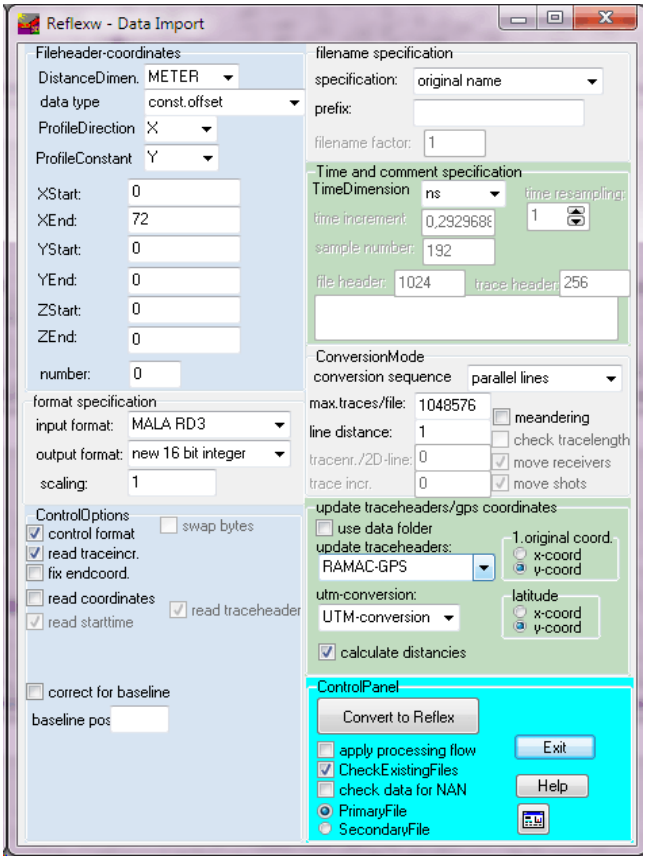
Generate a 3D-dataset from data with gps-based coordinates

In the following GPR data which have been stored using the Mala rd3-format and cor gps-coordinates will be imported, processed and displayed as a 3D-datablock. The original Mala GPR data and the gps-coordinates are stored under the directory ASCII under the projectdirectory and the GPR data and gps-file have the same filename but different extensions (rd3, rad and cor).

1. Import the data



The import parameters have been set for original 2D-constant offset data.

- The output format must be set to new 16 bit integer or new 32 bit floating point in order to store the coordinates using double precision.
- set conversion sequence to parallel lines even if the profiles are not strictly parallel because the gps-coordinates will later be used in order to create the 3D-datablock. The line distance can be set arbitrarily.
- set update traceheaders to RAMAC-GPS
- the UTM-conversion is optional as well as the option calculate distancies

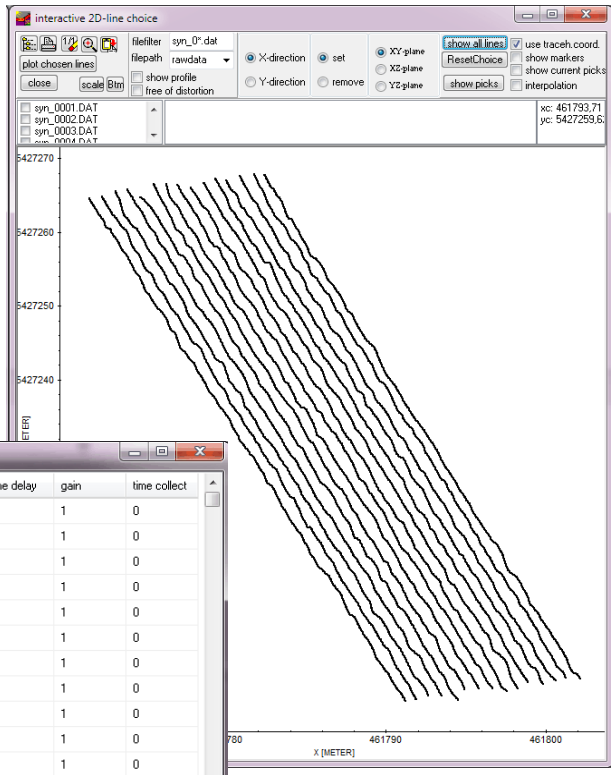
If UTM-conversion is activated the coordinates given in degree will be automatically converted into UTM-coordinates. The option calculate distancies allows to calculate the distance along the 2D-line based on these UTM-coordinates. This might be useful if no wheel has been used during the data acquisition in order to make the profile equidistant in distance at a later processing stage.

The cor-data normally contain the latitude coordinates as a 1. coordinates. With the settings shown here the latitude coordinates given as the 1. coordinate within the cor-file will be stored as the y-coordinate within the Reflexw traceheader.

