GDPlot draws contour lines through scalar grids and/or wind barbs or arrows through vector grids. Multiple sets of contours and vectors can be generated for each frame.

INPUT PARAMETERS

- **GDFILE** Grid file
- **GDATTIM** Grid date/time
- **GLEVEL** Grid level
- **GVCORD** Grid vertical coordinate
- **PANEL** Panel loc/color/dash/width/regn
- **SKIP** Skip_cntr/skip_plt_x;skip_plt_y
- **SCALE** Scalar scale / vector scale
- **GFUNC** Scalar grid
- **CTYPE** Contour type: C/F
- **CONTUR** Subbox/smooth
- **CINT** Contour interval/min/max
- **LINE** Color/type/width/label/smth/fltr/scflg
- **FINT** Fill interval/min/max
- **FLINE** Fill colors/fill types
- **HILO** Color/symbol/rng/rad/cnt/ntp
- **HLSYM** HILO txt size/posn/font/wdth/hw
- **CLRBAR** Color/ornt/anch/x;y/ln;wd/freq|text_info
- **GVECT** Vector grid
- **WIND** Wind symbol/siz/wdth/typ/hdsz
- **REFVEC** Mag;x;y;txtsiz/font/wdth/HW;labl
- **TITLE** Title color/line/title
- **TEXT** Size/fnt/wdth/brdr/N-rot/just/hw flg
- **CLEAR** Clear screen flag
- **GAREA** Graphics area
- **IJSKIP** Iskp;Istrt;Istp/Jskp;Jstrt;Jstp
- **PROJ** Map projection/angles/margins|drop flag
- **MAP** Map color/dash/width/flitler flag
- **MSCALE** fgc;bgc;mask/units/lat;hide/values/anch/x;y/ln;wd/freq|text_info|title
- **LATLON** Line color/dash/width/freq/inc/label/format
- **DEVICE** Device|name|x size;y size|color type
- **STNPLT** Txtc|txt attr|marker attr|stnfil#col

PROGRAM DESCRIPTION

GDPlot draws contours through scalar grids and wind barbs or arrows at grid points for vector grids. Plots are generated for any field computed using the GEMPAK grid diagnostic functions. The program can generate multiple sets of contours and vector plots for each frame. It can also generate plots for multiple times.

A list of times may be given in GDATTIM allowing animation.
Exclamation points are used in GFUNC and GVECT to delimit multiple sets of contours and vectors, respectively. GLEVEL, GVCORD, PANEL, SKIP, SCALE, GFUNC, CTYPE, CONTUR, CINT, TITLE, LINE, FINT, FLINE, GVECT, WIND, REFVEC, HILO, and HLSYM may contain exclamation points to delimit specifications for the fields defined by GFUNC and GVECT. If any parameter contains more specifications than the number of plots specified in GFUNC or GVECT, they will be ignored. Positions between exclamation points may be left blank. A trailing exclamation point will be treated as a blank. If there is no trailing exclamation point, the last specification will be repeated for subsequent plots.

Contours may be displayed as lines or as a color fill. If CTYPE is C, contour lines are drawn using input from CINT and LINE. If CTYPE is F, filled contours are drawn using specifications from FINT and FLINE. Both contour lines and filled contours are drawn if CTYPE is F/C.

The attributes of the contour lines, including the color, line type, line width, and label frequency are specified in LINE. The four attributes must be separated with slashes; semicolons separate the values for each attribute. If the line type is set to a single negative number, negative contour values will have the absolute value of the line type and positive values will be solid. If the label type is set to a single number, n, then every nth value will be labeled.

The contour fill intervals are specified in FINT; the attributes for the fill are specified in FLINE. The first color specified in FLINE fills values less than the first level; while the last color fills values greater than the last level. Therefore, n levels require n+1 colors.

A range of colors may be specified in either FLINE or LINE by specifying starting, ending and increment values in that order separated by dashes. If the increment is missing, a default of 1 is used.

