Major new features of ROAD DOCTOR® version 3.5

This is a major release of Road Doctor® which brings users new tools to work more efficiently with GPR and other related data to enable multi-parameter analysis. Some of the features are in Road Doctor® Core version bringing the tools to all users and some are module specific. The version includes also a large number of minor enhancements and bug fixes. All changes are listed in a separate document.

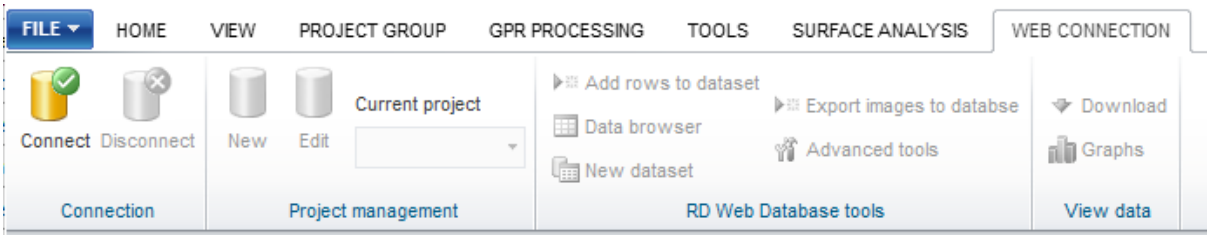
Core Version (All versions)

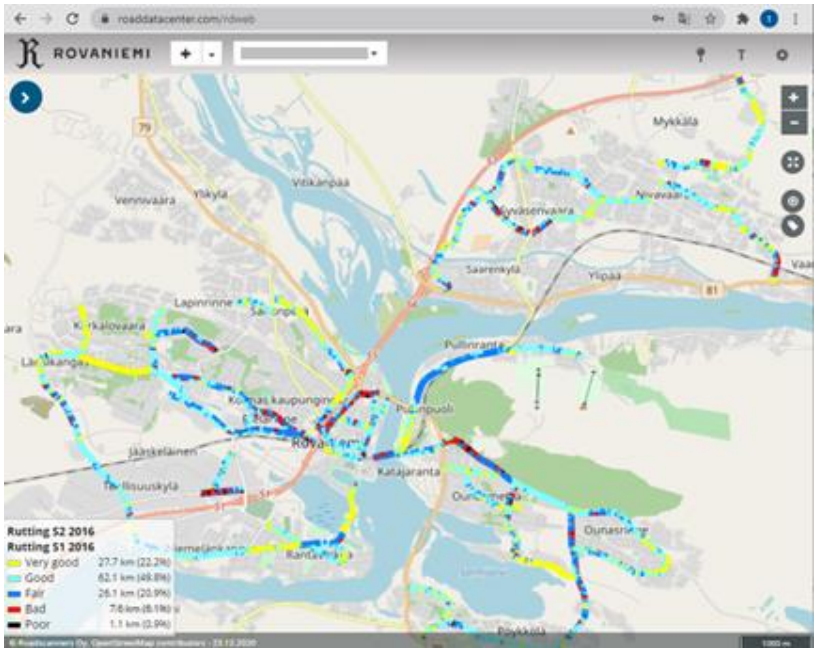
Web Connection

Web Connection is a completely new tool for all Road Doctor users. It is based on the service Road Data Center that Roadscanners is offering for its clients. Road Data Center can be used to deliver results to clients in the form of Thematic Maps. It can be configured for clients so that the end client could see it as client's own service. Web connection is available when the user acquires rights to use it from Roadscanners. Ask for licensing options.

Web Connection can be used to transfer results of analysis directly from Road Doctor projects to Web for visualization. The settings for data layouts can be defined in the RD Web Connection. The Road Data center can be used as well for single projects as for large network level projects.

The Web Connection tool enables also downloading data from already created datasets in Road Data Center to Road Doctor. Data can be added also directly with the built-in tools in Road Data Center.

