

RadExPro Real-Time – Real-Time Marine Seismic QC Solution



Why Real-Time QC?

· Identify and address problems at the very moment they happen

· Produce and store data quality tags

· Minimize data acquisition and processing time

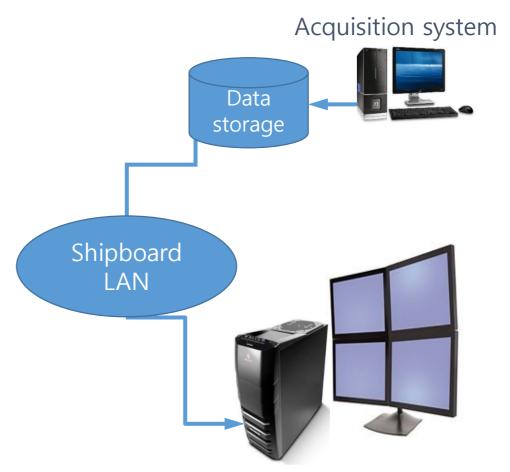


RTQC requirements

- Easy installation with generic hardware
- · Common industry formats data import and export
- Intuitive UI anomaly detection and interpretation
- · Flexible data analysis meeting variety of client requirements
- · Crush proof stability and appropriate support

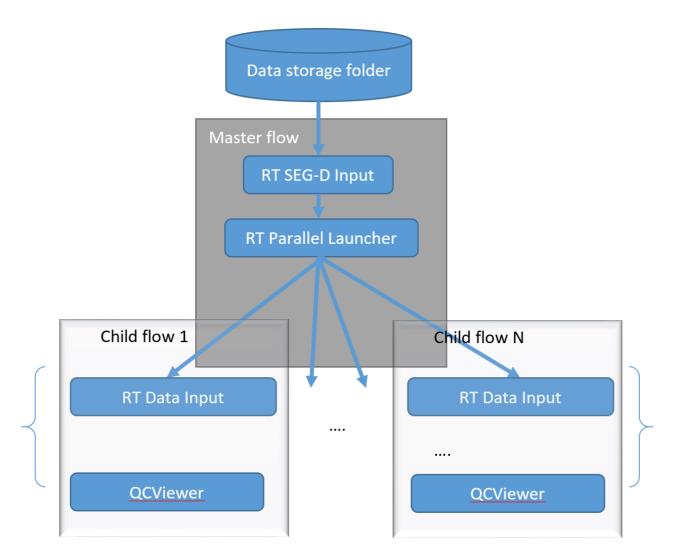


- · Each shot is read only once
- Everything runs locally on a Windows 7/8/10/11 PC
- Low network load, no HPC server time needed
- . Low latency, minimal delays



QC processing PC with RadExPro Real-Time







· Overall software view and RT QC Master Flow

RadExPro 2016.3 >>> projectRTPCable			– 🗆 ×
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Processing Database Navigator			
Project tree	× Processing flow >> Area 1 / 010 Master Flow / 010 Mas	ster × All modules	×
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✓ 車 Area 1	Real-Time Seg-D Input <- [listen: F:\Project	s\RTPCable\TestRtDataFolder] >	Data I/O 🔨
✓	Real-Time Paraller Launcher	>	Real-Time
🥥 010 Master	Real-Time Parallel Launcher	X	Geometry/Headers Interactive Tools
	Keal-Time Parallel Launcher	^	Signal Processing
 010 Shot Gathers 030 RT stack 	Project Tree:	QC Flows:	Data Enhancement
035 Ni stack 035 near-trace gather	> 010 Master Flow	/Area 1/020 QC Child Flows/010 Shot Gathers	Trace Editing
 040 RMS amplitudes 	✓ 020 QC Child Flows	/Area 1/020 QC Child Flows/030 RT stack	Deconvolution
050 Gun Array 129	010 Shot Gathers	/Area 1/020 QC Child Flows/035 near-trace gather /Area 1/020 QC Child Flows/040 RMS amplitudes	Static Corrections
050 Gun Array 130	030 RT stack	/Area 1/020 QC Child Flows/040 Kivis amplitudes /Area 1/020 QC Child Flows/050 Gun Array 129	Velocity Stacking/Ensembles
😳 050 Gun Array 131	035 near-trace gather	/Area 1/020 QC Child Flows/050 Gun Array 130	Migration
050 Gun Array 132	040 RMS amplitudes 050 Gun Array 129	/Area 1/020 QC Child Flows/050 Gun Array 131	VSP
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Actions		Delete Flows	₽×
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	Save images to:		
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L	Image file prefix:		
1		OK Cancel	



