

Geosoft GDB import for Workbench – TEM data

With Workbench 6.7, it is now possible to import TEM data from Geosoft GDB files into the ground based Towed TEM and airborne TEM extensions.

Import example for SkyTEM data

1. In Workbench, click the Import button on the Database ribbon. Pick the Airborne TEM processing.

The 'Select Import Type' dialog box has tabs for Boreholes, Airborne Data, Ground Based EM Data, ERT/IP, and Models. The 'Airborne Data' tab is active. It contains three radio button options: '1. SkyTEM raw and navigation data', '2. Airborne TEM processing (AeroTEM, TEMPEST, VTEM, etc)' (which is selected), and '3. Frequency domain HEM data (column based file format)'. Below these, the 'Import To' section has two options: 'Existing database:' with a dropdown menu, and 'New database:' with a text field containing 'example'. 'OK' and 'Cancel' buttons are at the bottom right.

2. Pick the data type.

The 'Import Wizard' dialog box shows a sequence of steps in a sidebar: 'Data Type' (highlighted with a red box), 'System Setup', 'Import Data', and 'Report Log'. The main area is titled 'Data Type' and contains a list of radio button options: 'SkyTEM XYZ' (selected), 'VTEM', 'AeroTEM', 'Tempest', and 'MegaTEM'. 'Next >>' and 'Cancel' buttons are at the bottom right.

3. Fill out dataset name, select coordinate system and point to the system setup file (.gex) [read more](#) for examples of different .gex files for different instruments.

Note: Data exported from Workbench to a Geosoft GDB files can also be imported. Note that this requires a slightly edited geometry file compared to the original import as things like Gatefactor, UniformDataSTD only should be applied once, and not on every import.

The screenshot shows the 'Import Wizard' dialog box, specifically the 'System Setup and Dataset Definition' step. On the left, a vertical navigation pane contains four buttons: 'Data Type', 'System Setup' (which is highlighted with a red border), 'Import Data', and 'Report Log'. The main area of the dialog is titled 'System Setup and Dataset Definition' and contains two radio button options. The first option, 'Create new dataset in the database name', is selected. Below this, there are three input fields: 'Dataset Name' with the text 'data' and a 'Labels' button to its right; 'Dataset Coordinate System' with the text 'WGS 84 UTM zone 32N (epsg:32632)' and a three-dot menu button to its right; and 'System Setup File' with the text 'C:\Work\Temp\GDB\304_LS_650Hz_XYZ.gex' and a 'View' button to its right. The second radio button option, 'Import to existing dataset', is unselected and has an empty dropdown menu below it. At the bottom right of the dialog, there are two buttons: 'Next >>' and 'Cancel'.

4. On the next page, select the Geosoft gdb file.

Import Wizard

Data Type

System Setup

Import Data

Report Log

Load Files

Data File

View

Format file

...

Edit

Settings

Misc

Decimation

1

(import every 1 sounding)

Next >>

Cancel

5. When a GDB file is loaded the GDB column mapper will open

Here the column headers of the GDB file shown on the right needs to mapped to the fields on the left.

First click on an element to the right and then click on an element in the center next to the corresponding field on the left.

The required fields to import, are marked with a *.

Map gdb columns

Select an element in the right hand column. Then select the element it should map to in the middle column.

* UTMX		__HM_Z_G01__
* UTMY		__LM_Z_G01__
Line		Alt
* Date		AngleX
* Time		AngleY
Topography		Bmag_raw
TxAltitude		Curr_HM
TxPitch		Curr_LM
TxRoll		Date
Magnetic		DateTime
PowerLineMonitor		DEM
Misc1		Diurnal
Misc2		E_UTM_32_N
Misc3		Fid
Misc4		Flight
* Current Ch01		GdSpeed
* Current Ch02		Height
* First gate Ch01		Lat
* First gate Ch02		Line
First gate STD Ch01		Lon
First gate STD Ch02		Mag_cor
First gate InUse Ch01		Mag_raw

Save Settings...
Load Settings...
Reset Mapping

OK Cancel

Map gdb columns

Select an element in the right hand column. Then select the element it should map to in the middle column.

