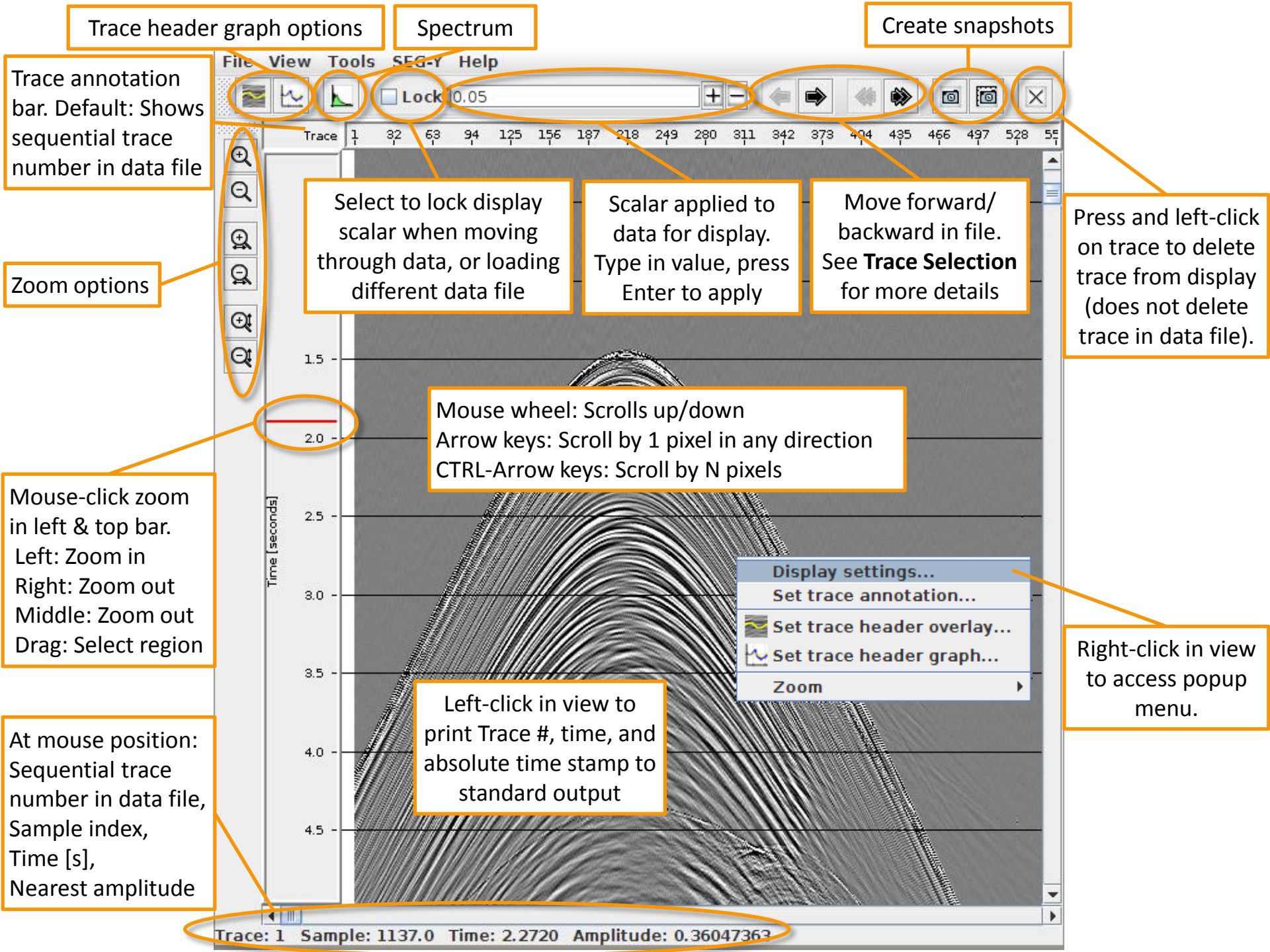
Seaseis seismic processing system

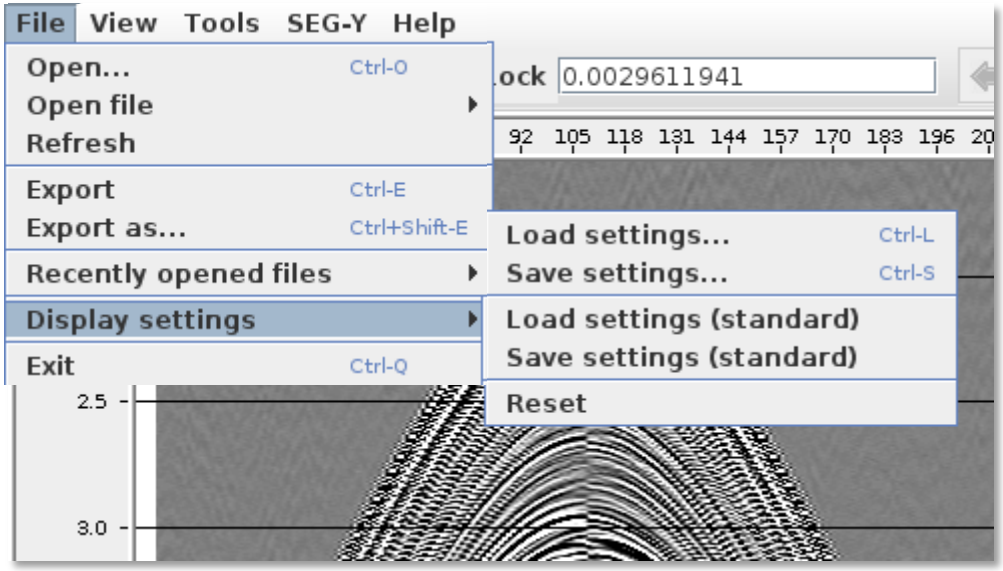
Seaview seismic viewer v1.61

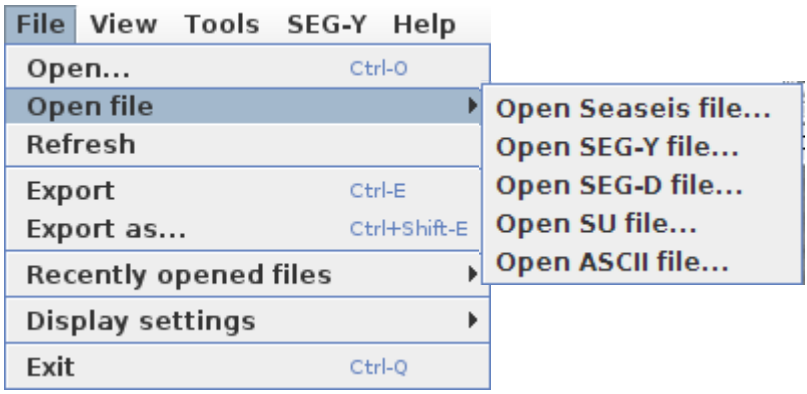
Tutorial

Date: 14 May 2011


Trace header graph options
Spectrum
Create snapshots
Trace annotation bar. Default: Shows sequential trace number in data file
File View Tools SEG-Y Help
Lock
0.05
Trace
Select to lock display scalar when moving through data, or loading different data file
Scalar applied to data for display. Type in value, press Enter to apply
Move forward/ backward in file. See Trace Selection for more details
Press and left-click on trace to delete trace from display (does not delete trace in data file).
Zoom options
Mouse wheel: Scrolls up/down
Arrow keys: Scroll by 1 pixel in any direction
CTRL-Arrow keys: Scroll by N pixels
Time [seconds]
Display settings...
Set trace annotation...
Set trace header overlay...
Set trace header graph...
Zoom
Mouse-click zoom in left & top bar.
Left: Zoom in
Right: Zoom out
Middle: Zoom out
Drag: Select region
Right-click in view to access popup menu.
Left-click in view to print Trace #, time, and absolute time stamp to standard output
At mouse position:
Sequential trace number in data file,
Sample index,
Time [s],
Nearest amplitude
Trace: 1 Sample: 1137.0 Time: 2.2720 Amplitude: 0.36047363