No pre-defined QC sequences: workflows are fully customizable

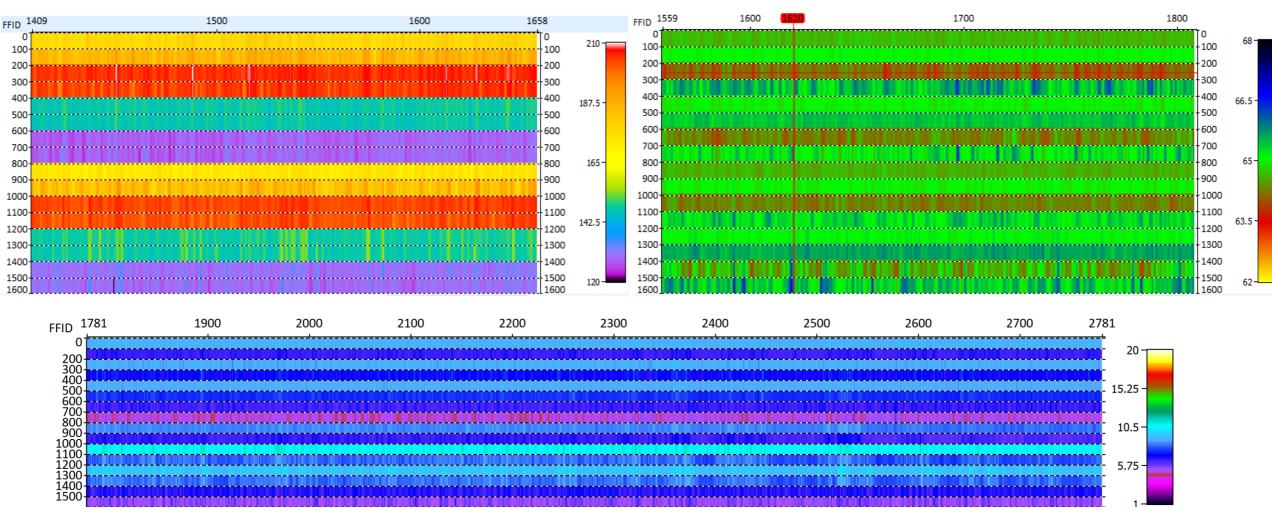
Real-Time Data Input	Real-Time Data Input
Data Filter	Data Filter
Butterworth Filtering	Bandpass Filtering
Amplitude Correction	ReSample
***ReSample	Amplitude Correction
QCViewer	Amplitude Correction
	Trace Math
	NMO/NMI
	Trace Editing <- [manual]
	Real-Time 2D CDP Stack
	QCViewer

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Real-Time Data Input Data Filter Butterworth Filtering ***Bandpass Filtering ReSample Apply Statics <- [manual] Trace Length Trace Math SSAA ReSample Trace Length Trace Math Trace Math Trace Length Trace Header Math Apply Statics <- [RT_EOR_STAT] Ensemble Stack **OCViewer**

