Subject: Day/Night Terminator on Map Projection
Posted by David Fanning on Sat, 08 Apr 2006 00:26:15 GMT
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Hi Folks,

Does anyone have IDL code for calculating the day/night terminator on a map projection? Or perhaps an example of a map in which you have done this?

If the code is not proprietary, maybe I'll write an article about this. It can't be the first time someone has needed such a thing. Direct graphics, is what has been requested of me. :-)

Cheers,

David
--
David Fanning, Ph.D.
Fanning Software Consulting, Inc.
Coyote's Guide to IDL Programming: http://www.dfanning.com/

Subject: Re: Day/Night Terminator on Map Projection
Posted by David Fanning on Thu, 13 Apr 2006 06:00:41 GMT
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David Fanning writes:

> Does anyone have IDL code for calculating the day/night
> terminator on a map projection? Or perhaps an example of
> a map in which you have done this?

Thanks to Kelly Dean and Andrew Cool for suppling me with a few (slightly buggy!) examples of how to do this. :-)

After spending most of the day scratching my head and pondering yet again the shear beauty of Ray Sterner's JHUAPL code, I finally came up with something I like.

Rather than just drawing the day/night terminator, I wanted to see it in living color. So I used the AVHRR data set that comes in the IDL demo directory for this purpose. It makes a very pretty map, if I do say so myself!

You can see the code I came up with and a nice picture here:

http://www.dfanning.com/map_tips/terminator.html

To run the code, you will need to have both the Coyote Library and the JHUAPL Library on your IDL path.

I'll probably spend some time tomorrow making a little stand-alone application out of this with widgets so you can change the time interactively. It's more interesting than I would have thought to change the time and watch the sun and shadows move though the day and year. :-)

Cheers,

David
--
David Fanning, Ph.D.
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Subject: Re: Day/Night Terminator on Map Projection
Posted by Haje Korth on Thu, 13 Apr 2006 12:10:53 GMT
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Thanks for sharing! Haje

"David Fanning" <davidf@dfanning.com> wrote in message
news:MPG.1ea796ded95b4343989c0c@news.frii.com...
> David Fanning writes:
>
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>
> David
> --
> David Fanning, Ph.D.
> Fanning Software Consulting, Inc.
> Coyote's Guide to IDL Programming: http://www.dfanning.com/

Subject: Re: Day/Night Terminator on Map Projection
Posted by David Fanning on Thu, 13 Apr 2006 15:20:07 GMT
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David Fanning writes:

> You can see the code I came up with and a nice picture
> here:
>
> http://www.dfanning.com/map_tips/terminator.html
>
> To run the code, you will need to have both the Coyote
> Library and the JHUAPL Library on your IDL path.

Yikes! Matt Savoie just pointed out a very interesting
problem with the code on LINUX machines. It seems that
on LINUX (and possibly UNIX, I don't know) that issuing
a MAP_SET command changes the state of !P.MULTI. This
causes problems with TVIMAGE that I wasn't aware of.

Here is an IDL session on my LINUX box:

```
IDL> Print, !P.MULTI
      0  0  0  0  0
IDL> Map_Set, /Cylindrical
```

```
IDL> Print, !P.MULTI
     -1  0  0  0  0
```

An obvious workaround is to put a !P.MULTI=0 command after every MAP_SET, but maybe there is something less ugly than that available. I'll poke around a bit.

But in the meantime, I've put new code on my web page that contains the workaround.

Cheers,

David
--
David Fanning, Ph.D.
Fanning Software Consulting, Inc.
Coyote's Guide to IDL Programming: http://www.dfanning.com/

Subject: Re: Day/Night Terminator on Map Projection
Posted by JD Smith on Thu, 13 Apr 2006 23:15:33 GMT
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On Fri, 07 Apr 2006 18:26:15 -0600, David Fanning wrote:

> Hi Folks,
>
> Does anyone have IDL code for calculating the day/night
> terminator on a map projection? Or perhaps an example of
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>
> If the code is not proprietary, maybe I'll write an article
> about this. It can't be the first time someone has needed
> such a thing. Direct graphics, is what has been requested of
> me. :-)

I guess you saw this page too:

http://fermi.jhuapl.edu/s1r/idl/s1rlib/sphere/earth.html#sun clock

Those twilight bands are cool (usually defined as where the sun is 6, 12, and 18 degrees below the horizon). You might have some fun adding those.

JD