Seaview (v 1.61) – File Menu

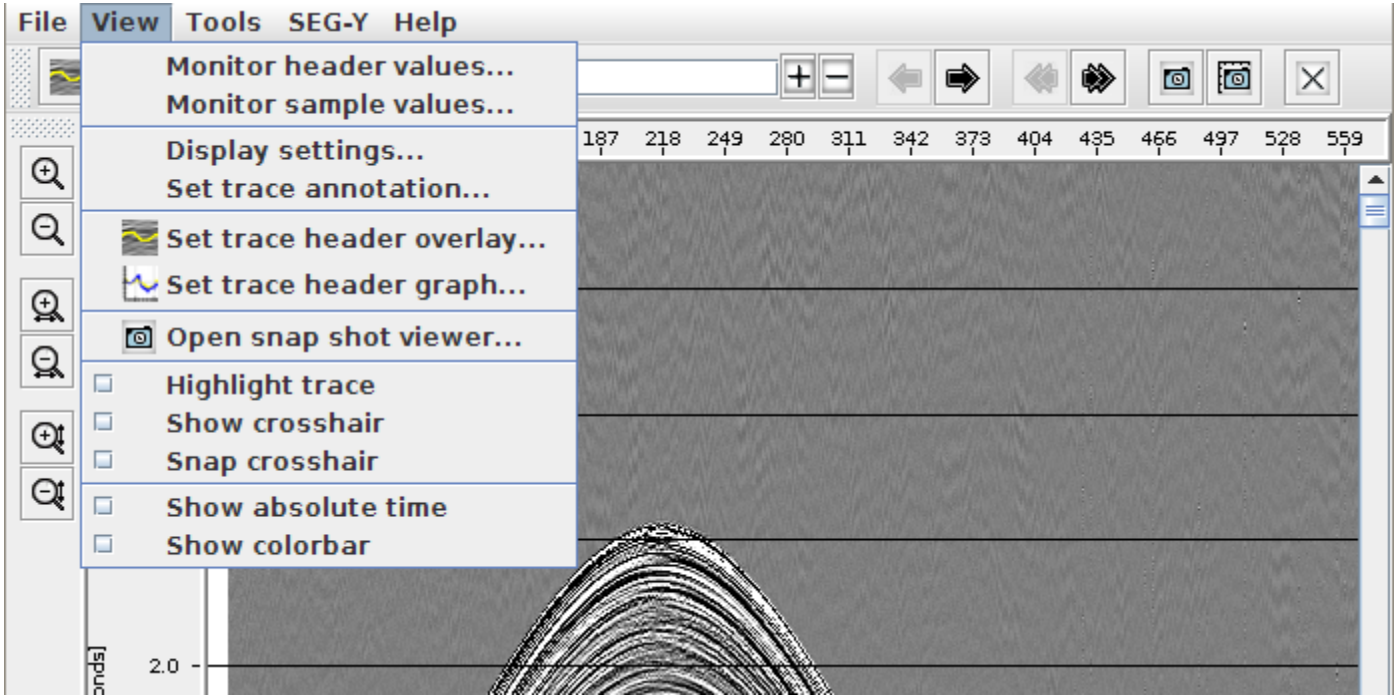




Open…	Open file (supported formats: CSEIS, SEGY, SU,SEGD)
Open file →	Open file, specify file format: CSEIS, SEGY, SU, SEGD, ASCII (see tooltip for more help)
Refresh	Reread currently opened file.
Export	Export view as jpeg to last used location, default name (input_file_name.jpg)
Export as…	Export view to jpeg file
Recently opened files →	Select input file from list of recently opened files
Display settings →	Load/save display settings from/to ASCII file
Load settings…	Load from external file
Save settings…	Save to external file
Load settings (standard)	Load from standard file (in CSEIS home directory $HOME/.cseis)
Save settings (standard)	Save to standard file
Reset	Reset to hard-coded display setting defaults

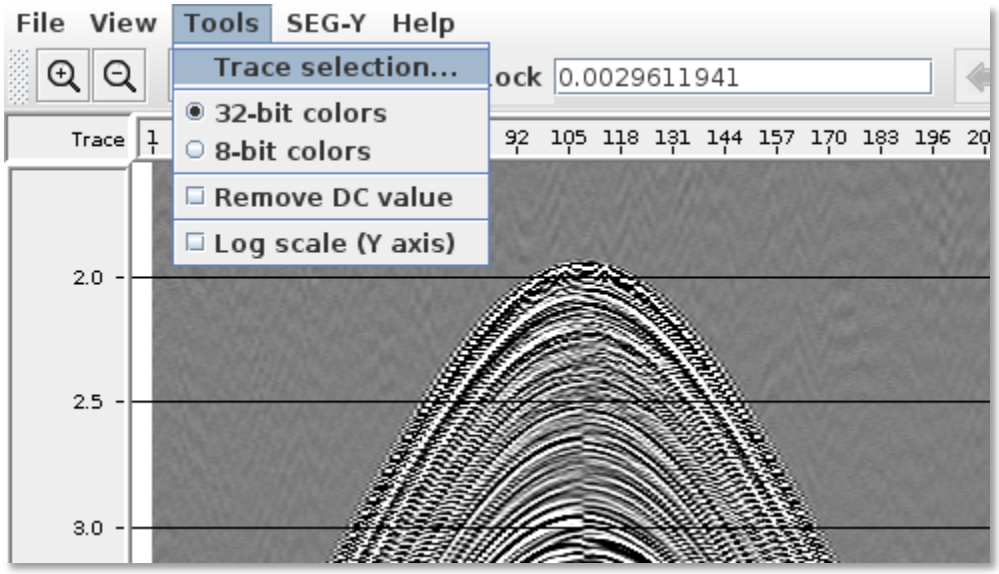
HINT: If the wrong display settings were accidentally saved to the standard location, reset the display settings using **Reset** and select **Save settings (standard)** again.

