Subject: Re: Draped Contours?
Posted by David Fanning on Wed, 09 Dec 2009 22:40:23 GMT
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JD Smith writes:

> I was playing with iSurface (shocking, I know), and found very useful
> the ability to "drape" contours interactively on top of the surface,
> similar to raised relief maps with contour lines. It occurs to me I
> have no idea how to do this; probably some object graphics thing.
> Does anyone have a short example of forming such a draped contour? I
> did consider using the SHADES keyword for shade_surf to color various
> levels black, but I prefer lighting-based shading, and (ideally)
> vector contours for output.

Can you give us a picture of what you mean, or at least
describe what you did with iSurface? I have an example
of a contour plot cutting through a surface at any
level. I have a feeling that program can be easily
adapted if I had a better idea of what you had in mind.

http://www.dfanning.com/misc/surf_contour.pro

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: Draped Contours?
Posted by JDS on Thu, 10 Dec 2009 17:06:47 GMT
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On Dec 9, 5:40 pm, David Fanning <n...@dfanning.com> wrote:
> JD Smith writes:
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> of a contour plot cutting through a surface at any
> level. I have a feeling that program can be easily
> adapted if I had a better idea of what you had in mind.

This PDF shows such an example, in Fig. 8:

http://www.ittvis.com/portals/0/tutorials/idl/Contours_and_S urfaces.pdf

Here's another example:

http://tir.astro.utoledo.edu/idl/draped_contours.png

I did notice that even when exporting to EPS, the contours are
bitmaps, so my SHADES idea might be a reasonable analog. Creating
contours and dropping each one individually to the appropriate height
on top of the surface must be doable with object graphics, but it's
not immediately obvious to me.

Thanks.

P.S. Any OSX/XQuartz users recognize this error?

IDLITWINDOW::DOHITTEST: Failure to acquire window rendering context.
error: xp_attach_gl_context returned: 2

I get it off and on with iTools and must restart IDL.

Subject: Re: Draped Contours?
Posted by Michael Galloy on Thu, 10 Dec 2009 17:48:49 GMT
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On 12/10/09 10:06 AM, JD Smith wrote:
> On Dec 9, 5:40 pm, David Fanning<n...@dfanning.com> wrote:
>> JD Smith writes:
>>> I was playing with iSurface (shocking, I know), and found very useful
>>> the ability to "drape" contours interactively on top of the surface,
>>> similar to raised relief maps with contour lines. It occurs to me I
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> I did notice that even when exporting to EPS, the contours are
> bitmaps, so my SHADES idea might be a reasonable analog. Creating
> contours and dropping each one individually to the appropriate height
> on top of the surface must be doable with object graphics, but it's
> not immediately obvious to me.
>
> Thanks.
>
>
> P.S. Any OSX/XQuartz users recognize this error?
>
> IDLITWINDOW::DOHITTEST: Failure to acquire window rendering context.
> error: xp_attach_gl_context returned: 2
>
> I get it off and on with iTools and must restart IDL.
>

Like this?

```
z = randomu(seed, 50, 50)
for i = 0, 4 do z = smooth(z, 5, /edge_truncate)

view = obj_new('IDLgrView')

model = obj_new('IDLgrModel')
view->add, model

dem = obj_new('IDLgrSurface', z, style=2, color=[200, 200, 0],
depth_offset=1)
model->add, dem

contours = obj_new('IDLgrContour', z, n_levels=15)
model->add, contours
```

```
lightModel = obj_new('IDLgrModel')
view->add, lightModel

light = obj_new('IDLgrLight', type=2, location=[-1, 1, 1])
lightModel->add, light

ambientLight = obj_new('IDLgrLight', type=0, intensity=0.4)
lightModel->add, ambientLight

dem->getProperty, xrange=xr, yrange=yr, zrange=zr
xc = norm_coord(xr)
xc[0] -= 0.5
yc = norm_coord(yr)
yc[0] -= 0.5
zc = norm_coord(zr)
zc[0] -= 0.5
dem->setProperty, xcoord_conv=xc, ycoord_conv=yc, zcoord_conv=zc
contours->setProperty, xcoord_conv=xc, ycoord_conv=yc, zcoord_conv=zc

model->rotate, [1, 0, 0], -90
model->rotate, [0, 1, 0], -30
model->rotate, [1, 0, 0], 45

clipboard = obj_new('IDLgrClipboard', dimensions=[400, 400])
clipboard->draw, view, /postscript, /vector, filename='draped_surface.eps'

win = obj_new('IDLgrWindow', dimensions=[400, 400], graphics_tree=view)
win->draw

end
```

Mike
--
www.michaelgalloy.com
Research Mathematician
Tech-X Corporation

Subject: Re: Draped Contours?
Posted by David Fanning on Thu, 10 Dec 2009 17:59:07 GMT
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Mike Galloy wites:

> Like this?

