

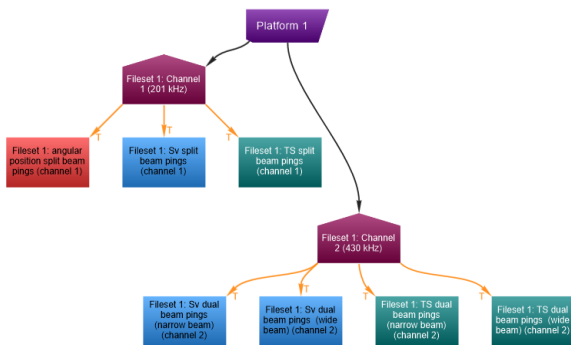
Echoview 9 release notes

Echoview 9 brings an exciting range of new tools and algorithms designed to advance your data processing capabilities and make analysis easier and more efficient.

Echoview 9 is available to all license holders with an up-to-date Maintenance and Technical Support (MATS) subscription. To find out if your MATS subscription is current please contact sales@echoview.com.

Transducer and frequency automation

Echoview can now automatically create new transducer objects in the Dataflow window when data files are added to an EV file, and then allocate raw variables to the appropriate transducer based on the transducer or channel ID and its associated frequency.



Dataflow showing automatically-created transducer objects for two channels, and raw variables assigned to those transducers.

This feature is available for all file formats supported by Echoview where ping data contains frequency information.

Echoview now also has the ability to combine data based on frequency, even if transducer numbers change between files. For example, a template set up to apply a frequency-dependent workflow to T1 (38 kHz) and T2 (70 kHz) raw variables will automatically reassign data that were recorded as T1 (70 kHz) and T2 (38 kHz). This feature is currently available for Simrad EK60, Simrad EK80, BioSonics DTX and Echoview EVD file formats, and can be expanded to other formats on request in future versions of Echoview.

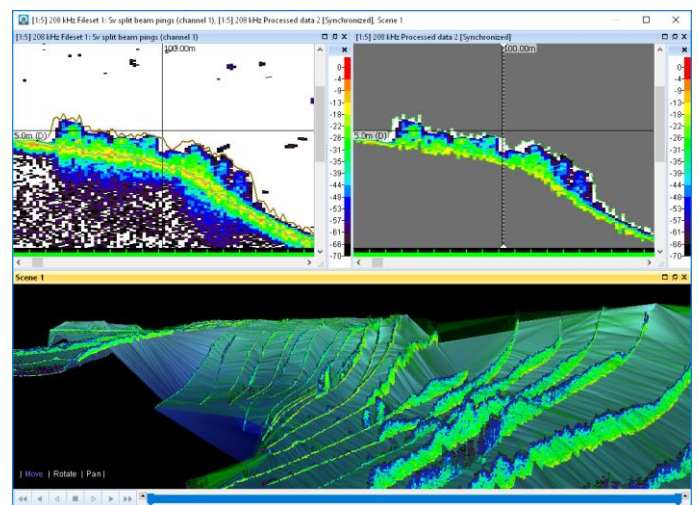
New operators and algorithms

Echoview 9 includes several new and improved operators for manipulating and enhancing hydroacoustic data.

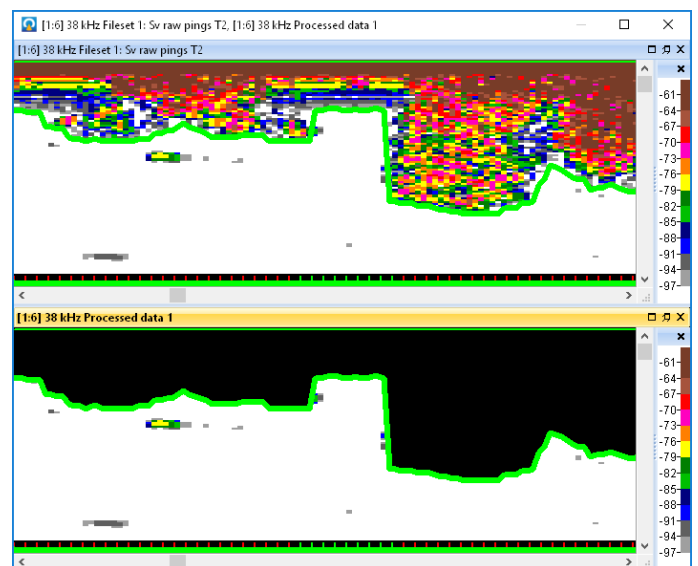
We've added an XxYxZ Convolution operator for use with multibeam data types. This operator can be used for smoothing, which can be beneficial for downstream data

processing steps such as background removal and object detection.

