

## NAME

**mbset** – Sets values in **mbprocess** parameter files.

## VERSION

Version 5.0

## SYNOPSIS

**mbset** **-Iinfile** [**-E** **-L** **-PPARAMETER:value** **-V** **-H**]

## DESCRIPTION

**mbset** is a utility for creating and modifying **mbprocess** parameter files.

The program **mbprocess** can perform a variety of swath data processing functions in a single step (producing a single output swath data file), including:

- Merge edited navigation generated by **mbnavedit**.
- Apply bathymetry edit flags from **mbedit** and **mbclean**
- Recalculate bathymetry from raw travel time and angle data by raytracing through water sound speed models from **mbvelocitytool** or **mbsvplist**.
- Apply changes to roll bias, pitch bias, heading bias, and draft values.
- Recalculate sidescan from raw backscatter samples (Simrad multibeam data only).
- Apply tides to bathymetry.
- Insert metadata.

The actions of **mbprocess** are controlled by text parameter files. Each **mbprocess** parameter file contains single line commands that set processing modes and parameters. The **-P** option of **mbset** is used to modify a single **mbprocess** parameter command. This option can be invoked as many times as desired on the command line, allowing **mbset** to set multiple **mbprocess** processing parameters and modes. If the swath data file specified by the **-Iinfile** option of **mbset** has an existing **mbprocess** parameter file, then that parameter file will be read and the existing parameter values will be modified. If no **mbprocess** parameter file exists, then **mbset** starts with default processing parameters, modifies those, and then generates a new parameter file.

If the input file specified by the **-I** option is a single swath data file, **mbset** will act on that file and its parameter file only. If the input file is a datalist, then **mbset** will act on all swath files extracted from the datalist (and any recursively parsed datalist files). This function allows users to easily set uniform processing parameters for large numbers of data files. The default input file is "datalist.mb-1".

The processing parameter file used by **mbprocess** has an ".par" suffix. In addition to **mbset**, these files are generated or modified by **mbedit**, **mbnavedit**, **mbvelocitytool**, **mbnavadjust**, and **mbclean**.

The processed output swath files produced by **mbprocess** are named using a convention based on the data format id. **MB-System** data formats are specified using two-digit or three-digit numbers (see the **MBIO** manual page). If an input swath data file is named "root.mbXX", where XX is the format id, then the default processed output file will be "rootp.mbXX" (e.g. mydata.mb71 → mydatap.mb71). The "p" inserted before the ".mbXX" suffix indicates the output file has been created by **mbprocess**. If the input file does not follow the \*.mbXX naming convention, then the output filename will just consist of the input name with "p.mbXX" added as a suffix (e.g. mydata → mydatap.mb71)

## MBPROCESS PARAMETER FILE COMMANDS

The **mbprocess** parameter file commands modified by **mbset** are:

### GENERAL PARAMETERS:

#### EXPLICIT

- causes mbprocess to set modes implicitly
- e.g. the SVPFILE command will also set raytracing on even if the RAYTRACE command is not given [explicit mode commands required]

#### FORMAT constant

- sets format id [no default]

#### INFILE filename

- sets input file path [no default]

#### OUTFILE filename

- sets output file path [no default]

### NAVIGATION MERGING:

#### NAVMODE boolean

- sets navigation merging [0]
- 0: navigation merge off
- 1: navigation merge on

#### NAVFILE filename

- sets navigation file path [no default]

#### NAVFORMAT constant

- sets navigation file format [9]
- see the **mbprocess** man page for documentation of the supported navigation formats.

#### NAVHEADING boolean

- sets heading to be merged from navigation file
- note: heading merged from navigation before heading correction applied
- 0: heading not changed
- 1: heading merged from navigation file

#### NAVSPEED boolean

- sets speed to be merged from navigation file
- 0: speed not changed
- 1: speed merged from navigation file

#### NAVDRAFT boolean

- sets draft to be merged from navigation file
- note: draft merged from navigation before draft correction applied
- 0: draft not changed
- 1: draft merged from navigation file

#### NAVATTITUDE boolean

- sets roll, pitch and heave to be merged from navigation file
- note: roll, pitch, and heave merged from navigation before roll bias and pitch bias corrections applied
- 0: roll, pitch, and heave not changed
- 1: roll, pitch, and heave merged from navigation file

#### NAVINTERP boolean

sets navigation interpolation algorithm [0]  
0: linear interpolation (recommended)  
1: spline interpolation

NAVTIMESHIFT constant

sets navigation time shift (seconds) [0.0]  
– note: time shift added to timestamps of  
navigation fixes read in from NAVFILE  
prior to merging

#### NAVIGATION OFFSETS AND SHIFTS:

NAVSHIFT boolean

sets navigation offset [0]  
– note: offsets and shifts are applied to navigation  
values from both survey and navigation records, and  
are applied to navigation read in from  
NAVFILE prior to merging  
– note: offsets and shifts are NOT applied to adjusted  
navigation values from NAVADJFILE

NAVOFFSETX constant

sets navigation athwartship offset (meters) [0.0]  
– note: the effective navigation shift is  
(NAVOFFSETX – SONAROFFSETX), and the  
navigation is corrected by subtracting  
this effective shift.  
– note: athwartship shift is positive to  
starboard.

