



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



## Why Real-Time QC?

## Why Real-Time QC?

- Identify problems at the very moment they happen

## Why Real-Time QC?

- Identify problems at the very moment they happen
- Fix them immediately

## Why Real-Time QC?

- Identify problems at the very moment they happen
- Fix them immediately
- Minimize ship time and money loss

## Why Real-Time QC?

- Identify problems at the very moment they happen
- Fix them immediately
- Minimize ship time and money loss
  
- Identify and report all “out of spec” issues

## Why Real-Time QC?

- Identify problems at the very moment they happen
- Fix them immediately
- Minimize ship time and money loss
  
- Identify and report all “out of spec” issues
- Less hassle for data processors

## Why Real-Time QC?

- Identify problems at the very moment they happen
- Fix them immediately
- Minimize ship time and money loss
  
- Identify and report all “out of spec” issues
- Less hassle for data processors
- Minimize data processing time and money loss

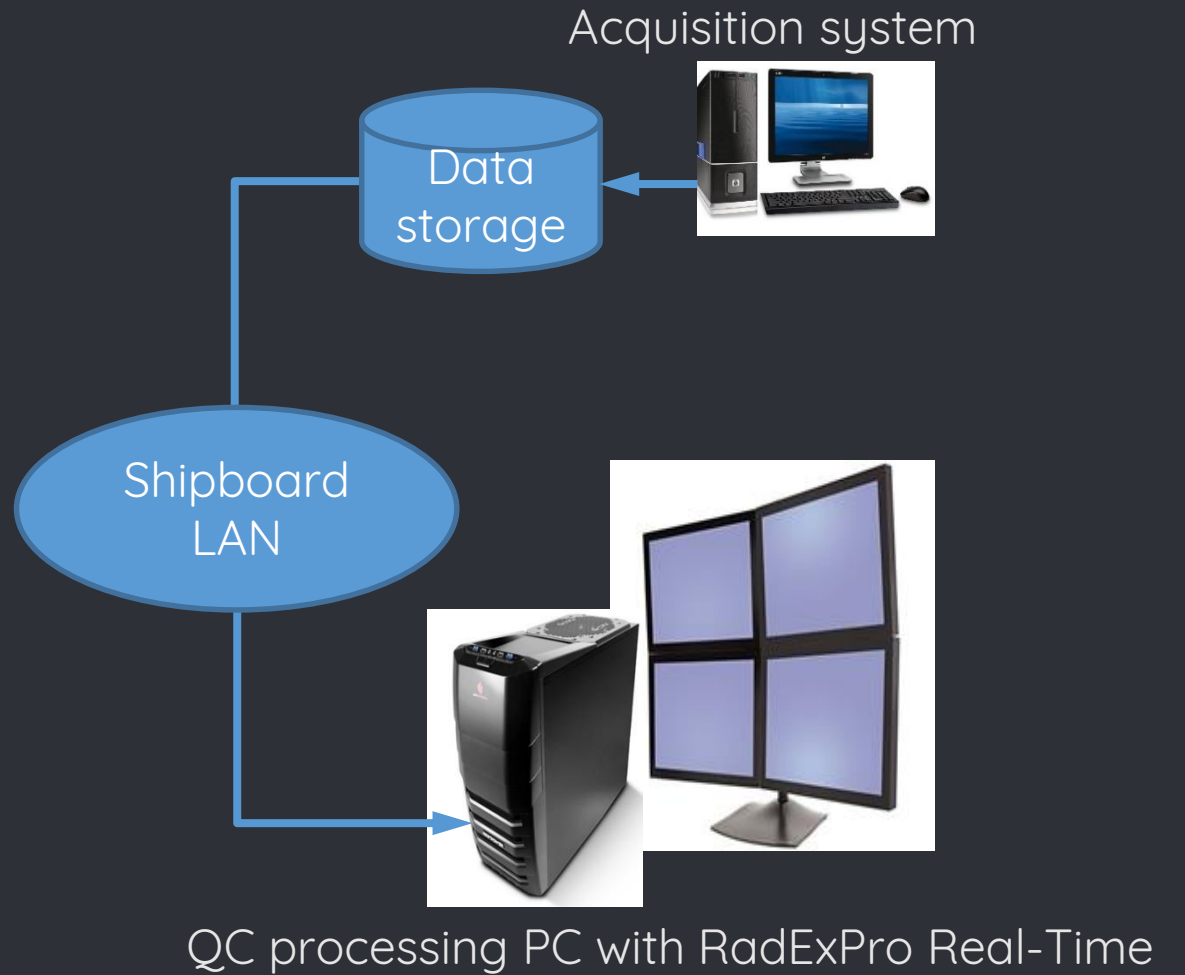


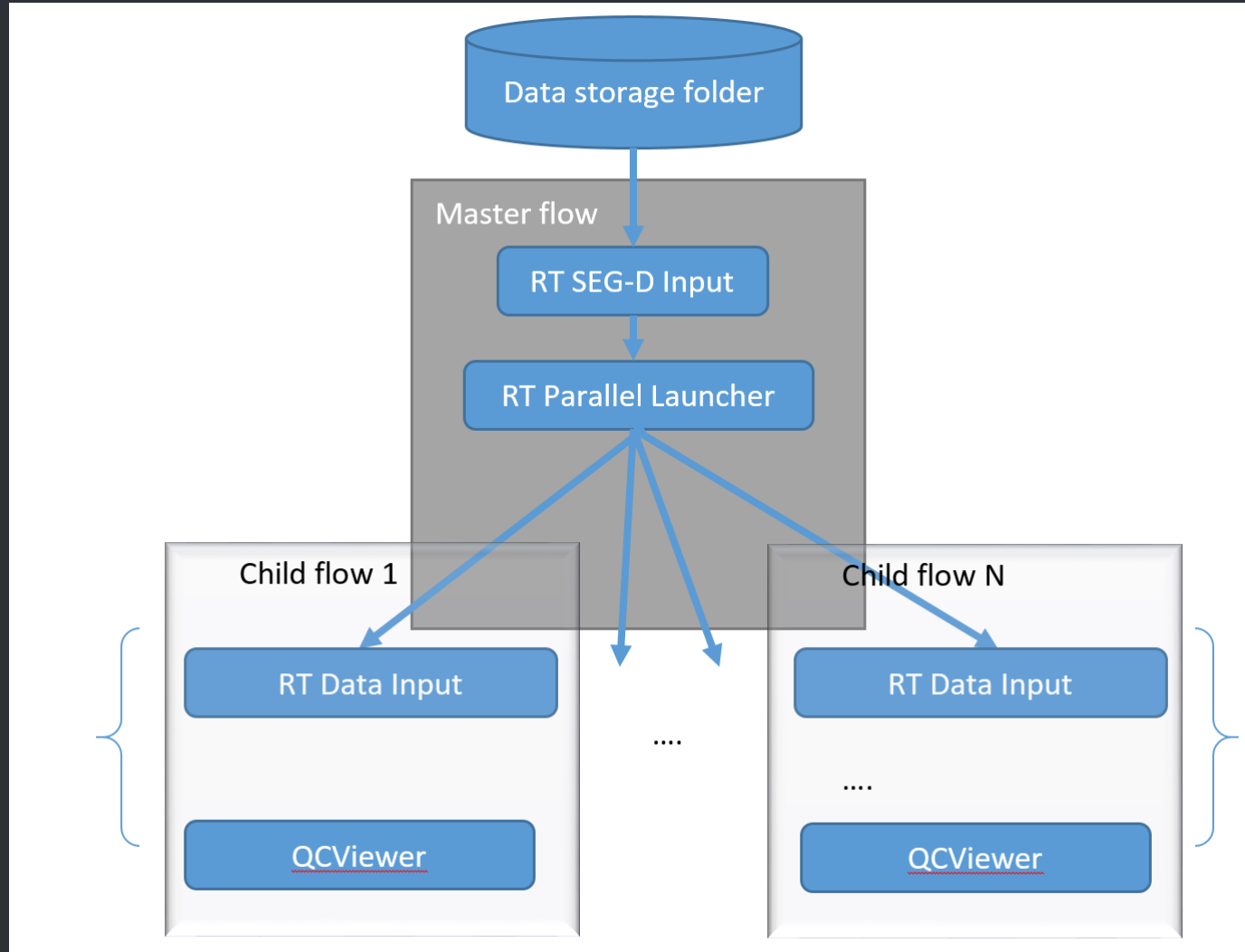
## Conventional RT QC solutions:

