Subject: Re: contour discontinuity
Posted by David Fanning on Fri, 03 May 2013 13:20:26 GMT
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Sam writes:

> I have plotted a 2D latitude vs. Longitude contour. When I do it from -180 longitude to +180 longitude scale, it is coming perfect. Now I want the same plot to be shown in 0 to 360 latitude. But there is a white vertical band coming at 180 longitude (in the middle of the plot).

Before we start, I should tell you that the solution to this problem is rarely satisfactory. You would be well advised to learn to live with what you have now. :-)

In the Coyote Gallery, I have a plot named Contours on a Global Map. I'm going to use that data, which is different from yours, but will have the same problem. In my case, the longitude data vector goes from 0 to 357.5, and if I display the data with the center longitude at 180, all is well. If I want to display the data with the center longitude at 0, I find a gap in the center of the plot.

```
IDL> Restore, 'contours_on_global_map.sav' ; lat, lon, data
IDL> print, lon[0], lon[-1]
    0.000000      357.500
```

To correct the problem, I have to "complete the circuit" by wrapping the longitude vector back on itself. Since I am extending the longitude vector, I will have to do the same thing with the data (which is a 2D array with dimensions [lon,lat]).

```
IDL> lon = [lon, lon[0]]
IDL> print, lon[0], lon[-1]
    0.000000     0.000000
IDL> help, data
DATA           FLOAT     = Array[144, 73]
IDL> data = [data, data[0,*]]
IDL> help, data
DATA           FLOAT     = Array[145, 73]
```

Next, I have to convert my longitude vector to run from -180 to 180. You would do the opposite here. You can find the formulas for doing so in this article:

http://www.idlcoyote.com/map_tips/lonconvert.html

```
IDL>   t_lon = lon
IDL>   lon = t_lon - (LONG(t_lon )/180)*360.0
```

Now, when I create the filled contour the gap is gone and the result has me thinking that displaying the contours with 180 in center was probably a good idea. :-)

Cheers,

David
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David Fanning, Ph.D.
Fanning Software Consulting, Inc.
Coyote's Guide to IDL Programming: http://www.idlcoyote.com/
Sepore ma de ni thue. ("Perhaps thou speakest truth.")
