

## MAPDAT Documentation

Interpolation of Zonge inversion model sections to constant depth or elevation slices

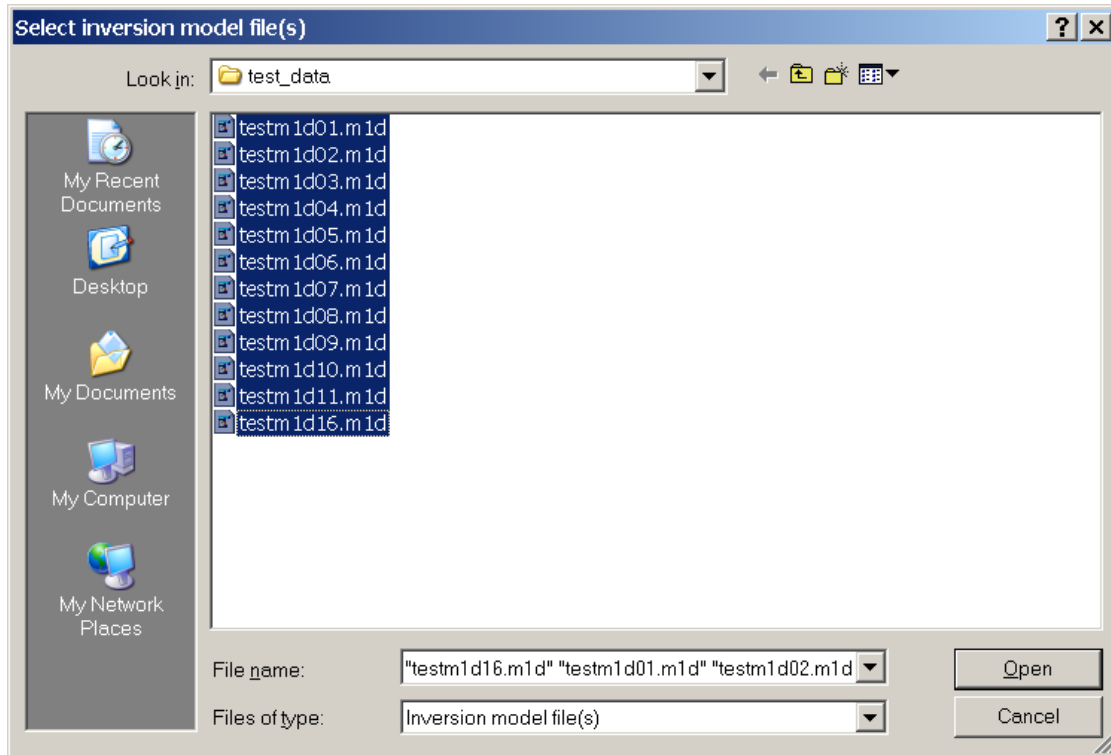
Updated 28/Oct/09 by Scott MacInnes

*MAPDAT* reads model-section data from multiple input files. IPM and MTM file coordinates are shifted from model pixel edges to model pixel centers during input. *MAPDAT* can then either interpolate model resistivity and IP values at a constant depth or elevation 2D slice for map view or export a data volume for 3D gridding. It saves data values in a tabular csv spreadsheet format suitable for use by generic contouring programs like Oasis montaj or Surfer. For input, *MAPDAT* recognizes Zonge-format SCSINV and STEMINV \*.m1d files, S2DIP \*.ipm, and SCS2D \*.mtm model-section files.