- Run QC flows on server, use nodes that can be used for processing
- Each flow reads data independently, loading the network

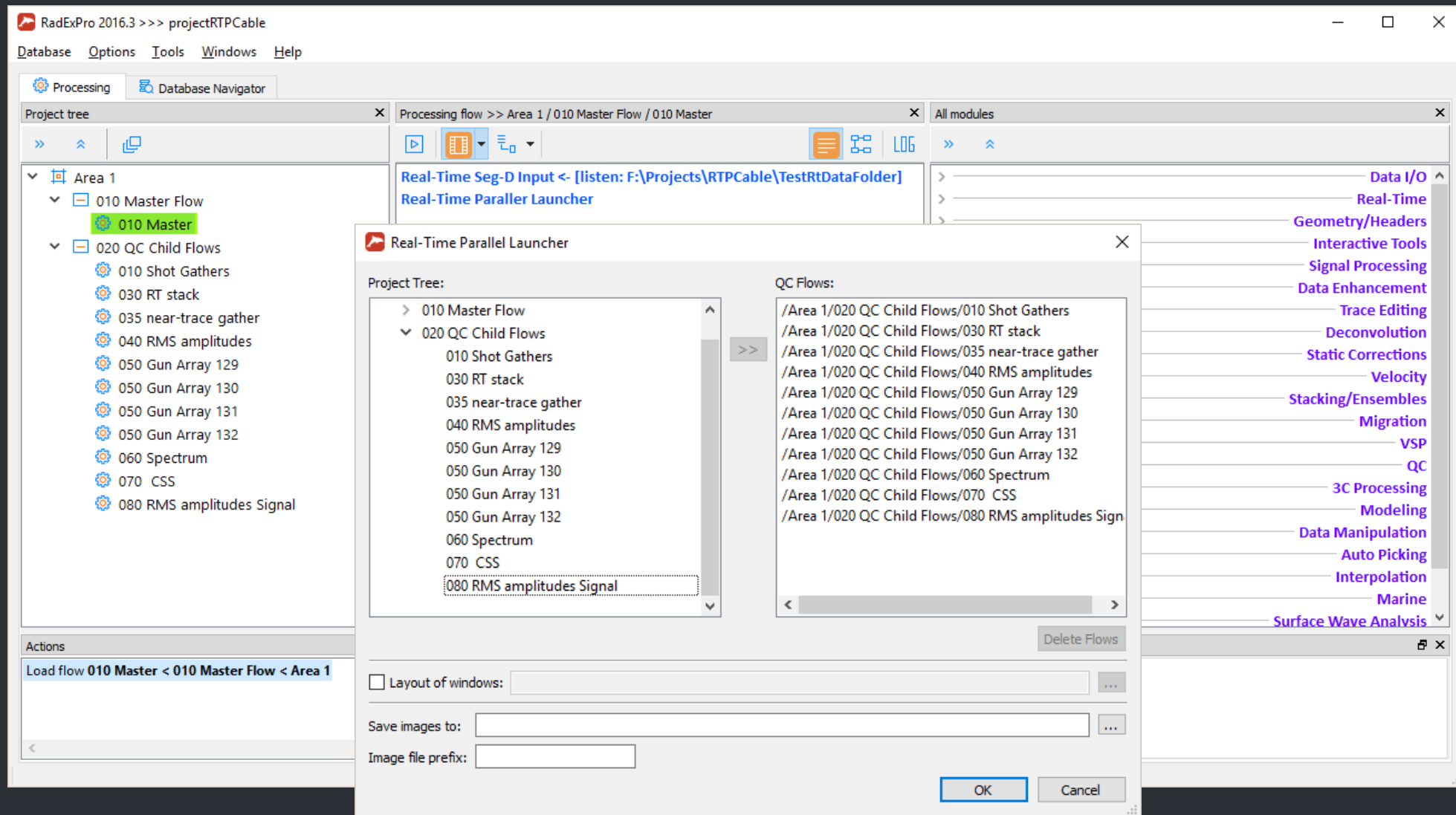
# RadExPro REAL-TIME

- Each shot is read only once
- Everything runs locally on a Windows 7/8/10 PC
- Low overheads: no network overload, no server time needed
- High latency, minimal delays





## Overall software view and RT QC Master Flow



The screenshot displays the RadExPro 2016.3 software interface for a project named 'projectRTPCable'. The main window shows a 'Processing flow' view for 'Area 1 / 010 Master Flow / 010 Master'. The 'Project tree' on the left lists the following structure:

- Area 1
  - 010 Master Flow
    - 010 Master
  - 020 QC Child Flows
    - 010 Shot Gathers
    - 030 RT stack
    - 035 near-trace gather
    - 040 RMS amplitudes
    - 050 Gun Array 129
    - 050 Gun Array 130
    - 050 Gun Array 131
    - 050 Gun Array 132
    - 060 Spectrum
    - 070 CSS
    - 080 RMS amplitudes Signal

The 'Processing flow' view shows the current flow: 'Real-Time Seg-D Input <- [listen: F:\Projects\RTPCable\TestRtDataFolder]' and 'Real-Time Paraller Launcher'. The 'All modules' pane on the right lists various processing modules such as Data I/O, Real-Time, Geometry/Headers, Interactive Tools, Signal Processing, Data Enhancement, Trace Editing, Deconvolution, Static Corrections, Velocity, Stacking/Ensembles, Migration, VSP, QC, 3C Processing, Modeling, Data Manipulation, Auto Picking, Interpolation, Marine, and Surface Wave Analysis.

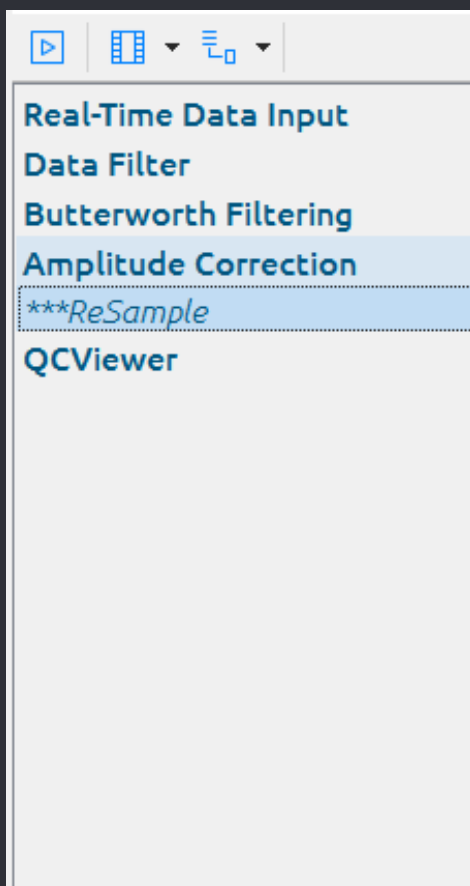
A 'Real-Time Parallel Launcher' dialog box is open in the foreground, showing a 'Project Tree' and 'QC Flows' list. The 'Project Tree' lists the same structure as the main window, with '080 RMS amplitudes Signal' selected. The 'QC Flows' list contains the following paths:

