Subject: Re: triangulating over undefined space in irregular grids
Posted by bjelley on Wed, 26 Mar 2008 16:00:13 GMT
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An original plot of the irregular grid coverage (from another plotting source) can be seen here: http://www.worldwindsinc.com/uploads/grid.PNG

A good example of the problem can be seen here: http://www.worldwindsinc.com/uploads/example_wind.PNG

Subject: Re: triangulating over undefined space in irregular grids
Posted by Kenneth Bowman on Wed, 26 Mar 2008 16:48:43 GMT
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In article <419932f8-47d6-4822-aa67-6f6e235ef003@n77g2000hse.googlegroups.com>, bjelley@worldwindsinc.com wrote:
> The setup: I am trying to contour plot a number of variables for a
> storm surge grid that has up to 10 km resolution in the open Atlantic,
> yet has 8 meter resolution in New Orleans area waterways. The grid
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You might also have some round-off problems, as your grid spacing spans
4 orders of magnitude 10 to 10^4 m. Are your inputs double precision?

Your best bet may be to learn how to use object graphics polygon objects,
but I'm afraid I can't help you there.

Ken Bowman

Subject: Re: triangulating over undefined space in irregular grids
Posted by bjelley on Wed, 26 Mar 2008 19:57:08 GMT
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On Mar 26, 11:48 am, Kenneth Bowman <k-bow...@tamu.edu> wrote:
> In article < 419932f8-47d6-4822-aa67-6f6e235ef...@n77g2000hse.googlegroup s.com >,
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I'll share how that goes.

Subject: Re: triangulating over undefined space in irregular grids
Posted by ben.bighair on Wed, 26 Mar 2008 20:10:04 GMT
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Hi,

Wow! What a great problem!

I think it is worth pursuing the FAULT_POLYGONS feature of GRIDDATA. I suggest that you run your points through GRID_INPUT first - these can be calculated once and then saved for reuse just like the triangulation can be saved.

Out of enterprising ignorance I have occasionally introduced sample locations over undefined regions like land. To these locations I assign whatever the "missing" value is (like NaN). The nice thing about that is that the triangulation doesn't have to draw line segments that cross undefined regions (like Florida). But I never did that for a problem this scale.

It will be very interesting to know how you resolve this - so I am glad you will share.

Cheers,
Ben

Subject: Re: triangulating over undefined space in irregular grids
Posted by bjelley on Thu, 27 Mar 2008 17:26:38 GMT
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On Mar 26, 3:10 pm, "ben.bighair" <ben.bigh...@gmail.com> wrote:
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An update:

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Last question for the moment: Is there a way to dictate a polygon of inclusion (the mainland and open Atlantic boundary) and also numerous polygons of exclusion (islands)? That would be useful.

Subject: Re: triangulating over undefined space in irregular grids
Posted by David Fanning on Thu, 27 Mar 2008 17:34:35 GMT
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bjelley@worldwindsinc.com writes:

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> on and show us an elegant 2 lines to handle it all. I like his
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I can assure you, David Fanning doesn't have a clue
what any of your are talking about in this thread!
Just the *idea* of polygons makes his eyes glaze over.

Cheers,

Coyote

--
Coyote, Chief Honcho
Fanning Software Consulting, Inc.
Coyote's Guide to IDL Programming: http://www.dfanning.com/
Sepore ma de ni thui. ("Perhaps thou speakest truth.")

Subject: Re: triangulating over undefined space in irregular grids
Posted by ben.bighair on Thu, 27 Mar 2008 19:56:14 GMT
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On Mar 27, 1:26 pm, bjel...@worldwindsinc.com wrote:
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Hi,

I am not clear on this last question. As I understand things, the interpolation does not occur across a fault. So if you have an "island" there will be interpolation within the island that is independent of the interpolation outside of the island.

As far as the FAULT_XY thing, I think you simple concatenate the XY coordinates pairs for fault1 to fault2, ...

Some thing like this...

```
;the polygons
xy1 = [[1.0, 1.0], [2.0, 2.0], [2.0, 0.0], [0.0,0.0]]
xy2 = [[0.0, 1.0], [3.0, 1.0], [2.5, 4.0], [1.0, 4.0], [0.0, 2.5]]
;paste the together
fault_xy = [[xy1],[xy2]]
n1 = SIZE(xy1, /N_ELEM)/2
n2 = SIZE(xy2, /N_ELEM)/2

;start the poly description - terminate with -1
fault_poly = [n1, LINDGEN(n1),-1]
;determine the size of the poly descriptor
np = SIZE(fault_poly, /N_ELEM)
;add the second polygon descriptor
fault_poly = [fault_poly[0:np-2], n2, LINDGEN(n2) + np-2, -1]
```

Cheers,
Ben
