



The NASA Short-term Prediction Research and Transition (SPoRT) Center

GOES-R Proving Ground Update

9 September 2013

Contributions from:

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General Outline – 9 September 2013 SPoRT Status Report:

Total Lightning

- Pseudo-GLM Mosaic at AWC
- Pseudo-GLM Mosaic Evaluation
- Lightning Tracking Tool Evaluation at OPG

AWG Support

- Ongoing Evaluation of NESDIS QPE
- Start of Evaluation of GOES-R CI by UAH

RGB Imagery

- Tropical Proving Ground
- Aviation and Cloud Analysis

JPSS

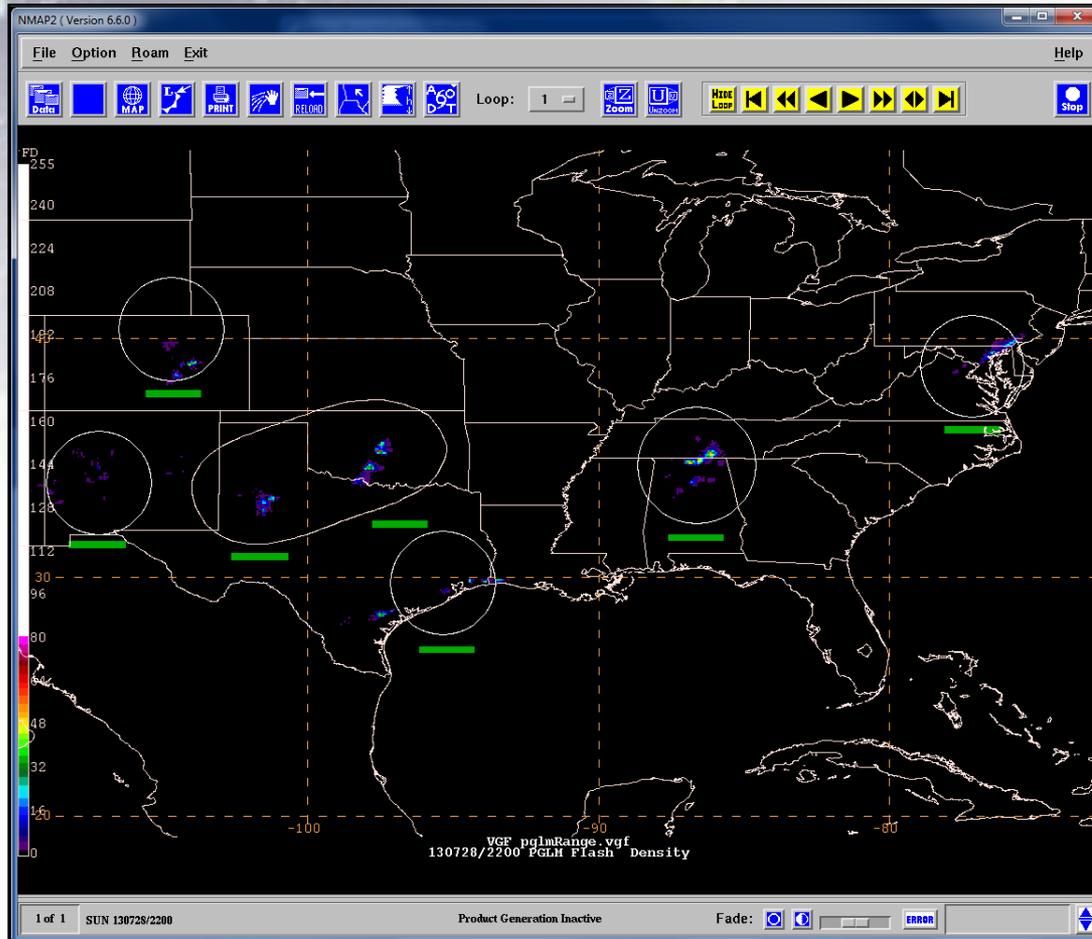
- VIIRS Night-time Imagery Assessment
- Visit to Alaska