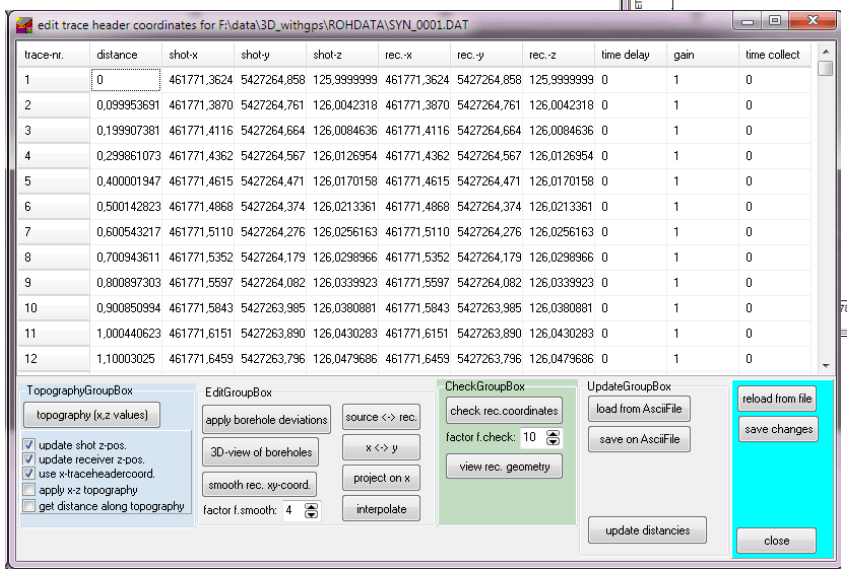
- click on Convert to Reflex and choose all original datafiles which then will be imported within one step.

2. Geometry check and 2D-processing

The geometry of the 2D-lines may be controlled using the option “file/open/interactive choice”. Set the corresponding filefilter and activate “use traceh. coord.”. Using the option “show lines” displays all lines with the chosen filefilter.

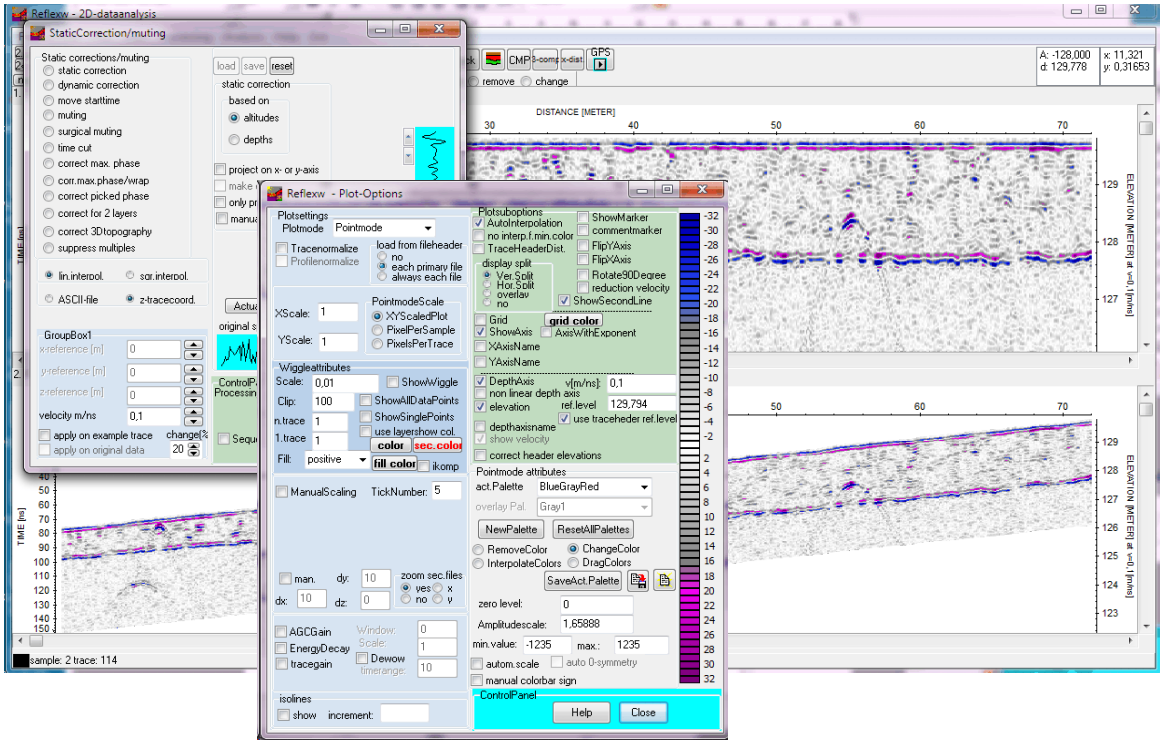


Another possibility is given by the option “file/edit traceheader/edit traceheader tabella”.



Perform any 2D-processing, e.g. bandpassfiltering, migation, ...

If the elevations have been defined within the cor-file it is also possible to perform a topographic correction. The data shown here have a simple topography.



3. Create the 3D-block

- enter the 3D-datainterpretation
- enter file/generate 3D-file from 2D-lines

A new menu opens.
- activate the option use interpolation scheme.... as type of interpolation
- enter time end
- specify the filepath for the 2D-lines
- load the 2D-lines
- click on min/max xy coord. - the xstart....yend parameters will be updated.
- enter a new rasterincrement in x- and y-direction
- enter the interpolation range in x- and y-direction. The interpolation range should be big enough in order to cover the biggest gap betwen the original 2D-lines
- enter any 3D-filename and start the 3D-block building
- enter processing and activate envelope timeslices only
- now you may use any of the 3D-display possibilities within the 3D-datainterpretation