The algorithm in the new Threshold Offset virtual line operator finds the depth at which sample values in a ping first cross a specified dB threshold starting at the depth of a specified pre-existing line. This operator can be used for a variety of applications, such as the detection of submerged vegetation, shadow zones on slopes, transducer ringdown, surface bubbles, layers in the water column, turbulence, and more.

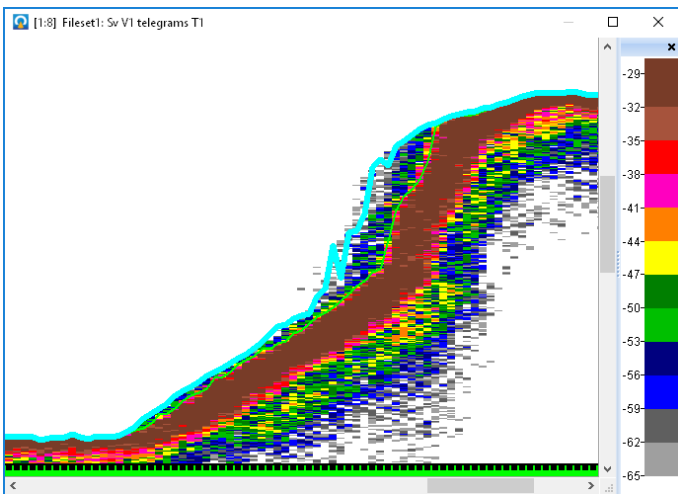


Threshold Offset operator used to detect submerged vegetation (top left), which is then isolated with a mask (top right) and viewed as a curtain draped over the detected lake floor in a 3D scene (bottom).



Threshold Offset operator used to delineate surface bubbles and ringdown (top), and the resulting output of the Processed Data operator with the surface data excluded (bottom).

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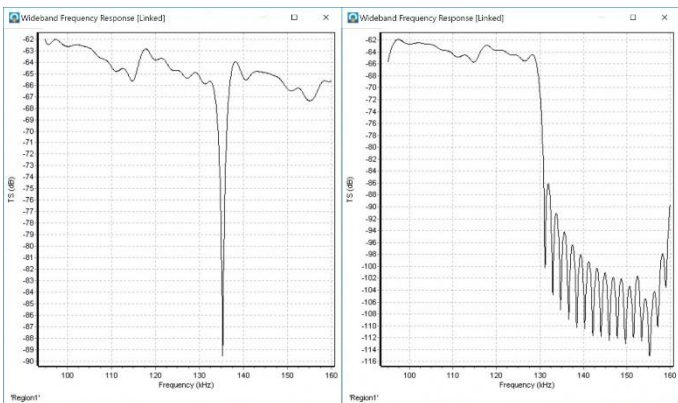


Threshold Offset operator used to detect the shadow zone on a sloping seafloor.

The new Line Range Bitmap operator can be used to identify the pings in which the depth of a line falls within a specific range of values.

We've added two operators for use with wideband data from Simrad EK80 systems:

- Wideband Frequency Subset, which allows you to suppress data from outside a defined frequency band
- Wideband Frequency Select, which extracts the echogram for a single frequency within the frequency range of a wideband acoustic variable

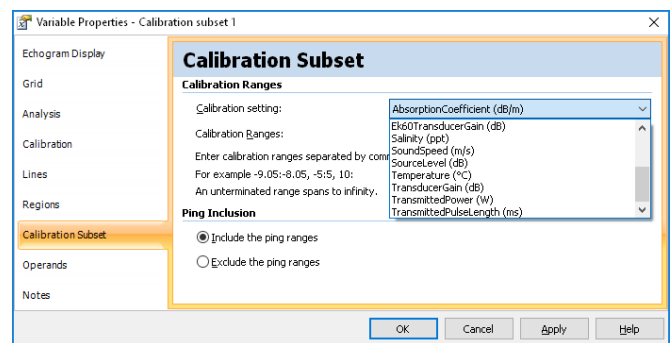


Wideband frequency response graphs: original 95-160 kHz frequency response for a calibration sphere on the left, data suppressed to 95-130 kHz on the right.

The pre-existing Mask and Processed Data operators now support complex data types as input, and the Beam Median Filter 3x3 operator is now licensed with the Echoview Essentials module.



The new Calibration Subset operator can be used to extract the pings in single- and split-beam echograms that use specific calibration values. For example, if the transmitted pulse length was changed during a survey, the pings that were collected with different settings can now be easily separated based on this parameter.



Some of the Calibration Subset operator settings.

