NAME

mbm_histplot – Create an executable shellscript which will generate a GMT histogram plot of a dataset.

VERSION

Version 5.0

SYNOPSIS

mbm_histplot –I*file* [**–G***fill* **–H –O***root* **–P***pagesize* **–U***orientation* **–V –W***pen*]

Additional Options:
[**–B***tickinfo* **–J***projection[/scale* **|** *width]* **–L***title[:xlabel:ylabel]* **–M***misc* **–Q –R***w/e/s/n* **–X –Z***]*

DESCRIPTION

mbm_histplot is a macro to generate a shellscript of GMT commands which, when executed, will generate a Postscript histogram plot of a set of data values. The plot will be scaled to fit on the specified page size or, if the scale is user defined, the page size will be chosen in accordance with the plot size. The primary purpose of this macro is to allow the simple, semi-automated production of nice looking plots with a few command line arguments. For users seeking more control over the plot appearance, a number of additional optional arguments are provided. Truly ambitious users may edit the plot shellscript to take advantage of GMT capabilities not supported by this macro.

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OPTIONS

–B *tickinfo*
Sets map boundary tickmark intervals. See the **psbasemap** manual page for details. By default the program chooses basemap annotations based on the map boundaries.

–C *cellwidth*
Sets the width of the cells into which the data are binned to form the histogram. The default is use a cell width that is 1/10 the data range.

–G *fill*
Select filling of the histogram. Set the shade (0-255) or color (r/g/b) [Default is a light gray]. To reset no fill, use *fill* = "N". You may optionally specify **–Gp***icon_size/pattern*, where *pattern* gives the number of the image pattern (1-32) OR the name of a icon-format file. *icon_size* sets the unit size in inch. To invert black and white pixels, use **–GP** instead of **–Gp**. See **GMTs** Cookbook & Technical Reference Appendix E for information on individual patterns.

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

–I *[filepars:]xy_file*

Specifies the file containing the data to be plotted in a histogram. A single column of data is expected.

–J *projection*[*/width/height*]
Sets the plot scale. The projection is linear (**–J***X), and the user can optionally specify the width*

and height.

–L *title[:xlabel[:ylabel]]*
Sets the title and the labels for the x and y axes of the plot. Note that a colon (:) rather than a slash (/) is used to separate the labels. Colons cannot be used in the labels themselves. If this option is not used, then a default title and colorscale label are provided. If the title is supplied alone, no x or y-axis labels will be provided.

–O *root*
Sets the root used to construct the filename of the output shellscript (*root*.cmd) and names of files created when the shellscript is run. Normally the name of the input grid file or grid file list is used as the *root*.

–P *pagesize*
This option sets the size of the page the plot will be centered on. If the user does not set the plot scale, the plot will be sized as large as will fit on the designated page. If the user sets the plot scale such that the plot will not fit on the designated page, a larger page will be used. The supported page sizes are:

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American ANSI sizes:
A     8.5 x 11.0 in.    ( 215.9 x  279.4 mm)
B    11.0 x 17.0 in.    ( 279.4 x  431.8 mm)
C    17.0 x 22.0 in.    ( 431.8 x  558.8 mm)
D    22.0 x 34.0 in.    ( 558.8 x  863.6 mm)
E    34.0 x 44.0 in.    ( 863.6 x 1117.6 mm)
F    28.0 x 40.0 in.    ( 711.2 x 1016.0 mm)
E1   44.0 x 68.0 in.    (1117.6 x 1727.2 mm)

Metric ISO A sizes:
A0   841.0 x 1189.0 mm  (33.11 x 46.81 in.)
A1   594.0 x  841.0 mm  (23.39 x 33.11 in.)
A2   420.0 x  594.0 mm  (16.54 x 23.39 in.)
A3   297.0 x  420.0 mm  (11.69 x 16.54 in.)
A4   210.0 x  297.0 mm  ( 8.27 x 11.69 in.)
A5   148.0 x  210.0 mm  ( 5.83 x  8.27 in.)
A6   105.0 x  148.0 mm  ( 4.13 x  5.83 in.)
A7    74.0 x  105.0 mm  ( 2.91 x  4.13 in.)
A8    52.0 x   74.0 mm  ( 2.05 x  2.91 in.)
A9    37.0 x   52.0 mm  ( 1.46 x  2.05 in.)
A10   26.0 x   37.0 mm  ( 1.02 x  1.46 in.)

Metric ISO B sizes:
B0   1000.0x 1414.0 mm  (39.37 x 55.67 in.)
B1   707.0 x 1000.0 mm  (27.83 x 39.37 in.)
B2   500.0 x  707.0 mm  (19.68 x 27.83 in.)
B3   353.0 x  500.0 mm  (13.90 x 19.68 in.)
B4   250.0 x  353.0 mm  ( 9.84 x 13.90 in.)
B5   176.0 x  250.0 mm  ( 6.93 x  9.84 in.)
B6   125.0 x  176.0 mm  ( 4.92 x  6.93 in.)
B7    88.0 x  125.0 mm  ( 3.46 x  4.92 in.)
B8    62.0 x   88.0 mm  ( 2.44 x  3.46 in.)
B9    44.0 x   62.0 mm  ( 1.73 x  2.44 in.)
B10   31.0 x   44.0 mm  ( 1.22 x  1.73 in.)