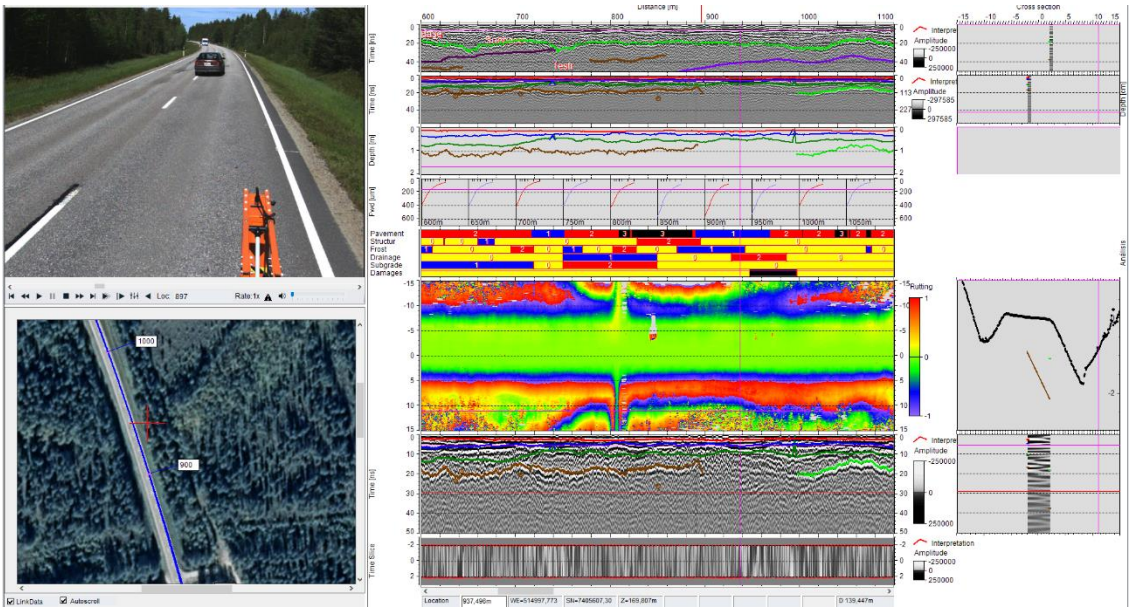




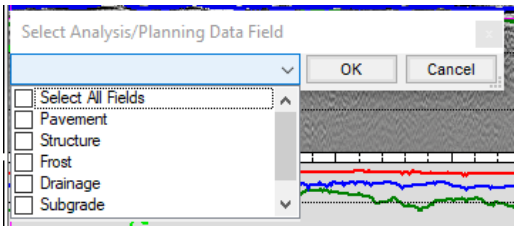
Map

The data-view Map has been changed to use the same drawing engine as is used in the external Map-view. This makes possible to use linked map-images, map-lists or multiple selected maps and in the future also WMS map servers for drawing maps, which are directly linked to a data view. Zooming with mouse wheel and panning with dragging in the map is fast and moving in data-view moves the location pointer also in the Map without clicking in data. The program shows the pointer in the correct offset location, if data has offset set or related coordinate file. This is a helpful tool to locate and compare things in Surface data or GPR Slice data to features in a map. The tool has also a dynamic chainage labelling tool. In the future updates, also dynamic thematic maps will be possible.

External Map-view has new tools for creating map-lists from WMS or google map server data. The new map-lists can be linked directly to project and used in data-view map window. The linked map-lists can be opened both to Map-view and data-view map window. This makes possible to use much higher resolution maps in data-view, without compromising with the memory and image size.



External map-view now allows adding multiple data from the same analysis or planning data set simultaneously, which speeds up showing multiple parameters. All or single parameters can be selected. For each parameter, the settings can be defined separately.



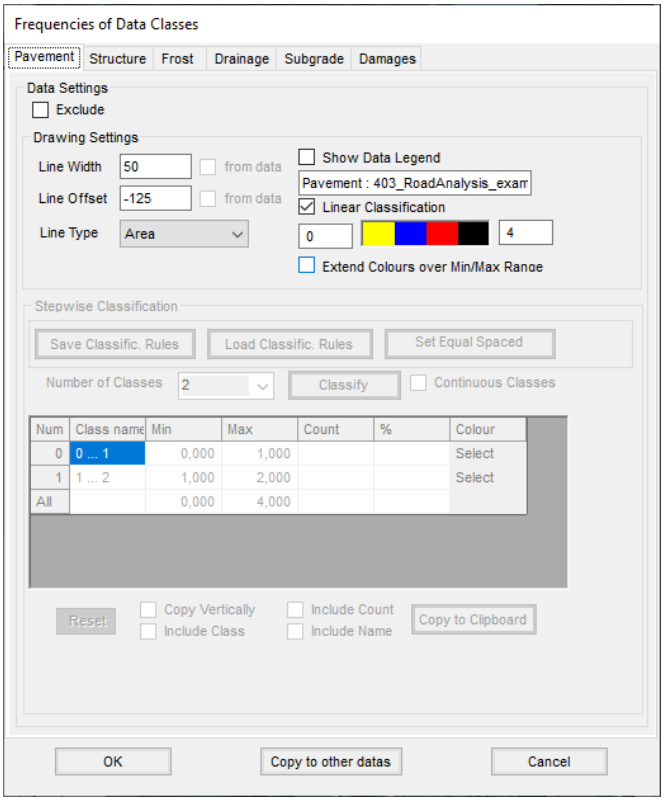
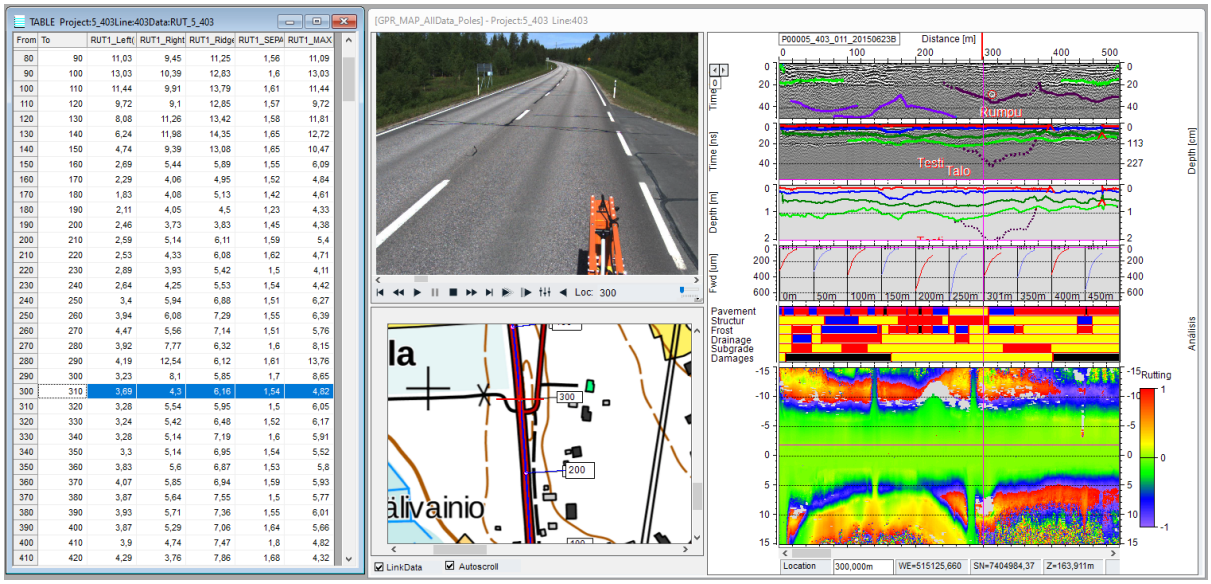


