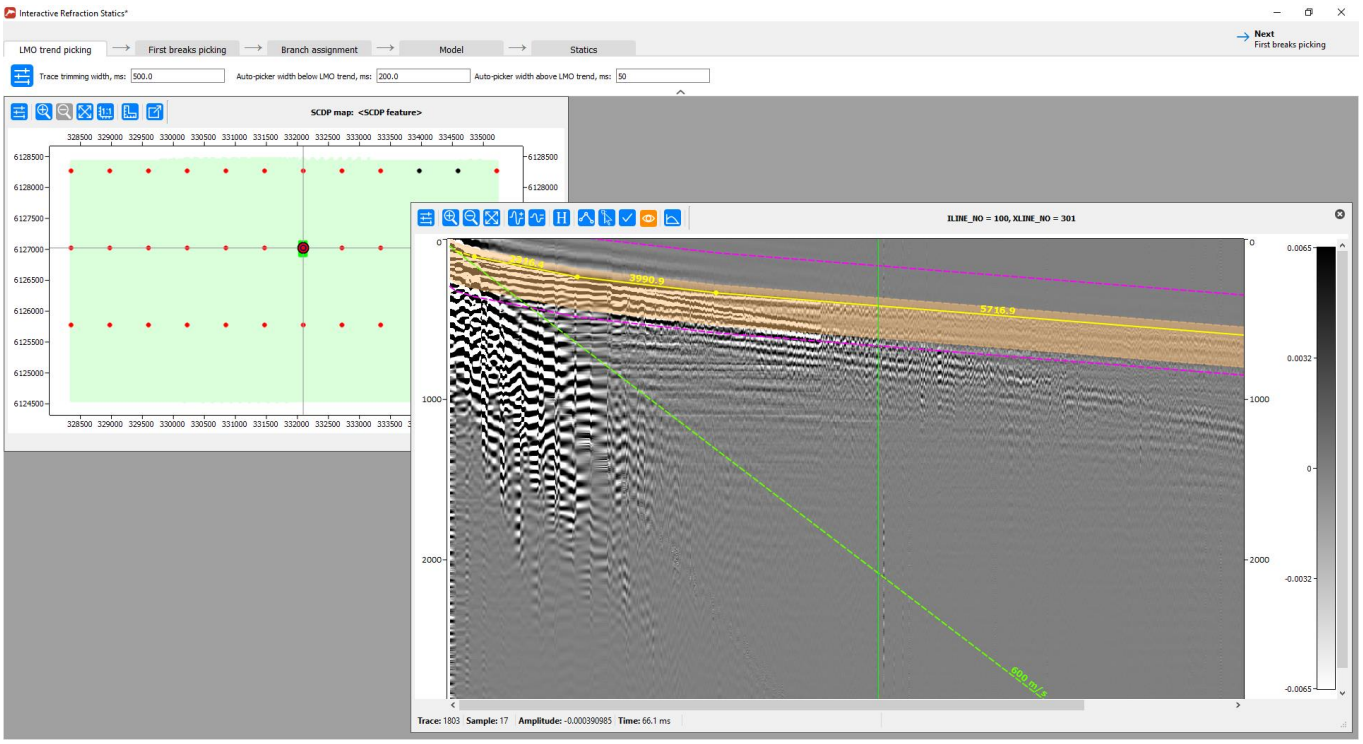
RadExPro 2020.1 release notes

The next version of our seismic software, **RadExPro 2020.1**, is ready now!

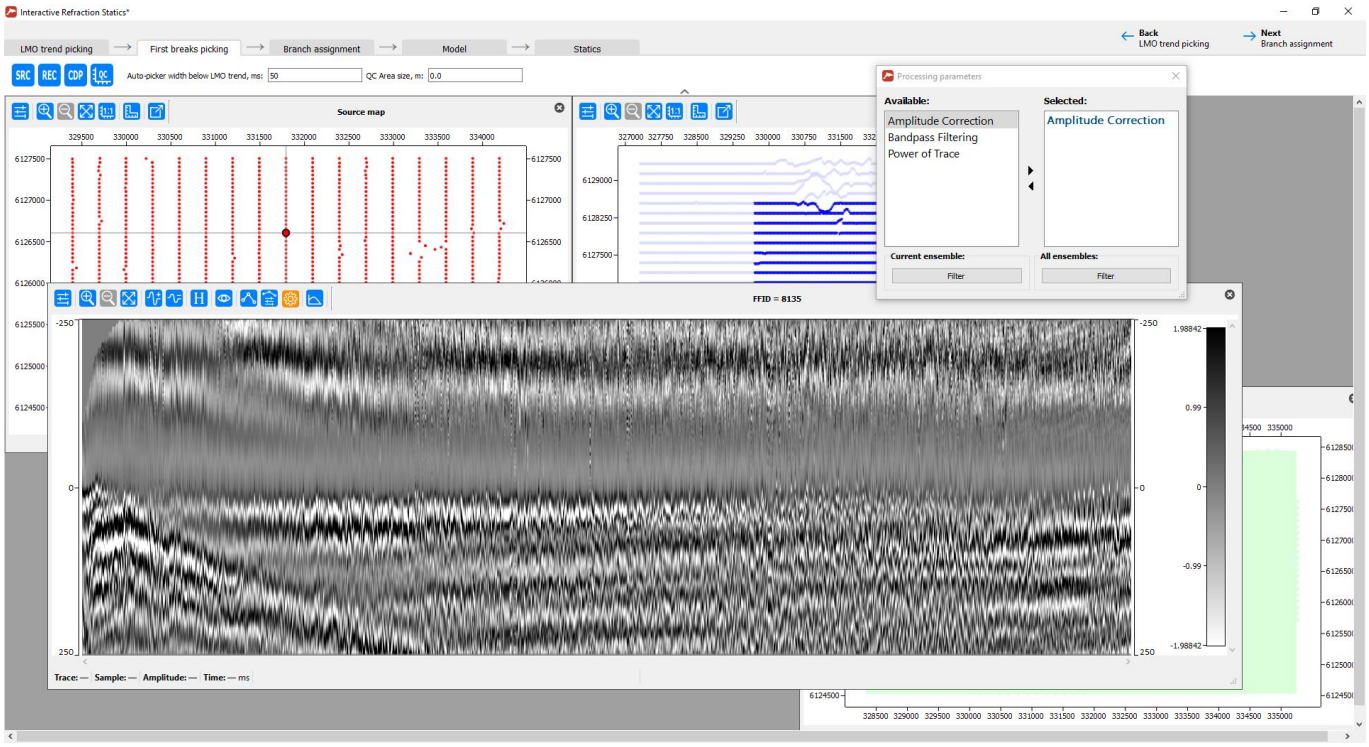
The main novel that we have been working on for the last few months is the **Interactive Refraction Statics** module. In the future, we are going to license it separately, but for now, a standard **RadExPro Professional** license includes 100 launches of the module. You can use this launches both for evaluation/educational purposes and for commercial projects.

