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Subject: Re: Basics of SHADE\_VOLUME

Posted by [David Fanning](#) on Thu, 07 Apr 2005 19:44:46 GMT

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Leslie Welser writes:

- > Can someone describe to me the basics of using SHADE\_VOLUME and
- > POLYSHADE (in direct graphics)? I have a 3-d array which is
- > (192,192,192), and I thought that using shade\_volume would allow me to
- > display the x-y-z grid along the 3 axes and then the magnitude of each
- > particular point could be displayed as a color.

No, not even close, really. Shade\_Volume generally produces something that looks more like what a forensic anthropologist would come up with if he discovered a 7 million old jaw bone in the desert and wanted a head to go with it, than what you describe.

- > What I'm confused
- > about is the isosurface I should choose.

I'm confused about what it is you really want to plot. It sounds more like a 3D scatter plot to me. Here is an example of one of those. Is this what you had in mind?

<http://www.dfanning.com/tips/scatter3d.html>

Cheers,

David

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David Fanning, Ph.D.

Fanning Software Consulting, Inc.

Coyote's Guide to IDL Programming: <http://www.dfanning.com/>

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Subject: Re: Basics of SHADE\_VOLUME

Posted by [Leslie Welser](#) on Thu, 07 Apr 2005 21:22:52 GMT

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Actually, I don't think your 3-d scatter plot will work for me in this case (although I have used it before on another project, and it worked great!). The reason is that what I have is actually a 3-d array which represents a wavefunction in space,  $\phi = \text{dblarr}(192,192,192)$ . It is 3-d because at each  $\{x,y,z\}$  point, there is a magnitude for  $\phi$ . So I guess the problem is really that I'm trying to represent a 4-d surface (3 dimensions for the  $x,y,z$  and 1 for the actual value of the array). I thought that using shade\_volume would work for this, since it accepts

a 3-d array as input. But the result looks about how you described it. I noticed that on your website, you have an example (MRI images) where you said to choose an isosurface of 50 and then you said that "the surface will enclose the volume values greater than 50". That's where I got the crazy idea to set the isosurface value as the minimum value of my dataset. But I think there is still something that I'm missing....

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Subject: Re: Basics of SHADE\_VOLUME

Posted by [David Fanning](#) on Thu, 07 Apr 2005 21:41:19 GMT

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Leslie Welser writes:

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> case (although I have used it before on another project, and it worked  
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> a 3-d array as input. But the result looks about how you described it.  
> I noticed that on your website, you have an example (MRI images) where  
> you said to choose an isosurface of 50 and then you said that "the  
> surface will enclose the volume values greater than 50". That's where  
> I got the crazy idea to set the isosurface value as the minimum value  
> of my dataset. But I think there is still something that I'm  
> missing....

Well, I'm still unclear what it is you hope to visualize, too. How about putting the volume into something like SLICE3? Then you could look at slices through the volume. Or, you could treat this as we do with medical image volumes and look at the three orthogonal slices in three separate windows.

Cheers,

David

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David Fanning, Ph.D.

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