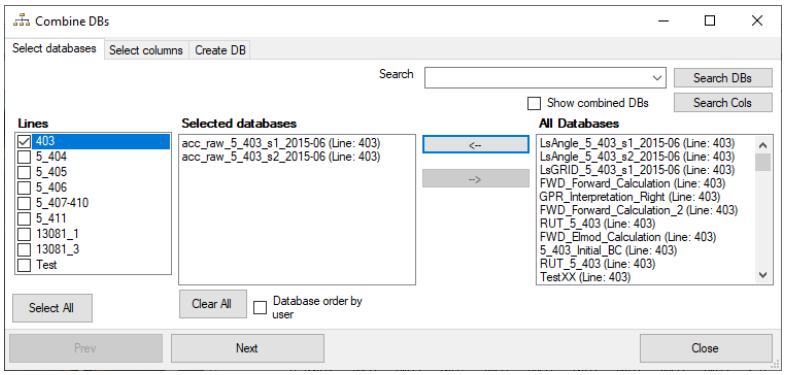
Table view

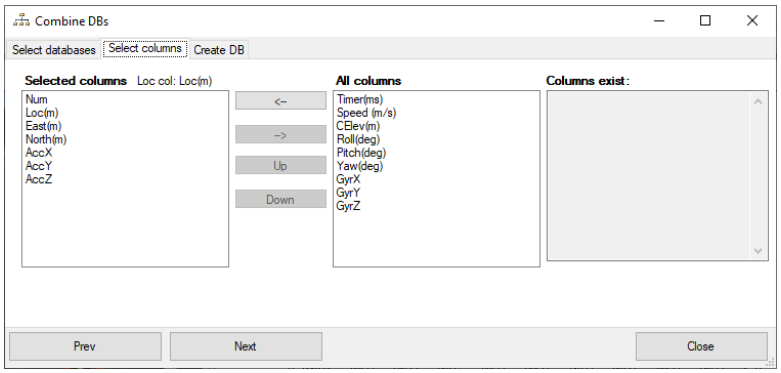
Table view can now be linked and synchronized with data view. Click in data view shows the same location also in corresponding row in table view and vice versa. The enabling is done as with other linked views by selecting ribbon tool button HOME | Link Views.

