Subject: Bounding
Posted by Lazzar on Tue, 09 Nov 1999 08:00:00 GMT
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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? Also, is there any way to determine a variance associated with the interpolation?

Thanks for any help you can provide,

Brian

Subject: Re: Bounding
Posted by Michael Asten on Fri, 12 Nov 1999 08:00:00 GMT
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Brian wrote:

> 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?

Ive seen it done very efffectively using a mask on the grid . As I recall the logic used was like this (pseudo code).

gridded data is n points in vectors xgrid,ygrid,zgrid
raw data is m points at locations given by vectors xdata,ydata
cell_size is length of edge of grid cell
no_value =-1.e10 ; is a flag value which is ignored when contouring

```
dmin=fltarr(n)
for i=0,n-1 do begin
  d=   sqrt(  (xgrid(i)-xdata)^2 + (ygrid(i)-ydata))^2   ) ; vector length m
of distances
  dmin(i)=min(d)
```

```
endfor
b=where(dmin gt cell_size)  ; grid points which are too far from any
measurement point
if b[0] ne -1 then zgrid[b]=no_value ; kill them

contour,zgrid,xgrid,ygrid,min_value=-1.e9

end
```

Ive been meaning to implement it for some time. I'll be interested to know whether
Ive got the logic right.

Regards,
Michael Asten
