Subject: Re: 2D Plot in IDL with shading?
Posted by David Fanning on Fri, 18 Jun 2010 19:49:37 GMT
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Ally writes:

> I have three arrays-sun elevation, azimuth, and diode response, for
> each of 12 sun sensors and I'm trying to create a 2D plot in IDL with
> elevation on the x-axis, azimuth on the y-axis and the diode response
> color coded on a gradient scale. It would kind of be like a birds-eye
> view of what a 3D graph with elevation shading would look like. I've
> been searching for two days now and can't seem to find anything online
> that shows me how to make a graph like this. Any help is appreciated.

Are you looking for something like this:

http://www.dfanning.com/graphics_tips/coloredline.html

Cheers,

David

--
David Fanning, Ph.D.
Fanning Software Consulting, Inc.
Coyote's Guide to IDL Programming: http://www.dfanning.com/
Sepore ma de ni thui. ("Perhaps thou speakest truth.")

Subject: Re: 2D Plot in IDL with shading?
Posted by Ally on Fri, 18 Jun 2010 20:11:26 GMT
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On Jun 18, 3:49 pm, David Fanning <n...@dfanning.com> wrote:
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>> each of 12 sun sensors and I'm trying to create a 2D plot in IDL with
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> David Fanning, Ph.D.
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> Sepore ma de ni thui. ("Perhaps thou speakest truth.")

Not exactly. The whole plot will be filled in because there's a diode response for each elevation and azimuth pair. The diode response doesn't change linearly so I can't use the vector idea. I want the colors to match the data in highest to lowest value order (or vice versa) but the data isn't written this way (it should end up looking like a ring or ellipse pattern with greatest response/darkest color on the outside and lowest response/lightest color on the inside). I have a picture of something similar in Python but I can't attach it to a post. Is there any way I can make a surface plot of the data, give it elevation shading, and then just view it top down so I only see the x and y axes and colored rings?

-Allison

---

Subject: Re: 2D Plot in IDL with shading?
Posted by penteado on Fri, 18 Jun 2010 20:16:05 GMT
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On Jun 18, 5:11 pm, Ally <ally.desh...@gmail.com> wrote:
> Not exactly. The whole plot will be filled in because there's a diode
> response for each elevation and azimuth pair. The diode response
> doesn't change linearly so I can't use the vector idea. I want the
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> elevation shading, and then just view it top down so I only see the x
> and y axes and colored rings?

I think what you want is just an image, something like:

iimage,response,elevation,azimuth

Though you could have made a surface, with

isurface,response,elevation,azimuth

Or a contour plot with

icontour,response,elevation,azimuth

---

Subject: Re: 2D Plot in IDL with shading?
Posted by Ally on Fri, 18 Jun 2010 20:30:08 GMT
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On Jun 18, 4:16 pm, pp <pp.pente...@gmail.com> wrote:
> On Jun 18, 5:11 pm, Ally <ally.desh...@gmail.com> wrote:
>
>> Not exactly. The whole plot will be filled in because there's a diode
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>
> isurface,response,elevation,azimuth
>
> Or a contour plot with
>
> icontour,response,elevation,azimuth

Thanks. I'll try those and see if it works.

-Allison

---

Subject: Re: 2D Plot in IDL with shading?
Posted by David Fanning on Fri, 18 Jun 2010 20:34:38 GMT
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pp writes:

> Though you could have made a surface, with
>
> isurface,response,elevation,azimuth

Yes, I think that is right. Here is a 3D elevation
shaded surface, rotated with FSC_Surface so that
the Z axis comes directly out of the page toward
the viewer. Took about 10 seconds to create. :-)

http://www.dfanning.com/misc/fsc_surface.png

Cheers,

David

--
David Fanning, Ph.D.
Fanning Software Consulting, Inc.
Coyote's Guide to IDL Programming: http://www.dfanning.com/
Sepore ma de ni thui. ("Perhaps thou speakest truth.")

---

Subject: Re: 2D Plot in IDL with shading?
Posted by Ally on Mon, 21 Jun 2010 15:09:08 GMT
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On Jun 18, 4:34 pm, David Fanning <n...@dfanning.com> wrote:
> pp writes:
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>
>> isurface,response,elevation,azimuth
>
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>
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>
> David
>

> --
> David Fanning, Ph.D.
> Fanning Software Consulting, Inc.
> Coyote's Guide to IDL Programming:http://www.dfanning.com/
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Great, that's exactly what I needed! I'm working on creating it right now. Out of curiosity, is there any way to make a graph like that in 2D to start with, without a z-axis and just response plotted in color vs azimuth and elevation?