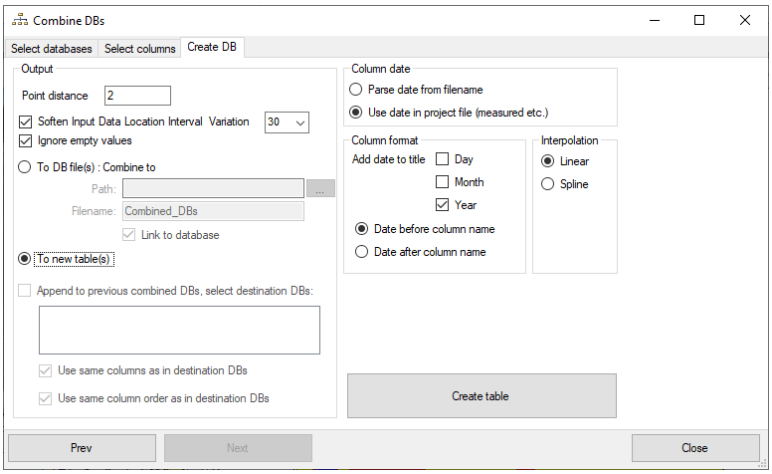


Databases

A new tool for combining similar database fields. The tool can be used to combine fields from several databases from the same section but different years or measuring times to the same database. This makes easier to compare fields and do trend analysis etc. statistical analysis with the build in table view tools. The operation allows combining also fields which are not available in all databases.







If the new columns are added or existing removed in a table view from a linked database, the changes can be saved back to the database file, and the changes will be visible next time. Also, the program sees, if an existing database, which is clicked for opening has been changed since last read, and it will be updated to include the new columns.

Video

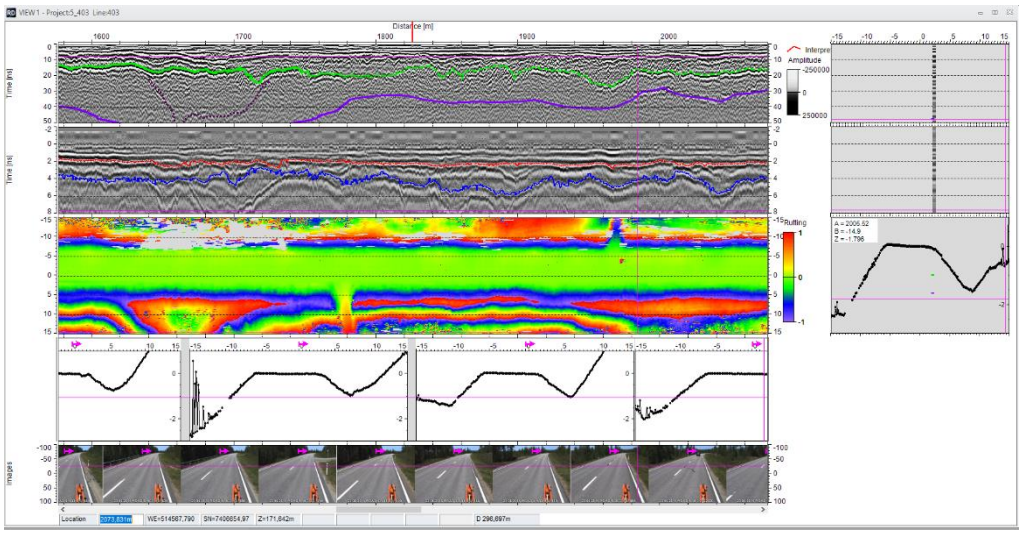
A video can be moved frame by frame backward or forward using ‘Q’ and ‘E’ keys respectively.

Diagnostics

Quick access keys (<Ctrl> + mouse, <Shift>+mouse) are added to quickly select an analyzed parameter from a list of possible analyzable parameters.