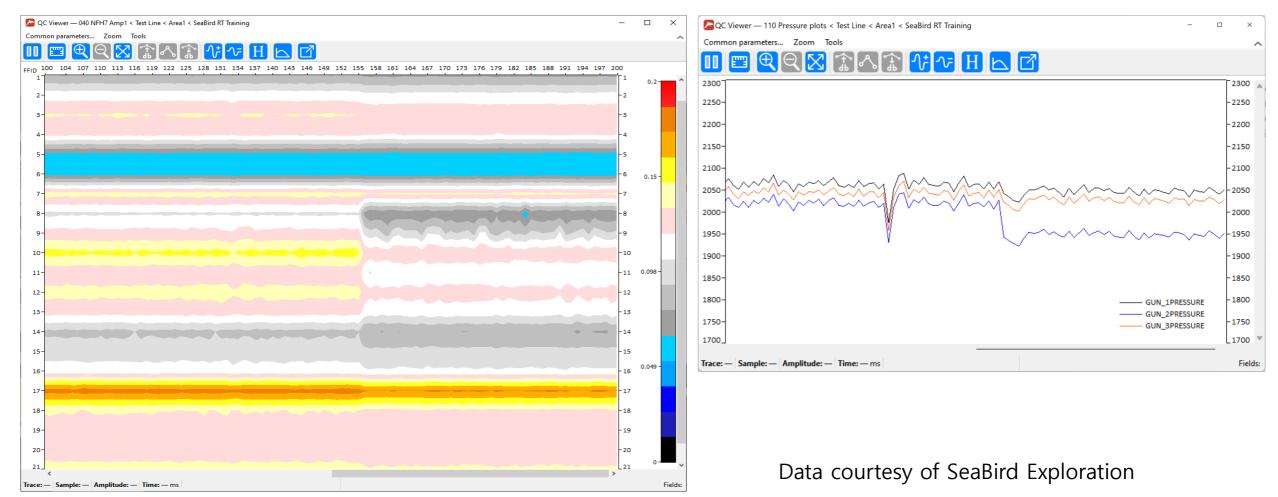


Source QC: NFH bubble period, peak time, peak amplitude



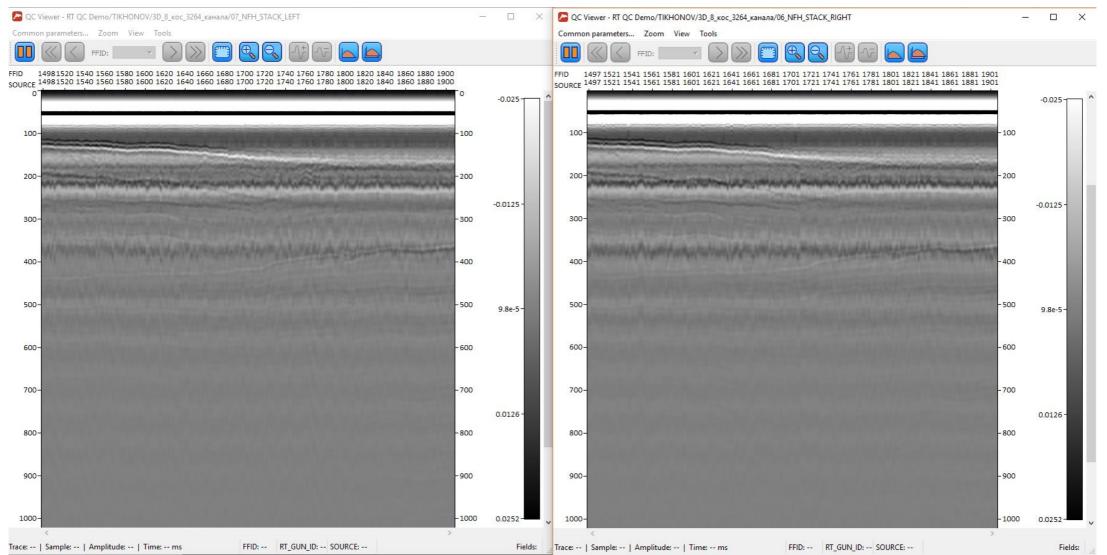


Source QC: bubble 1st peak amplitudes (left) and gun air hose pressure plots (right)



