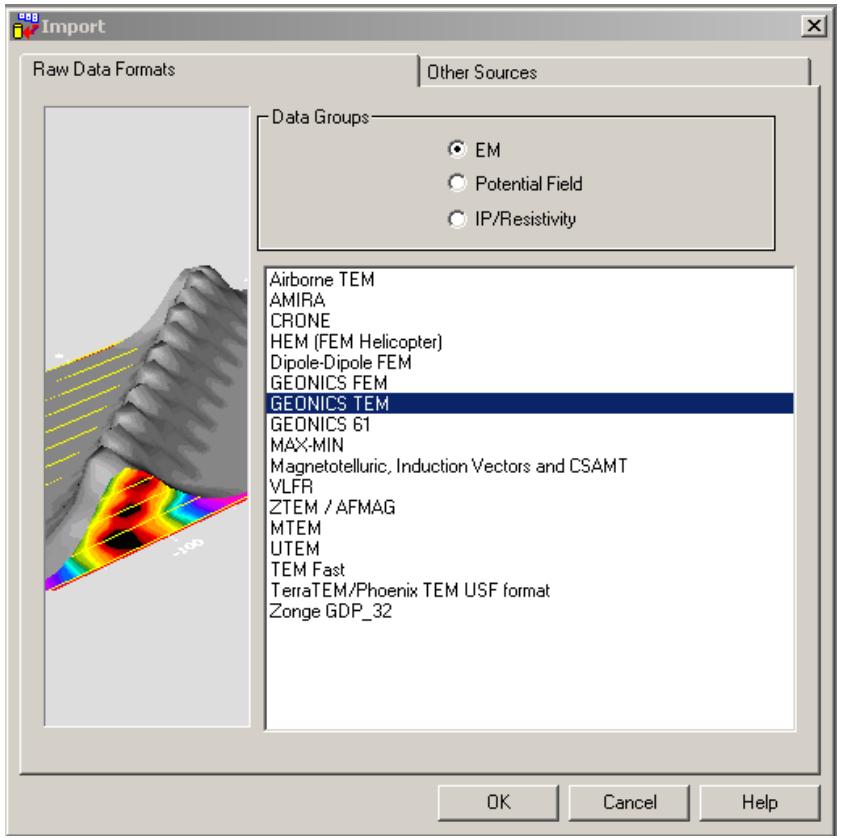
Importing Geonics Field Data

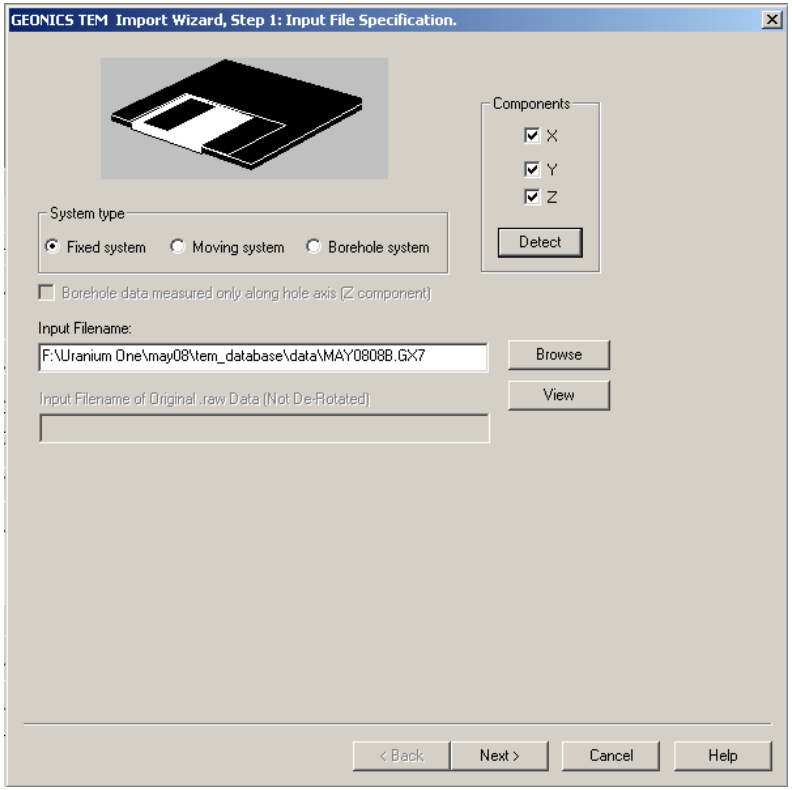
Importing Borehole Data, Surface Data, Single loop transmitter:



Click the button on the main EMIGMA toolbar to open the Import window.

Select GEONICS TEM as the Import Utility

Click **OK**



Step 1 - Input Files

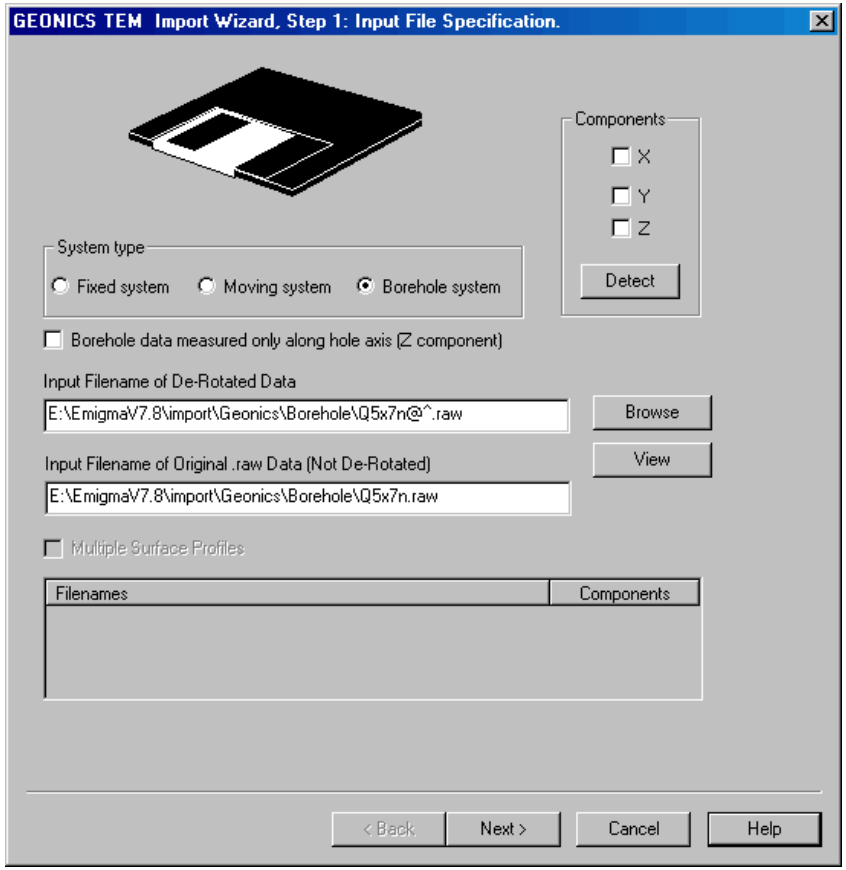
After selecting the **System type,** place the cursor in the **Input Filename** box and **Browse** for your data file.

