Subject: Re: ENVI_CONVERT_FILE_COORDINATES returning negative values
Posted by devin.white on Sat, 12 May 2007 18:25:55 GMT
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MODIS products generally come in one of two flavors: unprojected swaths (with geographic lat/lon information stored inside of the HDF) or projected grids (usually sinusoidal). All Level 1 and most Level 2 products are swaths. All Level 3 and Level 4 products are grids. Without opening a file to find out, a good general rule of thumb for determining which kind of product you are dealing with would be:

If the filename starts with MOD01, MYD01, MOD02, MYD02, MOD03, or MYD03 you are working with swath data. This also applies to prefixes that look something like this: MOD05_L2. Any prefix that contains "_L2" is a swath product. When this type of product is opened in ENVI, there will be no map information present because you are still working with the data in its original acquisition geometry. To associate map information with this type of product, the data must be reprojected by going to Map->Georeference MODIS.

If you can open your data directly in ENVI, and map information is present, you are probably working with a grid product. You might have to perform two x/y conversions if you want to find pixel locations based on geographic coordinates. The first would be to use ENVI_CONVERT_PROJECTION_COORDINATES to convert your lat/lon values into x/y sinusoidal coordinates. From there, you can send these new x/y coordinates into ENVI_CONVERT_FILE_COORDINATES to get your x/y pixel locations. I just looked at your file size, though, and it seems to be consistent with a reprojected Level 1B Radiance data cube. If that is the case, you'll definitely want to switch your x and y values as was suggested previously, but your image might be projected into UTM instead of Geographic Lat/Lon (that is the default in ENVI). If so, you'll still have to do the two x/y conversions to get the file coordinates you're interested in.

Enhanced support for MODIS data in ENVI is on the way, for those who might be interested. There is now a plugin for ENVI that can handle every known data set within every known MODIS product (more than 140 at last count), has the IDL equivalents of MRT and MRTSwath built in, and has a full programmatic interface--allowing for 100% customized batch processing of imagery (if desired). It's currently in beta form and has been distributed for testing within the ENVI user community to a limited extent. If anyone reading this is interested in becoming a tester, please send an email to support@ittvis.com with "MODIS Conversion Toolkit Beta Test" in the subject line. You must have access to ENVI 4.3 to use the plugin. The plugin will also be able to handle all known Ocean Color products (available online or generated through SeaDAS), but that part is not quite done yet. When everything

is complete, it will be available through the ITT VIS Code
Contribution site at first, but might end up as part of ENVI's core
distribution in the long run.

On May 11, 1:00 am, hanneli...@yahoo.co.uk wrote:
> Hi everyone, I'm a new ENVI/IDL user and hope to get some help here
>
> I am attempting to extract 3x3 pixel windows from MODIS images using
> lat/long coordinates. To do this I have
> -created two variables containing the latitude and longitude of the
> area I want to extract
> - opened the relevant image file (which has a related .hdr file with
> the map info of the image)
> - used the command [ENVI_CONVERT_FILE_COORDINATES, fid, XF, YF,
> xcoord, ycoord] to change from lat/long coordinates to pixel values
> (the xcoord= -35.406368 and ycoord=149.80322, XF and YF output was
> -30954 and -34019 respectively)
> - used the XF and YF output values to extract the 3x3 pixel window
> e.g.
> Output[0] = xcoord
> Output[1] = ycoord
> Output[2] = floor(XF)
> Output[3] = floor(YF)
> ; set the extent of the image you want to extract
> dims = [-1, Output[2]-1, Output[2]+1, Output[3]-1, Output[3]+1]
> ; retrieve the pixels
> data = ENVI_GET_DATA(fid=fid, dims=dims, pos=1)
>
> The XF and YF values that are generated are negative and much larger
> than the lines and samples of the image (7451x9580), so I am obviously
> doing something wrong.
>
> The location is in the Southern hemisphere, so the latitude that I
> provided has a negative value (e.g. -35) - I'm sure that is not the
> problem though.
>
> Could it be that the header information of the image is not read
> properly when the file is opened? Is there a way of displaying the map
> info saved in the header when the IDL program is run to check if it is
> read correctly? Or am I on the wrong track?
>
> I would really apprecite any pointers.
> Hannelie