Format Description for TASMARC Beach Profile Data, Version 2.0[1], 16 Dec. 2014

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Introduction

Version 2.0 is an upgrade from Version 1.2, incorporating changes to cope with data from the global navigation satellite system (GNSS). The resultant data files should be compatible with earlier plotting software which plots vertical height against horizontal distance from a survey mark.

Filenames

All filenames for data and plot files should be in the form:

   <site name>-<date (yyyymmdd)>-<sequence number>

and, for photos,.they should be in the form:

   <site name>-<date (yyyymmdd)>-<sequence number>-<photo name or number>.

<sequence number> is an (ascending) beach profile number for that site and day (it would normally be "1").

Any spaces in any field should be replaced by an underscore ("_"). Lower case should be used throughout. If any field contains a "-", then it should be changed to a "_" in the filename. It should be noted that there should be exactly *two* "-" characters in a filename.

An example of a (fictitious) filename (for data and plot files) is:

   `three_mile_beach_west_end-20080212-1`

and an example for photo files is:

   `three_mile_beach_west_end-20080212-1-photo_1.`

In addition, for all GNSS data, there is an additional data file with the filename:

   `<site name>-<date (yyyymmdd)>-<sequence number>-raw_gnss`

which contains data for the raw GNSS data (in columns 2, 5 and 6, but with column 1 not yet computed). Therefore, for the above example, the raw data file would be called:

   `three_mile_beach_west_end-20080212-1-raw_gnss`

and, after computing the horizontal distance from the survey mark (column 1), it would be called:

   `three_mile_beach_west_end-20080212-1.`

Horizontal Distance and Height Units

All horizontal distances and heights are to be given in metres.

Header information

All header lines are labelled with the Unix "comment" ("#").

There can be any number of header lines. Lines 1 to19 (which contain mandatory *labelled data*) should be as specified below. Lines 20 and higher may contain other header information in any order.

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[1] A file may possibly be misread if the version number "units" of its own format and of the reading program are different. However changes in the "tenths" integer only indicate cosmetic changes and should not affect the way in which a file is read.

The following list describes header information which contains *labelled data*. The labels (e.g. "`DATUM INFORMATION`") must be used exactly as specified so that they can be found by character searching. The prefix "`probably`", and the entries "`unknown`" and "`not applicable`" may be used for the labelled data where absolutely necessary.

1. The first line (`FORMAT VERSION`) gives the format version number (e.g."`1.0`").

2. The second line (`SITE NAME`) gives the site name.

3. The third line (`SURVEY MARK`) gives the identifier of the survey mark.

4. The fourth line (`OBSERVERS`) lists the observers.

5. The fifth line (`LATITUDE`) gives the latitude of the survey mark. `LATITUDE` is in decimal degrees, to five decimal places, with a range of -90.00000to +90.00000.

6. The sixth line (`LONGITUDE`) gives the longitude of the survey mark. `LONGITUDE` is in decimal degrees, to five decimal places, with a range of -180.00000 to +180.00000.

7. The seventh line (`EASTING`) gives the Easting of the survey mark. `EASTING` is in metres, to the nearest metre.

8. The eighth line (`NORTHING`) gives the Northing of the survey mark. `NORTHING` is in metres, to the nearest metre.

9. The ninth line (`HORIZONTAL DATUM`) gives the horizontal datum to which the `LATITUDE`, `LONGITUDE`, `EASTING` and `NORTHING` refer (this will generally be "`GDA94`" or "`WGS84`").

10. The tenth line (`UTM ZONE`) gives the UTM Zone to which the `EASTING` and `NORTHING` refer. For Tasmania, this is "`55`".

11. The eleventh line (`VERTICAL DATUM`) lists the vertical datum to which the data are referred. In Tasmania, this would normally be "`AHD83`" (i.e. Australian Height Datum).

12. The twelfth line (`START DATE/TIME`) gives the start date and time of the observations, with the format `yyyy/mm/dd hh:mm:ss`. 24 hr clock is mandatory and local time is recommended.

13. The thirteenth line (`END DATE/TIME`) gives the end date and time of the observations, with the format `yyyy/mm/dd hh:mm:ss`. 24 hr clock is mandatory and local time is recommended.

14. The fourteenth line (`TIME ZONE HOURS`) gives the difference from UTC in hours; if data are in Australian Eastern Standard Time (AEST) then this is "`10`"; if data are in Australian Eastern Daylight Time (AEDT) then this is "11".