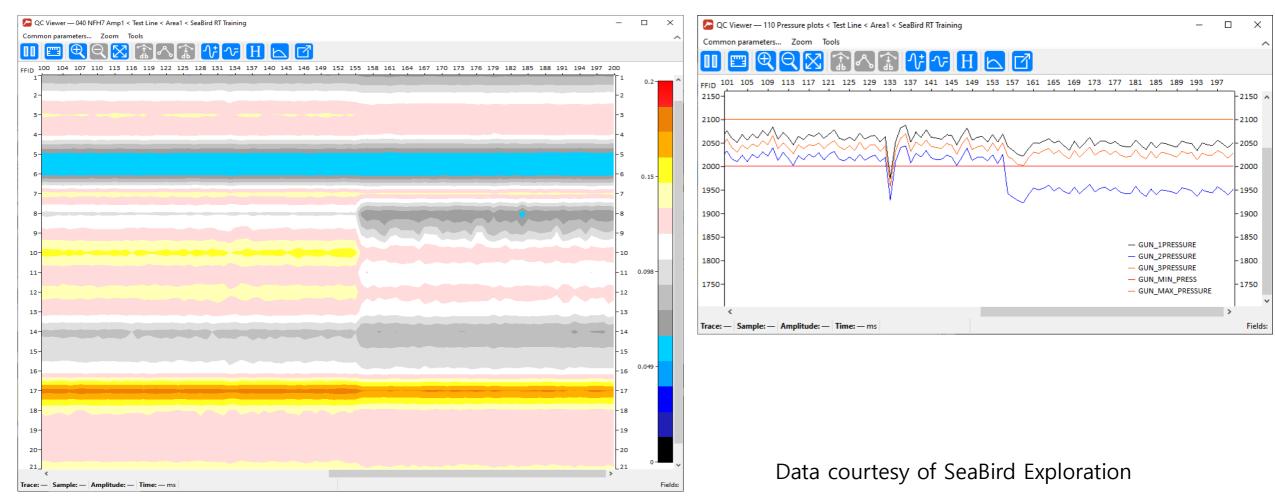


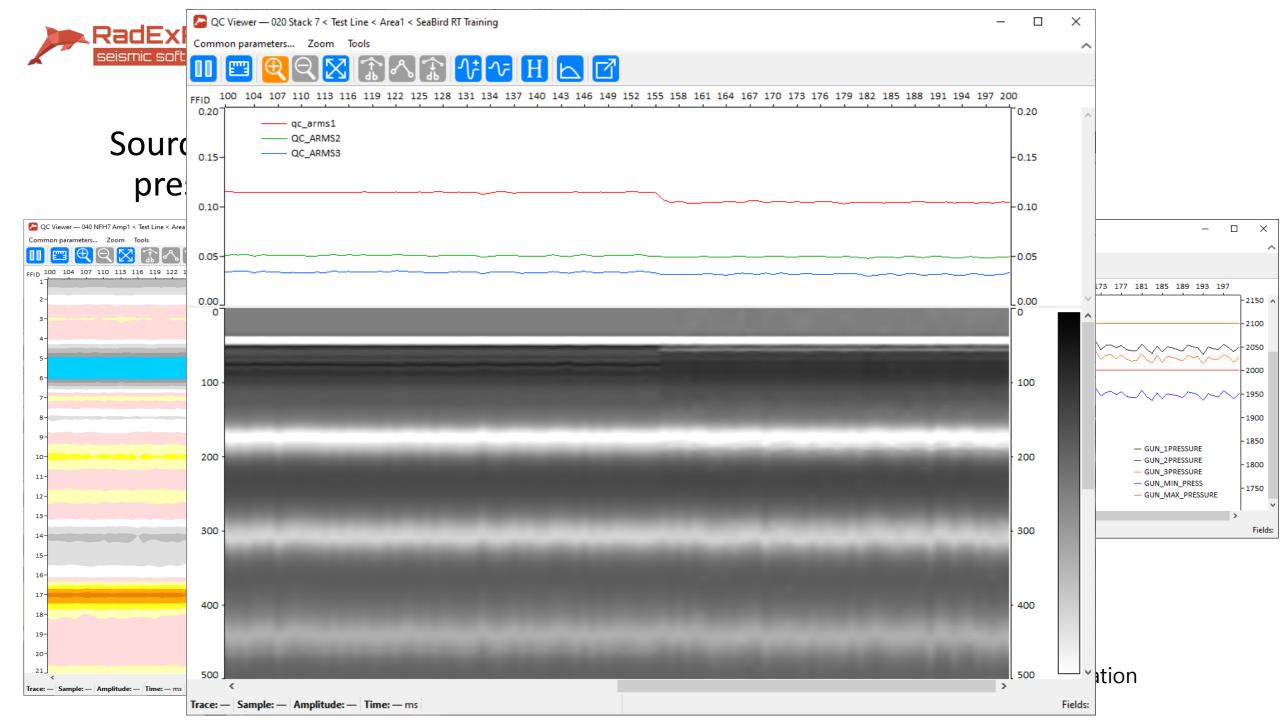
Source QC: left and right NFH stacks





