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Subject: Re: Filled Contour Colors on Maps Incorrect  
Posted by [Martin Downing](#) on Wed, 26 Sep 2001 10:52:34 GMT  
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"David Fanning" <david@dfanning.com> wrote in message  
news:MPG.161af29e35a9e8be9896c8@news.frii.com...

> Folks,  
>  
> I have a feeling you map guys are not going to like this  
> post. :-(  
>  
> Here is a filled-contour-on-a-map-projection problem  
> that has been giving me nightmares.  
>  
> I wish to put a filled contour plot on a cylindrical  
> map projection. I've read all the articles on that  
> Coyote site about filled contours and I am aware of  
> all the pitfalls. I have created my own contour intervals,  
> and I know exactly which colors I am using for my  
> filled contours.  
>  
> I follow the recommended procedure. I create a map  
> projection with Map\_Set. I add the filled contour  
> command by specifying the data and the vectors of  
> latitude and longitude and I use the Contour command  
> with the OVERPLOT keyword set. But...  
>  
> The colors are not right. I know this for two reasons.  
> First, I have used exactly the same data set with the  
> GrADS software and produced a contour plot that has the  
> same contour intervals, but is colored differently.  
> Second, I have confirmed that the data is identical  
> in both the GrADS and IDL programs.  
>

Hi David,

The CONTOUR bug can be illustrated very well in your code by just switching  
off /FILL in the first contour call, or trying this to illustrate it:

```
Map_Set, 0, 180, /CYLINDRICAL, LIMIT=limit, $  
    Position=[0.1,0.15,0.9,0.9], $  
    Color=white, charsize=2  
; edited first call with FILL unset  
Contour, data, lons, lats, $  
    C_Colors=cn, Color=WHITE, $black, $  
    Max_Value=cmax, Min_Value=cmin, $  
    Levels=clevels, /OVERPLOT
```

```
wait , 5 ; Time to see that the unfilled contours make sense
; now do the original call:
Contour, data, lons, lats, $
    C_Colors=cn, Color=WHITE, $black, $
    Max_Value=cmax, Min_Value=cmin, $
    Levels=clevels, /FILL, /OVERPLOT
; Oh dear - the filled contours have has no relation to the unfilled
contours
```

cheers

Martin

---

---

Subject: Re: Filled Contour Colors on Maps Incorrect  
Posted by [David Fanning](#) on Wed, 26 Sep 2001 12:44:08 GMT  
[View Forum Message](#) <> [Reply to Message](#)

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Martin Downing (martin.downing@ntlworld.com) writes:

```
> The CONTOUR bug can be illustrated very well in your code by just switching
> off /FILL in the first contour call, or trying this to illustrate it:
>
>
> Map_Set, 0, 180, /CYLINDRICAL, LIMIT=limit, $
>     Position=[0.1,0.15,0.9,0.9], $
>     Color=white, charsize=2
> ; edited first call with FILL unset
> Contour, data, lons, lats, $
>     C_Colors=cn, Color=WHITE, $black, $
>     Max_Value=cmax, Min_Value=cmin, $
>     Levels=clevels, /OVERPLOT
> wait , 5 ; Time to see that the unfilled contours make sense
> ; now do the original call:
> Contour, data, lons, lats, $
>     C_Colors=cn, Color=WHITE, $black, $
>     Max_Value=cmax, Min_Value=cmin, $
>     Levels=clevels, /FILL, /OVERPLOT
> ; Oh dear - the filled contours have has no relation to the unfilled
> contours
```

No, alas. If I try to overplot filled contours onto a previously constructed contour plot, the colors are correct ONLY if that contour plot is not associated with a map projection.

Cheers,

David

--

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Subject: Re: Filled Contour Colors on Maps Incorrect  
Posted by [R.Bauer](#) on Wed, 26 Sep 2001 14:19:22 GMT  
[View Forum Message](#) <> [Reply to Message](#)

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David Fanning wrote:

>  
> Martin Downing (martin.downing@ntlworld.com) writes:  
>  
>> The CONTOUR bug can be illustrated very well in your code by just switching  
>> off /FILL in the first contour call, or trying this to illustrate it:

Sorry this is no bug.

You should use /CELL\_FILL instead of /FILL with maps.

