



SPoRT Quarterly  
Jan. – Mar. 2013

# The SPoRT REPORT

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Short-term Prediction Research and Transition (SPoRT) Center  
NASA Marshall Space Flight Center (MSFC), Huntsville, AL  
<http://weather.msfc.nasa.gov/sport/>

The SPoRT Center is a NASA- and NOAA-funded project to transition unique observations and research capabilities to the operational community to improve short-term weather forecasts on a regional scale. While the direct beneficiaries of these activities are Selected Weather Forecast Offices (WFOs) and National Centers, the research leading to the transitional activities benefits the broader scientific community.

## Quarterly Highlights

### Experimental Product Development Team

#### Background

Early in 2012, SPoRT formed the Experimental Products Development Team (EPDT) to focus on the creation of advanced display capabilities for the use of experimental research data in the Advanced Weather Interactive Processing System (AWIPS) II environment. The objectives of this team are to develop and share knowledge and expertise of the AWIPS II development environment, generate non-standard AWIPS II plug-ins for ingest, analysis, and display of experimental data. Based on this experience, the team will provide feedback to NWS/Office of Science and Technology and Raytheon on the external development process, including governance of locally developed AWIPS II plug-ins and tools. Supporting these objectives, the EPDT will encourage and aid in development through fostering a network of developers, compiling training on the AWIPS II platform, and also facilitate

collaborative development. Currently, the team consists of members from SPoRT, GOES-R Proving Ground Partners, the Global Systems Division of NOAA's Earth System Research Lab, and the NWS from the office, regional, and national levels.

#### Spring 2013 Workshop

In preparation for the first EPDT workshop, the team began holding biweekly conference calls. These conference calls used desktop sharing to help establish a base level of development knowledge in the AWIPS II architecture and prepare members to have an effective workshop. During 12–14 March 2013, SPoRT hosted the first EPDT workshop in Huntsville in the National Space Science and Technology Center (NSSTC). Over the three day workshop, participants were shown how to integrate a dataset into the AWIPS II system. This integration covered writing plug-ins to ingest and display the data

along with common pitfalls encountered during development and how they can be avoided. The workshop combined lecture with hands-on exercises so the participants could apply what they had learned. In addition to the AWIPS framework, the workshop included invited talks on topics such as NWS AWIPS II software governance and future use of the NWS Virtual Lab for AWIPS II development. The feedback provided from the workshop indicates that it was a resounding success and has moved both EPDT members and the NWS forward in developing software to enable visualization of unique datasets within the AWIPS II architecture.

#### Future of EPDT

Now that the members of the group have had training on writing and troubleshooting plug-ins in the AWIPS II architecture, they can begin to work together on projects. These projects will address the needs of

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the broader research community and provide their products in the NWS operational system. The group has also identified additional areas of the AWIPS II architecture for topics of future conference calls. The EPDT will continue with biweekly conference calls with the plan of having another workshop in the fall of 2013. There have been a lot of requests to increase the size of the EPDT for a larger audience, and this is currently being addressed by the team.



Experts train team on how to write plug-ins.



EPDT Workshop participants work hands-on exercises.

## Recent Accomplishments

### ROSES 2010 Projects Making Progress

Dr. Stan Kidder and Dr. John Forsythe of the Collaborative Institute for Research in the Atmosphere (CIIRA) have provided a Layered Precipitable Water (LPW) product based on microwave and infrared sounding instruments aboard NOAA-18 and -19, Metop-A, DMSP F-18, and Aqua polar-orbiting satellites. The LPW fills the gaps left by traditional point observations (e.g., radiosondes) and infrared channels focused only on upper-level moisture. LPW is being included in the QPE evaluation to diagnose the vertical distribution of moisture in the atmospheric river events. Future evaluation of QPE and LPW will include applications in high latitudes of Alaska, as well as radar-limited areas of Hawaii and Puerto Rico.

### Updates to AWIPS Menu for VIIRS

With the launch of the Suomi NPP satellite and the accessibility of VIIRS imagery, SPoRT took the opportunity to update its AWIPS menu and include VIIRS and MODIS as a single menu item. For example, users choosing to load high-resolution longwave infrared imagery from MODIS would now see analogous imagery from VIIRS within the same display pane. Many of the same products from MODIS can be produced from VIIRS, and in fact, several additional products (such as from the DNB) have also been made available.

