Subject: Re: How to do polar plots with logarithmic axis in radial coordinate?
Posted by Paul van Delst on Wed, 07 Feb 2001 14:21:36 GMT
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Charlie Zender wrote:
>
> Craig Markwardt wrote:
>
>> Could you simply take the ALOG10() logarithm of the data before
>> plotting it? Easier to re-label the axis than re-invent the world...
>>
>
> This would cause the radial coordinate to be negative-valued which
> would have unpleasant results. It's possible someone could get
> this method to work but I tried without success.

I did the following:

```
IDL> r=10.0^(findgen(100)/20.0)
IDL> theta=findgen(100)/5.
IDL> !p.charsize=2.5
IDL> plot, alog10(r), theta, xsty=4,ysty=4,/polar
IDL> axis,0,0,xax=0,xtickformat='expticks_log'
% Compiled module: EXPTICKS_LOG.
IDL> axis,0,0,yax=0,ytickformat='expticks_log'
```

where the expticks_log.pro is:

```
FUNCTION expticks_log, axis, index, value
  tickmark = '10!E' + $
             STRTRIM(STRING(value,FORMAT='(f5.1)'),2) + $
             '!N'
  RETURN, tickmark
END
```

The !P.CHARSIZE was just so I could see the exponents. Is this what you are looking for? Keep in mind that the format string for the expticks_log.pro won't work for exponents less than 0.0 - you'll have to get smart about checking for the range and then setting the format string based on that (rather than the f5.1 above, e.g.:

```
  CASE 1 OF

;   -- Exponent is less than zero ->
;   -- fractional ticklabel
    ( exponent LT 0 ): format = '( f' + $
                               STRTRIM(ABS(exponent)+2,2) + $
                               '.' + $
                               STRTRIM(ABS(exponent),2) + $
```

```
                        ' )'

;   -- Exponent is greater than or = to zero ->
;   -- whole number ticklabel
    ( exponent GE 0 ): format = '( i' + $
                        STRTRIM(ABS(exponent)+1,2) + $
                        ' )'

  ENDCASE
```

and then use the format string in the return value, e.g.

```
  RETURN, '10!E' + STRING( value, FORMAT = format ) + '!N'
```

or something similar depending on your tastes/needs.

Hope some of this is helpful, although I have to admit, the fact that IDL doesn't have a stock polar plotting routine that produces a circular graph with the radial and concentric circle tickmark axes is a bit ridiculous. Farting about with /POLAR and AXIS and whatnot is sort of like using OG to plot, x, y - and in the end you still end up with Cartesian-like axes.

Maybe there is a polar plotting routine out there in IDL software land somewhere. It is sorely needed.

paulv

--
Paul van Delst A little learning is a dangerous thing;
CIMSS @ NOAA/NCEP Drink deep, or taste not the Pierian spring;
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Fax:(301)763-8545 And drinking largely sobers us again.
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