Subject: Re: Need help with map projection conversion in IDL or ENVI
Posted by zcwjtt on Sat, 15 Mar 2014 03:08:02 GMT
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On Saturday, March 15, 2014 10:00:44 AM UTC+8, Paul Levine wrote:
> On 2014-03-15 01:06:42 +0000, zcw...@gmail.com said:
>
>
>
>> I've been fighting with this problem for days and have finally given
>
>> up on solving it myself. I hope that someone with more experience
>
>> manipulating maps in IDL/ENVI can offer me some advice and guidance.
>
>>
>
>> I have a geostationary satellite image file (actually many such files)
>
>> that is written as an hdf. The data in the file only have latitude and
>
>> longitude values corresponding to the pixels in the image in the file,
>
>> but without projection parameters.
>
>>
>
>> I guess it is the "Satellite" projection, since the ranges of latitudes
>
>> and longitudes covers a sphere.
>
>>
>
>> I would like to read partial data and change them to another projection
>
>> type, such as Mercator.
>
>> But I don't have any good idea where to start with.
>
>>
>
>> Any suggestions would be most welcome.
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>
> Based on what you said, I'm guessing the data are in an equirectangular

> projection https://en.wikipedia.org/wiki/Equirectangular_projection
>
>
>
> When selecting projections in ENVI, it is called "Geographic Lat/Lon".
>
> The only catch is, ENVI can only handle it if the latitude and
>
> longitudes between projections are equal (e.g., 1 degree by 1 degree).
>
> You need to know the latitude and longitude of any single pixel (what
>
> ENVI calls the "tie point") as well as where that single pixel is in
>
> the image. Usually, the bottom left pixel is used, so the image
>
> coordinates of the tie point are (1,1).
>
>
>
> In IDL, you would need to create latitude and longitude vectors, which
>
> you can then use in e.g. the image or countour function along with
>
> "grid_units = 2"
>
>
>
> If you could provide more details, in particular, the latitude and
>
> longitude values that are delivered in the hdf file, I or others may be
>
> able to provide more specific instructions

Thank you for kindly help, and sorry for my ambiguous information.
Here comes the detail:
I know the latitude and longitude of any single pixel as well as where that single pixel is in the image.
Actually I have a look-up-table, which tells lat/lon of any single pixel in the image, and the ranges (X length and Y length) of look-up-table equals to the pixels (X length and Y length) in the image.
I tried to Contour the look-up-table, and it showed two spheres (one is contour of the latitudes, the other is of longitudes).
So I guess it's a "Satellite" projection, I confirm it's not an equirectangular projection.
i.e.:
look-up-table looks like:
NAN NAN NAN LON NAN NAN NAN
NAN NAN LON LON LON NAN NAN

NAN LON ... LON ... LON NAN
LON LON ... LON ... LON LON
NAN LON ... LON ... LON NAN
NAN NAN LON LON LON NAN NAN
NAN NAN NAN LON NAN NAN NAN
so as the latitudes.

The problem is that I have lon/lat/value of every pixel in the image, but I don't know how to convert them into an projection, like the equirectangular projection. (maybe this is a question about interpolation)
In other words, I actually not care much about the original projection.
I would like to know the best method to project from the original lon/lat/values.

Thanks again.