Seaview (v 1.61) – View Menu



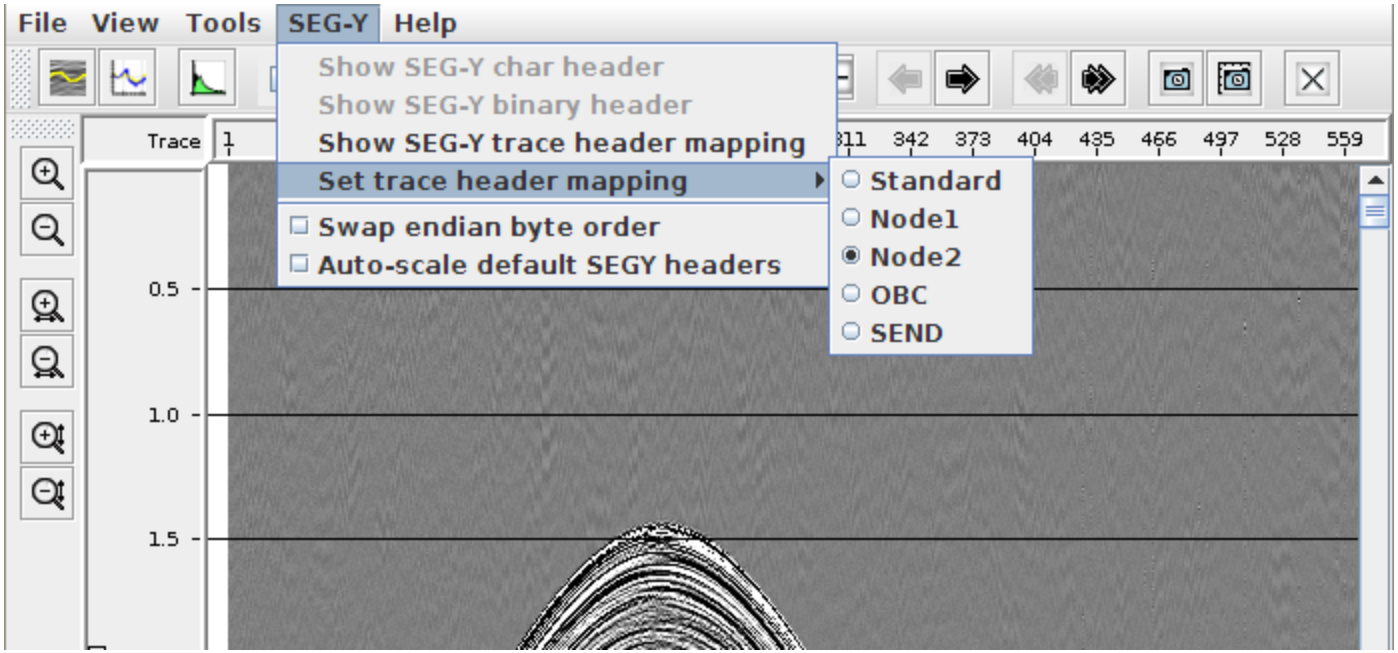
Monitor header values…	Show listing of all trace headers & values for trace at mouse location
Monitor sample values…	Show listing of all trace sample values for trace at mouse location
Display settings…	Open display settings dialog
Set trace annotation…	Open trace annotation dialog
Set trace header overlay..	Plot selected trace headers on top of seismic view
Set trace header graph…	Plot select trace headers as graph above seismic view
Open snap shot viewer…	Open snapshot viewer window. Browse/organise snapshots
Highlight trace	Highlight trace at mouse position
Show crosshair	Show crosshair at mouse position
Snap crosshair	Snap crosshair to nearest sample & trace
Show absolute time	Display absolute date/time in status bar at mouse position. Only supported for CSEIS data that has trace header “time_samp1” set correctly
Show colorbar	Show color bar (if any is used) on right hand side (experimental only)

Seaview (v 1.61) – Tool Menu



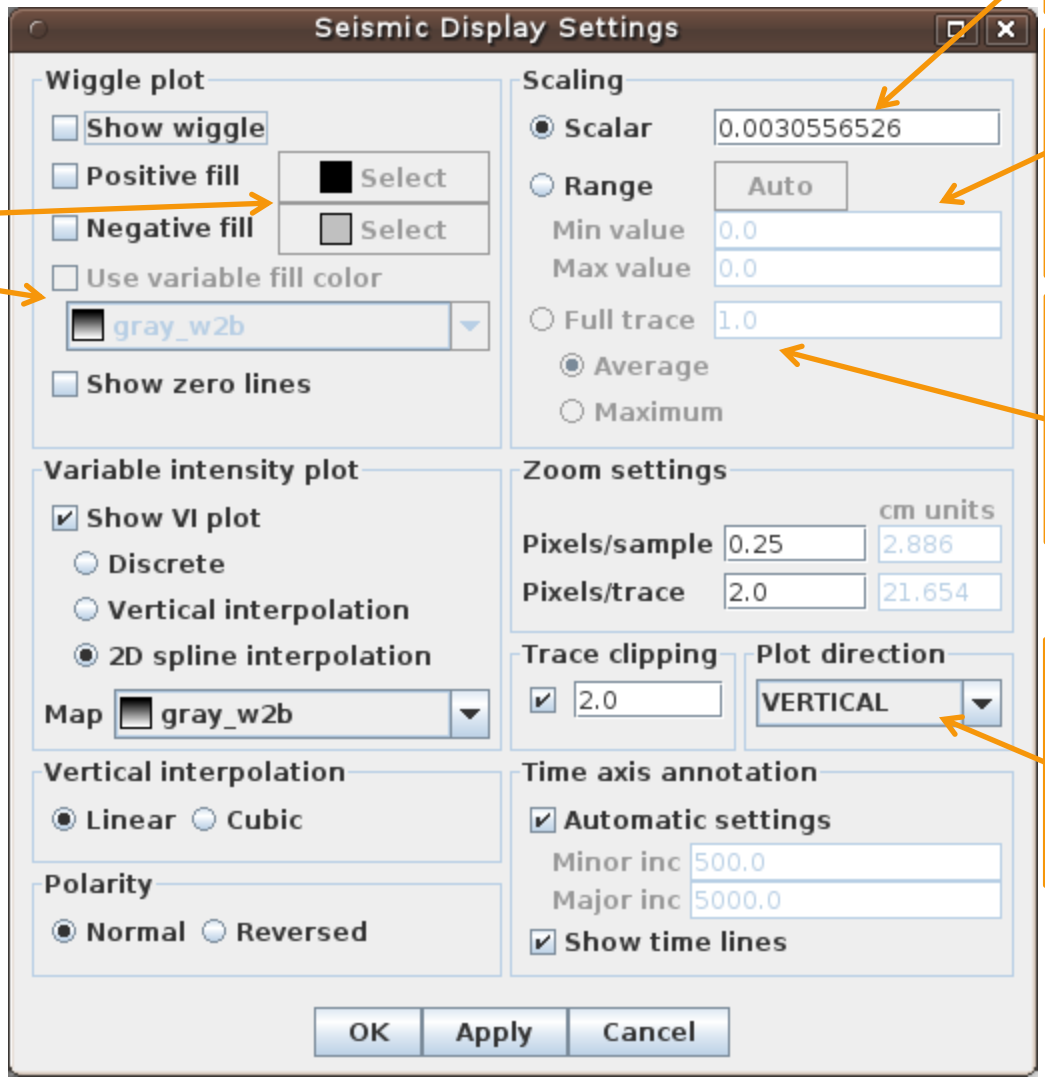
Trace selection…	Select traces to display.
32-bit colors	Default setting
8-bit colors	Reduces color resolution to 8 bits. This may improve performance slightly, especially for remote viewing
Remove DC value	Remove mean (DC) value in each displayed trace (display only, not permanent)
Log scale (Y axis)	Display vertical axis in log scale. Useful for frequency domain (experimental!)