NAVOFFSETY constant

sets navigation fore-aft offset (meters) [0.0]  
– note: the effective navigation shift is  
(NAVOFFSETY – SONAROFFSETY), and the  
navigation is corrected by subtracting  
this effective shift.  
– note: fore-aft shift is positive forward.

NAVOFFSETZ constant

sets navigation vertical offset (meters) [0.0]  
– note: this value is not yet used for  
anything.  
– note: vertical shift is positive down.

NAVSHIFTLON constant

sets navigation longitude shift (degrees) [0.0]

NAVSHIFTLAT constant

sets navigation latitude shift (degrees) [0.0]

NAVSHIFTX constant

sets navigation longitude shift (meters) [0.0]

NAVSHIFTY constant

sets navigation latitude shift (meters) [0.0]

#### ADJUSTED NAVIGATION MERGING:

NAVADJMODE mode

sets navigation merging from mbnavadjust [0]  
– can apply to longitude and latitude only  
or longitude, latitude, and depth offset  
0: adjusted navigation merge off  
1: adjusted navigation merge on

2: adjusted navigation and depth offset merge on  
NAVADJFILE filename

- sets adjusted navigation file path
- this file supercedes navigation file for  
lon and lat only
- uses mbnadjust output

NAVADJINTERP boolean

- sets adjusted navigation interpolation algorithm [0]
- 0: linear interpolation (recommended)
- 1: spline interpolation

#### ATTITUDE MERGING:

ATTITUDEMODE mode

- sets attitude (roll, pitch, and heave) merging [0]
- roll, pitch, and heave merged before  
roll bias and pitch bias corrections applied
- attitude merging from a separate file supersedes  
attitude merging from a navigation file
- 0: attitude merging off
- 1: attitude merging on

ATTITUDEFILE filename

- sets attitude file path

ATTITUDEFORMAT constant

- sets attitude file format [1]
- attitude files can be in one of four ASCII  
table formats
- 1: format is <time\_d roll pitch heave>
- 2: format is <yr mon day hour min sec roll pitch heave>
- 3: format is <yr jday hour min sec roll pitch heave>
- 4: format is <yr jday daymin sec roll pitch heave>
- time\_d = decimal seconds since 1/1/1970
- daymin = decimal minutes start of day
- roll = positive starboard up, degrees
- pitch = positive forward up, degrees
- heave = positive up, meters

#### SONARDEPTH MERGING:

SONARDEPTHMODE mode

- sets sonardepth merging [0]
- sonardepth merged before  
draft corrections applied
- sonardepth merging from a separate file supersedes  
draft merging from a navigation file
- 0: sonardepth merging off
- 1: sonardepth merging on

SONARDEPTHFILE filename

- sets sonardepth file path

SONARDEPTHFORMAT constant

- sets sonardepth file format [1]
- sonardepth files can be in one of four ASCII  
table formats
- 1: format is <time\_d sonardepth>
- 2: format is <yr mon day hour min sec sonardepth>
- 3: format is <yr jday hour min sec sonardepth>

- 4: format is <yr jday daymin sec sonardepth>
- time\_d = decimal seconds since 1/1/1970
- daymin = decimal minutes start of day
- sonardepth = sonar depth positive down, meters

#### DATA CUTTING:

##### DATAUTCLEAR

removes all existing data cutting commands

##### DATAUTCUT kind mode min max

adds new data cutting command, where:

kind = 0 : cut applied to bathymetry data

kind = 1 : cut applied to amplitude data

kind = 2 : cut applied to sidescan data

mode = 0 : no data are flagged or zeroed

mode = 1 : min and max indicate start and end  
beam/pixel numbers between which data  
are flagged or zeroed

mode = 2 : min and max indicate start and end  
acrosstrack distance (m) between which  
data are flagged or zeroed

mode = 3 : min and max indicate minimum and  
platform speed (km/hr) between which  
data are flagged or zeroed

##### BATHCUTNUMBER min max

adds new bathymetry data cutting command where  
min and max are the start and end beam numbers  
between which data are flagged (note that  
flagging bathymetry also flags amplitude data)

##### BATHCUTDISTANCE min max

adds new bathymetry data cutting command where  
min and max are the start and end acrosstrack  
distance (m) between which data are flagged  
(note that flagging bathymetry also flags  
amplitude data)

