## Subject: Re: fun with nonlinearity and COLORBAR Posted by David Fanning on Thu, 21 Oct 2010 19:35:45 GMT

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## Jeremy Bailin writes:

- > I'm looking for advice on a plot I'm making that uses David's COLORBAR
- > routine. The problem is that the mapping between color index in the
- > image and data value is guite non-linear and not a simple
- > transformation, either (it's generated via histogram equalization).

>

- > There are a few ways I can imagine having it look. So first, from an
- > aesthetics (and ease-of-understanding) standpoint, which would be
- > best?
- 1. The colorbar has one line for each color index, and is annotated
- > using 6 evenly-spaced divisions, but the numbers marking those
- > divisions are not evenly distributed.
- 2. The colorbar has one line for each color index, the annotations
- > are evenly spaced in \*value\*, but are spaced unevenly along the color
- > bar.
- 3. The colorbar is annotated using 6 evenly-spaced divisions that
- > have evenly-spaced numbers, and the colors within the color bar vary
- > (i.e. the mapping between row up the color bar and color index is no
- longer linear).

>

- > The second question is implementation. I can achieve #1 very easily
- > using COLORBAR. I think that in order to do #2, I would need to
- > essentially roll my own version of COLORBAR that changes the
- > annotation locations are there any shortcuts that would let me use
- > the existing routine? To do #3, my best idea is to regenerate a new
- > (non-linearly altered) color table, and then use the existing COLORBAR
- > routine. Any caveats with that, or any easier ways to do it?

>

- Alternatively, what other ideas do people have for conveying this kind
- > of information?

If you are talking about six discrete colors, I would use the discrete color bar, DCBAR.

I have implemented something like number 1, equally spaced divisions, with non-linear values, using FSC Colorbar (new name!) in this article:

http://www.dfanning.com/map\_tips/precipmap.html

I had to use a tick formatting function to do it correctly.

Cheers,

## David

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Sepore ma de ni thui. ("Perhaps thou speakest truth.")