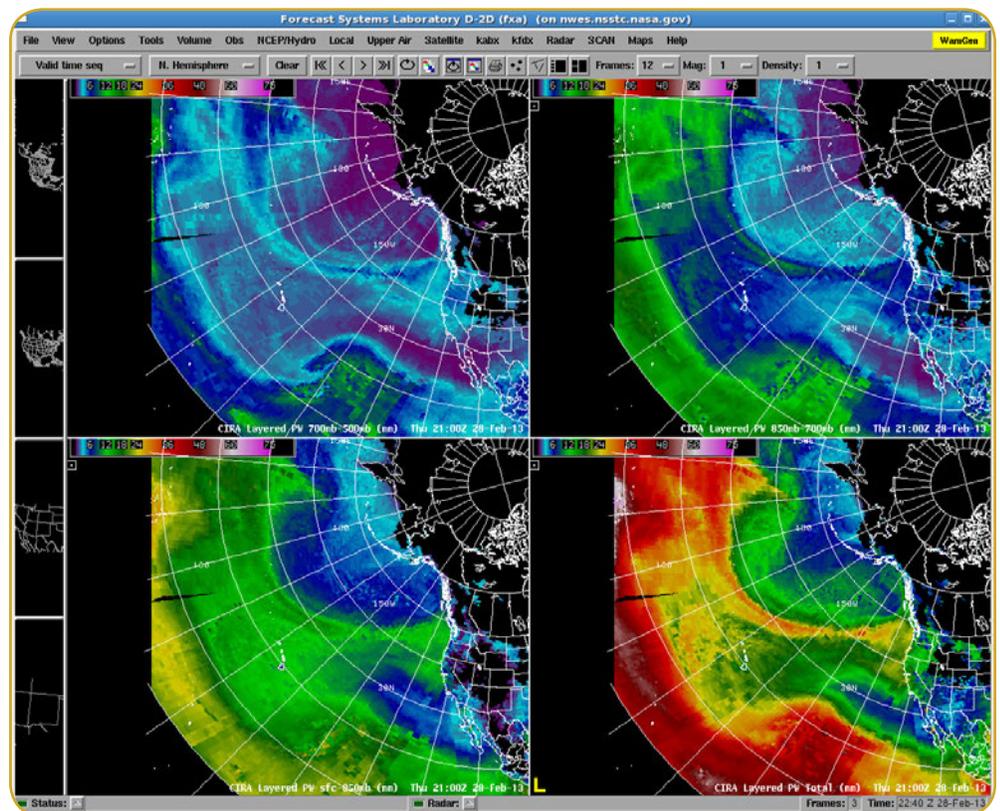
### VIIRS and RGB Training sent to Partners

In addition to regular collaboration calls that involve teletraining activities, SPoRT has created several "Quick Guides" to help remind users of the main point to remember for a given product. Several of these were created by SPoRT staff and then made available via electronic copy. However, SPoRT also printed the Quick Guides (single page, front and back), had them laminated, and then mailed them to WFO partners for use in the operations

area. Users are then able to quickly reference these sheets that are either placed in a quick reference binder or under the desk glass for quick viewing.

### Trip to NWS OST to Develop AWIPS II External Software Governance

In January, SPoRT team members Matt Smith and Jason Burks traveled to NWS Headquarters under funding from the GOES-R Visiting Scientist Program to assist in shaping the NWS AWIPS II Software Governance Process. The team assembled for this meeting worked through the entire process of taking an AWIPS II plug-in from concept to baseline. Modifications were made to the software governance policy to accommodate both ensuring the integrity of the AWIPS II system, along with streamlining the process for software developers. This work is integral to making an environment for experimental product developers to be able to contribute to the AWIPS II software code base. After completion of this work, SPoRT began using the new policy to integrate its first AWIPS II plug-in for total cloud lightning visualization.



CIIRA Layer Precipitable Water (mm) for layers of (clockwise, starting in upper left) 700–500 mb, 850–700 mb, sfc–850 mb, and total column.

## The SPoRT LMA plug-in for AWIPS II

Total lightning remains one of the core SPoRT activities and as the spring convective season approaches, many exciting new activities are moving full speed ahead. While SPoRT's Lightning Mapping Array (LMA) plug-in has been available for some time, SPoRT was restricted from installing this software at an operational NWS office running AWIPS II. SPoRT team members have since been involved in coordinating with the NWS to establish a governance policy for non-NOAA entities to transition their plug-ins to an operational forecast office. During that effort, the SPoRT LMA plug-in received an official AWIPS Test Authorization Note (ATAN), which authorizes the SPoRT LMA plug-in to be used at selected offices, such as SPoRT's partners at the Huntsville forecast office. This effort culminated in the first operational use of the SPoRT LMA plug-in at the Huntsville forecast office on 18 March 2013. This was a major success as the Huntsville office had been without LMA data since the middle of last year when they transitioned to AWIPS II. In the next few months,

the plug-in will be tested and—when accepted for operations—incorporated into the baseline AWIPS II build.

