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Subject: Re: Spherical Contour Plotting  
Posted by [k-bowman](#) on Thu, 10 Jan 2002 17:03:06 GMT  
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Sorry, my newsreader wrapped my last posting.

Ken

PRO SPHERICAL\_PLOT

COMPILE\_OPT IDL2

cr = "

```
nx = 65 ;Grid resolution in longitude
ny = 33 ;Grid resolution in latitude

x = (360.0/(nx-1))*FINDGEN(nx) ;Longitude grid
y = -90 + (180.0/(ny-1))*FINDGEN(ny) ;Latitude grid

xx = x # REPLICATE(1.0, ny) ;2-D longitude grid
yy = REPLICATE(1.0, nx) # y ;2-D latitude grid
z = SIN(!DTOR*xx) * COS(!DTOR*yy) ;Test function to contour

;Standard contour plot on satellite map projection
MAP_SET, /SATELLITE, /CONT, /ISOTROPIC
CONTOUR, z, x, y, LEVELS = -0.95 + 0.1*FINDGEN(20), /OVERPLOT ;Contour z
PRINT, 'Enter <cr> to continue.'
READ, cr

;Get contour info
CONTOUR, z, x, y, PATH_INFO = path_info, PATH_XY = path_xy, $ ;Contour z, save
contour info
 /PATH_DATA_COORDS, CLOSED = 0, LEVELS = -0.95 + 0.1*FINDGEN(20)

;2-D plot using contour info
PLOT, [0, 0], [1, 1], /NODATA, $
XTITLE = 'Longitude', $
XSTYLE = 1, $
XRANGE = [0.0, 360.0], $
XTICKS = 4, $
YTITLE = 'Latitude', $
YSTYLE = 1, $
YRANGE = [-90., 90.0], $
YTICKS = 6

FOR k = 0, N_ELEMENTS(path_info)-1 DO BEGIN
i0 = path_info[k].offset ;First element of the k'th contour
```

```

i1 = i0 + path_info[k].n - 1
; PRINT, k, path_info[k].type, i0, i1
xc = REFORM(path_xy[0,i0:i1])
yc = REFORM(path_xy[1,i0:i1])
IF (path_info[k].type EQ 1) THEN BEGIN
  xc = [xc, path_xy[0,i0]]
  yc = [yc, path_xy[1,i0]]
ENDIF

PLOTS, xc, yc
ENDFOR
PRINT, 'Enter <cr> to continue.'
READ, cr

```

```

;Last element of the k'th contour

```

```

;Extract x-coords of k'th contour

```

```

;Extract y-coords of k'th contour

```

```

;Close contours, if needed

```

```

;Plot contours

```

```

;3-D plot using contour info
PLOT_3DBOX, [0,0], [0,0], [0,0], /NODATA, $
  XTITLE = 'X', $
  XSTYLE = 1, $
  XRANGE = [-1.0, 1.0], $
  XTICKS = 4, $
  YTITLE = 'Y', $
  YSTYLE = 1, $
  YRANGE = [-1., 1.0], $
  YTICKS = 4, $
  ZTITLE = 'Z', $
  ZSTYLE = 1, $
  ZRANGE = [-1.0, 1.0], $
  ZTICKS = 4

```

```

r = 0.9
FOR k = 0, N_ELEMENTS(path_info)-1 DO BEGIN
  i0 = path_info[k].offset
  i1 = i0 + path_info[k].n - 1
; PRINT, k, path_info[k].type, i0, i1
  xc = REFORM(path_xy[0,i0:i1])
  yc = REFORM(path_xy[1,i0:i1])
  IF (path_info[k].type EQ 1) THEN BEGIN
    xc = [xc, path_xy[0,i0]]
    yc = [yc, path_xy[1,i0]]
  ENDIF

```

```

;First element of the k'th contour

```

```

;Last element of the k'th contour

```

```

;Extract x-coords of k'th contour

```

```

;Extract y-coords of k'th contour

```

```

;Close contours, if needed

```

```

  x3 = r * COS(!DTOR*yc) * COS(!DTOR*xc)
  y3 = r * COS(!DTOR*yc) * SIN(!DTOR*xc)
  z3 = r * SIN(!DTOR*yc)
  PLOTS, x3, y3, z3, /T3D
ENDFOR

```

END

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