You may view the data files by selecting the filename box of your choice and select **View**.

Select **Detect** to view which components are contained in the file.

If your data consists of multiple profiles, then select the **Multiple Surface Profiles** box and then select all of the profiles.

Click **Next**.



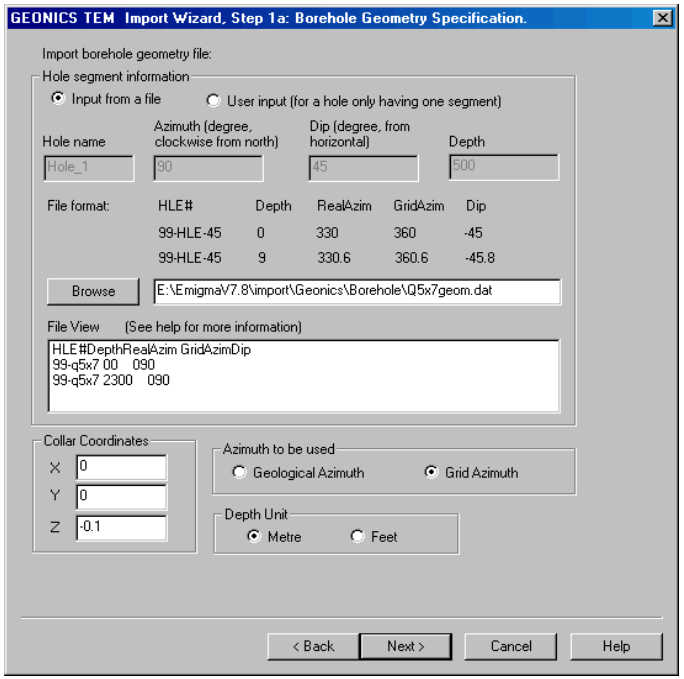
Borehole Data:

Step 1 - Input Files specification

Select **Borehole system**. Place your cursor in the filename box and **Browse** for your derotated raw data file. To import additional (unprocessed) information which otherwise might be missing, de-select the **Borehole data measured only along hole axis** box. This activates the box labelled **Input Filename of Original.raw Data (Not De-Rotated)**. Place your cursor in this field and click **Browse** to search for a non de-rotated raw file. The non de-rotated data file contains information required for accurate calibrated simulations.

You may view the data files by selecting the filename box of your choice and select **View**.

Select **Detect** to view which components are contained in the file.



Step 1a Borehole Geometry Specification

Information on borehole geometry (i.e. dip and azimuth) are not contained in Geonics borehole data files. For this import application, this information is recovered from an ASCII borehole geometry file (i.e Maxibore Survey file). Browse for your borehole geometry file.

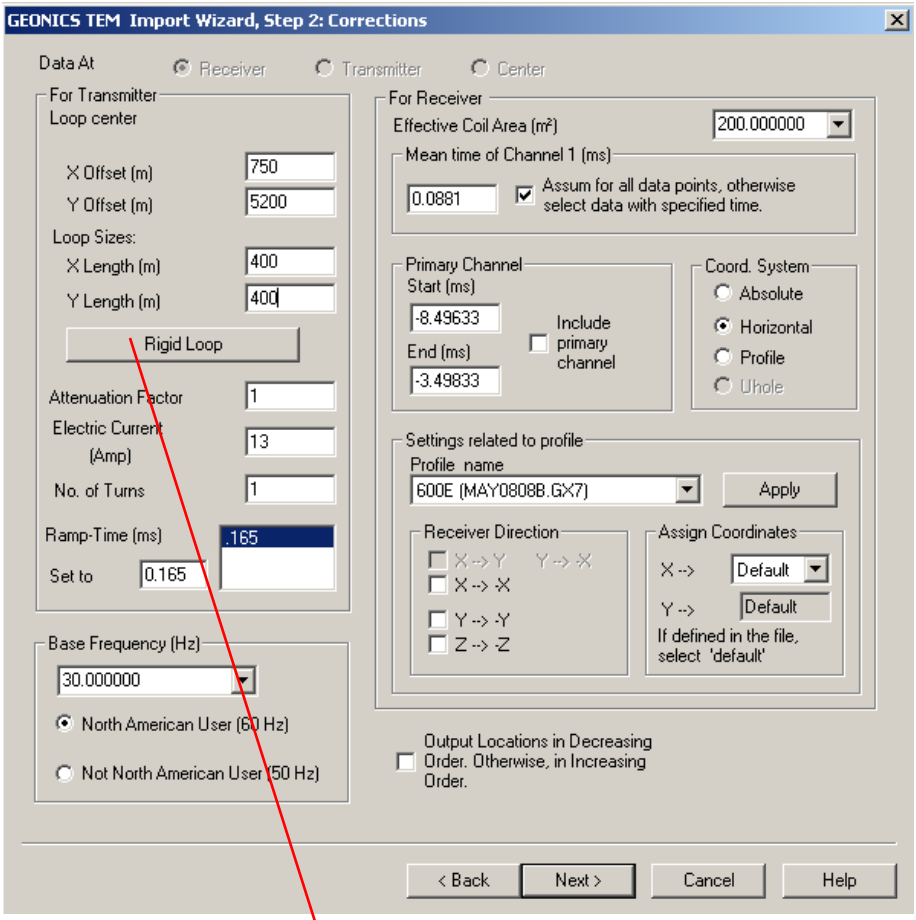
HLE# Depth RealAzim GridAzim Dip
99-HLE-45 0 330 360 -45
99-HLE-45 3 330.2 360.2 -45
99-HLE-45 6 330.5 360.5 -45.3

