Subject: Re: problem with TRIANGULATION option in CONTOUR
Posted by ben.bighair on Tue, 26 Oct 2010 11:31:20 GMT
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On 10/26/10 2:04 AM, Ardhuin wrote:
> On 26 oct, 02:54, David Fanning<n...@dfanning.com> wrote:
>> Ben Tupper writes:
>>> When I load the data you have posted and generate the triangulation I
>>> get a different number of triangles than you. You can see this in the
>>> output of help - note that tri2 has 19160 vertices. Also, you clip the
>>> maximum Z value when you use TRIGRID but you don't specify it for
>>> CONTOUR. I don't know if these are important issues, but perhaps you
>>> are unwittingly comparing apples to oranges?
>
> Hi, yes, obviously: the TRIANGULATE command will make more triangles
> because it will also fill the land, which I do not want. So, why is my
> set of triangles not working in contour ?? That looks like a bug to
> me.
>
> And if I try
> CONTOUR,Z,X,Y,xstyle=5,ystyle=5, TRIANGULATION=TRI,/CELL_FILL,
> MAX_VALUE=10000.
>
> I still get the same error:
> % Out of range subscript encountered:<LONG Array[66453]>.
> % Execution halted at: $MAIN$
>

Hi,

Actually, in defense of my own (blissful) ignorance, it is not obvious that the triangulation is anything other than what might be produced by TRIANGULATE.

OK, your TRI triangles have been screened already - those edges that cross the land have been pulled out of TRI but they still reside in the triangulation that TRI2 contains. I can see that if I do this...

```
PRO OPLOT_TRI, x,y,triangles, _EXTRA = extra

   COMPILE_OPT IDL2

   FOR i = 0, N_ELEMENTS(triangles)/3 - 1 DO BEGIN

      t = [triangles[*,i], triangles[0,i]]
      PLOTS, x[t], y[t], _EXTRA = extra
```

```
   ENDFOR

END

.compile oplot_tri
plot, x,y, xrange = rangex, yrange =rangey, psym = 6
oplot_tri, x,y,tri, psym=-3  ;  <---- your triangles

window,/free
plot, x,y, xrange = rangex, yrange =rangey, psym = 6
oplot_tri, x,y,tri2, psym=-3  ;  <---- TRIANGULATES triangles
```

When you contour using the triangulation, the CONTOUR routine is expecting TRIANGULATE's triangulation, not a modified one. At least that is what the documents state:

"TRIANGULATION

Set this keyword to a variable that contains an array of triangles returned from the TRIANGULATE procedure. Providing triangulation data allows you to contour irregularly gridded data directly, without gridding."

TRIGRID on the other hand, looks like it only needs the triangulation in the same form as that provided by TRIANGULATION, but it doesn't need to be from TRIANGULATE. Here's what it's docs state:

"Triangles

A longword array of the form output by TRIANGULATE. That is, Triangles has the dimensions (3, number of triangles) and, for each i, Triangles[0,i], Triangles[1,i], and Triangles[2,i] are the indices of the vertices of the i-th triangle."

So, it looks like TRIGRID is loose enough to work with what you give it, but CONTOUR is much more rigid in its expectations. At this point, your probably saying, "What is it with these dopes! I have been saying that all along!" Well, free help probably isn't worth some much nowadays.

How did you clip the triangulation to begin with? Did you even use TRIANGULATE to compute the triangles?

Ben