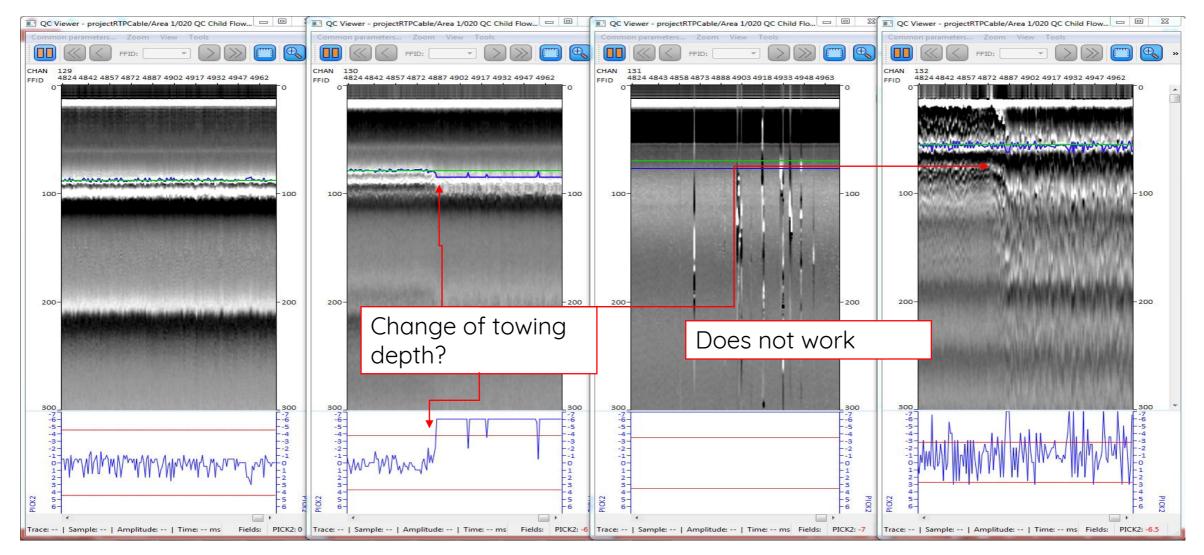
Source QC: bubble 1st peak amplitudes (left) and gun air hose pressure plots (right)





