Subject: Co-Linear Contour Points
Posted by doyle on Tue, 16 Sep 2003 20:03:01 GMT
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I'm trying to plot a contour and am getting an error that tells me my points are co-linear. I'm not exactly sure what's going on so I figured I'd appeal to you people. I've tried lots of different things (including searching through the archives, but to no avail) but here's the current version of the code. The darkinfo structures contain latitudes and longitudes and the g_flux is what I'm trying to map (electron count rates). The order here is that which everything gets plotted in my code. I left out some stuff in between so as to not bog things down with too much code.

```
map_set,/goodes,/continents,title='Dark Area Count Rates For Mapping
The SAA'

plots,darkinfo.sc_lon,darkinfo.sc_lat,psym=3,$
  color=fix(alog10(darkinfo.g_flux))+1

z=darkinfo.g_flux
x=darkinfo.sc_lon
y=darkinfo.sc_lat

contour,z,x,y,/irregular,/overplot
```

Thanks in advance

Nate

Subject: Re: Co-Linear Contour Points
Posted by Chris Lee on Wed, 17 Sep 2003 08:16:50 GMT
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In article <ae902fd4.0309161203.125f6b7b@posting.google.com>, "Nate Doyle" <doyle@lasp.colorado.edu> wrote:

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> points are co-linear. I'm not exactly sure what's going on so I figured
> I'd appeal to you people. I've tried lots of different things
> (including searching through the archives, but to no avail) but here's
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> latitudes and longitudes and the g_flux is what I'm trying to map
> (electron count rates). The order here is that which everything gets
> plotted in my code. I left out some stuff in between so as to not bog
> things down with too much code.

> map_set,/goodes,/continents,title='Dark Area Count Rates For Mapping The
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> plots,darkinfo.sc_lon,darkinfo.sc_lat,psym=3,$
> color=fix(alog10(darkinfo.g_flux))+1
> z=darkinfo.g_flux
> x=darkinfo.sc_lon
> y=darkinfo.sc_lat
> contour,z,x,y,/irregular,/overplot
> Thanks in advance
> Nate

It usually means that you probably don't have irregularly gridded data.
The error is being generated by the TRIANGULATE procedure, from the IDL
help file...
"
Setting IRREGULAR is the same as performing an explicit triangulation. That is:

CONTOUR, Z, X, Y, /IRREGULAR

is the same as

TRIANGULATE, X, Y, tri ;Get triangulation
CONTOUR, Z, X, Y, TRIANGULATION=tri
"

If you try TRIANGULATE(ing) the data yourself it will complain that the
data is co-linear, this mean that the data points are regularly spaced
(at least, that's the only way I can get the error), if you have

x=[1,2,3,4,5,6,7,8]
y=[1,2,3,4,5,6,7,8]

triangulate, x,y, tri=tri
;...points are co-linear error

x=[1,2,3,4,5,6,7,8]
y=[1,2,3,4,5,6,7,9] ;note the _9_
triangulate, x,y, tri=tri
;no error.

.....
;;;;;;;;;;;
The IRREGULAR keyword is used if you have (say) 50
measurements at 50 different x and y values. Not when you have 2500
measurements (with 50 measurements at each of 50 different latitudes
etc.)

You should check the dimensionality of z,x and y. My guess is that

z=z(n_x,n_y), x=x(n_x), y=y(n_y)

and not

z=z(n), x=x(n), y=y(n)

Chris.

Subject: Re: Co-Linear Contour Points
Posted by David Fanning on Wed, 17 Sep 2003 13:54:17 GMT
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Nate Doyle writes:

> I'm trying to plot a contour and am getting an error that tells me my
> points are co-linear. I'm not exactly sure what's going on so I
> figured I'd appeal to you people.

I see you are not being flooded with answers. :-)

That's probably because the universe of "what's going on"
for this particular question is quite a bit larger than
it is for most typical answers in this newsgroup.

Basically, your data is co-linear, but you already
knew that. :-)

The question is: why? And that is hard to answer.
Maybe your data really is in a straight line. Have
you looked at it in some other way? Maybe you have
two points that are identical. Have you checked for
that?

The CONTOUR command requires gridded data. Your
data is being gridded by TRIANGULATE and TRIGRID.
Sometimes this kind of error message is created
when the /SPHERICAL keyword is used on TRIGRID.
(I don't know why.) I wonder if this keyword gets
set when you are overplotting on a map projection.
(I don't know how to test this.)

In any case, I would try gridding the data myself.
First with the TRIANGULATE/TRIGRID method, and then,
if necessary, with GRIDDATA.

Another way to (sometimes) shake this problem loose

is to add a tiny bit of random location data to your
coordinates.

I don't know if one or any of these suggestions
might help. But maybe you will get a couple of ideas.

Cheers,

David

--
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