Subject: Re: Newbie question - showing grid
Posted by davidf on Tue, 03 Feb 1998 08:00:00 GMT
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Jeff (jeffe@fl.ensco.com) writes:

> One item that some of my peers here want is the ability to
> see the actual grid values.(i.e. a shaded representation is fine)
> They like the contours but they would also like the ability to view
> the raw regularly spaced grid or the points for the irregular
> spaced grid.
>
> Are there any IDL functions that do this.
> I would appreciate any pointers.

If I wanted to see a shaded surface representation of my data and I wanted to view the grid lines, I might draw the grid lines right on the shade plot, by doing something like this:

```
a=Shift(Dist(30), 20, 15)
peak = Exp(-(a/15)^2)
y = Findgen(30)
x = RandomU(seed, 30) * 30
x = x(Sort(x))
Shade_Surf, peak, x, y
Surface, peak, x, y, XStyle=4, YStyle=4, ZStyle=4, /NoErase
```

If I wanted to show the contours, but also put in the grid lines, I would have to go to a bit more trouble, because IDL only draws grid lines at tick locations. I could try something like this:

```
Contour, peak, x, y, /Follow, NLevels=12
FOR j=0, N_Elements(x)-1 DO PlotS, [x[j],x[j]], !Y.CRange, $
  LineStyle=2
```

Cheers,

David

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Subject: Re: Newbie question - showing grid
Posted by Martin Schultz on Tue, 03 Feb 1998 08:00:00 GMT
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Jeff wrote:
>
> I have just started learning IDL and am very happy with the speed I
> am able to get things done. I have put together a couple of examples
> showing displays using the contour and surface procedures in IDL.
>
> One item that some of my peers here want is the ability to
> see the actual grid values.(i.e. a shaded representation is fine)
> They like the contours but they would also like the ability to view
> the raw regularly spaced grid or the points for the irregular
> spaced grid.
>
> Are there any IDL functions that do this.
> I would appreciate any pointers.
>
> Thanks,
>
> Jeff

oh, there are several ways to do this ! It all depends what you *really* want. A few examples:

If you just want to have some symbols where your grid points are, you will of course need a position vector. If you called contour as
CONTOUR,Z,X,Y,...
then you are already there, all you have to do is add a
OPLOT,X,Y,psym=[symbol]
statement (where symbol is a number from 1-7 or 8, see manual)

If you don't have the positions of your data, then IDL will probably use the array index as defaults. Then you can simply generate an X and Y array via
X=findgen(n_elements(Z(*,0)))
and
Y=findgen(n_elements(Z(0,*)))
{others may tell you to use the SIZE() function}

You can also overlay a (regular) grid (the major axis ticks) by assigning a length of one to them and overlay the coordinate system over your plot again with
PLOT,X,Y,/NODATA,...options...,ticklen=1,/NOERASE
{you can then change the style of the lines etc., again:see manual for details}

If you want to have the values printed on the plot, you can use the

XYOUTS statement, and I would recommend to first format the data into strings

```
  LABELS=string(Z,format='(f5.1)')
  XYOUTS,XL,YL,LABELS,/DATA,align=0.5,...options
```

Note that the Z array is seen here as a 1-dimensional vector, and you must supply XL and YL values for each element of this array (I'll leave that as an excersize to figure out how to do this ;-)

If you "created" your regular grid from irregular gridded stuff, you have probably used the TRI_GRID and/or TRIANGULATE routine. In this case, there are options to these which will return the triangulation points, and you can then overlay those with PLOTS like

```
  triangulate,x,y,tr,b
  for i=0,n_elements(tr)/3-1 do begin
    t = [tr(*,i), tr(0,i)]
    plots,xx(t),yy(t),color=2,thick=0.8
  endfor
```

Etc.

{you can also get a copy of David Fanning's great book and "discover the possibilities" of IDL ;-)}

Martin.

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