AWIPS II

- EPDT – Code Sprint



Pseudo-GLM Mosaic at AWC

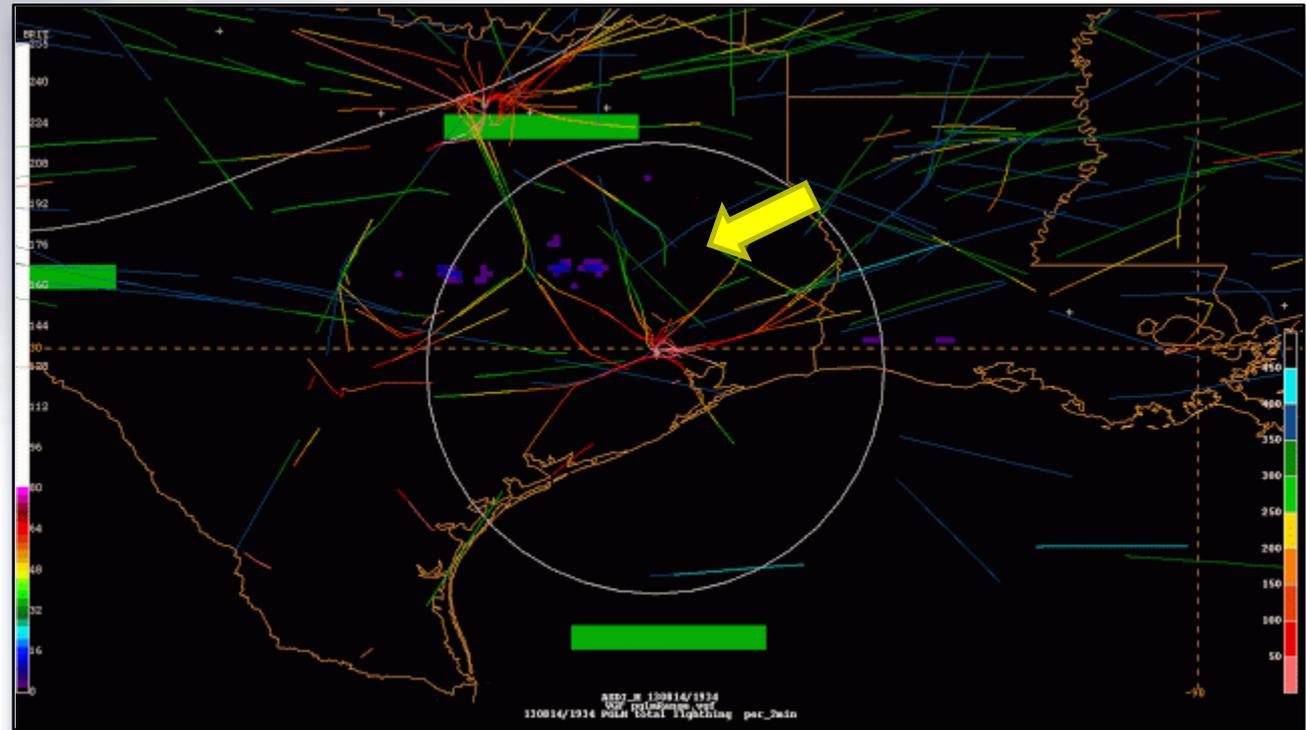


- 7 collaborative networks
- Available in a single combined “mosaic”
- Evaluated during AWC’s Summer Experiment
 - Aug 12-23, 2013
- Updated from 2012
 - Improved color bar
 - Network status bar



