field containing the value "2".
- Line containing column names:** A text field containing the value "3".
- Latitude:** A text field.
- Longitude:** A text field.
- Calculate Projected Coordinates:** An unchecked checkbox.
- Coord Suffix:** A text field.
- Height:** A text field.
- Convert ellipsoidal to Geoid height:** An unchecked checkbox.
- Gravity datum:** A dropdown menu showing "Theoretical 1967".
- Gravity units:** A dropdown menu showing "mGal".
- Obs Theor Grav:** A text field.
- Free Air:** A text field.
- Calculate Free Air Correction:** An unchecked checkbox.
- Densities:** A text field.
- Include Atmospheric Correction:** An unchecked checkbox.
- Use Spherical Bouguer correction:** An unchecked checkbox.
- Calculate Bouguer:** A button.
- Done:** A button at the bottom right.

23. Convert ESRI Coverage

The dialog box is titled "Convert ESRI Coverage to Geosoft". It contains the following fields and options:

- Coverage Location:** A dropdown menu showing a list of folders: "Scorptec-pc\d", "testdat", "IMAGES", "ESRI", and "ESRI_Grid". The "ESRI_Grid" folder is selected.
- Bounds:** A section containing four text fields: "Min easting", "Max easting", "Min northing", and "Max northing".
- Statistics:** A section containing four text fields: "Minimum", "Maximum", "Mean", and "Std Deviation".
- Header Info:** A section containing six text fields: "Cell Type", "Blocks Per Row", "Blocks Per Column", "Block X Size", "Block Y Size", "Cell Size X", and "Cell Size Y".
- Save Geosoft Grid File:** A button.
- Done:** A button at the bottom right.

24. Generate an Eclipse Model

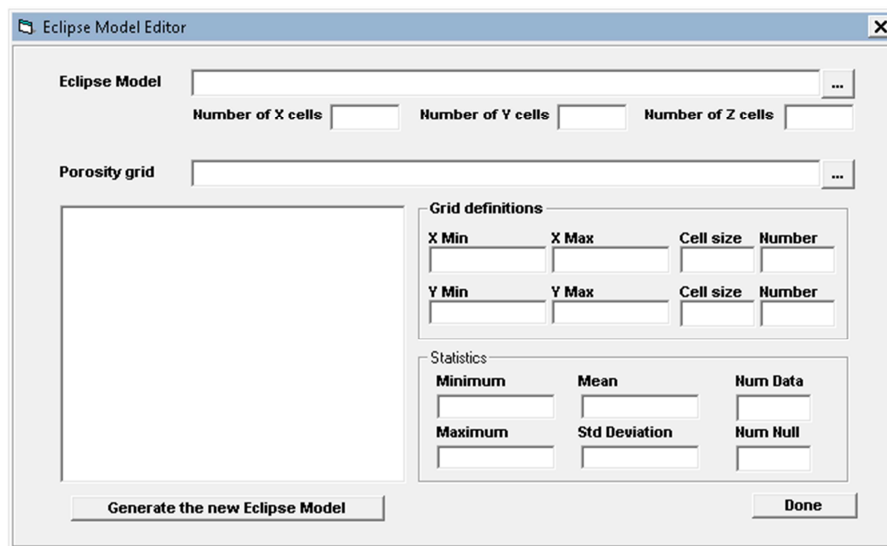


The Eclipse Model Builder dialog box is used to generate an Eclipse model. It features three tabs: Top Horizon, Bottom Horizon, and Porosity. The Top Horizon tab is currently selected. On the left, there is a large empty rectangular area labeled 'Top horizon grid'. To the right of this area are two sections: 'Grid definitions' and 'Statistics'. The 'Grid definitions' section contains two rows of input fields for X Min, X Max, Cell size, and Number, and Y Min, Y Max, Cell size, and Number. The 'Statistics' section contains three rows of input fields for Minimum, Mean, and Num Data, and Maximum, Std Deviation, and Num Null. At the bottom of the dialog, there are two buttons: 'Generate the Eclipse Model' and 'Done'.