## New Collaborations

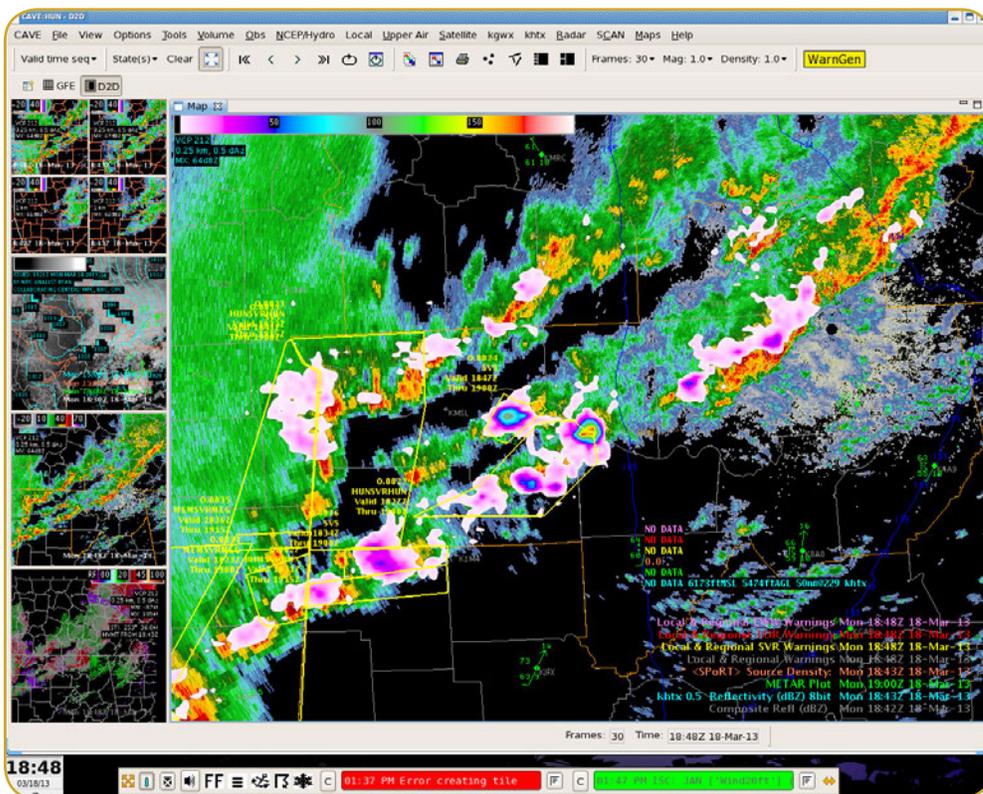
As work with the SPoRT AWIPS II LMA plug-in continued to prepare for its operational debut, SPoRT has been involved in extending its collaborative lightning product evaluation activities. SPoRT and CIRA have been forming a new evaluation project called the Front Range Collaboration with WFOs Albuquerque, Boulder, Cheyenne, and Great Falls, Montana. During the course of establishing this, the topic of the new Colorado Lightning Mapping Array (COLMA) was discussed. The COLMA network would benefit the Boulder and Cheyenne forecast offices and is jointly operated now by Colorado State University (CSU) and New Mexico Tech. The COLMA data would be a beneficial new addition to SPoRT's Proving Ground efforts with the pseudo-geostationary lightning mapper mosaic and other products for national centers and the Hazardous Weather Testbed's Spring Program. SPoRT submitted, and earned a GOES-R Visiting Scientist

Proposal to establish a collaborative tie with the COLMA network. SPoRT will receive the live data stream to incorporate the COLMA data into the various GOES-R Proving Ground lightning products. In exchange, SPoRT will assist CIRA and CSU to transition these data to the Boulder and Cheyenne forecast offices, including the SPoRT LMA plug-in. SPoRT team member Geoffrey Stano will travel to Boulder and Cheyenne to further develop these collaborations and to discuss the longer-term actions, such as working with CSU to locally produce and transition the COLMA data to the local forecast offices.

## Manuscripts

A manuscript entitled "Multispectral Imagery for Detecting Stratospheric Air Intrusions Associated with Mid-Latitude Cyclones" has been accepted for publication in the National Weather Association Journal of Meteorology with Bradley Zavodsky (ZP11), Dr. Andrew Molthan (ZP11), and Dr. Michael Folmer (satellite liaison at NOAA/WPC/OPC) as authors. The Paper focuses on the operational application of MODIS Red, Green, Blue (RGB) products and total ozone from the collocated Atmospheric Infrared Sounder (AIRS) to determine locations of dry stratospheric air that can lead to the strengthening of mid-latitude cyclones. This work was done as part of SPoRT's involvement in the NOAA GOES-R Proving Ground.

A manuscript entitled "Application of Next-Generation Satellite Data to a High-Resolution, Real-Time Land Surface Model" has been accepted for publication in the IEEE Earthzine Magazine with Bradley Zavodsky (ZP11), Jonathan Case (ENSCO, Inc.), Dr. Clay Blankenship (USRA), Dr. William Crosson (USRA), and Kristopher White (NWS, Huntsville) as authors. The paper focuses on SPoRT's plans to integrate data from NASA's upcoming Soil Moisture Active Passive (SMAP) and Global Precipitation Measurement (GPM) missions into a regional, real-time version of NASA's LIS for by operational weather forecasters to help with problems related to maximum heat, drought monitoring, and convective initiation.



The first operational use of total lightning data in operations in the AWIPS II system at WFO Huntsville, Alabama on 18 March 2013 using the SPoRT LMA plug-in.

