NAME

mbps – Generates a PostScript perspective plot of a piece of swath sonar data.

VERSION

Version 5.0

SYNOPSIS

mbps [**–F***format* **–I***filename* **–Nnpingsmax –Ppings –A***alpha* **–B***yr/mo/da/hr/mn/sc* **–D***view_direction* **–E***yr/mo/da/hr/mn/sc* **–G***gap* **–K***eta* **–S***speedmin* **–T***"title"* **–X***ve* **–W***meters_per_inch* **–Y***display_stats* **–Z***display_scales* **–V –H***]*

DESCRIPTION

mbps is a utility to generate an (almost correct) perspective view of a piece of swath sonar data. It is especially useful to get a detailed view of the quality of the data (which is not very well assessed in a contour plot) and to make pretty pictures of features that fit within a swath. The output is PostScript code, that can be piped to a PostScript printer, or to a file. The options are a bit hard to interpret without a picture. Consider a frame of reference tied to the ship, with z upward, x across the track (port being negative, starboard positive) and y along the track. Using the **–D** option, the data can be viewed from port, starboard, or from the back. In the first two cases, the y-axis is horizontal in the plot; in the third case, the x-axis is horizontal. The angle *alpha* is the angle between the x-axis and the y-axis in the final view; *eta* is the angle of elevation of the observing point (90 degrees being the zenith). The data points are plotted as triangular polygons with the vertices at three good (ie. unflagged) adjacent data points. A given point is adjacent to 8 points in the surrounding swath (top, bottom, 2 sides, and 4 corners). Now that you are thoroughly confused, just try plotting a half-hour or so of data from your favorite place. The defaults are such that a decent plot should come out. The plot will be scaled automatically to fit on a page, and will contain vertical and horizontal scales, an arrow pointing in the direction of the ship's motion, coordinate axes, and miscellaneous information identifying the piece of data being plotted. Now change some of the options, and things should get clearer.

AUTHORSHIP

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OPTIONS

–A *alpha*
Sets the angle alpha (degrees) between the y-axis (shiptrack direction) and the x-axis (across-track). Default = *alpha = 70.*

–B *yr/mo/da/hr/mn/sc*
This option sets the starting time for data allowed in the input data. The **–E** option sets the ending time for data. If the starting time is before the ending time, then any data with a time stamp before the starting time or after the ending time is ignored. If instead the starting time is after the ending time, then any data between the ending and starting time will be ignored. This scheme allows time windowing both inside and outside a specified interval. Default: *yr/mo/da/hr/mn/sc* = 1962/2/21/10/30/0.

–D *view_direction*
Sets the viewing direction; *viewdir* is a single character, either P/p (view from the port side), S/s (starboard), or B/b (back). Default *view_direction = S.*

–E *yr/mo/da/hr/mn/sc*
This option sets the ending time for data allowed in the input data. The **–B** option sets the starting

time for data. If the starting time is before the ending time, then any data with a time stamp before the starting time or after the ending time is ignored. If instead the starting time is after the ending time, then any data between the ending and starting time will be ignored. This scheme allows time windowing both inside and outside a specified interval. Default: *yr/mo/da/hr/mn/sc* = 2062/2/21/10/30/0.

−F *format*
Sets the format for the input swath sonar data using **MBIO** integer format identifiers. This program uses the **MBIO** library and will read any swath sonar format supported by **MBIO**. A list of the swath sonar data formats currently supported by **MBIO** and their identifier values is given in the **MBIO** manual page. Default: *format* = 11.

−G *gap*
Sets the manner in which data gaps are displayed. If *gap* = 1 then gaps are filled with black. If *gap* = 0 then gaps are not filled and appear the same as the background color of the paper. Default: *gap* = 1.

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

−I *filename*
File from which the input data will be read. If no input file is specified, the input will be read from stdin. Default: *filename* = stdin.

−K *eta*
Sets the angle eta (degrees) that is the elevation of the observer over the plane defined by the mean depth. Default *eta = 45.*

−N *npingsmax*
Sets the maximum number of pings to be read and plotted. Default: *npingsmax* = 1000.

−P *pings*
Sets the ping averaging of the input data. If *pings* = 1, then no ping averaging is performed. If *pings* > 0, then that number of input pings will be averaged to produce one output ping. If *pings* = 0, then the ping averaging will automatically be done so that the along-track ping spacing is equal to the across-track beam spacing. Default: *pings* = 1 (no ping averaging).

−S *speedmin*
Sets the minimum speed in km/hr (5.5 kts ˜ 10 km/hr) allowed in the input data; pings associated with a smaller ship speed will not be used. Default: *speed* = 0.

−T *"title"*
Sets the title printed at the top of the plot. The title should be enclosed within double quotes. Default: no title.

−V If the **−V** flag is given, then **mbps** works in a "verbose" mode and outputs the program version being used and all read error status messages.

−W *meters_per_inch*
Sets the horizontal plotting scale. Default: automatically calculates a scale such that the plot fits on a page.

−X *ve*
Sets the vertical exaggeration. Default *ve* = 5.

−Y *display_stats*
Sets whether the final plot includes info such as mean latitude, mean longitude, mean heading, *alpha*, *eta*, *ve*, scale, track length, begin time, and end time. if *display_stats* = 1 then the above info is plotted; if *dispaly_stats* = 0 then it is not plotted. Default: *display_stats* = 1.

−Z *display_scales*
Sets whether the final plot includes a horizontal scale, a vertical scale, an arrow pointing in the ship heading direction, and coordinate axes. if *display_scales* = 1 then the above info is plotted; if

dispaly_scales = 0 then it is not plotted. Default: *display_scales* = 1.

EXAMPLES

Suppose one wishes to take a look at data from a Hydrosweep file in L-DGO edmb format (data.edmb), starting at 09:00 and ending at 10:30 on September 3, 1991. The following will output PostScript to a file called fred.

mbps −F22 −Idata.edmb −B1991/9/3/9/0/0 −E1991/9/3/10/30/0 > fred

SEE ALSO

mbsystem(1), **mbcontour**(1), **mbswath**(1)

BUGS

mbps assumes that the ship was moving on a straight line. Weird plots will result if this is not the case. **mbps** only draws polygons bewteen 3 adjacent good points; if isolated points without 2 neighbors exist they will not be apparent in the final plot. The filling of bad polygons is not perfect and gaps in the black fill, especially at the edges of swaths, may occur.