Subject: Re: plot, lons, lats overlayed on a map
Posted by Liam Gumley on Mon, 25 Jan 1999 08:00:00 GMT
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T Bowers wrote:
> Hmmm... it works! But...I've got the problem that the next data station(s)
> may be10 deg. south of this cluster and I need to make sure that when the
> updated set of lats and lons comes through (I just append to the arrays with
> lats = [lats, newLat]
> lon = [lons, newLon]
>) that the new plot will adjust automatically to encompass ALL the points.

Don't wrestle with the LIMIT keyword - it's too painful. Just pick a
SCALE that is large enough to cover all possibilities. Note that no
matter what your window size, using SCALE creates a map at the same
scale, e.g. try

```
window, /free, xsize=400, ysize=400
map_set, 35, 125, /ortho, scale=10e6, /cont
window, /free, xsize=800, ysize=800
map_set, 35, 125, /ortho, scale=10e6, /cont
```

So if you need to, just make a larger image window. And use the mean
value for LAT and LON to center the projection, e.g.

```
latmean = total( lat ) / float( n_elements( lat ) )
lonmean = total( lon ) / float( n_elements( lon ) )
map_set, latmean, lonmean, /ortho, scale=10e6, /cont
```

> Thanks, Liam.

No worries.

Liam E. Gumley
Space Science and Engineering Center, UW-Madison
1225 W. Dayton St., Madison WI 53706, USA
Phone (608) 265-5358, Fax (608) 262-5974
http://cimss.ssec.wisc.edu/~gumley

Subject: Re: plot, lons, lats overlayed on a map
Posted by T Bowers on Mon, 25 Jan 1999 08:00:00 GMT
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Liam Gumley wrote in message <36ACDB45.A741D494@ssec.wisc.edu>...
> T Bowers wrote:
>> How do I create a plot that overlays a map correctly?

>
> The strategy outline in your email will give misleading results even if
> you line up the map and plot edges. The orthographic projection does not
> give a uniform x/y grid (which you get from PLOT). Thus you need to
> create the map projection first, and then plot your points on the map
> projection. For example (assuming you have IDL 5.1 or 5.2):
>
> map_set, 35, 125, /ortho, xmargin=[5,5], ymargin=[5,5], scale=10e6
> map_grid, /box
> map_continents, /hires
> oplot, lons, lats, psym=6
>
> You can modify the SCALE keyword to MAP_SET to zoom in or out. It's much
> more convenient than using the awkward LIMIT keyword. And the BOX
> keyword to MAP_GRID creates lat/lon labels along the map edges.
>

Hmmm... it works! But...I've got the problem that the next data station(s)
may
be10 deg. south of this cluster and I need to make sure that when the
updated
set of lats and lons comes through (I just append to the arrays with
lats = [lats, newLat]
lon = [lons, newLon]
) that the new plot will adjust automatically to encompass ALL the points.
That's
where I was trying to go with the xrange[], yrange[] keywords to plot and
the
limit[] keyword to map_set. I guess(??), if there is an algorithm to convert
a surface
distance to a scale, maybe it could work. e.g. I would take the larger of
(maxLon -minLon) and (maxLat -minLat), add and subtract 5% of the result to
get a 5% margin, and use this distance to calculate what scale I could use
so it
would encompass all the points. Sound reasonable, or would wrestling with
the
limit keyword be better?
Oh! Also, I don't *have* to use the orthographic projection, any will do as
long
as they overplot well. That's the top priority.

Thanks, Liam.

todd

Subject: Re: plot, lons, lats overlayed on a map

Posted by Liam Gumley on Mon, 25 Jan 1999 08:00:00 GMT
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T Bowers wrote:
> How do I create a plot that overlays a map correctly?

The strategy outline in your email will give misleading results even if you line up the map and plot edges. The orthographic projection does not give a uniform x/y grid (which you get from PLOT). Thus you need to create the map projection first, and then plot your points on the map projection. For example (assuming you have IDL 5.1 or 5.2):

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```

You can modify the SCALE keyword to MAP_SET to zoom in or out. It's much more convenient than using the awkward LIMIT keyword. And the BOX keyword to MAP_GRID creates lat/lon labels along the map edges.

Cheers,
Liam.

Liam E. Gumley
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Subject: Re: plot, lons, lats overlayed on a map
Posted by davidf on Mon, 25 Jan 1999 08:00:00 GMT
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T Bowers (tbowers@nrlssc.navy.mil) writes:

> How do I create a plot that overlays a map correctly?
> [snap...]
>
> I guess I could sum it up as, I want to force the map to into
> the bounds of the axis on my plot.

Use the POSITION keyword on the PLOT and MAP_SET commands :-)

Cheers,

David