# Satellite Proving Ground Activities

## JPSS Proving Ground Activities

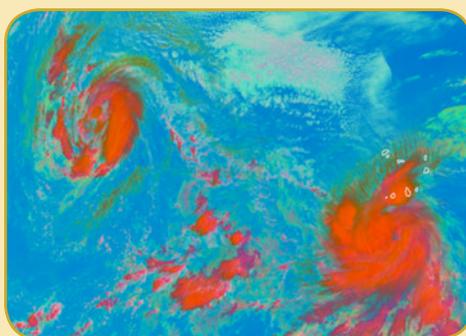
SPoRT is currently providing VIIRS data operationally to many WFO partners. The transition of VIIRS data was planned for AWIPS II, but only a couple of partners have transitioned to AWIPS II, so the focus has been on offices still using AWIPS. SPoRT provides the POES/GOES Hybrid products (Visible, Long-wave Infrared, Short-wave Infrared, and Fog) which include both MODIS and VIIRS data. Several VIIRS RGB products are also being supplied in swath format: Day-Night-Band (DNB), Dust, False Color, True Color, and Nighttime Microphysics. SPoRT receives real-time VIIRS data from direct broadcast systems at the Space Science and Engineering Center (University of Wisconsin-Madison), Geographic Information Network of Alaska (University of Alaska Fairbanks), and recently, the Honolulu Community College (University of Hawaii).

The WFOs currently receiving VIIRS products are Albuquerque, Great Falls, Medford, Eureka, Raleigh, Miami, and Melbourne. Efforts are ongoing to finalize the changes required to expand product delivery to Slidell, Mobile, Nashville, Juneau, Anchorage, Fairbanks, Corpus Christi, Cheyenne, and Honolulu.

SPoRT continues to prepare for the coming AWIPS II transitions through training activities like the EPDT. In the coming months, SPoRT will provide necessary software to WFO partners using AWIPS II to analyze VIIRS and other SPoRT data products.

## Support of GOES-R Tropical Proving Ground

For the third year, SPoRT will provide products in N-AWIPS format to support the Tropical Proving Ground (PG) for GOES-R, led by CIRA. SPoRT has been making RGB imagery from SEVIRI available to the National Hurricane Center (NHC) and has also assisted CIRA, and the NOAA Hurricane Research Division in making their products N-AWIPS-ready and transitioning the files to NHC. RGB imagery from MODIS has also been available for the West Atlantic and CONUS



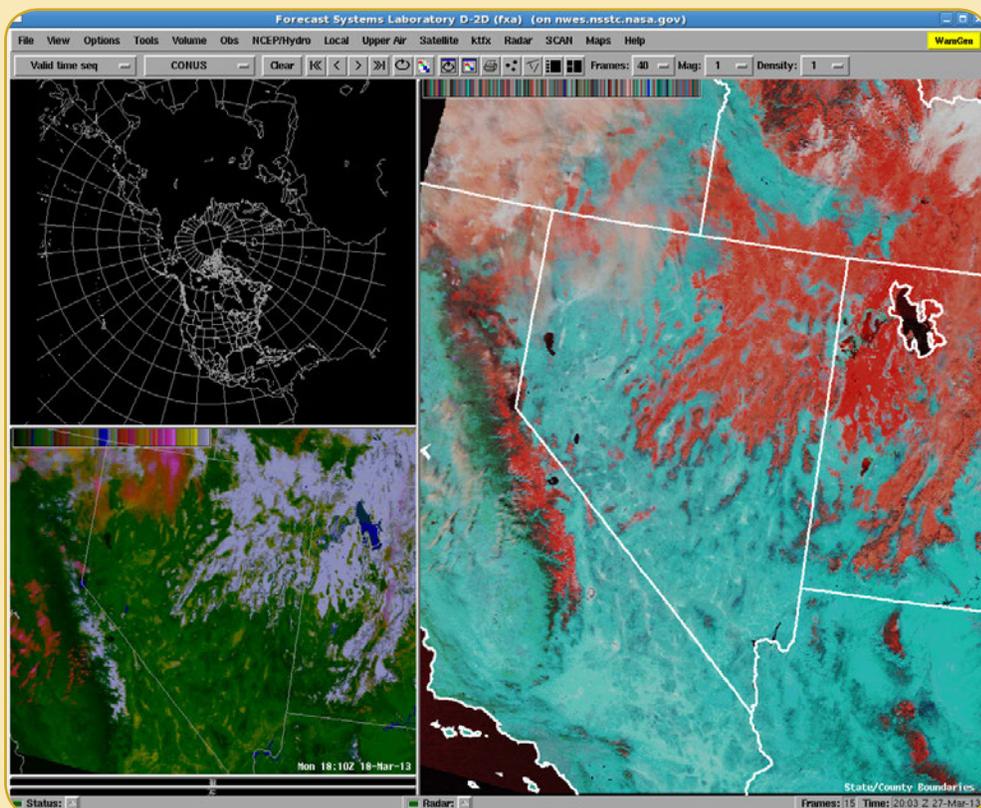
RGB Daytime Microphysics RGB from 2 September 2008 of then tropical storms Ike (left) and Josephine (right). Courtesy Jochen Kerkmann of EUMETSAT

regions, and this year, the VIIRS instrument is being planned for demonstration to NHC, in particular the DNB. As part of the 2013 Tropical PG season, two new RGB products from SEVIRI are planned: Daytime Microphysics and Convective Storms. SPoRT is coordinating efforts with European Organization for the Exploitation of Meteorological Satellites (EUMETSAT) to visit NHC in late April to deliver on-site initial training to staff regarding these RGBs. The resulting colors in the RGB composites help identify

cloud ice and water particle characteristics which provide information about the strength of convection.