The fill type may be set to 1 (solid), 2 (slanted dash) or 3 (slanted line). If fill type is set to 0, solid fill is used. If the fill type is set to a single negative number, negative values will use the absolute value of the fill type, and positive values will be solid.

If M is entered in the wind symbol specification of WIND, winds will be displayed in m/s, unless the KNOTV operator has been specified in GVECT, in which case the winds will be displayed in knots. If K is entered in WIND, the wind is displayed in knots.

For contours, SKIP specifies the number of grid points to skip in generating contours. For example, if SKIP = 1, every other point is used to generate the contours.

For vectors, SKIP specifies the number of points to skip in both coordinate directions. For example, SKIP = /1;2 will display winds
at every other grid point in the x direction and every third grid point in the y direction. SKIP = /0 displays winds at every grid point. Wind barbs or arrows can also be staggered by specifying negative values for SKIP.

The HILO and HLSYM parameters control marking and labeling the values of relative maxima and minima. CLRBAR allows a color bar to be added for color fill contours.

EXAMPLES

1. Plot the 700 mb temperature, dewpoint and wind barbs. Plot the temperature in color 3 and the dewpoint in color 17. For both sets of contours, the lines of negative value are drawn in pattern 3 and the those of positive value are solid. Every other contour is labeled. The wind barbs are plotted in m/s in color 6.

   GDFILE   = $GEMDATA/hrcbob.grd
   GDATTIM  = f24
   GLEVEL   = 700
   GVCORD   = pres
   PANEL    = 0
   SKIP     = 0
   SCALE    = 0
   GFUNC    = tmpc           ! dwpc
   CTYPE    = C
   CONTUR   = 3
   CINT     = 2             ! 5
   LINE     = 3/-3/3/2       ! 17/-
   3/2/2
   FINT     = 0
   FLINE    = 10-20
   HILO     =
   HLSYM    =
   CLRBAR   =
   GVECT    = wnd
   WIND     = bm6//2
   REFVEC   = 10
   TITLE    = 1/2/-  @ TEMPERATURE, DEWPOINT AND WIND ! 0
   TEXT     = 1/22//hw
   CLEAR    = yes
   GAREA    = ny-
   PROJ     = mer
   MAP      = 1/7
   LATLON   = 2/10/1/1/5;5
   DEVICE   = xw
   STNPLT   =

2. Draw fills and contours of the magnitude of the wind (knots), contours of height and wind barbs (knots) at 250 mb. The contour and fill intervals are specified in CINT and FINT. The display area is the entire grid on a stereographic map.

   GDFILE   = $GEMDATA/hrcbob.grd
   GDATTIM  = f24
GLEVEL = 250
GVCORD = pres
PANEL = 0
SKIP = 0/1
SCALE = 0 ! -1
GFUNC = knts(mag(wnd)) ! hght
CTYPE = c/f ! c
CONTUR = 1
CINT = 30;50;70;90;110;130;150 ! 12
LINE = 27/5/2/1 !
20/1/2/1
FINT = 70;90;110;130;150
FLINE = 0;25;24;29;7;15
HILO =
HLSYM =
CLRBAR = 1
GVECT = kntv(wnd)
WIND = bk18//1
REFVEC =
TITLE = 5/-2/~ @ HEIGHTS, ISOTACHS AND WIND (KTS) ! 0
TEXT = 1/21//hw
CLEAR = yes
GAREA = grid
PROJ = str/90;-105;0
MAP = 1
LATLON = 0
DEVICE = XW
STNPLT =

ERROR MESSAGES
+3 ! WARNING: !AS not found. CONTINUING---
+2 ! The requested scalar/vector cannot be computed.
+1 ! WARNING. There are no contour levels.
-1 ! Fatal error initializing TAE.
-2 ! Fatal error reading TAE parameters.
-3 ! Fatal error initializing GEMPLT.
-4 ! Grid requested is not available.
-5 ! Error setting grid navigation for file !AS.
-6 ! There are no grids in grid file.