NAME

mbm_vrefcheck – Macro to generate plot of crosstrack seafloor slope from a swath sonar file. The noise in this time series largely reflects noise in the vertical reference used by the sonar.

VERSION

Version 5.0

SYNOPSIS

mbm_vrefcheck –F*format* **–I***file* **[–S***scale* **–X***xaxis* **–A***xmin* **–B***xmax***]**

DESCRIPTION

mbm_vrefcheck is a macro which generates a plot of high pass filtered apparent crosstrack seafloor slope. The noise in this signal appears to be dominated by noise in the vertical reference data used by the sonar system. The crosstrack slopes are obtained by running **mblist**. The resulting time series is filtered using the **GMT** utility **filter1d**, which uses a time domain median filter with a time width of 5 minutes. The filtered signal contains little of the actual bathymetric signal, and thus represents a combination of noise in the seafloor reflection travel times and the vertical reference data stream. Close inspection of Hydrosweep data collected on the R/V Ewing with an interactive editor (**mbedit**) reveals clear variability in the observed crosstrack slope, even when surveying essentially flat seafloor. This suggests that the filtered signal is probably dominated by vertical reference noise on the Ewing. The plot is automatically rasterized and sent to a Novajet plotter (assuming one is on the R/V Ewing).

AUTHORSHIP

David W. Caress (caress@mbari.org)
Monterey Bay Aquarium Research Institute
Dale N. Chayes (dale@ldeo.columbia.edu)
Lamont-Doherty Earth Observatory
Suzanne H. O'Hara (sohara@ldeo.columbia.edu)
Lamont-Doherty Earth Observatory

OPTIONS

–A *xmin*
Sets the start time of the plot in hours from the beginning of the input file. If not specified, the beginning of the input file will be used as *xmin*.

–B *xmax*
Sets the end time of the plot in hours from the beginning of the input file. If not specified, the end of the input file will be used as *xmax*.

–F *format*
Sets the format for the input swath sonar data using **MBIO** integer format identifiers. This macro 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* = 24.

–I *file*
Data file from which the input data will be read.

–S *xscale*
Sets the x-axis scale of the plot in inches/hour. Default: *xscale* = 1.2.

–X *xaxis*
Sets the length of the x-axis in inches.

EXAMPLES

Suppose one has obtained a Hydrosweep DS swath sonar data file called hs_ew9302_157_bcen.mb24 in the L-DEO binary in-house format (format id 24). In order to generate a vertical reference noise plot:

mbm_vrefcheck –F24 –Ihs_ew9302_157_bcen.mb24

SEE ALSO

mbsystem(1), **mblist**(1)

BUGS

This script is hard wired for the R/V Ewing installation. This will have to be fixed for it to be useful elsewhere.