15. The fifteenth line (`TRUE BEARING TRANSECT DEGREES`) gives the true bearing of the transect towards the sea. `TRUE BEARING TRANSECT DEGREES` is in degrees (to the nearest degree).

16. The sixteenth line (`SURVEY METHOD`) describes the survey method. It should be "`tape measurement`", "`levelling`", "`total station`", "GPS" or "GNSS".

17. The seventeenth line (`INSTRUMENT DESCRIPTION`) describes the instrument used, including if possible the manufacturer, the model and the serial number.

18. The eighteenth line (`LEVEL MISCLOSURE MM`) gives the levelling misclosure in mm.

19. The nineteenth line (`CREATION DATE`) gives the initial creation date (local time in Tasmania). Subsequent modification dates should be described in the header as comments.

20. Optional lines (`PHOTO`) give information (e.g. viewpoint; view direction; name and location of image) about any photographs which were taken. There may be any number of these entries (one per line).

21. Lines labelled "`COLUMN`" describe all of the columns recorded in the data file, including any quality-control flags. There should be a brief description of each parameter and the units of measurement.

The meaning of any quality-control flags should be defined as comments in the header section.

Other relevant information should also be stored in the header section (e.g. weather at the time of the survey, comments on data and processing).

Body information

Free formatting should be used for the data columns (where data may be separated by any number of spaces). All columns must be defined in the header section.

Data to be used in any subsequent analysis should be indicated by the "how-to-use" flag:

 0: data not used
 1: column 1 only used (tape measurement or a comment)
 2: columns 1 and 2 used (levelling measurement)
 3: columns 2, 5 and 6 used prior to computation of the horizontal distance from the survey mark (file with suffix "`raw_gnss`")
 4: columns 1,2,5 and 6 after computation of the horizontal distance from the survey mark (file without suffix).

This flag is mandatory. In the example below, the data for a horizontal distance of "`20.3`" contains an obvious spike in the height, which has therefore been removed. This is the mechanism by which all data should be removed from future use - *no data should ever be deleted during processing*. This mechanism may also be used for inserting a comment on a transect where no levelling data was available, in which case the second column must be filled but may contain any value (999 is recommended), and the "how-to-use" flag must be set to "`1`" (see Example on next page). Comments containing more than one word should be enclosed in quotes.

Example

```
# FORMAT VERSION 1.0
# SITE NAME Three Mile Beach (West End)
# SURVEY MARK 730/99
# OBSERVERS John Hunter, Richard Coleman, Nick Bowden
# LATITUDE -43.10234
# LONGITUDE 147.43210
# EASTING 535161
# NORTHING 5227713
# HORIZONTAL DATUM GDA94
# UTM ZONE 55
# VERTICAL DATUM AHD
# START DATE/TIME 2004/07/01 12:30:00
# END DATE/TIME 2004/07/31 13:15:00
# TIME ZONE HOURS 10
# TRUE BEARING TRANSECT DEGEES 33
# SURVEY METHOD levelling
# INSTRUMENT DESCRIPTION Leica NA700, serial number 87567d
# LEVEL MISCLOSURE MM 1
# CREATION DATE 2007/23/02
#
# PHOTO S001.JPG looking NW along high water mark towards transect
# PHOTO S002.JPG looking SE along high water mark towards transect
#
# COLUMN 1 Horizontal distance from survey mark (m)
# COLUMN 2 Vertical height above datum (m)
# COLUMN 3 how-to-use flag (0 = don't use data(i.e. erroneous data)
#                           1 = use column 1 only (i.e. tape measurement or
#                               comment)
#                           2 = use columns 1 and 2 (i.e. levelling
#                               measurement),
#                           3 = use columns 2, 5 and 6 (i.e. raw GNSS
#                               measurement)
#                           4 = use columns 1, 2, 5 and 6 (i.e. processed GNSS
#                               measurement))
# COLUMN 4 etc. any comments on this location (words separated by spaces;
#          if more than one word, all comment enclosed in quotes)
# COLUMN 5 GNSS easting (UTM, m)
# COLUMN 6 GNSS northing (UTM, m)
#
# The perceived high water mark is indicated as follows:
#
# <Start of line> <horizontal distance> <vertical height> 2 HWM
#
0 3.229 2 730/99
10.2 2.115 2 HWM
12.2 1.983 2
14.5 1.422 2
16.0 999   1 "large rock embedded in beach"
17.3 0.854 2
20.3 9.321 0
23.4 0.110 2
27.3 -0.234 2
29.2 -0.301 4 "A GNSS measurement" 594934 5636174
30.2 -1.345 2
```