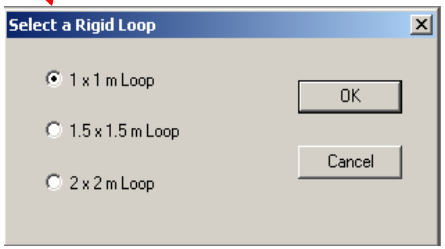
Collar Coordinates

As the collar coordinates are not contained in either the Geonics borehole data file or the Maxibore survey file, the user must input the X, Y and Z coordinates of the collar position.

Azimuth to be used

Often grid azimuths are used for the local coordinate system. The user may define either the real or the grid azimuth.





Step 2 Corrections

Loop Centre

The loop centre is not specified in the Geonics data file. The loop centre is assumed to be 0, 0 unless the X, Y coordinates are input. If the loop centre is not at 0, 0, be sure to input the correct position.

The following parameters are detected from the Geonics data file. They should all be checked for errors.

Loop Sides
Electric Current
Ramp Time
Effective Coil Area
Mean Time of Channel #1
Primary Channel

If a small, rigid loop is used, select this option and the appropriate loop size. Check that the number of turns is correct.

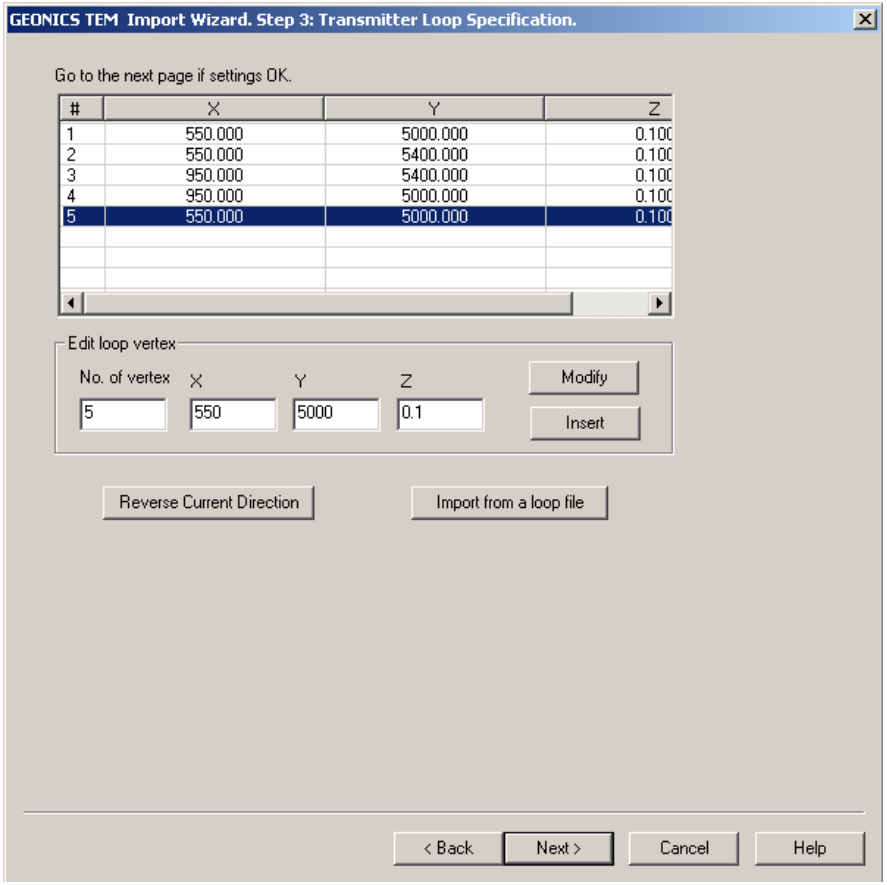
Step 2 Corrections

Receiver Direction
The user may apply a change in direction to any of the receiver coils. This in effect changes the sign of the response. This is necessary for example, when one line is measured in one direction and then field crew runs the next line in the opposite direction with the coil orientated in the opposite directon. For borehole systems, the X,Y components are switched due to borehole component conventions in EMIGMA.

Assign Coordinates
Default is set to X coordinate in column 1 and Y coordinate in column 2. The import also checks to see if there is a direction associated with the coordinate. I.e. if it sees 500S in the first column, it will set column 1 as the Y coordinate. If the columns are incorrect, you can adjust them.

