Subject: Re: displaying things above the earth in a map projection
Posted by David Fanning on Tue, 24 Sep 2002 20:16:05 GMT
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John R. Iverson (jrivers@sandia.gov) writes:

> Is there a way to plot things above the earth when using any kind of map
> projection?
>
> I tried plots, [-106], [35], [1.5], psym=5 but it always shows up on the
> surface. I tried adding a /t3d to that command.
>
> Is there any way to do this? I think I'd prefer to stick with direct
> graphics...

```
scale3, xrange=[-180, 180], yrange=[-90, 90], zrange=[0,1]
map_set, /cylindrical, /t3d, /grid, /continent
plots, 45, 45, 0.25, /t3d, psym=4, symsize=5.0
```

Cheers,

David
--
David W. Fanning, Ph.D.
Fanning Software Consulting, Inc.
Phone: 970-221-0438, E-mail: david@dfanning.com
Coyote's Guide to IDL Programming: http://www.dfanning.com/
Toll-Free IDL Book Orders: 1-888-461-0155

Subject: Re: displaying things above the earth in a map projection
Posted by Andy Loughe on Tue, 24 Sep 2002 21:40:40 GMT
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David- Any idea why the isotropic keyword fails for this
map_set example? (using IDL 5.3)
It works for other projections. Strange.

David Fanning wrote:
> scale3, xrange=[-180, 180], yrange=[-90, 90], zrange=[0,1]
> map_set, /cylindrical, /t3d, /grid, /continent
> plots, 45, 45, 0.25, /t3d, psym=4, symsize=5.0
>
> Cheers,
>
> David

--
Andrew Loughe ==========
NOAA/OAR/FSL/AD R/FS5 | email: Andrew.Loughe@noaa.gov
325 Broadway | wwweb: www-ad.fsl.noaa.gov/users/loughe
Boulder, CO 80305-3328 | phone: 303-497-6211 fax: 303-497-6301

Subject: Re: displaying things above the earth in a map projection
Posted by John R. Iverson on Wed, 25 Sep 2002 17:47:45 GMT
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First of all, thanks!

Second, I have 2 questions:

1. it doesn't seem like this works while preserving the orthographic projection. Is there any way I can use the transformation set up by the map_set command to throw my data into space?

2. I guess I just don't understand why this command doesn't do what I think it should? (draw a line from the map to the symbol you brought up earlier):

plots, [45, 45], [45, 45], [0, 0.25], /t3d

I really appreciate the help given to this IDL newbie!

-Rob

David Fanning wrote:
>
> John R. Iverson (jrivers@sandia.gov) writes:
>
>> Is there a way to plot things above the earth when using any kind of map
>> projection?
>>
>> I tried plots, [-106], [35], [1.5], psym=5 but it always shows up on the
>> surface. I tried adding a /t3d to that command.
>>
>> Is there any way to do this? I think I'd prefer to stick with direct
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>
> scale3, xrange=[-180, 180], yrange=[-90, 90], zrange=[0,1]
> map_set, /cylindrical, /t3d, /grid, /continent
> plots, 45, 45, 0.25, /t3d, psym=4, symsize=5.0
>
> Cheers,
>

> David
> --
> David W. Fanning, Ph.D.
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Subject: Re: displaying things above the earth in a map projection
Posted by James Kuyper on Wed, 25 Sep 2002 18:38:51 GMT
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"John R. Iverson" wrote:
...
> 2. I guess I just don't understand why this command doesn't do what I
> think it should? (draw a line from the map to the symbol you brought up
> earlier):
>
> plots, [45, 45], [45, 45], [0, 0.25], /t3d
>

Well, I've figured out what it's doing. I can't say that I understand
why. Try the following:

plots, 10*indgen(9),90-10*indgen(9),0.1*indgen(9),/t3

Apparantly it draws each line segment at a constant Z value equal to the
Z value at the start of the line segment. Therefore, in particular, for
your command it draws a straight line from [45,45,0] to [45,45,0].

Would anyone care to enlighten me as to why this was considered a
worthwhile thing to do?

Subject: Re: displaying things above the earth in a map projection
Posted by David Fanning on Thu, 26 Sep 2002 03:16:23 GMT
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John R. Iverson (jrivers@sandia.gov) writes:

> 1. it doesn't seem like this works while preserving the orthographic
> projection. Is there any way I can use the transformation set up by the
> map_set command to throw my data into space?

Well, let me just say this: I don't think the IDL
graphic system was built with this kind of thing

in mind. :-)

I don't know why certain may projections don't work,
nor do I know why there is all kinds of clipping going
on when you try to do an ISOTROPIC map projection. I
suspect there are bugs in the interaction between the
system variables set up by the map routines, and the
system variables relied on by the plotting routines.
All totally confused by trying to do all of this in
3D space.

> 2. I guess I just don't understand why this command doesn't do what I
> think it should? (draw a line from the map to the symbol you brought up
> earlier):
>
> plots, [45, 45], [45, 45], [0, 0.25], /t3d
>
> I really appreciate the help given to this IDL newbie!

I don't understand this one either. In fact, I had exactly
this line in my original example and couldn't figure out why
it didn't work. I know PLOTS can do this, because I was
staring at page 98 in my book where I used the PLOTS command
to do practically this very thing! As I had to go to a tennis
match, I just chalked it up to the "eternal mystery" and left
it off the example I posted, hoping no one would notice the
obvious line missing. Well, alas. :-(

For what it is worth, I notice that no line is drawn with
this code:

```
scale3, xrange=[-180, 180], yrange=[-90, 90], zrange=[0,1]
plots, [45, 45], [45, 45], [0, 0.25], /t3d
map_set, /cylindrical, /t3d, /grid, /continent, /NoErase
plots, 45, 45, 0.25, /t3d, psym=4, symsize=5.0
```

But it *is* drawn with this code:

```
erase
surface, xrange=[-180, 180], yrange=[-90, 90], zrange=[0,1], $
  /Save, Dist(41), /NoData, XStyle=4, YStyle=4, ZStyle=5
plots, [45, 45], [45, 45], [0, 0.25], /t3d
map_set, /cylindrical, /t3d, /grid, /continent, /NoErase
plots, 45, 45, 0.25, /t3d, psym=4, symsize=5.0
```

I don't have the foggiest notion of what this means. It
seems to me *exactly* the same 3D space is being set
up in both cases, but obviously something is different.

I don't know what it might be.

Sorry I can't help. I can get you a free pass to the
IEPA Induction Dinner next month, if you are interested.
You won't learn anything about IDL there, either, but
it sure is interesting. :-)

Cheers,

David

--
David W. Fanning, Ph.D.
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