

## Format of Meteor Position Data Files

The final result files are called "MPD" files which is an acronym for "Meteor Position Data". Each data file corresponds to a 24 hour time span starting at 0000 UTC and ending at 2359.59 UTC the same day. They have filenames of the form 'mpCCYYMMDD.site.mpd', and are found in the METEORS subdirectory of the results directory (usually /local0/Results). At the start of each file are a list of parameters which are relevant to the manner in which the data were collected. These appear as token-value pairs, for example:

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might appear on a line in the parameter section of the data file.

After all of the parameters, there appears a line describing each of the fields in the data itself:

Date Time File Rge Ht Vrad delVr Theta Phi0 Ambig Delphase ant-pair IREX amax Tau vmet snrdb

After the header comes the actual data, usually one line per meteor detection. If a meteor cannot be unambiguously located, its various possible locations are each reported in the data file - one line per ambiguous location. This is noted in the "AMBIG" field of the data. If the AMBIG field is 3, for example, then there will be 3 consecutive entries in the data file for this one meteor. Any further analyses performed on the MPD data usually discard the ambiguous detections before any crunching is done.

The data stored in the MPD files is also available in a binary format which can be useful if you wish to parse the files often since reading them in binary format is substantially faster. These files have the name 'mpCCYYMMDD.site.bin' and are found in the same place as the MPD files. The *catbin* program is capable of reading these files and turning them into text (the format of its output is intended to be exactly the same as the MPD file). If you require the exact format of the BIN file then contact Genesis Software.

The data fields are described in the following table.

Data Field	Description
Date	The date of the detection CCYY/MM/DD relative to UTC.
Time	The time of the detection HH:MM:SS.XYZ in UTC where XYZ is the millisecond of the detection. (Note that this represents the relative accuracy of the detection, not the absolute accuracy which, in the normal mode of operation, is +/- 1 second).
File	The file name extension used to store the raw data for this detection (VWXYZ characters from [0..9, A..Z]).
Rge	The range of the detection in km to one decimal place (WXY.Z).
Ht	The corrected height above ground of the detection in km (WXY.Z).
Vrad	The radial drift velocity of the trail in m/s (WX.YZ).
delVr	The standard deviation of the radial velocity measurement obtained from the 5 antenna pairs in the interferometer. Note that the analysis rejects data with delVr > 5.5 m/s so that this represents a limiting value for this field in the MPD file.
Theta	The zenith angle of the detection in degrees (XY.Z).
Phi0	The azimuth angle of the detection in degrees measured anticlockwise from East (WXY.Z).
Ambig	The number of locations this detection could have originated from (X).
Delphase	The worst phase error between antennas if the measured azimuth and zenith of the detection are correct (XY.Z). Measured in degrees.
ant-pair	The antenna pair with the worst phase error (XY).
IREX	The receive channel used in the analysis for certain single-channel data quality tests. This is always "1" during normal operation.
amax	The peak value of the amplitude of the meteor echo in digitiser units. This may be greater than 32767 if channel saturation has occurred (VWXYZ).
Tau	The decay time of the meteor in seconds. This is a half-life, <i>not</i> a 1/e time constant (.XYZ).
vmet	The entrance speed of the meteor in km/s. Bad values are characterised with "-9.99" (WX.YZ).
snrdb	The signal-to-noise ratio for this meteor (X.YZ).

