



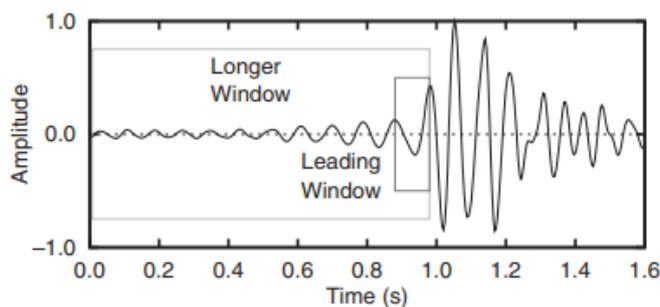
RadExPro 2019.1 release notes

We are happy to announce the new version -- **RadExPro 2019.1** is ready now.

- We have added a new picking algorithm into the **First Break Picking** module – the *Modified Coppers's Method (MCM)*, based on the following paper:

Sabbione, J.I. & Velis, D. 2010. Automatic first-breaks picking: New strategies and algorithms. Geophysics, 75: 67–76.

The algorithm is based on the fact that the transition between noise and noise plus signal can be automatically identified by detecting rapid changes in the energy ratio which is calculated between a short leading window moving along the trace and a longer reference window of increasing length.



First Breaks Picking

Output headers

First Break time (header word): ms

First Break amplitude (header word):

Horizon (header word): ms

Window length ms Leading window ms

Threshold Global Derivative Modified Coppers's method (MCM)