- /Area 1/020 QC Child Flows/010 Shot Gathers
- /Area 1/020 QC Child Flows/030 RT stack
- /Area 1/020 QC Child Flows/035 near-trace gather
- /Area 1/020 QC Child Flows/040 RMS amplitudes
- /Area 1/020 QC Child Flows/050 Gun Array 129
- /Area 1/020 QC Child Flows/050 Gun Array 130
- /Area 1/020 QC Child Flows/050 Gun Array 131
- /Area 1/020 QC Child Flows/050 Gun Array 132
- /Area 1/020 QC Child Flows/060 Spectrum
- /Area 1/020 QC Child Flows/070 CSS
- /Area 1/020 QC Child Flows/080 RMS amplitudes Sign

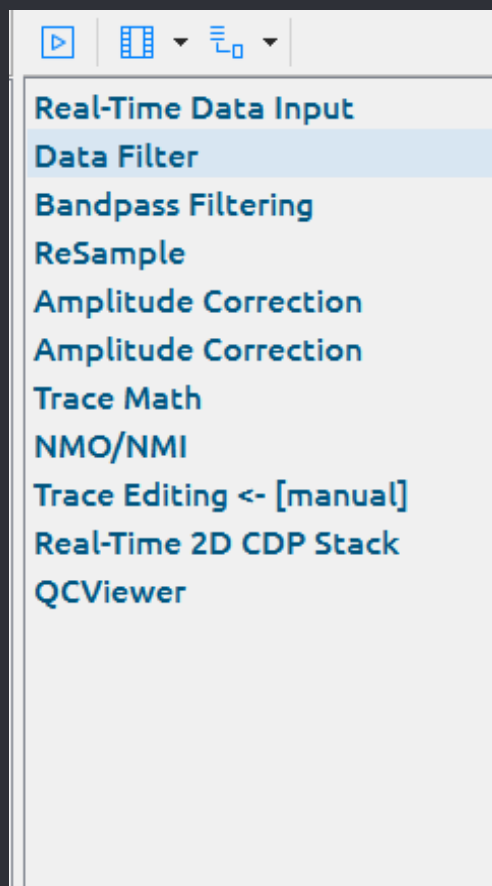
The dialog box also includes a 'Delete Flows' button, a 'Layout of windows:' field, a 'Save images to:' field, and an 'Image file prefix:' field. The 'OK' and 'Cancel' buttons are at the bottom.

## Child flow examples:

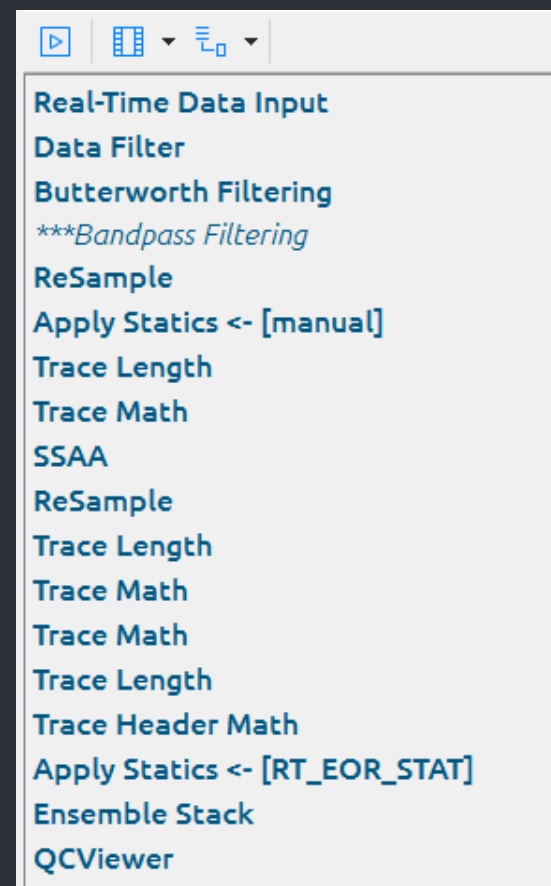
- o No pre-defined QC sequences: child flows fully customizable



Real-Time Data Input  
Data Filter  
Butterworth Filtering  
Amplitude Correction  
\*\*\*ReSample  
QCViewer



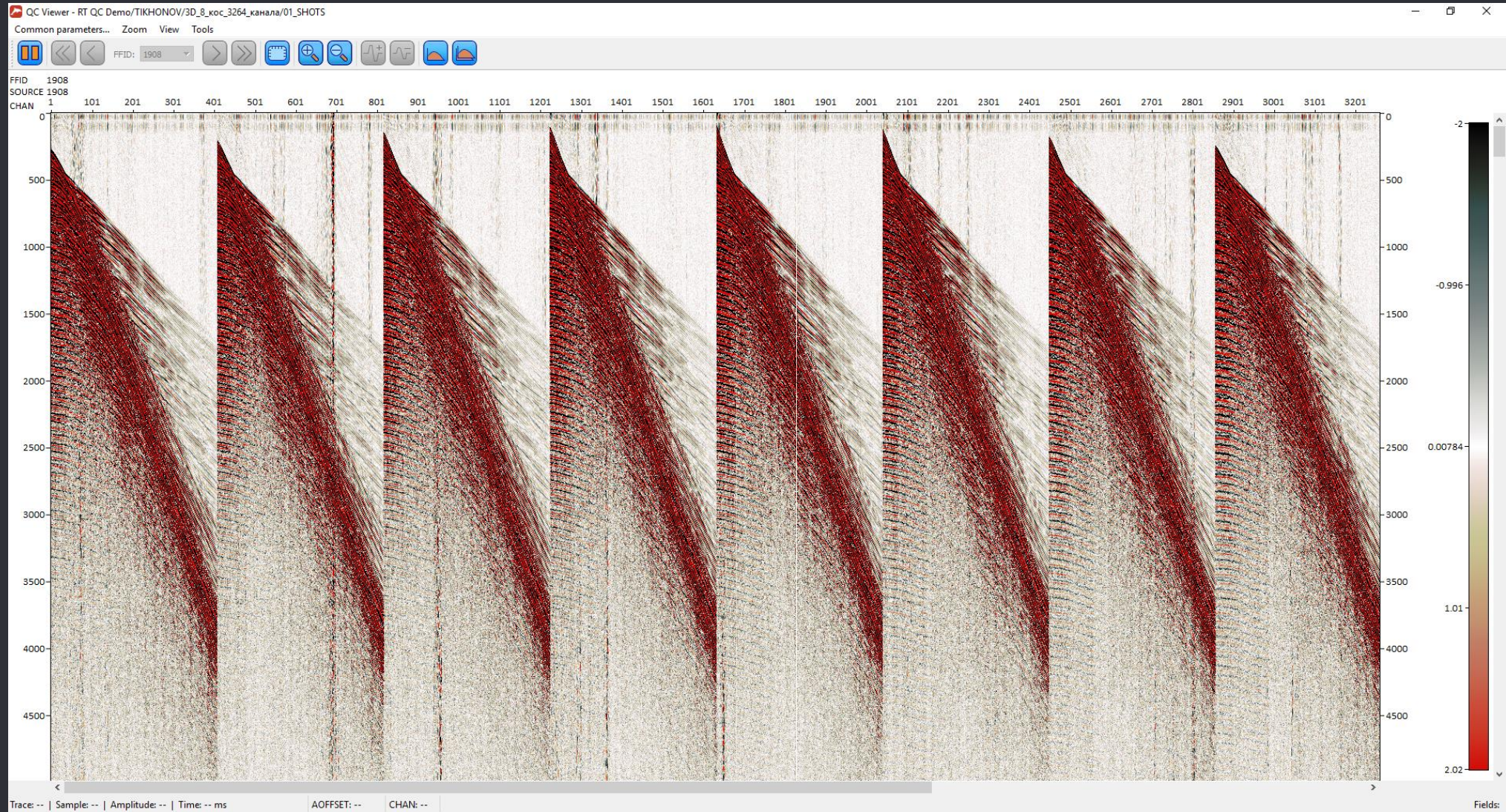
Real-Time Data Input  
Data Filter  
Bandpass Filtering  
ReSample  
Amplitude Correction  
Amplitude Correction  
Trace Math  
NMO/NMI  
Trace Editing <- [manual]  
Real-Time 2D CDP Stack  
QCViewer



