
Subject: Re: Skymap and Array Problems

Posted by [Mark Hadfield](#) on Wed, 09 Jul 2003 23:59:26 GMT

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"Stephanie Wissel" <wissels@yahoo.com> wrote in message
news:d7877ccd.0307090628.5bd563a9@posting.google.com...

> The grid in galactic coordinates is not distorted. The
> transformation involves rotation (the galactic plane is 63deg from the
> celestial plane) and translation from the earth centered vertex to
> vertex at the center of the galaxy.

>

> ...

>

> The main problem is that after conversion the coordinates are not
> chronological. Meaning that instead of

>

> Long Lati get.....Long Lat

> -182 -89 12 23

> -155 -45 -155 -45

> 12 23 -189 -89

> 35 78 35 78

Hmm. It's still not clear to me if this can be represented by an
IDLgrContour or IDLgrSufarce object.

Imagine a regular, unrotated rectangular grid with, say, $m \times n$ vertices and each vertex joined to its 4 neighbours (fewer for edge or corner vertices) by line segments. For what it's worth, The total number of connecting line segments is $(m-1)*n + (n-1)*m$. As you know, an IDLgrSurface or IDLgrContour can represent this grid, using 1-D DATAX & DATAY arrays (GEOMX & GEOMY for an IDLgrContour). DATAX & DATAY must be monotonic, maybe increasing (I'm not sure), but don't need to be evenly spaced. If we rotate this grid around the zaxis, stretch it or otherwise distort it in the xy plane (I've forgotten the technical terms here) then DATAX & DATAY will probably have to be two-dimensional. I haven't explored the limits here, but I think the constraint is that the line segments may not cross. The IDLgrSurface and IDLgrContour objects also support DATAZ (GEOMZ) keywords, so the vertices can be shifted normal to the xy plane. Then the model they're contained in can be rotated, translated or scaled in 3D space. So potentially you should be able to use them to represent your data, provided that there is *some* direction from which the layout looks like a (possibly distorted) rectangular grid, with non-crossing line segments. Make that your z direction, set up your DATAX, DATAY & DATAZ arrays then rotated, translated, and scale your model to get the viewpoint you want. Good luck!

An IDLgrPolygon is much more general. In addition to the vertex positions (the DATA property) you can also represent how they're connected (the POLYGONS property). Given the vertex positions, you can create the polygon

descriptors by triangulation, but if you already know how the points are connected, then it's better to use the information.

You can represent data values on an IDLgrPolygon by colouring the vertices. I don't know if it's possible to generate contours on an IDLgrPolygon.

Hope this helps.

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