Subject: cgPlotS problem with NaN values in data
Posted by morganlsilverman on Tue, 08 Jul 2014 19:05:15 GMT

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Hello,

I'm plotting latitude/longitude data on a map background using cgPlotS and keep getting the error message: % Program caused arithmetic error: Floating illegal operand when it gets to a NaN value in the data. Because I'm plotting this in a resizable graphics window it also brings up the keep command or delete command box each time, eventually crashing my session. Is there a way to get around this without removing the NaN values from my data? I haven't converted the coordinates to metered space because when I did it plotted the lat/lon values in the wrong locations. I think because the data is taken from a model that was run on a map coordinate system maybe. Thanks.

-Morgan

```
Pro MOZAICPanel3

lonmin = -125
lonmax = -65
latmin = 25
latmax = 60
centerlon = (lonmax-lonmin)/2.0 + lonmin
centerlat = (latmax-latmin)/2.0 + latmin
limit = [latmin, lonmin, latmax, lonmax]
xrange = [lonmin, lonmax]
yrange = [latmin, latmax]
mapCoord = Obj_New('cgmap', 'Stereographic', Ellipsoid='WGS 84', Limit=limit, $
  center_lat=centarlat, center_lon=centerlon)

; Set up 2-col by 3-row grid
p = cgLayout([2,3], Aspect=0.65, YGap=3.5, XGap=4, OXMargin=[3,3], OYMargin=[2.5,2.5])

; Draw plots
pos = p(*,5)
restore,  './MOZAIC/Trajectories/MOZAIC_Washington_BackTrajectory.sav'
mapCoord->SetProperty, Position=pos, /Draw
cgMap_Grid, map=mapCoord, /box
cgMap_Continents, map=mapCoord, /continents, /countries, /usa
cgplots, lon2500(3,*), lat2500(3,*), map=mapCoord, color='green', thick=4
cgplots, lon3000(3,*), lat3000(3,*), map=mapCoord, color='cyan', thick=4
cgplots, lon3500(3,*), lat3500(3,*), map=mapCoord, color='magenta', thick=4

end
```

Subject: Re: cgPlotS problem with NaN values in data
Posted by Matthew Argall on Tue, 08 Jul 2014 20:18:47 GMT
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Try plotting only the points that have non-NaN values.

iGood = where(finite(lon2500[3,*]) and finite(lat2500[3,*]), nGood)
if nGood gt 0 then cgplots, lon2500[3,iGood], lat2500[3,iGood], map=mapCoord, color='green', thick=4

etc.

Subject: Re: cgPlotS problem with NaN values in data
Posted by David Fanning on Tue, 08 Jul 2014 20:39:08 GMT
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Morgan Silverman writes:

> I'm plotting latitude/longitude data on a map background using cgPlotS and keep getting the error message: % Program caused arithmetic error: Floating illegal operand when it gets to a NaN value in the data. Because I'm plotting this in a resizable graphics window it also brings up the keep command or delete command box each time, eventually crashing my session. Is there a way to get around this without removing the NaN values from my data? I haven't converted the coordinates to metered space because when I did it plotted the lat/lon values in the wrong locations. I think because the data is taken from a model that was run on a map coordinate system maybe.

As you point out (somewhat ungraciously by blaming cgPlotS, I might add), there is a problem when you try to do numbery things with things that aren't, well, numbers. It's like adding (4 + "atrocious"). What in the world do you end up with?

But, your problem is not that you can't plot the numbers. To plot the numbers, you have to first convert them to projected meter space (the purpose of the map coordinate object you are passing to cgPlotS). This is the thing that is failing you, I believe.

I don't think you have any choice but to remove the incalculable points. Where would you locate the darn things on the map otherwise?

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: cgPlotS problem with NaN values in data
Posted by Paul Van Delst[1] on Tue, 08 Jul 2014 21:00:04 GMT

On 07/08/14 16:39, David Fanning wrote:
> there is a problem when you try to do numbery things with things
> that aren't, well, numbers. It's like adding (4 + "atrocious"). What in
> the world do you end up with?

Ha! I was going to go with the boring old:

  Man: "Doctor, it hurts when I do this."
  Doctor: "Well, don't do that!"

but your wordz is bettah.

I'm going to cogitate on how to use the phrases 'numbery things' and '(4
+ "atrocious")' in my near-future interactions with colleagues....

cheers,

paulv

Subject: Re: cgPlotS problem with NaN values in data
Posted by David Fanning on Tue, 08 Jul 2014 22:35:56 GMT

Paul van Delst writes:

>
> On 07/08/14 16:39, David Fanning wrote:
>> there is a problem when you try to do numbery things with things
>> that aren't, well, numbers. It's like adding (4 + "atrocious"). What in
>> the world do you end up with?
>
> Ha! I was going to go with the boring old:
>
>   Man: "Doctor, it hurts when I do this."
>   Doctor: "Well, don't do that!"
>
> but your wordz is bettah.
>

> I'm going to cogitate on how to use the phrases 'numbery things' and '(4
> + "atrocious")' in my near-future interactions with colleagues....

I was worried you were going to say my example was too much like
operator overloading. :-)

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.")