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  
QCViewer

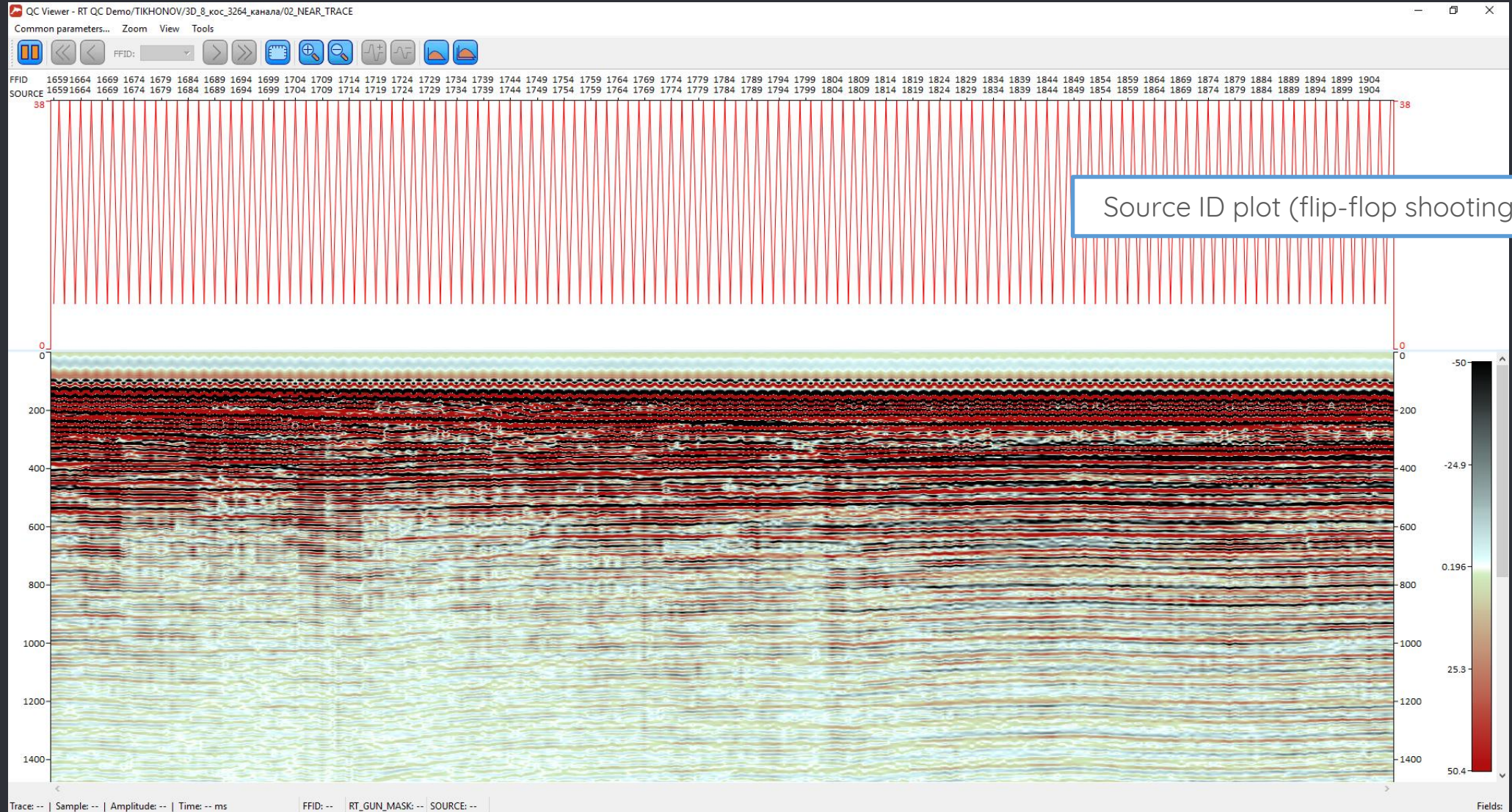


# Shot gathers



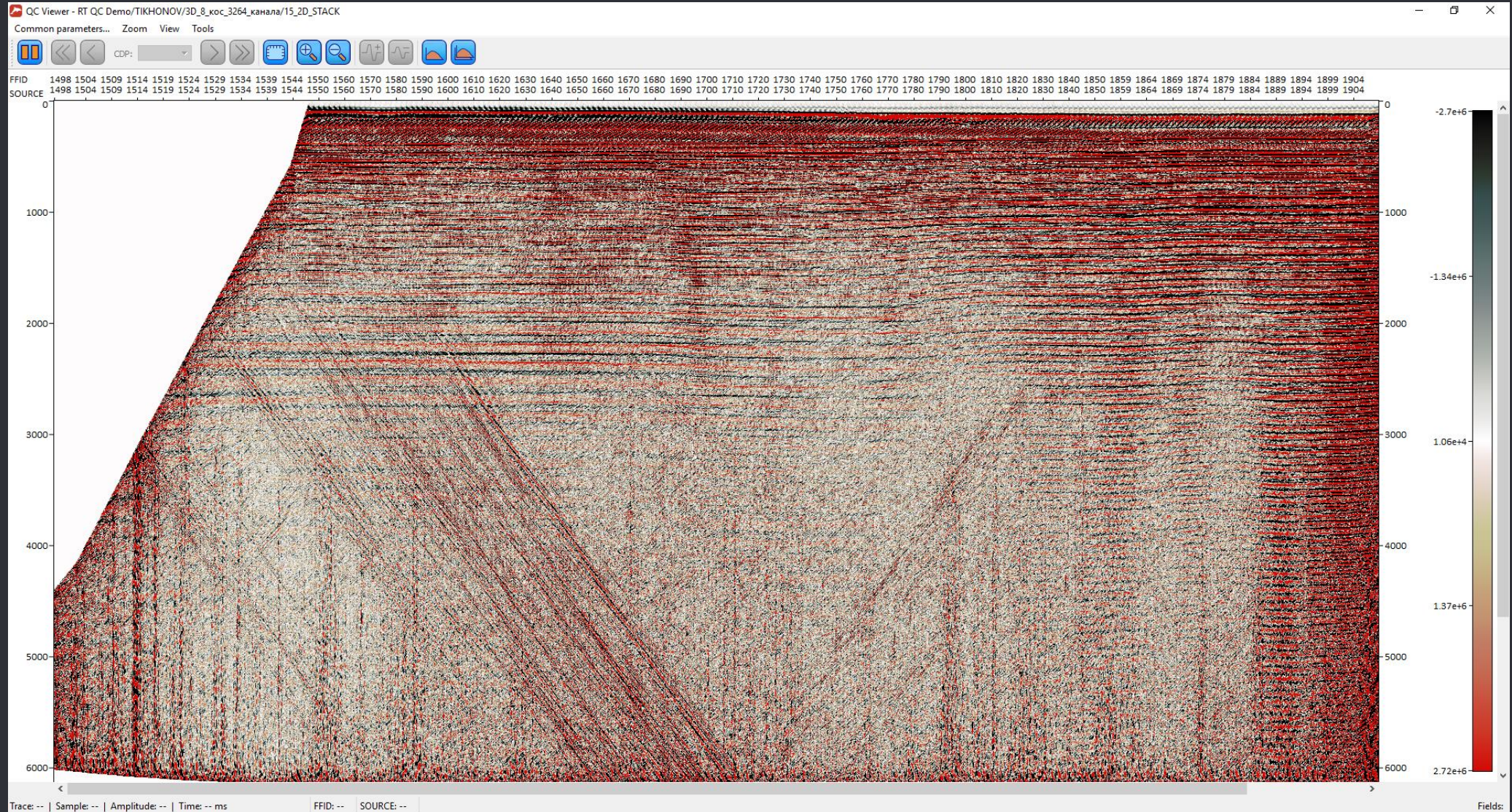


# Near-trace gather



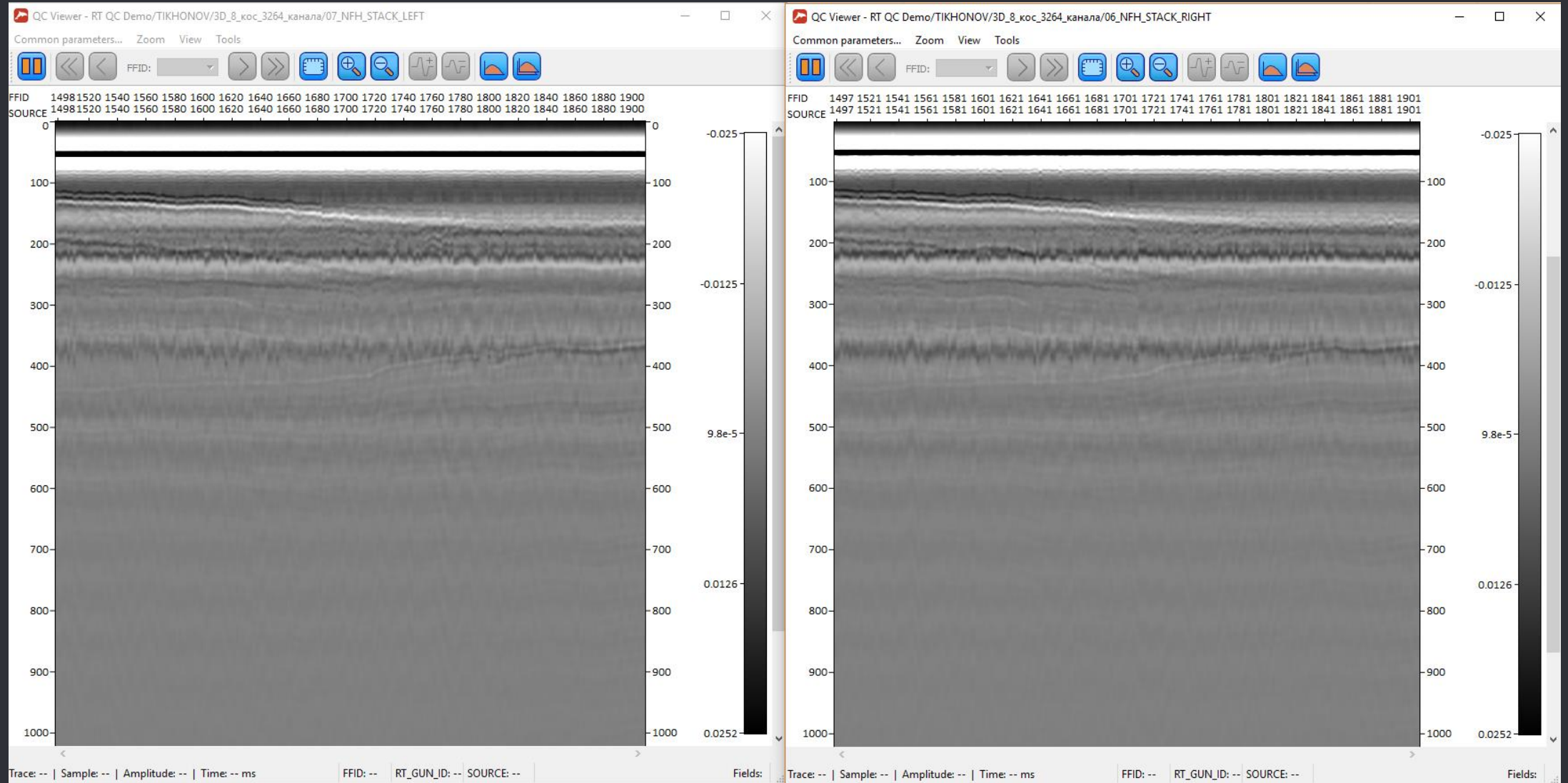


# RT CMP Stack

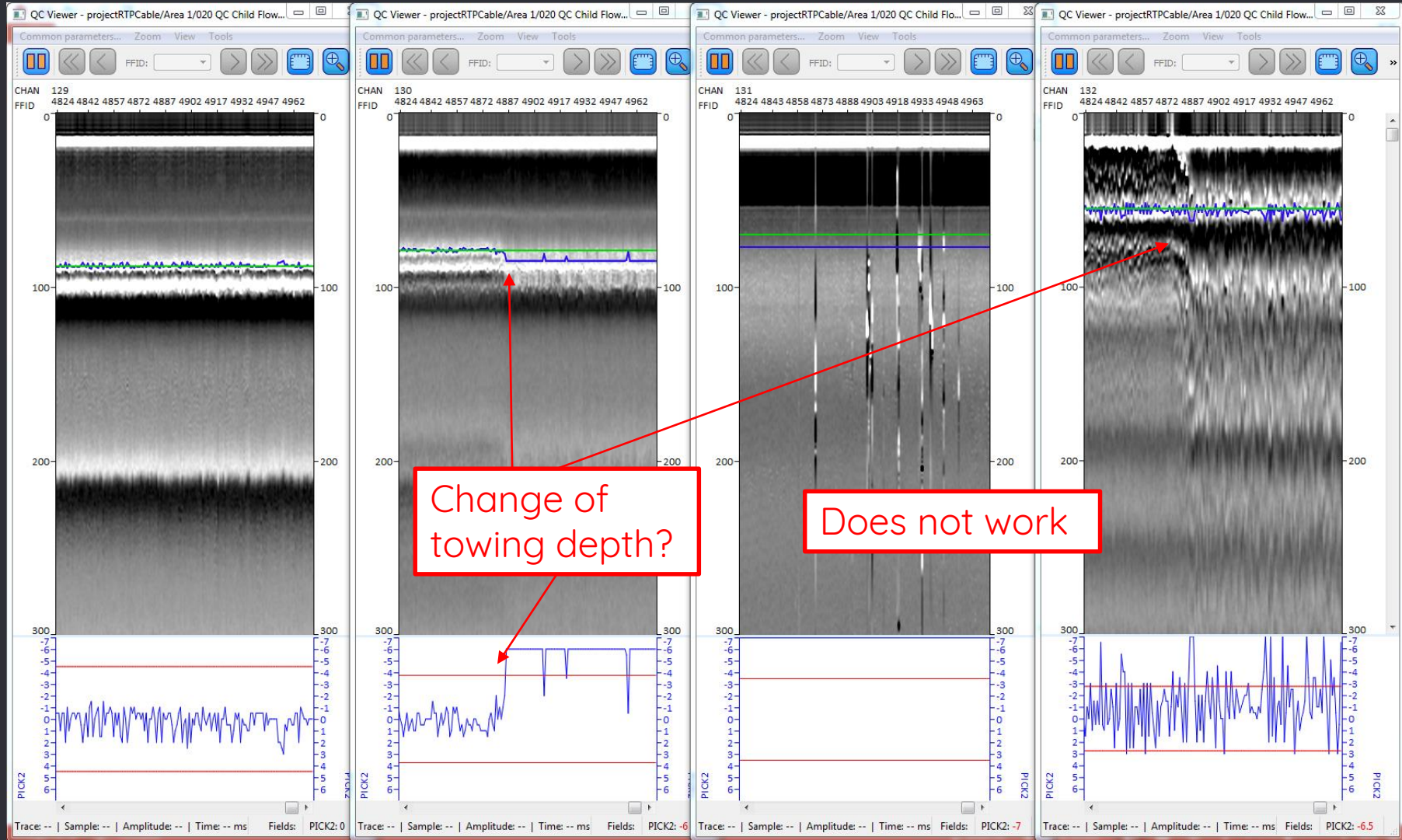