- New **Interactive Refraction Statics** module is an interactive environment to complete the workflow of evaluation of refraction static corrections in a fully controllable way – from first break picking, through refraction branch assignment, velocity modeling and, finally, calculation of the statics. The workflow is divided by several Stages, the Wizard-like module interface will guide you through them:

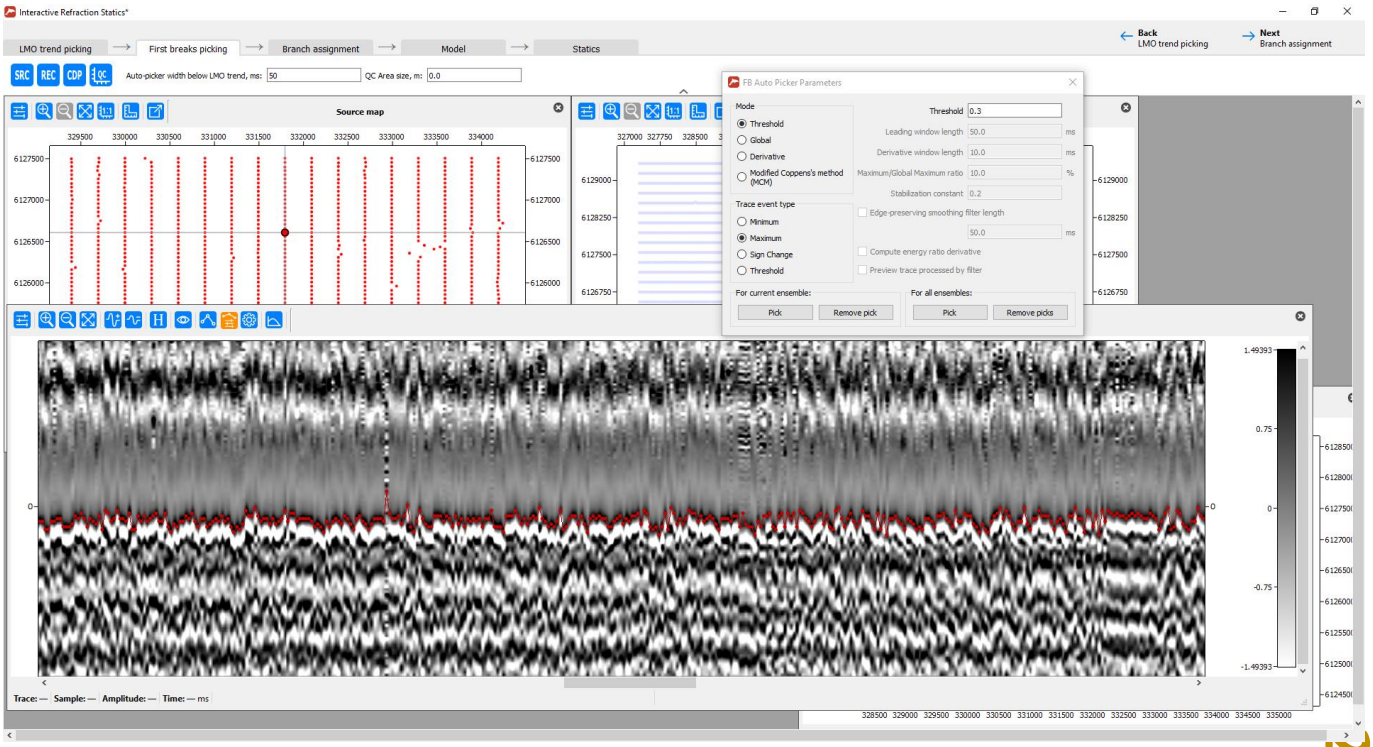
  Stage 0 – the preparatory one. Here you pick general LMO trend. On the next stage, you will be working with a small section of the traces around the first breaks, trimmed along the trend. Magenta lines on the figure below indicate edges of the section to be trimmed, while orange-colored area shows the window for automatic search for first breaks. You can independently adjust the width of this window above and below the LMO trend.



Stage 1 – is first break picking. You will be working with a small section of the traces around the first breaks with LMO-correction applied. You can make some simple pre-processing of the trimmed segment of the data to balance the amplitudes and improve signal-to-noise level:

