FEATURES

LETTER TO THE BULLETIN EDITORS: A PLEA FOR MEANINGFUL COLORS IN ODV

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Ocean Data View (ODV) is an amazing program. Built by and for oceanographers, it offers sophisticated data plotting and exploration tools to the research community at no cost. The capabilities rival and surpass commercial statistical software, and we scientists are extremely fortunate to have this program available. I strongly recommend it to all geo and marine scientists (http://odv.awi.de/)

However... I just got out of another talk that made generous use of ODV plots using its default color palette. I find this palette very confusing and often misleading.

Rather than following a smooth progression from "cool" colors to warm colors, the spectrum alternates between light and dark bands of similar colors (see figure). For example, at the coolest end, a pale pink goes to saturated pink and then back to a greyish lavender color (left side of the figure.) The green colors go from dark green to saturated green, back to dark green then back to pale green. It is impossible to interpret whether features in this important central range are higher or lower than their neighbors. (Is the center of the circle in the figure higher or lower than the edges?) The overall effect is that, because the

colors on both sides of the dark colors look very similar, bands appear in the contours, and it difficult to tell whether a contour is increasing or decreasing in those ranges. The very "hottest" band returns to a pale peach color that is most similar to the very coolest color in tone and appearance, so the highest points on the plot look like they may be the lowest.

The problem is exaggerated when the RGB palette is converted to CMYK for printing. All the green colors converge on a nearly identical tone. (Compare the two circles, which should be visibly different at least in the PDF version of the newsletter.)

As a partial solution to these issues (and to help me use ODV for my own purposes) I have created a color palette for ODV called "jetplus". This is based on Matlab's "jet" color scheme, with some violet colors added to the cold end of spectrum. The palette can be downloaded from http://practicalcomputing .org/files/jetplus.zip. (For good measure, the archive also includes a matlab version of the palette). To use them with ODV, add the .pal files to your odv_local/palettes folder. Then in a contour plot, right click and choose the Properties menu. From the Palette pop-up menu you should be able to select jetplus or jetplus1 (another variation with the violet and blue range extended a bit). These palettes are not guaranteed to be as meaningful when converted from RGB to CMYK space, so make sure that the features you are depicting are visible with whichever palette you end up using.

I look forward to seeing at least one ODV contour plot in a future talk I can interpret at a glance!

Alternating light and dark bands

Non-sequential color pairs

Banded consecutive countours

RGB   CMYK

ODV

JetPlus