Seaview (v 1.61) – SEG-Y Menu



Show SEG-Y char header	Show SEG-Y 3200 byte textual header
Show SEG-Y binary header	Show listing of 400 byte binary header values
Show SEG-Y trace header mapping	Show how trace headers are mapped from 240 byte trace header
Set trace header mapping	Select particular trace header mapping to use, ***before*** reading in SEG-Y data file. Once a file has been opened, trace headers cannot be remapped.
Swap endian byte order	Swap byte order on input file (select ***before*** reading in file)
Auto-scale default SEGY headers	Apply SEGY scalars to coordinates, elevations and statics

Seaview (v 1.61) – Display Settings



Fill neg/pos lobes with…
- Fixed color
- Variable color

Scalar: Scalar is applied to data before display

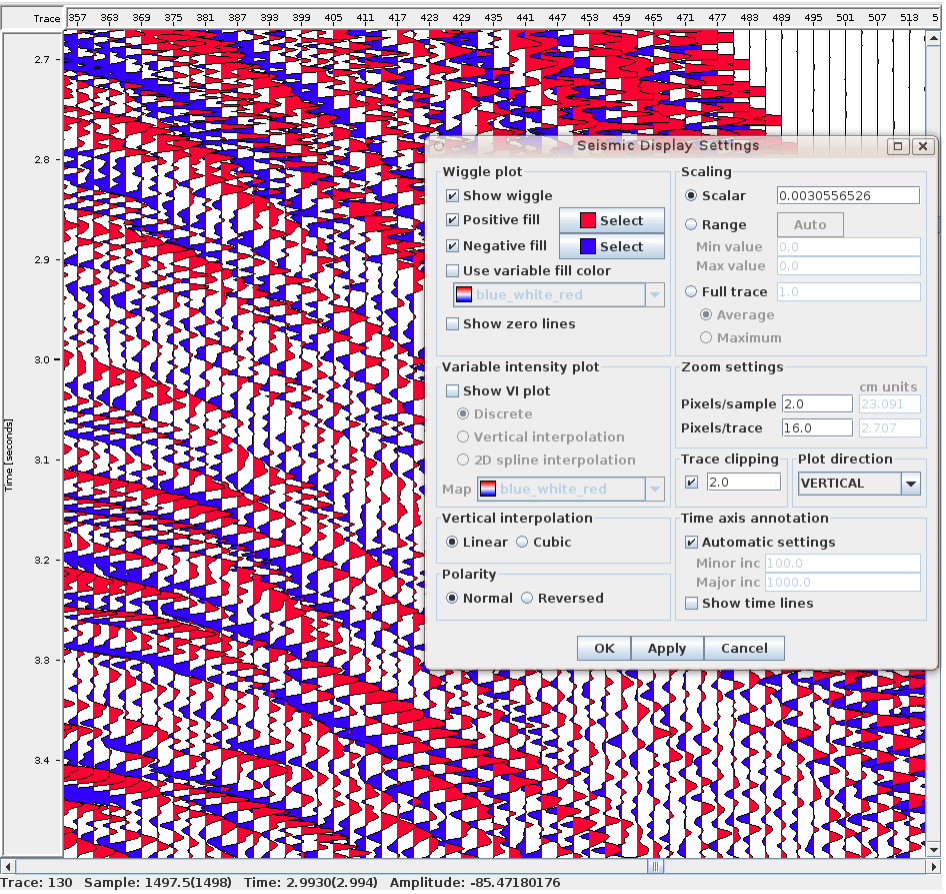
Range: Limit the span of the chosen color map to the specified range. All amplitudes outside of this will have a fixed color.

Full trace scaling: Each trace is individually equalized to RMS=1. All traces are further scaled by the specified scalar.

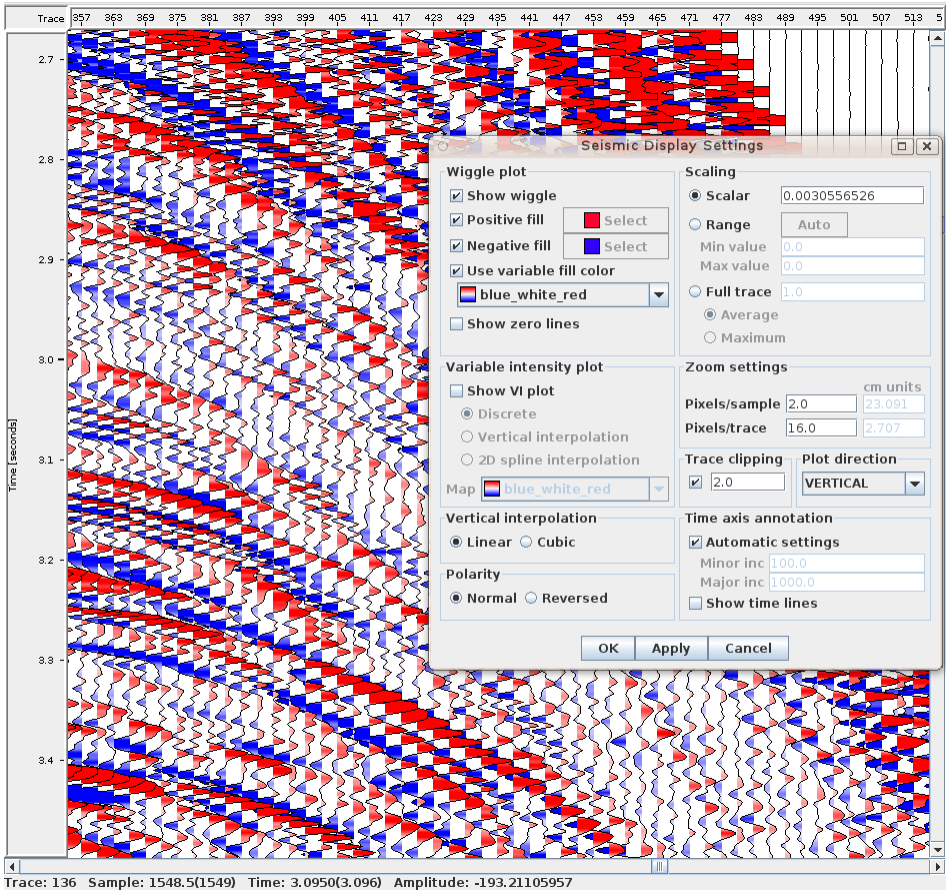
HORIZONTAL plot direction is experimental and not fully implemented yet

Seaview (v 1.61) – Display Settings: Fixed versus variable color fill of wiggle trace