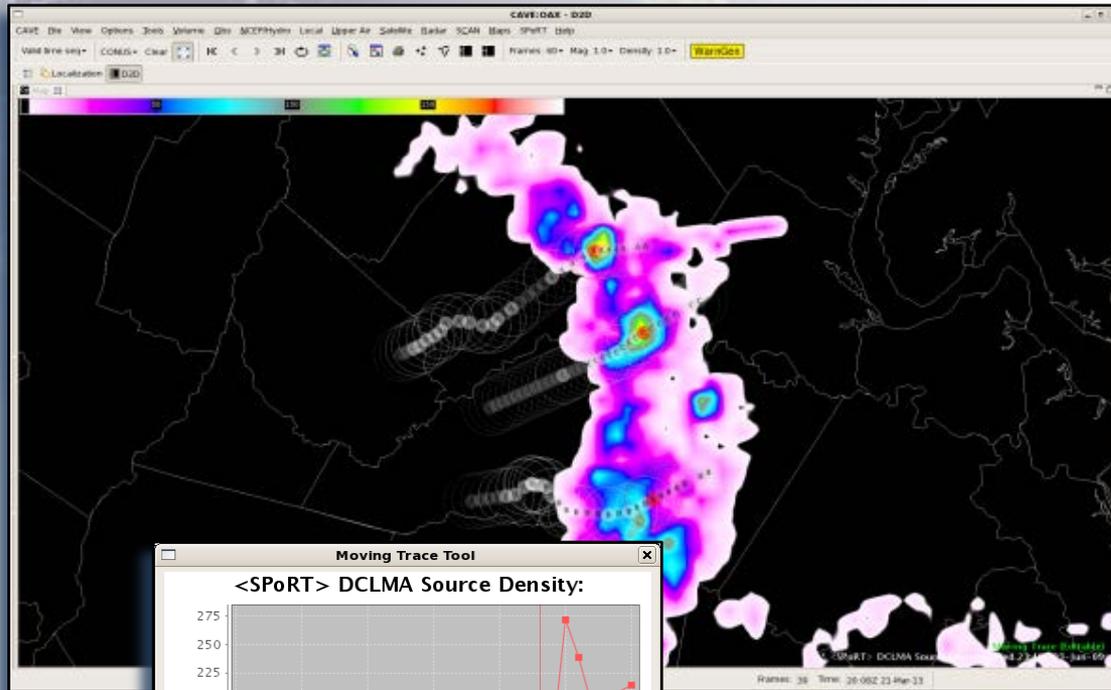
Pseudo-GLM Mosaic Evaluation

- Fairly slow weather weeks
- Limited activity in LMA domains
- Mosaic, combined with radar, was very useful for identifying safe flight corridors
- Will be moving to the operations floor in October



Animation: PGLM Mosaic (Houston LMA) with aircraft flight tracks

Tracking Tool Evaluation at OPG



- Spoke with OPG personnel while at AWC
- Discussed set up for formal evaluation
- Aim for Spring 2014 evaluation
- Use a combination of real-time and archived events
- Assessing additional preparations for this Spring