Humm. I don't have a PostScript printer, but my PostScript

viewer shows quite a bit of difference between what is
rendered there and what I see in the object graphics window.
Lots of contour lines appear to be dropped. Do you think
that is real? Or, I mean, a consequence of the object
graphics PostScript rendering? Do the lines reappear if
I actually print the file?

Cheers,

David

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

Subject: Re: Draped Contours?
Posted by penteado on Thu, 10 Dec 2009 18:23:58 GMT
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On Dec 10, 3:48 pm, mgalloy <mgal...@gmail.com> wrote:
> Like this?
>
> z = randomu(seed, 50, 50)
> for i = 0, 4 do z = smooth(z, 5, /edge_truncate)
>
> view = obj_new('IDLgrView')
>
> model = obj_new('IDLgrModel')
> view->add, model
>
> dem = obj_new('IDLgrSurface', z, style=2, color=[200, 200, 0],
> depth_offset=1)
> model->add, dem
>
> contours = obj_new('IDLgrContour', z, n_levels=15)
> model->add, contours
>
> lightModel = obj_new('IDLgrModel')
> view->add, lightModel
>
> light = obj_new('IDLgrLight', type=2, location=[-1, 1, 1])
> lightModel->add, light
>
> ambientLight = obj_new('IDLgrLight', type=0, intensity=0.4)

```
>  lightModel->add, ambientLight
>
>  dem->getProperty, xrange=xr, yrange=yr, zrange=zr
>  xc = norm_coord(xr)
>  xc[0] -= 0.5
>  yc = norm_coord(yr)
>  yc[0] -= 0.5
>  zc = norm_coord(zr)
>  zc[0] -= 0.5
>  dem->setProperty, xcoord_conv=xc, ycoord_conv=yc, zcoord_conv=zc
>  contours->setProperty, xcoord_conv=xc, ycoord_conv=yc, zcoord_conv=zc
>
>  model->rotate, [1, 0, 0], -90
>  model->rotate, [0, 1, 0], -30
>  model->rotate, [1, 0, 0], 45
>
>  clipboard = obj_new('IDLgrClipboard', dimensions=[400, 400])
>  clipboard->draw, view, /postscript, /vector, filename='draped_surface.eps'
>
>  win = obj_new('IDLgrWindow', dimensions=[400, 400], graphics_tree=view)
>  win->draw
>
>  end
>
```

A similar result could be obtained with

```
z = randomu(seed, 50, 50)
for i = 0, 4 do z = smooth(z, 5, /edge_truncate)
isurface,z
icontour,z,/over,planar=0,n_levels=15
isave,'draped_surface.eps'
```

Subject: Re: Draped Contours?
Posted by penteado on Thu, 10 Dec 2009 18:34:14 GMT
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On Dec 10, 3:59 pm, David Fanning <n...@dfanning.com> wrote:
> Humm. I don't have a PostScript printer, but my PostScript
> viewer shows quite a bit of difference between what is
> rendered there and what I see in the object graphics window.
> Lots of contour lines appear to be dropped. Do you think
> that is real? Or, I mean, a consequence of the object
> graphics PostScript rendering? Do the lines reappear if
> I actually print the file?
>

That looks like the same bug on the ps driver I reported a year and a half ago, that got the CR ID 51003. Sometimes when a vector eps is made, some elements appear in the wrong orders, and get hidden by others that should be behind them. Which is particularly annoying for 3D plots.

Subject: Re: Draped Contours?
Posted by Michael Galloy on Thu, 10 Dec 2009 18:43:49 GMT
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On 12/10/09 10:59 AM, David Fanning wrote:
> Humm. I don't have a PostScript printer, but my PostScript
> viewer shows quite a bit of difference between what is
> rendered there and what I see in the object graphics window.
> Lots of contour lines appear to be dropped. Do you think
> that is real? Or, I mean, a consequence of the object
> graphics PostScript rendering? Do the lines reappear if
> I actually print the file?

I think the DEPTH_OFFSET keyword I used to get rid of stitching effects when rendered in the graphics window is not working quite right in the PostScript output. I don't see anything in the online help warning about this.

Mike
--
www.michaelgalloy.com
Research Mathematician
Tech-X Corporation

Subject: Re: Draped Contours?
Posted by JDS on Tue, 05 Jan 2010 23:06:04 GMT
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Thanks, Mike, that looks like it. The postscript output is a bit wonky, as others noted. Is the problem that the contours are at precisely the same altitude as the shaded surface, so it can't decide which is on top?
