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
--
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.")

Subject: Re: contour discontinuity
Posted by Kenneth Bowman on Fri, 03 May 2013 13:46:28 GMT
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On 2013-05-03 10:35:07 +0000, Sam said:

> Hello,
>
> 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).
>
> I will be grateful for help.
>
> Thanks.

I suspect that you have the 'white stripe' in both cases, but it is obvious in the second case because it is in the middle of the plot.

You need to duplicate the first or last 'column' of your data so that it wraps all the way around the globe. Such as

```
data = [data, data[0,*]]
```

You probably also want to convert your longitudes from the [-180, 180] convention to [0, 360] and add an extra point at the end

```
lon = (lon + 360.0) MOD 360.0
lon = [lon, 359.999]
```

You can also avoid some map plotting artifacts by using SHIFT to shift your data and coordinates by 180 degrees so that the storage matches the plotting boundaries.

Ken Bowman

Subject: Re: contour discontinuity
Posted by Rosie on Mon, 06 May 2013 01:57:24 GMT
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Hello David and Ken,

Thank you so much for the help ! It worked perfectly alright !!

Regards

Subject: Re: contour discontinuity
Posted by Rosie on Tue, 28 May 2013 00:07:40 GMT
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On Monday, May 6, 2013 2:57:24 AM UTC+1, Sam wrote:
> Hello David and Ken,
>
>
>
> Thank you so much for the help ! It worked perfectly alright !!
>
>
>
> Regards

Hello,

I want to label only zero contour.I used c_levels=[0,0,0,1,0,0,0] say for a total of 7 levels. Sometimes, there is a overlap of that 0 value. How to get rid of that? Moreover, if I want that label as only '0' rather than 0.0, can I do that?

Regards,