RGB Imagery Transition to WFOs for AWIPS I and AWIPS II

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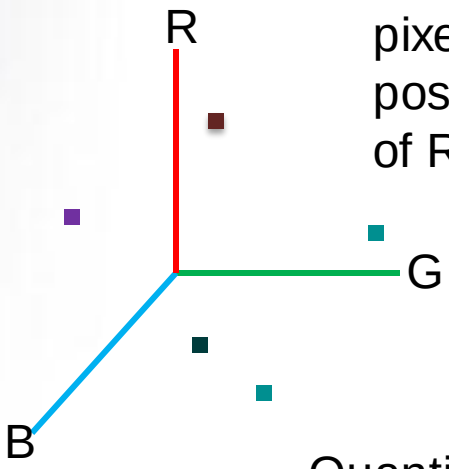
Users of RGB Imagery from SPoRT

User	RGB Products	Comments
TFX, SR WFOs	MODIS: True, Snow/Cloud	Initial transition of RGBs (2003)
HPC, OPC, SAB	MODIS & SEVIRI: Air Mass, Dust, Night Microphysics GOES Sounder (CIRA): Air Mass	SEVIRI for Atlantic area and MODIS and GOES Sounder for CONUS. (2011)
NHC	SEVIRI: Air Mass, Dust GOES Sounder (CIRA): Air Mass	TC Analysis and monitoring (2011)
SR WFOs	MODIS: Air Mass, Dust, Night Microphysics	2012
SPC & HWT	GOES Sounder (CIRA): Air Mass	2012
Near-term Future: National Centers	MODIS Air Mass	Extended domain for Atlantic and Pacific
Near-term Future: NHC	Passive Micro. 89 and 37 GHz	NRL Collaboration
Longer-term Future: National Centers and WFOs	Other MODIS & SEVIRI RGBs as well as VIIRS/CrIS RGB suite	Based on end user forecast needs / priorities

- Using the EUMETSAT guidelines for RGBs
- CIRA provides GOES Sounder R-G-B inputs, SPoRT combines for NAWIPS

RGB Production - Color Quantization

- RGB imagery assign values for the R, G, and B color components using 8-bit values (0-255), resulting in 24-bit image.
- AWIPS and NAWIPS can only display 254 or 95 colors, respectively.
- Therefore, RGB images in these systems are *quantized* (not ideal, but exposes users to RGB concept ahead of 24-bit capability).
- Code re-engineered to be more modular for use with EUMETSAT RGB recipes.



In a 24-bit image, pixels occur as all possible combinations of RGB.

Quantization selects an ideal subset of colors to represent the image.

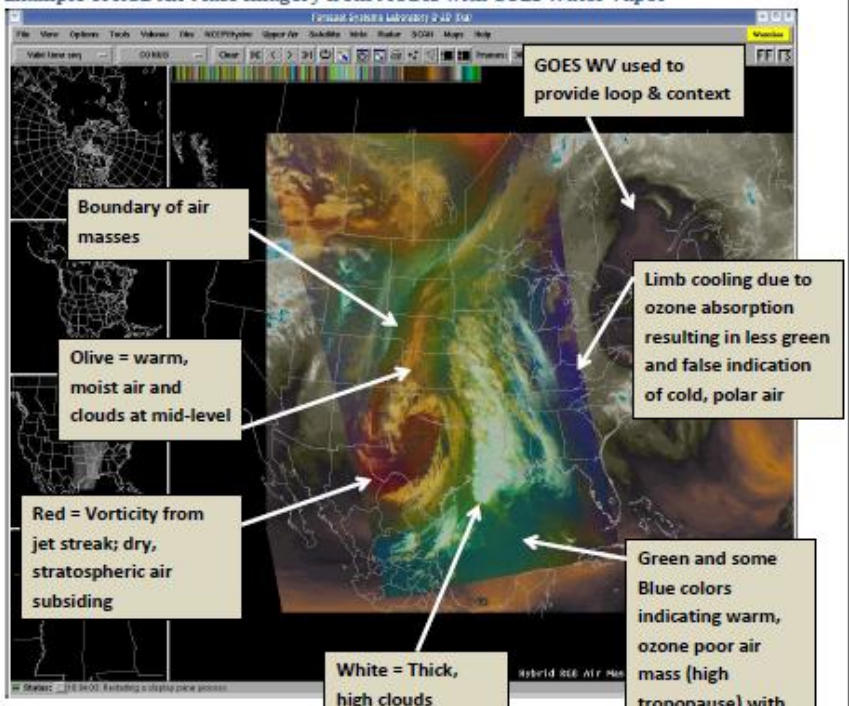
Some color detail is lost as a compromise to make the imagery available in N/AWIPS.

