
Subject: Re: Map Projections and Contour Plots.
Posted by [Martin Schultz](#) on Fri, 11 Jun 1999 07:00:00 GMT
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Grady Daub wrote:

>
> I have data that corresponds to latitude and longitude.
> example. data=40 , lat=20, lon=20
>
> How would I...
>
> ...make the correct arrays expected by CONTOUR?
> /IRREGULAR and TRIANGULATION work, but, I think they're
> causing problems.

Take a look at the TRIANGULATE procedure (it's been a while since I last used it, but it worked fine)

>
> ...smooth the contours?
>
> The documentation says something about MIN_CURVE_SURF, but, it > seems to need the same format array as CONTOUR.

Here you may want to consider TRIGRID which you can call after TRIANGULATE.

>
> ...plot the contours correctly over a map projection?
>

Take a look at David Fanning's web site at <http://www.dfanning.com/>

In general you need to MAP_SET your projection first, then overlay your CONTOURs with the /OVERPLOT option.

> When I try to CONTOUR over a map projection, I get some lines
> across the plot. The lines look like the contour tried to plot > from, say, longitude 180 to -180.

LONs and LATs have to be monotonically increasing for a contour plot. Default is -180 to 180 for a global map, but if you want to center your map say on the Pacific, you need to "convert" your longitude coordinates to e.g. 0 to 360. You can try my convert_lon program (attached) for this. It is called as

convert_lon,lon [, /ATLANTIC] [, /PACIFIC]
and makes sure you get longitudes modulo 360.

As for MAP_SET, you will need to set the P0Lon parameter so that it lies within your LIMIT range.

Finally (to complete the most prominent issues with contours on maps), if you plan to plot filled contours, there are occasions when you need the /CELL_FILL keyword *AND* CONTOUR will use the first fill color for values ABOVE your first threshold, i.e. you should add a very low number to your C_LEVEL specification if you have one.

Hope, this helps,
Martin.

>
> So far, I'm only able to put a map ONTO a CONTOUR, not the other way
> around. This doesn't help me when I want to use, say, /MOLLWEIDE.
>
> -Grady Daub
> GFDI
>
> To reply by email, please, remove "ZOOKS" and "MMER".

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