Import TEM data from ProTEM into SPIA

Example files can be downloaded at http://wiki.hgg.au.dk/do/view/SPIA/WebHome

1. Either go to File → Import in SPIA and choose import data in ProTEM format and load the data file,

   or go to the SPIA installation folder and run the ProTEMimporter.exe file.

2. If the user wants to import UTM coordinates along with the data, they have to make a UTM data file. Otherwise go to 4. The UTM data file has the following format:

   ```
   9ma00     573221 6211792   63.54
   9ma01     573405 6211966   59.90
   9ma02     573338 6212122   59.22
   9ma03     573286 6212251   59.93
   9ma04     573288 6212412   56.83
   9ma05     573238 6212631   60.10
   ```

   Where:

   1st column is the station name. For older analog .93C data files the station name is located in in the data file with a "Note:" in front. For other data files (e.g. .RED or .GX7) the station name is the 3rd value in a data line. An example is below, where station name is marked with red:

   ```
   0802 0042 00001Z   OPR REF u 4a 4+          #01263
     -40.8  -.2404   .1401 -.00408   .0418   .3475   .1266 -.04522  .06009
   -.115 -.03326  .04714 -.00769   .0121  .01349 -.01576  .02017  .00705
   .02912  .01851 -.00221   .0025 .006813       1   1600/1263
   ```

   2nd column is the UTM-x coordinate.

   3rd column is the UTM-y coordinate.

   4th column is the elevation.

3. Load the UTM data file and choose Coordinate system in the drop down.

4. Choose ProTEM format file. There are 3 standard files:

   Protem47Digital: For digital ProTEM instruments (.red and .GX7 data files) with 20 time gates.
   Protem47Digital_30gates: For digital ProTEM instruments (.red and .GX7 data files) with 30 time gates.
   Protem47Analog: For analog ProTEM instruments (.93C data files) with 20 time gates.

5. Select 50 Hz or 60 Hz power line frequency.

6. Load data files and click Convert.

ProTEM ini file

In the installation folder of SPIA a Protem.ini file is located. Only the header in this file can be changed. As default the settings are set for digital instruments.

Change between analog and digital

Two settings needs to be change to switch to an analog instrument:

- Set `ProtemInstrumentAnalogDigital=Analog`
- Set `GetStationNameFrom=NoteField`

Other settings

NoiseDataLevel can be change if the importer does sort a data channel as a noise channel because the data is close to this value.

TxPos og RxPos can be set if setup of the instruments is not a central loop setup.

Ini file General header

```
[General]
ProtemInstrumentAnalogDigital=Digital  /Analog/Digital. Defines whether data is
                                        from an analog or a digital ProTEM instrument.

GetStationNameFrom=StationField        /NoteField/StationField. Group input data to sounding
                                        by Note (=NoteField) or Station (=StationField)

NoiseDataLevel=1e-7                     /Tag segment as noise measurement if average of db/dt
                                        data for the segment is below NoiseDataLevel (V/m2)

NInitialGatesSignFlip=10               /Use Gate 1 to NInitialGatesSignFlip to detect sign
                                        of the individual raw data curves.

TXPosX=0                                /Transmitter loop center position, x-coordinate (m)

TXPosY=0                                /Transmitter loop center position, y-coordinate (m)

RXPosX=0                                /Receiver loop center position, x-coordinate (m)

RXPosY=0                                /Receiver loop center position, y-coordinate (m)
```