NAME

mbctdlist – List CTD data in swath sonar data files.

VERSION

Version 5.0

SYNOPSIS

mbctdlist [**–A** **–D***decimate* **–F***format* **–G***delimeter* **–H** **–I***file* **–O***output_format* **–V** **–Z***segment*]

DESCRIPTION

MBctdlist prints the specified contents of CTD records in a swath sonar data file to stdout. CTD stands for conductivity, temperature, and depth (pressure). Some seafoor mapping sonar platforms (e.g. ROVs or AUVs) carry CTDs. The CTD data may be included in the sonar data stream to enable calculation of water sound speed for use in sonar settings and/or data processing. In addition to the raw conductivity (S/m), temperature (degree C), and pressure (dBar) data, salinity (ppu), depth (m), and water sound speed (m/s) are typically available by calculation.**MBctdlist** can also output navigation and time stamp values. By default, **mbctdlist** 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 option **–O***output_format* is used to control the data types that are sent to stdout. The output stream can be decimated using the **–D** option. The output of **mbctdlist** can be piped to plotting and data analysis programs.

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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.

–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.

–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.:

datafile.mb88 88
datafile.mb88 88

This program uses the **MBIO** library and will read any swath sonar format supported by **MBIO**. However, only files in formats supporting CTD data will contain relevant data and produce an output. 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.

−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 conductivity (S/m)
^C for sonar altitude (meters)
c for temperature (degree C)
^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
P for potential temperature (degree)
S for salinity (ppu)
^S for speed (km/hr)
s for water sound speed (m/s)
^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* = **TXYCc^cSs** (Time, lon, lat, conductivity, temperature, depth, salinity, sound speed).

−V Normally, **mbctdlist** works "silently" without outputting anything to the stderr stream. If the **−V** flag is given, then **mbctdlist** 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 ctd list from a Reson 7125 data file in the 7k format (MBIO id 88) called 20080904_231809p.mb88. To obtain a listing with time in unix second forms followed by longitude, latitude, and salinity, the following will suffice:

```
mbctdlist –i 20080904_231809p.mb88 –OMXYS | more
```

The output will be as follows:

```
1220570288.486000    –129.066699    47.997246    34.305
1220570288.685999    –129.066702    47.997245    34.304
1220570288.885999    –129.066706    47.997244    34.305
1220570289.086000    –129.066710    47.997243    34.305
1220570289.286000    –129.066713    47.997242    34.304
.....
```

SEE ALSO

mbsystem(1), **mbinfo**(1)

BUGS

mbctdlist initially only works with data in the MBF_RESON7KR format (MBIO format id 88) supporting Reson 7k series multibeam sonars.