CELL\_FILL

Because of the handling of missing\_data I always use /cell\_fill without maps too.

regards  
Reimar

Set this keyword to produce a filled contour plot using a "cell filling" algorithm. Use this keyword instead of FILL when you are drawing filled contours over a map, when you have missing data, or when contours that extend off the edges of the contour plot.

>>

```

>>
>> Map_Set, 0, 180, /CYLINDRICAL, LIMIT=limit, $
>>     Position=[0.1,0.15,0.9,0.9], $
>>     Color=white, charsize=2
>> ; edited first call with FILL unset
>> Contour, data, lons, lats, $
>>     C_Colors=cn, Color=WHITE, $black, $
>>     Max_Value=cmax, Min_Value=cmin, $
>>     Levels=clevels, /OVERPLOT
>> wait , 5 ; Time to see that the unfilled contours make sense
>> ; now do the original call:
>> Contour, data, lons, lats, $
>>     C_Colors=cn, Color=WHITE, $black, $
>>     Max_Value=cmax, Min_Value=cmin, $
>>     Levels=clevels, /FILL, /OVERPLOT
>> ; Oh dear - the filled contours have has no relation to the unfilled
>> contours

```

```

>
> No, alas. If I try to overplot filled contours
> onto a previously constructed contour plot, the colors
> are correct ONLY if that contour plot is not associated
> with a map projection.

```

```

>
> Cheers,
>
> David
>
> --
> David W. Fanning, Ph.D.
> Fanning Software Consulting
> 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

```

--  
Reimar Bauer

Institut fuer Stratosphaerische Chemie (ICG-1)  
Forschungszentrum Juelich  
email: R.Bauer@fz-juelich.de  
<http://www.fz-juelich.de/icg/icg1/>

=====

a IDL library at Forschungszentrum Juelich  
[http://www.fz-juelich.de/icg/icg1/idl\\_icglib/idl\\_lib\\_intro.html](http://www.fz-juelich.de/icg/icg1/idl_icglib/idl_lib_intro.html)

<http://www.fz-juelich.de/zb/text/publikation/juel3786.html>

=====

read something about linux / windows  
<http://www.suse.de/de/news/hotnews/MS.html>

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Subject: Re: Filled Contour Colors on Maps Incorrect  
Posted by [David Fanning](#) on Wed, 26 Sep 2001 14:30:48 GMT  
[View Forum Message](#) <> [Reply to Message](#)

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Reimar Bauer ([r.bauer@fz-juelich.de](mailto:r.bauer@fz-juelich.de)) writes:

> You should use /CELL\_FILL instead of /FILL with maps.

Oh, right. Well, there you go! I learn something  
new nearly every day with IDL. :-)

Thanks, Reimar.

Cheers,

David

--

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Subject: Re: Filled Contour Colors on Maps Incorrect  
Posted by [Pavel A. Romashkin](#) on Wed, 26 Sep 2001 14:50:36 GMT  
[View Forum Message](#) <> [Reply to Message](#)

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David Fanning wrote:

>

> Here is a filled-contour-on-a-map-projection problem  
> that has been giving me nightmares.

Now you can see that instead of living with nightmares for days all you  
need to do is to type a message to the news group. Then, you get a  
little bit of embarassement because it turns out you did not read the  
manual. Then, it all works and the nightmares are over.

I follow this scheme all the time. The only difference is that I tend to  
ask a question before I even have an idea of what I need or want :-)

Cheers,  
Pavel

---

---

Subject: Re: Filled Contour Colors on Maps Incorrect  
Posted by [David Fanning](#) on Wed, 26 Sep 2001 15:21:57 GMT  
[View Forum Message](#) <> [Reply to Message](#)

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Pavel A. Romashkin (pavel.romashkin@noaa.gov) writes:

> Now you can see that instead of living with nightmares for days all you  
> need to do is to type a message to the news group. Then, you get a  
> little bit of embarassement because it turns out you did not read the  
> manual. Then, it all works and the nightmares are over.

Embarrassed!? Why would I be embarrassed?

Why in the world would I be reading about the  
CELL\_FILL keyword? I was \*using\* the FILL keyword  
on a MAP PROJECTION. I didn't find \*anything\* under  
those two topics in the documentation concerning my  
problem.