## Front Range WFO Collaborations

The large areas of responsibility for the WFOs along the Rocky Mountain Front Range have led forecasters to rely on remote sensing imagery, even more so than their eastern colleagues. WFOs in Albuquerque, NM and Great Falls, MT have been heavy users of SPoRT-provided products from MODIS and GOES. Likewise, the developers at CIRA have partnered with the Boulder, CO and Cheyenne, WY WFOs. In order to enhance efforts to evaluate GOES-R and JPSS PG products in operations, SPoRT and CIRA have started a "Front Range" partnership that includes the aforementioned WFOs. In January, a kickoff telecon occurred to discuss PG products and possible evaluations. In addition, SPoRT invited Huan Meng and Ralph Ferraro of NESDIS to discuss their new Snow Fall Rate product. Plans were made to



MODIS Snow-Cloud RGB composites on 27 February 2013 from SPoRT (right) and CIRA (lower left) within AWIPS D2d to allow users to evaluate the differing techniques.

## Blog Summary

compare the two RGB Snow-Cloud composites from and SPoRT. Activities after the meeting led to the Albuquerque WFO configuring their system to ingest and display the CIRA product for a comparison evaluation to their existing SPoRT RGB product from both MODIS and VIIRS. The Cheyenne WFO is also working toward the ingest of SPoRT's RGB product in order to participate in the comparison. Future activities among all partners will look to evaluate the impact of VIIRS high-resolution imagery for use in night-time situational awareness.

### Evaluation of QPE

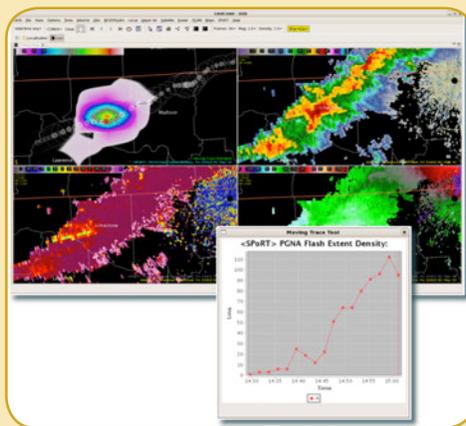
The Quantitative Precipitation Estimate (QPE) product from the GOES-R Algorithm Working Group is being evaluated by the SPoRT WFOs (Medford, Eureka, and Monterey) in Western Region on the coast as applied to atmospheric river events. Dr. Robert Kuligowski of NESDIS is the product developer who collaborated with SPoRT to transition the product to users for operational evaluation. Dr. Kuligowski worked with SPoRT to develop training for the initial testbed of users, and this included a 2-page Quick Guide that could be printed for easy reference within the operations area.

### Total Lightning Proving Ground Activities

Each spring, the Hazardous Weather Testbed's (HWT) Spring Program is an event that is circled on SPoRT's calendar. SPoRT has been supporting the Spring Program for several years now, including providing raw total lightning data for the pseudo-geostationary lightning mapper (PGLM) products for use in the Experimental Warning Program (EWP). This year will be the largest effort by SPoRT with the lightning products to date. First, SPoRT has coordinated with multiple developers to ingest total lightning data from seven LMAs across the country. This collaboration will include total lightning from Colorado, Houston, Kennedy Space Center, North Alabama, Oklahoma, Washington D.C., and West Texas. SPoRT's LMA plug-in for AWIPS II will be transitioned and serve as the visualization

tool. Furthermore, the total lightning tracking tool, initially developed by SPoRT and WFO Huntsville and now part of collaboration with the Meteorological Development Laboratory, will be tested. This tool showcases the potential of the new AWIPS II decision support system and directly addresses the primary request by forecasters evaluating total lightning: create a time series display in real-time. This tool will allow forecasters to do just that by manually setting up a storm track with which to analyze the amount of total lightning in a given cell. In the short-term, this tool may help reduce the subjectivity in searching for lightning jumps ahead of severe weather, thus improving warning decision support. In the longer-term, this tool may be extended to provide an intra-cloud to cloud-to-ground ratio and incorporate the University of Alabama in Huntsville's lightning jump algorithm, which would provide forecasters with an objective analysis of total lightning in real-time.