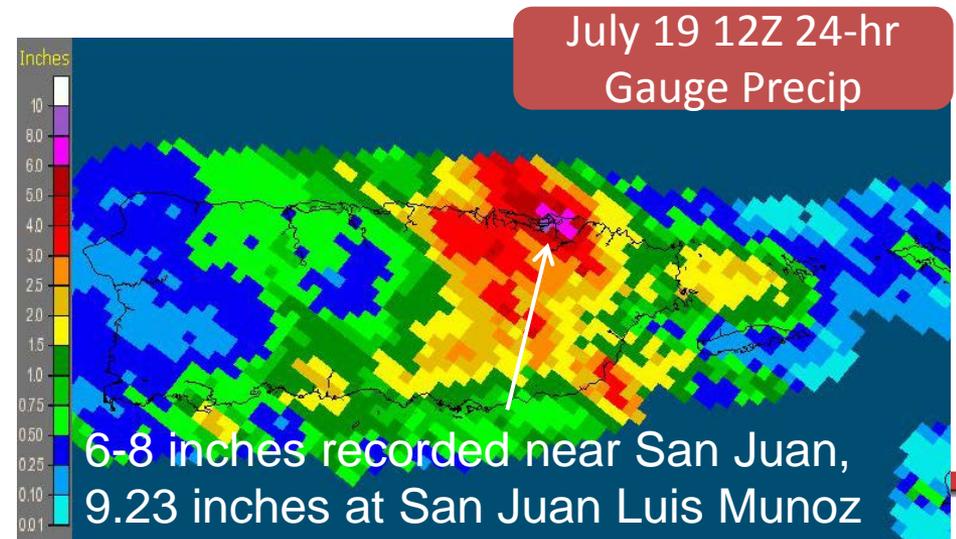
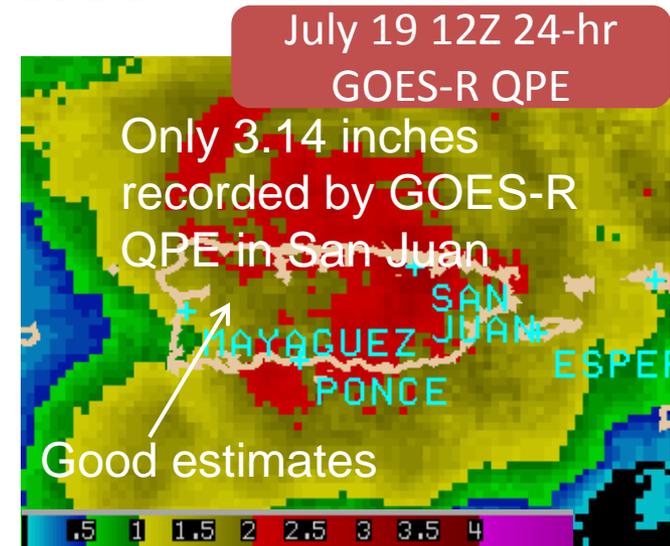


NESDIS GOES-R QPE Assessment

Summary Statistics

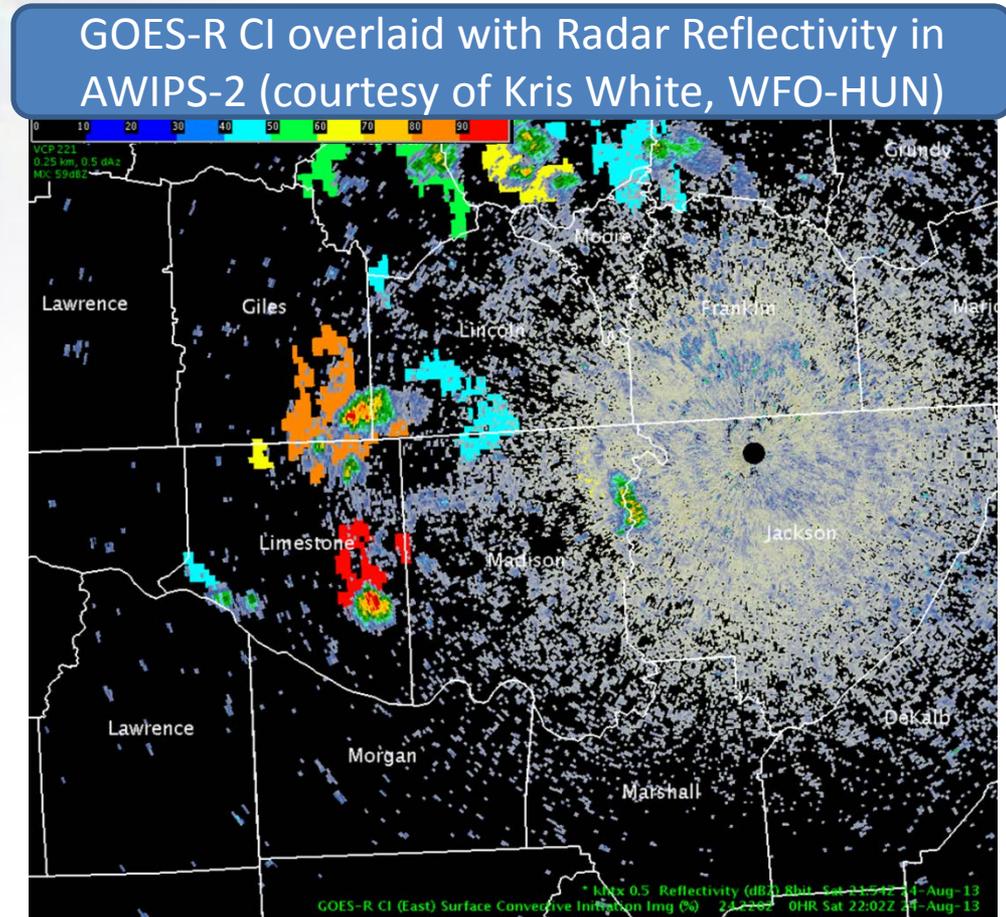
No. Offices	No. Days	No. Evals Submitted	No. Participants
5 (AFC, AFG, AJK, APRFC, SJU)	~60	62	16

