Subject: Axis labeling trickery
Posted by Paul Levine on Fri, 06 Sep 2013 23:18:06 GMT
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I am plotting some irregularly-spaced observations over 10 years, and I would like my x-axis to be labeled with exactly those 10 years, with a tick mark at the beginning of every year.

When I use XTickFormat='Label_Date' and XTicks = 10, the tick marks are in the right place (January 1) but of course I then have 11 tick marks, including a label with the year after my 10-year interval. My current workaround is to draw the labels that I want to see with xyouts (or cgText), but this leaves me with other problems, so I am hoping there is a non-workaround way to make the y-axis labels as I want from the get go.

What follows are two examples, the first of which draws the problematic labels, the second uses my workaround. The first two lines of each example generate some random data that simulates the data I'm working with. Both examples use coyote graphics procedures, but should work the same with plot for cgPlot and xyouts for cgText

Example 1:

```
time = timegen(120,start=julday(1,1,2003), units='M', step_size=1)
data = 20*randomu(seed,n_elements(time))-10
void = Label_Date(Date_Format='%Y')
cgPlot, time, data, xrange=[julday(1,1,2003),julday(12,31,2012)],
XTickFormat='Label_Date', XTicks = 10
```

In this example, my y-axis labels include 2003 through 2013, when I would like for it to stop at 2012

Example 2:

```
time = timegen(120,start=julday(1,1,2003), units='M', step_size=1)
data = 20*randomu(seed,n_elements(time))-10
void = Label_Date(Date_Format=' ')
years = indgen(10)+2003
cgPlot, time, data, xrange=[julday(1,1,2003),julday(12,31,2012)],
XTickFormat='Label_Date', XTicks = 10
xoff = 2 ; sets how far to the right of the tick mark the labels should
be drawn
yoff = 1 ; sets how far below the x-axis the labels should be drawn
cgtext, julday(1+xoff,1,years), min(data)-yoff, strtrim(years,1)
```

This draws exactly the labels I want (2003-2012), and has the added

benefit of letting me scoot the labels over a bit to the right so that they are centered under the year interval, rather than centered at the January 1 tick mark. But it introduces the problem of needing to set the values for xoff, which will depend on the size of the window, and yoff, which will depend on the range of the daya (in my example, the data ranges from -10 to 10, so a yoff = 1 works, but if the data range was from -1 to 1 or was from -1000 to 1000 then it would not work so well). The xoff problem can be worked around by explicitly setting the window size, but the yoff problem is data-dependent.

Is there a better way of doing this that does not depend on the data range?

Thanks in advance!

Subject: Re: Axis labeling trickery
Posted by Phillip Bitzer on Sat, 07 Sep 2013 18:50:22 GMT
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On Friday, September 6, 2013 6:18:06 PM UTC-5, Paul Levine wrote:

> Example 1:
> time = timegen(120,start=julday(1,1,2003), units='M', step_size=1)
>
> data = 20*randomu(seed,n_elements(time))-10
>
> void = Label_Date(Date_Format='%Y')
>
> cgPlot, time, data, xrange=[julday(1,1,2003),julday(12,31,2012)],
>
> XTickFormat='Label_Date', XTicks = 10
>

Looks like this example gives me something different - 2003-2012 is the range of the labels. No 2013, but 2004 and 2008 are duplicated and 2005 is missing. XTicks=9 gives the correct labels, though (ten year span => 9 tick intervals and 10 tickmarks).

Just for reference:
IDL> print, !VERSION
{ x86_64 darwin unix Mac OS X 8.2.2 Jan 23 2013 64 64}

Subject: Re: Axis labeling trickery
Posted by Paul Levine on Sat, 07 Sep 2013 19:47:03 GMT
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On 2013-09-07 18:50:22 +0000, Phillip Bitzer said:

> On Friday, September 6, 2013 6:18:06 PM UTC-5, Paul Levine wrote:
>
>> Example 1:
>> time = timegen(120,start=julday(1,1,2003), units='M', step_size=1)
>>
>> data = 20*randomu(seed,n_elements(time))-10
>>
>> void = Label_Date(Date_Format='%Y')
>>
>> cgPlot, time, data, xrange=[julday(1,1,2003),julday(12,31,2012)],
>>
>> XTickFormat='Label_Date', XTicks = 10
>>
>
> Looks like this example gives me something different - 2003-2012 is the
> range of the labels. No 2013, but 2004 and 2008 are duplicated and 2005
> is missing. XTicks=9 gives the correct labels, though (ten year span =>
> 9 tick intervals and 10 tickmarks).
>
> Just for reference:
> IDL> print, !VERSION
> { x86_64 darwin unix Mac OS X 8.2.2 Jan 23 2013 64 64}

I mixed up a line in my example, so the results (same as what you got) are different than what I described. What I should have written was to have the end of xrange be julday(1,1,2013) rather than julday(12,31,2012), which would have produced what I described, so:

```
time = timegen(120,start=julday(1,1,2003), units='M', step_size=1)
data = 20*randomu(seed,n_elements(time))-10
void = Label_Date(Date_Format='%Y')
cgPlot, time, data, xrange=[julday(1,1,2003),julday(1,1,2013)],
XTickFormat='Label_Date', XTicks = 10
```

Either way, though, the problem with setting XTicks = 9 is that while the year labels print what I want, the tick marks themselves are no longer spaced one year apart on January 1 of each year. Running the same code above but with Date_Format='%M %D %Y') and XTicks=9 illustrates why I need 10 rather than 9 tick intervals.

Subject: Re: Axis labeling trickery
Posted by Fabzi on Sat, 07 Sep 2013 19:56:40 GMT
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Hi,

I am not sure to understand the problem but I know that label_date can
be very annoying sometimes ...