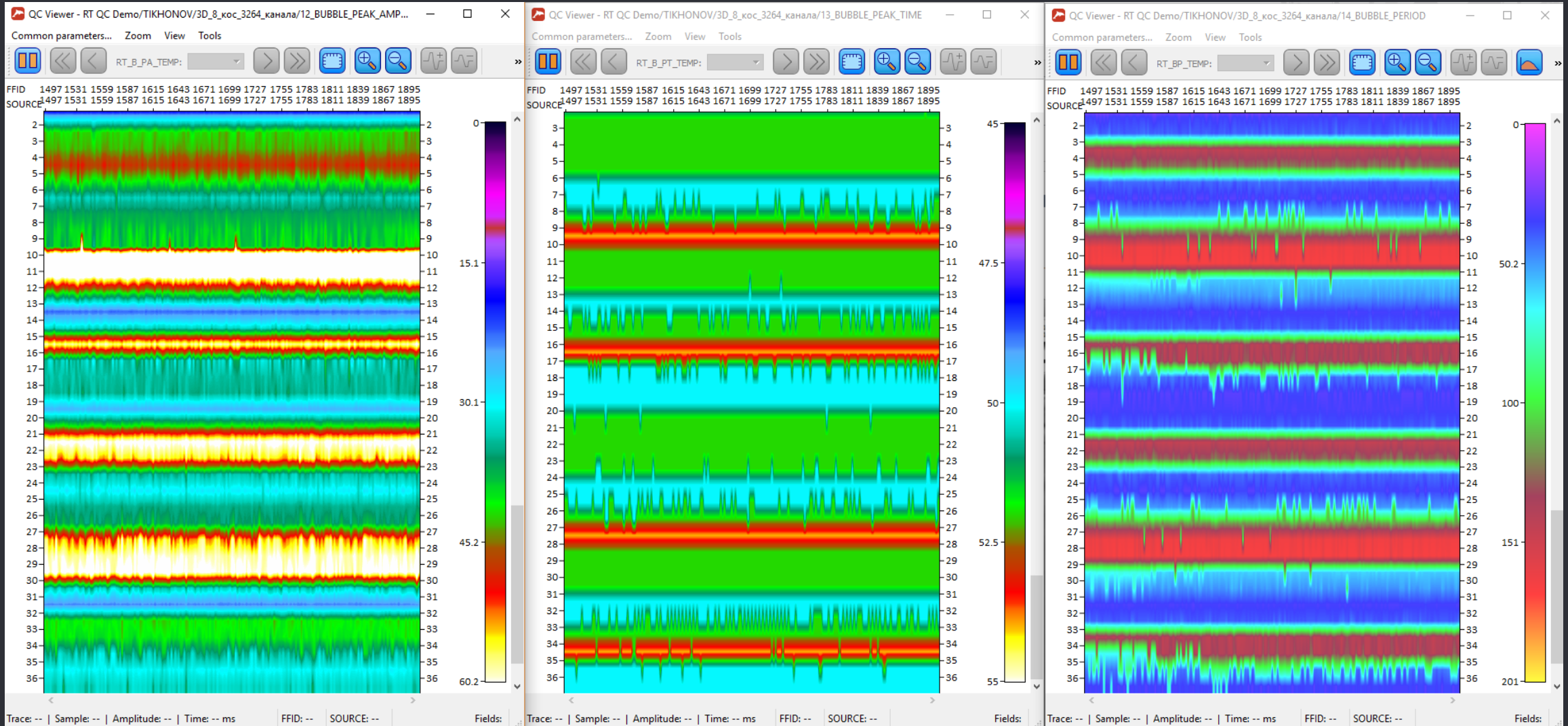
## Source QC: left and right NFH stacks



## Source QC: individual NFH records

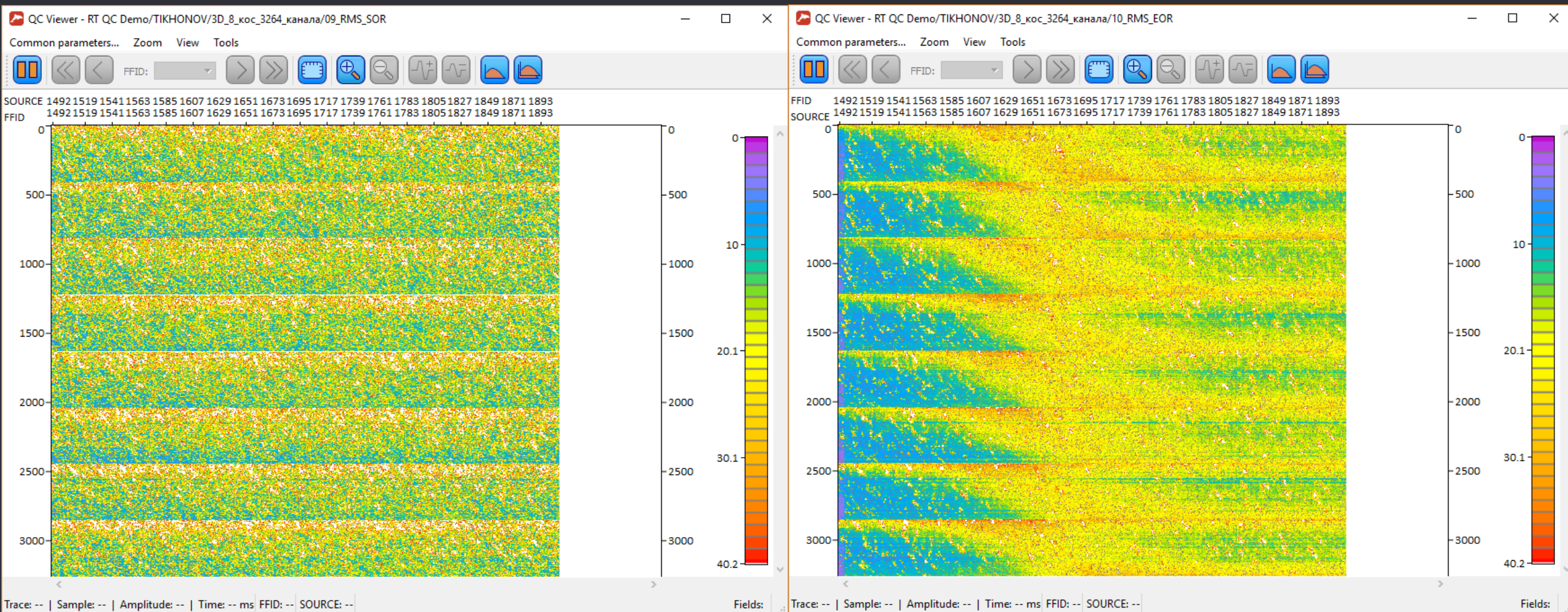


## Source QC: bubble peak amplitude and time, bubble period

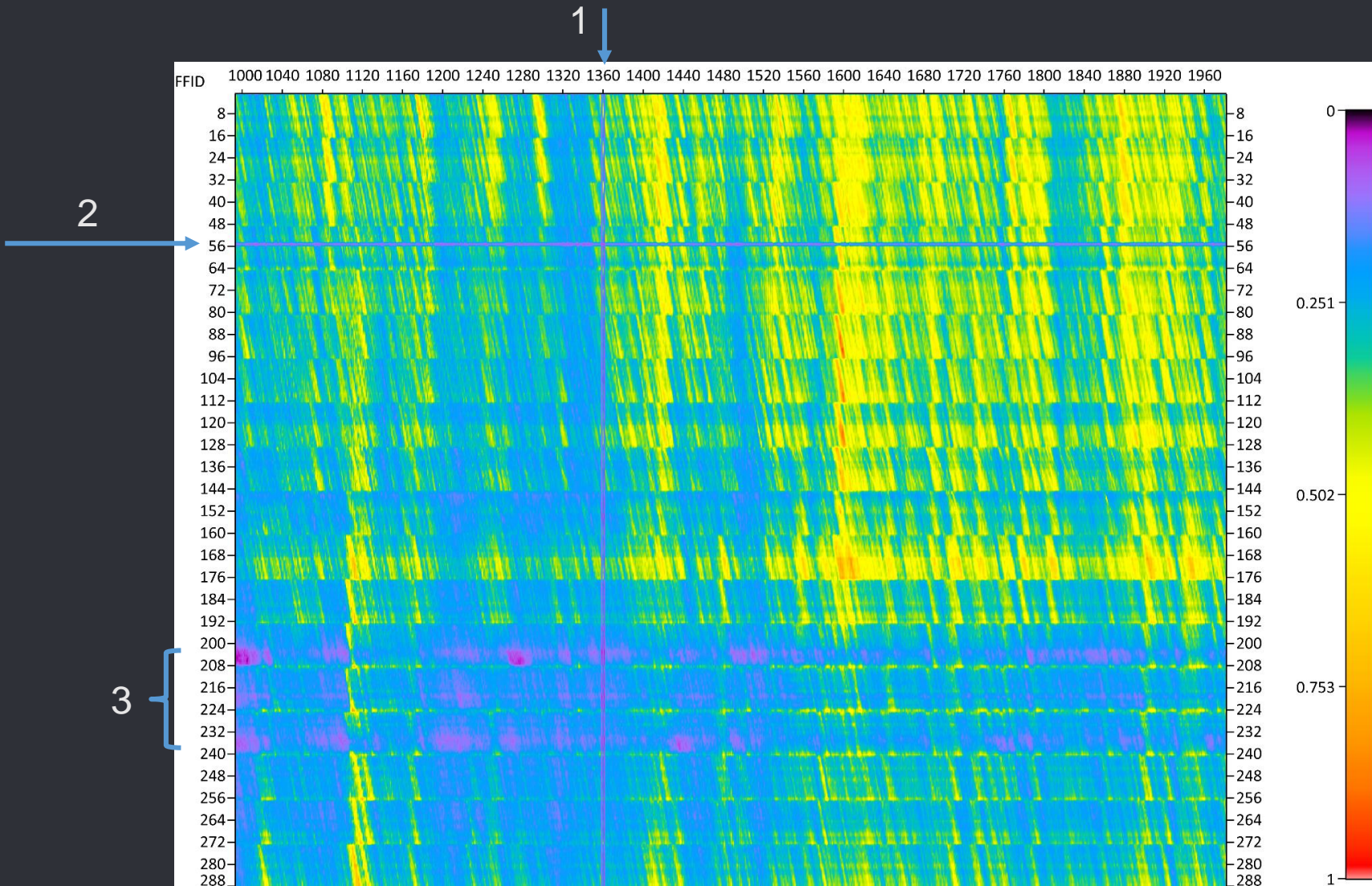




## ARMS SOR and EOR





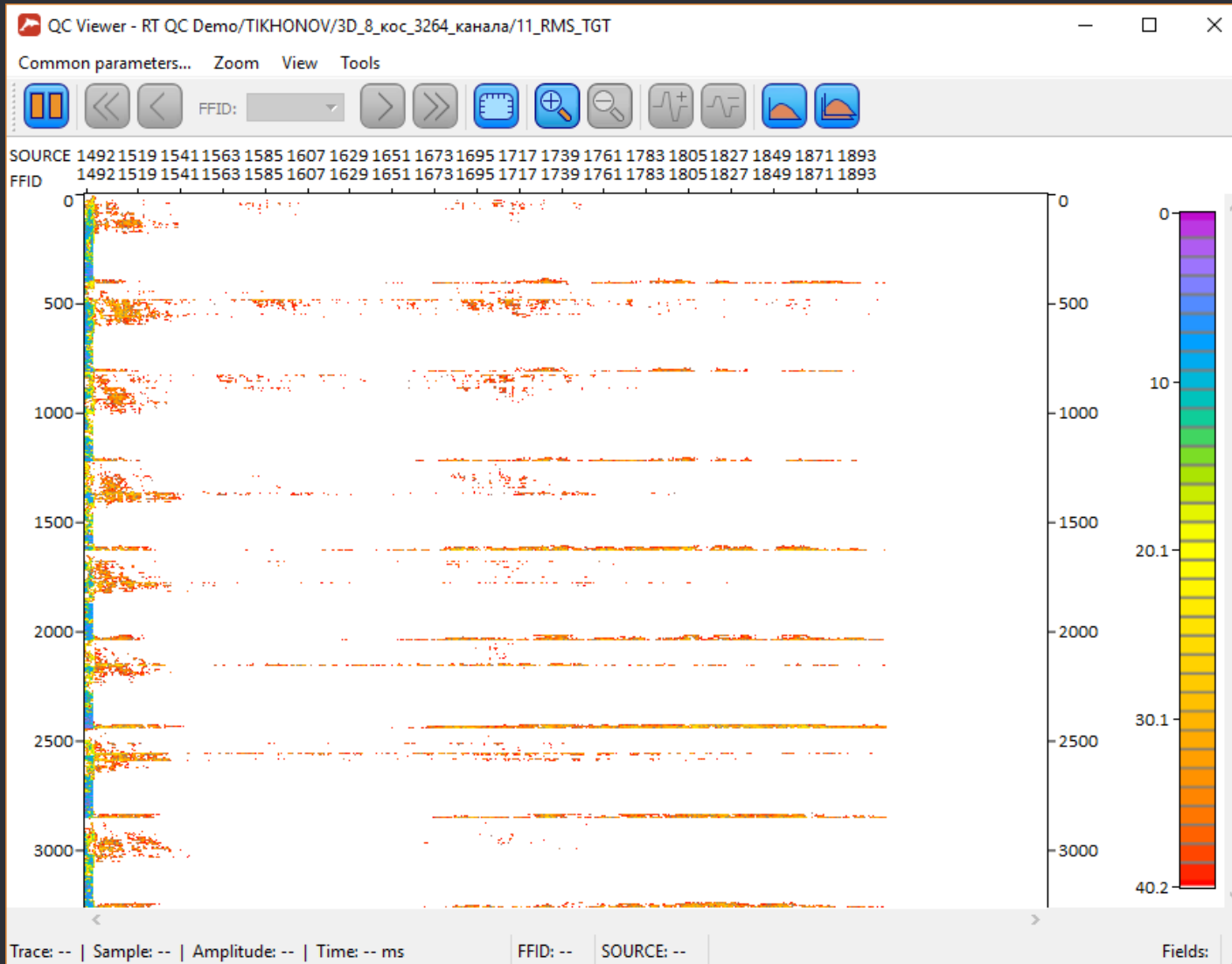