- July 15-Sept 15
- Most frequent observation: categorical underestimates
- Most frequent recommendations: terrain-specific masking/ORI; utilize temporal and spatial resolution advantages in GOES-R era
- Matt Smith and Kevin Fuell visited Alaska RFC and WFOs and provided individual training to ~4-5 users per site



UAH GOES-R CI (Assessment Ongoing)

- New:
 - WFO-HUN on A2
 - Probabilistic output
 - Ground snow cover identified
- Upcoming:
 - Integration of lightning initiation information



RGB Imagery – Tropical PG

- Working with CIRA/NHC to finalize LDM data flow
- Provided Quick Guide reference for RGB for use in operations area
- Monitoring the SEVIRI RGBs daily in Demonstration period to assist users with interpretation and help answer questions from user feedback form

RGB Day-Time Microphysics Quick Guide by NASA / SPoRT

<http://weather.msfc.nasa.gov/sport/training/>

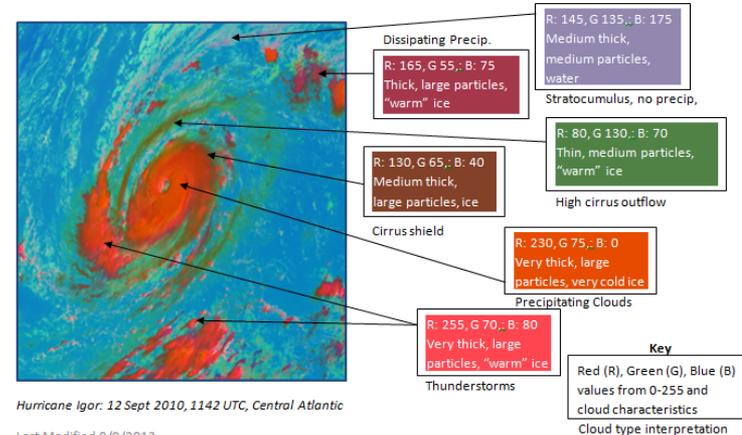
RGB Air Mass Product - What is used in the composite and what does each color represent?

Color	Band / Band Diff. (µm)	Physically Relates to....	Little contribution to composite indicates.....	Large contribution to composite indicates
Red	0.8	Visible brightness of cloud and hence proxy to thickness	Thin cloud or non-reflective surface type (e.g. water)	Thick cloud (water and/or ice) or reflective surface type (e.g. vegetation, snow, desert)
Green	3.9 (solar part only)	Phase and particle size of cloud tops; NOTE: strong dependence on viewing angle	Large particles in the cloud tops, or Larger snow particles on the ground	Small water or ice particles in the cloud tops
Blue	10.8	Temperature of the surface being observed	Very cold clouds or surface	Very warm clouds or surface

Application: Analysis of convection type allows forecasters to know the stage and strength of developing thunderstorms.

