Subject: Map spanning Dateline?
Posted by John Kwiatkowski on Tue, 02 Feb 1999 08:00:00 GMT
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I can't figure out how to draw a map that spans the International Dateline, i.e., the meridion where longitude is 180 (or -180).

If I go right up to the dateline but not over it, I get a nice map including Japan:
map_set,/grid, /continent,limit = [0,100,50,180]

However, if I cross the dateline I get some gridlines but no Japan:
map_set,/grid, /continent,limit = [0,100,50,-160]

If I use the limit keyword with 8 elements, either
map_set,/grid, /continent,limit = [50,100,50,-160,0,-160,0,100] or
map_set,/grid, /continent,limit = [0,100,50,100,50,-160,0,-160]
I get a blank window.

Also, I can't seem to get the limit (4 element) keyword to behave.
For example , if I want a map of Florida limit =[20,-88,30,-80]
  map_set,limit=[20,-88,30,-80],/cont,/label

I get a map from 20 to 26 lat and -88 to -82 lon. How can I force it to listen to my limits?

Thanks for any help,
John Kwiatkowski

Subject: Re: Map spanning Dateline?
Posted by Charlotte DeMott on Wed, 03 Feb 1999 08:00:00 GMT
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How about this example:

map_set, 0, 180, limit=[-20,0,20,360]

so far so good, but how do i get latitude labels to appear to the LEFT of the map? Setting latlab=-20, causes the labels to appear at 340 degrees (IN the map, near the rhs).

charlotte

Martin Schultz wrote:

> You'll need to set the map origin somewhere within your LIMITs and make

> sure that limit is monotonically increasing. Example:
>
> map_set,0,175,limit=[-50,140,50,210]
>
> that should work.
>
> BTW: If you are planning to overlay contours on your map: make sure your
> data is sorted correctly and within your map range. This has caused so
> much trouble already ...
>
> Martin.
>

Subject: Re: Map spanning Dateline?
Posted by Martin Schultz on Wed, 03 Feb 1999 08:00:00 GMT
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John Kwiatkowski wrote:
>
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> Dateline, i.e., the meridion where longitude is 180 (or -180).
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> map_set,/grid, /continent,limit = [0,100,50,100,50,-160,0,-160]
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> Also, I can't seem to get the limit (4 element) keyword to behave.
> For example , if I want a map of Florida limit =[20,-88,30,-80]
> map_set,limit=[20,-88,30,-80],/cont,/label
>
> I get a map from 20 to 26 lat and -88 to -82 lon. How can I force it
> to listen to my limits?
>
> Thanks for any help,
> John Kwiatkowski

Oh yeah! My fun subject ;-)

You'll need to set the map origin somewhere within your LIMITs and make

sure that limit is monotonically increasing. Example:

map_set,0,175,limit=[-50,140,50,210]

that should work.

BTW: If you are planning to overlay contours on your map: make sure your data is sorted correctly and within your map range. This has caused so much trouble already ...

Martin.

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Dr. Martin Schultz
Department for Engineering&Applied Sciences, Harvard University
109 Pierce Hall, 29 Oxford St., Cambridge, MA-02138, USA

phone: (617)-496-8318
fax : (617)-495-4551

e-mail: mgs@io.harvard.edu
Internet-homepage: http://www-as.harvard.edu/people/staff/mgs/
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Subject: Re: Map spanning Dateline?
Posted by Martin Schultz on Thu, 04 Feb 1999 08:00:00 GMT
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Charlotte DeMott wrote:
>
> How about this example:
>
> map_set, 0, 180, limit=[-20,0,20,360]
>
> so far so good, but how do i get latitude labels to appear to the LEFT of
> the map? Setting latlab=-20, causes the labels to appear at 340 degrees
> (IN the map, near the rhs).
>
> charlotte
>

yes, that *is* cumbersome. I attach a little routine that will take care of your
labelling issues. The basic idea is to use XYOUTS. Once you are there, you can

then really spruce your maps up quite a bit. As an example, I add a
degree symbol...

Hope this helps,
Martin.

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Dr. Martin Schultz
Department for Engineering&Applied Sciences, Harvard University
109 Pierce Hall, 29 Oxford St., Cambridge, MA-02138, USA

phone: (617)-496-8318
fax : (617)-495-4551

e-mail: mgs@io.harvard.edu
Internet-homepage: http://www-as.harvard.edu/people/staff/mgs/
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```
function get_gridspacing,range,delta=delta,n=n

  ; return 5, 10, 15, 30 depending on range

  dist = range[1]-range[0]
  if (dist gt 120.) then delta = 30. $
  else if (dist gt 80.) then delta = 15. $
  else if (dist gt 45.) then delta = 10. $
  else delta = 5.

  ; set up mega grid and truncate to actual range
  ; range shouldn't exceed -180 or +720 in any case
  ; therefore we start with a grid of 900/5 = 150 entries
  grid = findgen(150)*delta - 180.

  keep = where(grid ge range[0] AND grid le range[1])
  if (keep[0] eq -1) then message,'Invalid parameters for grid!'

  grid = grid[keep]
  n = n_elements(keep)

  return,grid
end


pro map_labels,lonrange=lonrange,latrange=latrange

  if (n_elements(latrange) ne 2) then latrange = [ -90., 90. ]
```

```
  if (n_elements(lonrange) ne 2) then lonrange = [ -180., 180. ]

  center = [ total(latrange)/2., total(lonrange)/2. ]

  map_set,center[0],center[1],  $
       limit=[latrange[0],lonrange[0],latrange[1],lonrange[1]],  $
       color=1,position=[0.2,0.3,0.9,0.8],/continents


  ; degree symbol
  deg = '!Uo!N'

  ; compute grid lines
  lats = get_gridspacing(latrange,n=nlat)
  lons = get_gridspacing(lonrange,n=nlon)

  map_grid,color=1,lats=lats,lons=lons

  ; convert to normal coordinates for labeling
  ; norm... will be 3 dimensional arrays. 1st coordinate is
  ; longitude, 2nd is latitude. For lats, the longitude is at
  ; the left of the plot, for lons, the latitude is on the bottom
  ; Thus, it's easy to use this information for xyouts

  dumlat = fltarr(nlon) + latrange[0]
  dumlon = fltarr(nlat) + lonrange[0]
  normlats = convert_coord(dumlon,lats,/DATA,/TO_NORMAL)
  normlons = convert_coord(lons,dumlat,/DATA,/TO_NORMAL)

  charheight=0.005  ; estimated

  xyouts,normlats[0,*]-0.018,normlats[1,*]-charheight,  $
       strtrim(string(lats,format='(I5)'),2)+deg,/NORM, $
       align=1.,color=1

  xyouts,normlons[0,*],normlons[1,*]-0.025,  $
       strtrim(string(lons,format='(I5)'),2)+deg,/NORM, $
       align=0.5,color=1

return
end
```

File Attachments

1) map_labels.pro, downloaded 98 times