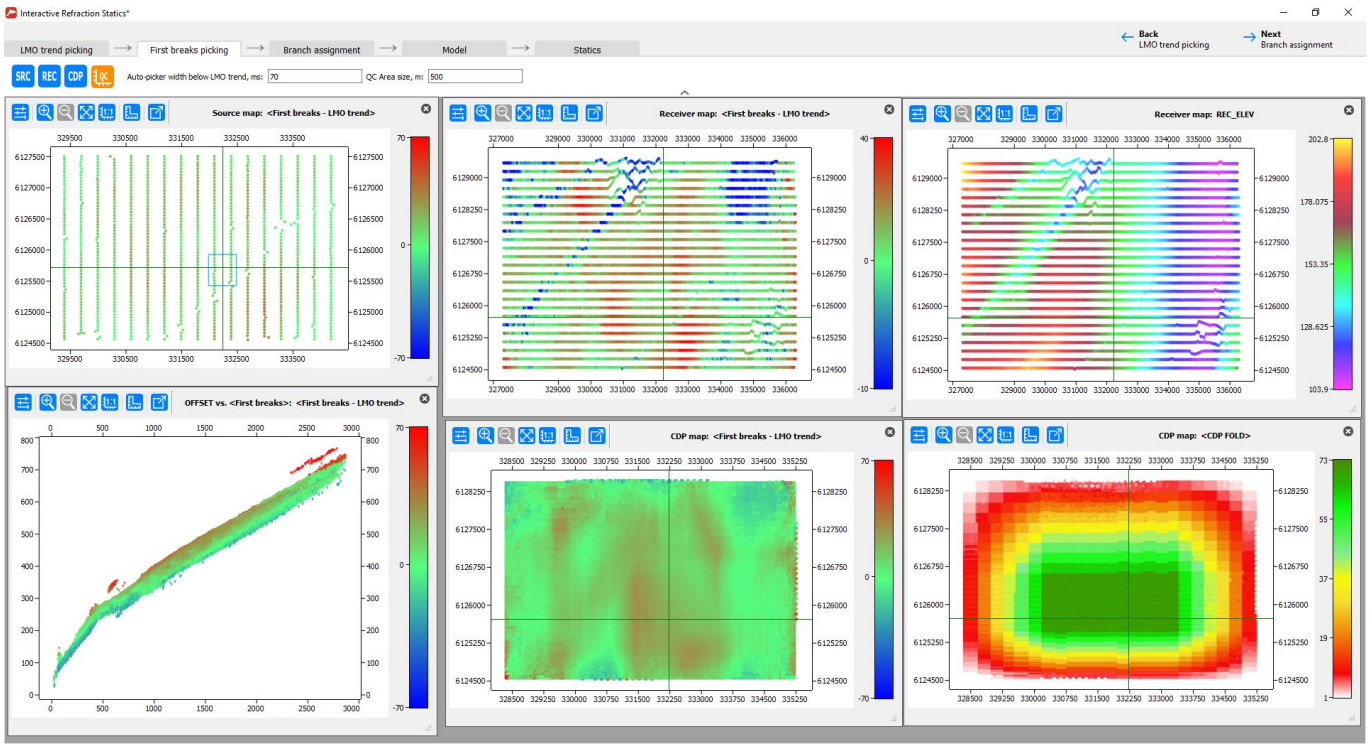


When the data is ready, you can start picking first breaks using one of the several auto-picking algorithms implemented:



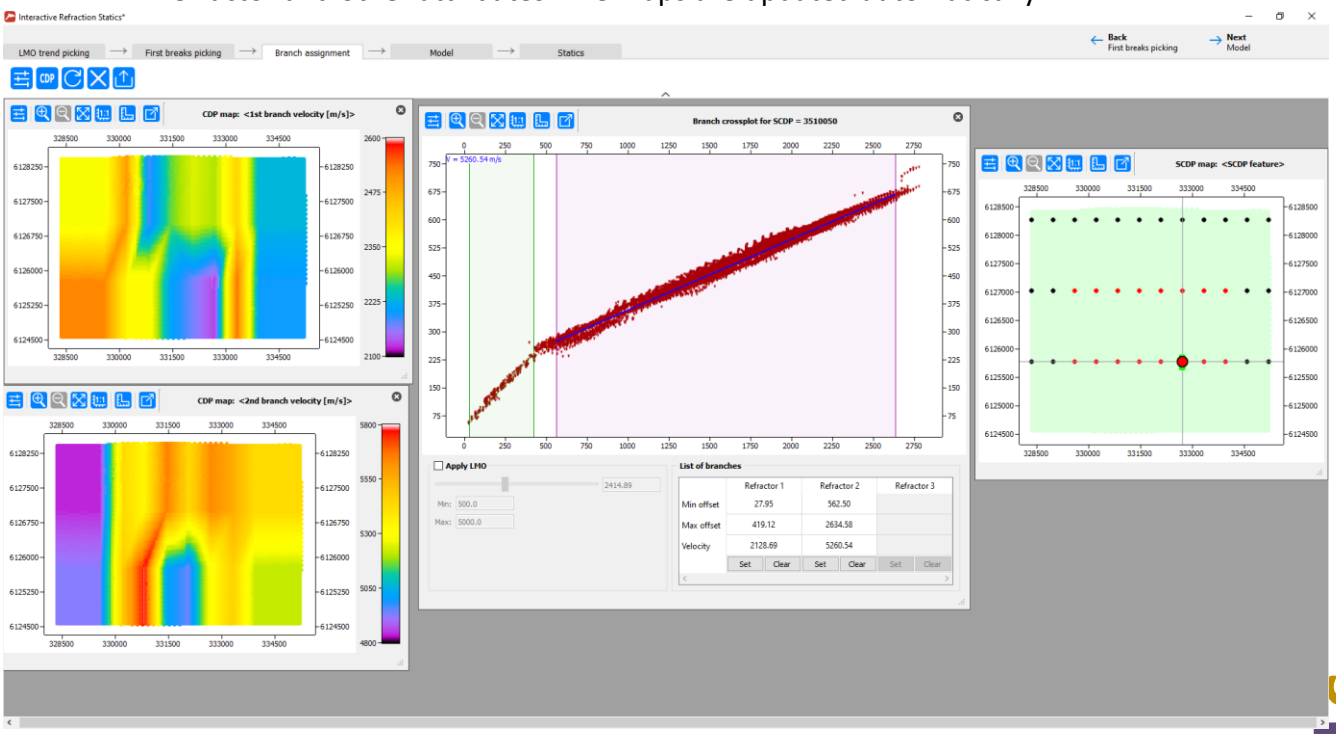
The resulting pick can also be edited manually.

You will enjoy user-friendly and efficient tools to QC the resulting first break pick:



You can display first breaks on TWT vs. offset crossplots for super-seismograms in either common shot, common receiver or CDP domains. In case of suspicious picks, you can call the corresponding seismogram directly from the crossplot and edit the picks when needed. Various attribute maps can also help.

