NAME

mbnavlist - List navigation data in swath sonar data files.

VERSION

Version 5.0

SYNOPSIS

mbnavlist [**-B***yr/mo/da/hr/mn/sc* **-D***decimate* **-E***yr/mo/da/hr/mn/sc* **-F***format* **-G***delimeter* **-H** **-I***file* **-L***lonflip* **-N***navchannel* **-O***output_format* **-R***west/east/south/north* **-S***speed* **-T***timegap* **-V** **-Z***segment*]

DESCRIPTION

mbnavlist prints the specified contents of navigation records in a swath sonar data file to stdout. By default, **mbnavlist** produces ASCII files in spreadsheet style, with data columns separated by tabs. Alternatively, other column delimiters can be used (**-G** option), or the output can be binary, with each field represented as a double precision float (**-A** option). The output stream can be decimated using the **-D** option. The output of **mbnavlist** can be piped to plotting and data analysis programs. The option **-O***output_format* can be used to control the data types that are sent to stdout. By default, **mbnavlist** extracts navigation from the data record type listed as the "navigation source" for a particular data format. Swath data formats may contain synchronous navigation (navigation is included in survey data records), asynchronous navigation (navigation comes in records separate from and at different times than the survey data records), or both (survey records contain merged navigation while the original asynchronous navigation is preserved in separate navigation records). Some data formats provide for multiple navigation sources, so that there are more than one channel of asynchronous data records. In this case one channel is always designated as the primary or active navigation channel. The **-N** option allows the user to specify that **mbnavlist** outputs navigation from the primary asynchronous navigation (**-N***0*) or from one of three auxilliary navigation channels (**-N***1*, **-N***2*, or **-N***3*). If the data format only uses asynchronous navigation, then the default navigation source will already be the primary asynchronous navigation and **-N** need not be used. If **-N** is used but the data file does not contain asynchronous navigation or the specified auxilliary navigation channels, then **mbnavlist** will output nothing. To determine if a datafile contains asynchronous navigation and/or auxilliary navigation, run **mbinfo** using its **-N** option to get counts of all data record types in the file.

AUTHORSHIP

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

OPTIONS

−A

Causes the output to be binary (native double precision floating point) rather than ASCII. Some output options cannot be represented as single binary floats (e.g. time strings and longitude or latitude broken into degrees and minutes. These values are output as multiple fields as appropriate. Default: ASCII output with fields separated by tabs.

−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 *decimate*

Sets the decimation of the output data. By default (i.e. *decimate*=1), every available data record is

output. If *decimate*>1, then only every "*decimate*"th record will be output. Default: *decimate*=1.

–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 *delimiter*
Sets the character(s) used to separate output fields when ascii columns are output. Default: tabs are used as delimiters.

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

–I *file*
Sets the input filename. If *format* > 0 (set with the **-F** option) then the swath sonar data contained in *file* is read and processed. If *format* < 0, then *file* is assumed to be an ascii file containing a list of the input swath sonar data files to be processed and their formats. The program will read the data in each one of these files. In the *file* file, each data file should be followed by a data format identifier, e.g.:

```
datafile1 11
datafile2 24
```

This program uses the **MBIO** library and will read or write 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: *file* = "datalist.mb-1".

–L *lonflip*
Sets the range of the longitude values returned. If *lonflip*=-1 then the longitude values will be in the range from -360 to 0 degrees. If *lonflip*=0 then the longitude values will be in the range from -180 to 180 degrees. If *lonflip*=1 then the longitude values will be in the range from 0 to 360 degrees. Default: *lonflip* = 0.

–N *navchannel*
Sets **mbnavlist** to look for navigation in navigation records rather than the record type listed as the "navigation source" for a particular data format. Swath data formats may contain synchronous navigation (navigation is included in survey data records), asynchronous navigation (navigation comes in records separate from and at different times than the survey data records), or both (survey records contain merged navigation while the original asynchronous navigation is preserved in separate navigation records). Some data formats provide for multiple navigation sources, so that there are more than one channel of asynchronous data records. In this case one channel is always designated as the primary or active navigation channel. The **-N** option allows the user to specify that **mbnavlist** outputs navigation from the primary asynchronous navigation (**-N***0*) or from one of three auxilliary navigation channels (**-N***1*, **-N***2*, or **-N***3*). If **-N** is used but the data file does not contain asynchronous navigation or the specified auxilliary navigation channels, then **mbnavlist** will output nothing. To determine if a datafile contains asynchronous navigation and/or auxilliary navigation, run **mbinfo** using its **-N** option to get counts of all data record types in the file.

–O *output_format*
Determines the form of the output. *Output_format* is a string composed of one or more of the following characters:

c for sonar depth (meters)
H for heading (degrees)
h for course made good (degrees)
J for a time string (yyyy jd hh mm ss.ssssss)
where jd is the julian day of the year
j for a time string (yyyy jd dm ss.ssssss)
where jd is the julian day of the year
and dm is the minute of the day
L for cumulative along-track distance (km)
l for cumulative along-track distance (m)
M for unix time in decimal seconds since 1/1/70 00:00:00
m for time in decimal seconds since first record
N for ping count
P for pitch in degrees
p for draft in meters
R for roll in degrees
r for heave in meters
S for speed (km/hr)
s for speed made good (km/hr)
T for a time string (yyyy/mm/dd/hh/mm/ss)
t for a time string (yyyy mm dd hh mm ss)
U for unix time in integer seconds since 1/1/70 00:00:00
u for time in integer seconds since first record
V for ping interval (decimal seconds)
X for longitude (decimal degrees)
x for longitude (degrees + decimal minutes + E/W)
Y for latitude (decimal degrees)
y for latitude (degrees + decimal minutes + N/S)

Default *output_format* = **tMXYHs** (time, unix time, latitude, longitude, heading, speed).

−R *west/east/south/north*
Sets the longitude and latitude bounds within which swath sonar data will be read. Only the data which lies within these bounds will be read. Default: *west*=-360, east=*360*, *south*=-90, *north*=90.

−S *speed*
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 copied. Default: *speed* = 0.

−T *timegap*
Sets the maximum time gap in minutes between adjacent pings allowed before the data is considered to have a gap. Default: *timegap* = 1.

−V Normally, **mbnavlist** works "silently" without outputting anything to the stderr stream. If the **-V** flag is given, then **mbnavlist** works in a "verbose" mode and outputs the program version being used and all error status messages.

−Z *segment*
Causes the ascii output of different input swath files (e.g. when a datalist is specified with the **-I** option) to be separated by lines with *segment*. If *segment* is a single character, then the output is a multiple segment file of the sort accepted by the **GMT** program **psxy**. This option only works with ascii output, and is thus disabled when the **-A** option is specified. The most common usage is **-Z**I>**.**

EXAMPLES

Suppose one wishes to obtain a navigation list from a Simrad EM300 data file in the MBARI format (MBIO id 57) called mbari_1998_107_msn.mb57. To obtain a listing with time in unix second forms

followed by longitude and latitude, the following will suffice:

mbnavlist -F57 -i mbari_1998_107_msn.mb57 -OMXY | more

The output will be as follows:

```
889125106.792000    -155.898471    19.979325
889125108.148000    -155.898586    19.979400
889125109.496000    -155.898738    19.979454
889125110.852000    -155.898876    19.979504
889125112.207000    -155.899020    19.979544
889125113.571000    -155.899204    19.979591
889125114.921000    -155.899479    19.979485
.....
```

SEE ALSO

mbsystem(l), **mbinfo**(l)

BUGS

mbnavlist is not able to list all of the navigation information available in some swath data formats.