Subject: Re: Radar Gridding Advice Sought
Posted by Paul Van Delst[1] on Wed, 09 Jul 2008 14:11:07 GMT
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David Fanning wrote:
> Folks,
>
> An answer by Paolo this morning reminded me I could
> use some help on a problem.
>
> I have some radar data in the form of rays of a particular
> angle and radius. If I simply plot the rays, I get a pie-shaped
> wedge, with lots of white space between rays that increases
> as I get further from the point of the wedge. My goal
> is to clean this up and have the wedge look more like
> an image.
>
> One method I've tried successfully is to create small
> polygons for each piece of the wedge and to fill those
> polygons with the right color with POLYFILL. This works
> a treat, but is slower than I would like.
>
> So, in my free moments (not too many lately!) I have
> been thinking about somehow regridding this ray data into
> an image-like thing, but I am not sure how to go about
> this. With my polygons, the area of each polygon
> increases as something like the square of the radius,
> so obviously I need to take this into consideration
> as I create and populate a "grid".
>
> Does anyone have any experience with this kind of thing?
> Any ideas for how you might go about this? I'd be
> grateful for any suggestions.

Not a suggestion, but a question: as you say, each ray is its own little wedge since the radar has some finite beamwidth. As the radius of each ray increases, how will you handle "wedge overlap" of adjacent beams? Average the signal? What about sidelobes? (Do radars have them? I have no idea.)

cheers,

paulv

Subject: Re: Radar Gridding Advice Sought
Posted by David Fanning on Wed, 09 Jul 2008 14:32:22 GMT
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Paul van Delst writes:

> Not a suggestion, but a question: as you say,
> each ray is its own little wedge since the
> radar has some finite beamwidth. As the radius
> of each ray increases, how will you handle
> "wedge overlap" of adjacent beams?

My current plan is to ignore it. :-)

I'm not trying to do science with this display, I'm
just looking for fast, beautiful images. :-)

> What about sidelobes? (Do radars have them? I
> have no idea.)

I have no idea, either. It hasn't been mentioned
in conversations so far.

Cheers,

David
--
David Fanning, Ph.D.
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: Radar Gridding Advice Sought
Posted by pgrigis on Wed, 09 Jul 2008 20:02:50 GMT
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Maybe something like this?
(see also http://www.dfanning.com/tips/grid_surface.html)

```
;create some test data in polar coordinates (radar view)
nr=512
nphi=512
r=findgen(nr)/(nr-1)
phi=findgen(nphi)/(nphi-1)*2*!Pi
rr=(phi*0+1)#r
pphi=phi#(r*0+1)

ray=exp(-(rr-0.5)^2*40-(pphi-1.5)^2*0.06)
tvscl,ray

;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;
```

```
;conversion polar ->cartesian
xx=rr*cos(pphi)
yy=rr*sin(pphi)

;interpolation via triangular mesh (as in http://www.dfanning.com/tips/grid_surface.html
)
Triangulate, xx, yy, triangles, boundaryPts

gridSpace = [0.01, 0.01]
griddedData = TriGrid(xx, yy, ray, triangles, gridSpace,XGrid=xvector,
YGrid=yvector)

tvscl,griddedData
```

Ciao,
Paolo

David Fanning wrote:
> Paul van Delst writes:
>
>> Not a suggestion, but a question: as you say,
>> each ray is its own little wedge since the
>> radar has some finite beamwidth. As the radius
>> of each ray increases, how will you handle
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> My current plan is to ignore it. :-)
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>
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>> have no idea.)
>
> I have no idea, either. It hasn't been mentioned
> in conversations so far.
>
> Cheers,
>
> David
> --
> David Fanning, Ph.D.
> 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: Radar Gridding Advice Sought
Posted by R.G. Stockwell on Thu, 10 Jul 2008 01:44:47 GMT
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"David Fanning" <news@dfanning.com> wrote in message
news:MPG.22de701878b262fd98a3d0@news.frii.com...
> Folks,
>
> An answer by Paolo this morning reminded me I could
> use some help on a problem.
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> is to clean this up and have the wedge look more like
> an image.

Here is a poor idea of the top of my head.
Just draw a handful of line segments with slowly increasing
angles (from phi - deltaphi to phi+deltaphi).
(such that they overlap, perhaps add a thick parameter to
the line segment plot). Should be fast at least.

Cheers,
bob

PS feel free to post an image of what you are talking about,
if you have a second.