An Overview of NASA SPoRT GOES-R & JPSS Proving Ground Testbed Activities

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Mission
The Short-term Prediction Research and Transition (SPoRT) Center is funded by NASA’s Earth Science Division and NOAA’s JPSS and GOES-R Proving Grounds to transition satellite products and capabilities to the NWS to improve short-term (0-48h) forecasts on a regional and local scale. SPoRT currently collaborates with 30+ NWS WFOs (at least one in each NWS region) and 5 National Centers/Testbeds.

Method
SPoRT matches user-identified forecast challenges to specific products, providing access to these data in AWIPS through new plug-in development, and generating applications-based training to use the products for their needs (R2O). Upon transition, SPoRT collaborates with the user to assess the product impact in a real-world environment for feedback to product developers (O2R) and to benefit their peers.

Metrics
Assessments are conducted to test the application of current products in operations and to ready users for Day-1 utility of new capabilities. Feedback from assessments leads to improved understanding of product capabilities and use for situational awareness. Assessment results are communicated in the form of reports, conference presentations, and journal publications.

2016 Highlights

Summer ’16: Lightning Pseudo GLM
• HWT; Aviation (CWSU Houston); Emergency Managers
• Continued use of the SPoRT pseudo-GLM flash density
• Demonstrating capabilities of GLM with ground-based LMA
• Positive reviews from multiple users with varying purposes
• Opportunity to compare with super-rapid scan GOES
• Traditional use of lightning jumps for severe weather decision support
• CWSU demonstrated utility to monitor initiation and trends of convection to aid briefings on TRACON gate closures
• Emergency managers use for lightning safety of events

Fall ’16: Low Clouds and Fog: Multispectral Imagery
• AFG (Scotty Berg); AFC (Michael Lawson); AJK (Ed Liske)
• Daytime Microphysics multispectral (i.e., RGB) imagery
• Optimal for use in Alaska summer when Nighttime Microphysics RGB has limited use
• The Daytime Microphysics RGB shows thick mid-level stratus in bright greenish tones with some tan coloring while the blues/pinks represent low-level stratus of varying thickness.
• Forecasters frequently commented that the efficient depiction of cloud features aided TAF forecasts
• Forecasters found Daytime Microphysics RGB has similar utility of Nighttime Microphysics for anticipating aviation hazards.

Winter ’17 Cold Air Aloft: Gridded NUCAPS
• Anchorage CWSU (Kristen Nelson, Gail Weaver, Carrie Haisley, Chris Waterhouse, Raymond McLeod)
• Joint effort between SPoRT, CIMSS, CIRA, GINA, and STC to provide plan view display of NUCAPS temperature to identify the cold temperatures hazardous to aviation
• Product captures Cold Air Aloft events (5°C) under which airliner fuel can freeze
• Use of satellite observations over the vast, data sparse arctic domain allows forecasters to observe the 3D extent of the cold air and increase confidence in issuing Meteorological Impact Statements

All 2016 Activities

Spring ’16: Multispectral Imagery
• OPC/WPC; OPG
• OPC regularly uses the Air Mass RGB imagery to analyze and monitor cyclone development and anticipate high winds
• First formal evaluation of GOES-R ABI RGB capabilities performed at OPG in March/April 2016

Summer ’16: Convection: Gridded NUCAPS
• HWT - Experimental Warning Program
• Extension of Cold Air Aloft work funded by JPSS PG/RR
• Gridded NUCAPS Temperature and Mixing Ratio were available on plan view and cross section fields to diagnose the pre-convective environment.

Fall ’16: Hurricanes: CRIS/ATMS NUCAPS
• National Hurricane Center
• JPSS funded project to explore the utility of NUCAPS Soundings and Ozone products to diagnose extratropical transition
• Forecasters participated in post analysis review of Hurricane Matthew

Winter ’16 Training: Applications Library and AWIPS Integrated Reference (AIR)
• SPoRT RGB Quick Guides are operationally available in the AIR tool
• Allows region-specific application examples submitted by developers and/or forecasters to be organized and displayed
• SPoRT is developing 1-minute, regional application examples through collaborations with NWS forecasters for use in the AIR tool
• Visit the SPoRT Applications Library for more examples

Fall ’16 AWIPS Development: Client-Side RGBs
• Experimental Products Development Team (EPDT) developed use of local single channel data to derive RGB Imagery within AWIPS (client-side)
• Actively working with GINA and Alaska Region to implement client-side VIIRS RGB imagery at Alaska WFOs
• Transitioned capability to TOWR-S to disseminate AWIPS configurations for all WFOs to have the ability to view GOES-16 client side RGB imagery

Upcoming 2017 Activities

• HWT: Gridded NUCAPS
• Alaska CWSU: Gridded NUCAPS
• WFOs/CWSUs and Emergency Managers: GLM operational assessment
• GOES-16: Multispectral Imagery
• Alaska WFOs: VIIRS Multispectral Imagery and Cloud Property products
• Alaska WFOs and RFC: revisited merged IMERG/HQprecip product