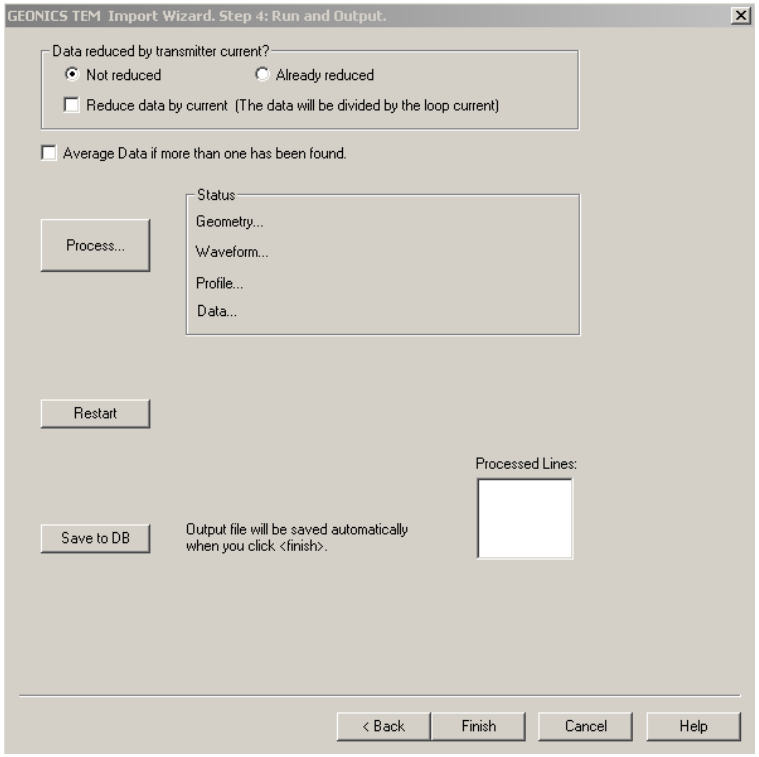
Coordinate System
Choose Absolute, Horizontal or Profile for Surface systems. Choose Uhole (Z up) for borehole systems and Horizontal for surface data. Horizontal assures that the xcomponent is directed along the profile.

Output Locations
Output locations are set in decreasing order. Deselect to output in increasing order. **Apply Changes** must be pressed to keep any changes before advancing to the next page or select a new file to edit.



Step 3 Loop Location

Loop corners are displayed in the order they are written in the file. This order sets the direction of current flow in the loop and thus the sign of your data. If after import and simulation the sign of your data is incorrect, re-import using the **Reverse Current Direction** option. The last corner is a repeat of the first corner to close the loop.



Step 4 Run and Output

Reduce data by current

Data simulated with EMIGMA is current normalized. Activate the checkbox to divide the imported data by the loop current for direct comparison to simulated data.

Process

Reads in all the information from the file.

Average Data

PEImport detects if more than one measurement was taken at a station and averages the results. If you would not like the data averaged, deselect the checkbox.

Save to DB

Saves imported data to database.

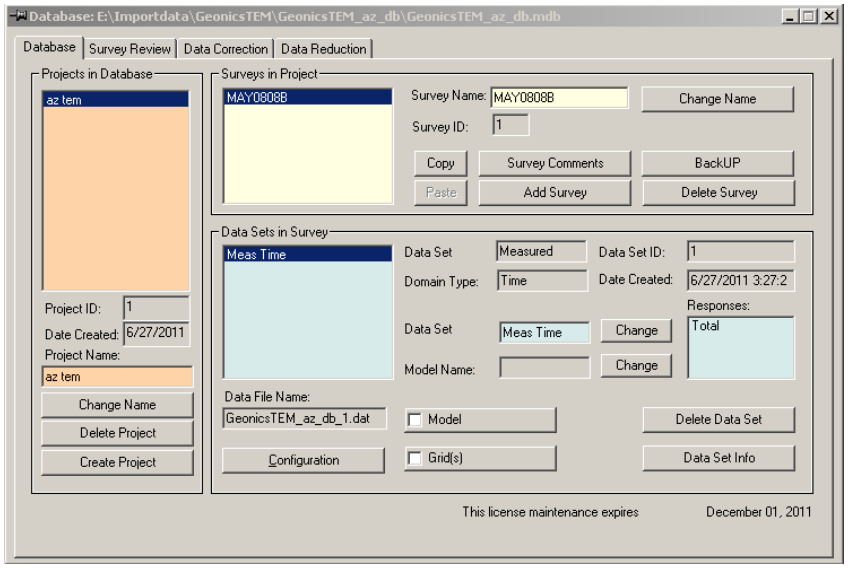
Processed Lines

Displays the lines that have been processed.

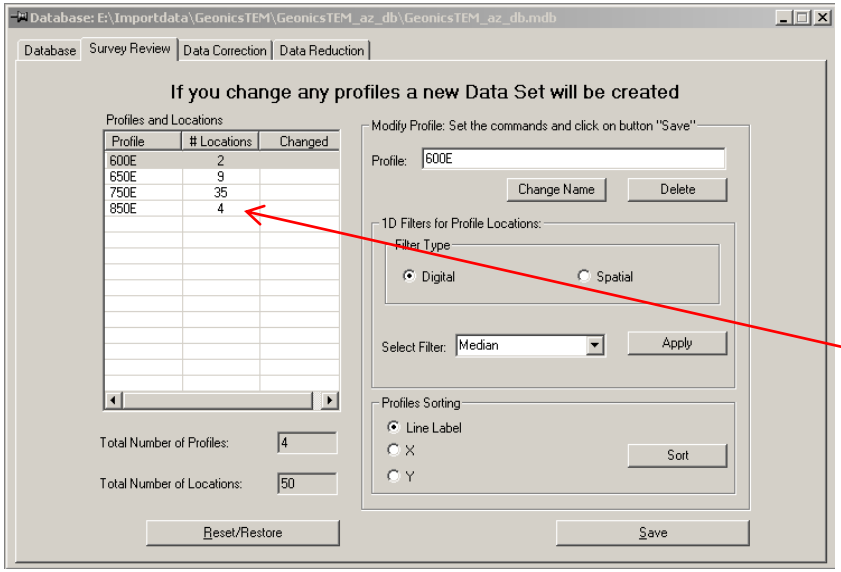
Restart

Return to the beginning of the import process losing any information you may have entered.