Best,
Allison

---

Subject: Re: 2D Plot in IDL with shading?
Posted by Ally on Mon, 21 Jun 2010 15:09:33 GMT
View Forum Message <> Reply to Message

On Jun 18, 4:34 pm, David Fanning <n...@dfanning.com> wrote:
> pp writes:
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>
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Best,

Allison

Subject: Re: 2D Plot in IDL with shading?
Posted by penteado on Mon, 21 Jun 2010 15:14:17 GMT
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On Jun 21, 12:09 pm, Ally <ally.desh...@gmail.com> wrote:
> Great, that's exactly what I needed! I'm working on creating it right
> now. Out of curiosity, is there any way to make a graph like that in
> 2D to start with, without a z-axis and just response plotted in color
> vs azimuth and elevation?

That is what would be called an image, which can be made with

iimage,response,elevation,azimuth

Subject: Re: 2D Plot in IDL with shading?
Posted by Ally on Mon, 21 Jun 2010 18:41:57 GMT
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On Jun 21, 11:14 am, pp <pp.pente...@gmail.com> wrote:
> On Jun 21, 12:09 pm, Ally <ally.desh...@gmail.com> wrote:
>
>> Great, that's exactly what I needed! I'm working on creating it right
>> now. Out of curiosity, is there any way to make a graph like that in
>> 2D to start with, without a z-axis and just response plotted in color
>> vs azimuth and elevation?
>
> That is what would be called an image, which can be made with
>
> iimage,response,elevation,azimuth

I keep trying but can't seem to get isurface to graph it. I may be
missing something basic but I've been reading through different
examples and can't figure it out. Here is what I have:

```
rows = 5273670
OPENR, lun1, 'ss_raw_06.dat', /GET_LUN
data = DBLARR(2,rows)
READF, lun1, data
response= data(1,*)

OPENR, lun2, 'az.dat', /GET_LUN
data2=DBLARR(2, rows)
READF, lun2, data2
```

az_g= data2(1,*)

OPENR, lun3, 'sun_el_and_az.dat', /GET_LUN
data3=DBLARR(2,rows)
READF, lun3, data3
az_s=data3(1,*)
elevation=data3(0,*)

azimuth=(az_s)-(az_g)

isurface, response, elevation, azimuth

It runs fine and the iSurface tool opens, there's just nothing
graphed.

---

Subject: Re: 2D Plot in IDL with shading?
Posted by penteado on Mon, 21 Jun 2010 19:15:56 GMT
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On Jun 21, 3:41 pm, Ally <ally.desh...@gmail.com> wrote:
> On Jun 21, 11:14 am, pp <pp.pente...@gmail.com> wrote:
>
>> On Jun 21, 12:09 pm, Ally <ally.desh...@gmail.com> wrote:
>
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>>> now. Out of curiosity, is there any way to make a graph like that in
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>>> vs azimuth and elevation?
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>> That is what would be called an image, which can be made with
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>
> I keep trying but can't seem to get isurface to graph it. I may be
> missing something basic but I've been reading through different
> examples and can't figure it out. Here is what I have:
>
> rows = 5273670
> OPENR, lun1, 'ss_raw_06.dat', /GET_LUN
> data = DBLARR(2,rows)
> READF, lun1, data
> response= data(1,*)
>
> OPENR, lun2, 'az.dat', /GET_LUN
> data2=DBLARR(2, rows)

> READF, lun2, data2
> az_g= data2(1,*)
>
> OPENR, lun3, 'sun_el_and_az.dat', /GET_LUN
> data3=DBLARR(2,rows)
> READF, lun3, data3
> az_s=data3(1,*)
> elevation=data3(0,*)
>
> azimuth=(az_s)-(az_g)
>
> isurface, response, elevation, azimuth
>
> It runs fine and the iSurface tool opens, there's just nothing
> graphed.

Have you checked that the data look right? You can check the dimensions with

help,response,elevation,azimuth

And maybe min()/max() may be useful to tell if the values seem to make sense.

You are reading all 3 arrays as 1D. You indicated above that you have one response for each elevation and azimuth, which indicates that response should be reformed to 2D, with the proper dimensions:

response_2D=reform(response,nx,ny)

Where nx is the length of the fastest-varying dimension (leftmost), and ny is the other dimension. For this to be consistent with the way you called isurface, the fastest-varying dimension in the file where you read response from would have to be elevation, and the other would be the azimuth.

If you do not provide response as a 2D array, the itools will not know the connectivity of your points, and thus will start the gridding wizard, to interpolate them, guessing they were not on a regular grid, which is not your case.