Subject: Re: how to make lat/long grid for MODIS in IDL
Posted by David Fanning on Wed, 30 Oct 2013 12:53:19 GMT
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dm_gty88 writes:

> Just for an example, using the file in http://www.idlcoyote.com/map_tips/warptomap.php, I have only peruimage. I want to generate peru_lat and peru_lon. How would I do that?

If you just have an image, you are hosed. But, suppose you have an image and the lat/lon of the four corner pixels and you know the map projection the image is in. Then, you are golden!

Imagine an image printed on a piece of paper. Then, imagine you have a piece of screen left over from when you repaired the front bedroom window. By an unbelievable coincidence, the grid of the screen is just exactly the size of one image pixel.

Lay the screen down over the image, and overlay the screen grid so that the edges of the grid are parallel to the sides of the image. Now, rotate both the paper with the image on it, and the screen that is aligned to the image so that the sides of the image are vertical from *your* perspective. Move them both together, don't change the alignment you had already established between the image paper and the screen.

What you are looking at now, is a projected meter rectangular grid overlaying your image. Each grid cell in the screen is overlayed exactly on an image pixel.

Now, set up your map projection with Map_Proj_Init (or, I would use cgMap, because I like to do things the easy way). Take your corner pixel lat/lon values and forward transform them into projected meter space. Take these numbers and label the paper with the image on it. Draw some axes while you are at it along the left and bottom of the image.

When you are finished, take your pen and connect the four corner pixels in clockwise order. You are looking, are you not, at a rectangular box in a XY coordinate system. And, you know the values of all four corners of the box. If you remember fourth grade math at all, it should be possible to figure how how to assign [x,y] position values to each of the screen grid cells inside the rectangle, given that you know *exactly* how many of them there are. If you don't, ask the image how big it is.

Each pixel now has a "location" in the XY grid. But, you want each pixel's "location" in latitude and longitude. Simply take your handy-dandy map projection object or function and *inverse* transform those XY locations back to latitude/longitude locations.

Whala! Finished!

Cheers,

David

--
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Coyote's Guide to IDL Programming: http://www.idlcoyote.com/
Sepore ma de ni thue. ("Perhaps thou speakest truth.")
