
Subject: Plotting with colorbar

Posted by [atmospheric physics](#) on Thu, 16 Jan 2014 15:41:05 GMT

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Hello,

I have a data matrix with 99 columns and 86400 rows (each row represents time in seconds). The whole of the data matrix is arranged with only 5 numbers = [-9, 1, 2, 3, 4]. I wanted to make a color bar with 4 colors = ['DARK RED','RED','SKY BLUE', 'BLUE'] representing numbers [1, 2, 3, 4] respectively and -9 represents a missing value (assigned 'WHITE' color)

Below are my lines in the code for synthetic data:

```
time=LINDGEN(86400) ; in seconds
```

```
tmp_data=REPMAT([-9,1,2,3,4],20,86400)
data=tmp_data[0:98,*]
```

```
missingIndices=WHERE(data EQ -9, missingCount)
IF missingCount GT 0 THEN data[missingIndices]=0
```

```
img=BytScl(data,MIN=0,MAX=4,/NAN)
```

```
TVLCT, cgColor('WHITE',/Triple),0 ; Background color
```

```
TVLCT, cgColor(['DARK RED','RED','SKY BLUE','BLUE'],/Triple),1
```

```
???
```

```
???
```

Now my problem is ... I want X-axis with time, Y-axis with data column indices (i.e., indgen(99)) where I wanted to place colored dots (basing on the colorbar) for each of the data point column wise for all the time points. Can anyone suggest me how shall I proceed after the above steps in simplest way?

Thanks in advance

Subject: Re: Plotting with colorbar

Posted by [David Fanning](#) on Thu, 16 Jan 2014 16:37:52 GMT

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Madhavan Bomidi writes:

> I have a data matrix with 99 columns and 86400 rows (each row represents time in seconds). The whole of the data matrix is arranged with only 5 numbers = [-9, 1, 2, 3, 4]. I wanted to make a color bar with 4 colors = ['DARK RED','RED','SKY BLUE', 'BLUE'] representing numbers [1, 2, 3, 4] respectively and -9 represents a missing value

```
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>
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> time=LINDGEN(86400) ; in seconds
>
> tmp_data=REPMAT([-9,1,2,3,4],20,86400)
> data=tmp_data[0:98,*]
>
> missingIndices=WHERE(data EQ -9, missingCount)
> IF missingCount GT 0 THEN data[missingIndices]=0
```

The following command is unnecessary.

```
> img=BytScl(data,MIN=0,MAX=4,/NAN)
```

It probably doesn't hurt anything, but you could do just as well with this command:

```
img = Byte(data)
```

```
> TVLCT, cgColor('WHITE',/Triple),0 ; Background color
> TVLCT, cgColor(['DARK RED','RED','SKY BLUE','BLUE'],/Triple),1
>
> ???
> ???
>
> Now my problem is ... I want X-axis with time, Y-axis with data column indices (i.e., indgen(99))
where I wanted to place colored dots (basing on the colorbar) for each of the data point column
wise for all the time points. Can anyone suggest me how shall I proceed after the above steps in
simplest way?
```

You don't want colored dots. Putting them on your plot will take weeks, if not longer. And, unless you are making your plot the size of a building, you wouldn't see individual dots anyway. :-)

Try this:

```
time=LINDGEN(86400) ; in seconds
tmp_data=REPMAT([-9,1,2,3,4],20,86400)
data=tmp_data[0:98,*]
missingIndices=WHERE(data EQ -9, missingCount)
IF missingCount GT 0 THEN data[missingIndices]=0
img=Byte(data)
TVLCT, cgColor('WHITE',/Triple),0 ; Background color
TVLCT, cgColor(['DARK RED','RED','SKY BLUE','BLUE'],/Triple),1
cgimage, Transpose(data), /axes, axkeyword={xtitle:'Time'}
END
```

Cheers,

David

--

David Fanning, Ph.D.

Fanning Software Consulting, Inc.

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

Sepore ma de ni thue. ("Perhaps thou speakest truth.")

