1. SHORT-TERM PREDICTION RESEARCH AND TRANSITION (SPoRT) CENTER

• Founded in 2002 at the National Space Science Technology Center at Marshall Space Flight Center in Huntsville, AL
• Focused on transitioning unique NASA and NOAA observations and research capabilities to the operational weather community to improve short-term weather forecasts on a regional and local scale
• NASA directed funding; NOAA funding from Proving Grounds (PG)
• Demonstrate capabilities experimental products to weather applications and societal benefit to prepare forecasters for the use of data from next generation of operational satellites
• Objective of this poster is to highlight SPoRT’s research to operations (R2O) paradigm and provide examples of work done by the team with legacy instruments relevant to GPM in order to promote collaborations with groups developing GPM products

2. SPoRT PARADIGM

• Develop and demonstrate new products in a “test bed” environment and involve end user in the entire transition process
• Work with select offices with forecast challenges that match products
• Format experimental products into end user’s decision support system to have greatest chance for full integration into operations

3. NASA Land Information System (LIS)

• SPoRT transitions real-time, regional soil moisture and temperature analyses to operational forecasters for situational awareness (e.g., drought/flood, heat) and local modeling (e.g., convective initiation)
• Forcing land surface models (LSM) with large-scale model precipitation rarely accounts for local variations (see Fig. 2a)
• For CONUS, radar and gauge analysis products force the LSM
• Outside CONUS satellite precipitation estimates from the CPC Morphing (CMORPH) product are to capture higher resolution features (see Fig. 2b)
• Plan to use the IMERG product to get around limitations in CMORPH: product latency (about 2 days), domain (≥50 km), and quality loss outside the tropics (snow on the ground is detected as convective clouds)

4. SPoRT PARADIGM

• SPoRT is a community leader for development of AWIPS II plug-ins to display satellite data
• Perform targeted product assessments to solicit feedback from forecasters on product utility

5. 2.1. NASA Land Information System (LIS)

• SPoRT obtains this product from NESDIS in real-time and disseminates to select partner offices via LDM connections with NWS regional HQs

4.1. NASA Land Information System (LIS)

• NESDIS produces a QPE product using IR data from GOES and MW data from TRMM and MHS to demonstrate baseline GOES-R QPE product
• SPoRT obtains this product from NESDIS in real-time and disseminates to select partner offices via LDM connections with NWS regional HQs
• Targeted evaluation with Alaska and Puerto Rico WFOs from 6/2013 to 9/2013 determine impact in areas with poor radar coverage (Fig. 3)
• Forecasters completed online surveys answering specific questions on the product utility to their forecast process (78 forecasts completed; Fig. 4)

3.4. Disaster Applications

• SPoRT currently serves NASA imagery from Landsat (Fig. 6), ASTER, MODIS, to study changes in land characteristics associated with tornadoes, fires, and floods to help assess coverage of damage to aid response and recovery
• Accumulated precipitation products from GPM could be used with this recovery data to help understand why these events occurred and to strategize ways to prevent them from occurring in the future

6. Determine if forecast problem has been addressed
• The GPM products improve forecast that did not need to be corrected?

3.2. NESDIS GOES-R QP Quantitative Precipitation Estimate (QPE)

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3.3. NRL Passive Microwave Imagery and Rain Rates

• Naval Research Lab (NRL) produces a suite of real-time imagery and rain rates products from SSM/I and AMSR-2
• SPoRT obtains these datasets from NRL in real-time and reformats the data for ingest into N-AWIPS for dissemination to partners at the National Hurricane Center and Weather Prediction Center (Fig. 5)
• Aids forecasters in identifying structures of a tropical system that might be obstructed by thick cirrus and the precipitation patterns within

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4. WAYS TO COLLABORATE WITH SPoRT

• Every three years (next opportunity in 2016), NASA solicited ROSES proposals for researchers with experimental products to work with SPoRT to transition to operations
• PIs can include SPoRT researchers as Co-Is on proposals
• SPoRT can facilitate putting data into end-user decision support system, managing real-time data flow, developing training, and conducting surveys if product developer has ongoing collaboration with end-user
• Operational forecast entities can participate with SPoRT through in-kind contributions involving evaluating a product and providing feedback in the form of blog posts and surveys

4.4. Proposed Strategies to Improve Product Utilization

• Plan to use the IMERG product to get around limitations in CMORPH: product latency (about 2 days), domain (≥50 km), and quality loss outside the tropics (snow on the ground is detected as convective clouds)

4.6. Determine if forecast problem has been addressed
• The GPM products improve forecast that did not need to be corrected?