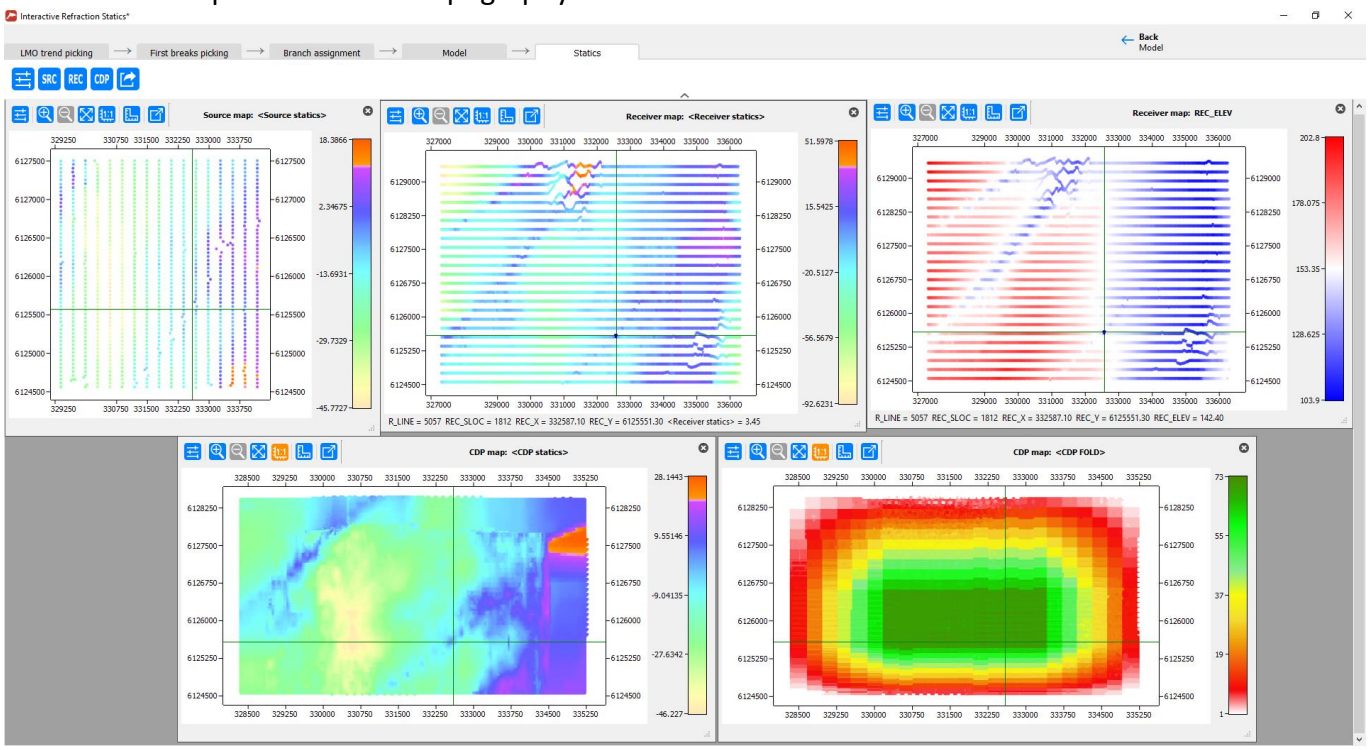
Stage 2 – refractor branches assignment. You will be working with the first breaks of super-CDP gathers on TWT vs. offset crossplots indicating branches for each refractor. You can QC the process through maps of velocities, minimum/maximum offsets for each refractor and other attributes. The maps are updated automatically.



When going to the next stage, a velocity model will be calculated.

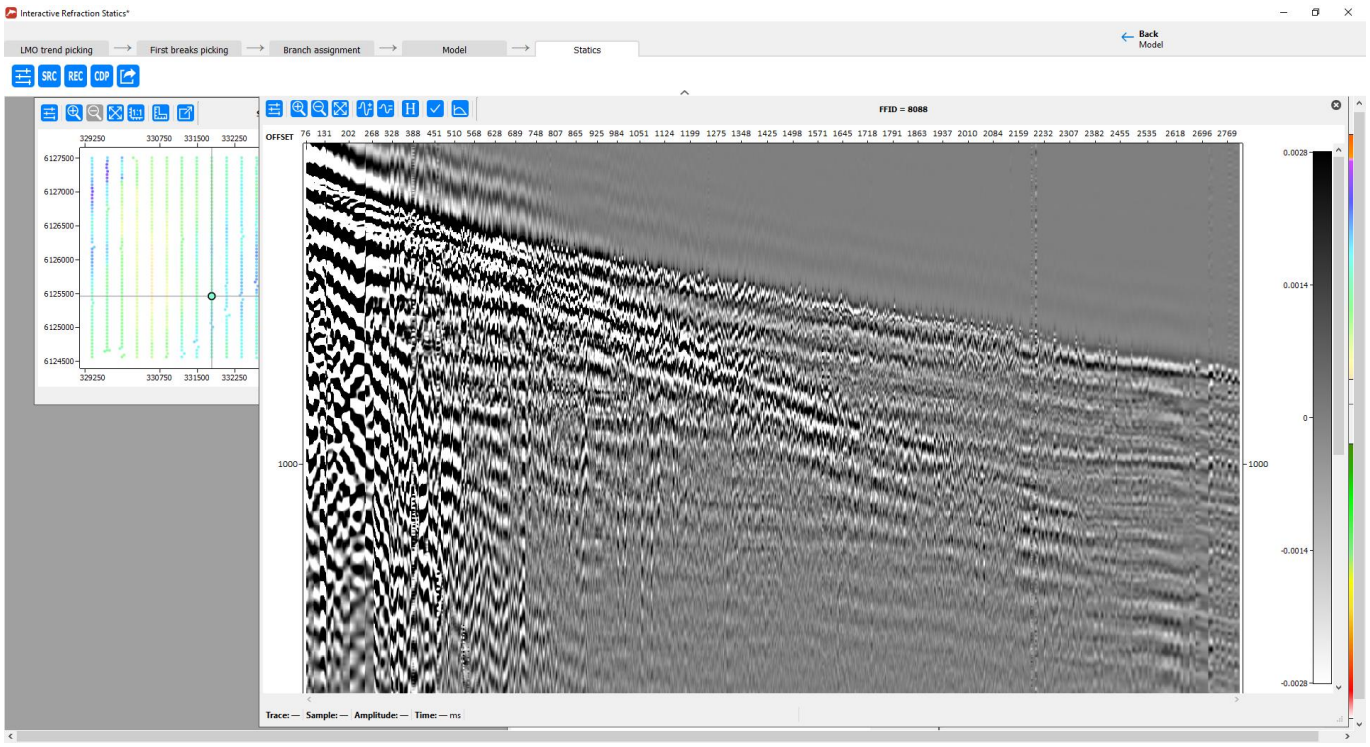
Stage 3 – velocity model display. You can examine resulting velocities and depths/elevations of all refractors. Here you can smooth the first refractor surface before moving next to evaluation of static corrections.

