Subject: Projected Meter Space and mapCoord
Posted by morganlsilverman on Wed, 09 Jul 2014 13:48:40 GMT
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Hello,

I'm looking more just for clarification so that I can understand further. I understand that latitude and longitude points have to be converted into projected meter space to be correctly placed on a map background. I've run my code 2 different ways, first using

```
city_lats = [  39.75,   41.29,  33.84,    45.49,     47.62,     40.22]
city_lons = [ -105.00, -95.92, -84.38,   -122.69,   -122.34,   -74.78]
xy = mapCoord->Forward(city_lons, city_lats)
city_x = Reform(xy[0,*])
city_y = Reform(xy[1,*])
cgPlotS, city_x[j], city_y[j], Color=Byte(j+1), PSYM=16, SYMSize=2.0
```

and the second just using

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city_lats = [  39.75,   41.29,  33.84,    45.49,     47.62,     40.22]
city_lons = [ -105.00, -95.92, -84.38,   -122.69,   -122.34,   -74.78]
cgPlotS, city_lons(j), city_lats(j), map=mapCoord, Color=Byte(j+1), PSYM=16, SYMSize=2.0
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mapCoord has already been defined in both cases. I just abbreviated the code for simplicity. It appears that both graph exactly the same and look correct. I'm wondering if this is true and if it matters what method you use or if one is better, mapCoord->Forward(lon,lat) or cgPlotS, map=mapCoord. I would like to do things correctly and not incorrect but still have them seem to work for some reason.

Thanks.
-Morgan

Subject: Re: Projected Meter Space and mapCoord
Posted by David Fanning on Wed, 09 Jul 2014 14:00:34 GMT
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Morgan Silverman writes:

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The two methods are identical. When you pass mapCoord to cgPlotS in the second method, it simply allows you to perform the caculations you do by hand in the first method.

My point was that if you have NaNs in the latitude and logitude vectors that you are trying to display, neither of these two methods can be completed successfully. It sounded to me as if that was the problem you are experiencing.

Cheers,

David

--
David Fanning, Ph.D.
Fanning Software Consulting, Inc.
Coyote's Guide to IDL Programming: http://www.idlcoyote.com/
Sepore ma de ni thue. ("Perhaps thou speakest truth.")

Subject: Re: Projected Meter Space and mapCoord
Posted by Phillip Bitzer on Wed, 09 Jul 2014 14:01:42 GMT
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Well, if you dig around in cgPlotS, you'll find out what happens if you pass the mapCoord object. Look around line 244 or so.

Basically, if you provide mapCoord, it calls the Forward method for you.

I would prefer the latter - fewer lines of code to do the same thing :-)

Subject: Re: Projected Meter Space and mapCoord

On Wednesday, July 9, 2014 10:00:34 AM UTC-4, David Fanning wrote:
> Morgan Silverman writes:
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> David
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> --
> David Fanning, Ph.D.
> Fanning Software Consulting, Inc.
> Coyote's Guide to IDL Programming: http://www.idlcoyote.com/
> Sepore ma de ni thue. ("Perhaps thou speakest truth.")

Yes, that was the problem and I understood you're response. Duh, of course NaN's can't be projected onto metered space in a map. I should have realized that. I guess I just assumed they would be skipped over. The whole metered space issue still had me thinking about these two methods though, hence the new question for clarification.

Subject: Re: Projected Meter Space and mapCoord
Posted by David Fanning on Wed, 09 Jul 2014 14:38:24 GMT
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Morgan Silverman writes:

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projected onto metered space in a map. I should have realized that. I guess I just assumed they would be skipped over. The whole metered space issue still had me thinking about these two methods though, hence the new question for clarification.

The reason for preferring to work in projected meter space is that the grid (like an image pixel) is rectangular. Very simple to match the grid with a projected image. Lat/Lon grids are, uh, NOT rectangular. Working in that space is a nightmare. :-)

Cheers,

David
--
David Fanning, Ph.D.
Fanning Software Consulting, Inc.
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Sepore ma de ni thue. ("Perhaps thou speakest truth.")