Beyond the Spring Program, SPoRT's efforts to coordinate all of these networks will continue into the Aviation Weather Center's Summer Experiment. This will use the PGLM mosaic product and evaluate total lightning utility from the national center perspective. Additionally, SPoRT has submitted a proposal to the Operations Proving Ground to evaluate the total lightning tracking tool later this summer.



Demonstration of the SPoRT-MDL total lightning tracking tool in AWIPS II. The upper left shows the pseudo-GLM flash extent density with the cell track, the upper right is the radar reflectivity, the lower left is the radar correlation coefficient, and the lower right is the radar velocity. The pop-up window shows the flash extent density time series.

Several significant blog posts were made by the Albuquerque and Raleigh NWS offices, showcasing the utility of VIIRS and MODIS imagery for various types of forecasting and situational awareness activities. The first post, on January 6th, was made by the SPoRT/satellite focal point at the Albuquerque NWS (ABQ) office, Brian Guyer. In what was an interesting and somewhat unique use of the 1 km MODIS-VIIRS 11 $\mu$ m product, he demonstrated that this product could be used as a proxy for determining near surface temperatures and the occurrence of strong nocturnal inversions. In what was also characteristic fashion by one of SPoRT's strongest collaborators, they shared the image to customers via the office graphicast product. In another post later in January, the ABQ office demonstrated the utility of the Nighttime Microphysics (NTM) Imagery in distinguishing low clouds from mid and high clouds. It was also noted in the NTM imagery, the superior detection of the presence of clouds in locations where the standard 11–3.9 $\mu$ m will falsely indicate clouds due simply to relatively large brightness temperature differences. The Raleigh NWS office shared a couple of posts in January about their use of NTM imagery in assessing the extent of fog over the low-country Carolina region and distinguishing fog from other stratus and higher cirrus clouds. These products proved to be useful in particular, in helping to determine where fog was most dense over heavily-traveled Interstate corridors.

Another post in January detailed the use of the SPoRT LIS soil moisture products by the Huntsville NWS (HUN) office to assess flooding potential over northern Alabama and adjacent areas of southern Tennessee. Traditionally, soil moisture values are rather difficult to come by, with a dearth of in-situ observations. Forecasters typically must rely on anecdotal evidence and subjective experience to try to make some assessment of soil moisture in a given area. The 3 km resolution of the SPoRT LIS soil moisture products at various depths allow for a near real-time assessment of soil moisture across a region. These products are

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not only used for situational awareness purposes to help assess drought and flooding risk, but are being used in the local modeling efforts at the NWS offices in Mobile and Houston, including the HUN office. More posts to the SPoRT blog about this will be coming during 2013.

The False Color RGB was used by NWS HUN and ABQ to locate areas of recent snowfall. The ABQ example was particularly interesting, as it showed obvious streaks of snow that had developed in a post cold front situation. One of these snow “streaks” was quite narrow, yet stretched from near the Four Corners area all the way to the Interstate 40

corridor. The post also indicated that radar had not indicated some of these streaks were particularly heavy, but the satellite evidence indicated otherwise, with accumulations of snow clearly on the surface.

A welcome new member to the SPoRT blog, Emily Berndt (username: snoflk), made a couple of interesting posts synthesizing MODIS/VIIRS Air Mass RGBs, Suomi NPP OMPS Daily Ozone, AIRS profiles and model data to analyze the February 8–9 Northeast U.S. blizzard. The presence of stratospheric intrusions and relatively high atmospheric ozone concentrations suggested high surface wind gusts would be possible with this

developing cyclone. Indeed, this was the case, as gusts from 60 to 80 mph were fairly common across along the megalopolis corridor into New England.

CIRA Layered Total Precipitable Water and NESDIS QPE products are being delivered to a few west coast NWS offices for evaluation purposes. A couple of posts described these products and the evaluation process, including potential operational applications. Unfortunately, portions of the west coast have been relatively dry recently, but more precipitation events are hoped for during the month of April, as these important evaluations continue.

## Huntsville

The Huntsville office is one of the AWIPS II Operational Test and Evaluation (OT&E) sites and thus hasn't had SPoRT products available in their local AWIPS since summer 2012. However, the recent ATAN has allowed the inclusion of North Alabama Lightning Mapping Array (NALMA) data in AWIPS II at Huntsville in mid-March. This was the first SPoRT-related product transitioned to Huntsville since they became an OT&E site for AWIPS II. The Huntsville office has a relatively long history with the NALMA data, utilizing them in operations since March 2003. So, they are glad to have these data back in operations and look forward to getting other SPoRT imagery and products back into AWIPS II soon.

Efforts are currently underway to bring the SPoRT Land Information System (LIS) suite of products and local WRF model output - which uses SPoRT-LIS soil moisture, real-time MODIS green vegetation fraction data in place of the standard monthly climatology, and the SPoRT SSTs for the outer grid that reaches the Gulf of Mexico - into AWIPS II via GRIB2 format. As part of the Southern Region modeling collaboration with SPoRT, Huntsville also plans to set up and perform quantitative analysis this summer on differences

between model runs using SPoRT data sets vs. control runs with the standard data sets. Model verification statistics will be produced using the SPoRT-developed scripts that interface with the NCAR Model Evaluation Tools package.