Fixed color fill

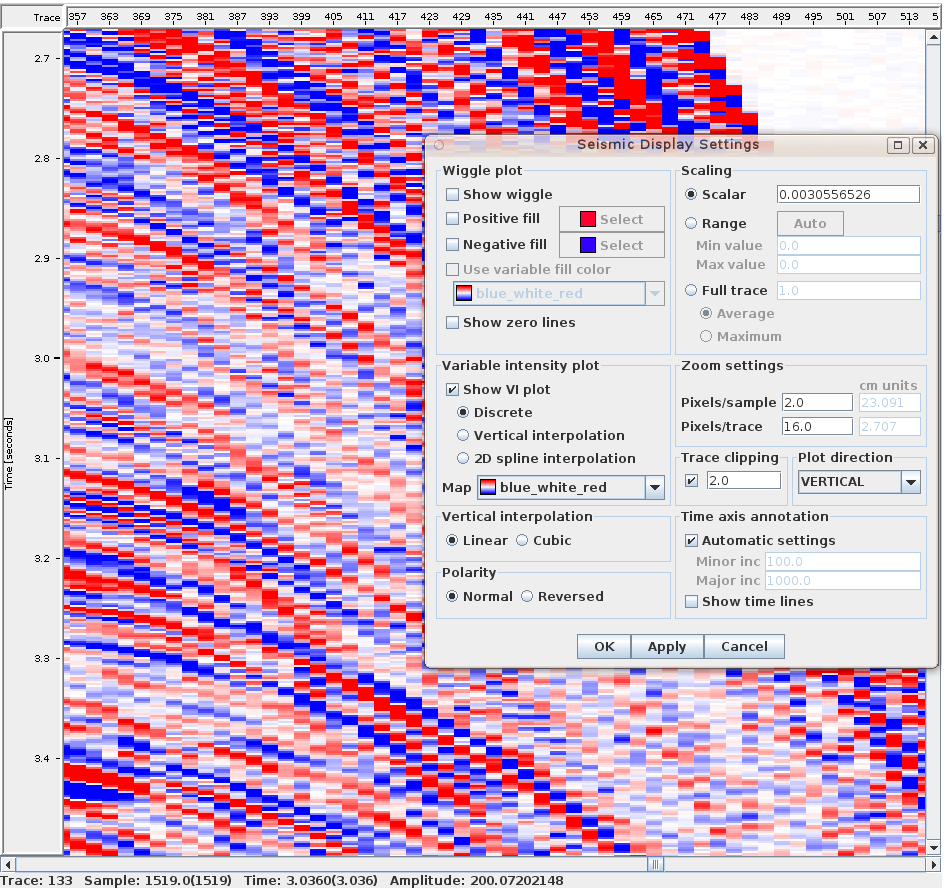


Variable color fill

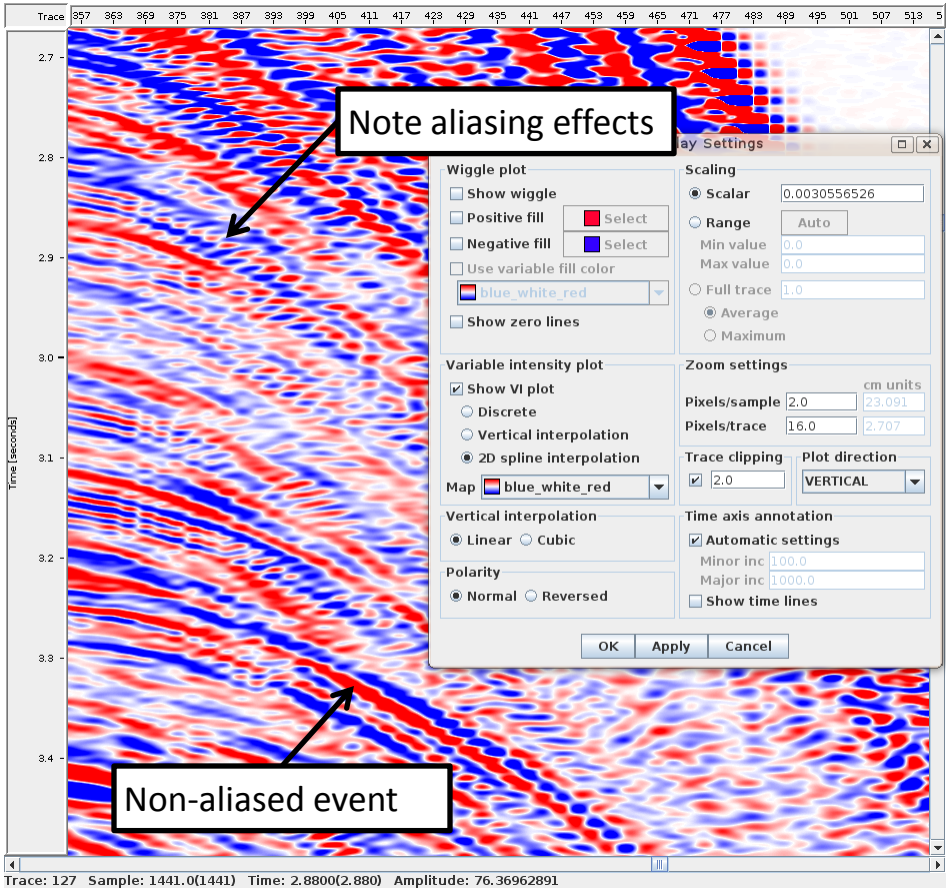


Seaview (v 1.61) – Display Settings: Discrete versus interpolated intensity

Intensity plot: **Discrete**

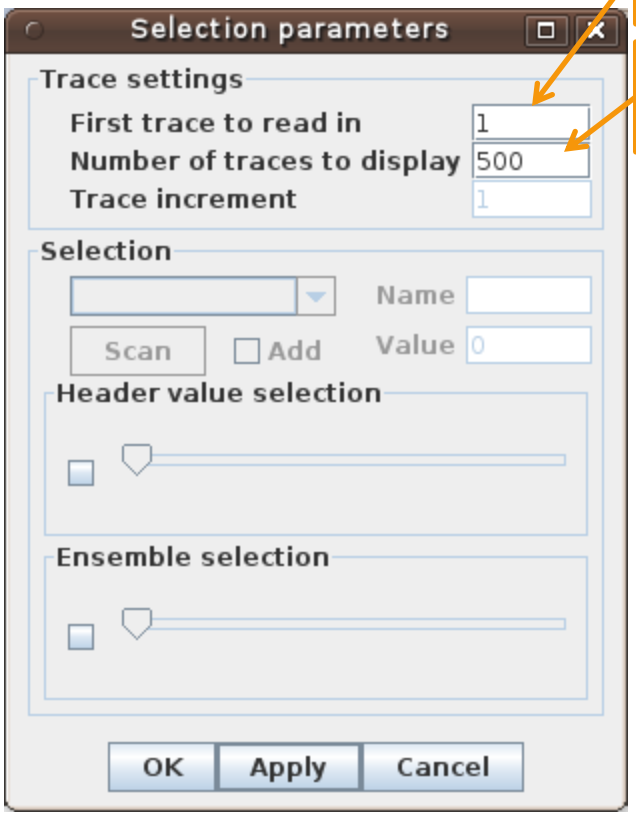


Intensity plot: **2D spline interpolation**



Seaview (v 1.61) – Trace Selection

Dialog setup when Seaview is started



Sequential trace number of first trace to be displayed.

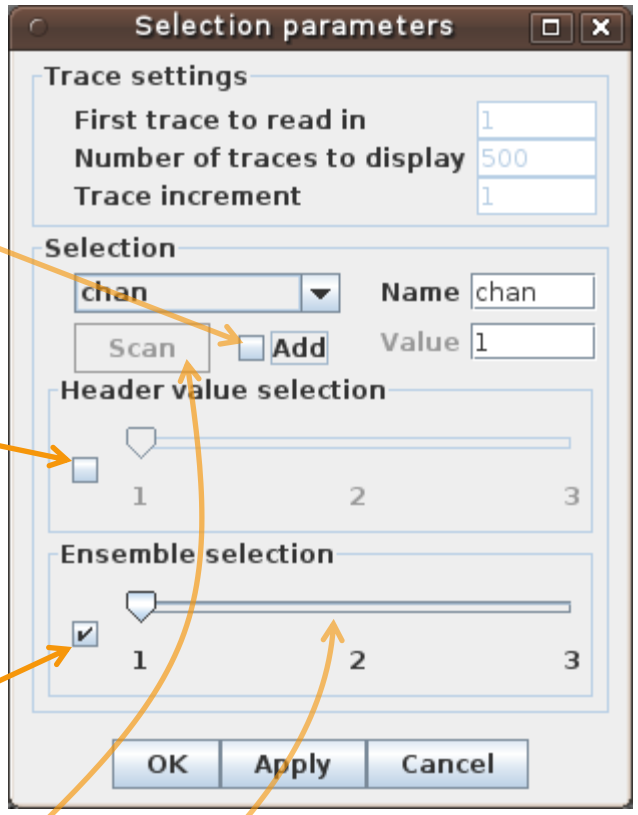
Number of traces (N) to be displayed.

