Subject: Plotting data spanning multiple UTM zones
Posted by tbowers0 on Thu, 06 Dec 2001 17:09:41 GMT
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I have 3D data (lat lon depth) over the Gulf of Mex. To plot this data as a volume with sensical axes labeling I need to convert my data lat/lon to UTM eastings/northings so its in meters cause my depth is in meters. Simple, just use Ben Tupper's handy ll_to_utm() to convert my data lat/lon bounds to meters and then viz passing my xdata ydata and zdata so's everything's perfect. Problem is my data spans 2 UTM zones and my conversion is like this

```
;set data lat/lon bounds, lower left indicated by
lonMinMax[0],latMinMax[0]
lonMinMax = [-90.500000, -84.500000] ;range of longitude
latMinMax = [28.385413, 31.000000] ;range of latitude
utmCoords = ll_to_utm(lonMinMax, latMinMax), ZONE=utmZone)

IDL> print, utmCoords
      744973.76       3142250.3 ;<-easting/northing of
southest/westest pt.
      738705.88       3432086.9 ;<-easting/northing of
northest/eastest pt.
IDL> print, utmZone
        15          16
```

Hmmm. Data points I passed are in 2 different zones. Notice the false easting of the southwest point is greater (more east) than that of the northeast point because, of course, the NE point is closer to its false origin than the SW point.

I'm kinda new to this UTM stuff, but I did find out that the middle of each zone is at 500,000. But, I don't think I can just add an offset of 1,000,000 for each zones easting/northing from the lowest zone since the zones are not rectilinear, e.g.:

```
minZone = min(utmZone, max=maxZone)
;add 10^6meters added for every zone's (false) easting from minZone
zoneOffsets = (utmZone[*] - minZone) * (1.0D*10D^6)
eastingMinMax = reform(utmCoords[0,*]) + zoneOffsets
northingMinMax = reform(utmCoords[1,*])
IDL> print, eastingMinMax
      744973.76       1238705.9
IDL> print, northingMinMax
      3142250.3       3432086.9
```

Plotting this gives a stretched data image. Mult. by 500,000 instead:

zoneOffsets = (utmZone[*] - minZone) * (0.5D*10D^6)

looks alot better, but is a kludge just to make it look good.

So, does anyone know how to do this in IDL?

Danke