##### BATHCUTSPEED min max

adds new bathymetry data cutting command where  
all beams are flagged for pings with a ship  
or vehicle speed less than min or greater than  
max (note that flagging bathymetry also flags  
amplitude data)

##### AMPCUTNUMBER min max

adds new amplitude data cutting command where  
min and max are the start and end beam numbers  
between which amplitude data are zeroed (note  
that zeroing amplitude data has no impact on  
bathymetry data)

##### AMPCUTDISTANCE min max

adds new amplitude data cutting command where  
min and max are the start and end acrosstrack  
distance (m) between which amplitude data are  
zeroed (note that zeroing amplitude data has  
no impact on bathymetry data)

##### AMPCUTSPEED min max

adds new amplitude data cutting command where

all amplitude values are zeroed for pings with a ship or vehicle speed less than min or greater than max (note that zeroing amplitude data has no impact on bathymetry data)

#### SSCUTNUMBER min max

adds new sidescan data cutting command where min and max are the start and end pixel numbers between which sidescan data are zeroed (note that zeroing sidescan data has no impact on bathymetry data)

#### SSCUTDISTANCE min max

adds new sidescan data cutting command where min and max are the start and end acrosstrack distance (m) between which sidescan data are zeroed (note that zeroing sidescan data has no impact on bathymetry data)

#### SSCUTSPEED min max

adds new sidescan data cutting command where all sidescan values are zeroed for pings with a ship or vehicle speed less than min or greater than max (note that zeroing sidescan data has no impact on bathymetry data)

### BATHYMETRY EDITING:

#### EDITSAVEMODE boolean

turns on reading edit save file (from mbedit) [0]

#### EDITSAVEFILE filename

sets edit save file path (from mbedit) [none]

### BATHYMETRY RECALCULATION:

#### SVPMODE mode

sets usage of a water sound speed model (sound velocity profile, or SVP) [0]

0: bathymetry recalculation by raytracing off

1: bathymetry recalculation by raytracing on

2: translate depths from corrected to uncorrected or vice versa depending on SOUNDSPEEDREF command

#### SVPFILE filename

sets SVP file path [no default]

#### SSVMODE boolean

sets surface sound velocity (SSV) mode [0]

0: use SSV from file

1: offset SSV from file (set by SSV command)

2: use constant SSV (set by SSV command)

#### SSV constant/offset

sets SSV value or offset (m/s) [1500.0]

#### ANGLEMODE mode

sets handling of beam angles during raytracing [1]

0: angles not changed before raytracing

1: angles adjusted using Snell's Law for the difference between the surface sound velocity (SSV) and the sound speed at

- the sonar depth in the SVP.
- 2: angles adjusted using Snell's Law and the sonar array geometry for the difference between the surface sound velocity (SSV) and the sound speed at the sonar depth in the SVP.

**TTMULTIPLY** multiplier

sets value multiplied by travel times [1.0]

**SOUNDSPEEDREF** boolean

determines the handling of the sound speed reference for bathymetry [1]

- note: if raytracing is turned off then this command implies correcting or uncorrecting using the SVP specified with the SVPFILE command

0: produce "uncorrected" bathymetry referenced to a uniform 1500 m/s water sound speed model.

1: produce "corrected" bathymetry referenced to a realistic water sound speed model.

**STATIC BEAM BATHYMETRY OFFSETS:****STATICMODE** mode

sets offsetting of bathymetry by per-beam statics [0]

- 0: static correction off
- 1: static correction by beam number
- 2: static correction by acrosstrack beam angle

**STATICFILE** filename

sets static per-beam file path [no default]

- static files are two-column ascii tables
- if correction is by beam number then the beam # is in column 1 and the depth offset is in m in column 2
- if correction is by beam angle then the beam angle (starboard positive) is in column 1 and the depth offset is in m in column 2

**DRAFT CORRECTION:****DRAFTMODE** mode

sets draft correction [0]

- note: draft merged from navigation before draft correction applied

- 0: no draft correction
- 1: draft correction by offset
- 2: draft correction by multiply
- 3: draft correction by offset and multiply
- 4: draft set to constant

**DRAFT** constant

sets draft value (m) [0.0]

**DRAFTOFFSET** offset

sets value added to draft (m) [0.0]

DRAFTMULTIPLY multiplier  
sets value multiplied by draft [1.0]

#### HEAVE CORRECTION:

HEAVEMODE mode  
sets heave correction [0]  
– note: heave correction by offset and/or multiplication is added to any lever heave correction, and then either used in bathymetry recalculation or added to existing bathymetry  
0: no heave correction  
1: heave correction by offset  
2: heave correction by multiply  
3: heave correction by offset and multiply

HEAVEOFFSET offset  
sets value added to heave (m)

HEAVEMULTIPLY multiplier  
sets value multiplied by heave

#### LEVER CORRECTION:

LEVERMODE mode  
sets heave correction by lever calculation [0]  
– note: lever heave correction is added to any heave correction by offset and/or multiplication, and then either used in bathymetry recalculation or added to existing bathymetry  
0: no lever calculation  
1: heave correction by lever calculation