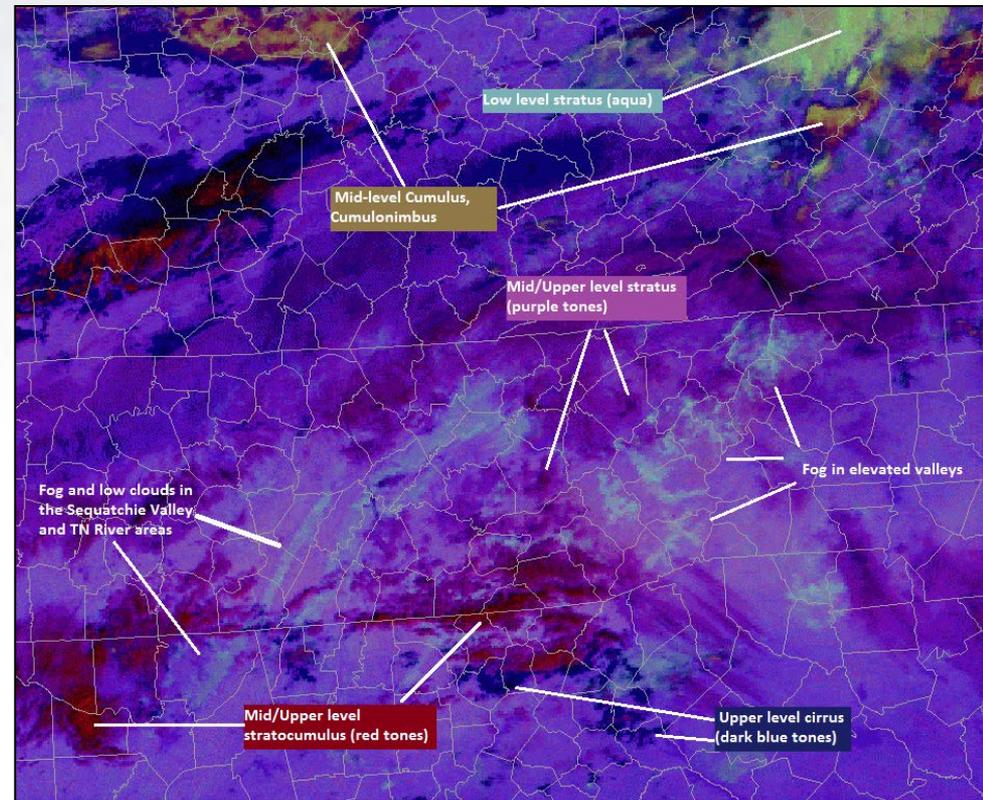
What should I be looking for in the imagery?

Convection from strong updrafts is colored orange. Ice particles are small at the tops of strong updrafts due to less time for collisions. Therefore, they are highly reflective in the visible due to thickness of the towering cloud mass (i.e. lots of red), and also have higher reflectance in the solar portion of the 3.9µm channel due to small ice particles (i.e. moderate green). The cloud tops of strong, tall convection typically have low brightness temperature values (i.e. little to no blue).