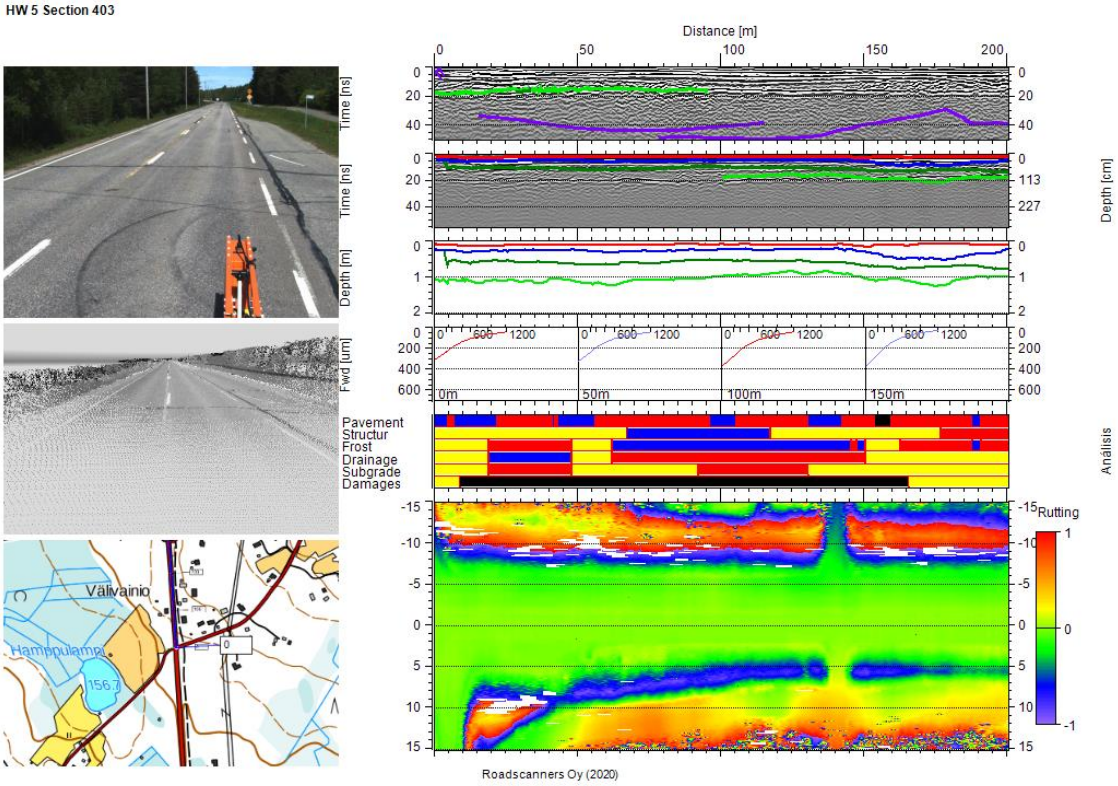
Point Cloud cross-sections

Point Cloud cross-sections can now be shown along the data view. The view can be activated from ribbon Tool button in VIEW | Add CS imagelist to data. After selection, the program will ask which one of the elevation data cross-sections will be shown, if there are multiple.



Printing operation

The printing operation can print to printer or to images views which include Map, Video and Point Cloud Data so that they are included in the prints.

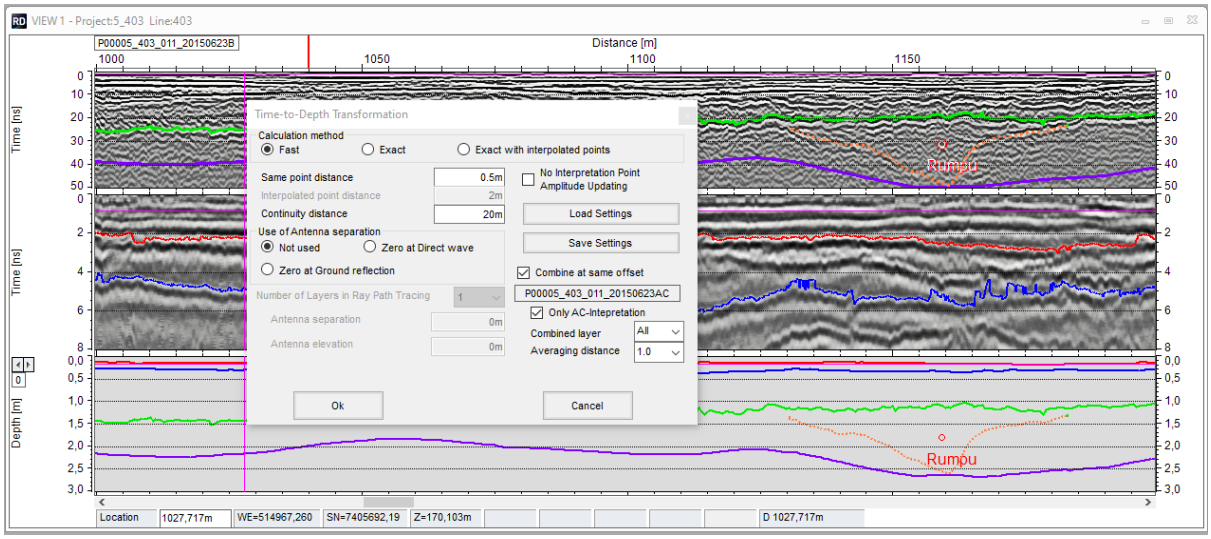


GPR Module

Interpretation

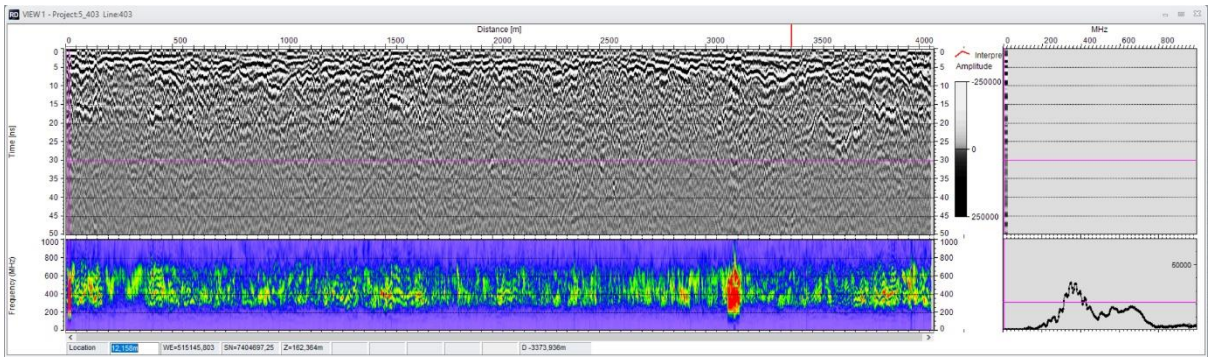
Interpretation operation has now a slightly better layer tracing routine, which prevents the routine losing the track or, if it is lost, the tracking will stop. This is available if Trace matching is used in the interpretation settings.