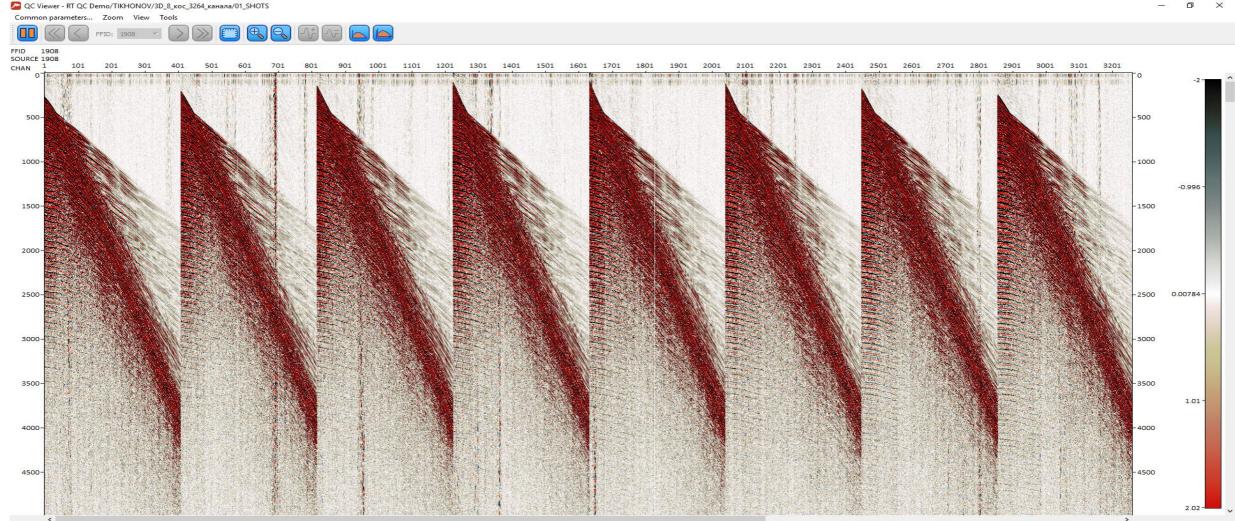


Source QC: Individual NFH Records



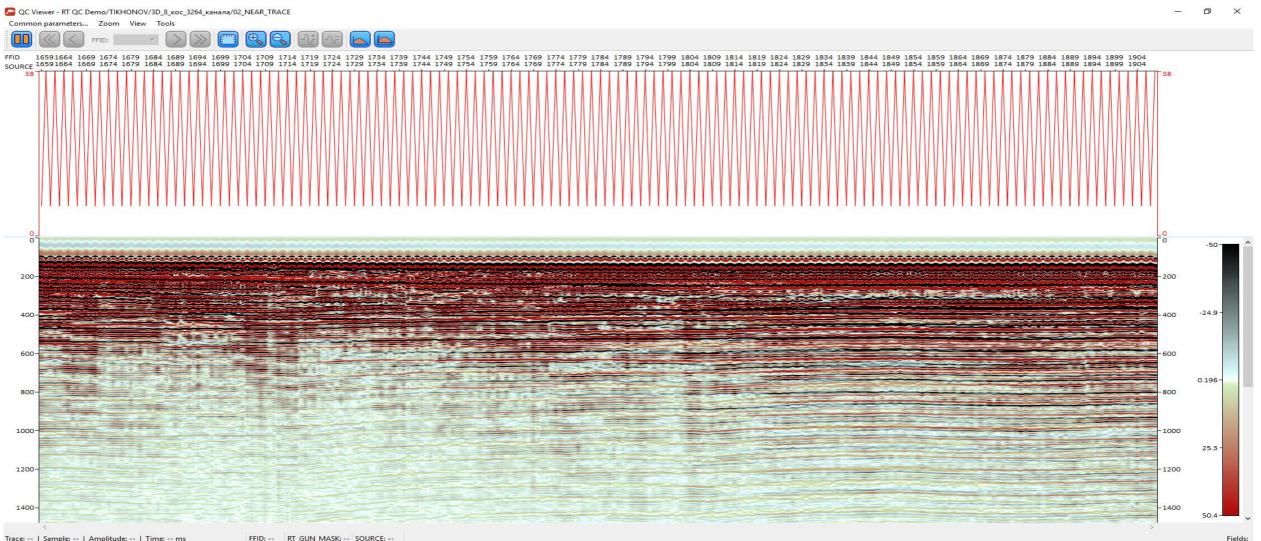


Data QC: Shot Gather



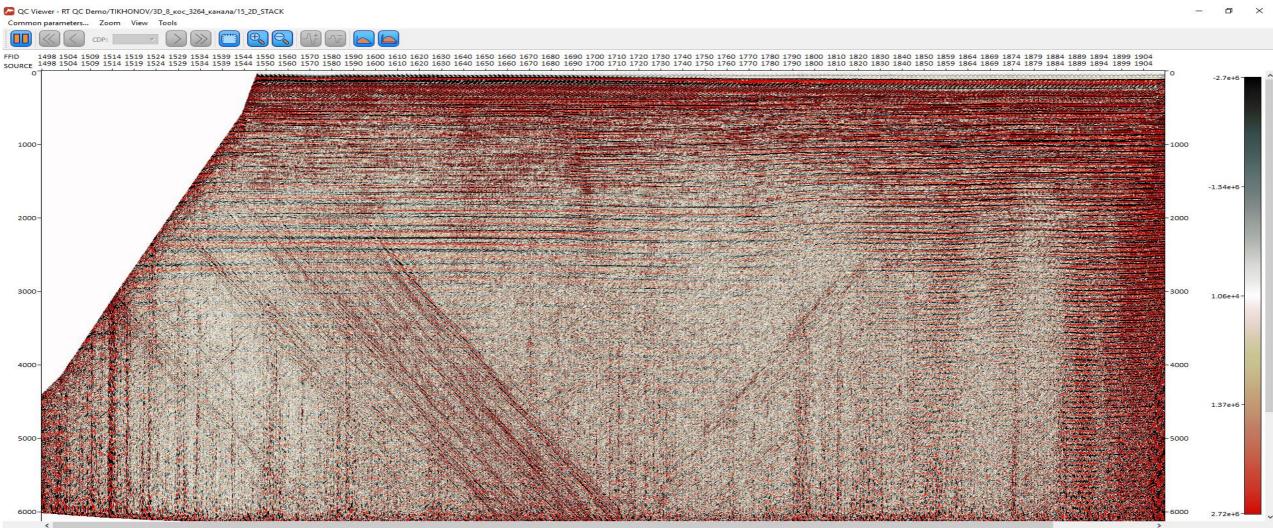


Data QC: Near Trace Gather





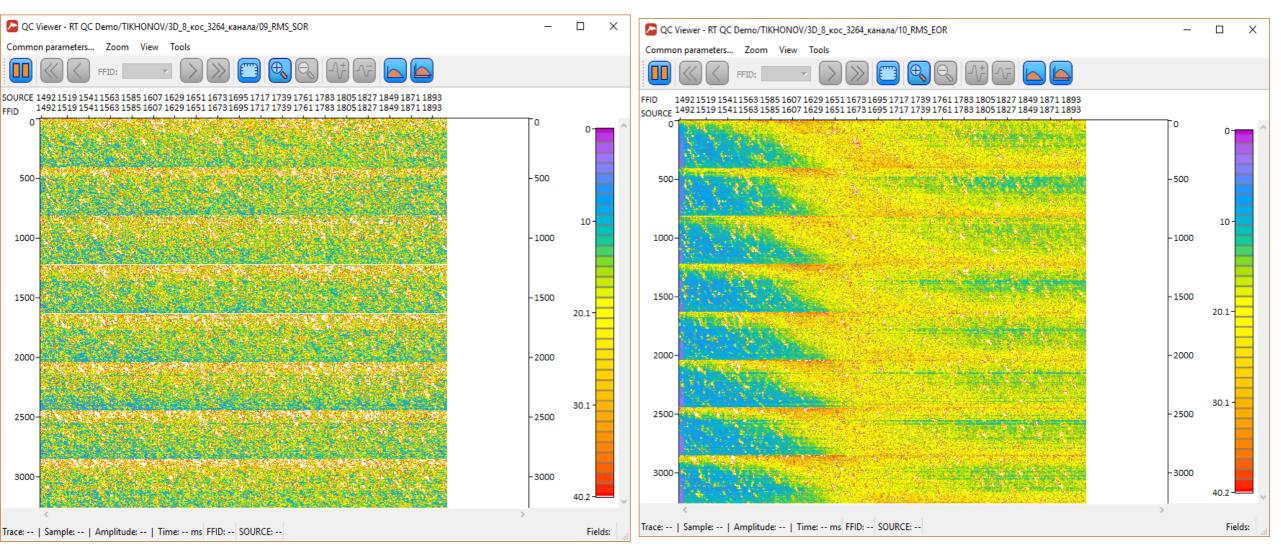
Data QC: RT CMP Stack



Fields



Data QC: ARMS SOR and EOR





Data QC: ARMS SOR

1240 1280 1320 1360 1400 1440 1480 1520 1560 1600 1640 1680 1840 1880 1920 1960 FFID 16-16 24-24 32-40-2 48-56 -56 64--64 72--72 0.251 -80 80-88--88 -96 96 -104 104 112 -112 120--120 -128 128 -136 136 -144 144-0.502 -152 152-160 -160 168 -168 176 -176 184 -184 -192 192-200 -200 208--208 216--216 0.753 3 -224 224--232 232 240 240 248 -248 -256 256-264--264 272--272 280 -280 288 288

