Subject: Re: map_proj_init
Posted by David Fanning on Sun, 08 Apr 2007 01:36:00 GMT
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marit writes:

> Has anyone run into the problem that subsequent calls to map_proj_init
> using a GCTP projection interfere with previously defined maps?

I get the same result on my Windows machine. Have
you reported the problem to ITTVIS? What have they
said about this?

Cheers,

David

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

Subject: Re: map_proj_init
Posted by David Fanning on Sun, 08 Apr 2007 18:43:43 GMT
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marit writes:

> Has anyone run into the problem that subsequent calls to map_proj_init
> using a GCTP projection interfere with previously defined maps? Here
> is an example:
>
> south_proj=MAP_PROJ_INIT('Polar Stereographic' ,/GCTP ,$
> semimajor_axis=6378273.0,semiminor_axis=6356889.4,$
> center_lon=0,center_lat=-70.0,false_easting=0,false_northing =0)
>
> print,map_proj_forward([0,0],[-90.0,-89.0],map_structure=sou th_proj)
> 0.0000000 0.0000000
> 0.0000000 108332.24
>
> north_proj=MAP_PROJ_INIT('Polar Stereographic' ,/GCTP ,$
> semimajor_axis=6378273.0,semiminor_axis=6356889.4,$
> center_lon=0,center_lat=70.0,false_easting=0,false_northing= 0)
>
> print,map_proj_forward([0,0],[-90.0,-89.0],map_structure=sou th_proj)
> 0.0000000 -2.0002841e+23

> 0.0000000 -1.4035070e+09
>
> I haven't yet seen this occur if the second projection is an IDL
> projection; however the IDL projections are not usually useful since
> they can't be set up like a normal projections with false easting and
> false northing and they are mostly spherical not ellipsoidal.

Interestingly, in research preparatory to writing an article
about this for my web page, I discovered that if you use
the map projection *index*, instead of the map projection
name and GCTP keyword, then all is well:

```
IDL> south_proj=MAP_PROJ_INIT(106, semimajor_axis=6378273.0,$
IDL>    semiminor_axis=6356889.4, center_lon=0,center_lat=-70.0,$
IDL>    false_easting=0,false_northing=0)
IDL> print,map_proj_forward([0,0],[-90.0,-89.0],$
IDL>    map_structure=south_proj)
     0.00000000      0.00000000
     0.00000000       108332.24
IDL> north_proj = MAP_PROJ_INIT(106, semimajor_axis=6378273.0,$
IDL>    semiminor_axis=6356889.4,center_lon=0,center_lat=-70.0,$
IDL>    false_easting=0,false_northing=0)
IDL> print,map_proj_forward([0,0],[-90.0,-89.0],$
IDL>    map_structure=south_proj)
     0.00000000      0.00000000
     0.00000000       108332.24
```

I wonder if this indicates that the bug lies in NOT
selecting the GCTP library routines, and hence, setting
something in !MAP.

Cheers,

David
--
David Fanning, Ph.D.
Fanning Software Consulting, Inc.
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Subject: Re: map_proj_init
Posted by marit on Mon, 09 Apr 2007 13:56:06 GMT
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> Interestingly, in research preparatory to writing an article
> about this for my web page, I discovered that if you use
> the map projection *index*, instead of the map projection

> name and GCTP keyword, then all is well:
>
> IDL> south_proj=MAP_PROJ_INIT(106, semimajor_axis=6378273.0,$
> IDL> semiminor_axis=6356889.4, center_lon=0,center_lat=-70.0,$
> IDL> false_easting=0,false_northing=0)

> IDL> north_proj = MAP_PROJ_INIT(106, semimajor_axis=6378273.0,$
> IDL> semiminor_axis=6356889.4,center_lon=0,center_lat=-70.0,$
> IDL> false_easting=0,false_northing=0)

You have a typo in the north projection that sets lat of true scale
(which map_proj_init confusingly calls center_lat) to -70, so in this
case both south_proj and north_proj are the same.

At any rate, I looked into map_proj_init.pro and found these two
internal routines: MAP_PROJ_GCTP_FORINIT and MAP_PROJ_GCTP_REVINIT.
If you call them with the proper parameters for each projection before
any call to map_proj_forward or map_proj_inverse the calculations are
correct. I guess there's an internal structure somewhere that can only
hold parameters for 1 GCTP projection at once?

Anyway, thanks for your thoughts on the problem. I did submit a
support incident Saturday, but since the weekend is barely over
haven't heard anything back yet.

Subject: Re: map_proj_init
Posted by David Fanning on Mon, 09 Apr 2007 15:59:43 GMT
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marit writes:

> You have a typo in the north projection that sets lat of true scale
> (which map_proj_init confusingly calls center_lat) to -70, so in this
> case both south_proj and north_proj are the same.

Ah, so I did. Thanks.

Cheers,

David
--
David Fanning, Ph.D.
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