The update interpretation can now take in to account all the GPR measurements measured at the same offset distance. This makes possible to calculate correct depth for all the layers and use higher resolution antenna data at shallower depths. For example, GPR ground coupled can be combined with Air Coupled data from the same distance. Similarly, also the two Ground coupled data interpretations can be combined assuming that the combined file has shorter time range. The updated depths will be shown only in vector interpretation outputs.



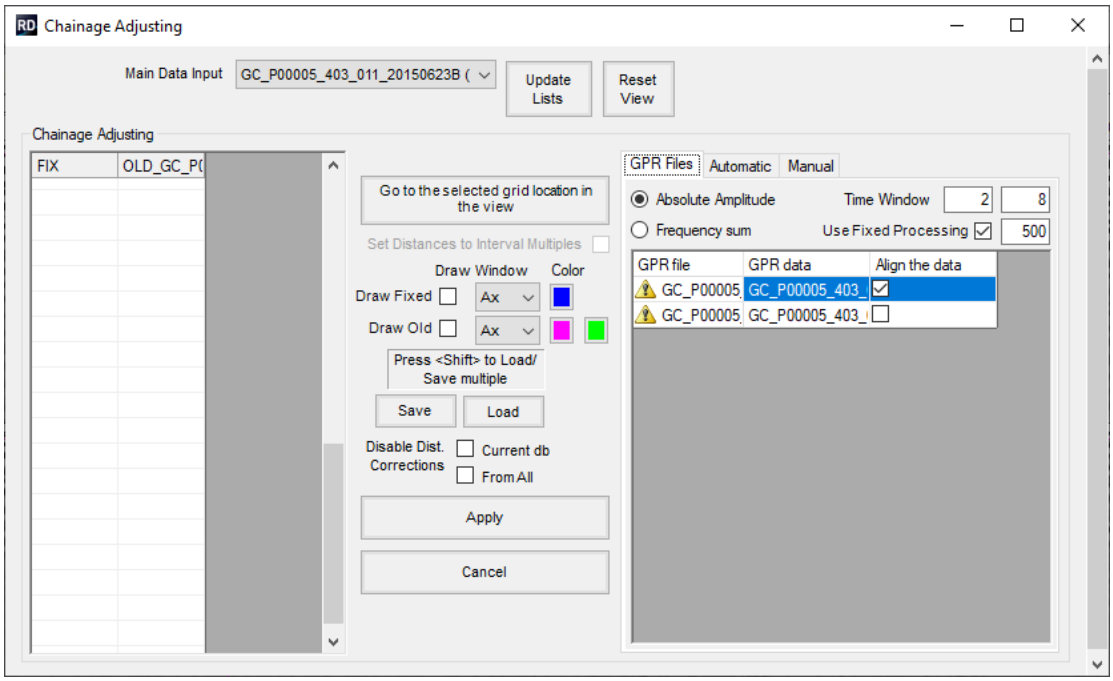
Single scan view

The single scan view can now show multiple scans in the same view, so that they can be compared easier. Also, previously only in special GPR Modules available operation “Save View Data Spectrum to Clipboard” is now activated also in basic GPR module. It makes possible to calculate frequency spectrum from shown data distance interval and time range and paste it from clipboard to table view, save to database and display it using all database display option. Similarly, the tool has also an option to do the same for shown raw GPR data.



