Subject: Re: Bounding
Posted by Ben Tupper on Tue, 09 Nov 1999 08:00:00 GMT
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<!doctype html public "-//w3c//dtd html 4.0 transitional//en">
<html>
Brian wrote:
<blockquote TYPE=CITE>I am looking for some help with interpolating a surface
from ungridded

data points. I have several thousand measurements in a river
with

corresponding latitudes and longitudes for each of the points.
I would

like to make a surface of these data, but have run into a small

problem. I have been using a combination of TRIANGULATE and TRIGRID
to

grid the data into a surface, however I end up with data being

interpolated outside the bounds of the river. Is there any way
to bound

the resulting grid to only include data within the river banks?</blockquote>

<p>
I have bumped into the same problem with marine surveys around irregular
coastlines.   I usually have difficulty with concavity in the
horizontal scatter of the data.   If the data is scattered
in a convex hull pattern, use the boundary nodes (from boundary keyword
to triangulate ....
<p>   "B An optional, named variable that, upon return,
contains a list of the indices of the boundary points in counterclockwise
order.")
<p> to limit the extrapolation.   Unfortunately, river
bends will introduce a concavity into that outer hull. The best solution
I have come up with is to manually digitize a polygon shape around the
ROI that I want to keep and mask all points outside the polygon.
If the riverbanks are well mapped (vectorized), you maybe able to lift
the riverbank coordinates from your dataset and use those values.
It's a brute force solution but has worked well so far. I really
would like to solve this problem differently.
<blockquote TYPE=CITE>Also,is there any way to determine a variance associated
with the

interpolation?

 </blockquote>
I'm not sure what you mean.   You can interpolate the gridded
value for the original X, Y locations and then perform statistics on the
interpolated values vs. the original data values.
<p>Hope it helps,

Ben
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