Subject: Re: Random problem with Delaunay triangulation Posted by Haje Korth on Tue, 11 Sep 2007 18:59:17 GMT

View Forum Message <> Reply to Message

Bill,

you just hit a nerve with me. I thought I was the only one having those trouble. I would love to find out where this error comes from and how to prevent it. The problem drove me to going external and using ssrfpack and stripack from netlib to do spherical interpolation. This method is not fool proof either but at least this way I have the source code and can find out why an error occurs and, more important, I can determine what it actually means.

Anyway, this response won't help you much in solving your problem but supports your case for better documentation of the interpolation routines (I previously suggested to ITTVIS to write a tutorial on the subject) or, at the least, more meaningful error messages. (The folks at ITTVIS do read this newsgroup.)

Good luck, Haje

```
"Bill Gallery" <wgallery@aer.com> wrote in message
news:1189535983.796705.67590@o80g2000hse.googlegroups.com...
> I am interpolating satellite data (lat, lon, temperature) from a
> irregular grid to a regular lat, lon grid using:
>
> pro get gridded temp image, ....
> .
> .
> grid_lat=findgen(31)*2.0+30.0 ;30 to 90 deg @2 deg
  grid_lon=findgen(181)*2.0
                                 ;0 to 360 deg @2 deg
> qhull, x, y, tri, /delaunay, sphere = s
 temp_grid = griddata(x, y, z, /sphere, /deg, $
               /grid, xout = grid_lon, yout = grid_lat, $
>
               method = 'NaturalNeighbor', $
>
               triangles=tri, $
>
               missing = !values.f nan)
>
>
  where x,y are longitude, latitude, and z is temperature (patterned
  after Example 5 in the IDL help for griddata.pro)
>
Usually this procedure works fine, over thousands of different cases.
 However, today I tried it and got the error message:
> GRIDDATA: Triangle 652 not in counterclockwise order.
```

```
> Execution halted at: GET_GRIDDED_TEMP_IMAGE 184
>
> The ranges of the input variables are (mve is a routine that prints
 the stats on a variable):
>
> IDL> mve,x
   Variable type
                      mean
                               std dev
                                          minimum
> maximum n_elements NaN or I
        Float
                  178.55
                             102.79
                                      0.070000
>
> 358.05 (529) = 529
                           0
> IDL> mve,y
  Variable type
                               std dev
                                          minimum
                      mean
 maximum n_elements
                          NaN or I
        Float
                  54.660
                             19.100
                                       20.340
>
> 82.930 (529) = 529
                           0
> IDL> mve,z
   Variable type
                               std dev
                                          minimum
                      mean
  maximum n elements
                          NaN or I
        Float
                  214.63
                             9.7416
                                        192.56
> 233.31 (529) = 529
                           0
> IDL> mve, tri
  Variable type
                               std dev
                                          minimum
                      mean
> maximum n_elements
                          NaN or Inf
> Longword integer
                        249.43
                                   149.12
                                             0.00000
> 528.00 (3,966) = 2898
                              0
>
>
  Note: I tried the routine sph scat which is also advertised to regrid
  on a sphere. However, the interpolated values are way off scale:
>
 IDL > r = sph scat(x,y,z,bounds=[0,30.0,360,90],qs=[2,2],bout=bout)
> IDL> mve,r
  Variable type
                      mean
                               std dev
                                          minimum
 maximum n elements
                           NaN or Inf
    Double float
                     208.09
                               96.313
                                         -480.31
>
  869.93 (181,31) = 5611
                                0
>
>
  Any suggestions on how to trouble shoot, fix?
>
  Thanks,
 Bill Gallery
>
```