
Subject: Re: GRIDDATA woes

Posted by [wgallery](#) on Mon, 03 Mar 2008 19:00:55 GMT

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On Mar 2, 9:57 pm, "ben.bighair" <ben.bigh...@gmail.com> wrote:

> Hi All,

>

> I have been having a problem similar to this one...<http://tinyurl.com/2spe3v>

>

> The solution to the problem in the above posting was to use GRID_INPUT
> to filter and reorder the data *before* calling QHULL and GRIDDATA.

> That doesn't seem to be the case this time as I faithfully perform
> these steps. However, the error message indicates that it is

> something similar is going on.

>

> The big picture is that I have an irregular grid (actually it is
> regular in longitude but irregular in latitude) that I want to
> interpolate onto a regular grid. I have assembled a mockup of the
> situation in this procedure...http://www.tidewater.net/~pemaquid/counterclockwise_fail.pro

>

> The error message when the above is run is ...

>

> SeaDAS> z=counterclockwise_fail()

> % GRIDDATA: Triangle 5 not in counterclockwise order.

> % GRIDDATA: Triangle 6 not in counterclockwise order.

> % GRIDDATA: Triangle 7 not in counterclockwise order.

> % GRIDDATA: Triangle 17 not in counterclockwise order.

> % GRIDDATA: Triangle 30 not in counterclockwise order.

> % GRIDDATA: Triangle 31 not in counterclockwise order.

> % GRIDDATA: Triangle 34 not in counterclockwise order.

> % GRIDDATA: Triangle 40 not in counterclockwise order.

> % GRIDDATA: Triangle 42 not in counterclockwise order.

> % GRIDDATA: Triangle 49 not in counterclockwise order.

>

> I have tried changing the values in the code to double. That results
> in a similar set of errors but for a different set of triangles.

>

> % GRIDDATA: Triangle 4 not in counterclockwise order.

> % GRIDDATA: Triangle 5 not in counterclockwise order.

> % GRIDDATA: Triangle 6 not in counterclockwise order.

> % GRIDDATA: Triangle 16 not in counterclockwise order.

> % GRIDDATA: Triangle 33 not in counterclockwise order.

> % GRIDDATA: Triangle 35 not in counterclockwise order.

> % GRIDDATA: Triangle 36 not in counterclockwise order.

> % GRIDDATA: Triangle 39 not in counterclockwise order.

> % GRIDDATA: Triangle 42 not in counterclockwise order.

> % GRIDDATA: Triangle 45 not in counterclockwise order.

>

> Bah!

>

> I have seen a number of messages on the newsgroup about interpolation

> from an irregular grid to a regular one. None appear to address the

> issues around gridding on a sphere. I don't think I can use anything

> as simple as INTERPOLATE since the input array is sampled at irregular

> intervals.

>

> So how is this kind of interpolation supposed to be done?

>

> Thanks!

> Ben

>

> ** Structure !VERSION, 8 tags, length=76, data length=76:

> ARCH STRING 'ppc'

> OS STRING 'darwin'

> OS_FAMILY STRING 'unix'

> OS_NAME STRING 'Mac OS X'

> RELEASE STRING '6.3'

> BUILD_DATE STRING 'Mar 23 2006'

> MEMORY_BITS INT 32

> FILE_OFFSET_BITS

> INT 64

Ben,

1. There is an error in your routine to generate longitude.

```
;;lon = FINDGEN(nLon)/(nLon-1) * PS[0] + lonRange[0]
lon = findGEN(nLon) * PS[0] + lonRange[0]
```

Otherwise, lon has only two unique points

2. Try using the first form of grid_data: without /sphere:

```
;filter and reorder the data
;;GRID_INPUT, lon, lat, zValue, xyz, newZ, /SPHERE, /DEGREES, EPSILON
= PS[0]/2.0
GRID_INPUT, lon, lat, zValue, x1, y1, newZ, /DEGREES, EPSILON = PS[0]/
2.0
```

```
;build the triangulation
;;QHULL, xyz[0,*], xyz[1,*], tr, /DELAUNAY
QHULL, x1, y1, tr, /DELAUNAY
```

```
;interpolate
;;Z = GRIDDATA(xyz[0,*], xyz[1,*], newZ, /SPHERE,/DEGREES, $
Z = GRIDDATA(x1, y1, newZ, /SPHERE,/DEGREES, $
```

```
METHOD = "NaturalNeighbor", MISSING = !VALUES.F_NAN, $  
XOUT = oLon, YOUT = oLat, TRIANGLES = tr )
```

You will no longer get the dreaded "Triangle 0 not in counterclockwise order" error.

Cheers,

Bill Gallery
