Subject: Re: How to display single orbits of satellite data in function graphics?
Posted by Paul Van Delst[1] on Tue, 30 Apr 2013 20:24:43 GMT
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First off, regarding the loop over points using PLOT(): D'oh!!
<headslap> I was caught in a brainfade loop due to trying to recreate
the DG code.

Based on David and Mark's (and Dick's!) suggestions, this is what I did,
but now using multiple orbits (793647 points):

```
-----%<----
  map.Refresh, /Disable

  t0 = SYSTIME(1)
  p = PLOT(lon,lat,$
        SYMBOL='circle', $
        /SYM_FILLED, $
        SYM_SIZE=0.2, $
        RGB_TABLE=39, $
        VERT_COLORS=colour, $
        LINESTYLE=6, $
        /OVERPLOT)
  t1 = SYSTIME(1)
  MESSAGE, 'Plot of '+STRTRIM(N_ELEMENTS(lon),2)+$
        ' datapoints took '+STRTRIM(t1-t0,2)+' seconds', $
        /INFORMATIONAL

  t0 = SYSTIME(1)
  map.Refresh
  t1 = SYSTIME(1)
  MESSAGE, 'Refresh of map display took '+$
        STRTRIM(t1-t0,2)+' seconds', $
        /INFORMATIONAL
-----%<----
```

and this is what the various MESSAGE output tells me:

```
IDL> display_gsi_map,nnobs.depar_bc[2],nnmeta
% DISPLAY_GSI_MAP: Plot of 793647 datapoints took 1.0648339 seconds
% DISPLAY_GSI_MAP: Refresh of map display took 15.363068 seconds
```

If I do the following, commenting out all the map.refresh stuff:

```
-----%<----
;  map.Refresh, /Disable
```

```
  t0 = SYSTIME(1)
  p = PLOT(lon,lat,$
        SYMBOL='circle', $
        /SYM_FILLED, $
        SYM_SIZE=0.2, $
        RGB_TABLE=39, $
        VERT_COLORS=colour, $
        LINESTYLE=6, $
        /OVERPLOT)
  t1 = SYSTIME(1)
  MESSAGE, 'Plot of '+STRTRIM(N_ELEMENTS(lon),2)+$
        ' datapoints took '+STRTRIM(t1-t0,2)+' seconds', $
        /INFORMATIONAL

;  t0 = SYSTIME(1)
;  map.Refresh
;  t1 = SYSTIME(1)
;  MESSAGE, 'Refresh of map display took '+$
;        STRTRIM(t1-t0,2)+' seconds', $
;        /INFORMATIONAL
-----%<----
```

I get the following:

```
IDL> display_gsi_map,nnobs.depar_bc[2],nnmeta
% DISPLAY_GSI_MAP: Plot of 793647 datapoints took 31.771896 seconds
```

So it takes twice as long if you just do a straight PLOT() without use of the refresh method?

Why?

Additionally, if I switch to another virtual desktop (on my linux system) when I switch back to the desktop that contains the map display, it takes 15s (I timed it 3 times) for the graphic to redisplay (from black) and for the IDL command line to become active again.

This may be more of a system question (e.g. load, memory, etc) but i'll ask anyway: Why?

cheers,

paulv

p.s. Onto using COLORBAR! (cowering in corner in abject fear....)

On 04/30/13 14:17, Mark Piper wrote:

> On Tuesday, April 30, 2013 10:56:08 AM UTC-6, David Fanning wrote:
>>
>> My first thought would have been to try to plot all points at once, with
>> a single Plot() command, without the loop. Did you try that?
>>
>
> As David suggests, vectorization is the IDL Way! Here's an example:
>
> IDL> x = randomu(1, n)*360
> IDL> y = randomu(2, n)*180 - 90
> IDL> z = floor(randomu(3, n)*256)
> IDL> tic
> IDL> p = plot(x, y, rgb_table=27, vert_colors=z, linestyle='none', symbol='+')
> IDL> toc
> % Time elapsed: 0.54600000 seconds.
>
> mp
>