No, my dear Pavel, I'm not the one who should  
be embarrassed. :-)

Cheers,

David

P.S. Let's just say if I knew what I was looking for  
I wouldn't even NEED the index!

--

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Subject: Re: Filled Contour Colors on Maps Incorrect  
Posted by [Martin Downing](#) on Wed, 26 Sep 2001 15:27:15 GMT  
[View Forum Message](#) <> [Reply to Message](#)

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Ok your right enough, its not a bug! Inspired by Reimar's excellent example  
of actually reading the manual, I noted that under the CELL\_FILL section of  
the CONTOUR routine it states:  
"Tip - In order for CONTOUR to fill the contours properly when using a map  
projection, the X and Y arrays (if supplied) must be arranged in increasing  
order. This ensures that the polygons generated will be in counter clockwise  
order, as required by the mapping graphics pipeline."

Sure enough David's data had the Y data (LATS) in decreasing order. So all we need to do to fix David's puzzle is reverse the Y data before the plot routines:

```
lats = reverse(lats)
data = reverse(data, 2)
```

The example then works fine (and actually gives yet another different result if you just replace /FILL with /CELL\_FILL)!

Cheers

Martin

Funny that RSI considers information that would have prevented this whole diversion a *\*tip\** :)

--

-----  
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Orthopaedic RSA Research Centre,  
Woodend Hospital, Aberdeen, AB15 6LS.  
Tel. 01224 556055 / 07903901612  
Fax. 01224 556662

m.downing@abdn.ac.uk

"David Fanning" <david@dfanning.com> wrote in message  
news:MPG.161b9484d4bf047b9896cb@news.frii.com...

> Reimar Bauer (r.bauer@fz-juelich.de) writes:

>

>> You should use /CELL\_FILL instead of /FILL with maps.

>

> Oh, right. Well, there you go! I learn something

> new nearly every day with IDL. :-)

>

> Thanks, Reimar.

>

> Cheers,

>

> David

>

> --

> David W. Fanning, Ph.D.

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- 

---

Subject: Re: Filled Contour Colors on Maps Incorrect  
Posted by [Martin Downing](#) on Wed, 26 Sep 2001 15:34:12 GMT  
[View Forum Message](#) <> [Reply to Message](#)

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"Martin Downing" <[martin.downing@ntlworld.com](mailto:martin.downing@ntlworld.com)> wrote in message  
news:otms7.1126\$Vj1.144140@news2-win.server.ntlworld.com...

.....

- >
- > lats = reverse(lats)
- > data = reverse(data, 2)
- >
- > The example then works fine (and actually gives yet another different result
- > if you just replace /FILL with /CELL\_FILL)!

No sorry that was on my hacked around code, with /CELL\_FILL you do get the right answer whether or no the X or Y coords are decreasing.

Martin

---

---

Subject: Re: Filled Contour Colors on Maps Incorrect  
Posted by [David Fanning](#) on Wed, 26 Sep 2001 15:39:56 GMT  
[View Forum Message](#) <> [Reply to Message](#)

---

Martin Downing ([martin.downing@ntlworld.com](mailto:martin.downing@ntlworld.com)) writes:

- > Funny that RSI considers information that would have prevented this whole
- > diversion a \*tip\* :)

And even funnier that it would be in a location where you are unlikely to find it when you need it. Somebody there at RSI is a real jokester.

Cheers,

David

--

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---

Subject: Re: Filled Contour Colors on Maps Incorrect  
Posted by [Martin Downing](#) on Wed, 26 Sep 2001 15:57:09 GMT  
[View Forum Message](#) <> [Reply to Message](#)

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I guess now you can reuse [http://www.dfanning.com/test/contour\\_fill\\_bug.html](http://www.dfanning.com/test/contour_fill_bug.html)  
as an \*out take\* in your next book!

