
Subject: Re: 3D density plot?

Posted by [David Fanning](#) on Mon, 13 May 2002 16:43:37 GMT

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Bernard K. (bknaepen@'skip_this'mac.'and_this'com) writes:

> I have a 3D scalar field, say $r(x,y,z)$, and I would like to produce a 3D
> plot which represents the locations (x,y,z) where r is greater than
> a given value.

I had a similar requirement not too long ago. I hacked up my FSC_Surface program (this seems to be the starting point for a LOT of my subsequent programs!) to produce a sort of 3D pin plot, where the color and length of the pin represented the distance of a galaxy. It could be rotated in 3D space, etc., and was quite useful for visualizing this data.

You can find a picture of the result here:

http://www.dfanning.com/misc/pin_3d.jpg

The FSC_Surface program is here:

http://www.dfanning.com/programs/fsc_surface.pro

Cheers,

David

--

David W. Fanning, Ph.D.

Fanning Software Consulting

Phone: 970-221-0438, E-mail: david@dfanning.com

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

Toll-Free IDL Book Orders: 1-888-461-0155

Subject: Re: 3D density plot?

Posted by [Bernard K.](#) on Mon, 13 May 2002 18:20:44 GMT

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Dear David,

this is not what I have in mind. I browsed the web and found an example:

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Note that I don't require the movie function (yet :-)). Each gray structure represents a region where the scalar quantity is bigger than a given level.

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and it works great. I do surface plots so it will be very handy for me.

Thanks,
Bernard.

In article <MPG.17499b19c5f635a59898cc@news.frii.com>, David Fanning
<david@dfanning.com> wrote:

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Subject: Re: 3D density plot?

Posted by [David Fanning](#) on Mon, 13 May 2002 18:47:08 GMT

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This just looks like an isosurface to me. Grid your
data into a 3D volume (Grid3), then use XVolume to

view it. You can easily set the ISOSURFACE level.

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Subject: Re: 3D density plot?

Posted by [Bernard K.](#) on Tue, 14 May 2002 19:35:20 GMT

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Dear David,

thanks for pointing out to me XVolume. It is quite convenient for what I want to do.

Best wishes,
Bernard.

In article <MPG.1749b8129bd0f5c39898ce@news.frii.com>, David Fanning <david@dfanning.com> wrote:

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> Cheers,

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> David

Subject: Re: 3D density plot?

Posted by [Paul Sorenson](#) on Tue, 14 May 2002 20:16:49 GMT

Here is a way you could do the animation:

pro example, dd

```
d = dd
sz = size(d, /dimensions)
for i=0,sz[0]-1 do begin
  xvolume, d, /replace
  filename = 'img' + strcompress(i, /remove_all) + '.bmp'
; xvolume_write_image, filename, 'bmp' ;you can feed these to
xinteranimate
  d = shift(d, 1, 0, 0)
end
```

end

```
IDL> d=randomu(s,5,5,5)
IDL> d=bytsc1(congrid(d,50,25,25))
IDL> xvolume,d ;set your isosurface etc.
IDL> example,d
```

-Paul Sorenson

"Bernard K." <bknaepen@'skip_this'mac.'and_this'com> wrote in message
news:130520022020445831%bknaepen@'skip_this'mac.'and_this'co m...

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Subject: Re: 3D density plot?
Posted by [Paul Sorenson](#) on Wed, 15 May 2002 04:36:20 GMT
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You may want to add the HIDE keyword in xvolume.pro as shown here:

```
78  oVol->GetProperty, $
79    rgb_table0=rgb_table0, $
80    opacity_table0=opacity_table0, $
81    hide=hide
82  obj_destroy, oVol
83  oVol = obj_new('IDLgrVolume', $
84    keyword_set(test) ? $
85    congrid(bytscl(randomu((seed=0), 4, 4, 4)), 40, 40, 20)
$
86    : vol, $
87    /zbuff, $
88    interpolate=interpolate, $
89    hints=2, $
```

```
90    /zero_opacity_skip, $
91    /no_copy, $
92    opacity_table0=opacity_table0, $
93    hide=hide, $
94    rgb_table0=rgb_table0 $
95    )
```

"Paul Sorenson" <aardvark62@msn.com> wrote in message
news:3ce16e65_1@corp-goliath.newsgroups.com...

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>   end
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