Stage 4 – the result is ready! You can examine resulting static corrections on maps, compare them with topography and other attributes.

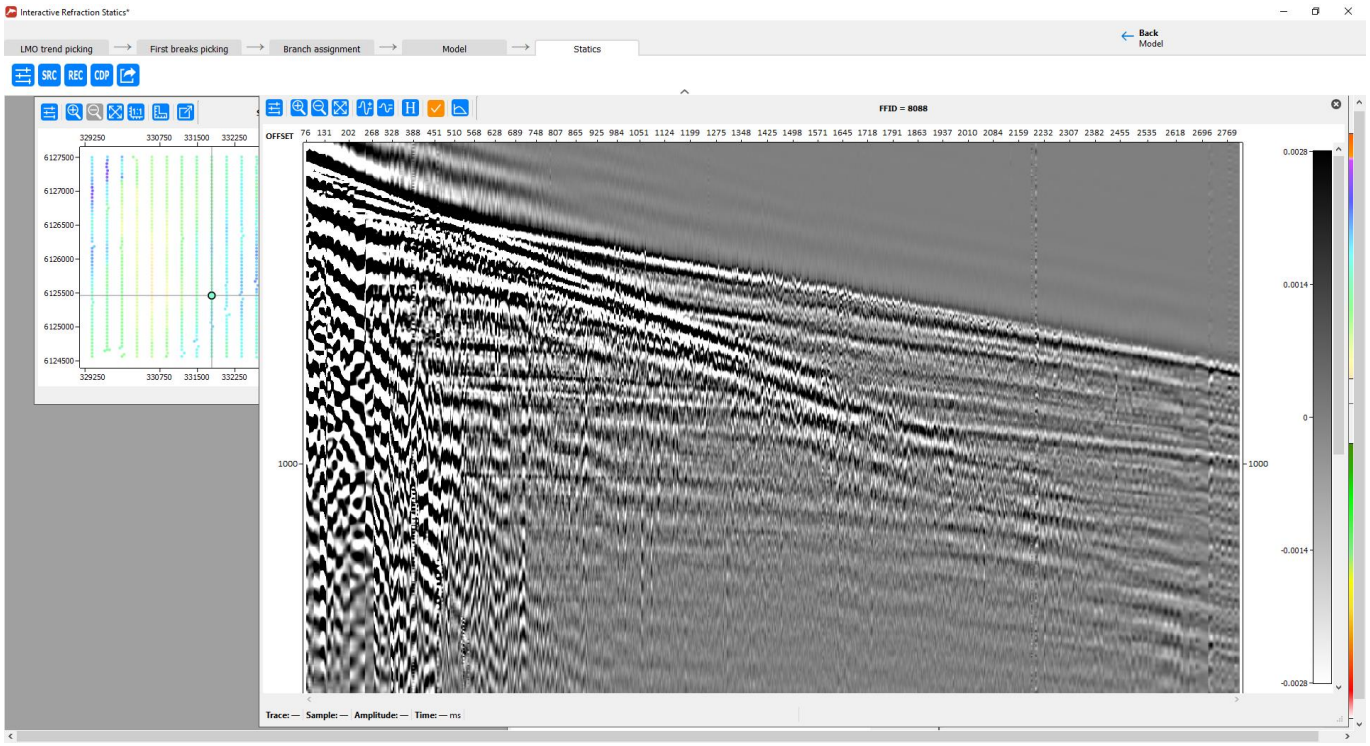


Here you can also preview how the statics will affect the data when applied to either common shot, common receiver or CDP gathers, to assess the quality of the result.

Below is the original common-shot gather (as sorted by offset):

