
Subject: Re: UTM mapping problems

Posted by [andrew.cool](#) on Thu, 11 Nov 2004 21:44:10 GMT

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sso@nilu.no (Sverre Solberg) wrote in message

news:<55f39a3a.0411110650.63c260ce@posting.google.com>...

> 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 straight 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
> Tupper's UTM IDL utilities found on this newsgroup.

>
> many thanks for any help!
> Sverre Solberg
>

Hi Sverre,

I don't think this is your fault.

If you comment out your plotting of the grid, and instead use IDL's own Map_grid with the Latdel and Londel keywords, then the same effect occurs. (See amendment to code below). So it's not just your coding at fault.

And if you remove the /trans, then the grid lines are wonderfully straight, though rotated. I suspect that there is an inherent problem in IDL's mapping routines in the way they handle Transverse Mercator and rotation.

Send your code to support@rsinc.com and say "What gives?" Or better still, search RSI's Tech Tips first.

Cheers,

Andrew
dot
Cool
at
dsto
dot
defence

dot
gov
dot
au

Adelaide, South Oz

```
>
> -----
>
> 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
>
lat_range = lat1 - lat0
lon_range = lon1 - lon0

latdel = lat_range/float(ny)
lonel = lon_range/float(nx)
map_grid,lonel=lonel,latdel=latdel,glinestyle=0

> ;..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

```

Subject: Re: UTM mapping problems

Posted by [andrew.cool](#) on Thu, 11 Nov 2004 22:22:28 GMT

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> Sverre Solberg

Sverre,

I see now that that this is a continuation of a post of yours from
July 2004 that Ben Tupper responded to.

For your info, I've tried iMap under IDL v6.1 to see if that would work
for you. Alas, this uncovered yet another bug in iMap itself, and I've
emailed you a copy of my bug report to RSI.

Perhaps you need to ask Ben if he's written up that book on IDL Mapping yet...

Andrew
