Subject: Re: 3d sphere revisited
Posted by David Fanning on Mon, 30 Dec 2002 17:32:52 GMT
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paul wisehart (paul_wisehart@ssaihq.com) writes:

> Now, I CAN plot a sphere, as an object. And, I CAN, put
> a texture map on the sphere.
>
> I CANNOT plot any data to the sphere.
> My question:
>
> Should/Can I be plot data to the sphere directly?
>
> OR, should i just plot the data to the texture image
> and then re-apply the texture?

I should think the texture map *is* the data! And since
it is an image, you can be as elaborate as you like
when setting it up (e.g., you can use alpha channel
blending, etc., etc.).

Cheers,

David

--
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Subject: Re: 3d sphere revisited
Posted by Rick Towler on Mon, 30 Dec 2002 18:28:54 GMT
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"paul wisehart" <paul_wisehart@ssaihq.com> wrote

> Should/Can I be plot data to the sphere directly?

To continue David's thought the sphere *is* the data so I suppose you are
already doing this ;)

> OR, should i just plot the data to the texture image

> and then re-apply the texture?

I see three ways of presenting information with your sphere:

Modifying the sphere verticies. An example would be adding relief to your sphere to depict the variations in elevation of a planet. There is an example of this in the "What's new in 5.5" .pdf.

"Overplotting" the sphere. Create additional IDLgrPolyon or IDLgrPolyline objects with verticies whose radius values are slightly larger than your sphere such that they appear to float on the surface of the sphere. An example would be creating an IDLgrPolygon object of the continents. You could add IDLgrPolyline objects representing rivers, roads, borders.... Use shape and .dxf files to get this data into IDL.

Texturing. The more textures the merrier. You can add layer after layer of data by taking a series of bitmaps and combining them into a single texture. There are many ways you can combine the data but a place to start would be with the blending function used by IDLgrImage (see help on IDLgrImage::Init).

Determining the mix of approaches will depend on what you have and want to say.

-Rick

Subject: Re: 3d sphere revisited
Posted by paul wisehart on Tue, 31 Dec 2002 14:36:54 GMT
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THanks for the replies.

> I should think the texture map is the data!

This clears it up a little for me.
I was looking at the issue a little skewed i guess.

Rick,

> "Overplotting" the sphere. Create additional IDLgrPolyon or IDLgrPolyline
> objects with verticies whose radius values are slightly larger than your
> sphere such that they appear to float on the surface of the sphere. An
> example would be creating an IDLgrPolygon object of the continents. You
> could add IDLgrPolyline objects representing rivers, roads, borders.... Use
> shape and .dxf files to get this data into IDL.

THAT is exactly what I would like to do. Can you elaborate on how
i could set up these IDLgrPolygon 'continents'?
Or, maybe theres an example program I could look at?

I've tried IDLgrPolyline objects on a sphere, and I don't
understand how the coordinates relate to the sphere's coordinates.
For example:
My IDLgrPolyline would draw 'thru' the sphere. How do
I draw an IDLgrPolyline(or IDLgrPolygon) to match the sphere's
curved surface??

happy new year,
(...its today right?)
paul wisehart

Subject: Re: 3d sphere revisited
Posted by Rick Towler on Tue, 31 Dec 2002 17:39:45 GMT
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"paul wisehart" <paul_wisehart@ssaihq.com> wrote

>> "Overplotting" the sphere. Create additional IDLgrPolyon or
IDLgrPolyline
>> objects with verticies whose radius values are slightly larger than your
>> sphere such that they appear to float on the surface of the sphere. An
>> example would be creating an IDLgrPolygon object of the continents. You
>> could add IDLgrPolyline objects representing rivers, roads, borders....
Use
>> shape and .dxf files to get this data into IDL.
>
> THAT is exactly what I would like to do. Can you elaborate on how
> i could set up these IDLgrPolygon 'continents'?
> Or, maybe theres an example program I could look at?

I remember bringing this up in an earlier post of yours. You may want to go back and see what I had to say. Basically you'll use CV_COORD to convert spherical coordinates to rectangular coordinates which you can plot in OG. Assuming you have a "flat" sphere, just set the radius value a wee bit larger than your underlying sphere to get your objects to "float" on your sphere. If you have added relief it gets trickier but can be done.

The texture on your sphere will be underneath your polygon objects which may or may not be what you are looking for.

I mentioned .dxf and shape files since these are two relatively easy methods to get complex geometry and connectivity data into IDL. I haven't worked with shape files but I have imported .dxf files into IDL. It takes a bit of work to get at the individual elements in the file so you can change their properties but some of that is just learning how .dxf files work. Check out XDXF.PRO and GET_DXF_OBJECTS.PRO.

I am sending a .dxf file of the continents to you directly. To get something going right away you can use GET_DXF_OBJECTS() and xobjview.

```
model=GET_DXF_OBJECTS('continents.dxf')
xobjview, model
```

Be aware that the actual data coordinates will probably be *way* off so you will need to scale either the continents or your sphere to get the desired effect. To get at the actual IDLgrPolygon objects, use the GET method of the IDLgrModel returned by GET_DXF_OBJECTS (there seems to be only one in this case).

-Rick
