
Subject: Re: Logarithmic Color Scaling

Posted by [Braedley](#) on Wed, 06 Dec 2006 13:18:00 GMT

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David Fanning wrote:

> Braedley writes:

>

>> I would tend to agree with JD on this. I don't think it would be a
>> good idea to scale the color table (and hence the colorbar). I've
>> never had to worry about the problem you're facing because whenever I
>> did anything remotely like this, I worked in dB, and so my colorbar was
>> labeled in dB. I think it would be trivial for you to go from this
>> thinking to labeling your colorbar logarithmically.

>

> Well, I've been looking for the trivial solution for
> the past 48 hours straight. I'd be delighted to be
> pointed in the right direction. May I see your code?

>

> I do agree with you that it is trivial to
> label a color bar logarithmically. What I am finding
> difficult is making the colors associated with the
> color bar labels accurately reflect the values
> in the data, which seems to me to be pretty much the
> point of a color bar.

>

> With the exception of `spectro_plot` from the SolarSoft
> library, which I have still not had time to download,
> I have seen a lot of advice, but no working code. This
> leads me to believe maybe it's not as trivial as everyone
> (including me) thought it might be. :-)

>

> 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.")

Actually, I got the code I'm using just for the colorbar from a co-worker, and may very well have been written by you back when you were at Precision Visuals. The trick is when the data is byte scaled, the extremes of the data need to be recorded. Since the data I use could extend from 0dB down to well under -120dB, the decision was made to impose a maximum dynamic range of 80dB for the plot. The data is then byte scaled like so:

```
max=max(data)
new_data=bytsc1(data, max=max, min=max-80)
;get the data on the screen using combination of plot, /nodata and
tvimage
```

Remember that the data is in dB. Then the call to a colorbar routine just needs a log keyword, and a call like so:

```
some_colorbar_routine, /top, min=10.0^((max-80)/10.0),
max=10^(max/10.0), /log
```

Braedley