* UTMX	E_UTM_32_N	
* UTMY	N_UTM_32_N	
Line		Alt
* Date	Date	
* Time	Time	
Topography	DEM	Bmag_raw
TxAltitude	Height	
TxPitch	AngleX	
TxRoll	AngleY	
Magnetic		DateTime
PowerLineMonitor		
Misc1		Diurnal
Misc2		
Misc3		Fid
Misc4		Flight
* Current Ch01	Curr_LM	GdSpeed
* Current Ch02	Curr_HM	
* First gate Ch01	__LM_Z_G01__	Lat
* First gate Ch02	__HM_Z_G01__	Line
First gate STD Ch01		Lon
First gate STD Ch02		Mag_cor
First gate InUse Ch01		Mag_raw

Save Settings...
Load Settings...
Reset Mapping

OK Cancel

- When the mapping is done the import data page of the wizard has changed.

Import Wizard

Data Type

System Setup

Import Data

Report Log

Load Files

Data File
C:\Work\Temp\GDB\EM_MAG_UTM32N.gdb ... Map

Format file
C:\Work\Temp\GDB\EM_MAG_UTM32N.alc ... Edit

Settings

Time

☐ Define start time 14/07/2010 12:00:00

☐ Nominal speed [km/h]

☒ Sounding distance 0.1 [sec]

☒ Read from file

Time format: yyyy/mm/dd hh:nn:ss.zzz

Units

Voltage unit pV [1e-12]

Data normalized Current, Tx effective area and Rx are:

Transmitter peak current ☒ data file ☐ nominal 1 [Amp]

Misc

Decimation 1 (import every 1 sounding)

Next >> Cancel

The importer requires the time to be ascending. The GDB files are sorted by line numbers, so we need to import with dummy times as it is frequently done with other data types.

Use **Edit** to open column editor. Locate and click the header of the Time and Date column headers to remove those from the next step of the import. Click save and close.

Afc File Editor

Format file fields

Date X
Dummy
Line
Magnetic
Misc1
Misc2
Misc3
Misc4
PowerLineMonitor
RxPitch
RxRoll
Time X
Topography X
TxAltitude X
TxOffTime
TxOnTime
TxPeakTime
TxPitch X
TxRoll X
TxRxHoriSep
TxRxVertSep
UTMX X
UTMY X
Gate_Ch01_begin X
Gate_Ch01_end X
STD_Ch01_begin
STD_Ch01_end
InUse_Ch01_begir

XYZ File

Date	Topography	UTMX	TxAltitude	UTMY	Time
2019/06/12	368.6	558030.940	111.2	6977025.134	09:45:16.300
2019/06/12	368.7	558032.663	110.8	6977025.927	09:45:16.400
2019/06/12	368.7	558034.415	110.5	6977026.705	09:45:16.500
2019/06/12	368.8	558036.192	110.1	6977027.466	09:45:16.600
2019/06/12	368.9	558037.990	109.7	6977028.205	09:45:16.700
2019/06/12	369.0	558039.806	109.3	6977028.919	09:45:16.800
2019/06/12	369.0	558041.637	108.9	6977029.606	09:45:16.900
2019/06/12	369.1	558043.478	108.4	6977030.263	09:45:17.000
2019/06/12	369.2	558045.328	108.0	6977030.887	09:45:17.100

Settings

Dummy Value: *
Number of channels: 2
File Version 2

Help
Select a keyword on the left side list.

To delete a column header, just click on its name.
(Double click to delete all the gates from a channel).

Save

Close

7. Last step is to change the time setting from “Read from file” to “Define start time”.
If the sounding distance is known, set this as the value, otherwise 1 second can be used.

The filters for the TEM data can be used in distance instead of time if the sounding distance is not known.

Make sure the Units for voltage and data normalization match the units in the GDB file. Then Click next to import.

Import Wizard

Data Type

System Setup

Import Data

Report Log

Load Files

Data File

C:\Work\Temp\GDB\EM_MAG_UTM32N.gdb

...

Map

Format file

C:\Work\Temp\GDB\EM_MAG_UTM32N.alc

...

Edit

Settings

Time

☒ Define start time

14/07/2010

12:00:00

☐ Nominal speed

[km/h]

☒ Sounding distance

0.1

[sec]

☐ Read from file

Time format:

yyyy/mm/dd

hh:mm:ss.zzz

Units

Voltage unit

pV [1e-12]

Data normalized

Current, Tx effective area and Rx are:

Transmitter peak current

☒ data file

☐ nominal

1

[Amp]

Misc

Decimation

1

(import every 1 sounding)

Next >>

Cancel