
Subject: Longstanding Map Overlay Problem Solved!
Posted by [David Fanning](#) on Fri, 14 Mar 2008 21:00:20 GMT
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Folks,

For well over a year I have been pondering a map overlay problem. The problem appears when trying to overlay continental outlines on a GeoTIFF image. If you use the UV_BOX that is returned in the map projection structure from MAP_PROJ_INIT to set up a data coordinate space, then the outlines are just ever so slightly wrong. However, if you use the UV_BOX that is returned from MAP_PROJ_IMAGE, even if you don't warp the image, the results are absolutely correct. The problem (and solution) is described here.

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

With a great deal of help from Matt Savoie, I have now identified the reason these two UV_BOXES are slightly different. The answer comes down to a limitation in MAP_PROJ_INIT.

Specifically, the limitation is that the LIMIT keyword to MAP_PROJ_INIT can only accept a four-element vector that describes two opposite corner points on the image. The assumption is that the other two opposite corner points can also be determined by this method. Unfortunately, that is not a valid assumption for images that are in some type of map projection already.

Rather, we need to use an 8-element LIMIT vector to describe the location of a projected image in lat/lon space. Something of this sort is available for MAP_SET, although you must specify the left, top, right, and bottom of the image, rather than its corners. But if you try to use an 8-element LIMIT vector with MAP_PROJ_INIT, it will accept it without argument, it will just **completely** ignore its values.

Fortunately, MAP_PROJ_IMAGE **does** calculate the 8-element limit correctly, and so does return the correct UV_BOX to set up the data coordinate space. But, as Matt discovered, it is also possible to set the data coordinate space directly from values calculated from geotiff information in the file.

So, now we have two solutions, and it is only the most commonly used method that is wrong. :-)

Anyway, I can't tell you how happy I am to know the reason for this longstanding discrepancy and I look forward to submitting a feature request to ITTVIS to get this cleared up.

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: Longstanding Map Overlay Problem Solved!
Posted by [David Fanning](#) on Sun, 16 Mar 2008 05:38:55 GMT
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Bulrush writes:

> I downloaded all of the example codes into IDL lib folder. however, the
> program can not be compiled and stating following error.
> TVLCT, FSC_Color('ivory', /Triple), 0
>
> Syntax error.
> At: F:\IDLPractice\data\MapOverlay\tiffoverlay.pro, Line 74
> 1 Compilation error(s) in module TIFFOVERLAY.

Well, let's see if I can make this simpler. Download this file and unzip it into the directory with the example files:

<http://www.dfanning.com/programs/coyoteprograms.zip>

The country outlines are part of the IDL distribution. There is nothing to "get". If you want to "get" something (and I wouldn't recommend it in this case), you can try the GSHHS shoreline data base:

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

Cheers,

David

--

David Fanning, Ph.D.

Fanning Software Consulting, Inc.

Subject: Re: Longstanding Map Overlay Problem Solved!
Posted by [Wasit.Weather](#) on Sun, 16 Mar 2008 14:39:59 GMT
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On Mar 16, 12:38 am, David Fanning <n...@dfanning.com> wrote:

> Bulrush writes:
>> I downloaded all of the exampel codes into IDL lib folder. however,the
>> program can not be compiled and stating following error.
>> TVLCT, FSC_Color('ivory', /Triple), 0
>
>> Syntax error.
>> At: F:\IDLPractice\data\MapOverlay\tiffoverlay.pro, Line 74
>> 1 Compilation error(s) in module TIFFOVERLAY.
>
> Well, let's see if I can make this simpler. Download this
> file and unzip it into the directory with the example
> files:
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> (and I wouldn't recommend it in this case), you can try
> the GSHHS shoreline data base:
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> http://www.dfanning.com/map_tips/gshhs.html
>
> 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.")

Well,
I downloaded all of your programs into the same directory. Still can
not be compiled.
Stating the error in line 74 at "/Triple"

Thanks anyway!

Subject: Re: Longstanding Map Overlay Problem Solved!
Posted by [David Fanning](#) on Sun, 16 Mar 2008 14:54:49 GMT
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Bulrush writes:

> I downloaded all of your programs into the same directory. Still can
> not be compiled.
> Stating the error in line 74 at "/Triple"

OK, let's try this.

IDL> print, !path

Are these files in any one of the directories listed
on your path? They will have to be to get compiled
correctly.

Cheers,

David

--

David Fanning, Ph.D.

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Subject: Re: Longstanding Map Overlay Problem Solved!
Posted by [Wasit.Weather](#) on Sun, 16 Mar 2008 15:40:17 GMT
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On Mar 16, 9:54 am, David Fanning <n...@dfanning.com> wrote:

> Bulrush writes:
>> I downloaded all of your programs into the same directory. Still can
>> not be compiled.
>> Stating the error in line 74 at "/Triple"
>
> OK, let's try this.
>
> IDL> print, !path
>
> Are these files in any one of the directories listed
> on your path? They will have to be to get compiled
> correctly.
>
> 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.")

Thanks!

I changed the path. Now I can compile it, however, It said can not open the tif file.

READ_TIFF: C:\Documents and Settings\Zulher\AF03sep15b.n16-VIlg: Cannot open

Subject: Re: Longstanding Map Overlay Problem Solved!
Posted by [David Fanning](#) on Sun, 16 Mar 2008 16:56:37 GMT
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Bulrush writes:

> I changed the path. Now I can compile it, however, It said can not
> open the tif file.
> READ_TIFF: C:\Documents and Settings\Zulher\AF03sep15b.n16-VIlg: Cannot
> open

OK, the program needs to know where the file is located.
You can either modify the program to include the complete file path to the image file (wherever you put it), or you can put the file in the directory where you are running the program. (Sounds to me like you are running the program from some other directory than the one it resides in.)

The easiest thing, if you have put all these files into the same place, is to just make sure that is the place you are running IDL from. Suppose you put all these files in C:\Coyote (a good place). And you have added this directory to your IDL path:

```
IDL> !PATH = 'C:\coyote;' + !PATH
```

Then, you need to make this your current directory:

```
IDL> CD, 'C:\coyote'
```

Now, if all your files are here, and your data file is here, you can run this program. :-)

You can find your current directory in IDL, by doing

this:

```
IDL> CD, CURRENT=thisDir & Print, thisDir
```

Cheers,

David

--

David Fanning, Ph.D.

Fanning Software Consulting, Inc.

Coyote's Guide to IDL Programming: <http://www.dfanning.com/>

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Subject: Re: Longstanding Map Overlay Problem Solved!

Posted by [Wasit.Weather](#) on Sun, 16 Mar 2008 17:33:30 GMT

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On Mar 16, 11:56 am, David Fanning <n...@dfanning.com> wrote:

> Bulrush writes:

>> I changed the path. Now I can compile it, however, It said can not

>> open the tif file.

>> READ_TIFF: C:\Documents and Settings\Zulher\AF03sep15b.n16-Vlg: Cannot

>> open

>

> OK, the program needs to know where the file is located.

> You can either modify the program to include the complete

> file path to the image file (wherever you put it), or

> you can put the file in the directory where you are running

> the program. (Sounds to me like you are running the program

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> Then, you need to make this your current directory:

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> Cheers,
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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.dfanning.com/>
> Sepore ma de ni thui. ("Perhaps thou speakest truth.")

YOU ARE GREAT!
Thanks. It works!
