Subject: Re: Surface plots in spherical coordinates
Posted by Rick Towler on Wed, 03 May 2006 23:53:17 GMT
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You'll get the best results using object graphics. I'm not really a direct graphics user so I can't really comment on your current approach but your current code could be modified a bit for OG:

Steps 1-3 would be the same.

The magic would be in step 4. You will create a connectivity array which connects the vertices you calculated in step 3. I don't have the IDL docs in front of me but you'll want to search for terms like "polygon connectivity" and "triangle strips" and "quad strips" and look for the pages outlining how to construct connectivity arrays. You'll also want to look at the documentation for IDLgrPolygon.

Step 5 would entail creating a IDLgrPolygon object using the vertices and connectivity data you created in steps 3 and 4. Then adding that to an instance of IDLgrModel

Step 6 would be viewing it using xobjview.

I can point you to orb__define.pro in your IDL install directory to give you an idea of how to do this with a sphere. You may even be able to modify this for your needs. Note that it's location has moved in the latest version of IDL:

C:\Program Files\RSI\IDL61\examples\visual <- Pre 6.3
C:\Program Files\RSI\IDL63\examples\doc\objects <- 6.3

-Rick

Matthias Vigelius wrote:
> Hi newsgroup!
>
> Is there a possibility to plot surfaces in spherical coordinates?
>
> I have a function R(theta, phi), describing some kind of elongated
> sphere or an ellipsoid, and I'dlike to plot the surface. What I'm doing
> now is:
>
> 1) create two big vectors theta and phi which sample the sphere, that is
> phi is something like (0, ..., 2*pi, 0, ..., 2*pi, ...) and theta
> (0,...,0,..., pi, ..., pi)

> 
> 2) compute R(theta, phi)
> 
> 3) convert these coordinates to cartesian
> 
> 4) triangulate: triangulate, x, y, tr, b
> 
> 5) regrid: grid=trigrid(x, y, z, tr)
> 
> 6) draw surface: surface, grid, xc, yc
> 
> Besides being quite cumbersome, the problem is that I can't draw closed
> surfaces, say the whole sphere (and even so the results are at best
> moderate).
> 
> Is there an easier and working way to do that? I would imagine that this
> is a common task, so I wonder why it does not seem to be supported in
> IDL (or is it?)
> 
> Thanks heaps!
> 
> Matthias

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Subject: Re: Surface plots in spherical coordinates
Posted by Matthias Vigelius on Thu, 04 May 2006 00:45:27 GMT
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Hi Rick!

> I can point you to orb__define.pro in your IDL install directory to give
> you an idea of how to do this with a sphere.  You may even be able to

thanks for your quick answer! This looks really interesting, so I'll
have to get familiar with object graphics, it seems :-)

cheers,

Matthias

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