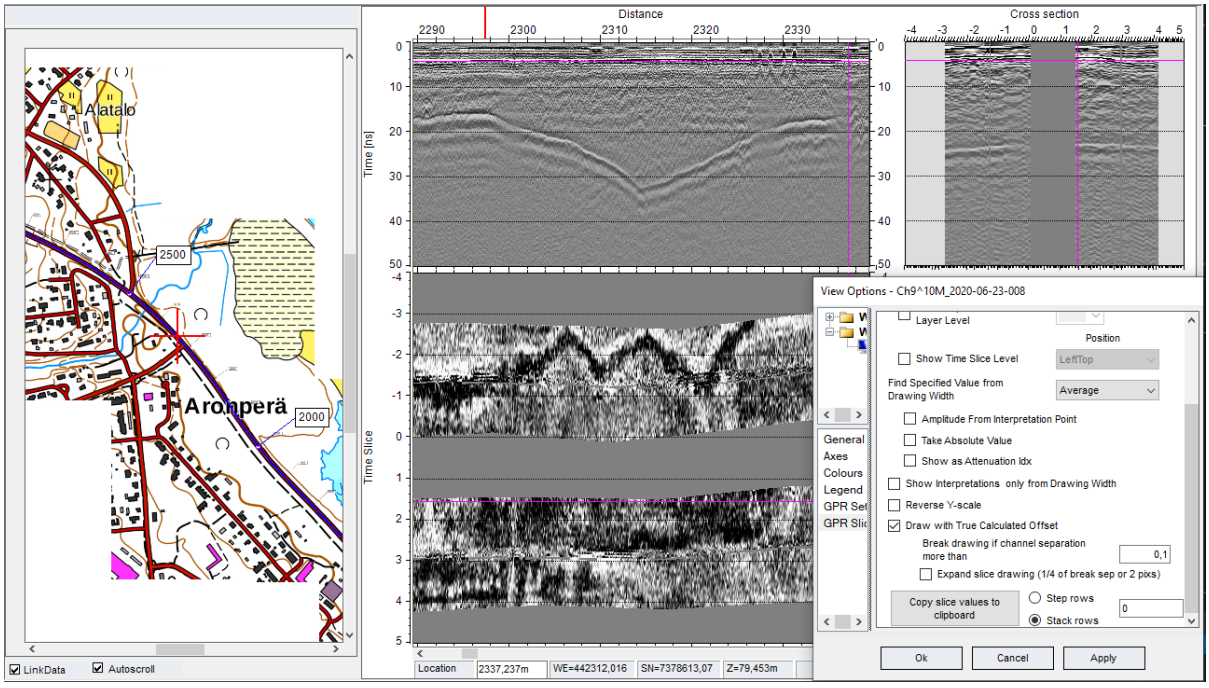
Chainage Adjustment

Chainage adjustment operation can be used to adjust GPR profiles from the same location measured at different time if they have variations in locations. The operation calculates fingerprints from data and uses those for matching the similar features in data and calculating local scaling factors to align different data. The same interface is used also for adjusting database data.



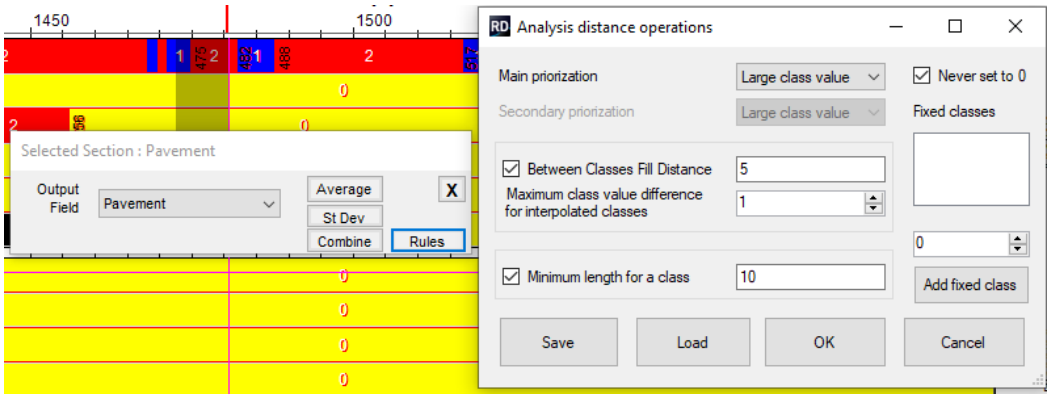
3D GPR Views

GPR Slice and offset views can now be drawn with set distance offset. The program can also automatically leave gaps if the channel separation is more than given value. The features in data are better aligned. The mouse pointer location can also be seen in the map at correct offset. The vectors (“Pipes”, “Culverts”, etc.) interpreted in the slice view can also be drawn with given layer code color.



