Subject: Re: Overplot contour on previously stablished coordinates
Posted by David Fanning on Fri, 01 Mar 2013 17:54:04 GMT
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mairan.teodoro@gmail.com writes:

> I have an image created using cgPlot in combination with cgImage. This image has its own coordinate system, which is given in distance from the central point.
>
> Now I would like to superpose a contour image on the previous one, using the same coordinate system. The problem is that the contour image is rotated and has a different size.

Sounds to me like you switched your X and Y values for your contour plot, but it is impossible to know without seeing some code.

By the way, I can't think of a reason why cgPlot would have to be used with cgImage to set up a coordinate system. cgImage is perfectly capable of doing this on its own.

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: Overplot contour on previously stablished coordinates
Posted by David Fanning on Fri, 01 Mar 2013 17:58:27 GMT
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David Fanning writes:

> By the way, I can't think of a reason why cgPlot would have to be used
> with cgImage to set up a coordinate system. cgImage is perfectly capable
> of doing this on its own.

In fact, if you just want contours on your image, simply setting the OnImage keyword to the cgContour command will do it. See this example in the Coyote Plot Gallery:

http://www.idlcoyote.com/gallery/index.html#IMGCONTOURS

Cheers,

David

--
David Fanning, Ph.D.
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Subject: Re: Overplot contour on previously stablished coordinates
Posted by mairan.teodoro on Fri, 01 Mar 2013 19:25:20 GMT
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Hi David!

Thanks for the quick reply.

This is the part of the code that does the plot:

```
        cgplot,  findgen(100),title=strtrim(string(((w[i+j]-lref)/lref)*a.c/1 d5,form='(I10)'),2),$
          xsty=1, ysty=1, charsize=0.8,$
           xrange=[reform(astro[0,0,0]),reform(astro[size[1]-1,size[2]- 1,0])],$
           yrange=[reform(astro[0,0,1]),reform(astro[size[1]-1,size[2]- 1,1])],$
          /nodata, position=p

        ;;; this is my iso-velocity image
        cgimage, bytscl(rot(img, 0, missing=0), min=mindisplay, max=maxdisplay), position=p,
/overplot,$
           xrange=[reform(astro[0,0,0]),reform(astro[size[1]-1,size[2]- 1,0])],$
           yrange=[reform(astro[0,0,1]),reform(astro[size[1]-1,size[2]- 1,1])]

        ;;; normalized intensity colorbar
        cgColorBar, position=[p[2]+0.005, p[1], p[2]+0.02, p[3]],$
            /vertical, /right, charsize=0.8,$
            range=[mindisplay,maxdisplay]

        ;;; this is just to show the axis in white in my iso-image
        cgplot, findgen(100),$
          xsty=1, ysty=1, xtickformat='(A1)', ytickformat='(A1)', axiscolor=cgcolor('white'),$
           xrange=[reform(astro[0,0,0]),reform(astro[size[1]-1,size[2]- 1,0])],$
           yrange=[reform(astro[0,0,1]),reform(astro[size[1]-1,size[2]- 1,1])],$
          /nodata, /noerase, position=p, charsize=0.8

        ;;; this is the contour obtained from a FITS image
        ;;; with astrometric solution stored in header.
```

```
;;; The size and orientation are not the same as
;;; that of my iso-velocity image.
cgcontour, rot(data_img, 0.), levels=[0.9,5,8],$
   color='white', background='black',$
   label=0, olevels=olevels, /onimage, /missing
```

The result for one image can be seen in this link:

https://dl.dropbox.com/u/6573328/teodoro.png

Thanks for any help!
m.

Subject: Re: Overplot contour on previously stablished coordinates
Posted by mairan.teodoro on Fri, 01 Mar 2013 19:31:38 GMT
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I forgot to mention that what I would like to have is the contour over plotted using the same coordinate system as the iso-velocity image, so that I could compare the iso-velocity and the optical (contour) appearance of my astronomical object.

Best regards,
m.

