

NAME

mbgpstide – Generates tide model from GPS altitude data.

VERSION

Version 5.0

SYNOPSIS

```
mbgpstide
[
  --verbose {-V}
  --help {-H}
  --tideformat=TIDEFORMAT {-A TIDEFORMAT}
  --interval=INTERVAL {-D INTERVAL}
  --format=FORMATID {-F FORMATID}
  --input=FILENAME {-I FILENAME}
  --setparameters {-M}
  --output=OUTPUT {-O OUTPUT}
  --offset=OFFSET {-R OFFSET}
  --skipexisting {-S}
  --geoid=GEOID_MODEL {-T GEOID_MODEL}
  --use=SOURCE {-U SOURCE}
]
```

DESCRIPTION

MBgpstide is a utility that generates tide files from the altitude (height above ellipsoid) information derived from GPS stored in the swath files. The height may be adjusted by a fixed offset (**-R**) or for a geoid (**-T**).

This allows bathymetry to be referenced to a specific ellipsoid or geoid rather than water level.

The source of the GPS information is format specific. For Simrad format data files (formats 56-59) this data is the Height telegram. For GSF files the height is taken from the ping header.

Geoid differences are calculated from a grid file containing the offset between the ellipsoid used by the GPS and desired geoid.

MB-SYSTEM AUTHORSHIP

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OPTIONS

-A *TIDEFORMAT*, **--tideformat=*TIDEFORMAT***

This option sets the tide format of the output text tide model files. If *TIDEFORMAT* = 2 (the default), the tide is output in this format:

year month day hour minute second tide

where the tide value is in meters. If *TIDEFORMAT* = 1, then the output format is:

time_d tide

where *time_d* is in seconds since January 1, 1970 and *tide* is in meters. If *TIDEFORMAT* = 5 (CARIS compatible), the tide is output in this format:

year/month/day hour:minute:decimal_second tide

where the tide value is in meters. *TIDEFORMAT* = 5 should not be used with **-M** as this format is not recognised by *mbprocess*.

-D INTERVAL, --interval=INTERVAL

This option sets the time interval between tidal model values in seconds. Default: 300 seconds (5 minutes). An *INTERVAL* of 0 will cause a value to be output for each height encountered. In this case tide format is **-A1** is required to prevent duplicate timestamps.

-F FORMAT, --format=FORMAT

Sets the data format of the input swath data file specified with the **-I** option. If *FORMAT* < 0, then the input file specified with the **-I** option will actually contain a list of input swath sonar data files. This program uses the **MBIO** library and will read any swath sonar format with timestamps 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. The default format is set using **mbdefaults**.

-H, --help

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

-I INFILE, --input=INFILE

Sets the input filename. If *FORMAT* > 0 (set with the **-f** option) then the swath sonar data contained in *INFILE* is read and processed. If *FORMAT* < 0, then *INFILE* 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 *INFILE* 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: *INFILE* = "datalist.mb-1".

-M, --setparameters

This option causes each swath file's parameter file to be modified so that **mbprocess** will read and apply the ancillary tidal model file created by **mbgpstide**.

-O OUTFILE, --output=OUTFILE

Sets the filename of the tidal model output. If **-O** is not specified then for each input file a file *filename.gps.tde* will be created. Intervals which include file breaks (cover the end of one file and the start of another) may have different values for tide files generated for each input, but will only have one averaged value if a single output file is specified. A value of "-" (**-O-**) will output to standard out (not compatible with **-M**).

-R OFFSET, --offset=OFFSET

offset

Adds the constant *OFFSET* to the tide model.

-S, --skipexisting

If tide models are being generated for swath files specified using the **-I** option (the **-O** option is not used), then skip files that already have an existing tide model (.gps.tde file).

-T MODEL, --geoid=MODEL

Specifies the geoid difference model to use to offset the tide. The difference model should be a GMT grid with the height difference between the ellipsoid and the geoid as the cell value for each cell. The **GMTgrdtrack** program will be used to extract values from the grid along the vessel track.

For example, http://earth-info.nga.mil/GandG/wgs84/gravitymod/egm2008/egm08_gis.html provides access to download of ESRI grids of difference between WGS84 and EMG2008. The ESRI grids can be converted to GMT grids using the GMT command **grdconvert**:

```
wget http://earth-info.nga.mil/GandG/wgs84/gravity-
mod/egm2008/GIS/world_geoid/s45e135.zip
unzip s45e135.zip
grdconvert s45e135/s45e135/ s45e135.grd
mbgpstide -Ts45e135.grd
```

-U *SOURCE*, --use=*SOURCE*

Specifies the source to use for altitude data. Supported values for *SOURCE* are **0** for Simrad Height telegrams or GSF height above ellipsoid and **1** for GSF height above vertical datum.

-V, --verbose

Increases the verbosity of **mbgpstide**.

EXAMPLES

SEE ALSO

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

BUGS