Subject: Q: contour levels from IDL
Posted by Mirko Vukovic on Fri, 10 Mar 2000 08:00:00 GMT
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Help!

How can I get back from IDL the contour levels that it plotted up?

ztick_get does not cut it, and I do not feel like using path_info
(I would need to invoke contour twice for that).

The procedure should be able to handle IDL default choice,
usage of NLEVELS or LEVELS.

TIA,

Mirko

Subject: Re: Q: contour levels from IDL
Posted by davidf on Mon, 20 Mar 2000 08:00:00 GMT
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Mirko Vukovic (mvukovic@taz.telusa.com) writes:

> ??? I remember a note that nelvels does note guarantee the number of
> levels, but not much else. Any other discussions you can refer me to?
>
> My problem is how to choose intelligent levels. The only way I could
> think of is to plot (2dplot) the z component of the data in a temp
> (ram?) window, and observe the z ticks used by IDL, and use those as
> contour levels.

Here is how I do it. I typically pick equally spaced
contour intervals (I.e., what I *thought* IDL was
suppose to be doing. :-)

http://www.dfanning.com/tips/nlevels.html

Cheers,

David
--
David Fanning, Ph.D.

Fanning Software Consulting
Phone: 970-221-0438 E-Mail: davidf@dfanning.com
Coyote's Guide to IDL Programming: http://www.dfanning.com/
Toll-Free IDL Book Orders: 1-888-461-0155

Subject: Re: Q: contour levels from IDL
Posted by Mirko Vukovic on Mon, 20 Mar 2000 08:00:00 GMT
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In article <MPG.13333170892ef001989a8a@news.frii.com>,
davidf@dfanning.com (David Fanning) wrote:
> Mirko Vukovic (mvukovic@taz.telusa.com) writes:
>
>> How can I get back from IDL the contour levels that it plotted up?
>>
>> ztick_get does not cut it, and I do not feel like using path_info
>> (I would need to invoke contour twice for that).
>>
>> The procedure should be able to handle IDL default choice,
>> usage of NLEVELS or LEVELS.
>
> If you have been following my advice, Mirko, you would
> NEVER be letting IDL choose its own contour levels. Thus,
> you would know ipso facto which levels you had. :-)
>
> In the absence of following good advice, I think
> there is nothing to do *but* call the contour command
> twice. :-(
>
> Cheers,
>
> David
>
??? I remember a note that nelvels does note guarantee the number of levels, but not much else. Any other discussions you can refer me to?

My problem is how to choose intelligent levels. The only way I could think of is to plot (2dplot) the z component of the data in a temp (ram?) window, and observe the z ticks used by IDL, and use those as contour levels.

As a side note, I now use path info, but that has problems, because you may get several paths at the same contour level.

Mirko

Sent via Deja.com http://www.deja.com/
Before you buy.

Subject: Re: Q: contour levels from IDL
Posted by davidf on Wed, 22 Mar 2000 08:00:00 GMT
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H C Pumphrey (hcp@newsread.ed.ac.uk) writes:

> It's the price you pay for getting to pick the range _and_ having nice round
> numbers for the contour values.

And I thought I was pretty anal when it comes to how
things look. But I have to admit I have more trouble
with "NLEVELS=whatever" than I do with numbers that end in
a 1. :-)

Cheers,

David

P.S. And really, "NLEVELS=whatever" worked for me for a lot
of years. It was only when I was trying to fill the contours
with specific colors that I noticed the whole top part of
my color table was missing. :-)

--
David Fanning, Ph.D.
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Subject: Re: Q: contour levels from IDL
Posted by hcp on Wed, 22 Mar 2000 08:00:00 GMT
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In article <MPG.134289ae9da4a3f0989a9e@news.frii.com>, davidf@dfanning.com (David Fanning) writes:
|> H C Pumphrey (hcp@newsread.ed.ac.uk) writes:
|> > [snip] you actually get between ndesired and 2*ndesired
|> > ; contours.
|>
|> I fail to see how this is much of an improvement over

|> IDL's:
|>   ncontours = nlevels + (more or less)
|> But certainly not TWO times more! :-)

It's the price you pay for getting to pick the range _and_ having nice round numbers for the contour values.

(I think I was answering a point that was brought up halfway along the thread not the original point at all)

Hugh

--

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==============
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The University of Edinburgh | Replace 0131 with +44-131 if outside U.K.
EDINBURGH EH9 3JZ, Scotland | Email hcp@met.ed.ac.uk
OBDisclaimer: The views expressed herein are mine, not those of UofE.
 ==
==============

Subject: Re: Q: contour levels from IDL
Posted by Martin Schultz on Wed, 22 Mar 2000 08:00:00 GMT
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Mirko Vukovic wrote:
>

> My problem is how to choose intelligent levels. The only way I could
> think of is to plot (2dplot) the z component of the data in a temp
> (ram?) window, and observe the z ticks used by IDL, and use those as
> contour levels.

