National Aeronautics and Space Administration

The SPoRT REPORT

SPoRT Quarterly
January – March 2017

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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/

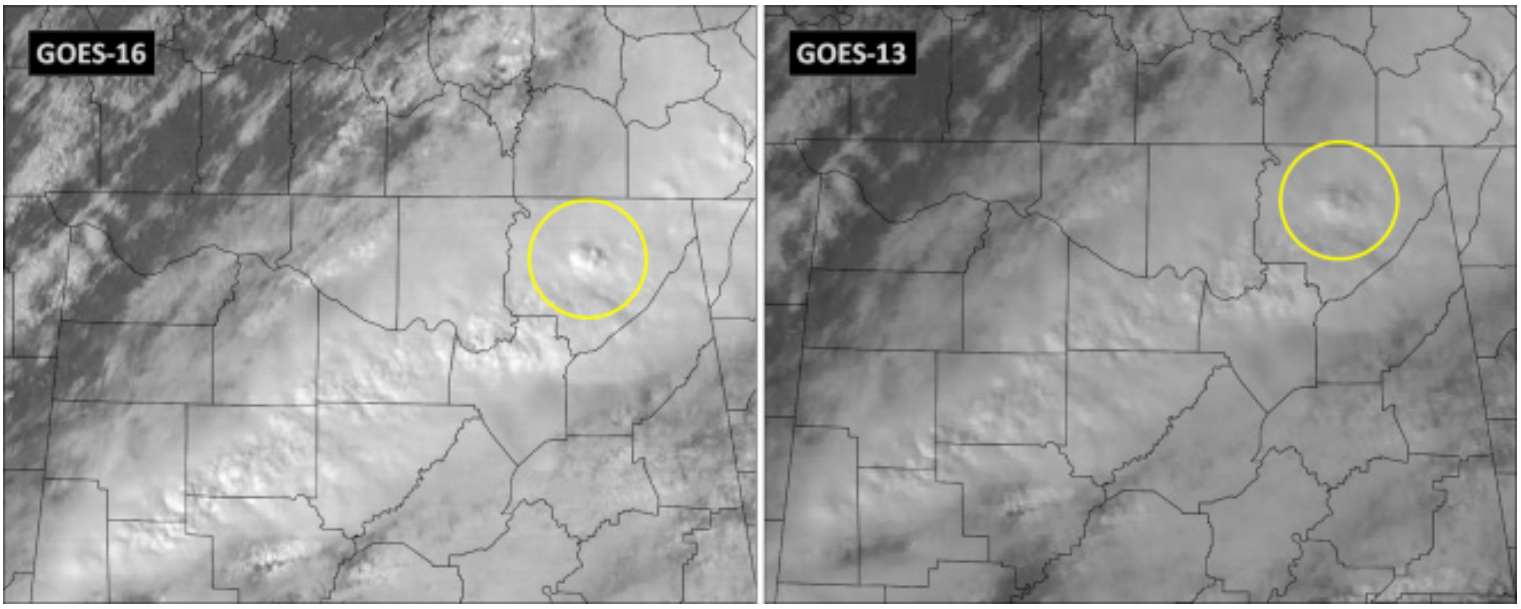
The SPoRT Center is a NASA- and NOAA-funded project to transition unique observations and research capabilities to the operational community to improve short-term weather forecasts on a regional scale. While the direct beneficiaries of these activities are selected NOAA Weather Forecast Offices (WFOs)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

Quarterly Highlights

First Look at GOES-16 Imagery

1 March marked the first day preliminary, non-operational beta-mode Advanced Baseline Imager (ABI) data were available from GOES-16 via the GOES Rebroadcast (GRB) data stream. Using a GRB site located on Marshall Space Flight Center made possible by NASA and NOAA funding, SPoRT was able to obtain some of the first images relayed from GOES-16. Coincidentally a line of storms moved through the Tennessee Valley as SPoRT team members worked to produce imagery from the receiver. The figure below is an impressive first look at convective activity with the ABI 0.64 μm imagery received by the MSFC.