Threshold

Type Min Max Sign Change Threshold

Window to calculate derivative: ms

Replace trace with energy ratio derivative

Maximum/Global Maximum ratio %

Stabilization constant

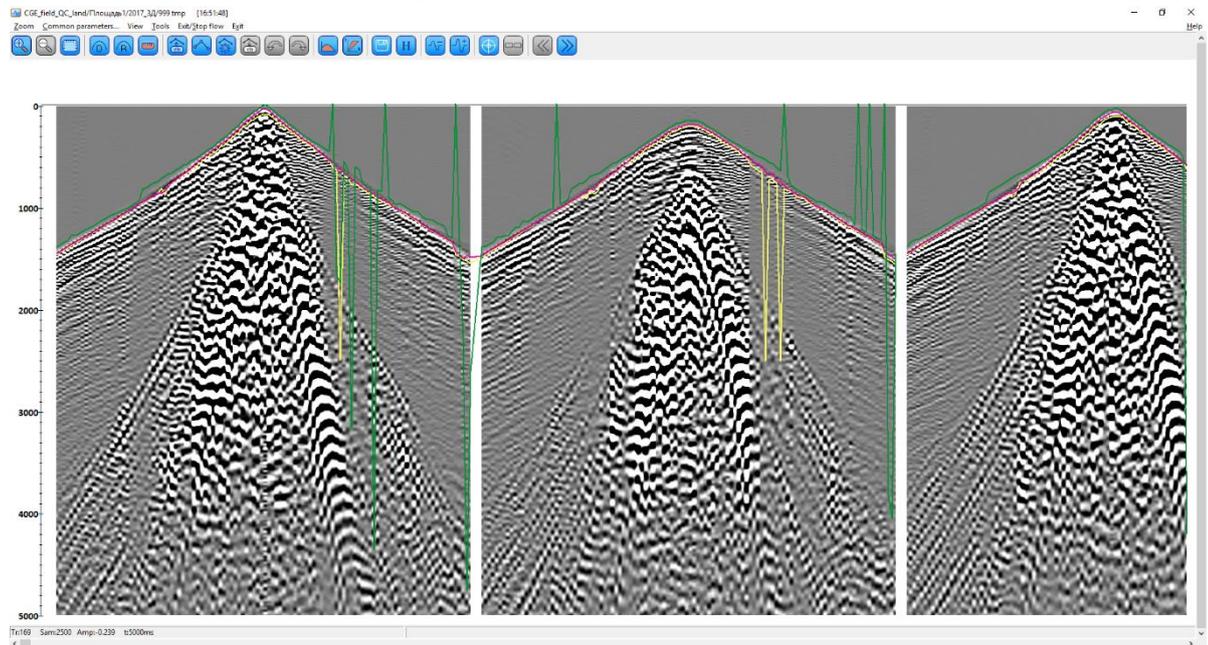
Edge-preserving smoothing filter ms

Compute energy ratio derivative

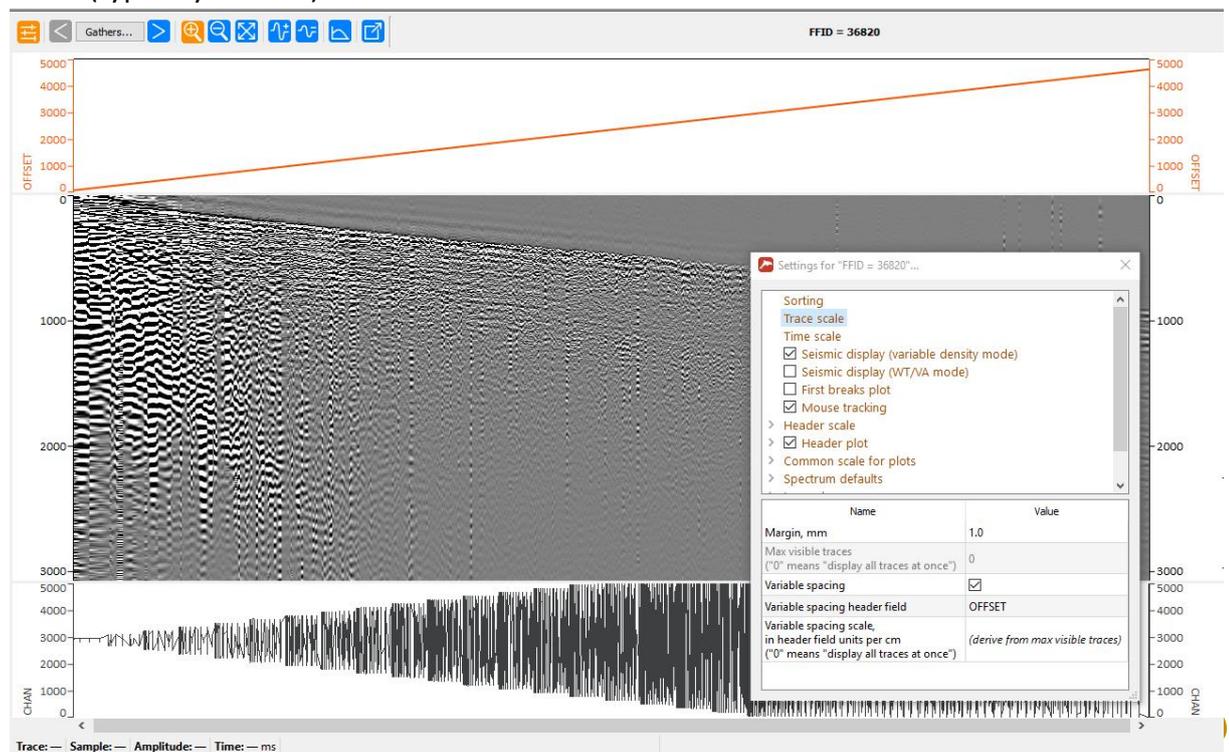
OK Cancel

The result can be processed with edge-preserving smoothing filter followed by derivative calculation. A maximum of either the derivative (*recommended*) or the original energy ratio attribute can be taken as a first break pick.

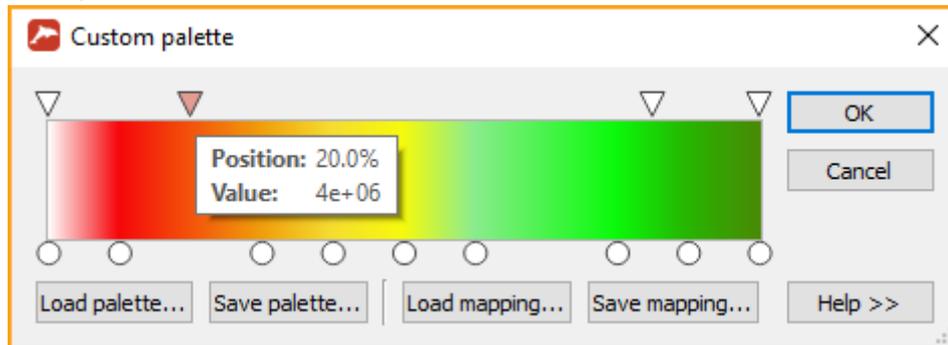
The algorithm appears to be more stable than the threshold and maximum derivative methods implemented earlier. Here all the 3 methods of first break picking are compared: yellow – threshold, green – maximum derivative, red – MCM:



- Variable spacing seismic display mode was added to **Seismic Display** and **Interactive QC** modules. Now you can place each trace on the display according to a specified header value (typically OFFSET):



- Advanced palette mapping mode was added to the maps of the **Interactive QC**. Now you can indicate an exact way how your attribute values should refer to the color pallet. Simply set some reference points on the palette and indicate corresponding value of each point:



