
Subject: Re: GRIDDATA woes

Posted by [ben.bighair](#) on Wed, 05 Mar 2008 03:14:26 GMT

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On Mar 4, 6:58 pm, David Fanning <n...@dfanning.com> wrote:

> Bill Gallery writes:

>> On the other hand, I don't understand the implications of the /sphere

>> option: without it, you appear to be interpolating on a flat surface.

>> What happens near the poles? What about crossing the meridian from 359

>> deg to 0 deg? I never investigated these question. Perhaps you can

>> elucidate them in your white paper.

>

> Yes, exactly my plan, but at the moment it looks like I will have to

> re-write GRIDDATA from scratch in order to understand it. :-(

>

> I always get an ominous feeling when I've asked the same

> question three or four times and get nothing but silence

> back. An obvious topic for a Ph.D. thesis, is my first

> thought. In this case, I was hoping the author might be

> listening in and could tell us why he added the darn

> SPHERE keyword in the first place. Surely he had something

> other than confounding users in mind. :-)

>

Hi,

I updated the example code using Bill's suggestions and a small twist...

http://www.tidewater.net/~pemaquid/ccw_fail.pro

This test function now allows you to specify the triangulation method ("qhull" or "triangulate") and the /SPHERE keyword. Here's the results using the different keyword combinations...

```
SeaDAS> z = ccw_fail(olon = olon, olat = olat, trimethod = "qhull",  
sphere = 0) ;works
```

```
SeaDAS> z = ccw_fail(olon = olon, olat = olat, trimethod = "qhull",  
sphere = 1) ;doesn't work
```

```
% GRIDDATA: Triangle 5 not in counterclockwise order.
```

```
% GRIDDATA: Triangle 6 not in counterclockwise order.
```

```
.  
.
.
```

```
SeaDAS> z = ccw_fail(olon = olon, olat = olat, trimethod =  
"triangulate", sphere = 0) ;works
```

```
SeaDAS> z = ccw_fail(olon = olon, olat = olat, trimethod =  
"triangulate", sphere = 1) ;works
```

QHULL and TRIANGULATE use different algorithms, so I suppose it is reasonable that they produce different outputs. So, I compared the results of each and sure enough they are different...

```
QHULL, lon, lat, qtr, /DELAUNAY  
TRIANGULATE, lon, lat, ttr, /DEGREES  
help, qtr, ttr  
QTR      LONG    = Array[3, 744557] ;QHULL's triangulation  
TTR      LONG    = Array[3, 742122] ;TRIANGULATES  
triangulation
```

So, I am not sure what to think. The locations are specified to be on a grid it is unlikely that the issue is duplicates points (within some tolerance). For grins I called QHULL with the SPHERE keyword assigned...

```
QHULL, lon, lat, sqtr, /DELAUNAY, SPHERE = s  
help, sqtr  
SQTR      LONG    = Array[3, 744578]
```

Hahaha! Time to call it quits for the day!

Cheers,
Ben
