
Subject: Re: How to do polar plots with logarithmic axis in radial coordinate?

Posted by [Charlie Zender](#) on Thu, 08 Feb 2001 17:33:25 GMT

[View Forum Message](#) <> [Reply to Message](#)

Thanks, I diddled with this all day and finally came up with something reasonable that I hate but I'll post it in case anyone can improve on it. Basically it takes the log10 of the data if the dynamic range is greater than an order of magnitude, and call a special tick marking routine that just plots the positive exponents on the positive x axis.

```
if(ffc) then abc=phz_fnc_ffc else abc=phz_fnc
abc=[reverse(abc(1:n_elements(abc)-1)),abc]
if (max(abc)/min(abc)) gt 10 then xpn_flg=1 else xpn_flg=0; Plot data by exponent
if xpn_flg then begin
  scl_xpn=abs(floor(min(alog10(abc))))+1
  print,'scl_xpn = ',scl_xpn
  scl=10.0^scl_xpn
  abc=alog10(scl*abc)
endif; endif xpn_flg
abc_min=min(abc)
abc_max=max(abc)
rng_x=[abc_min,abc_max]
rng_x=[-abc_max,abc_max]
ord=ngl_dgr*pi/180.0
ord=[-1.0*reverse(ord(1:n_elements(ord)-1)),ord]
ord_min=min(ord)
ord_max=max(ord)
rng_y=[ord_min,ord_max]
rng_y=rng_x
if prn then chr_sz=2.0 else chr_sz=1
ttl=string(aer_lng_nm)
x_ttl=""
y_ttl='!5Scattering Angle !7H!5 (radians)'

if prn then begin
  mrg_top=0.6 ; 2 is default
  if top then mrg_top=mrg_top+1.1
  mrg_btm=0.5 ; 4 is default
  if btm then mrg_btm=mrg_btm+2.7
  if not top then ttl=""
  if not btm then x_ttl=""
  fl_nm_out='/data/zender/ps/phz_fnc_plr.ps'
  open_ps,fl_nm=fl_nm_out,x_sz=x_sz,y_sz=y_sz,/ps,/color
endif; endif prn

; polar plot phz_fnc
print,'abc = ',abc
print,'abc_min = ',abc_min,', abc_max = ',abc_max
```

```

xlg_flg=0
ylog_flg=0
plot,abc,ord,xlog=xlg_flg,ylog=ylog_flg,tit=ttl,xtit=x_ttl,xr
ange=rng_x,yrange=rng_y,xmargin=[mrg_lft,mrg_rgt],ymargin=[m
rg_btm,mrg_top],xstyle=5,ystyle=5,thick=2.0,charsize=chr_sz,
linestyle=0,color=clr_blk_idx,/nodata,/polar,psym=2,position =aspect(1.0)
oplot,abc,ord,max_value=1.0e20,thick=2.0,linestyle=0,color=clr_blk_idx,/polar
if xpn_flg then tck_fmt_fnc='plr_tck_fmt' else tck_fmt_fnc='pst_tck_fmt'
axis,0.0,0.0,xaxis=0,xlog=0,xtick_get=x_tck,xstyle=1,charsiz
e=0.75*chr_sz,color=clr_blk_idx,xtickformat=tck_fmt_fnc ; IDL 3.6 UG p. 14-24
axis,0.0,0.0,yaxis=0,ylog=0,ytick_get=y_tck,ystyle=1,charsiz
e=0.75*chr_sz,color=clr_blk_idx,ytickformat='null_fmt' ; IDL 3.6 UG p. 14-24

; Draw circles
max_dat=max(abc)
for idx=0,n_elements(x_tck)-1 do begin
  crc_val=circle(0,0,x_tck(idx))
  if idx ne 0 then plots,crc_val,color=2
endfor; end loop over tck

if info then begin
  ln_lgn_x1=0.07
  ln_lgn_dx=0.07
  ln_lgn_x2=ln_lgn_x1+ln_lgn_dx
  txt_lgn_x=ln_lgn_x2+0.01
  txt_lgn_sz=1.75
  lgn_y_top=0.77
  lgn_dy=0.05
  lgn_y=lgn_y_top-indgen(6)*lgn_dy
  if xpn_flg then xyouts,txt_lgn_x+0.45,0.22,'!5log!!10!N[10!E'+auto_sng(scl_x
pn,0)+'!N!8p!5(!7H!5)!5]',color=clr_blk_idx,size=0.75*chr_sz,/NORMAL
  xyouts,txt_lgn_x+0.45,lgn_y(0),'!7k!5 = '+auto_sng(wvl_dbg*1.0e6,2)+'
!7!5m',color=clr_blk_idx,size=0.75*chr_sz,/NORMAL
  if ffc then xyouts,txt_lgn_x,lgn_y(0),'!8D!5!Inmr!N = '+auto_sng(dmt_nmr*1.0e6,2)+'
!7!5m',color=clr_blk_idx,size=0.75*chr_sz,/NORMAL
  if ffc then xyouts,txt_lgn_x,lgn_y(1),'!7r!5 =
'+auto_sng(psd_gsd_anl,2),color=clr_blk_idx,size=0.75*chr_sz,/NORMAL
  if not ffc then xyouts,txt_lgn_x,lgn_y(0),'!8D!5 = '+auto_sng(dmt_dbg*1.0e6,2)+'
!7!5m',color=clr_blk_idx,size=0.75*chr_sz,/NORMAL
endif; endif info

if prn then close_ps,fl_nm=fl_nm_out else begin
  print,'Hit any key to continue, or q to quit ...'
  foo=get_kbrd(1)
  if foo eq 'q' then goto,end_of_procedure
endelse; endif not prn

```

--

Charlie Zender zender@uci.edu (949) 824-2987/FAX-3256, Department of
Earth System Science, University of California, Irvine CA 92697-3100