Subject: Re: Overplot contour on previously stablished coordinates
Posted by David Fanning on Fri, 01 Mar 2013 20:04:52 GMT
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mairan.teodoro@gmail.com writes:

```
>  This is the part of the code that does the plot:
>
>            cgplot,  findgen(100),title=strtrim(string(((w[i+j]-lref)/lref)*a.c/1 d5,form='(I10)'),2),$
>              xsty=1, ysty=1, charsize=0.8,$
>               xrange=[reform(astro[0,0,0]),reform(astro[size[1]-1,size[2]- 1,0])],$
>               yrange=[reform(astro[0,0,1]),reform(astro[size[1]-1,size[2]- 1,1])],$
>              /nodata, position=p
>
>            ;;; this is my iso-velocity image
>            cgimage, bytscl(rot(img, 0, missing=0), min=mindisplay, max=maxdisplay), position=p,
/overplot,$
>               xrange=[reform(astro[0,0,0]),reform(astro[size[1]-1,size[2]- 1,0])],$
>               yrange=[reform(astro[0,0,1]),reform(astro[size[1]-1,size[2]- 1,1])]
>
>            ;;; normalized intensity colorbar
```

```
>            cgColorBar, position=[p[2]+0.005, p[1], p[2]+0.02, p[3]],$
>               /vertical, /right, charsize=0.8,$
>               range=[mindisplay,maxdisplay]
>
>            ;;; this is just to show the axis in white in my iso-image
>            cgplot, findgen(100),$
>              xsty=1, ysty=1, xtickformat='(A1)', ytickformat='(A1)', axiscolor=cgcolor('white'),$
>               xrange=[reform(astro[0,0,0]),reform(astro[size[1]-1,size[2]- 1,0])],$
>               yrange=[reform(astro[0,0,1]),reform(astro[size[1]-1,size[2]- 1,1])],$
>              /nodata, /noerase, position=p, charsize=0.8
>
>            ;;; this is the contour obtained from a FITS image
>            ;;; with astrometric solution stored in header.
>            ;;; The size and orientation are not the same as
>            ;;; that of my iso-velocity image.
>            cgcontour, rot(data_img, 0.), levels=[0.9,5,8],$
>               color='white', background='black',$
>               label=0, olevels=olevels, /onimage, /missing
>
>  The result for one image can be seen in this link:
>
>  https://dl.dropbox.com/u/6573328/teodoro.png
```

OK, well, a couple of things. You are contaminating your color table because you are working in indexed color. You see this by the white line in your color bar. I would fix this by doing all your graphics in decomposed color. (The other alternative would be to load your color tables again just before you draw the color bar.) But, I would bracket your graphics commands with this code, then you don't have to worry about contaminating anything:

```
SetDecomposedState, 1, Current=currentState
  graphics commands here...
SetDecomposedState, currentState
```

I can't tell why your contour plot is rotated, but I note that the data you display as an image and the data you are contouring are not the same data set. Are they suppose to be?

I also note that your contour plot isn't specifying the X and Y location of the values you are trying to contour. This is probably the main reason you are having problems. You are not telling IDL where the contours are suppose to go! In other words, you are calling the contour plot like this:

```
cgContour, data, /overplot
```

And you should be calling it like this:

```
cgContour, data, x, y, /overplot
```

The X and Y vectors are absolutely REQUIRED if you are overplotting. Otherwise, there is no information to do the overplotting. If you don't have these vectors, you can make them like this:

```
s = Size(rot(data_img, 0.), /Dimensions)
x = Scale_Vector(Findgen(s[0]), reform(astro[0,0,0]), $
      reform(astro[size[1]-1,size[2]-1,0]))
y = Scale_Vector(Findgen(s[1]), reform(astro[0,0,1]),$
      reform(astro[size[1]-1,size[2]-1,1]))
```

Cheers,

David
--
David Fanning, Ph.D.
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Sepore ma de ni thue. ("Perhaps thou speakest truth.")

Subject: Re: Overplot contour on previously stablished coordinates
Posted by David Fanning on Fri, 01 Mar 2013 20:15:28 GMT
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David Fanning writes:

> OK, well, a couple of things. You are contaminating your color table
> because you are working in indexed color. You see this by the white line
> in your color bar.

The color table contamination is occurring because you are calling your cgPlot command incorrectly. You specify the AXISCOLOR keyword like this:

```
AXISCOLOR=cgColor('white')
```

And you should be doing it like this:

```
AXISCOLOR='white'
```

The difference is that the way you are doing it, cgColor is forced to load the white color somewhere in the color table (because you are using indexed color), but if you allow cgPlot to load the color it will do it using decomposed color and never have to load a color in the color table.

Cheers,

David

--
David Fanning, Ph.D.
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Subject: Re: Overplot contour on previously stablished coordinates
Posted by mairan.teodoro on Fri, 01 Mar 2013 20:43:05 GMT
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Hi David!

Thanks for the comments.

The images I'm working on are not the same (and therefore, they have different dimensions and scales).

Here you can see the original image from which I get the contours:

https://dl.dropbox.com/u/6573328/teodoro2.jpg

The image on the left is the original, non-rotated HST image. On the right you can see how this image should be regarding my iso-velocity one.

m.

Subject: Re: Overplot contour on previously stablished coordinates
Posted by David Fanning on Fri, 01 Mar 2013 22:45:30 GMT
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mairan.teodoro@gmail.com writes:

> The images I'm working on are not the same (and therefore, they have different dimensions and scales).
>
> Here you can see the original image from which I get the contours:
>

> https://dl.dropbox.com/u/6573328/teodoro2.jpg
>
> The image on the left is the original, non-rotated HST image. On the right you can see how this image should be regarding my iso-velocity one.

OK, well, you are still going to have to figure out the X and Y values
for the contour plot to overlay it properly on a data coordinate system.

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.")