Select to add trace header to top bar annotation

Select to display only traces with certain trace header value. N non-consecutive traces are read in from the entire data file.

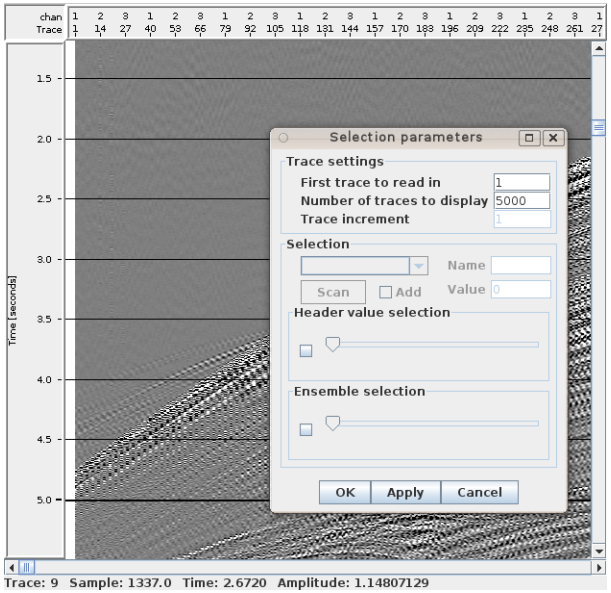
Select to display traces belonging to one *ensemble* (=consecutive traces with same trace header value)

Dialog setup after selecting **Ensemble selection**, selecting trace header "chan", and clicking **Scan** button

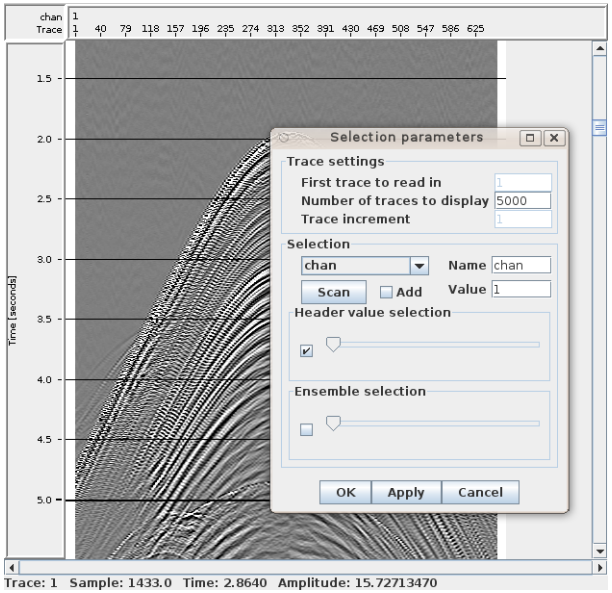


When the **Scan** button is clicked, the entire data file is scanned for the selected trace header. This enables the selection of trace header values and ensembles with the **slide bars**, and reduces the time it takes to read in/display data when using the **Header value selection option**.

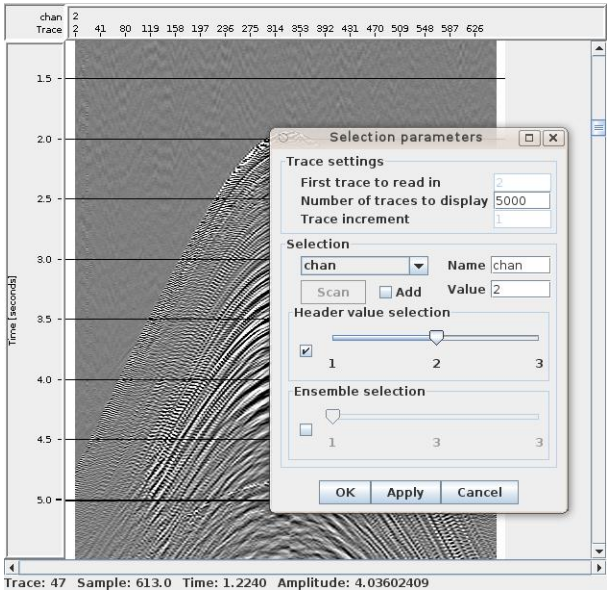
Seaview (v 1.61) – Trace Selection: Header selection versus Ensemble selection



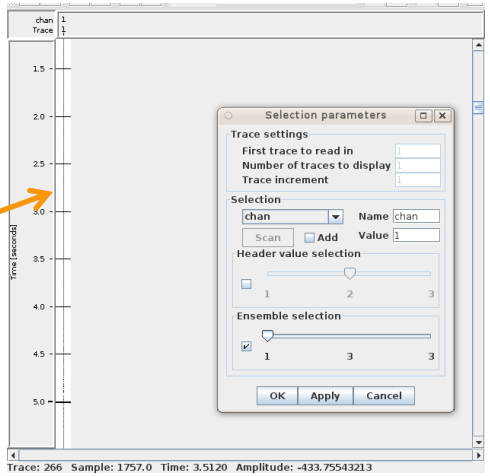
Read in unsorted input data.
Default trace selection = max 5000 consecutive traces.



Select **Header value selection**, specify trace header *chan*, value 1, click **Apply**
→ Only traces with trace header *chan*=1 are displayed