VRUOFFSETX constant  
sets athwartships offset of attitude sensor (m)  
– note: positive to starboard

VRUOFFSEY constant  
sets fore-aft offset of attitude sensor (m)  
– note: positive forward

VRUOFFSETZ constant  
sets vertical offset of attitude sensor (m)  
– note: positive down

SONAROFFSETX constant  
sets athwartships offset of sonar receive array (m)  
– note: positive to starboard

SONAROFFSEY constant  
sets fore-aft offset of sonar receive array (m)  
– note: positive forward

SONAROFFSETZ constant  
sets vertical offset of sonar receive array (m)  
– note: positive down

#### ROLL CORRECTION:

ROLLBIASMODE mode  
sets roll correction [0]  
0: no roll correction  
1: roll correction by single roll bias



2: roll correction by separate port and  
starboard roll bias  
ROLLBIAS offset  
sets roll bias (degrees)  
ROLLBIASPORT offset  
sets port roll bias (degrees)  
ROLLBIASSTBD offset  
sets starboard roll bias (degrees)

#### PITCH CORRECTION:

PITCHBIASMODE mode  
sets pitch correction [0]  
0: no pitch correction  
1: pitch correction by pitch bias  
PITCHBIAS offset  
sets pitch bias (degrees)

#### HEADING CORRECTION:

HEADINGMODE mode  
sets heading correction [no heading correction]  
– note: heading merged from navigation before  
heading correction applied  
0: no heading correction  
1: heading correction using course  
made good  
2: heading correction by offset  
3: heading correction using course  
made good and offset  
HEADINGOFFSET offset  
sets value added to heading (degrees)

#### TIDE CORRECTION:

TIDEMODE mode  
sets tide correction [0]  
– note: tide added to bathymetry after  
all other calculations and corrections  
0: tide correction off  
1: tide correction on  
TIDEFILE filename  
sets tide file path  
TIDEFORMAT constan  
sets tide file format [1]  
– tide files can be in one of four ASCII  
table formats  
1: format is <time\_d tide>  
2: format is <yr mon day hour min sec tide>  
3: format is <yr jday hour min sec tide>  
4: format is <yr jday daymin sec tide>  
– time\_d = decimal seconds since 1/1/1970  
– daymin = decimal minutes start of day

#### AMPLITUDE CORRECTION:

AMPCORRMODE boolean  
sets correction of amplitude for

amplitude vs grazing angle function  
0: amplitude correction off  
1: amplitude correction on  
AMPCORRFILE filename  
sets amplitude correction file path  
[no default]  
AMPCORRTYPE mode  
sets sidescan correction type [0]  
0: correction by subtraction (dB scale)  
1: correction by division (linear scale)  
AMPCORRSYMMETRY boolean  
forces correction function to be symmetric [1]  
AMPCORRANGLE constant  
sets amplitude correction reference angle  
(deg) [30.0]  
AMPCORRSLOPE mode  
sets amplitude correction slope mode [0]  
0: local slope ignored in calculating correction  
1: local slope used in calculating correction  
2: topography grid used in calculating correction  
but slope ignored  
3: local slope from topography grid used in  
calculating correction

**SIDESCAN CORRECTION:**

SSCORRMODE boolean  
sets correction of sidescan for  
amplitude vs grazing angle function  
0: sidescan correction off  
1: sidescan correction on  
SSCORRFILE filename  
sets sidescan correction file path  
[no default]  
SSCORRTYPE mode  
sets sidescan correction type [0]  
0: correction by subtraction (dB scale)  
1: correction by division (linear scale)  
SSCORRSYMMETRY boolean  
forces correction function to be symmetric [1]  
SSCORRANGLE constant  
sets sidescan correction reference angle  
(deg) [30.0]  
SSCORRSLOPE mode  
sets sidescan correction slope mode [0]  
0: local slope ignored in calculating correction  
1: local slope used in calculating correction  
2: topography grid used in calculating correction  
but slope ignored  
3: local slope from topography grid used in  
calculating correction  
AMPSSCORRTOPOFILE  
Sets topography grid used for correcting amplitude  
and sidescan

**SIDESCAN RECALCULATION:****SSRECALCMODE** booleansets recalculation of sidescan for  
Simrad multibeam data

0: sidescan recalculation off

1: sidescan recalculation on

**SSPIXELSIZE** constant

sets recalculated sidescan pixel size (m) [0.0]

– a zero value causes the pixel size to  
be recalculated for every data record**SSSWATHWIDTH** constant

sets sidescan swath width (degrees) [0.0]