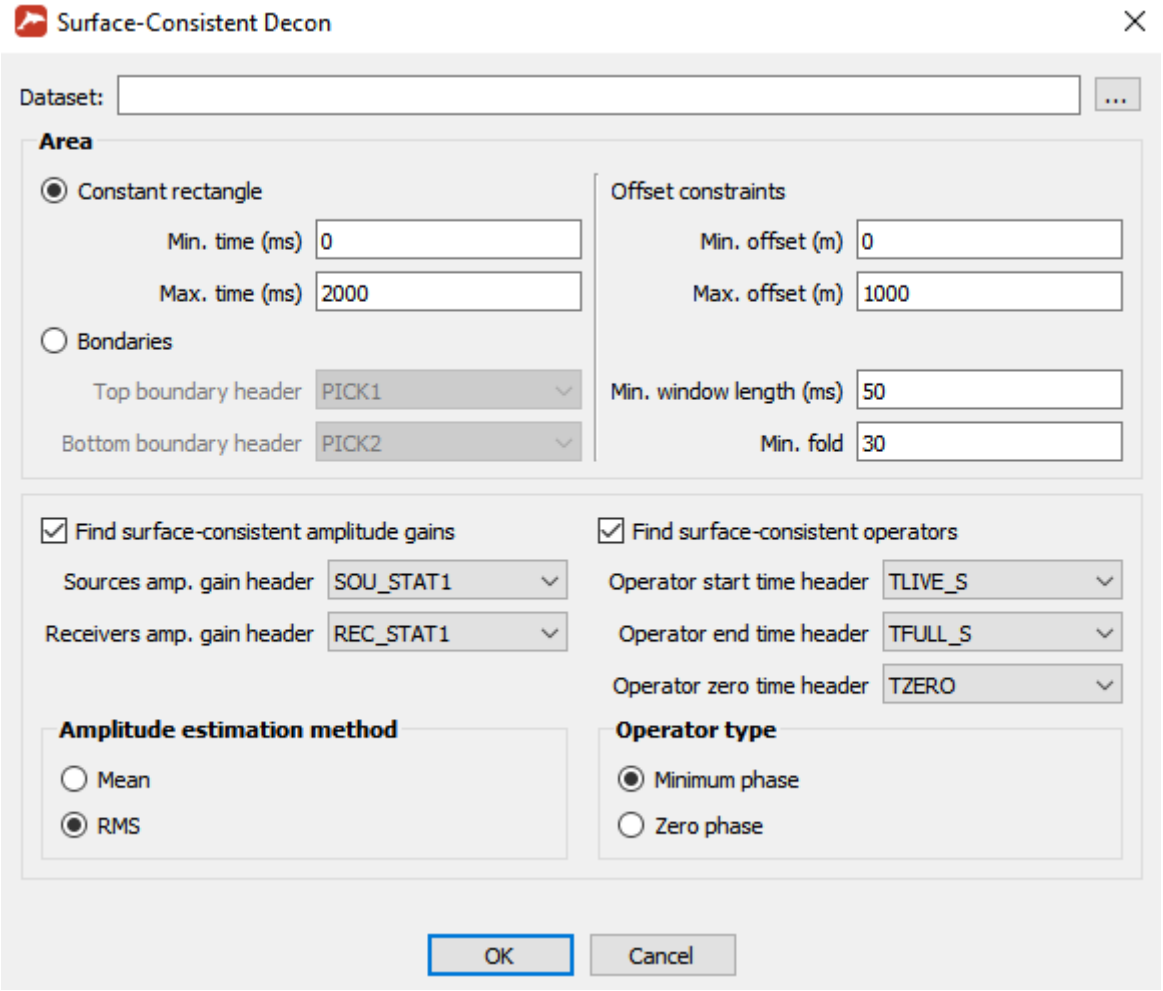


Here is the same gather with the statics applied:

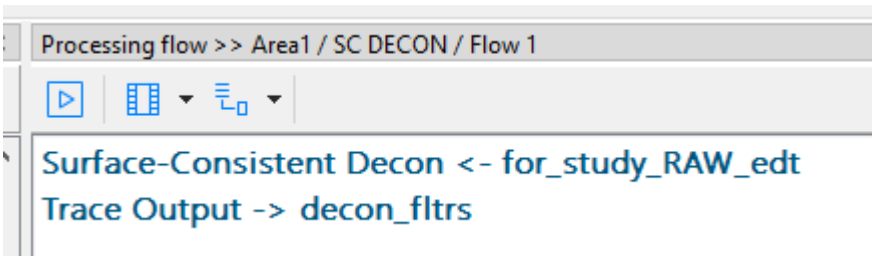


Other novels include:

- New **Surface-Consistent Decon** module calculates inverse filters for surface-consistent deconvolution (minimum phase or zerophase), as well as amplitude coefficients for surface-consistent amplitude correction for SOURCE and RECEIVER components:

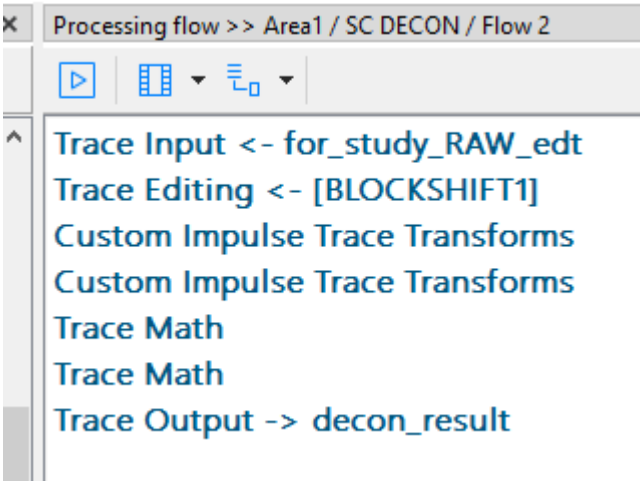


The surface-consistent deconvolution/amplitude correction itself is carried out in 2 stages. At the first stage (in the 1st flow), deconvolution operators and amplitude corrections for each RP and SP are calculated. Flow 1 may look like this:

