
Subject: Re: image contrast, bias a la DS9
Posted by [Gray](#) on Thu, 22 Apr 2010 15:08:48 GMT
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On Apr 22, 10:35 am, David Fanning <n...@dfanning.com> wrote:

> Gray writes:
>> The image display/processing program DS9 has a feature where you can
>> interactively adjust the colormap of the image by dragging the mouse;
>> this changes the colormap's "contrast" (between 0 and 10) and
>> "bias" (between 0 and 1). I'd like to be able to reproduce that kind
>> of adjustment in IDL (not interactively - I want to be able to apply
>> the same adjustments to a number of images), but I'm not sure exactly
>> what it is they're doing. Can anyone give me guidance?
>
> I don't have any idea what they are doing, but this sounds
> suspiciously similar to "windowing and leveling" an image.
> That is, you select a range of image values in the image
> (the window) and you center that window at some value
> in the image (the level). In your case, contrast is
> the window and bias is the level, I would be willing to
> bet.
>
> http://www.dfanning.com/ip_tips/contrast.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.")

That was my first thought, but then I realized that the contrast/bias adjustment is different than setting a min/max for scaling the image, which they do elsewhere. For example, I can set a min/max value to -100/+100, and then a contrast of 1.3 and a bias of 0.5, and they all do different things.

I did find this, however:

"Contrast refers to the rate of change of color with color level. At low contrast, color changes gradually over many intensity levels, while at high contrast it can change rapidly within a few levels. Contrast adjustment works whether the image is in black and white, or in color.

Bias refers to any offset added to the color levels before the color map is applied. In other words, it determines where the color changes start. Changing the bias corresponds to translating the color map with respect to the intensity levels without changing the overall "look" of the map. At low bias, low intensities (i.e., low pixel values) will have non-zero color differences, while at high bias only high pixel values will have non-zero differences."

I understand what all that means, I think, but I'm stuck on how to implement it in IDL.