– a zero value causes the swath width  
to be recalculated for every data record**SSINTERPOLATE** constantsets sidescan interpolation distance  
(number of pixels)**METADATA INSERTION:****METAVESSEL** string

sets mbinfo metadata string for vessel

**METAINSTITUTION** stringsets mbinfo metadata string for vessel  
operator institution or company**METAPLATFORM** stringsets mbinfo metadata string for sonar  
platform (ship or vehicle)**METASONAR** stringsets mbinfo metadata string for sonar  
model name**METASONARVERSION** stringsets mbinfo metadata string for sonar  
version (usually software version)**METACRUISEID** stringsets mbinfo metadata string for institutional  
cruise id**METACRUISENAME** stringsets mbinfo metadata string for descriptive  
cruise name**METAPI** stringsets mbinfo metadata string for principal  
investigator**METAPIINSTITUTION** stringsets mbinfo metadata string for principal  
investigator**METACLIENT** stringsets mbinfo metadata string for data owner  
(usually PI institution)**METASVCORRECTED** booleansets mbinfo metadata boolean for sound  
velocity corrected depths**METATIDECORRECTED** booleansets mbinfo metadata boolean for tide  
corrected bathymetry

**METABATHEDITMANUAL** boolean  
sets mbinfo metadata boolean for manually  
edited bathymetry

**METABATHEDITAUTO** boolean  
sets mbinfo metadata boolean for automatically  
edited bathymetry

**METAROLLBIAS** constant  
sets mbinfo metadata constant for roll bias  
(degrees + to starboard)

**METAPITCHBIAS** constant  
sets mbinfo metadata constant for pitch bias  
(degrees + forward)

**METAHEADINGBIAS** constant  
sets mbinfo metadata constant for heading bias

**METADRAFT** constant  
sets mbinfo metadata constant for vessel draft (m)

#### PROCESSING KLUGES:

**KLUGE001** boolean  
enables correction of travel times in  
Hydrosweep DS2 data from the R/V Maurice  
Ewing in 2001 and 2002.

**KLUGE002** boolean  
enables correction of draft values in  
Simrad data  
– some Simrad multibeam data has had an  
error in which the heave has been added  
to the sonar depth (draft for hull  
mounted sonars)  
– this correction subtracts the heave  
value from the sonar depth

**KLUGE003** boolean  
enables correction of beam angles in  
SeaBeam 2112 data  
– a data sample from the SeaBeam 2112 on  
the USCG Icebreaker Healy (collected on  
23 July 2003) was found to have an error  
in which the beam angles had 0.25 times  
the roll added  
– this correction subtracts  $0.25 * \text{roll}$   
from the beam angles before the bathymetry  
is recalculated by raytracing through a  
water sound velocity profile  
– the mbprocess parameter files must be  
set to enable bathymetry recalculation  
by raytracing in order to apply this  
correction

**KLUGE004** boolean  
deletes survey data associated with duplicate  
or reversed time tags  
– if survey data records are encountered  
with time tags less than or equal to the  
last good time tag, an error is set and  
the data record is not output to the

processed data file.

**KLUGE005** boolean

replaces survey record timestamps with timestamps of corresponding merged navigation records

- this feature allows users to fix timestamp errors using MBnavedit and then insert the corrected timestamps into processed data

**KLUGE006** boolean

changes sonar depth / draft values without changing bathymetry values

**KLUGE007** boolean

processing kluge 007 (not yet defined)

- occasionally odd processing problems will occur that are specific to a particular survey or sonar version
- mbprocess will allow one-time fixes to be defined as "kluges" that can be turned on through the parameter files.

## ANCILLARY DATA FILES

**MB-System** also uses a number of ancillary data files, most of which relate to **mbprocess** in some way. By default, these ancillary data files are named by adding a short suffix to the primary data file name (e.g. ".par", ".svp", ".esf", ".nve")

The common ancillary files are listed below. The example names given here follow from an input swath data file name of mydata.mb71.

The processing parameter file used by **mbprocess** has an ".par" suffix. These files are generated or modified by **mbset**, **mbedit**, **mbnavedit**, **mbvelocitytool**, **mbnavadjust**, and **mbclean**.

mydata.mb71.par

The most prominent ancillary files are metadata or "inf" files (created from the output of **mbinfo**). Programs such as **mbgrid** and **mbm\_plot** try to check "inf" files to see if the corresponding data files include data within desired areas. The program **mbprocess** automatically generates an "inf" file for any processed output swath file. Also, the program **mbdatalist** is often used to create or update "inf" files for large groups of swath data files.

mydata.mb71.inf

mydata.mb71.inf

The "fast bath" or "fbt" files are generated by copying the swath bathymetry to a sparse, quickly read format (format 71). Programs such as **mbgrid**, **mbswath**, and **mbcontour** will try to read "fbt" files instead of the full data files whenever only bathymetry information are required. The program **mbprocess** automatically generates an "fbt" file for any processed output swath file. Also, the program **mbdatalist** is often used to create or update "fbt" files for large groups of swath data files. These files are not generated or used when the original swath data is already in a compact bathymetry-only data format.