Martin

"David Fanning" <david@dfanning.com> wrote in message  
news:MPG.161ba4b3879561549896ce@news.frii.com...  
> Martin Downing (martin.downing@ntlworld.com) writes:  
>  
>> Funny that RSI considers information that would have prevented this  
whole  
>> diversion a \*tip\* :)  
>  
> And even funnier that it would be in a location where  
> you are unlikely to find it when you need it. Somebody  
> there at RSI is a real jokester.  
>  
> Cheers,  
>  
> David  
>  
>  
> --  
> David W. Fanning, Ph.D.  
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Subject: Re: Filled Contour Colors on Maps Incorrect  
Posted by [David Fanning](#) on Wed, 26 Sep 2001 16:09:23 GMT  
[View Forum Message](#) <> [Reply to Message](#)

---

Martin Downing (martin.downing@ntlworld.com) writes:

> I guess now you can reuse [http://www.dfanning.com/test/contour\\_fill\\_bug.html](http://www.dfanning.com/test/contour_fill_bug.html)

> as an \*out take\* in your next book!

Unfortunately, this is how books get written,  
which is why nobody writes them.

This simple lesson cost me about \$1500 in lost  
wages and will take about a paragraph to  
explain. (In fact, I've already updated by book  
for the next printing next month).

Let's see, 234,569 paragraphs times \$1500 each.  
I guess I'll have to charge about \$2354 each for the  
book to break even. :-(

Cheers,

David

--

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Subject: Re: Filled Contour Colors on Maps Incorrect  
Posted by [Pavel A. Romashkin](#) on Wed, 26 Sep 2001 17:09:36 GMT  
[View Forum Message](#) <> [Reply to Message](#)

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David Fanning wrote:

>

> P.S. Let's just say if I knew what I was looking for  
> I wouldn't even NEED the index!

We are again at the same dilemma here: how nice it would be if it all  
was where we'd like it all to be. Since it ain't there but where it is  
instead, the next question is - should we still try to look for it  
elsewhere? Or complain that it ain't where we'd want it to be?

I am not being a proponent of manuals that seem to be produced using the  
RANDOMU function, but that's kind of manuals we have. So any time I get  
to a point where I suspect a "bug", I go and re-read the ENTIRE online  
help for the routines I use in that code. It doesn't really take much  
time (and eventually you get to remember the different keywords, too).  
Often, I find answers in some seemingly irrelevant section. Oh well. As  
long as the job gets done...

Cheers,  
Pavel

P.S. Someone told me that re-writing and reorganizing the manuals is about the worst thing one can be doing. Unappreciated and very difficult, and this why the manuals are the way they are. Who told me that, now?

---

---

Subject: Re: Filled Contour Colors on Maps Incorrect  
Posted by [David Fanning](#) on Wed, 26 Sep 2001 17:20:21 GMT  
[View Forum Message](#) <> [Reply to Message](#)

---

Pavel A. Romashkin (pavel.romashkin@noaa.gov) writes:

> P.S. Someone told me that re-writing and reorganizing the manuals is  
> about the worst thing one can be doing. Unappreciated and very  
> difficult, and this why the manuals are the way they are. Who told me  
> that, now?

Right. I momentarily lost my sense of perspective. It's been a frustrating couple of days, mostly because the boys on the tennis team I'm coaching got blistered by our arch rivals yesterday afternoon. The only bright stop was my son and his partner whipping the Number 1 team. Guess I was just feeling sorry for myself. I'm going to kick the dog right now and get over it. :-)

I agree, it's a hard job. (I was just updating my own index a moment ago. Talk about the pot calling the kettle black...)

Cheers,

David

--

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---

Subject: Re: Filled Contour Colors on Maps Incorrect  
Posted by [Mark Hadfield](#) on Wed, 26 Sep 2001 22:20:24 GMT  
[View Forum Message](#) <> [Reply to Message](#)

---

From: "Pavel A. Romashkin" <pavel.romashkin@noaa.gov>  
> I am not being a proponent of manuals that seem to be produced using the  
> RANDOMU function, but that's kind of manuals we have.

The indexing of them in the Windows help files is kind of quirky too.

But my suggestion to all IDL users is, if you find something confusing in the IDL documentation, point it out to RSI tech support. They always seem ready to accept suggestions for improvement. Heck, these days they don't even snarl too much when you send them in.

---

Mark Hadfield  
m.hadfield@niwa.cri.nz <http://katipo.niwa.cri.nz/~hadfield>  
National Institute for Water and Atmospheric Research

--

Posted from clam.niwa.cri.nz [202.36.29.1]  
via Mailgate.ORG Server - <http://www.Mailgate.ORG>

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