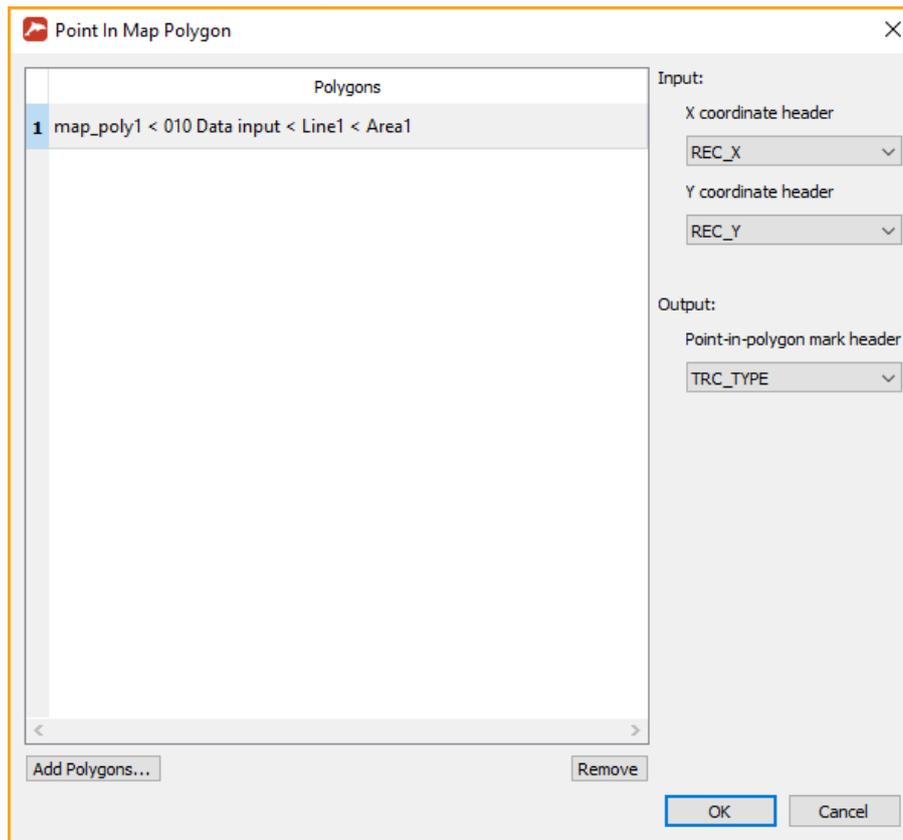
As a result, your value-to-palette mapping will be made a sectionally linear function, linked to a position on the palette at reference points (0% - leftmost side, 100% - rightmost side), and linearly interpolated in between.



You can save both a palette and a mapping and re-use them, either together or separately.

- We have introduced a new type of database objects – **Map Polygons**. They can be created manually or imported from MESA exclusion zone files. You can use a new module named **Point In Map Polygon** to check if a shot point, receiver point or CMP falls inside any of the polygons in the list or not – if it does, the point-in-polygon mark

header is assigned to 1, otherwise to 0. You can use this mark later to exclude marked traces from ensemble QC attribute calculation.



You can also display Map Polygons as exclusive zones on the **Interactive QC** maps.



- **Header Output** module now supports replicas for file name.