INITIAL EXAMINATION OF DATA



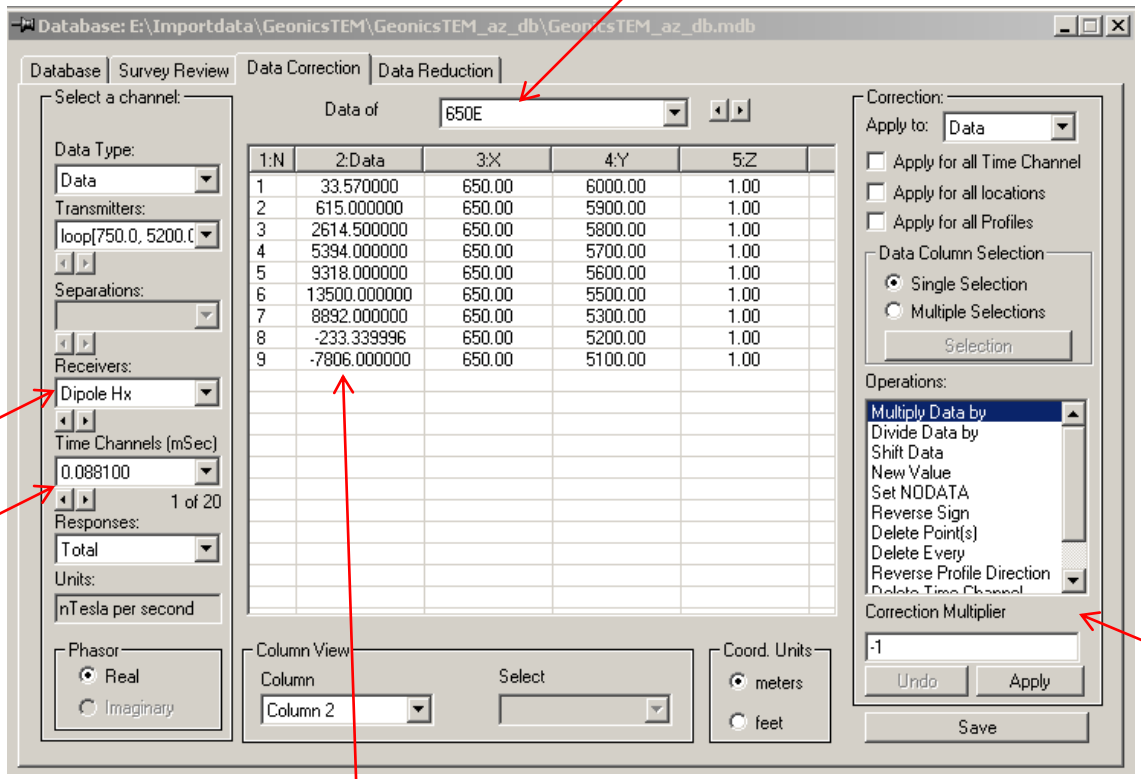
DATABASE – after you click 'finish' you will see your imported data.



SURVEY REVIEW

Line names and number of locations per line.

DATA CORRECTION



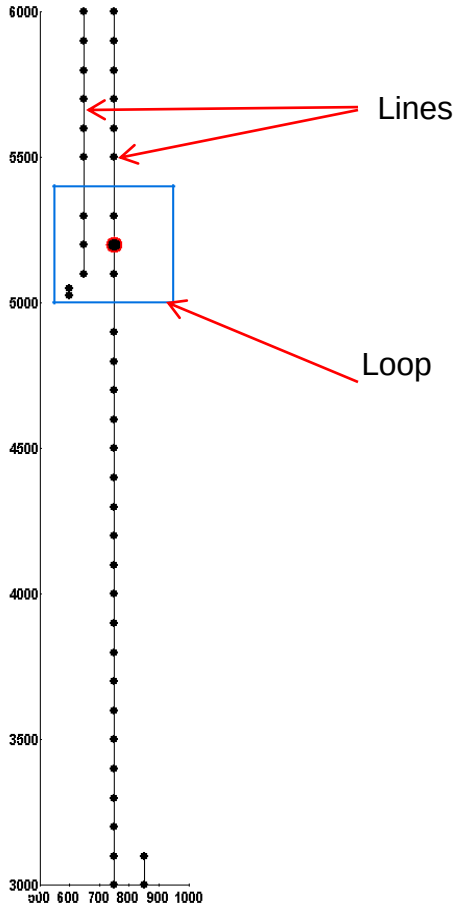
Receiver: use arrows to flip between different receivers.

Time channels: use arrows to flip between data for different time channels

Data values for the selected transmitter, receiver, time channel, and line.

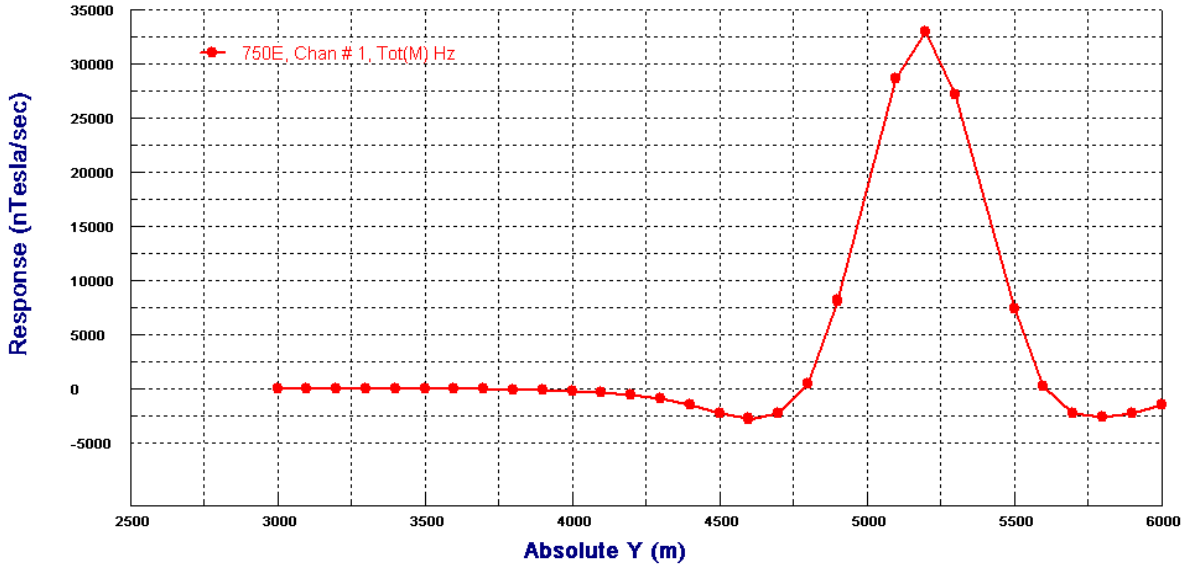
Modify data or coordinate values if needed