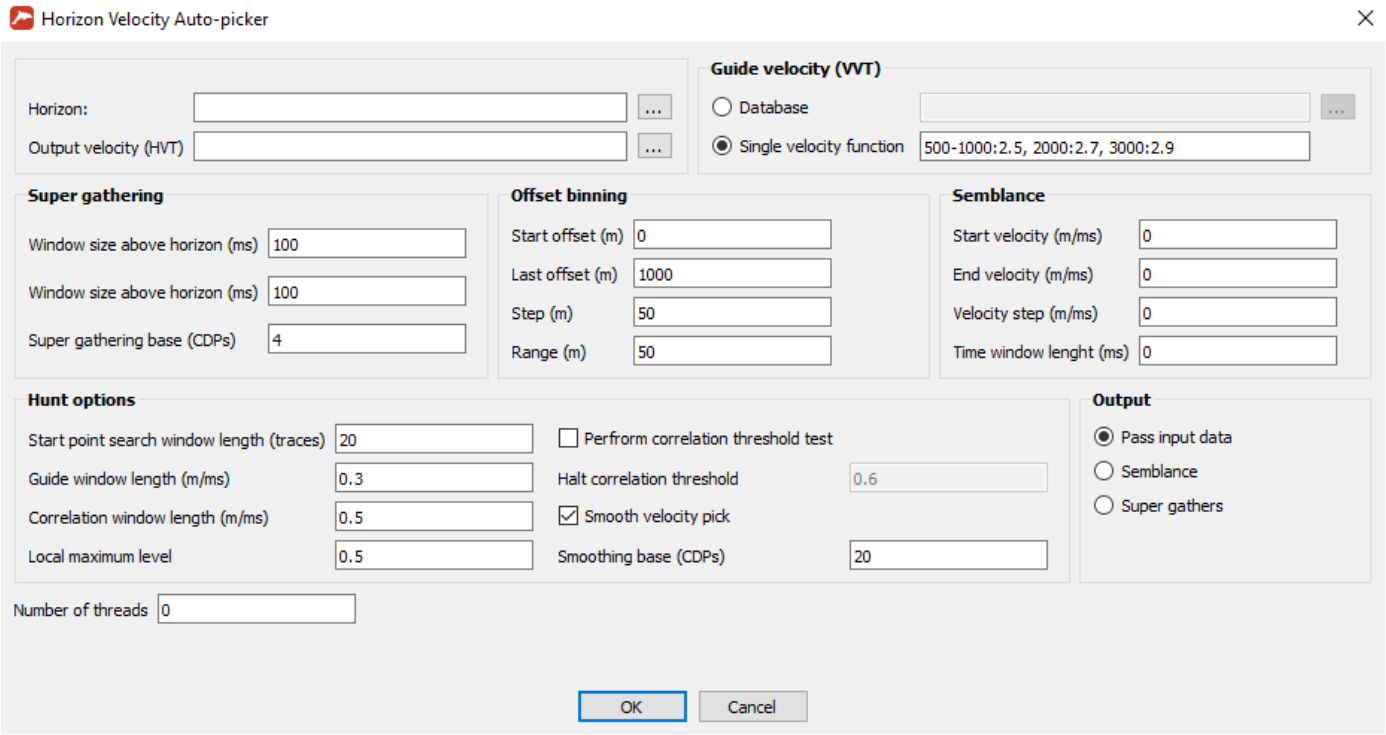


At the second stage (in the 2nd flow) they are applied using the **Custom Impulse Trace Transform** and **Trace Math** modules. Below is an example of the Flow 2: input data is top-muted (recommended), then 2 instances of Custom Impulse Trace Transforms

module apply separately inverse filters for source and receiver components. Finally, two instances of Trace Math apply amplitude corrections for sources and receivers:

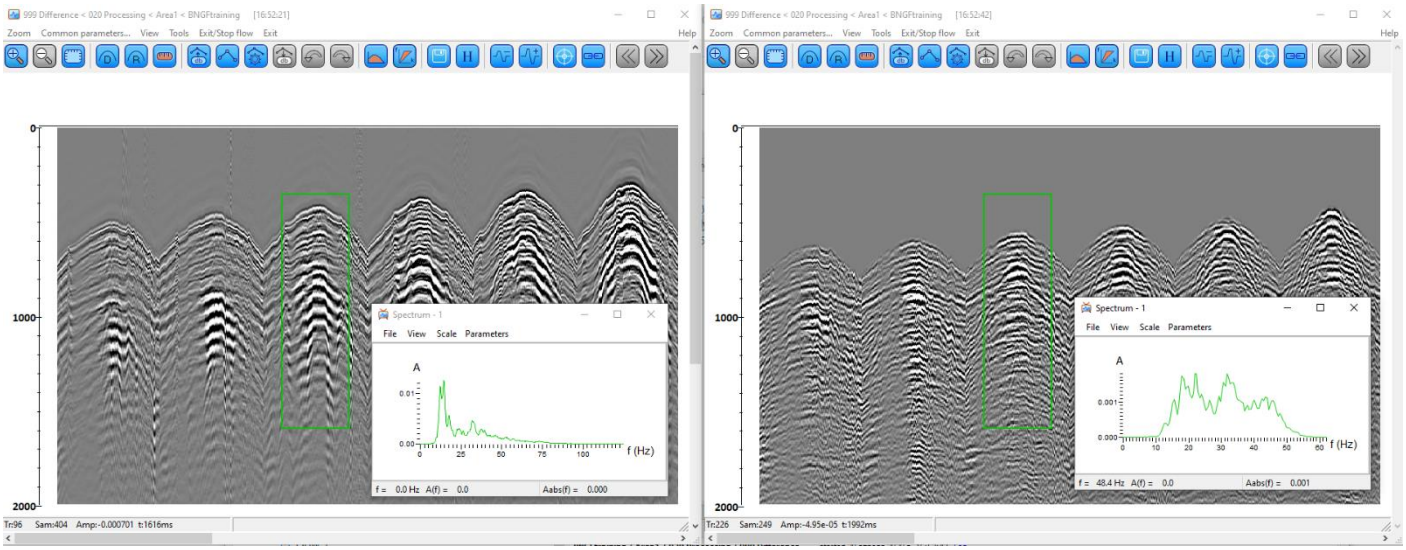


- New **Horizon Velocity Auto-picker** module makes automatic horizon velocity analysis. It automatically generates a horizon velocity table (HVT) along a specified input horizon on a 2D line.



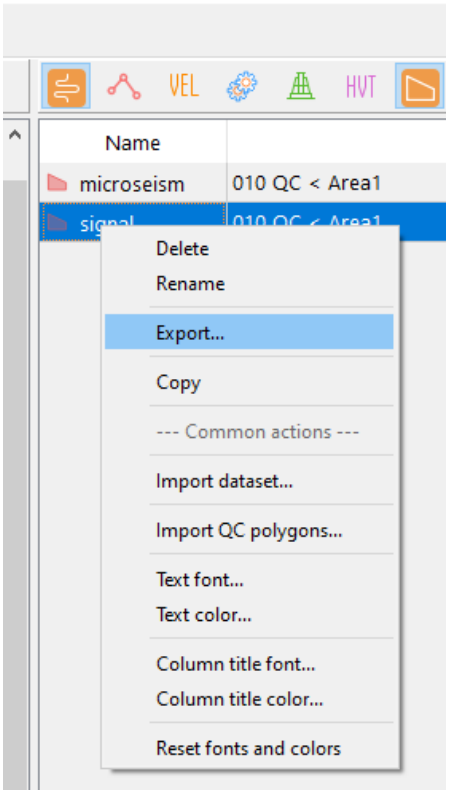
When you have several HVTs determined along main horizons, you can convert them altogether into a conventional vertical velocity table (VVT) using HVT >VVT tool (available from the menu Tools/ HVT >VVT… of the main program window)