mydata.mb71.fbt

The "fast nav" or "fnv" files are just ASCII lists of navigation generated using **mblist** with a **-OtMXYHSc** option. Programs such as **mbgrid**, **mbswath**, and **mbcontour** will try to read "fnv" files instead of the full data files whenever only navigation information are required. These files are not generated or used when the original data is already in a single-beam or navigation data format.

mydata.mb71.fnv

The bathymetry edit save file generated by **mbedit** and **mbclean** has an ".esf" suffix.  
mydata.mb71.esf

A water sound velocity profile (SVP) file generated by **mbvelocitytool** has an ".svp" suffix unless the user specifies otherwise.  
mydata.mb71.svp

Water sound velocity profile (SVP) files generated by **mbsvplist** also use the ".svp" suffix. However, multiple SVP files may be extracted from each input swath file, so the files are numbered using a "\_YYY.svp" suffix, where YYY increments from 001.

mydata.mb71\_001.svp  
mydata.mb71\_002.svp  
mydata.mb71\_003.svp

Edited navigation files generated by **mbnavedit** have an ".nve" suffix:  
mydata.mb71.nve

These navigation files can be read independently using format 166.

Adjusted navigation files generated by **mbnavadjust** have an ".naY" suffix, where "Y" is a number between 0-9. The **mbna vadjust** package may be used multiple times for a survey; the adjustments are numbered sequentially from "0":

mydata.mb71.na0  
mydata.mb71.na1  
mydata.mb71.na2

and so on. These navigation files can be read independently using format 166.

## MB-SYSTEM AUTHORSHIP

David W. Caress  
Monterey Bay Aquarium Research Institute  
Dale N. Chayes  
Center for Coastal and Ocean Mapping  
University of New Hampshire  
Christian do Santos Ferreira  
MARUM - Center for Marine Environmental Sciences  
University of Bremen

## OPTIONS

### -E

This option causes **mbset** to require all processing modes to be explicitly set by **-P** calls. Normally, **mbset** will implicitly set some modes based on the parameters applied. For example, if a user applies **-PSVPFILE:best.svp**, **mbset** would normally set the bathymetry recalculation mode on so that the SVP file specified actually gets used.

### -I

*infile*

Swath data file for which an **mbprocess** parameter file will be created or updated, or a datalist file containing a list of input swath data files and/or other datalist files. If *infile* is a datalist file, then **mbset** will attempt to update or create the parameter files for all swath data files identified by recursively reading *infile*. Default *infile*: datalist.mb-1

### -L

If given once, this option causes **mbset** to look for any edit save files and navigation files with expected names and set the **mbprocess** parameters so that these files are used. If multiple navigation files are available (reflecting use of **mbnavedit** and one or more uses of **mbnavadjust**), then the latest (highest numbered) **mbnavadjust** solution is used. If **-L** is given twice, **mbset** will also look for any SVP files with expected names and set the **mbprocess** parameters so that these files

are used for recalculating bathymetry by raytracing. If multiple SVP files are available (reflecting use of **mbsvplist** and **mbvelocitytool**), then the file derived from **mbvelocitytool** is used. If **-L** is given three times or more, then **mbset** will not look for any ancillary files, but instead reset the paths to all output files to be "local", meaning located in the same directory as the input file. This special option allows users to fix parameter files containing full paths for output files (as generated by early versions of this program).

- H** This "help" flag causes the program to print out a description of its operation and then exit immediately.
- P** *PARAMETER:value* The **-P** option of **mbset** is used to modify a single **mbprocess** parameter command. Here *PARAMETER* may be any of the processing parameter names listed above, and *value* is the corresponding value to be set. This option can be invoked as many times as desired on the command line, allowing **mbset** to set multiple **mbprocess** processing parameters and modes. The separator between *PARAMETER* and *value* can be either ':' or '='. Only the first ':' or '=' acts as a separator; later instances of these characters are taken as part of *value*.
- V** Normally, **mbset** works "silently" without outputting anything to the stderr stream. If the **-V** flag is given, then **mbset** works in a "verbose" mode and outputs the program version being used and lists the processing parameters output to the **mbprocess** parameter file.

## EXAMPLES

Suppose the user has a Simrad EM120 data file called "0051\_20010829\_223755.mb57" that requires processing.

