Subject: Re: Newbie seeks help drawing multiple surface volumes Posted by Jeffrey M. Augenbaum on Mon, 01 Dec 1997 08:00:00 GMT View Forum Message <> Reply to Message

Thanks for your help. It was much appreciated. In visiting various IDL websites and looking at the IDL demo routines, I didn't see much in the way of applications to 3D CFD visualization other than astophysics. Are other packages better suited to CFD visualization?

David Fanning wrote:

- > Jeffrey M. Augenbaum (augenbau@erols.com) writes:
- >> I'm new to IDL and would like to plot two surface volumes with different
- >> colors. For example, I want to visualize some 3D aspects of fluid flow
- >> about an object.
- >> ie. I want to plot an ellipsoid volume in one color and then a tube with
- >> a different color. I'd appreeciate any help with this.
- > Why is it that people who are new to IDL always want to do
- > the hardest things? How come new people don't just want to
- > draw line plots? Sigh... Oh, well, at least he doesn't
- > want to call this code from a C program, too. ;-)
- >

>

>

>

>

- > Presumably Jeffrey already knows that he is going to have
- > to use Shade Volume and PolyShade to render his 3D objects.
- > (I presume he is using direct graphics or he wouldn't need
- > to ask this question. Object graphics would easily allow
- > him to specify his colors directly.)

How would I do this with Object graphics.

- > The trick is to use the SET_SHADING command with the VALUES
- keyword to restrict his output to just a portion of the color table, which he has loaded with the colors he wants
- > to use.
- > Here is an example program I hacked together from some
- > examples in the IDL documentation. It shows a blue tube
- (cylinder) going through a red sphere. >
- ***************
- **PRO Example** >
- ; Load colors in different portions of the color table.

```
> LoadCT, 3, NColors=100
                                 ; Red colors
> LoadCT, 1, NColors=100, Bottom=100; Blue colors
   ; Create a sphere.
>
> SPHERE = FLTARR(20, 20, 20)
> FOR X=0,19 DO FOR Y=0,19 DO FOR Z=0,19 DO $
    SPHERE(X, Y, Z) = SQRT((X-10)^2 + (Y-10)^2 + (Z-10)^2)
 SHADE_VOLUME, SPHERE, 8, V1, P1
>
    ; Create a cylinder.
>
> MESH_OBJ, 3, V2, P2, Replicate(1, 48, 40), P4=40
>
    ; Render in the Z-graphics buffer
>
> thisDevice = !D.Name
> Set Plot, 'Z'
> Device, Set_Resolution=[400,400]
> Erase
    ; Set !P.T Transformation matrix.
  Scale3, XRANGE=[0,20], YRANGE=[0,20], ZRANGE=[0,20]
    ; Render sphere in red colors.
>
 Set Shading, Values=[0,99]
  image = POLYSHADE(V1, P1, /T3D)
>
    ; Render cylinder in blue colors.
>
> Set_Shading, Values=[100,199]
> T3D, Translate=[0.25,0.20,0]
> v2 = Vert_T3D(v2)
> image = POLYSHADE(V2, P2, /T3D)
>
    ; Take a snapshot of the Z-buffer.
> snap = TVRD()
    ; Display the snapshot on the display.
>
> Set_Plot, thisDevice
> Window, XSize=400, YSize=400
> TV, snap
> END
```

```
>> Please email me directly, as I don't read this group regularly.
> Only faithful readers who read the group regularly usually
> get their questions answered in this much detail. :-)
I'll try to follow this group more closely.
>
>
> Cheers,
> David
> David Fanning, Ph.D.
> Fanning Software Consulting
> E-Mail: davidf@dfanning.com
> Phone: 970-221-0438
> Coyote's Guide to IDL Programming: http://www.dfanning.com/
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