Grid definitions			
X Min	X Max	Cell size	Number
Y Min	Y Max	Cell size	Number

Statistics		
Minimum	Mean	Num Data
Maximum	Std Deviation	Num Null

25. Load Porosity into Eclipse Model

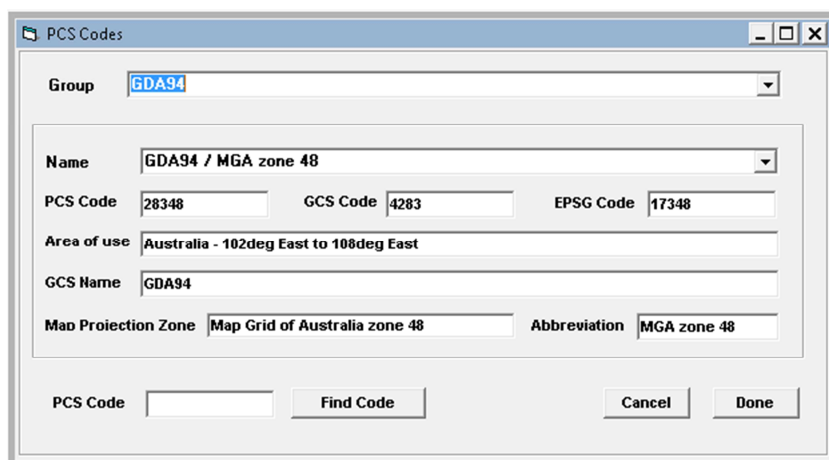


The Eclipse Model Editor dialog box is used to load porosity into an Eclipse model. It features two tabs: Eclipse Model and Porosity grid. The Eclipse Model tab is currently selected. On the left, there is a large empty rectangular area labeled 'Porosity grid'. To the right of this area are two sections: 'Grid definitions' and 'Statistics'. The 'Grid definitions' section contains two rows of input fields for X Min, X Max, Cell size, and Number, and Y Min, Y Max, Cell size, and Number. The 'Statistics' section contains three rows of input fields for Minimum, Mean, and Num Data, and Maximum, Std Deviation, and Num Null. At the bottom of the dialog, there are two buttons: 'Generate the new Eclipse Model' and 'Done'.

Grid definitions			
X Min	X Max	Cell size	Number
Y Min	Y Max	Cell size	Number

Statistics		
Minimum	Mean	Num Data
Maximum	Std Deviation	Num Null

26. Look up PCS Code



The PCS Codes dialog box is used to look up PCS codes. It features a 'Group' dropdown menu with 'GDA94' selected. Below this is a 'Name' dropdown menu with 'GDA94 / MGA zone 48' selected. There are three input fields for 'PCS Code' (28348), 'GCS Code' (4283), and 'EPSG Code' (17348). Below these are two input fields for 'Area of use' (Australia - 102deg East to 108deg East) and 'GCS Name' (GDA94). At the bottom, there are two input fields for 'Map Projection Zone' (Map Grid of Australia zone 48) and 'Abbreviation' (MGA zone 48). At the very bottom, there is a 'PCS Code' input field, a 'Find Code' button, and 'Cancel' and 'Done' buttons.

PCS Code	GCS Code	EPSG Code
28348	4283	17348

Area of use	GCS Name
Australia - 102deg East to 108deg East	GDA94

Map Projection Zone	Abbreviation
Map Grid of Australia zone 48	MGA zone 48

27. Look up EPSG Code



EPSG Codes

Load EPS Database

Datum

Geocentric Datum of Australia 2020

Name

Generalstabens System Intermediate Datum
Geocentric Datum Brunei Darussalam 2009
Geocentric Datum of Australia 1994
Geocentric Datum of Australia 2020

EPSG Code

Geodetic Datum of 1965
Geodetic Datum of Malaysia 2000
Geodezicheskaya Sistema Koordinat 2011
Grand Cayman Geodetic Datum 1959

Area of use

Longitude Min 112 51 0.000E Longitude Max 153 41 24.000E
Latitude Min 43 42 0.000S Latitude Max 9 51 36.000S

Ellipsoid

GRS 1980

EPSG Code 7019

Semi-major 6378137.00 Semi-minor 6356752.31 Inv flattening 298.25722210

Projection

Lambert Conic Conformal (2SP)

EPSG Code 1168

False Easting

False Northing

Scale Factor

Units

0.00 0.00 0.0000 metre

Longitude Origin

Latitude Origin

☒ Projection Supported

134 0 0.000E 0 0 0.000N

Standard Parallel 1

Standard Parallel 2

Add this Projection to Preferences

18 0 0.000S 36 0 0.000S

WinDisp

MapInfo

EPSG Code 17348 Find Code PCS Code Find Code Cancel

EPSG Name Find Name Done