Work continues with the use of the SPoRT LIS for assessing drought development and intensification, and for flooding potential. Currently, the Application Integration Meteorologist is working with Jon Case to develop a training module for the SPoRT LIS, describing its unique configuration and how the associated products may be used for specific forecast challenges and hydrologic applications.

## Great Falls

Collaborations have included additional items in their AWIPS menu to engage forecasters, including VIIRS imagery. The ITO and SOO have helped to analyze the bandwidth impact of SPoRT's product suite, which will allow users to decide how many products they will be able to ingest. In addition, the ITO (Don Britton) worked closely with SPoRT to update ingest and processing code that was migrated to several other WFO partners.

## Medford, Eureka, Monterey

After participating in an evaluation of WindSat data provided by SPoRT, these WFOs have continued to collaborate through evaluation of the NESDIS QPE and CIRA LPW products. Each of these WFOs has also implemented the SPoRT base-product suite in their AWIPS for additional situational awareness applications.

## Albuquerque

In addition to several blog posts on the use of Snow-Cloud and Air Mass RGB composite imagery, users are comparing RGB techniques used by SPoRT and CIRA as part of a Front Range Collaboration group that includes Boulder, Cheyenne, and Great Falls.

## Hawaii & Pacific Region Headquarters

Eric Lau at PRHQ assisted the WFO with initial ingest and display of SPoRT products that included MODIS SST Composite and NESDIS QPE. Eric is continuing to update the WFO AWIPS menu to include a suite of SPoRT imagery products. SPoRT is coordinating with Roy Huff (GOES-R Liaison in Pacific Region) to gain access to MODIS and VIIRS data from the Direct Broadcast antenna newly installed in Hawaii. SPoRT plans to use this data to provide RGB imagery over the Pacific to the WFO.

Since the advent of DNB imagery through the VIIRS instrument onboard the Suomi NPP satellite, the SPoRT team and collaborators have been investigating the imagery for potential operational applications. One post indicated the potential for observing smoke plumes at night, which is nearly impossible in conventional IR imagery. On this particular night, smoke from a nearby fire was causing visibility reductions to 1¼ statute miles at a nearby airport. At night, forecasters would continue to want information about the presence and characteristics of the smoke plume. In addition, the DNB imagery appears to offer more efficient detection of snow cover extent and evolution, especially in areas where

clouds lingered during the day, and in the event of nighttime warm advection regimes. These and other uses of this new and exciting imagery will continue to be explored in the blog this year.

Blog statistics: The SPoRT blog had over 3,400 views this past quarter. Interestingly, these viewers span much of the world, from our Canadian neighbors to the north (203 views) to Brazil (28 views), England (79 views), India (196 views) and even New Zealand (9 views). If you would like access to posts on the SPoRT blog, please send an email to Kris White (kris.white@noaa.gov).

## Publications and Presentations

### AMS Summary

#### 93rd AMS Annual Meeting

##### Austin, Texas, Jan. 6-10, 2013

Blankenship, C. B., B. T. Zavodsky, G. J. Jedlovec, G. A. Wick, and P. J. Nieman, 2013: Impact of AIRS thermodynamic profiles on precipitation forecasts for atmospheric river cases affecting the western United States. 9th Symp. on Future Operational Environmental Satellite Systems.

Calhoun, K. M., D. E. Bruning, D. M. Kingfield, S. D. Rudlosky, C. W. Siewert, T. Smith, G. T. Stano, and G. J. Stumpf, 2013: Forecaster use and evaluation of pGLM data at the NOAA Hazardous Weather Testbed and GOES-R Proving Ground. 9th Symp. on Future Operational Environmental Satellite Systems.

Case, J. L., S. V. Kumar, R. J. Kuligowski, and C. Langston, 2013: Comparison of four precipitation forcing datasets in Land Information System simulations over the Continental U.S. 27th Conf. on Hydrology.

Folmer, M. J., K. Bedka, J. Walker, S. Goodman, S. D. Rudlosky, G. T. Stano, B. Reed, J. M. Sienkiewicz, D. R. Novak, J. Kibler, A. Orrison, and H. D. Cobb III, 2013: GOES-R convective product demonstrations at HPC, OPC, SAB, and TAFB. 9th Symp. on Future Operational Environmental Satellite Systems.

Goodman, S. J., R. J. Blakeslee, W. Koshak, D. Mach, J. Bailey, D. Buechler, L. Carey, C. J. Schultz, M. Bateman, E. W. McCaul Jr., and G. T. Stano, 2013: The GOES-R Geostationary Lightning Mapper (GLM): A new eye on lightning. 9th Symp. on Future Operational Environmental Satellite Systems.

Jedlovec, G. J., 2013: SPoRT: Transitioning NASA and NOAA Experimental Data to the Operational Weather Community. 3rd Conf. on Research to Operations.