The XxY Statistic operator was added to Echoview previously, and can be used for improved edge detection, noise removal, and other signal processing applications for single- and split-beam data. In Echoview 9, this operator includes the following new statistics that can be calculated on sample values: variance, standard deviation, mean absolute deviation, coefficient of variation, and kurtosis.

Analysis and exports

Following the use of the new Threshold Offset line operator (or using another line to identify the top of aquatic vegetation), a new export is available for the analysis of backscatter attributed to submerged vegetation. Echoview calculates metrics on the area of data between the bottom and the boundary at the edge of the vegetation, including depth, vegetation height, standard deviation and percent coverage. This new export is licensed with the Habitat Classification module.

We've also added three new multibeam target detection properties which can be helpful for the classification of individual targets, such as fish in imaging sonar and multibeam data: Target_perimeter_edge_midpoints, Target_area_edge_midpoints, and Target_compactness_edge_midpoints.

All variants of the Analysis by Regions and Analysis by Cells exports can now output results in database mode as well as spreadsheet mode. The database mode export can provide more detailed information on the data in the analysis domain that is exported.

Regions by cells exports now include Height_mean and Thickness_mean in both database and spreadsheet modes.

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Wideband data processing

Along with the new operators listed earlier, Echoview 9 includes a variety of tools and features to advance the analysis of wideband data from EK80 systems. In particular, we've made a number of improvements for the wideband frequency response graph, which now displays results across multiple transducers and supports both Sv and TS data as input, with the latter able to be masked by single targets. The graph also includes new options in its properties dialog: window size above/below, averaging with option to show minimum and maximum bounds, customizable y-axis limits, and smoothing.

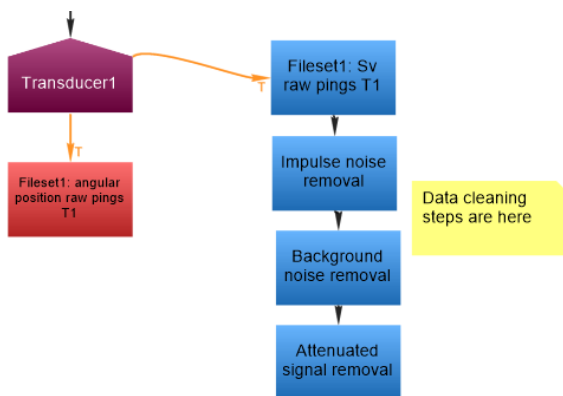
Wideband frequency response results for single targets can now be exported for a region, selection, or the entire echogram.

School detection is now enabled on wideband Sv echograms.

Echoview calibration (ECS) files now accept the semi-colon character as a delimiter for table-type wideband settings, allowing an easy copy-paste from a Simrad XML calibration file to an Echoview ECS file.

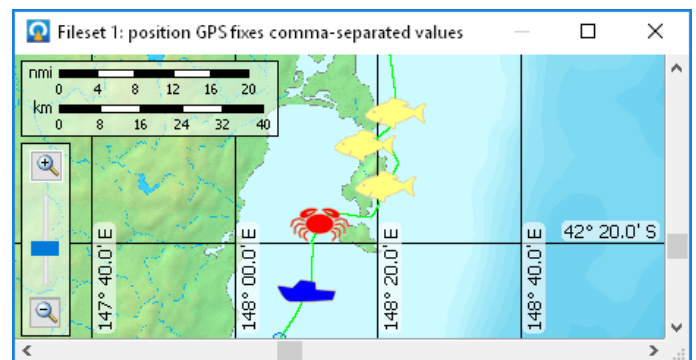
Other improvements and additions

- Sticky notes can be used to add tips and pointers in the Dataflow window:



- Tooltips for objects in the Dataflow window have been removed, with that information now displayed in the Details pane for the object under the mouse pointer
- The Details pane now also displays more information about a variety of objects in the Dataflow window, including a selection of Variable Properties settings
- Short names, an optional property for variables, have been removed. Variables now have only a single name which can be edited or reset

- The following new COM methods have been added:
 - GoToPing, GoToPingRange and GoToRegion, which open an echogram and scroll to particular pings or regions
 - ExportSingleTargetWidebandFrequencyResponse and ExportSingleTargetWidebandFrequencyResponseForRegion to export wideband frequency response results from single target echograms created from wideband EK80 data
- The list of symbols for region classes has been expanded to include new and useful icons that can be given a custom size and color. Region class symbols are useful for locating regions of interest when viewing a cruise track:



- Data files and calibration files can now be saved in a file path that is relative to the EV file location, instead of in an absolute location, making it easier to relocate files and then reopen them smoothly in Echoview
- Echoview Data File Format (EVD) files can now be written or exported from Echoview with varying levels of compression. The EVD format now also supports single beam Boolean, multibeam Boolean, and single target data types
- Support for:
 - Simrad EK80 data recorded at a reduced sampling rate or stored in power/angle format
 - Kongsberg EA640 data files
 - ASL Environmental AZFP pitch and roll measurements
 - Reson 1008 depth records
 - NMEA strings IIGLL, GPHDT, PASHR, GPHVE and GPATT
- Microsoft Vista is no longer supported. Microsoft has ended support for this operating system

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Echoexplore: the easy way to browse your hydroacoustic data files



Echoexplore is the latest addition to Echoview Software's suite of tools for researchers collecting echosounder and sonar data files.