For logarithmic contour intervals you can try my loglevels routine at http://www.mpimet.mpg.de/~schultz.martin/idl/index.html

Cheers,
Martin

--
 [[[[[[[[[[
[[Dr. Martin Schultz   Max-Planck-Institut fuer Meteorologie   [[
[[Bundesstr. 55, 20146 Hamburg   [[

[[phone: +49 40 41173-308   [[
[[fax: +49 40 41173-298   [[
[[martin.schultz@dkrz.de   [[
[[[[[[[[[

Subject: Re: Q: contour levels from IDL
Posted by davidf on Wed, 22 Mar 2000 08:00:00 GMT
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H C Pumphrey (hcp@newsread.ed.ac.uk) writes:

> ; This function returns a set of contours suitable for the range of
> ; values beween max and min. on input ndesired is the number of contours
> ; you want; you actually get between ndesired and 2*ndesired
> ; contours.

I fail to see how this is much of an improvement over
IDL's:

   ncontours = nlevels + (more or less)

But certainly not TWO times more! :-)

Cheers,

David

--
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Subject: Re: Q: contour levels from IDL
Posted by hcp on Wed, 22 Mar 2000 08:00:00 GMT
View Forum Message <> Reply to Message

In article <8b5pfs$m7e$1@nnrp1.deja.com>, Mirko Vukovic <mvukovic@taz.telusa.com> writes:

|> My problem is how to choose intelligent levels. The only way I could
|> think of is to plot (2dplot) the z component of the data in a temp
|> (ram?) window, and observe the z ticks used by IDL, and use those as
|> contour levels.

Faced with this, I wrote my own contour chooser which I enclose below.
You give it a max, min and a number of contours and you get back an array
with values whose last digits are like 1,2,3,4 or 2,4,6,8 or
5,10,15,20,25. I like it. YMMV. Sorry about the commented-out
debugging statements.

Enjoy

Hugh

```
function conpick,minval,maxval,ndesired
; This function returns a set of contours suitable for the range of
; values beween max and min. on input ndesired is the number of contours
; you want; you actually get between ndesired and 2*ndesired
; contours.


;*** Work out a nice spacing for the contours ***

if maxval lt minval then begin
   tmp=maxval
   maxval=minval
   minval=tmp
endif
range=double(maxval)-double(minval)
;print,'range=',range
initspace=range / (ndesired-1)
;print,'initspace=',initspace
reduspace=alog10(initspace)
;print,'reduspace=',reduspace
pwroften=long(reduspace)
if reduspace lt 0.0 then pwroften=pwroften-1
;print,'pwroften=',pwroften
reduspace=reduspace-pwroften
;print,'reduspace=',reduspace
reduspace=10.^reduspace
;print,'reduspace=',reduspace,' Choosing spacing'

if(reduspace ge 5.0) then spacing=5.0 $
;else if(reduspace ge 2.5) then spacing=2.5$
else if(reduspace ge 2.0) then spacing=2.0$

else spacing=1.0
;print,'spacing=',spacing
spacing=spacing*10.^pwroften
;print,'spacing=',spacing
```

```
if( (not finite(spacing)) or (not finite(reduspace))) then begin
   print,'Error in routine conpick: failed to pick suitable contours'
   return,findgen(ndesired)
endif

; *** Work out a minimum value that fits in with the spacing ***
gak=(abs(minval)/(10.0^(pwroften+1)))
igak=long(gak)
if gak lt 0.0 then igak=igak-1
newminval=(10.0^(pwroften+1))* igak
;print,'newminval=',newminval

while(newminval lt abs(minval)) do newminval=newminval+spacing
;print,'newminval=',newminval

if(minval lt 0.0) then newminval=-newminval else newminval=newminval-spacing
;print,'newminval=',newminval,' Making contours'

upper=newminval
ncontours=0
while ( upper lt maxval ) do begin
   upper=newminval+ncontours*spacing
   ncontours=ncontours+1
endwhile
;print,' made',ncontours,' Contours'
clevs=findgen(ncontours)*spacing + newminval

return,clevs

end
```

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The University of Edinburgh | Replace 0131 with +44-131 if outside U.K.
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OBDisclaimer: The views expressed herein are mine, not those of UofE.
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Subject: Re: Q: contour levels from IDL
Posted by Mirko Vukovic on Thu, 23 Mar 2000 08:00:00 GMT
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> of years. It was only when I was trying to fill the contours
> with specific colors that I noticed the whole top part of
> my color table was missing. :-)
>
> --
There seem to be two purposes of contours. One is to get the user a feel for for the shape of the surface, and the other is to obtain rather precise info on the coordinates of a specific surface height.

In that light, nlevels serves the first purpose and levels serves the second. Fourtuitously each keyword is suitable for one purpose only and not the other.

Does this make sense? My seratonin levels are kind of low this morning.

BTW, thanks a bunch for the submitted code snippets.

Mirko