1- Missfire

2 – Bad channel

3 – Group of weak channels



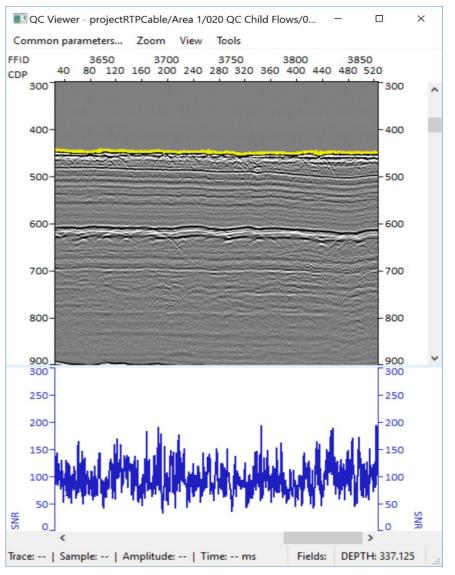
Data QC: ARMS at target reflections with 40uB treshold

C Viewer - RT QC Demo/TIKHONOV/3D_8_кос_3264_канала/11_RMS_TGT	_	
Common parameters Zoom View Tools		
SOURCE 14921519 15411563 1585 1607 1629 1651 1673 1695 1717 1739 1761 1783 1805 1827 1849 1871 1893 FFID 1492 1519 1541 1563 1585 1607 1629 1651 1673 1695 1717 1739 1761 1783 1805 1827 1849 1871 1893		
	0	0-
	- 500	
	- 1000	10 -
1500-	- 1500	20.1-
	- 2000	
		30.1 -
	-2500	
3000-	- 3000	40.2 -
Trace: Sample: Amplitude: Time: ms FFID: SOURCE:	>	Fields:

