Subject: Re: Random problem with Delaunay triangulation - Correction
Posted by wgallery on Wed, 12 Sep 2007 15:19:43 GMT
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On Sep 12, 9:38 am, "ben.bighair" <ben.bigh...@gmail.com> wrote:
> On Sep 12, 8:14 am, "Haje Korth" <haje.ko...@nospam.jhuapl.edu> wrote:
>
>
>
>> Bill,
>> what you describe seems to pretty much the story of my life with spherical
>> interpolation in IDL. Basically, I can find after some playing around a fix
>> for a particular data set only to find that the fix was not universal enough
>> and the next interpolation with another data set would blow up again. There
>> must be a certain set of underlying rules for the IDL spherical
>> interpolation routines. If one would know them, the data set could be
>> massaged appropriately to avoid the problem. My experience is though that
>> this goes beyond the $64,000 question.So any enlightenment is appreciated
>> here.
>
>> Haje
>
>> "Bill Gallery" <wgall...@aer.com> wrote in message
>
>> news:1189547798.290652.299080@b32g2000prf.googlegroups.com.. .
>
>>> On Sep 11, 5:15 pm, Bill Gallery <wgall...@aer.com> wrote:
>>>> On Sep 11, 3:27 pm, "Haje Korth" <haje.ko...@nospam.jhuapl.edu> wrote:
>
>>>> > Bill, here a practical tip: Have you tried to randomly reshuffle your
>>>> > input
>>>> > data? Does this make a difference? H.
>
>>>> > "Haje Korth" <haje.ko...@nospam.jhuapl.edu> wrote in message
>
>>>> >news:fc6oi5$ei3$1@aplnetnews.jhuapl.edu...
>
>>>> > > Bill,
>>>> > > you just hit a nerve with me. I thought I was the only one having
>>>> > > those
>
>>>> Haje,
>
>>>> I did not try reshuffling the input data, but did find a fix.
>>>> Originally, the input data had a minimum latitude of 30.0 deg N and
>>>> the specified regular grid also had a minimum latitude of 30.0. When
>>>> I expanded the input data to have a minimum latitude of 20 deg N, the
>>>> error message went away. Apparently you need data outside the area of

>>>> interest for the interpolation to be robust.
>
>>>> Further experimentation showed that when the minimum latitude of the
>>>> input data was 30. deg, the interpolated values at 30 deg for the
>>>> cases that did not fail showed large excursions from expected values.
>>>> This may be partially due to the nature of the input data, which is
>>>> poorly sampled below ~40 deg N (temperature data from the SABER
>>>> instrument on the TIMED satellite.)
>
>>>> Does anyone has any experience with the relative merits of the
>>>> following routines for interpolation on a sphere?
>
>>>> 1. qhull and griddata
>
>>>> 2. sph_scat.pro
>
>>>> 3. triangulate and trigrid
>
>>>> Bill
>
>>> Correction, expanding the input data did not correct the problem: I
>>> got the same message from a different case.
>
>>> Puzzled
>
>>> Bill Gallery
>
> Hi,
>
> I have not done much with spherical data and interpolation, but I
> found the GRID_INPUT routine helpful when using plain-old-flat-earth
> gridding. It might be worth running the data through that first.
>
> Cheers,
> Ben

Brilliant!

The data had duplicate points I wasn't aware of. grid_input eliminated
them and solved the problem.

Thanks,
Bill