Subject: UTM mapping problems
Posted by sso on Thu, 11 Nov 2004 14:50:35 GMT
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I have a problem with the UTM map projection which I cant find any solution for. Perhaps someone could help? I want to plot a UTM map for an approx 300 km area (in x and y) with a model grid (58x74 cells) on top, and I compute the lat/lon of the grid cells. However, when overplotting this grid the grid lines become very uneven and nothing like a straighth line at all. Is there any way to avoid this? And why is it behaving like this? The program below shows the problem (at least on my screen!). I'm using IDL 5.5 (yes I know there are upgrades) for Unix, and the 'utm_to_ll' function was taken from Ben Tuppers UTM IDL utilities found on this newsgroup.

many thanks for any help!
Sverre Solberg

```
PRO Test_utm

;..Switch to black on white:
  loadct, 39
  !P.color   = 0
  !P.background = !D.n_colors-1

;..SW corner (WGS84 system):
  east  = 692089.d
  north = 3868229.d

  dx   = 5000.d
  nx   = 58 + 1
  ny   = 74 + 1
  zone = 34

;..compute the lon/lat coordinates of the grid cells:
  utmgrid = dblarr(nx, ny, 2)

  FOR ix = 0, nx-1 DO BEGIN
    FOR iy = 0, ny-1 DO BEGIN
      utmx = east  + ix*dx - dx/2
      utmy = north + iy*dx - dx/2
      IF KEYWORD_SET(utm) THEN BEGIN
        utmgrid(ix, iy, 1) = utmx
        utmgrid(ix, iy, 0) = utmy
      ENDIF ELSE BEGIN
```

```
            latlon = utm_to_ll(utmx, utmy, 'WGS84', zone = zone)
            utmgrid(ix, iy, 1) = latlon(0)
            utmgrid(ix, iy, 0) = latlon(1)
          ENDELSE
        ENDFOR
      ENDFOR

      lat0 = utmgrid(0, 0, 0)
      lon0 = utmgrid(0, 0, 1)
      lat1 = utmgrid(nx-1, ny-1, 0)
      lon1 = utmgrid(nx-1, ny-1, 1)

;..Draw UTM MAP WGS84 (Aka NAD83)
;     from Chuck Gantz via http://gpsy.com/gpsinfo/geotoutm.htm
;     taken from the idl newsgroups
;     assign constant values for WGS 84 datum for lat/lon to UTM
      A     = 6378137.d
      eccsq = 0.00669439d
      k0    = 0.9996d

      map_set, 0, 0, 12.7, /trans, limit = [lat0, lon0, lat1, lon1], $
        ellipsoid = [A, eccsq, k0], title = title
      map_continents, /coast, /hires, thick = 2

;..Draw the grid lines:
      FOR iy = 1, ny DO BEGIN
        x = utmgrid(*, iy-1, 1)
        y = utmgrid(*, iy-1, 0)
        oplot, x, y, color = 0
      ENDFOR
      FOR ix = 1, nx DO BEGIN
        x = utmgrid(ix-1, *, 1)
        y = utmgrid(ix-1, *, 0)
        oplot, x, y, color = 0
      ENDFOR

END
```