Subject: IDL projections (MAP_PROJ_IMAGE) and ENVI projections, Select spatial substets of images
Posted by sh on Sun, 06 Jun 2010 09:51:48 GMT
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Hi together,

I have a problem using map projections since I didn't get the same results for IDL and ENVI.

My task is to reproject an image in lat/lon's (WGS 84, Geographic lat lon) to mercator for Australia and show/save (*.png) only spatial defined subsets of this reprojected image. (And also define "bigger" spatial subset and pin the image on the right position)

I tested MAP_IMAGE and MAP_PROJ_IMAGE in IDL, but in both cases a had a problem with the output dimension. MAP_IMAGE seems to act in accordance with the predefined windows size and with MAP_PROJ_IMAGE it is possible to set it by yourself. On the contrary, ENVI makes a suggestion concerning the output pixelsize, but I didn't get it how ENVI calculates this output size.
So I guess the sampling rate and/or pixel size is responsible for the suggetion of ENVI?? Or even the distortion introduced by the map projection??

Anyway, for my further comparison between ENVI and IDL I used the output dimension suggested by ENVI to reproject the image. And to compare the results I made to plots with the coast lines, which in BOTH (!) cases didn't match (the result of ENVI was a little bit better somehow)

Now I have several questions/comments:

- I have seen that there are 2 libraries within IDL (IDL, GCTP), so I tested both of them. The only difference I realized was that you can't set an ellipsoid for the IDL (map_set) library. Which library uses ENVI??

- I use congrid to resize the image to a "plotable" size. Maybe this causes the shifting between the coastlines?

- How can I select a spatial subset from the image and plot it into a "bigger" spatial subset? e.g. to show only the east coast of australia but with new zealand (where no image data is available) I think the "problem" here is to find the right position?

- The images are correct but the coastlines are in a wrong projection??

Maybe some of you have already expierence with such tasks! Any help would be appreciated!

some lines of my code:

```
; to display IDL result

geographical_extend= [-39.5,112.5,-10.5,154.0]
range =
 [geographical_extend[1],geographical_extend[0],geographical_
extend[3],geographical_extend[2]]

; c is the image with the size 9960, 6960 and pixelspacing 0.00417°
map4 = map_proj_init(105, ellipsoid=8, limit=geographical_extend)
warped4 = map_proj_image(c, range, dimensions=[10983,7797],
map_structure=map4, uvrange=uvOut4, xindex=xindex4, yindex=yindex4)

window, /free, xsize=10983./10., ysize=7797./10.
disp=congrid(warped4, 10983./10., 7797./10.)
tv,reverse(disp,2)
plot, map4.uv_box[[0,2]],map4.uv_box[[1,3]],/NoData, XSTYLE=1,
YSTYLE=1,POSITION=[0,0,1,1], /noerase
map_continents, map_structure=map4
map_grid, map_structure=map4, londel=5, latdel=5


; to display ENVI result
infile = 'D:\temp\test.img'
read_envi_file, infile, img, xs, ys, type, offset, mapinfo,
STATUS=status

window, /free, xsize=10983./10., ysize=7797./10.
disp=congrid(img, 10983./10., 7797./10.)
tv,reverse(disp,2)
map_set, /mercator, limit=geographical_extend, /noerase, /
hires,xmargin=0, ymargin=0
map_continents,  /coasts, color=255, /hires
map_grid,  londel=5, latdel=5
```

cheers,
Sebastian