What about doing the same, but without label_date?

```
  time = timegen(120,start=julday(1,1,2003), units='M', step_size=1)
   data = 20*randomu(seed,n_elements(time))-10
   ; Without "label_date"
   x_name = STRING(INDGEN(11) + 2003, FORMAT='(I04)')
   x_locs = timegen(11,start=julday(1,1,2003), units='Y', step_size=1)
   cgPlot, time, data, xrange=[julday(1,1,2003),julday(1,1,2013)], $
XTICKV=x_locs, XTicks=10, XTICKNAME=x_name
```

Cheers,

Fab

On 09/07/2013 09:47 PM, Paul Levine wrote:
>
> Either way, though, the problem with setting XTicks = 9 is that while
> the year labels print what I want, the tick marks themselves are no
> longer spaced one year apart on January 1 of each year. Running the
> same code above but with Date_Format='%M %D %Y') and XTicks=9
> illustrates why I need 10 rather than 9 tick intervals.

Subject: Re: Axis labeling trickery
Posted by Paul Levine on Mon, 09 Sep 2013 21:59:10 GMT
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On 2013-09-07 19:56:40 +0000, Fabien said:

> Hi,
>
> I am not sure to understand the problem but I know that label_date can
> be very annoying sometimes ...
>
> What about doing the same, but without label_date?
>
> time = timegen(120,start=julday(1,1,2003), units='M', step_size=1)
> data = 20*randomu(seed,n_elements(time))-10
> ; Without "label_date"
> x_name = STRING(INDGEN(11) + 2003, FORMAT='(I04)')
> x_locs = timegen(11,start=julday(1,1,2003), units='Y', step_size=1)
> cgPlot, time, data, xrange=[julday(1,1,2003),julday(1,1,2013)], $
> XTICKV=x_locs, XTicks=10, XTICKNAME=x_name
>

> Cheers,
>
> Fab

Thank you for the suggestion. But that gives the same result as my first example

time = timegen(120,start=julday(1,1,2003), units='M', step_size=1)
data = 20*randomu(seed,n_elements(time))-10
void = Label_Date(Date_Format='%Y')
cgPlot, time, data, xrange=[julday(1,1,2003),julday(1,1,2013)], XTickFormat='Label_Date', XTicks = 10

in which there is a label at the "end" of the x-axis for the 11th year. I guess what I am wanting to do is to have 10 tick intervals, but only 10 labels, with the 11th tick mark remaining unlabeled. If it can't be done from within the plot or axis routines, I will just have to use xyouts (or cgText).

Subject: Re: Axis labeling trickery
Posted by suicidaleggroll on Mon, 09 Sep 2013 22:33:10 GMT
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On Monday, September 9, 2013 3:59:10 PM UTC-6, Paul Levine wrote:
> On 2013-09-07 19:56:40 +0000, Fabien said:
>
>
>
>> Hi,
>
>>
>
>> I am not sure to understand the problem but I know that label_date can
>
>> be very annoying sometimes ...
>
>>
>
>> What about doing the same, but without label_date?
>
>>
>
>> time = timegen(120,start=julday(1,1,2003), units='M', step_size=1)
>
>> data = 20*randomu(seed,n_elements(time))-10
>
>> ; Without "label_date"

>
>>   x_name = STRING(INDGEN(11) + 2003, FORMAT='(I04)')
>
>>   x_locs = timegen(11,start=julday(1,1,2003), units='Y', step_size=1)
>
>>   cgPlot, time, data, xrange=[julday(1,1,2003),julday(1,1,2013)], $
>
>> XTICKV=x_locs, XTicks=10, XTICKNAME=x_name
>
>>
>
>> Cheers,
>
>>
>
>> Fab
>
>
>
> Thank you for the suggestion. But that gives the same result as my
>
> first example
>
>
>
> time = timegen(120,start=julday(1,1,2003), units='M', step_size=1)
>
> data = 20*randomu(seed,n_elements(time))-10
>
> void = Label_Date(Date_Format='%Y')
>
> cgPlot, time, data, xrange=[julday(1,1,2003),julday(1,1,2013)],
>
> XTickFormat='Label_Date', XTicks = 10
>
>
>
> in which there is a label at the "end" of the x-axis for the 11th year.
>
> I guess what I am wanting to do is to have 10 tick intervals, but only
>
> 10 labels, with the 11th tick mark remaining unlabeled. If it can't be
>
> done from within the plot or axis routines, I will just have to use
>
> xyouts (or cgText).

Why not just use xtickv and xtickname to put the labels you want, where you want, called what

you want.

years=indgen(10)+2003
xtickv=julday(1,1,years,0)
xtickname=string(years,format='(i4.4)')
plot, time, data, xrange=julday(1,1,[2003,2013]), xtickv=xtickv, xtickname=xtickname,
xticks=n_elements(xtickv)-1

or similar

Subject: Re: Axis labeling trickery
Posted by Paul Levine on Mon, 09 Sep 2013 22:51:03 GMT
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On 2013-09-09 22:33:10 +0000, suicidaleggroll@gmail.com said:

>
> Why not just use xtickv and xtickname to put the labels you want, where
> you want, called what you want.
>
> years=indgen(10)+2003
> xtickv=julday(1,1,years,0)
> xtickname=string(years,format='(i4.4)')
> plot, time, data, xrange=julday(1,1,[2003,2013]), xtickv=xtickv,
> xtickname=xtickname, xticks=n_elements(xtickv)-1

Yes! That was what I was looking for, it worked perfectly
Many thanks!!