The next day, as data began to flow over the Advanced Weather Interactive Processing System (AWIPS) Satellite



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Recent Accomplishments

Response Activities Related to MAF Tornado and Lightning Damage

On 7 February, a tornado with maximum intensity of EF-3 (136-165 mph) moved across portions of New Orleans East, the strongest tornado reported in the New Orleans metro since records began in 1950. As the tornado moved eastward, it impacted portions of NASA's Michoud Assembly Facility (MAF), impacting several buildings and structures, and resulting in damage to 200 parked cars, roads, and other facilities. The extensive damage resulted in a closure of the facility on 8 February and a slow return to work for employees supporting NASA's Space Launch System and related activities. In support of the damage assessment, SPoRT team members affiliated with NASA's Earth Science Disaster Response Program and past proposal awards to integrate Earth remote sensing in the NOAA/NWS Damage Assessment Toolkit requested DigitalGlobe Worldview imagery through collaborations with USGS and their Hazards Data Distribution System. The team processed true color imagery of the damage path across New Orleans East and MAF, sharing it with Emergency Operations Center (EOC) personnel at Marshall, which serves and supports operations at MAF. Imagery were made available in their GIS platform to use in coordination with other products available for emergency response. In addition, other SPoRT team members gathered lightning observations from ground-based networks in the New Orleans area and provided cloud to ground strike points that the EOC requested for determining areas where fires may have been initiated by lightning strikes. In total 5 cloud-to-ground lightning flashes impacted the facility, with 2 of these occurring within 500 m of the main assembly building. The team used this experience to better understand how imagery can be shared with NASA EOC personnel and will continue to explore opportunities to supporting NASA's disaster response interests. Also, SPoRT plans to provide real-time lightning data from the recently-launched Geostationary Lightning Mapper (GLM) to the MSFC EOC in support of lightning safety.

Ground-based lightning data translated into Google Earth for matching up with buildings on MAF where lightning-induced fires occurred.

SMAP Data Assimilation Integration into SPoRT-LIS

SPoRT maintains a real-time, high-resolution (~3-km) instantiation of the Noah Land Surface Model through the NASA Land Information System, called the SPoRT-LIS. Recently, SPoRT completed real-time implementation of an experimental SPoRT-LIS product that includes assimilated Level 2 soil moisture retrievals from the NASA Soil Moisture Active-Passive (SMAP) mission. SMAP is a polar-orbiting microwave radiometer for estimating soil moisture over the globe with coverage up to twice daily. SPoRT is currently assimilating swaths of the SMAP Level 2 retrieval product with 36-km pixel resolution. Plans are ongoing to assimilate a newly-developed enhanced retrieval product developed by JPL, which uses Backus-Gilbert interpolation to deliver the retrievals with 9-km pixel resolution, resulting in a retrieval that is of similar resolution to that which would have been available if the active component of SMAP had not failed shortly after launch. The SMAP-enhanced fields are available online and currently being evaluated in order to determine whether this product is value-added over the current SPoRT-LIS products being used operationally at several partnering NWS offices. Side-by-side plots showing the impact of the assimilation are available on the real-time CONUS LIS with SMAP Data Assimilation webpage.

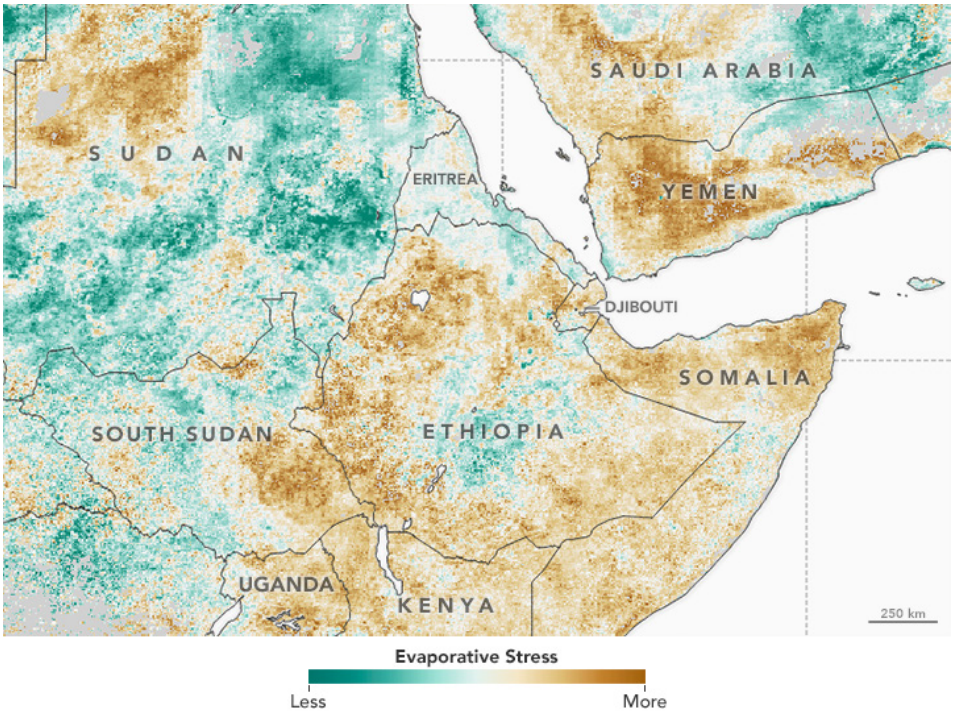
Evaporative Stress Index Implementation

SPoRT has recently begun work on a NASA Applied Sciences Water Resources project, led by Dr. Christopher Hain, to develop and implement a near-real-time global Evaporative Stress Index (ESI) product. The ESI represents anomalies in the ratio of actual-to-potential ET generated with the thermal remote sensing based Atmosphere-Land Exchange Inverse (ALEXI) surface energy balance model. The LST inputs to ESI have been shown to provide early warning