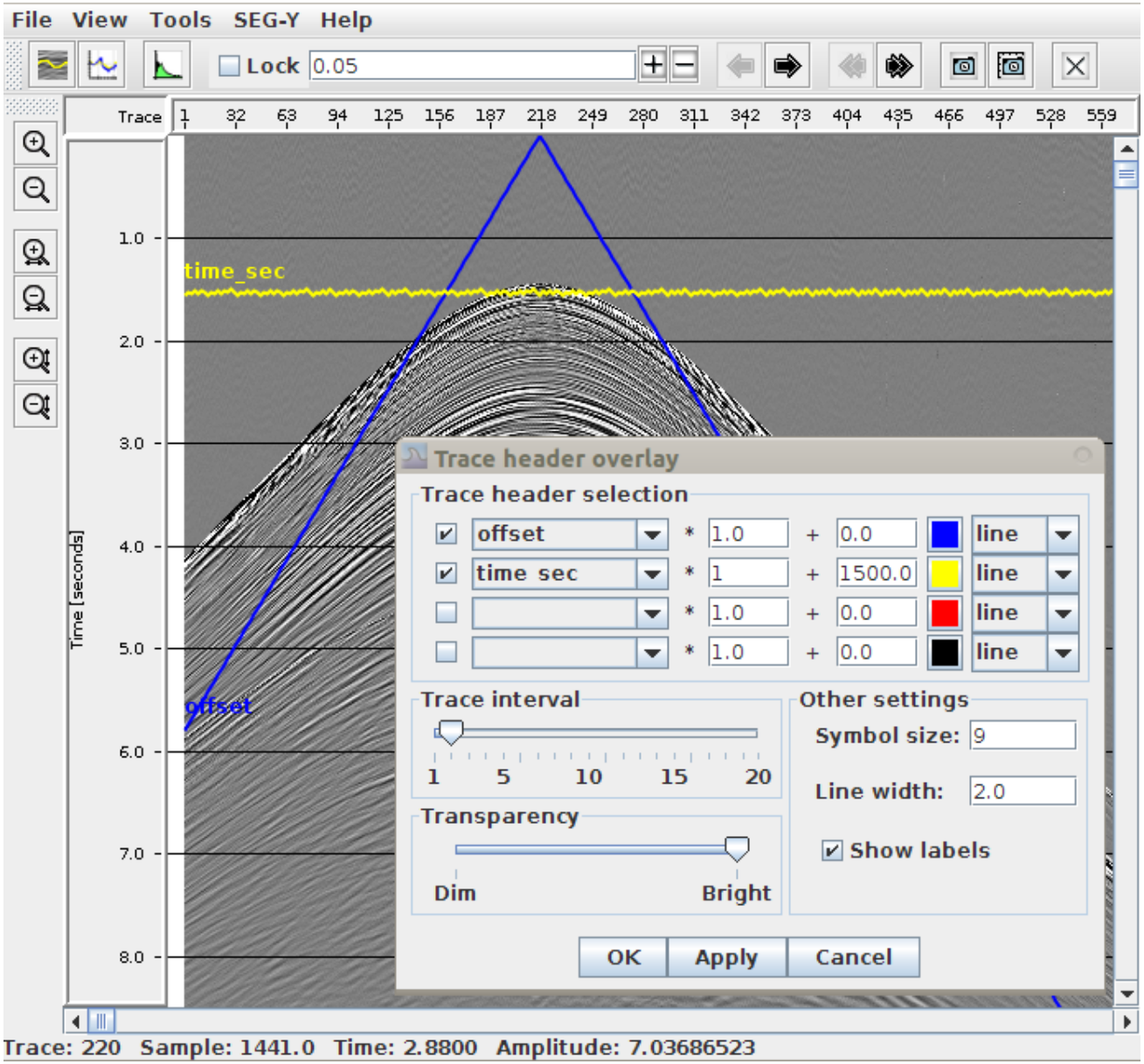


Press **Scan** to scan file for header values, select *chan*=2 from slide bar



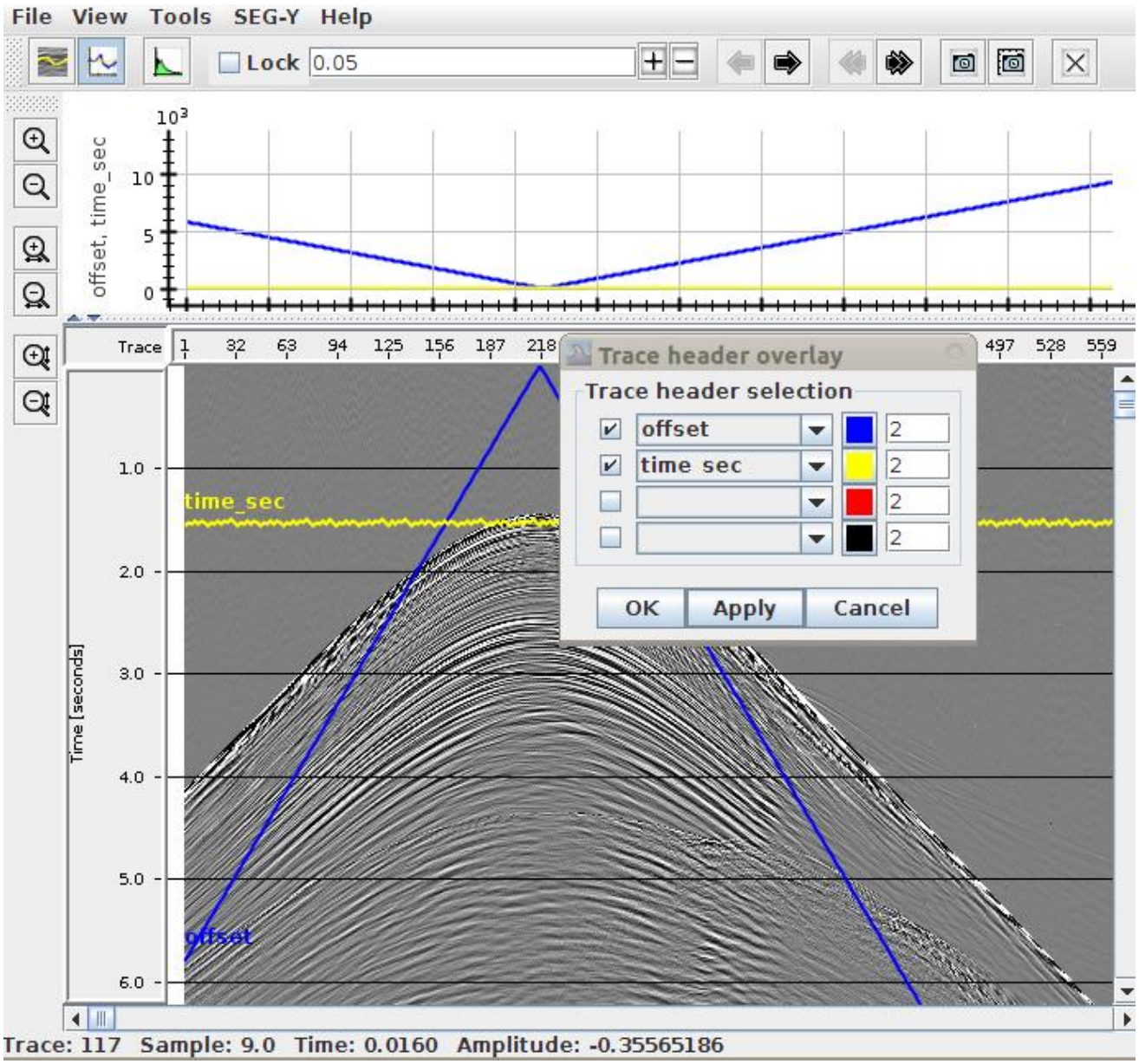
Now select **Ensemble selection**, click on **Apply**
→ Consecutive trace ensemble is a single trace!
→ Ensemble selection is only useful for data that is pre-sorted by the ensemble header!