Editing the bathymetry data in this file with mbedit will generate an edit save file "0051\_20010829\_223755.mb57.esf" and an mbprocess parameter file "0051\_20010829\_223755.mb57.par". The contents of the parameter file are:

```
## MB-System processing parameter file
## Written by mb_pr_writepar version $Id$
## MB-system Version 5.0.beta22
## Generated by user <caress> on cpu <menard> at <Fri Sep 6 21:27:41 2002>
##
##
## Forces explicit reading of parameter modes.
EXPLICIT
##
## General Parameters:
FORMAT 57
INFILE /data/0051_20010829_223755.mb57
OUTFILE /data/0051_20010829_223755p.mb57
##
## Navigation Merging:
NAVMODE 0
NAVFILE /data/0051_20010829_223755.mb57.nve
NAVFORMAT 0
NAVHEADING 0
NAVSPEED 0
NAVDRAFT 0
NAVATTITUDE 0
NAVINTERP 0
NAVTIMESHIFT 0.000000
##
## Navigation Offsets and Shifts:
NAVSHIFT 0
```

```
NAVOFFSETX 0.000000
NAVOFFSETY 0.000000
NAVOFFSETZ 0.000000
NAVSHIFTLON 0.000000
NAVSHIFTLAT 0.000000
##
## Adjusted Navigation Merging:
NAVADJMODE 0
NAVADJFILE
NAVADJINTERP 0
##
## Attitude Merging:
ATTITUDEMODE 0
ATTITUDEFILE
ATTITUDEFORMAT 1
##
## Sonardepth Merging:
SONARDEPTHMODE 0
SONARDEPTHFILE
SONARDEPTHFORMAT 1
##
## Data cutting:
DATACUTCLEAR
##
## Bathymetry Flagging:
EDITSAVEMODE 1
EDITSAVEFILE /data/0051_20010829_223755.mb57.esf
##
## Bathymetry Recalculation:
SVPMODE 0
SVPFILE
SSVMODE 0
SSV 0.000000
TTMODE 0
TTMULTIPLY 1.000000
ANGLEMODE 0
SOUNDSPEEDREF 1
##
## Draft Correction:
DRAFTMODE 0
DRAFT 0.000000
DRAFTOFFSET 0.000000
DRAFTMULTIPLY 1.000000
##
## Heave Correction:
HEAVEMODE 0
HEAVEOFFSET 0.000000
HEAVEMULTIPLY 1.000000
##
## Lever Correction:
LEVERMODE 0
VRUOFFSETX 0.000000
VRUOFFSETY 0.000000
VRUOFFSETZ 0.000000
```



```
SONAROFFSETX 0.000000
SONAROFFSETY 0.000000
SONAROFFSETZ 0.000000
##
## Roll Correction:
ROLLBIASMODE 0
ROLLBIAS 0.000000
ROLLBIASPORT 0.000000
ROLLBIASSTBD 0.000000
##
## Pitch Correction:
PITCHBIASMODE 0
PITCHBIAS 0.000000
##
## Heading Correction:
HEADINGMODE 0
HEADINGOFFSET 0.000000
##
## Tide Correction:
TIDEMODE 0
TIDEFILE
TIDEFORMAT 1
##
## Amplitude Correction:
AMPCORRMODE 0
AMPCORRFILE
AMPCORRTYPE 0
AMPCORRSYMMETRY 1
AMPCORRANGLE 30.000000
AMPCORRSLOPE 0
##
## Sidescan Correction:
SSCORRMODE 0
SSCORRFILE
SSCORRTYPE 0
SSCORRSYMMETRY 1
SSCORRANGLE 30.000000
SSCORRSLOPE 0
##
## Sidescan Recalculation:
SSRECALCMODE 0
SSPIXELSIZE 0.000000
SSSWATHWIDTH 0.000000
SSINTERPOLATE 0
##
## Metadata Insertion:
METAVESSEL
METAINSTITUTION
METAPLATFORM
METASONAR
METASONARVERSION
METACRUISEID
METACRUISENAME
METAPI
```

```

METAPIINSTITUTION
METACLIENT
METASVCORRECTED -1
METATIDECORRECTED -1
METABATHEDITMANUAL -1
METABATHEDITAUTO -1
METAROLLBIAS 0.000000
METAPITCHBIAS 0.000000
METAHEADINGBIAS 0.000000
METADRAFT 0.000000
##
## Processing Kluges:

```

Editing the navigation with **mbnavedit** will generate a navigation file named "0051\_20010829\_223755.mb57.nve" and will modify the parameter file. The changed lines in "0051\_20010829\_223755.mb57.par" are:

```

## Navigation Merging:
NAVMODE 1
NAVFILE /data/0051_20010829_223755.mb57.nve
NAVFORMAT 9
NAVHEADING 1
NAVSPEED 1
NAVDRAFT 1
NAVATTITUDE 1

```

At this point, running **mbprocess** on "0051\_20010829\_223755.mb57" will apply the bathymetry flags from **mbedit** and merge the navigation from **mbnavedit**, but will not modify the data in any other way.