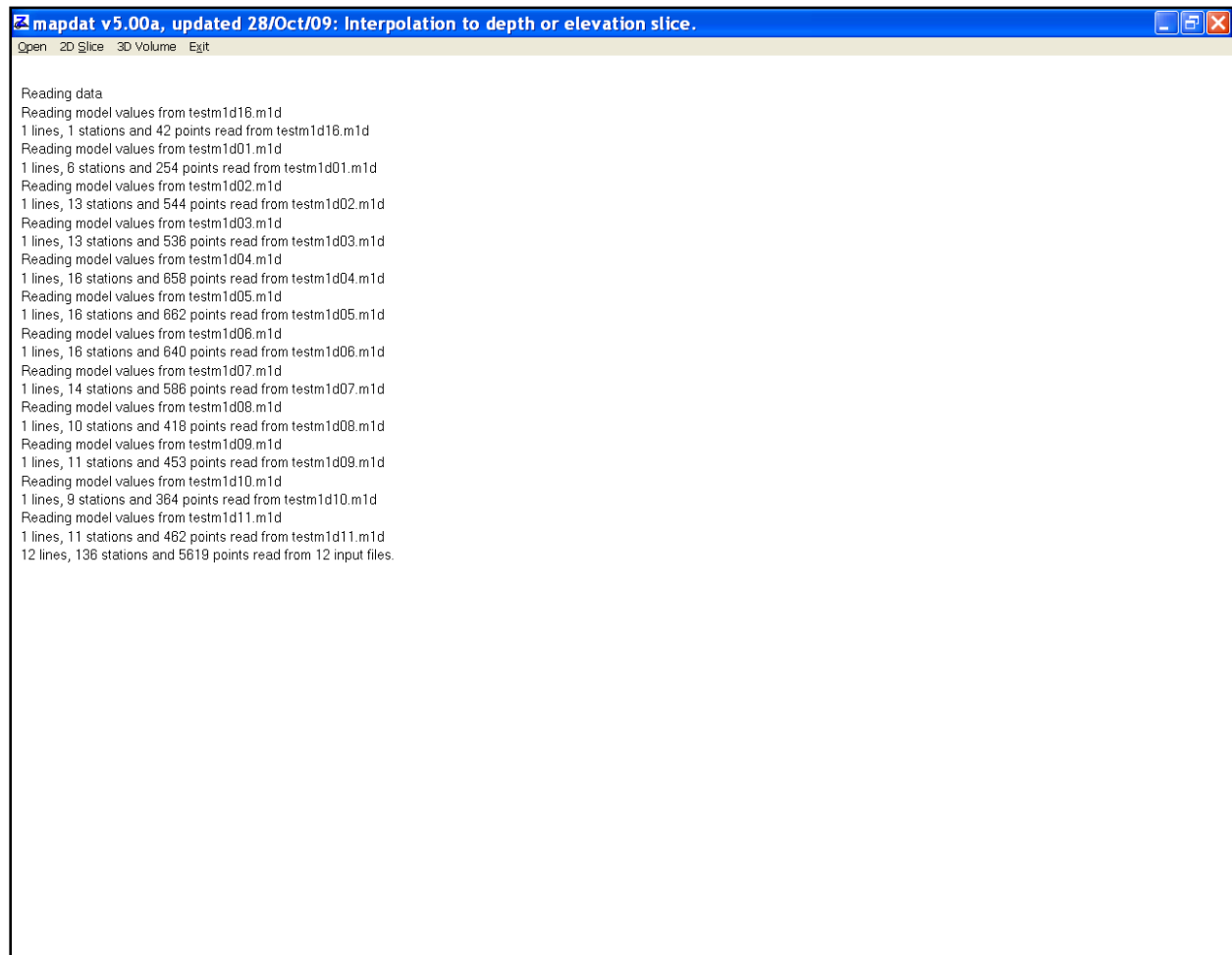
*MAPDAT* saves the interpolated values in a tabular spreadsheet-format \*.csv file with columns of GridEast, GridNorth, Elevation, Depth, Station, Line, ResInv & IPInv. Geosoft and Surfer recognize the comma-separated-value csv format and will read data from *MAPDAT* output files.

Making plan maps requires a consistent grid coordinate system in the \*.stn file for each line, so that inversion results from multiple lines can be combined into a coherent map view. To use *MAPDAT*, first copy all of the model section files, and for TS2DIP or SCS2D the associated ipd or mtd data files to a single work directory. S2DIP and SCS2D model sections extend past data coverage at each end of the survey lines, but the model-section extensions are poorly resolved and may include spurious features. For S2DIP ipm or SCS2D mtm input, *MAPDAT* also reads the associated ipd or mtd data files. It then clips the model values that extend beyond data coverage.

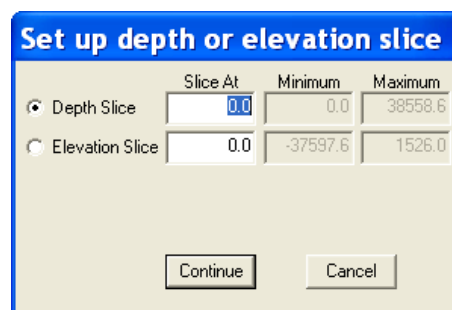
To run *mapdat.exe*, type *mapdat* on a MS command line or run *mapdat.exe* from the start menu. *mapdat* will first show an open file dialog for selection of one or more \*.m1d, \*.ipm, and \*.mtm input files.