Subject: Re: Plotting with colorbar

Posted by [fischertc13](#) on Thu, 16 Jan 2014 21:24:22 GMT

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```
>
> Try this:
>
>
>
> time=LINDGEN(86400) ; in seconds
>
> tmp_data=REPMAT([-9,1,2,3,4],20,86400)
>
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>
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>
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>
> TVLCT, cgColor('WHITE',/Triple),0 ; Background color
>
> TVLCT, cgColor(['DARK RED','RED','SKY BLUE','BLUE'],/Triple),1
>
> cgimage, Transpose(data), /axes, axkeyword={xtitle:'Time'}
>
> END
>
>
>
> Cheers,
>
>
>
> David
```

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

Hi all,

I have a similar question where I have populated a 2D field with velocity measurements that are assigned a rainbow of colors and want array points that do not have a value to be whited out (or preferably not shown at all). I assign all points without a velocity a NaN value, but that just ends up assigning these points the 0 value in the Rainbow color table I am using.

I can get the valueless array points to be white by instead assigning them some high velocity (i.e. 999999) in the Rainbow+White color table, but I when I try to plot the image as a postscript it instead uses the 254 value right before white which is instead red. Additionally, this puts a white bar at the top of my color bar which is a bit annoying.

Here is what I'm using right now:

```
i = WHERE(field EQ 0.000, count)
IF (count GT 0) THEN array1[i] = !VALUES.F_NAN

set_plot, 'ps'
!p.font=0
device, filename='vel_center.eps',bits_per_pixel=8,/portrait,/inches , $
xsize = 7.2, ysize = 6.,/encapsulated,/color,xoffset=1.0,yoffset=1.0

!p.noerase=1

loadct,39 ;rainbow

tvim,array1,range=[-300,300],POSITION=[.08,.05,.83,.95],/noa xis

fsc_contour,image,levels=levels,/overplot,color='black',labe l=0

loadct,0 ; b & w

loadct,39 ;rainbow
```

FSC_COLORBAR, POSITION=[0.83,0.05,0.88,0.95], Divisions=4, Minor=5, Format='(F5.0)', Range=[-300, 300],title='Velocity (km/s)',/vertical,/right

device, /close
set_plot, 'x'
loadct,0 ; b & w

Any comments are appreciated!

Cheers,
Travis

Subject: Re: Plotting with colorbar
Posted by [David Fanning](#) on Fri, 17 Jan 2014 12:11:33 GMT
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fischertc13@gmail.com writes:

> I have a similar question where I have populated a 2D field with velocity measurements that are assigned a rainbow of colors and want array points that do not have a value to be whited out (or preferably not shown at all). I assign all points without a velocity a NaN value, but that just ends up assigning these points the 0 value in the Rainbow color table I am using.

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>

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```
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Range=[-300, 300],title='Velocity (km/s)',/vertical,/right
>
> device, /close
> set_plot, 'x'
> loadct,0 ; b & w
>
> Any comments are appreciated!
```

I would do a couple of things. First, I would update your Coyote Library. It appears to be about five years out of date. Then I would investigate the transparent properties of cgImage, specifically the MISSING keyword:

<http://www.idlcoyote.com/idldoc/cg/cgimage.html>

What you want to do is pretty easy:

http://www.idlcoyote.com/cg_tips/transimage.php

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: Plotting with colorbar

Posted by [David Fanning](#) on Sun, 19 Jan 2014 19:18:25 GMT

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fischertc13@gmail.com writes:

```
>
>>
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>>
>>
>>
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>>
>> cgimage, Transpose(data), /axes, axkeyword={xtitle:'Time'}
>>
>> END
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>>
>>
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>>
>>
>> David
>>
>>
>>
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>> David Fanning, Ph.D.
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Range=[-300, 300],title='Velocity (km/s)',/vertical,/right
>
> device, /close
> set_plot, 'x'
> loadct,0 ; b & w
>
> Any comments are appreciated!
```

I'm just about to get on a plane, so I can elaborate, but I would update your Coyote Library (it is about 5 years out of date) and then investigate the transparency keywords available in cgImage. This will be simple to do. You can find entire articles written about it on my web page. :-)

Cheers,

David

--

David Fanning, Ph.D.

Fanning Software Consulting, Inc.

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

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