

Transmission tomography 2D

The following guide describes the procedure for a 2D transmission tomography starting with the import of the original data, the definition of the geometry, the picking and finally the tomography.

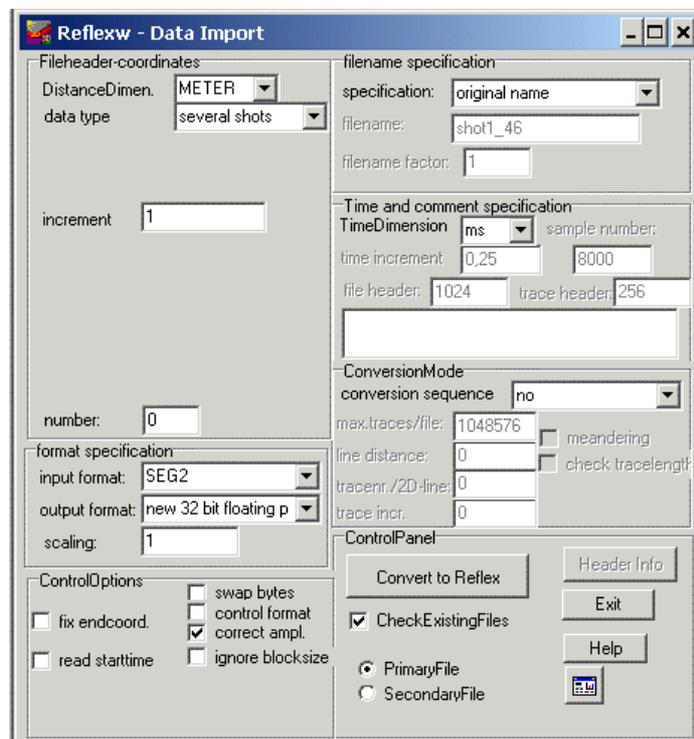
It is possible to put all shots into one single datafile or to import, process and pick each single shot separately. Putting all shots together has several advantages:

1. setting the geometry is much easier
2. picking is faster

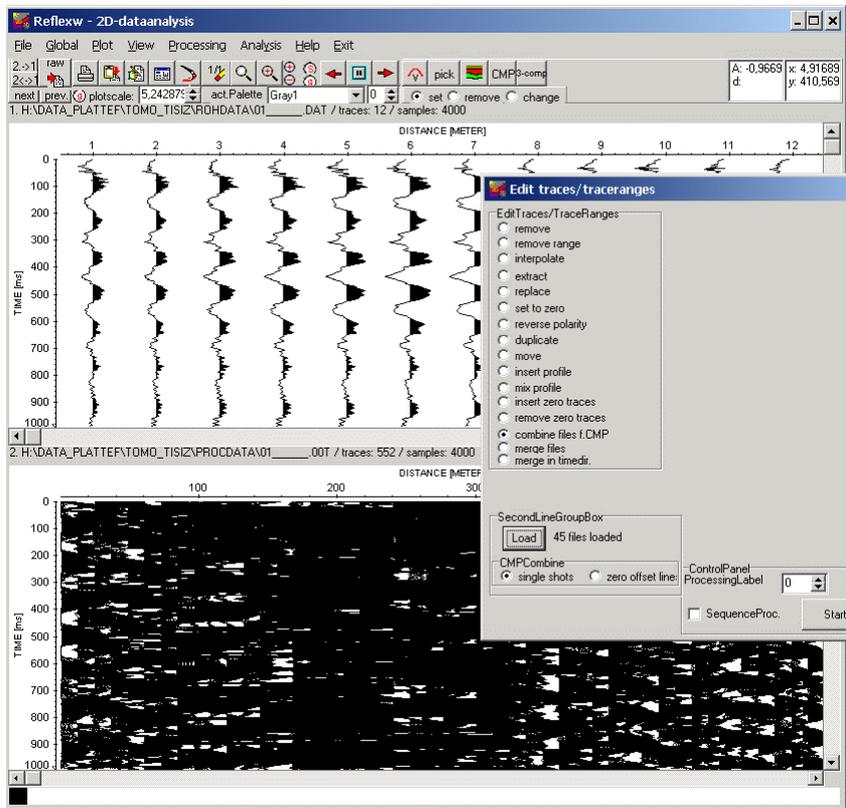
In the following we restrict the description to putting all shots together. You can put together the shots during the import (conversion sequence combine lines/shots) or afterwards using a special processing option. The shots must have the same sample number if using the conversion sequence combine lines/shots.

The step-by-step procedure:

1. Import your single shot data. Set datatype to several shots because in step 2 all shots will be combined within one single file. The order of the files must be correct (e.g. file001.sg2 and not file1.sg2) because otherwise the sorting of the files is not correct for step number 2. If you are using the conversion sequence “combine lines/shots” it is possible to load all shots within one import step (multiple file choice using the ctr or shft key). The step number 2 can then be ignored.