*MAPDAT* v5.00 can handle multiple input-file selection from up to 64 input files, one file for each line. After counting the number of data, allocating work arrays, and then reading the data, *MAPDAT* shows a menu listing possible options.



Menu option **2D Slice** pops up a slice configuration dialog with which you can set depth or elevation slice parameters.



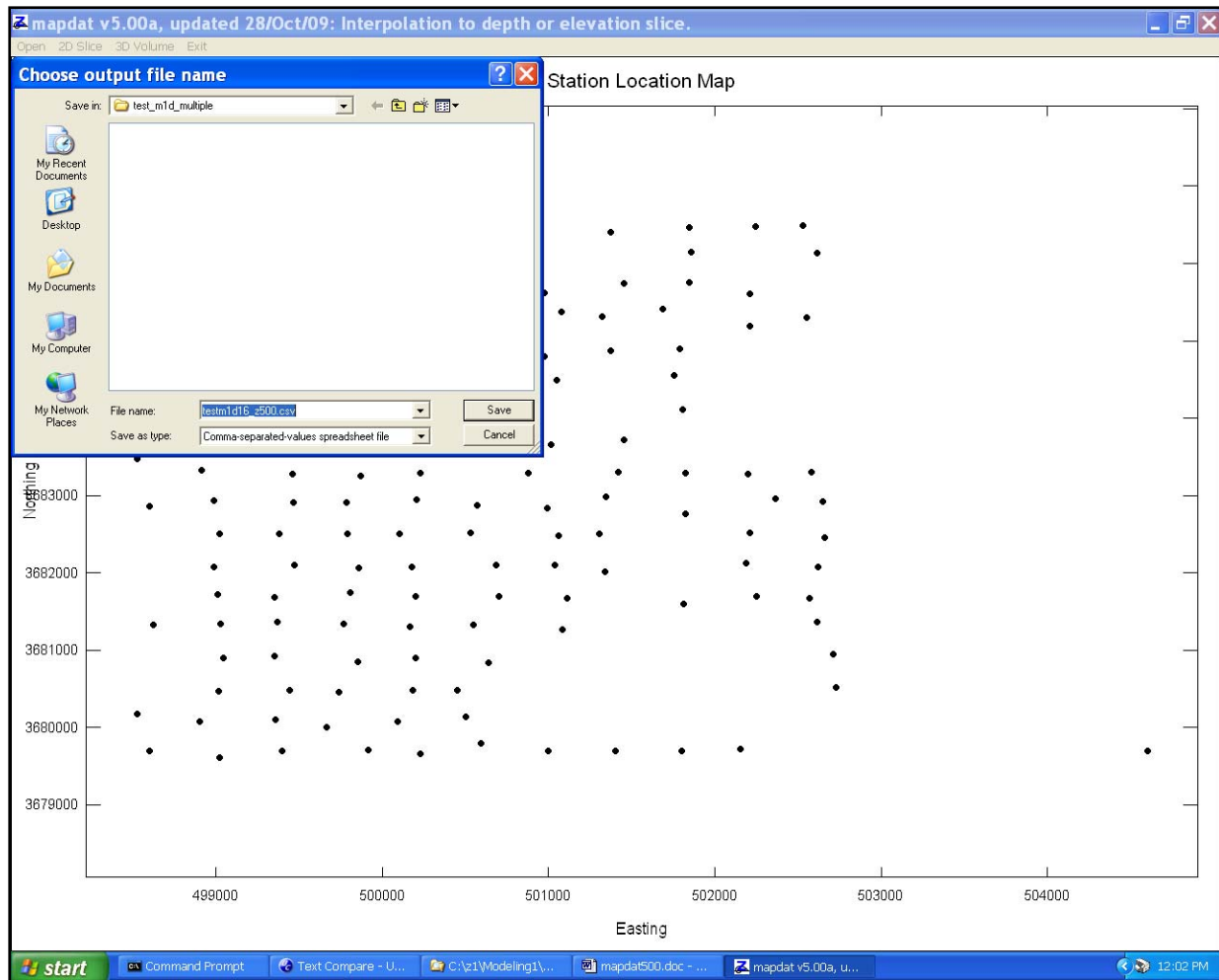
Click on the **Depth Slice** or **Elevation Slice** radio buttons to choose between making a constant depth or constant elevation slice and enter the appropriate depth or elevation slice value in the **Slice At** fields. The grayed out Minimum and Maximum fields show the depth and elevation ranges of the input data set.