Training

- RGB Quick Guides – 2-3 page document
  - Page of text and page with example
  - Why is RGB important?
  - What to specifically look for in the imagery
  - What are the caveats?
- Reference EUMETrain and COMET materials
- EUMETSAT RGB Workshop: September 2012
- Future: Collaborate with users to capture cases for library of examples

Page 2 of Air Mass Quick Guide

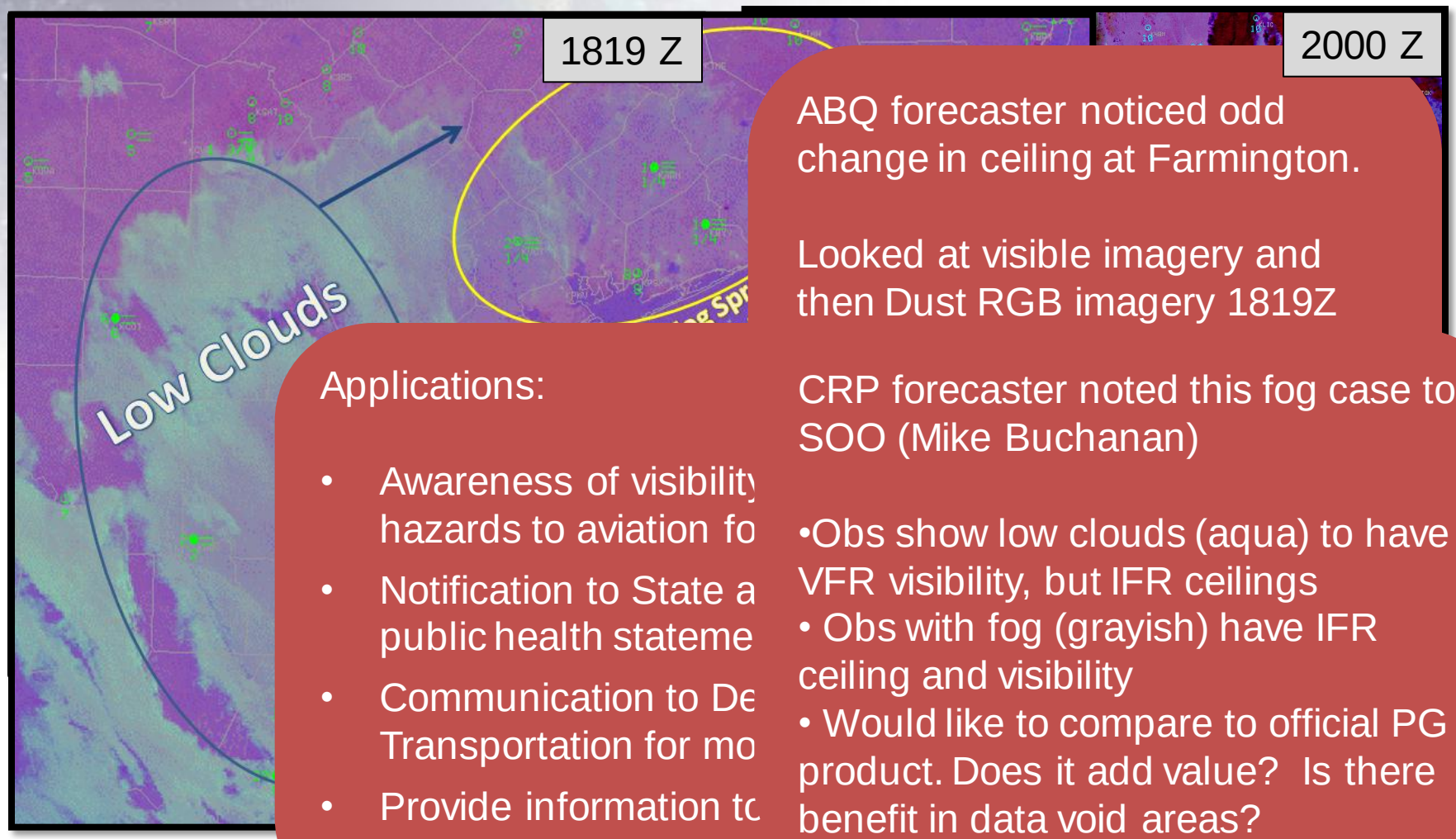
Example of RGB Air Mass Imagery from MODIS with GOES Water Vapor



Resources:

This guide provides a highlight of the Air Mass RGB product as quick reference. Operational applications of RGB imagery can be seen on SPoRT's blog site (http://nasasport.wordpress.com/). A primer of the RGB imagery concept can be found at the UCAR/COMET MetEd website (https://www.meted.ucar.edu).More in depth information can be found at EUMETRAIN's website (http://eumetrain.org/).

WFO RGB Application Examples



ABQ forecaster noticed odd change in ceiling at Farmington.

