

Making a Case for Color Vision Deficiency in the Weather Enterprise

Matt Bolton and Grant Wise; Undergraduates, Psychology and Physics, Saint Leo University and Union University
Greg Blumberg, PhD Candidate, School of Meteorology, University of Oklahoma

Color vision deficiency affects approximately 10% of males and 1 in 200 females, therefore posing serious problems to meteorologists in the communication of weather information (National Eye Institute).

Image Manipulation Examples

Images are grouped according to manipulation (traditional, color, and texture).
Reflectivity manipulation courtesy of Robert MacDonald, University of Oklahoma.

Types

Protanopia - red

Deuteranopia - green

Tritanopia - blue

Key Color Vision Takeaways

Red and green cause most confusion

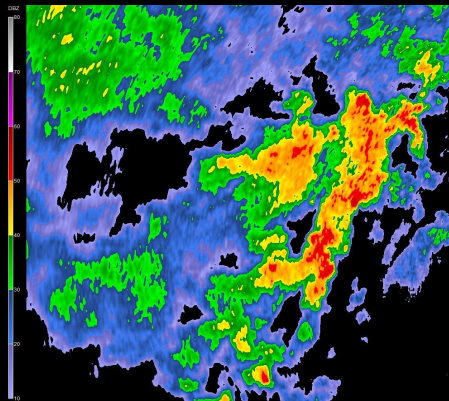
Blue deficiency is rare

Possible Solutions

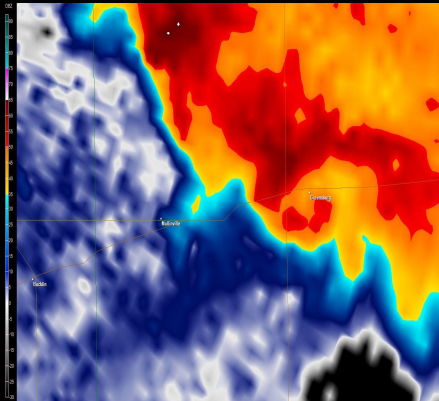
Make adjustments to color

Add texture variances to color scale

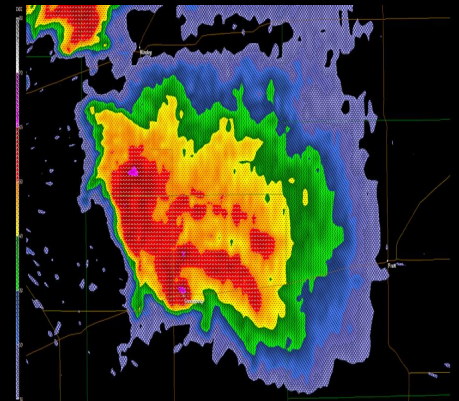
Traditional



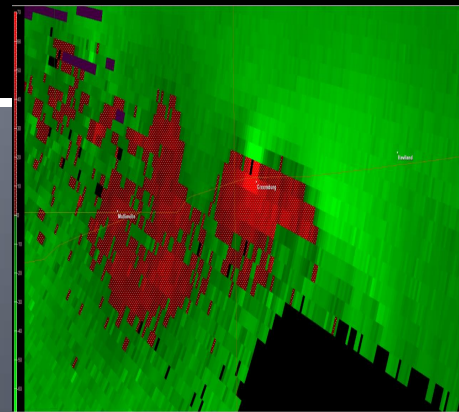
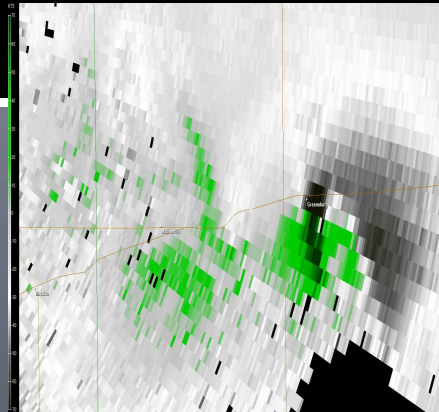
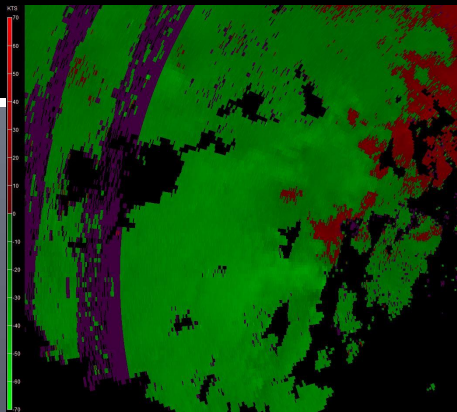
Manipulating Color



Using Texture



Reflectivity



Velocity