	Slice At	Minimum	Maximum
<input type="radio"/> Depth Slice	250.0	0.0	38558.6
<input checked="" type="radio"/> Elevation Slice	500.0	-37597.6	1526.0

Continue Cancel

Clicking on the **Cancel** button will abort the depth or elevation slice interpolation. After setting satisfactory depth or elevation slice values, click on the **Continue** button to interpolate to the depth slice

*MAPDAT* will interpolate horizontal slice data, show a station location map and then open a **Save File** dialog. You can slide the Save File dialog sideways to peek at different areas of the underlying map. To build a default output file name, *MAPDAT* appends “\_d???.csv” or “\_z???.csv” to the first input file name. For depth slices it uses “\_d???.csv” and for elevation slices “\_z???.csv”, where ??? is the depth or elevation slice value. The default output-file name can be edited to suit individual preferences before clicking on the Save button to write the output \*.csv file.



*MAPDAT* then returns to the menu with **Open**, **2D Slice**, **3D Volume** and **Exit** options.

Menu option **3D Volume** exports a data volume suitable for 3D gridding. The 3D Volume control dialog allows control of the export volume depth extent, either by specifying a maximum depth, or a bounding elevation. A mouse click on the **Continue** button will then bring up an output file name dialog. For the default output file name, *MATDAT* appends “3Dd???.csv” for depth bounded volumes or “3Dz???.csv” for elevation bounded volumes.

The screenshot shows the 'Export data for 3D gridding' dialog box. It has a blue title bar and a light beige background. There are two radio buttons: 'Z = Depth' (selected) and 'Z = Elevation'. To the right of these are two columns of input fields labeled 'Minimum' and 'Maximum'. For 'Z = Depth', the values are 0.0 and 4000. For 'Z = Elevation', the values are 1526.0 and -37597.6. At the bottom are 'Continue' and 'Cancel' buttons.

	Minimum	Maximum
<input checked="" type="radio"/> Z = Depth	0.0	4000
<input type="radio"/> Z = Elevation	1526.0	-37597.6

After saving 3D Volume data, *MAPDAT* returns to the main menu. Use main menu option **Open** to show an open file dialog for re-selection of model-section input files. Selecting the **Exit** menu option will close *MAPDAT*.

## MAPDATA output \*.csv File Documentation

### Depth or Elevation 2D slice or 3D Volume data

Partial Listing of testm1d\_z500.csv:

```
GridEast,GridNorth,Elevation,Depth,Station,Line,ResInv,log10(ResInv),IPInv
504600,3679698,500,461,1,16,78.42,1.8944,0
498600,3679700,500,680,1,1,11.3,1.0531,0
498525,3680176,500,687,2,1,13.77,1.139,0
498625,3681322,500,721,5,1,14.9,1.1732,0
498600,3682856,500,761,9,1,19.63,1.2929,0
498528,3683470,500,839,10,1,35.17,1.5461,0
498640,3684349,500,839,13,1,52.88,1.7233,0
499021,3679614,500,592,1,2,11.28,1.0523,0
. . . .
. . . .
. . . .
502550,3685300,500,787,15,11,64.73,1.8111,0
502615,3686140,500,738,17,11,159.9,2.2039,0
502530,3686490,500,826,18,11,179.2,2.2532,0
```

Observed Data Columns:

GridEast = easting (m or ft)  
GridNorth = northing (m or ft)  
Elevation = slice elevation (m or ft)  
Depth = slice depth (m or ft)  
Station = station number  
Line = line name  
ResInv = inversion model resistivity (ohm-m)  
IPInv = inversion model IP (mrad or msec)

2D Slice and 3D Volume files have the same format, except that 3D Volume depth values are multiplied by -1, so that both depth and elevation coordinates are positive upward.