If the user wants to recalculate the bathymetry using an SVP file "0051\_20010829\_223755.mb57.svp" and a roll bias correction of +0.5 degrees, the following will suffice:

```

mbset -I 0051_20010829_223755.mb57 -PSVPFILE:0051_20010829_223755.mb57.svp
-PROLLBIAS:0.5 -PDRAFT:1.95 -V

```

The affected lines in "0051\_20010829\_223755.mb57.par" are:

```

##
## Bathymetry Recalculation:
SVPMODE 1
SVPFILE 0051_20010829_223755.mb57.svp
SSVMODE 0
SSV 0.000000
TTMODE 0
TTMULTIPLY 1.000000
ANGLEMODE 0
SOUNDSPEEDREF 1
##
## Draft Correction:
DRAFTMODE 4
DRAFT 1.950000
DRAFTOFFSET 0.000000
DRAFTMULTIPLY 1.000000
##

```

```
## Roll Correction:
ROLLBIASMODE 1
ROLLBIAS 0.500000
ROLLBIASPORT 0.000000
ROLLBIASSTBD 0.000000
```

To process the data, run mbprocess:

```
mbprocess -I0051_20010829_223755.mb57 -V
```

The output to the terminal is:  
Program mbprocess  
MB-System Version 5.0.beta07

Program <mbprocess>  
MB-system Version 5.0.beta07

Program Operation:  
Input file: 0051\_20010829\_223755.mb57  
Format: 57  
Files processed only if out of date.  
Comments embedded in output.

Data processed – out of date:  
Input: 0051\_20010829\_223755.mb57  
Output: 0051\_20010829\_223755p.mb57

Input and Output Files:  
Format: 57  
Input file: 0051\_20010829\_223755.mb57  
Output file: 0051\_20010829\_223755p.mb57  
Comments in output: ON

Navigation Merging:  
Navigation merged from navigation file.  
Heading merged from navigation file.  
Speed merged from navigation file.  
Draft merged from navigation file.  
Navigation file: 0051\_20010829\_223755.mb57.nve  
Navigation algorithm: linear interpolation  
Navigation time shift: 0.000000

Navigation Offsets and Shifts:  
Navigation positions not shifted.

Adjusted Navigation Merging:  
Navigation not merged from adjusted navigation file.  
Adjusted navigation file:  
Adjusted navigation algorithm: linear interpolation

Data Cutting:  
Data cutting disabled.

Bathymetry Editing:

Bathymetry edits applied from file.

Bathymetry edit file: 0051\_20010829\_223755.mb57.esf

Bathymetry Recalculation:

Bathymetry recalculated by raytracing.

SVP file: 0051\_20010829\_223755.mb57.svp

SSV not modified.

SSV offset/constant: 0.000000 m/s

Travel time multiplier: 1.000000 m

Bathymetry Water Sound Speed Reference:

Output bathymetry reference: CORRECTED

Depths recalculated as corrected

Draft Correction:

Draft set to constant.

Draft constant: 1.950000 m

Draft offset: 0.000000 m

Draft multiplier: 1.000000 m

Heave Correction:

Heave not modified.

Heave offset: 0.000000 m

Heave multiplier: 1.000000 m

Lever Correction:

Lever calculation off.

Tide Correction:

Tide calculation off.

Roll Correction:

Roll offset by bias.

Roll bias: 0.500000 deg

Port roll bias: 0.000000 deg

Starboard roll bias: 0.000000 deg

Pitch Correction:

Pitch not modified.

Pitch bias: 0.000000 deg

Heading Correction:

Heading not modified.

Heading offset: 0.000000 deg

Amplitude Corrections:

Amplitude correction off.

Sidescan Corrections:

Sidescan correction off.

Sidescan Recalculation:

Sidescan not recalculated.

Sidescan pixel size: 0.000000

Sidescan swath width: 0.000000  
Sidescan interpolation: 0

Metadata Insertion:

Metadata vessel:  
Metadata institution:  
Metadata platform:  
Metadata sonar:  
Metadata sonarversion:  
Metadata cruiseid:  
Metadata cruisename:  
Metadata pi:  
Metadata piinstitution:  
Metadata client:  
Metadata svcorrected: -1  
Metadata tidecorrected -1  
Metadata batheditmanual -1  
Metadata batheditauto: -1  
Metadata rollbias: 0.000000  
Metadata pitchbias: 0.000000  
Metadata headingbias: 0.000000  
Metadata draft: 0.000000

236 navigation records read

Nav start time: 2001 08 29 22:38:02.082999

Nav end time: 2001 08 29 23:37:22.322000

47 bathymetry edits read

236 input data records

3587 input nav records

17 input comment records

6617 input other records

236 output data records

3587 output nav records

64 output comment records

6617 output other records

Generating inf file for 0051\_20010829\_223755p.mb57

## SEE ALSO

**mbsystem(1), mbprocess(1), mbedit(1), mbnavedit(1), mbvelocitytool(1)**

## BUGS

Oh yeah...