SURVEY EDITOR – Check survey geometry (including loop location)

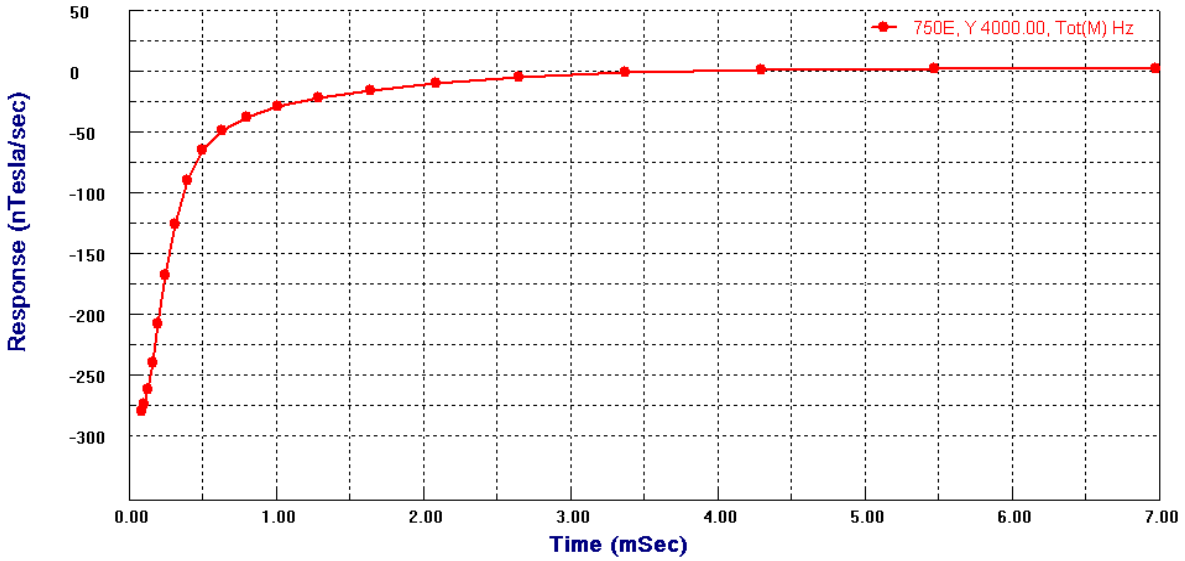


PLOTTER

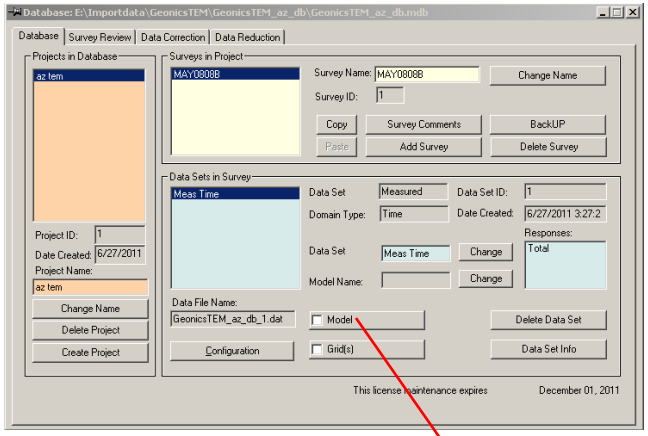
Profile Mode



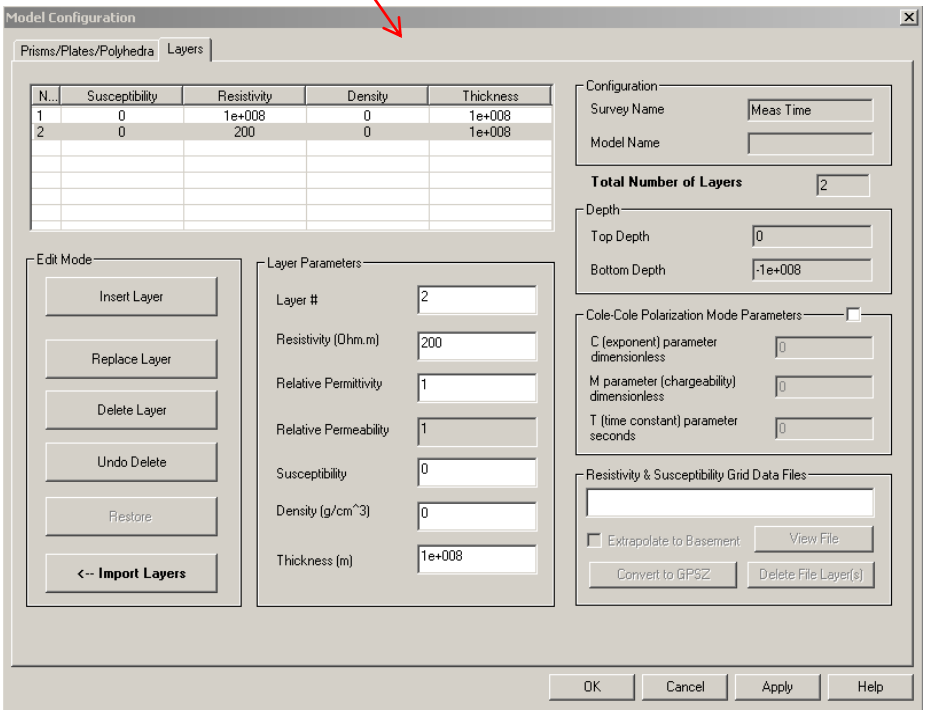
Decay Mode



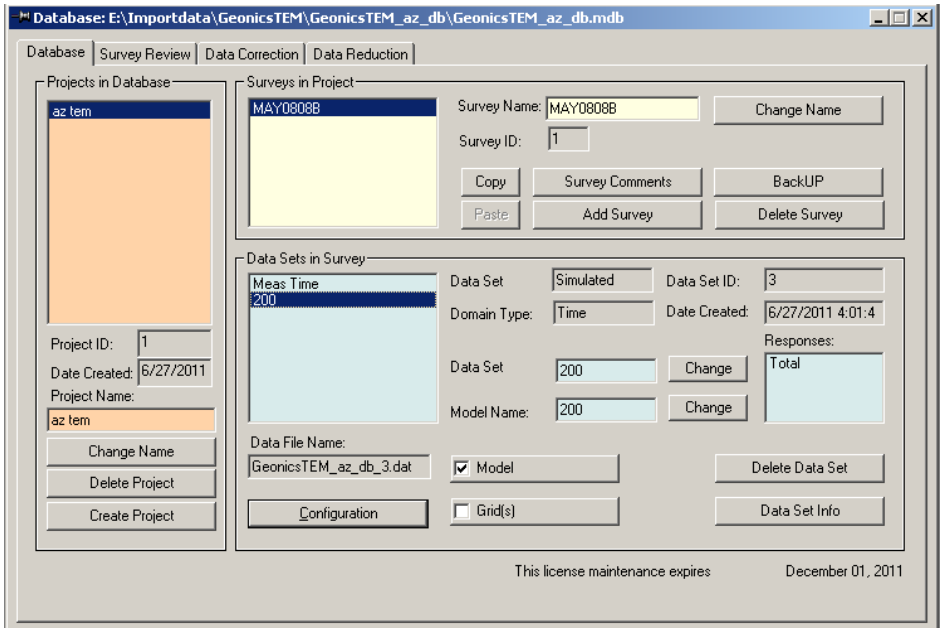
INITIAL EXAMINATION OF DATA



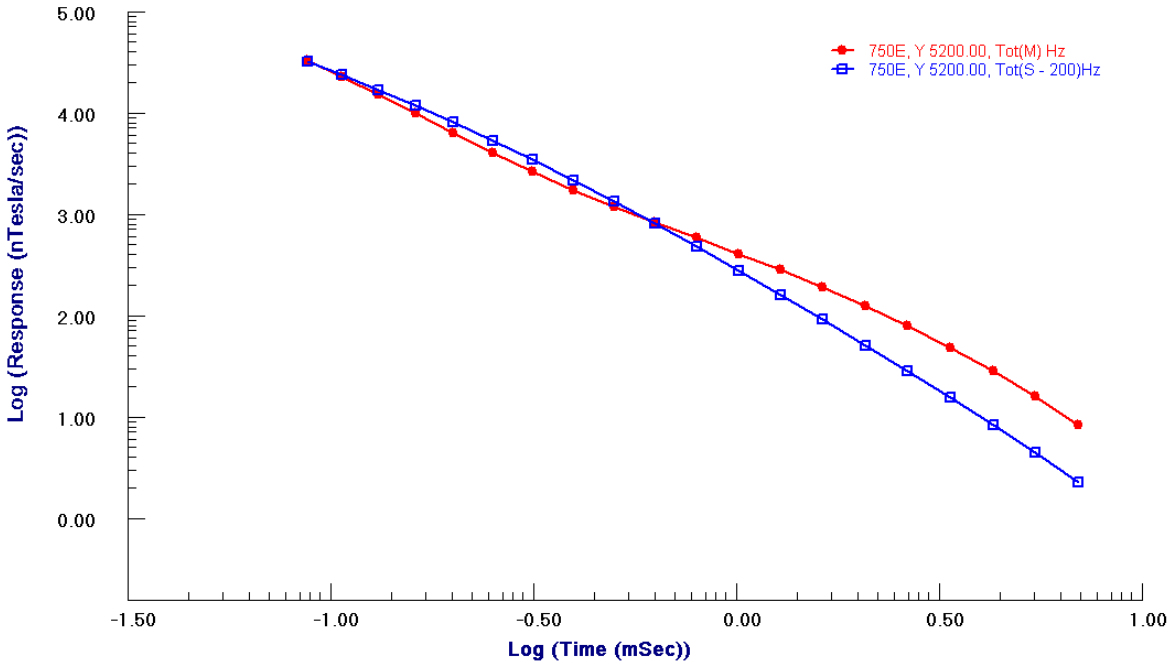
It is recommended that you build a simple layered earth model with a reasonable resistivity for the site to check the data. i.e., verify that the data was imported properly (correct units, etc) and the system was set up properly. Also check that the sign of the data matches that of the simulation.



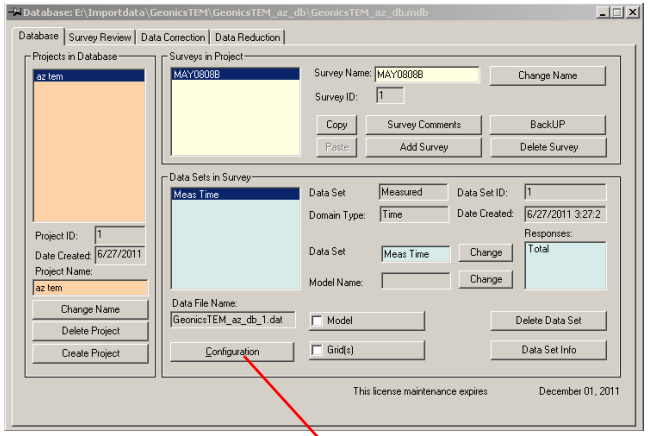
Build your model. This is a 200 Ohm m half-space model.