2. load file 01 and put together all shots using the option combine files f. CMP under processing/edit traces. Click on load and choose all the other shots except the actually loaded file (multiple file choice using the ctr or shft key). To be considered: the sorting of the files is done automatically with ascending alphabetic order of the filenames. Therefore a renaming of the files e.g. 1.dat,...,9.dat to 01.dat,...,09.dat may be necessary.



3. do any filtering, e.g. bandpassfiltering and time cut (optional).

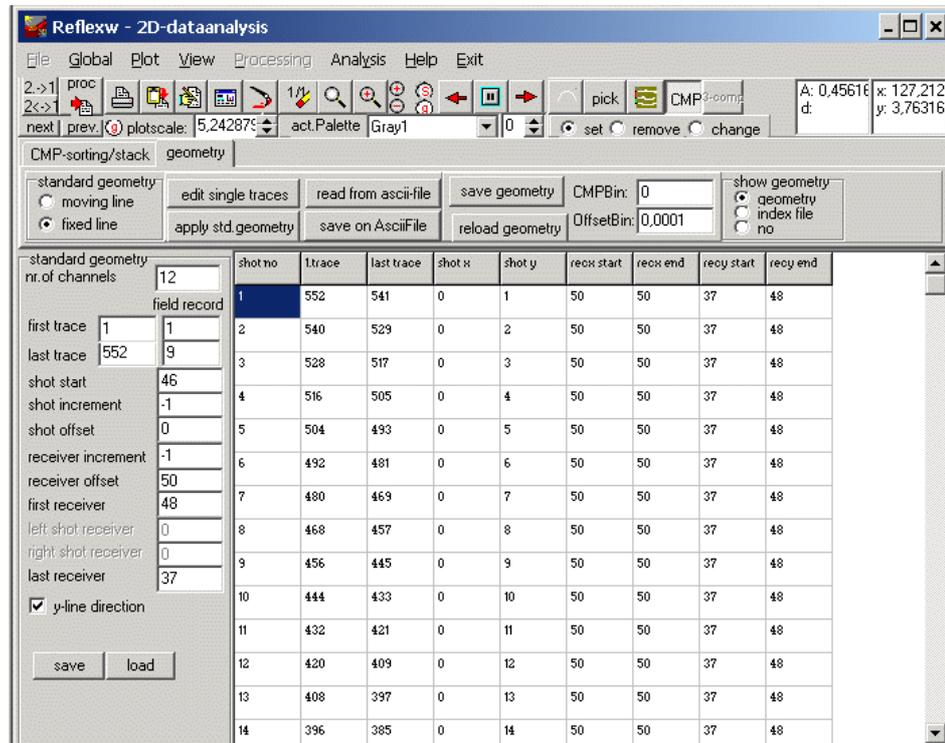
4. enter the geometry using the option CMP. Click on geometry and activate fixed line for standard geometry.

Enter the geometry within the standard geometry box. I assumed a receiver offset of 50 m.

This is the distance between the 2 boreholes. You must enter the correct value. You must activate the option y-line direction because the receivers and shots are located within the boreholes.

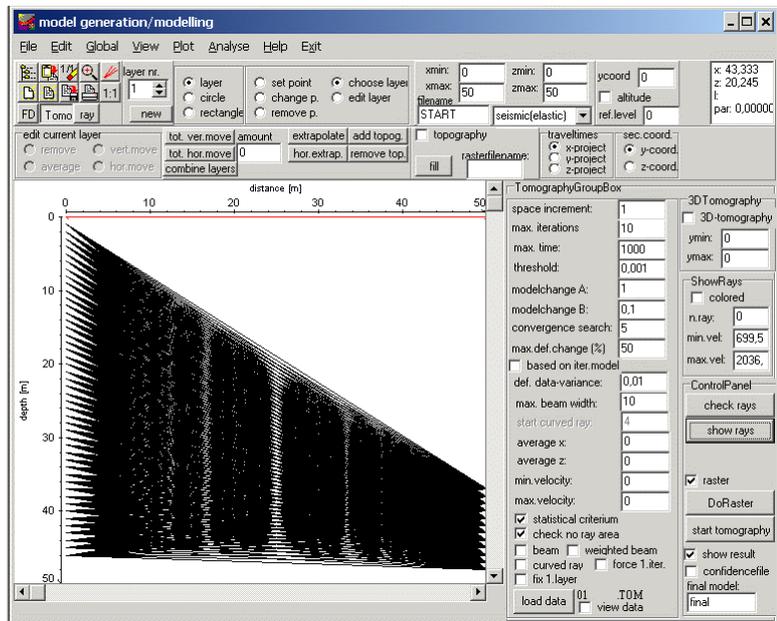
Click on apply std. geometry - the geometry will be updated. Save the geometry. Leave the CMP menu.

You may check your geometry using the option file/edit traceheader.



5. Pick your first arrivals (only one pick per trace) and save them. I suggest to save the picks twice using the format Reflex-Win and ASCII-2D tomography.

6. Enter the modelling menu and create a start menu (filename start.mod and start.fdr) and perform the tomography. Check the geometry of your loaded traveltimedata using the option show rays.



Start the tomography. The parameters for the tomography may be changed depending on your needs.