Metric ISO C sizes:
C0   914.4 x 1300.5 mm  (36.00 x 51.20 in.)
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C1   650.2 x  914.4 mm  (25.60 x 36.00 in.)
C2   457.2 x  650.2 mm  (18.00 x 25.60 in.)
C3   325.1 x  457.2 mm  (12.80 x 18.00 in.)
C4   228.6 x  325.1 mm  ( 9.00 x 12.80 in.)
C5   162.6 x  228.6 mm  ( 6.40 x  9.00 in.)
C6   114.3 x  162.6 mm  ( 4.50 x  6.40 in.)
C7    81.3 x  114.3 mm  ( 3.20 x  4.50 in.)

     MB-System large format sizes:
m1  1371.6 x 1828.8 mm  (54.00 x 72.00 in.)
m2  1371.6 x 2133.6 mm  (54.00 x 84.00 in.)
m3  1371.6 x 2438.4 mm  (54.00 x 96.00 in.)
m4  1524.0 x 1828.8 mm  (60.00 x 72.00 in.)
m5  1524.0 x 2133.6 mm  (60.00 x 84.00 in.)
m6  1524.0 x 2438.4 mm  (60.00 x 96.00 in.)
```

The default page size is A.

–Q Normally, the output plot generation shellscript includes lines which execute a program to display the Postscript image on the screen. This option causes those lines to be commented out so that executing the shellscript produces a Postscript plot but does not attempt to display it on the screen. The program to be used to display the Postscript is set using **mbdefaults**; the default value can be overridden by setting the environment variable $MB_PS_VIEWER.

–R *west/east/south/north*
west, east, south, and *north* specify the Region of interest. [Default is the range of the data and the histogram distribution].

–U *orientation*
Normally the orientation of the plot (portrait or landscape) is selected automatically so as to maximize the plot scale. The **–U** option allows the user to set the plot orientation. If *orientation* = 1, a portrait plot will be produced; if *orientation* = 2, a landscape plot will be produced.

–V Causes **mbm_histplot** to operate in "verbose" mode so that it outputs more information than usual.

–W *pen*
Set pen attributes for plotting. See chapter 4.12 in the GMT Technical reference for a discussion of GMT pen values. [Defaults: width = 1, color = 0/0/0, texture = solid].

–X Normally, **mbm_histplot** creates an executable shellscript and then exits. This option will cause the shellscript to be executed in the background before **mbm_histplot** exits.

EXAMPLES

Suppose we have a single column ascii file of time lag estimates called timelag.dat. In order to generate a 6 inch wide and 4 inches high simple histogram plot of these data, use:
mbm_histplot –Itimelag.dat –Otimelaghist –JX6/4 –V to generate a GMT plot shellscript called timelaghist.cmd.

As an example, the contents of the plotting shellscript "timelaghist.cmd" are:

#! /bin/csh –f # # Shellscript to create Postscript plot of data in grd file # Created by macro mbm_histplot # # This shellscript created by following command line: # mbm_histplot –Itimelag.dat –Otimelaghist –JX6/4 –V # # Define shell variables used in this script: set PS_FILE = timelaghist.ps set CPT_FILE = set MAP_PROJECTION = X set MAP_SCALE = 6/4 set MAP_REGION = –0.57/0.12/0/50 set X_OFFSET = 2.5 set Y_OFFSET = 2.375 # # Save existing GMT defaults echo Saving GMT defaults... gmtdefaults –L >! gmtdefaults$$ # # Set new GMT defaults echo Setting new GMT defaults... gmtset MEASURE_UNIT inch gmtset PAPER_MEDIA archA+ gmtset ANOT_FONT Helvetica gmtset

LABEL_FONT Helvetica gmtset HEADER_FONT Helvetica gmtset ANOT_FONT_SIZE 8 gmtset LABEL_FONT_SIZE 8 gmtset HEADER_FONT_SIZE 10 gmtset FRAME_WIDTH 0.075 gmtset TICK_LENGTH 0.075 gmtset PAGE_ORIENTATION LANDSCAPE gmtset COLOR_BACKGROUND 0/0/0 gmtset COLOR_FOREGROUND 255/255/255 gmtset COLOR_NAN 255/255/255 gmtset DEGREE_FORMAT 3 # # Make histogram echo Running pshistogram... pshistogram timelag.dat -J$MAP_PROJECTION$MAP_SCALE -R$MAP_REGION -B0.05:" ":/5:"Frequency %"::."Frequency Histogram of timelag.dat": -W0.069 −Z1 -L1p -Ggray -X$X_OFFSET −Y$Y_OFFSET −V >! $PS_FILE # # Delete surplus files echo Deleting surplus files... /bin/rm −f $CPT_FILE # # Reset GMT default fonts echo Resetting GMT fonts... /bin/mv gmtdefaults$$ .gmtdefaults # # Run gv echo Running gv in background... gv −-orientation=landscape −-media=BBox $PS_FILE & # # All done! echo All done!

SEE ALSO

mbsystem(1), **mbdefaults**(1), **mbm_grdplot**(1), **mbm_grd3dplot**(1), **mbm_plot**(1)

BUGS

Please let us know.