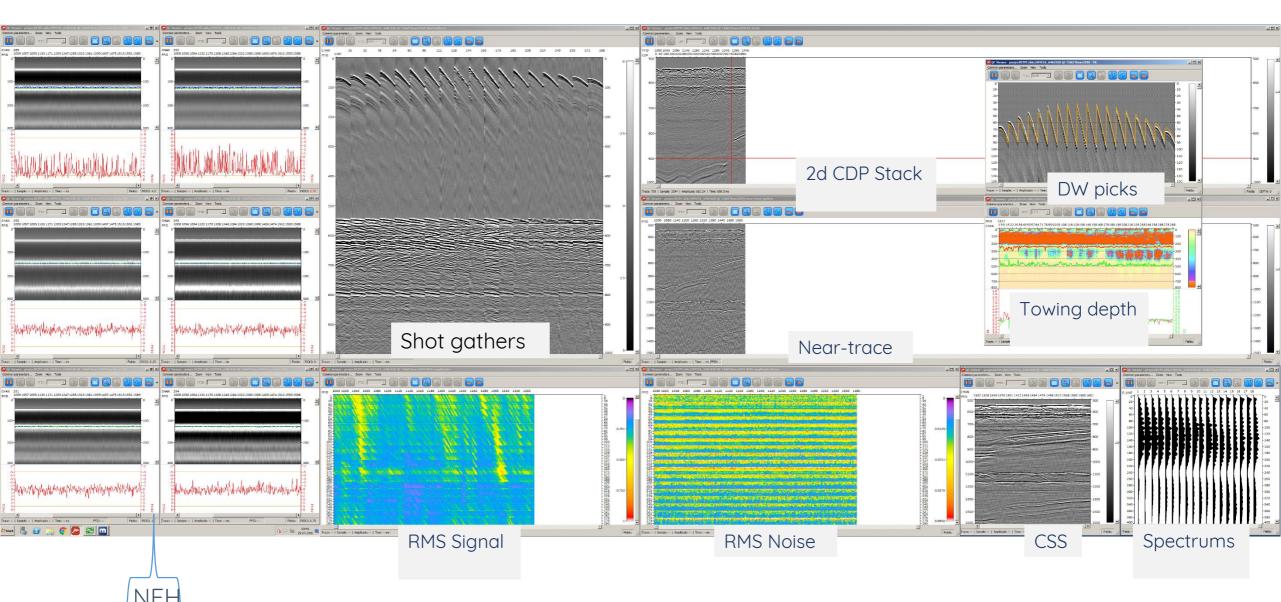


Optional plots available in the real-time:

- · SNR map
- Spectrums
- Amplitude and/or SNR plots for specific channels or/and stack
- Signal frequency map
- Frequency plots for specific channels or/and stack





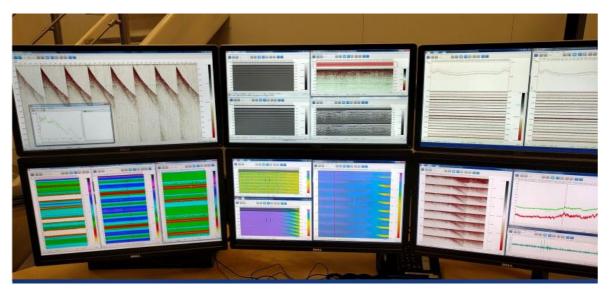




Highly versatile RT QC system

Runs efficiently on regular PC

Comprehensive and cost-efficient solution



RadExPro Real-Time operated by QC processors of GEOGALS Co. onboard of a 3D seismic vessel with 8 streamers

RTQC requirements

- · Easy installation with affordable generic hardware
- · Common industry formats data import and export
- . Intuitive UI anomaly detection and interpretation
- \cdot Flexible data analysis meeting variety of client requirements $\overline{\mathbf{M}}$

Crush proof — stability and appropriate support





Honestly this software is well worth the price and will pay for itself in the first 5 week rotation. It is definitely an excellent tool and I will recommend it be used on every crew I join. We have identified electrical leakage, air leaks, autofires, misfires, loose hardware on gun plates, oddities with PT/DTs etc. etc.

Their support is excellent.

Riley Lopez Chief Technician **M/V SANCO SPIRIT**

OUR CLIENTS:



www.radexpro.com