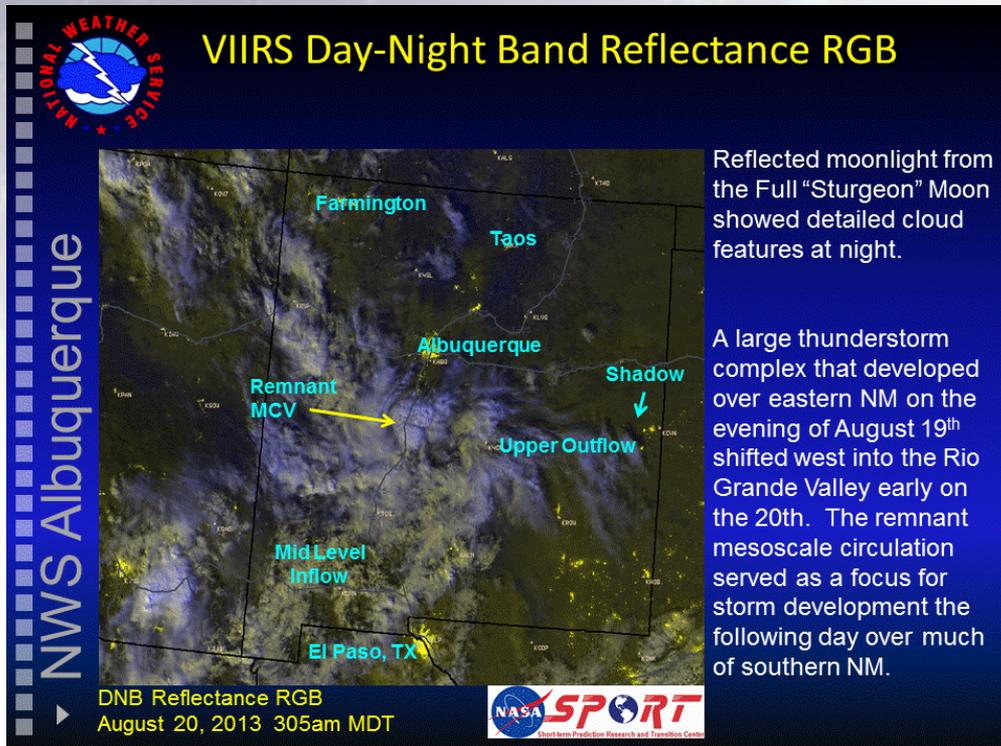
RGB Imagery – Aviation and Cloud Analysis

- ABQ has found NTmicro RGB to be valuable (see blog posts)
- Much interest in NTmicro RGB from JPSS Evaluation of VIIRS as well as during recent visit to Alaska WFOs
- Recent Coordination Call with SR WFO partners included training and planning for Evaluation of RGB imagery for Aviation and Cloud Analysis
 - September 18 start
 - Inland WFO Partners
 - Visit to OHX to talk with users 9/12



JPSS Proving Ground Activities

VIIRS Nighttime Assessment



ABQ input (Brian Guyer): "There was exceptional detail to the cloud structures using the DNB. The various cloud layers were illustrated well by their relative reflectance in the RGB. Other imagery including the nighttime microphysics and the 11-3.9micron were also useful but not to this degree. Since model initialization of the cloud features was not very accurate the forecaster was able to make an adjustment for the following day."

- July 1 – August 31
- SPoRT and CIRA WFOs along Front Range (4)
- Number of submissions: 19
- Number of different users: 8
 - Focus was on use of DNB for Fire Wx. Did not see high number of events in WFO area although some looked at events outside their area
 - High interest in NTmicro and Dust RGB imagery
- Report to be submitted in about 1-2 months after reviews



JPSS Proving Ground OCONUS/Alaska

August 8-16 trip – Kevin Fuell & Matt Smith

- Informal training
 - QPE Assessment
 - Layered PW Assessment
 - Hybrid
 - RGB
- Modeling discussions with UAF personnel
 - Planned LIS collaborations with SPoRT
- Processing discussions with GINA personnel
 - GINA processing of single channel MODIS, VIIRS
 - Virtual Machines for SPoRT processing of RGBs/Hybrid
- SST discussions with Ice Desk personnel
 - Anchorage WFO Ice products using SPoRT Composite SST beginning this week



AWIPS II

Experimental Products Development Team

-Spring2013: Mar. 12-14 Huntsville, AL
15 attendees; Basic plug-in *training*

-Fall2013: Sept. 24-26 Huntsville, AL
10 attendees; *Code Sprint*; 4 groups

- Moving Meteogram
- RGB Imagery
- McIDAS Plug-in Extensions
- Data Fusion



A satellite view of Earth's surface, showing the Western Hemisphere. The United States, Mexico, and the Caribbean Sea are visible. The image is faded and serves as a background for the text.

END OF SEPTEMBER UPDATE QUESTIONS?

