

We are happy to announce the next version of our software -- RadExPro 2024.2 !

Here is the list of the main novelties and improvements:

• New mode in the **Wavelet Extraction** module extracts a mixed-phase seismic wavelet from the ensembles of traces using a cumulant-based inversion. Previously, this module only allowed for zero-phase wavelet extraction.

Having automatic wavelet estimation with phase has numerous applications in different seismic processing workflows. For example, for high and ultra-high resolution marine seismic with sparker/boomer sources, there is no need to rely on the seafloor picks for wavelet estimation.

An example of how this method works is shown below. The displayed dataset was supplied by Applied Acoustics (L200 sparker, 48 channel streamer).



Input data (common channel)



Automatically extracted wavelet (orange) vs stacked seabed wavelet (green)



Automatically estimated wavelets for all 48 channels

We improved the behavior of the SharpSeis Deghosting module. Previously, for ghost time-delay adaptation, the module used the ghost time-delay interval taken from the headers of the first trace of each seismic gather. This interval was used for all traces within the gather. Now, the interval is determined for each individual trace window. The interval maximum is taken as the largest of the maximum time-delay values, and the interval minimum is taken as the lowest of the minimum time-delay values among all traces within the window. This allows for a more accurate setup of the ghost time-delay adaptation interval and thus more efficient ghost wave subtraction.

• The **Q Filtering** module now supports a horizon-based Q model. Horizons can be defined by trace headers, picks, or constants. Between the horizons, Q values can either be linearly interpolated or kept constant.

🔁 Q Filtering		×
Q filtering direction	Forward	9
Q filtering mode	Phase and Amplitude ~	9
Q model type	Horizon-based ~	2
Output Q traces?	No (0) ~	2
Q model interpolation	Linear ~	2
✓ ≡ Horizons		🗄 🧕
[1]	PICK1	H # E 2
[2]	PICK2	H # E 2
[3]	1000.0	H # E ^ - 2
$\checkmark \equiv Q$ values		H 2
[1]	50	^ ^ ¥ 🗖 🤈
[2]	200	^ ~ ~ <mark>-</mark> 🤊
[3]	30	^ ~ <mark>-</mark> 9
Reference frequency, [Hz]	100.0	2
Regularization coefficient	0.0	2
Time window size, [ms]	100.0	୭
Time window step, [ms]	10.0	୭
Number of threads	4	2
		OK Cancel

A horizon-based Q model here is set up with three horizons. Two of them are defined by headers (PICK1 and PICK2) and the third one is constant (1000.0 ms).

- The new VVT Export module exports a Vertical Velocity Table ("velocity pick" generated by Interactive Velocity Analysis) from the project database to an ASCII file directly from a processing flow. Combined with replica functionality, this provides an easy way to automate the export of multiple velocity picks.
- The **Seismic Display** module can now silently save images to a file without displaying the main working window. Combined with replica functionality, this provides an easy way to

Display window	Variable density display mode							
Time scale		•			Palette -			
0.0		U						
Trace scale					Type: gra	у	~	
Fixed spacin	g							
Maximum numb	er of visible traces:	100	÷			itlv		ritl
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automate the export of multiple seismic images from a flow without any interactivity.

When this checkbox is selected, the module will silently generate and save an image as a file without displaying the interactive main window. Note the use of replica variables in the 'Destination folder' and 'File name' fields.

 We have enhanced the NMI algorithm in the NMO/NMI module. Now, sequential application of NMO and NMI corrections with the same velocity model produces results much closer to the original input data than before. • The **First Breaks Picking** module now supports variable thresholds derived from a trace header.

2	🥕 First Breaks Picking				
~	Output headers				
	🕑 First Break Time, [ms]	FBPICK V	9		
	🗋 First Break Amplitude	PREAMP ~	9		
	Horizon, [ms]	AAXFILT	າ		
	Window length, [ms]	1000.0	າ		
	Computation method	Threshold v	ຶ		
~	Threshold method parameters		2		
	Threshold source	Header 🗸	2		
	Threshold header	AMP_01	2		
	Trace event type	Minimum V	9		

Threshold from header in the First Breaks Picking module

- The **SEG-Y Input** module now supports two additional sample formats: 4-byte unsigned integer (code 10) and 2-byte unsigned integer (code 11).
- The **Wavelet Processor** module now exports the time-zero of a wavelet in milliseconds, rather than in sample indices, in the exact format required by the Custom Impulse Trace Transforms.
- Now you can use both '!' and '~' symbols for logical negation in the **Trace Header Math**.
- 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:

Surface-Consistent Decon TFD Noise Attenuation (manual)

Header Time/Depth Conversion Real-Time Parallel Launcher

The following issues were fixed:

- Pre/Post-Stack Kirchhoff Time Migration internal resampling may disturb the higher part of the spectrum -- FIXED!
- The QC Viewer in 'continuous' mode leads to a gradual degradation in the speed of realtime flows -- FIXED!
- Wavefield Subtraction noticeable degradation of the computation speed with the operation time -- FIXED!
- Seismic Display and QC Viewer crash when attempting to access the database after the first frame -- FIXED!
- When saving an image from Seismic Display and QC Viewer in WT/VA mode, gain depends on the image resolution -- FIXED!
- Tides Import fails to assign headers -- FIXED!
- P1-90 Import: if elevations are absent in the input file, the module fails to input anything
 -- FIXED!
- In the real-time mode an attempt to 'Save layout of windows/to the database' in the QC
 Viewer crashes the software -- FIXED!

As always, if your licenses are under maintenance, feel free to contact us at support@radexpro.com to receive your complimentary update.