Molthan, A. L., K. K. Fuell, F. J. LaFontaine, K. M. McGrath, and M. R. Smith, 2013: Current and future applications of multispectral (RGB) satellite imagery for weather analysis and forecasting applications. 9th Symp. on Future Operational Environmental Satellite Systems.

Ramachandran, R., H. Conover, M. McInery, A. Kulkarni, H. M. Goodman, B. T. Zavodsky, S. Braun, and B. Wilson, 2013: Curated data albums for hurricane case studies. 11th Conf. on Artificial and Computational Intelligence and its Applications to the Environmental Sciences.

Schultz, C. J., L. D. Carey, E. V. Schultz, G. T. Stano, P. N. Gatlin, D. Kozlowski, R. J. Blakeslee, and S. J. Goodman, 2013: Integration of the total lightning jump algorithm into current operational warning environment conceptual models. 6th Conf. on the Meteorological Applications of Lightning Data.

Schultz, E. V., G. T. Stano, L. D. Carey, and W. A. Petersen, 2013: Radar applications for nowcasting lightning cessation. 6th Conf. on Meteorological Applications of Lightning Data.

Smith, M., K. McGrath, and J. Burks, 2013: AWIPS II Application Development, a SPoRT Perspective. 29th Conference on Environmental Information Processing Technologies.

Stano, G. T., B. Carcione, K. D. White, and C. J. Schultz, 2013a: Low topped convection and total lightning observations from North Alabama. 6th Conf. on Meteorological Applications of Lightning Data.

Stano, G. T., J. A. Sparks, S. J. Weiss, and C. W. Siewert, 2013b: Fusing total lightning data with Aviation Weather Center and Storm Prediction Center operations during the GOES-R visiting scientist program. 6th Conf. on Meteorological Applications of Lightning Data.

White, K.D., J. L. Case, 2013: The Utility of the Real-Time NASA Land Information System Data for Drought Monitoring Applications. 27th Conf. on Hydrology.

White, K. D., G. T. Stano, and B. Carcione, 2013: An investigation of North Alabama Lightning Mapping Array data and usage in the real-time operational warning environment during the March 2, 2012 severe weather outbreak in northern Alabama. 6th Conf. on Meteorological Applications of Lightning Data.

Zavodsky, B. T., J. Srikishen, and G. J. Jedlovec, 2013: Evaluation of the Impact of Atmospheric Infrared Sounder (AIRS) radiance and profile data assimilation in partly cloudy regions. Special Symp. on the Joint Center for Satellite Data Assimilation.

## Presentations

Jedlovec, G. J., SPoRT Overview: Presentation to the USRA Oversight Committee, February 13, 2013, Huntsville, Alabama.

## Proposals Submitted

- A proposal entitled “A Near Real-Time SMAP Level 4 Soil Moisture Analysis Product for Improving Flood and Excessive Heat Forecasts” was submitted to the NASA Research Opportunities in Space and Earth Science – 2012 Soil Moisture Active Passive (SMAP) Science Team solicitation with Dr. William Crosson (USRA) as PI and Bradley Zavodsky (ZP11), Dr. Clay Blankenship (USRA), and Jonathan Case (ENSCO, Inc.) as Co-Is. Dr. Ashutosh Limaye (ZP11) is a collaborator on the project.
- A proposal entitled “Advanced Coupled Land-Atmosphere Modeling with the NASA-Unified WRF via Process Studies and Satellite-Scale Data Assimilation” with PI Christa Peters-Lidard (GSFC) and a list of Co-Is including Bradley Zavodsky (MSFC/ZP11) and Jonathan Case (MSFC/ENSCO, Inc.) was selected for funding by the Modeling, Analysis, and Prediction (MAP) program at NASA HQ.

## Visitors

- February 13, Bill Smith, Hampton University – Learn about SPoRT.

## Calendar of Events

- Testbed and OPG Workshop, April 2–4, College Park, MD
- NOAA Satellite Conference, April 8–12, College Park, MD
- GOES-R Visiting Scientist trip to WFOs Boulder and Cheyenne and Colorado State University, April 15–19
- NASA Mission Applications Status Review, May 21–22
- SPoRT Seminar, Influence of Stratospheric Intrusions on High Impact Non-convective Weather Events, Emily Berndt, SPoRT Post-Doctoral Scientist (ORAU), April 30
- LANCE Users Group Conference Call
- NSSL Spring Program, May 9–June 14
- AIRS Science Team Meeting, May 21–24, Pasadena, CA
- EUMETSAT Meteorological Satellite Conference and AMS Conference on Satellite Meteorology and Oceanography, September 16–20, Vienna, Austria
- GOES-R Proving Ground OCONUS Technical Interchanged Meeting, June 17–21 Anchorage, AK
- SPoRT Seminar, A Tool for Constructing Data Albums for Significant Weather Events, Rahul Ramachandran (UAH), May 7

National Aeronautics and Space Administration

**George C. Marshall Space Flight Center**

Huntsville, AL 35812

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