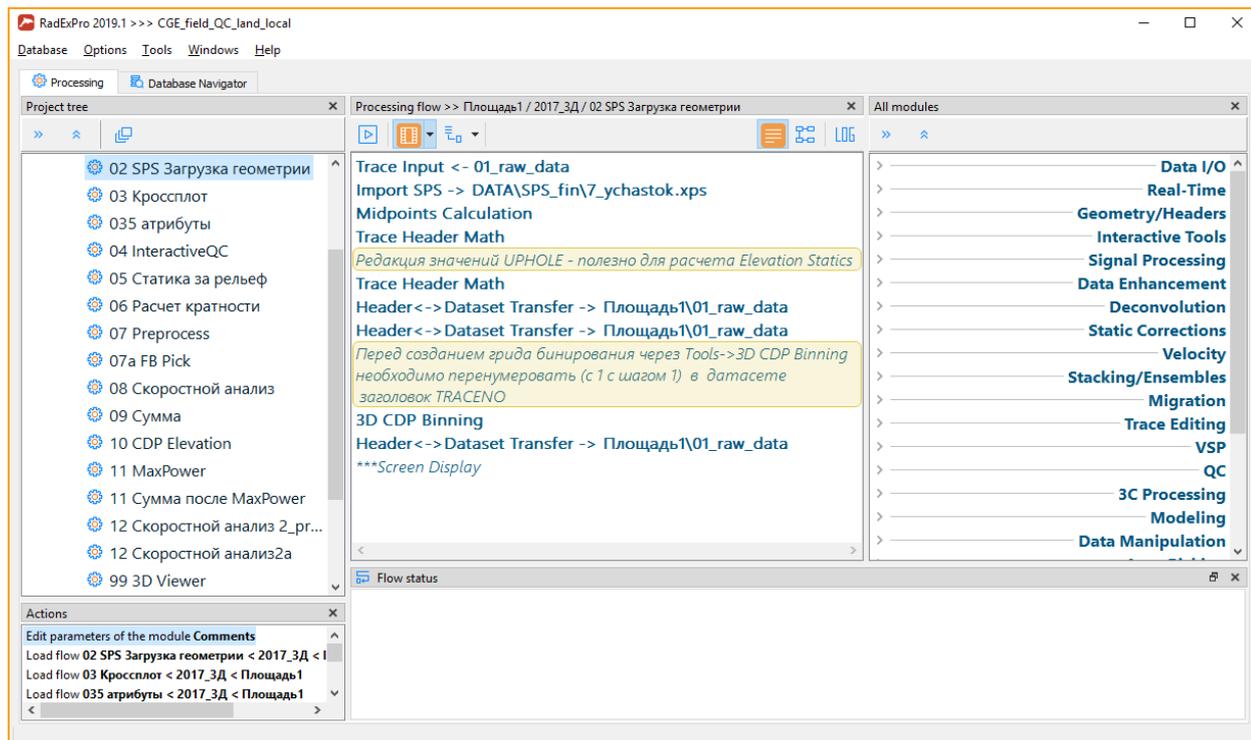
- **Horizon Manipulation** module now works much faster.
- **SEG-D Input** can now remap textual part of the external header. Here is a re-mapping string example:

```
TIME_DIFF,,2C,#:*GCS90,,41/
BLOCKSHIFT1,,2C,#:/2019,,8/
GUN_FLAG,,2C,#:*GCS90,,23/
```

Here, #: sign is followed by an identifier name, the offset in bytes then is calculated from the indicated identifier. For example:

*TIME_DIFF,,2C,#:*GCS90,,41/* -- the module will find “*GCS90” string and, count 41-byte offset from it, then read 2 digits as symbols, convert them to a number, and assign this number to *TIME_DIFF* header field. A number read from textual header this way can be either an integer or a floating point.

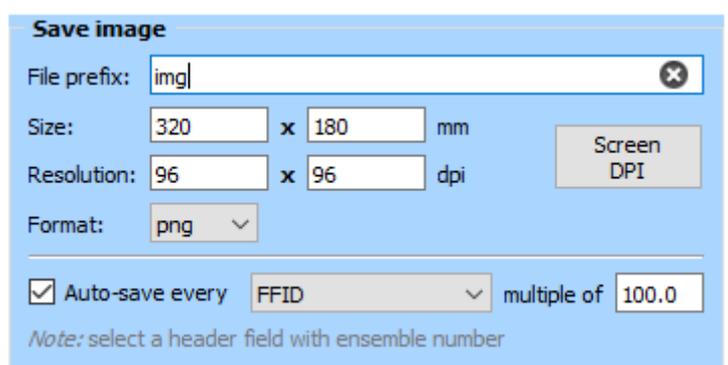
- **Import SPS** module can now calculate offsets
- **Comments** module has got a new look in the flow – highly visible and clearly different from the rest of the flow:



A number of improvements were implemented in the **RadExPro Real-Time** configuration:

- **Real-Time Parallel Launcher** does not slow down anymore on very long lines
- **Real-Time SEG-D Input** is made faster to eliminate reading delays

- **Real-Time SEG-D Input** and **Real-Time SEG-Y Input** can now assume either incremental or decremental file name order. Additionally, a 'file delay' option was added – the module will wait for a specified number of new files to be available in the buffer and then resort the list according to selected file name order before input. This is aimed to help in the situation when files appear in the storage with some delays. A dedicated trace header, RTINC is assigned with 1 for incremental and -1 for decremental file name order.
- **QC Viewer** can now automatically save images for every Nth gather



Save image

File prefix:

Size: x mm

Resolution: x dpi

Format:

Auto-save every multiple of

Note: select a header field with ensemble number

- Some **bugs were fixed**:
 - Trace Input reports that it cannot create scratch file, unless the software is restarted – **FIXED!**
 - Predictive Deconvolution crashes when tapering length is 0 – **FIXED!**
 - Bug in replicas. A string "0123" is wrongly converted to "123" string – **FIXED!**
 - Quick header watch failed in QC Viewer module – **FIXED!**

As usual, if you are on maintenance, please contact us at support@radexpro.com and get your update for free.

Please, note that our office is closed for national holidays on May 1-3 and then May 9-10.