Seaview (v 1.61) – Trace header overlay



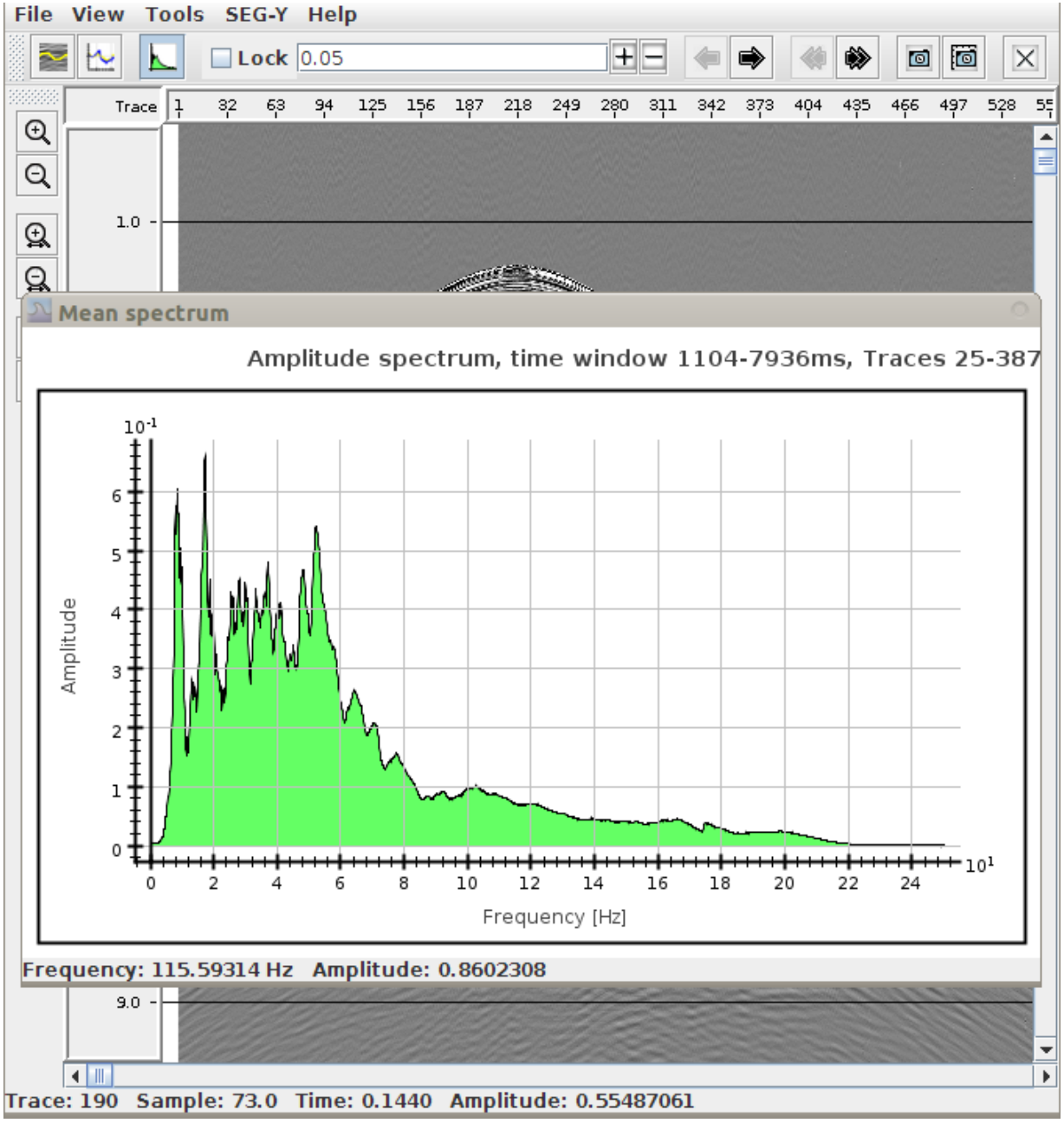
Specify up to 4 trace headers to plot on top of seismic.

Seaview (v 1.61) – Trace header graph



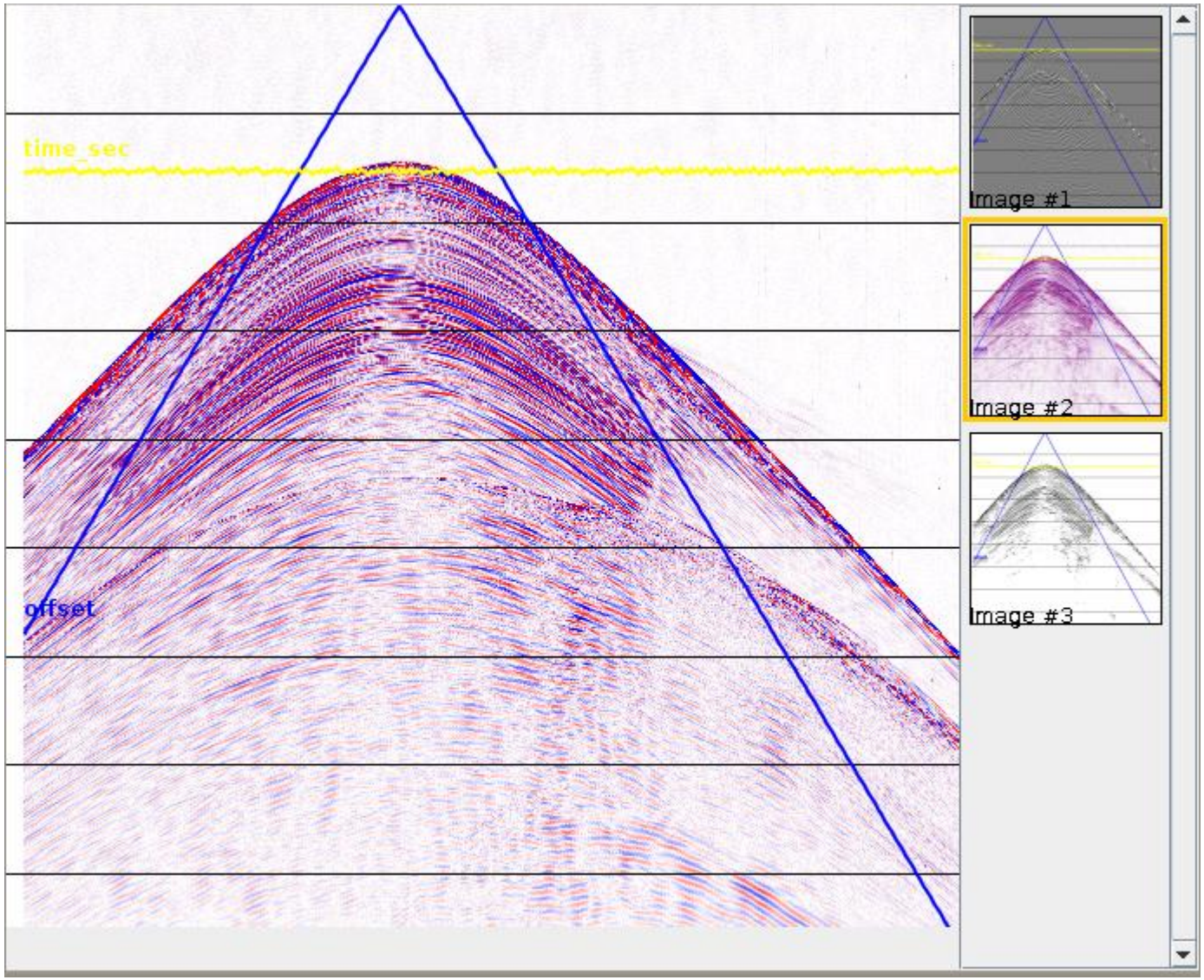
Specify up to 4 trace headers to plot as graph.

Seaview (v 1.61) – Amplitude spectrum



Select spectrum button and select rectangular window with left mouse button to generate amplitude spectrum.
Currently only linear scale plot is supported.

Seaview (v 1.61) – Snap shot viewer



Use up/down or left/right buttons to browse through snap shots.
Drag snapshots up or down to resort.
Use DEL key to delete highlighted snap shot.

Seaview (v 1.61) – Known Problems

- **Trace selection**: Any trace selection other than the default setting may cause errors when loading a new file and navigating through it. These errors usually go away after the first navigation, or latest when the trace selection is renewed and applied.
- **Out of memory**: Trying to display too many traces at once may cause the viewer to hang with “Out of Memory” error messages in the launching terminal. In this case the viewer needs to be closed and re-opened. Seaview is working entirely within the maximum allocated memory, no disk swapping is done directly (it may still be done by the Java Virtual Machine). To increase the allocated memory, increase the number given to the Java virtual machine in the launch script seaview.sh/seaview.bat: -Xmx1524m (the number (1524) gives the maximum memory allocation in Megabytes)
- **Race conditions**: The seismic view may at times generate errors when certain parts of the source code are invoked ahead of their proper time by the graphics “queue”. This may happen especially when working on a slow machine, or when displaying a lot of data at once.
- **Trace selection & Toolbar navigation arrows**: There seem to be some left-over bugs relating to the navigation between ensembles and header selections, for example causing the arrows to have no effect when pressed