1- Missfire

2 – Bad channel

3 – Group of week channels due to weather conditions

## ARMS at target reflections

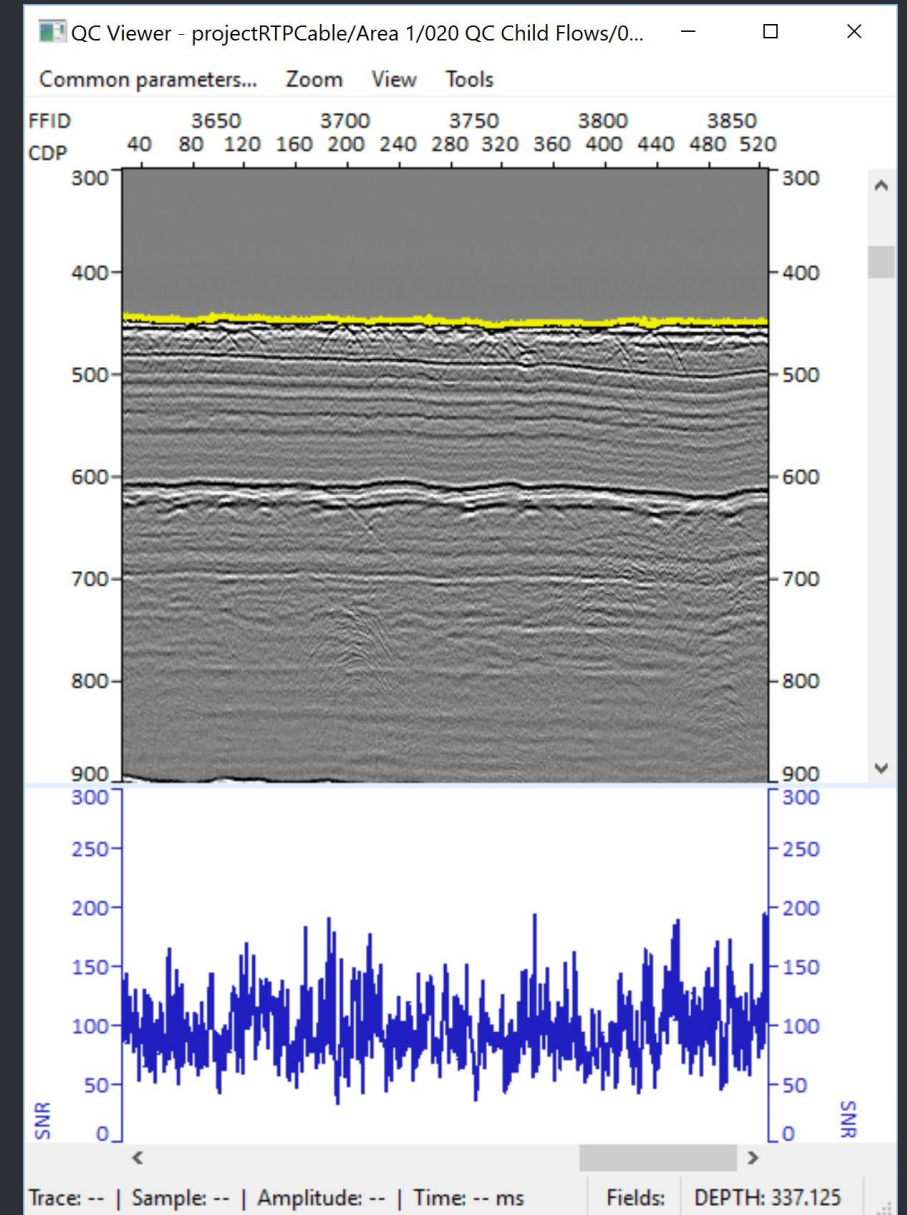


ARMS at target threshold is 40.

Everything below 40 is colored  
– “out of spec” is easily visible

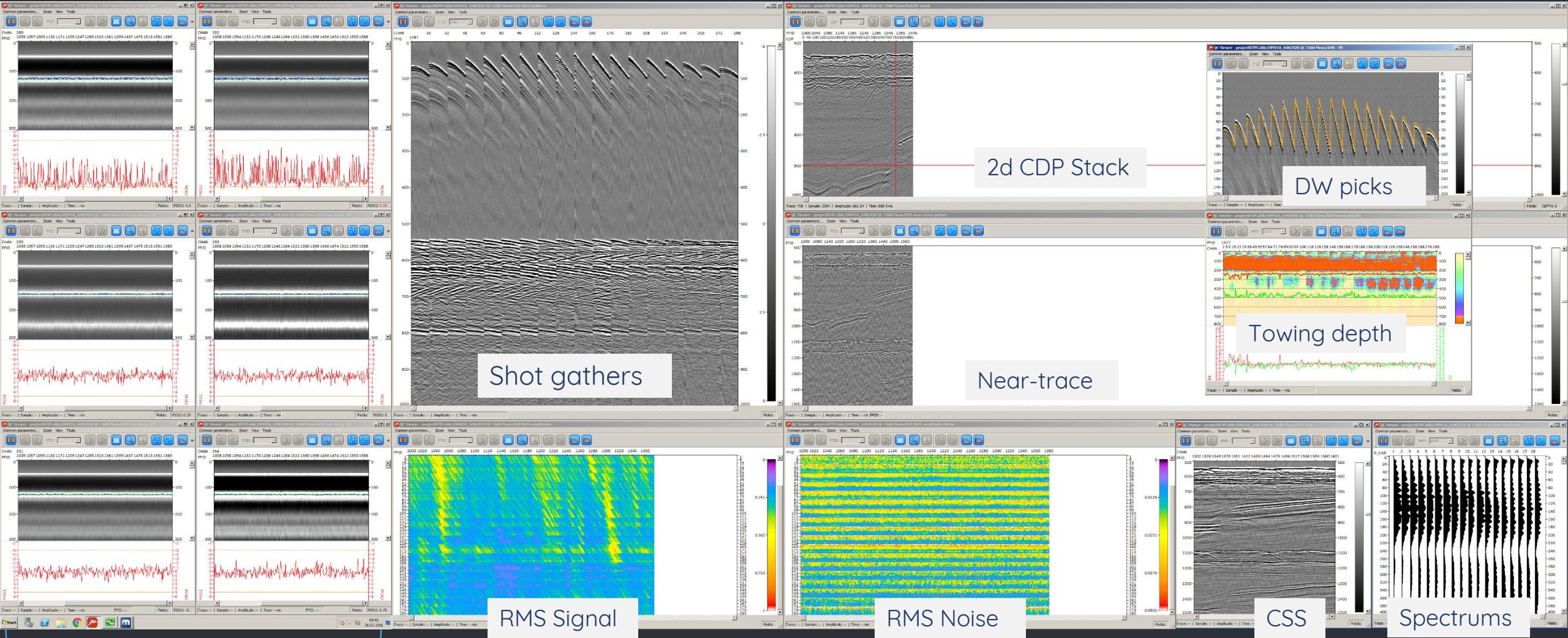