information about the development of vegetation stress with stress-elevated canopy temperatures observed well before a decrease in greenness is detected in remotely sensed vegetation indices. Whereas many drought indicators based on precipitation or atmospheric conditions capture meteorological drought, the ESI is one of few indicators of agricultural drought that reveals actual vegetation stress conditions realized on the ground. As a diagnostic indicator of actual ET, the ESI requires no information regarding antecedent precipitation or soil moisture storage capacity—the currently available moisture to vegetation is deduced directly from the remotely-sensed LST signal. This product aligns with SPoRT's strategic move to engage with new end users relevant to NASA's Applied Sciences programs. The experimental, near real-time global ESI products will initially be provided to end users through SPoRT's established data dissemination mechanisms for the broader drought monitoring community, along with integration into the decision support systems of the primary project stakeholders at the United States Department of Agriculture (USDA) Foreign Agricultural Service, the G20 GeoGLAM Crop Monitor Initiative, and the Middle East - North Africa Regional Drought Management System at the International Center for Biosaline Agriculture. The global ESI product was highlighted as the NASA Earth Observatory's Image of the Day for 28 February, which focused on the famine and drought over the Horn of Africa.

Participation in NASA Wildfire Program Review

Dr. Chris Schultz participated in the NASA Wildfire Program Review in Boulder CO from 28 February – 2 March 2017, representing the NASA Disasters Program. SPoRT is pursuing new collaborations based on interest from the wildfire community in SPoRT-LIS products. Dr. Schultz provided discussion/expertise on the transition of research to operations of the wildfire products to the end users within the wildfire community and was able to connect with various stakeholders in the wildfire community from United States Forest Service, Fire Command, and numerous NASA investigators in the field who are developing products at different Application Readiness Levels.



Global ESI product over the Horn of Africa showing heavily stressed vegetation, associated with famine in this region.

Jordan Bell (right) and Lori Schultz (center) participate in collaborative discussions with researchers at the University of Alaska Fairbanks

