Subject: Re: Converting distance to degrees
Posted by Kenneth P. Bowman on Thu, 16 Jun 2011 13:32:44 GMT
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In article
<33651085-7428-4309-a843-8d4a6bb9f330@e17g2000prj.googlegroups.com>,
 Ashley Berg <ashley.berg@gmail.com> wrote:

> I have an ASCII grid of 1-km data values across the conterminous US,
> 4629 cols x 2931 rows. I was wondering if there is some kind of
> routine in IDL that will convert kilometers to degrees? I need to
> convert the 1-km data to a 0.5x0.5 degree grid.

Since the Earth is a sphere (approximately), it is
not possible to have a regular 1 km grid over any large area
of the Earth's surface.

You probably need to check with the data set's creator
to find out what kind of grid it really is.

Ken Bowman

Subject: Re: Converting distance to degrees
Posted by Ashley Berg on Thu, 16 Jun 2011 17:49:34 GMT
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Thanks for replying. I understand what you mean. It is 1-km
resolution data. While this dataset is square in the kilometer sense,
in the degree sense it is not. If I were to convert each point to a
lat/lon point, all rows would still have the same number of data
points and be 1-km apart, but on a map, the top row would span across
more longitude lines than the bottom row.

Using the radius of the Earth at each latitude in kilometers and using
the fact that it's 360 degrees around a latitude circle, I can
calculate how many kilometers divide into a degree at each latitude.
However, since the number of kilometers in a degree will not be an
integer number, I'm not sure if I can turn a 1-km resolution grid into
a degree grid after all.

On Jun 16, 7:32 am, "Kenneth P. Bowman" <k-bow...@null.edu> wrote:
> In article
> < 33651085-7428-4309-a843-8d4a6bb9f...@e17g2000prj.googlegroup s.com >,
> Ashley Berg <ashley.b...@gmail.com> wrote:
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> Ken Bowman

Subject: Re: Converting distance to degrees
Posted by Klemen on Fri, 17 Jun 2011 08:44:47 GMT
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Ashely,

the data you have are projected and transformation into another projection is not as easy as it seems. You have to first find out, in which map projections are your data. Check metadata, ask the data creator... Perhaps such a link might help:
http://egsc.usgs.gov/isb/pubs/MapProjections/projections.htm l

Then:
1. Use MAP_PROJ_INIT to define a structure for definition of your map projection.
2. Transform the location of your data from Chartezian XY into ellipsoid LON LAT coordinates using MAP_PROJ_INVERSE.
As your original data are quite detailed comparing to the results you might think of aggregating your original data into e.g. 25 km grid first. This will speed up the gridding in step 3 significantlly.
3. Grid the data using TRIANGULATE and GRIDDATA. In both cases use / SPHERE option.

See also this discussion:
http://groups.google.com/group/comp.lang.idl-pvwave/browse_t hread/thread/688e9587fa29ecb7/2f7820d787d6047f?hl=en&q=# 2f7820d787d6047f

Cheers, Klemen