Looked at visible imagery and then Dust RGB imagery 1819Z

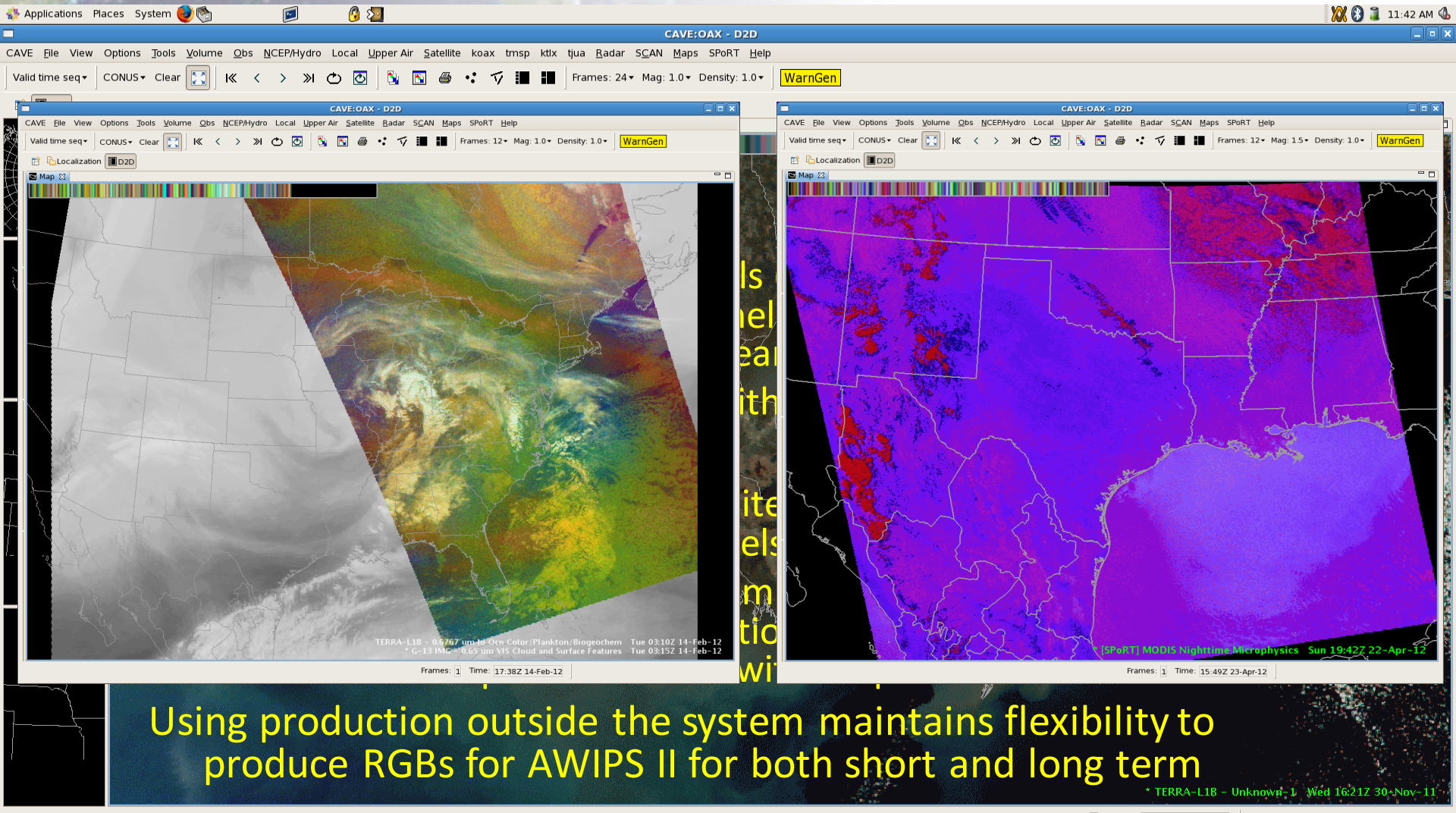
CRP forecaster noted this fog case to SOO (Mike Buchanan)

•Obs show low clouds (aqua) to have VFR visibility, but IFR ceilings
• Obs with fog (grayish) have IFR ceiling and visibility
• Would like to compare to official PG product. Does it add value? Is there benefit in data void areas?

Applications:

- Awareness of visibility hazards to aviation fo
- Notification to State a public health stateme
- Communication to De Transportation for mo
- Provide information tc facilities.

RGB Production for AWIPS II



Summary

- Users value RGBs in current systems
- Quantization of colors provides RGB infusion to AWIPS and NAWIPS
- Training guide provided as a quick reference w/ other sources sited
- WFO also being exposed to RGBs (w Nat. Centers)
- RGB processing outside AWIPS II maintains flexibility in short and long term

Graphic Cast using RGB Dust Imagery