Subject: problem set
Posted by Martin Schultz on Mon, 12 Jan 1998 08:00:00 GMT
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Dear newsgroup readers,

Here's an example for the trickiness of contour plots, and I appreciate any help I can get to improve this thing:

First of all, it is almost impossible to describe what I see, therefore I put the current version of the problematic plots on our ftp server: ftp://www-as.harvard.edu/pub/exchange/mgs/idl_question.ps
It shows vertical profiles of 3 different atmospheric trace gases vs. latitude and longitude, respectively. The color fields in the background stem from a gridded POLYFILL output, and they are OK ...
... but it is hard to see a (scientific) message here. Therefore, I would like to superimpose contours on this plot (shown as black lines). Technically, this works fine. The trouble is the data, and the result:
(1) The contours are artificially closed near the boundaries of the plot, producing vertical lines which distract the reader,
(2) The sparcity of data in some areas obviously produces some "funny" looking results. In fact, if I use the MIN_VAL option in CONTOUR, I only get very few lines.
I already used the coarser grid which is shown as POLYFILL rectangles to smooth (average) the data, then resampling, triangulating and trigridding it to produce the contour plot. Use of the /IRREGULAR option in CONTOUR led to much worse looking results, and the /QUINTIC smoothing of TRIGRID did not have any positive effects either.

I know that there may be data which is practically impossible to visualize properly, and certainly aircraft data from atmospheric field missions is a very good candidate for this: trace gas concentrations often vary over orders of magnitude over the region, the flight track of an airplane is only a line in a 3D volume, re-visiting the same place at a different time may give completely different results. Yet, since the tax payer has spent so much money on collecting the data in the first place (and one can draw valuable conclusions from it, indeed), it would be desirable to produce figures that show things nicely. So, if anyone has experience with similarily ill-behaved data, please let me know what you do.

Thanks,
Martin.

PS: David, if you tell me "That's all in my book", then I am (almost) ready to buy it ;-)

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