NAME

MBeditviz – 3D visualization-based editing of swath bathymetry soundings.

VERSION

Version 5.0

SYNOPSIS

MBeditviz [-I*datalist* **–V –H**]

DESCRIPTION

Overview

MBeditviz is an interactive 2D/3D visualization-based tool for editing swath bathymetry data. The bathymetry data from selected files are read into memory, gridded, and displayed in the same 2D/3D visualization environment used by **MBgrdviz**. In this environment, users can select arbitrary areas or regions. All of the soundings in the selected areas are displayed in a 3D "cloud" that can be rotated, zoomed, and exaggerated. These soundings can also be edited using the same edit mouse modes as in **MBedit**. **MBeditviz** operates with "edit save files" (*.esf) in the same fashion as **MBedit**, **mbclean**, and **mbareaclean**. To apply the edits in processing, simply run **mbprocess** on a datalist referencing the relevant files.

Starting Up

The initial MBeditviz display shows a list of the swath files you have identified by using the "File->Open Swath File" menu item. The list has four columns. The first (left-most) column is either blank or shows "<locked>" or "<loaded>". If a file is loaded for gridding and editing by this program, it shows as "<loaded>". If a file is being edited or processed by another program, it shows as "<locked>". Locked files cannot be opened for editing, and any file loaded for editing by **MBeditviz** will show as "locked" to other programs. The second column is either blank or shows "<esf>". This indicates if a file has been previously edited so that an edit save file already exists. The third column indicates, if the file is loaded, whether asynchronous heading ("H"), sonar depth ("S"), and attitude ("A") time series data have been loaded along with the swath bathymetry data. These asynchronous data are required in order to use **MBeditviz** to assess time lag issues, but are not available for all datasets. The fourth and fifth columns show the filename and the **MBIO** format id, respectively. Users can select one of the files in the available list. If the "Edit Selected File" button is clicked, the selected file will be opened for editing (and any file already loaded will be closed first). If the "Remove Selected File" button is selected, then the selected file will be removed from the available list.

You can select some or all of the files in the list. When you click on the "View All Files" or the "View Selected Files", MBeditviz reads the specified files, loading all of the soundings into memory. The program then brings up a "Grid Parameters" dialog which suggests a grid cell size and shows the implied dimensions of a grid enclosing all of the data. The two issues to keep in mind are that you want the grid to be reasonably sized (dimensions <2500 or so on my laptop) and that no interpolation is applied in the gridding, so too small a grid cell size will leave gaps between soundings in the map view. When you click "Apply", MBeditviz grids the soundings, and then displays the grid using the same 2D/3D interface as MBgrdviz, including the navigation associated with the selected swath files.

The navigation associated with the selected swath files will be displayed as well, and can be selected or queried by setting the mouse mode to

Data files that have been previously edited with **MBeditviz**, **MBedit**, **mbclean**, or **mbareaclean** will have two related ancilliary files with suffixes ".esf" and ".par". The "*.esf" file is the edit save file containing all of the flag and unflag edit events generated for soundings in a data file. The "*.par" file is the processing parameter file that contains all of the processing parameters and instructions to be applied by the program **mbprocess**. **MBeditviz** will read and apply the pre-existing edit events as files are read into memory. The initial gridded view of the bathymetry will reflect all of the pre-existing edit events.

Displaying a "Sounding Cloud"

Once you have an MBeditviz survey display, set the mouse mode to "Pick Area" and either use the left button to drag a square "region", or use the middle button to drag an arbitrarily oriented "area" (also, if an area is defined the right button decreases/increases the width of the area). Each time you define or change a picked region or area, MBeditviz will display the point cloud of soundings located in the region or area. Since **MBeditviz** also displays the swath file navigation, users can also change the mouse mode to "Pick Nav" or "Pick Nav File" and select portions of the navigation. In this case the sounding cloud will encompass all of the data associated with the selected navigation. The 3Dsoundings view is manipulated using the middle and right mouse buttons in either rotation mode or zoom/exagerate mode.

You can edit the soundings in the point cloud context using the left mouse button. The editing mouse modes work just like MBedit. The View menu in the point cloud display lets you show, or not show, the flagged soundings (which are displayed in red).

Changing Sounding Colors

The [3D Soundings]:<Action> pulldown menu has seven buttons that allow the user to change the display color of all currently selected unflagged soundings. Each of these options (black, red, yellow, green, blue-green, blue, purple) acts on the soundings displayed in the 3D Soundings window, and these color settings are saved when the 3D Soundings window is dismissed or redisplayed. This feature can aid in using **MBeditviz** for patch test (bias parameter) analysis. For instance, if a survey includes reciprocal lines (two coincident survey lines collected in opposite directions), one can use a narrow strip of soundings across the swaths to assess the roll bias value. This analysis is easier if the soundings from the two reciprocal swaths can be differentiated. To accomplish this, a user can select one line using the [MBview]:<Pick Nav> mode, bringing those associated soundings up in the 3D Soundings window, and then set all those soundings to be colored green. The soundings of the opposite line can be similarly colored purple. Then, selecting a narrow area across the reciprocal lines will select and display soundings from both lines, and those soundings will be green or purple depending on which line they are part of.

Applying the Bathyemtry Edits

When you dismiss the gridded view, the esf files of the affected files will be updated just as they are with MBedit. The program also modifies the **mbprocess** parameter file for the input file by specifying the edit save file and setting the **mbprocess** mode to apply the edits when generating a processed swath output file. If no parameter file exists, **mbeditviz** creates one.

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OPTIONS

–H This "help" flag cause the program to print out a description of its operation and then exit immediately.

–I *datalist*
Sets an **MB-System** datalist file to be parsed on input for swath data files to list as available for editing. This option is usually used when **MBeditviz** is started automatically from some other

process, such as **MBgrdviz**.

–V Normally, **MBeditviz** outputs limited information to the stderr stream. If the **–V** flag is given, then **MBeditviz** works in a "verbose" mode and outputs the program version being used, all error status messages, and a large amount of other information including all of the beams flagged or zeroed.

INTERACTIVE CONTROLS

MOUSE ACTIONS

KEYBOARD ACTIONS

SEE ALSO

mbsystem(1), **mbedit**(1), **mbprocess**(1) **mbset**(1)

BUGS

This program is not done, nor is it adequately documented.