Subject: Help needed in remapping data using IDL
Posted by kaba on Tue, 04 May 2010 21:30:16 GMT
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Hello Guys, I am relative a new IDL programer who would appreciate some help in how to remap a sample data from satellite projection to Lambert Conformal.

Here are the detail of What I have done so far:

```
;;INPUTS are 2D- arrays of : DATA, LAT & LON   ;;; each 1600*600
 inproj = 7    ;Satellite projection
 indatum = 0   ; Clarke 1866
 yy=WHERE(LAT GE -90.0  AND LAT LE 90.0)
 zz=WHERE(LON GE -180.0 AND LON LE 180.0)

 inclat=MEAN(lat(yy))   & inclon=MEAN(lon(zz))         ;;input central
lat,lon
 inlimit=[MIN(LAT(yy)), MIN(LON(zz)), MAX(LAT(yy)), MAX(LON(zz))]
 LAT1=REVERSE(LAT,2) &  LON=REVERSE(LON, 2) &   DATA=REVERSE(DATA,
2)


;;;Desired output 2D ARRAY of DATA, LAT & LON  ;;each 1073* 689
;;; I want the LAT/LON values of the corners of the grid to be :

  outproj=104    ; /GCTP lambert conformal conic
  outdatum = 0   ; Clarke 1866
  outlimit=[238.4459,20.1919, 229.8965,49.9396, 299.1145,50.1054,
290.7919, 20.3317]
  outsp1 =  25.0   ; Out standard parallel 1
  outsp2 =  25.0   ; Out standard parallel 2
  outclat = 37.9   ; Out standard parallel 2
  outclon = -97.0  ; Out standard parallel 2


 ;;Define the malp projections

mapin=MAP_PROJ_INIT(inproj, ELLIPSOID=indatum,  CENTER_LATITUDE=inclat,
$
                CENTER_LONGITUDE=inclon, limit=inlimit)

mapout= MAP_PROJ_INIT(outproj,  /GCTP, ELLIPSOID=outdatum,
STANDARD_PAR1=outsp1,
                  STANDARD_PAR2=outsp2, CENTER_LATITUDE=outclat,
$
                   CENTER_LONGITUDE=outclon,
```

```
limit=outlimit)



;;;converting lat/lon to UV coord with some help from Mr. Fanning's
docs online
        xx=MAP_PROJ_FORWARD(LON(*,0), LAT(*,0),
MAP_STRUCTURE=mapout)
        yy=MAP_PROJ_FORWARD(LON(0,*), LAT(0,*),
MAP_STRUCTURE=mapout)

        xvec=REFORM(xx[0,*])        &  yvec=REFORM(yy[1,*])
        xhalf=(xvec[1]-xvec[0])/2.0  &  yhalf=(yvec[1]-yvec[0])/2.0
        xrange=[xvec[0]-xhalf, xvec[N_ELEMENTS(xvec)-1] +xhalf]
        yrange=[yvec[0]-yhalf, yvec[N_ELEMENTS(yvec)-1] +yhalf]
        newrange=[xrange[0], yrange[0], xrange[1], yrange[1]]


  ;;Question: I actually wanted to use “outlimit” which is an 8
element not 4, how
  ;;can I use that instead?



 ;;; Remap the data

timgout=MAP_PROJ_IMAGE(data,  MAP_STRUCTURE=mapin) ;,
UVRANGE=uvrange) ;  inlimit,   IMAGE_STRUCTURE=mapin,

imgout=MAP_PROJ_IMAGE(data,  newrange, MAP_STRUCTURE=mapout,
UVRANGE=uvrange,
                IMAGE_STRUCTURE=mapout)



When I plot this using on a window, the map projection looks right but
the data does not seem to be remapped correctly.
This is my first time using map_proj_init and map_pro_image. Please
help.

Thanks
```

Subject: Re: Help needed in remapping data using IDL
Posted by David Fanning on Wed, 05 May 2010 12:50:35 GMT
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kaba writes:

>
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> This is my first time using map_proj_init and map_pro_image. Please
> help.

It seems natural to want to work with latitude and
longitude coordinates when you are working with map
projections, but resist that thought! To do this kind
of reprojection properly, you want to be in XY space.
(IDL sometimes calls this UV space, but in any case
it is a rectangular space where things make a lot of
sense, as opposed to, say, lat/lon space where they
don't.)

Have a look at this article for additional information:

   http://www.dfanning.com/map_tips/warpimage.html

Cheers,

David

--
David Fanning, Ph.D.
Fanning Software Consulting, Inc.
Coyote's Guide to IDL Programming: http://www.dfanning.com/
Sepore ma de ni thui. ("Perhaps thou speakest truth.")