Additional optional plots in the real-time:

- 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
- ...





## Barents sea 2016 hi-res 3D example - 4 portrait oriented 24' fullHD screens





# RadExPro **REAL-TIME**

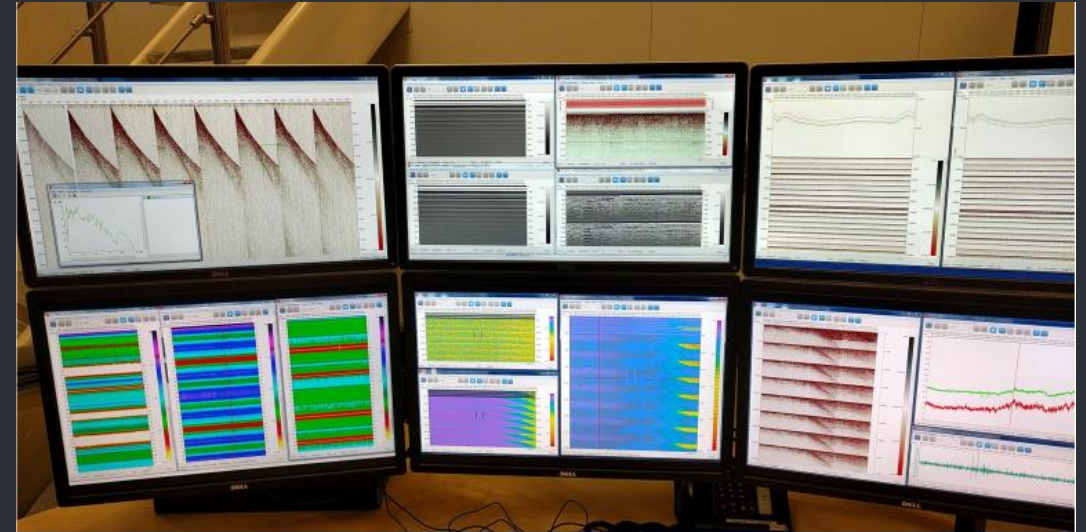
- Highly versatile RT QC system
- Runs smoothly on regular PC
- Comprehensive and cost-efficient solution

## CONTACTS:

RadExPro Europe OÜ

[www.radexpro.com](http://www.radexpro.com)

[sales@radexpro.com](mailto:sales@radexpro.com)



RadExPro Real-Time operated by QC processors of GEOGALS Co. onboard "Ivan Gubkin" 3D seismic vessel