Satellite RGBs for NWS Forecasters with Color Vision Deficiency

Katie Vigil, Emily Berndt, Kim Runk, Chad Gravelle, and Matthew Foster
What is Color Vision Deficiency?

The inability to distinguish certain shades of color

X-linked recessive disorder

8% men with Northern European ancestry

0.5% women with Northern European ancestry

There is currently no cure for inherited CVD
Types of Color Vision Deficiency

- Normal
- Deuteranopia
- Protanopia
- Tritanopia
- Achromatopsia

2018 Royal National Institute of Blind People
Types of Color Vision Deficiency

- Normal
- Deuteranopia
- Protanopia
- Tritanopia
- Achromatopsia

2018 Royal National Institute of Blind People
Which RGBs are Difficult to Interpret?

Airmass RGB

Simple Water Vapor RGB
Which RGBs are Difficult to Interpret?

Airmass RGB
Creating a New RGB

Airmass RGB \rightarrow \text{New Airmass RGB}
Survey Results

23 NWS employees with Color Vision Deficiency responded
Survey Results

96% (22) of those 23 respondents have deuteranopia or protanopia
86% (19) of those 22 respondents felt that the New Airmass RGB was at least slightly easier to interpret
21% (4) of those 19 respondents felt that the New Airmass RGB was significantly easier to interpret.
42% (8) of those 19 respondents felt that the New Airmass RGB was moderately easier to interpret.
Survey Results

37% (7) of those 19 respondents felt that the New Airmass RGB was slightly easier to interpret.
Future Work

Welcome to the Color Vision Deficiency Group!

This community is for NOAA employees with Color Vision Deficiency (often referred to as color blindness) and for people doing research in this area. This community will be a place to share research, color maps and curves, techniques for improving color interpretation, and general support. The idea for this community came from an evaluation that was conducted in the Operations Proving Ground in April of 2017. National Weather Service forecasters with Color Vision Deficiency (CVD) evaluated new CCGS-16 RGB imagery. Their goal was to determine which RGBs were the most useful and which RGBs were difficult to interpret due to their color table. They also tested technology that was designed to improve color vision for CVD individuals. The results of this evaluation are located under the Research tab. During discussions for this evaluation it was determined that there needs to be a place where people can go to share their experience with CVD and solutions they have created to help them in their work environment. Thus we have created the Color Vision Deficiency Group community. Thank you for visiting!
References

Google Forms, cited 2018: [Available online https://docs.google.com/forms]


Questions or Comments

Please contact Katie Vigil: katie.crandall@noaa.gov or katie.c.vigil-1@ou.edu

Follow on Twitter @crandall92 or the NWS OPG @nwsopg