Echoexplore will find compatible files on your computer, extract basic metadata, and allow you to browse the files that have been located.

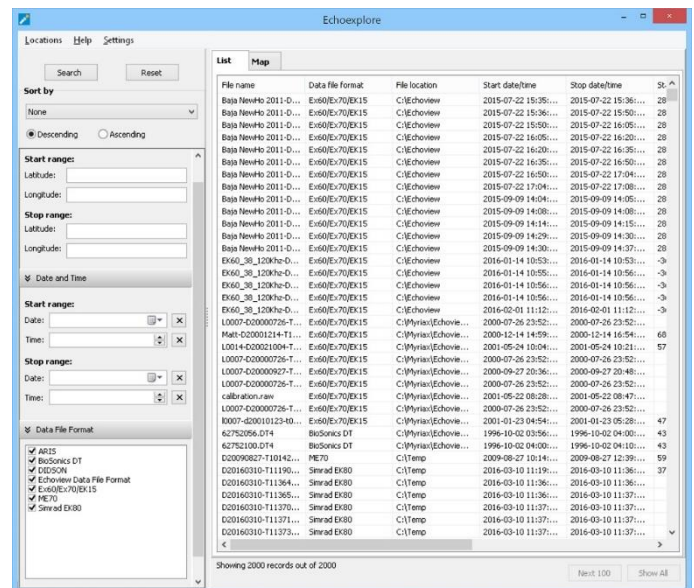
Echoexplore version 1 includes:

- Support for the following data file formats:
 - BioSonics *.DT4 files
 - Simrad Ex60, Ex70, EK15, EK80 and ME70 *.raw files
 - Sound Metrics ARIS *.ARIS and DIDSON *.DDF files
 - Echoview Software *.EVD files
- Browse data files in a list or on a map
- Search for subsets of data files based on:
 - Geographical position
 - Date and time
 - File type
 - Keywords in the file name or file path
- Configurable WMS support for georeferenced viewing
- Click-and-drag capabilities for adding selected data files to the Fileset of an EV File in Echoview
- Shortcut to open a data file's location in Windows Explorer
- Help file with comprehensive usage instructions

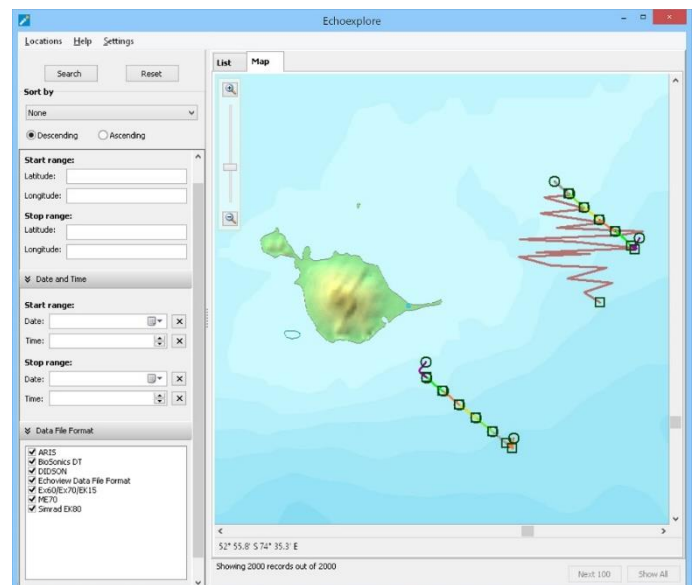
This first version of Echoexplore is free and can locate up to 2000 data files on your local computer.

Future editions of Echoexplore will include additional features in free and licensed versions, such as unlimited file numbers, support for more data file formats, and even more tools for exploring data.

We encourage the submission of ideas for new features in this useful tool via www.echoexplore.com/feedback



Echoexplore's list view. Shows detailed information about the data files located on your computer.



Echoexplore's map view. Zoom in to explore individual surveys, or zoom out to see your surveys on a worldwide scale.