

We are excited to announce the release of the next version of our software -- RadExPro 2024.3 !

Here are the key new features and improvements:

• The new **Curvelet-domain Subtraction** module enables the subtraction of one wavefield from another in the fast discrete curvelet transform domain. While its primary application is multiple attenuation, this module can be used for various purposes.



Example application of curvelet-domain subtraction to a field common-channel gather.

The curvelet transform divides the data into components with different slopes and frequency ranges. This allows for processing of different slopes and frequency ranges separately, which is one of the reasons that the curvelet transform has been widely used for subtraction of noise models from seismic data. **Curvelet-domain Subtraction** benefits from the fact that multiples and primaries often have different slopes and frequency ranges and fall into different curvelet panels, so it is capable of matching the multiples more accurately and further improving upon the time-domain multiple subtraction results.

The module uses The Fast Digital Curvelet Transform Software ("FDCT Software") © 2005-2024 California Institute of Technology, Pasadena, California. ALL RIGHTS RESERVED. Based on U.S. Government Sponsored Research DE-FG02 and DMS-0140540.

- The new Receiver Motion Correction module compensates for receiver movement during the recording of seismic data. Receiver motion introduces distortions that manifest as time-variant shifts in the data. These shifts are corrected using a trace-by-trace, partial NMO-like algorithm, which requires information on vessel speed and subsurface velocities.
- We significantly improved the behavior of the First Break Picking module. First, we have added several new first break picking methods: Energy Ratio, Modified Energy Ratio, Short/Long Term Average, and Phase Arrival Identification-Kurtosis. We also enhanced the accuracy of the Modified Coppens's method by making improvements to the algorithm.

In addition, the module now allows multiple picking methods to be applied in parallel, with results written to different headers for subsequent joint analysis. In one of the upcoming updates, new functionality will enable the computation of statistics (e.g., median values) from multiple sets of picks, allowing for a more robust picking result by combining different methods (meanwhile, you can implement this part yourself using the Python Proxy module).

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Comparison between picks from several picking methods.

• We have transitioned several modules to the new universal parameter style. These modules now offer full support for replicas and include standard export/import functionality. The affected modules are as follows:

Auto Statics NMO/NMI Trace Header NMO/NMI

The following issues were fixed in this release:

- SEG-Y Output works slower than in the elder versions of the -- FIXED!
- FairField Rotation does not correctly rotate XY to source -- FIXED!
- Wavelet Extraction saves wavelet length to trace header in samples instead of ms -- FIXED!
- Geometry Spreadsheet crashes when attempts to fill an integer header with an increment of -1 -- FIXED!
- Import of headers works incorrectly in Merge mode-- FIXED!

As always, if your licenses are under maintenance, feel free to contact us at <a href="mailto:support@radexpro.com">support@radexpro.com</a> to receive your complimentary update.