Diagnostics Module

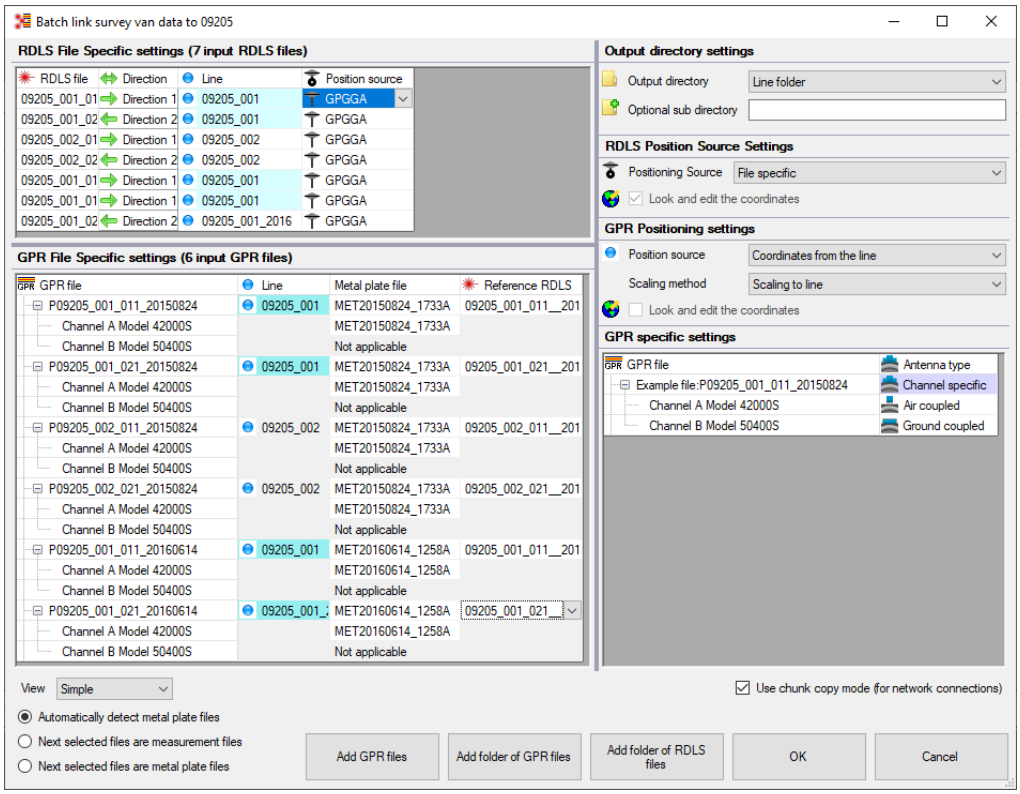
If any of the Road Doctor Special modules is installed, the program gives possibility to use an analysis tool, which can be used to combine short sections to longer sections based on set rules. The tool is especially handy, if the original data is classified originally using automatic classification (only in Diagnostics module). The automatic classification can create very short sections, which are impractical for large datasets and analyzing multiple parameters.



A frequently used annotation can be saved into a list for later use. Old ones can be removed.

Surface Module

As a new feature in Surface Module is the possibility to link Road Doctor laser scanner (RDLS) and GPR data simultaneously. This makes possible to use IMU data and saved positions of instruments in .rdls-files for determining the location of GPR instruments. As a previous version feature, there is a possibility to link also video files simultaneously with RDLS-data. With these features, it is possible to save a huge amount of manual work and time in data linking process.


Batch link survey van data to 09205
RDLS File Specific settings (7 input RDLS files)
RDLS file
Direction
Line
Position source
09205_001_01 Direction 1 09205_001 GPGGA
09205_001_02 Direction 2 09205_001 GPGGA
09205_002_01 Direction 1 09205_002 GPGGA
09205_002_02 Direction 2 09205_002 GPGGA
09205_001_01 Direction 1 09205_001 GPGGA
09205_001_01 Direction 1 09205_001 GPGGA
09205_001_02 Direction 2 09205_001_2016 GPGGA
GPR File Specific settings (6 input GPR files)
GPR file
Line
Metal plate file
Reference RDLS
P09205_001_011_20150824 09205_001 MET20150824_1733A 09205_001_011__201
Channel A Model 42000S MET20150824_1733A
Channel B Model 50400S Not applicable
P09205_001_021_20150824 09205_001 MET20150824_1733A 09205_001_021__201
Channel A Model 42000S MET20150824_1733A
Channel B Model 50400S Not applicable
P09205_002_011_20150824 09205_002 MET20150824_1733A 09205_002_011__201
Channel A Model 42000S MET20150824_1733A
Channel B Model 50400S Not applicable
P09205_002_021_20150824 09205_002 MET20150824_1733A 09205_002_021__201
Channel A Model 42000S MET20150824_1733A
Channel B Model 50400S Not applicable
P09205_001_011_20160614 09205_001 MET20160614_1258A 09205_001_011__201
Channel A Model 42000S MET20160614_1258A
Channel B Model 50400S Not applicable
P09205_001_021_20160614 09205_001_ MET20160614_1258A 09205_001_021_
Channel A Model 42000S MET20160614_1258A
Channel B Model 50400S Not applicable
Output directory settings
Output directory
Line folder
Optional sub directory
RDLS Position Source Settings
Positioning Source
File specific
Look and edit the coordinates
GPR Positioning settings
Position source
Coordinates from the line
Scaling method
Scaling to line
Look and edit the coordinates
GPR specific settings
GPR file
Antenna type
Example file:P09205_001_011_20150824
Channel specific
Channel A Model 42000S
Air coupled
Channel B Model 50400S
Ground coupled
View
Simple
Use chunk copy mode (for network connections)
Automatically detect metal plate files
Next selected files are measurement files
Next selected files are metal plate files
Add GPR files
Add folder of GPR files
Add folder of RDLS files
OK
Cancel