- Now, when several **Screen Display** windows are synchronized, their spectrum windows are synchronized as well, so when you select an area to take a spectrum in one of the windows, the spectrums are taken from the same area in all synchronized **Screen Displays** at once:

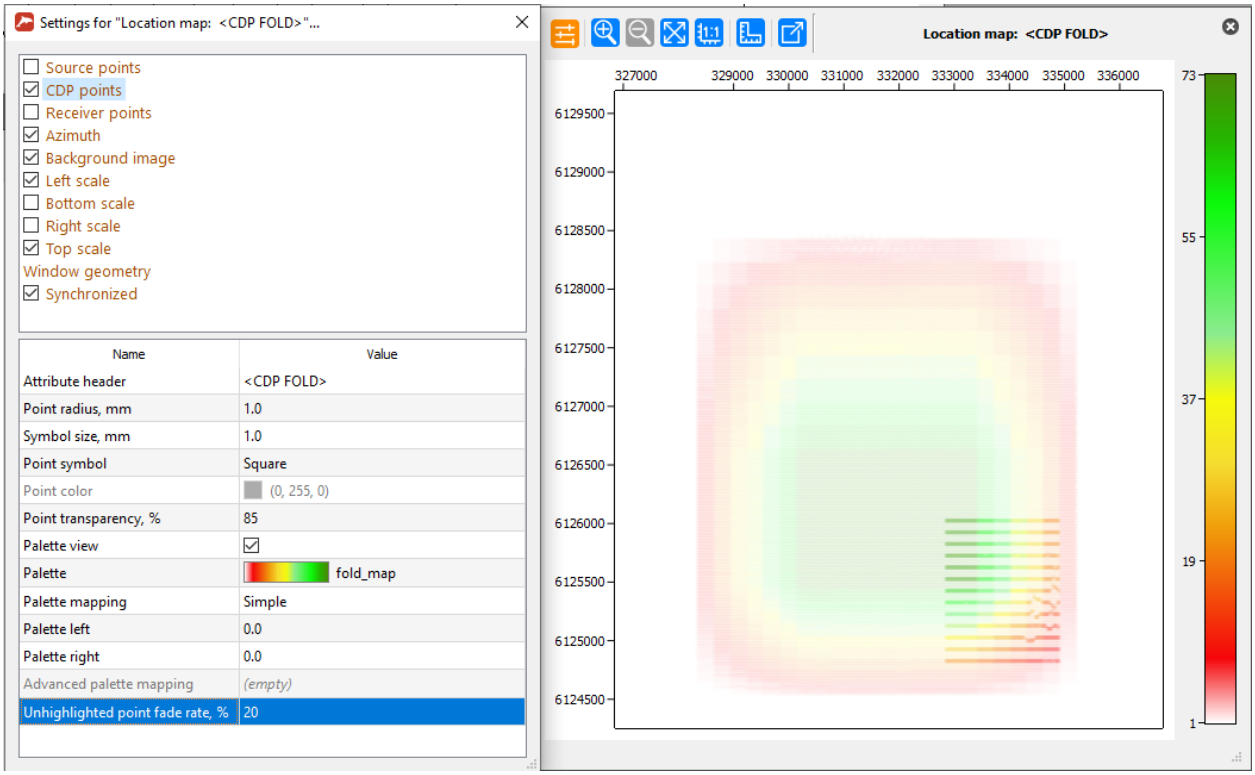


The same works for F-K spectrums as well.

- Now you can **export and import QC polygons** to exchange them between projects. Right-click on a polygon in the database manager:



- On **maps** in the **Interactive QC** module, now you can adjust the color difference between highlighted and other points:



- Improved **Wavefield Subtraction** module can now subtract more than 2 models at the same time.

- Some bugs were fixed:
  - Header Spatial Interpolation does not recognize *HeaderNoValue* -- **FIXED!**
  - HVT-VVT tool frequently crashes the software - **FIXED!**
  - F-X-Y Deconvolution upper frequency is limited to 9999 Hz that limits its use for UHR data - **FIXED!**
  - In the Real-Time configuration, QC Viewer module gets weird if the data volume exceeds the specified cache limit -**FIXED!**
  - 3D Volume Viewer does not recognize *HeaderNoValue* when loads a surface from header - **FIXED!**
  - SPS/UKOOA/Tides Import modules can occasionally loose headers settings - **FIXED!**
  - Custom Impulse Trace Transforms –application window limits do not work if set from trace headers - **FIXED!**
  - F-X-Y Deconvolution does not work with relatively big frames of data - **FIXED!**

Due to some technical problems, we had to skip 2019.4 release. For this reason, for those of you who had been on maintenance by 31.12.2019 but now the maintenance is over, we decided to provide this update for free.

So, if you are on maintenance now or had been on maintenance by 31.12.2019, please contact us at support@radexpro.com and get your free update.

IMPORTANT!: *Please, note that for most of you, this update will require updating licenses in your dongles. Please, follow the instruction below to generate a c2v-file for each of your dongles and attach these files to the e-mail with the update request.*

LICENSE UPDATE INSTRUCTION:

1. Connect the key to your computer and run RUS_WXDXI utility (it is installed together with the program and is available through Start menu in RadExPro program group).

2. In the dialog that opens, click the Collect Information button on the Collect Status Information tab, save the file with key information (.c2v).*

3. Attach this file to the e-mail with the update request and sent this e-mail to support@radexpro.com.

4. We will generate a new license and send it to you. After that in the same utility you will need to select the license file on the Apply License File tab and press Apply Update to apply it to the dongle.