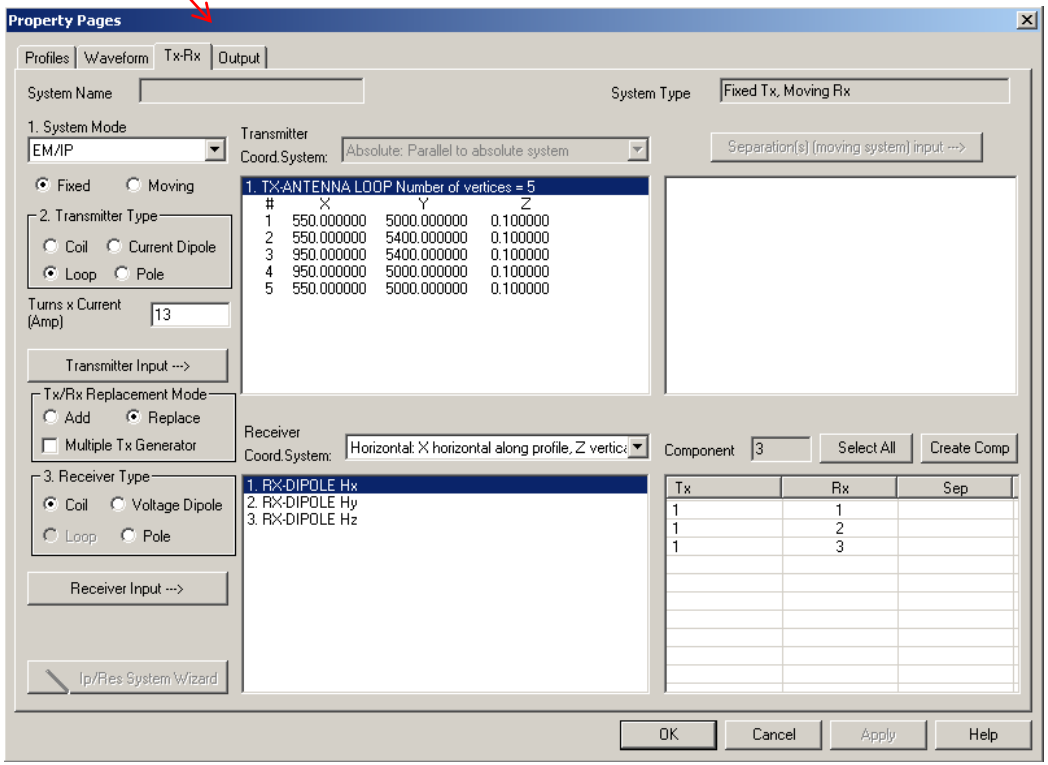
Simulate data for your model using the ‘forward simulation’ button. To learn about the frequency to time domain transform, see the FSEMTRS manual



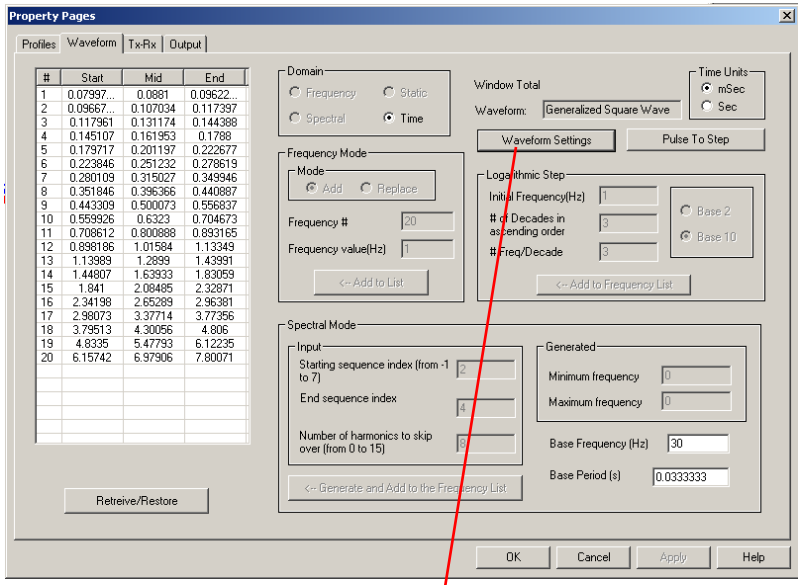
Plot measured data against model as a quick check. This simple half-space model does not fit the details of the decay but the amplitude is as expected. Proceed with further modeling, or inversion, as desired.



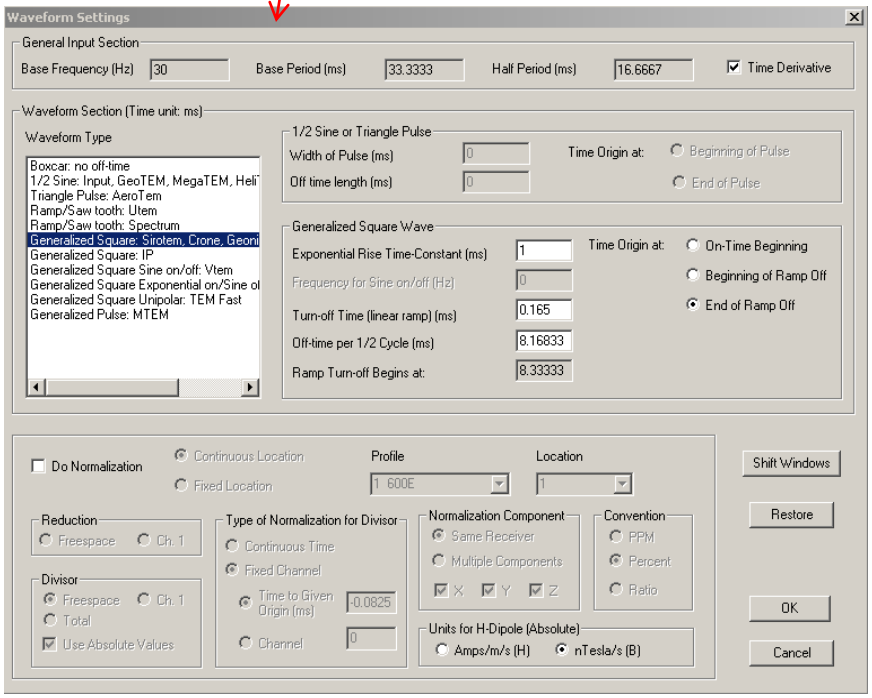
If you wish to view or modify the system parameters, select 'configuration'.



On the Tx-Rx page, the details of the transmitter and receiver are specified, as well as the separation (for a moving system).



On the Waveform page, the times of the channels are given as well as the base frequency. Select 'waveform settings' to view the waveform parameters.



A generalized square wave (exponential on, ramp off) is used for the Geonics system. To learn about the details of the different waveforms and their settings, see the FSEMTRS manual.