Code Sprint Collaborations for SAR Applications

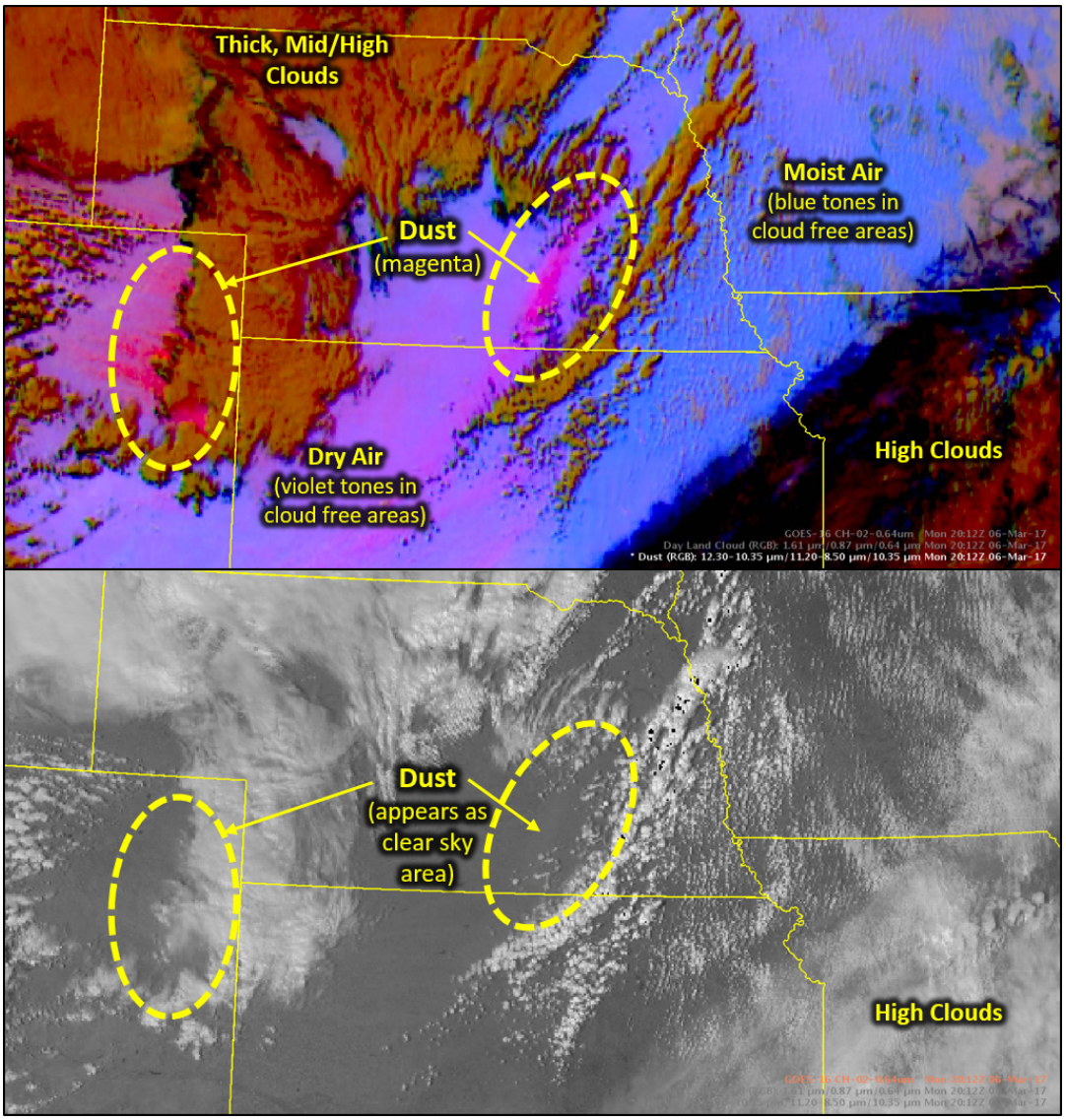
Lori Schultz and Jordan Bell were invited to participate in a two-week code sprint at the Alaska Satellite Facility (ASF) to further the goal of producing Synthetic Aperture Radar (SAR) products to directly support end-users, such as the National Weather Service (NWS), the Federal Emergency Management Agency (FEMA), and other federal response agencies as mandated by NASA Applied Sciences Disasters Program during disaster response efforts. The goals of the visit were to expand SPoRT's knowledge of SAR imagery and potential applications while working to expand ASF's efforts in direct end-user support by developing specific applications. Of particular interest was the development of real-time processing algorithms for the detection of change, specifically for floods, with expansion into the detection of damage caused by severe weather, such as hail, tornado and wildfires.

National Tornado Summit and Disaster Symposium

Lori Schultz gave an invited presentation at the National Tornado Summit on how remote sensing data can aid forecasters, researchers and emergency managers during damage surveys after severe weather and natural disaster events. The presentation was geared to inform the insurance community, emergency managers and state/local government officials and was part of the larger National Severe Weather Workshop focused on the discussion of climate change and its possible effects on severe weather, with the intent of building tornado-resilient communities and support the Safe Schools Initiative.

Quarterly Highlights…continued
First Look at GOES-16 Imagery...continued

Broadcast Network (SBN/NOAAPort), SPoRT set up ingest and display of the data into a local test AWIPS system. SPoRT uses AWIPS to support efforts to assess and transition experimental products and capabilities with National Weather Service (NWS) end users, who use AWIPS as their decision support system. Over the past several years, SPoRT has played an active role in assessing and transitioning proxy GOES-R multispectral (i.e., RGB) imagery derived from polar-orbiting sensors to prepare NWS offices and National Centers for advanced capabilities available with GOES-16. One such product is the Dust RGB, which offices in the southwest U.S. have already integrated into their operations from polar orbiting satellites. The figure to the right highlights the advantage of the Dust RGB compared to relying on only visible imagery to identify dust. A number of examples of RGB products from GOES-16 can be found on the Wide World of SPoRT Blog.



GOES-16 imagery from 6 March 2017 for the Dust RGB (top) and visible image (bottom) showing advantage of using RGB over single channel imagery for detecting airborne dust (shown in magenta in the RGB).

RGB products are not yet operationally available to NWS forecasters but will be available in the near future. SPoRT—through the Experimental Products Development Team—developed the capability to combine the SBN single channel imagery within AWIPS to generate the RGB products. This capability has been transitioned to the Total Operational Weather Readiness – Satellites (TOWR-S) team for distribution to all NWS offices to have the capability to derive client side RGB imagery in AWIPS. Since all 16 GOES-16 bands are available to forecasters for display in AWIPS, the ability to generate client-side RGB products from the available bands makes these products more readily available to forecasters, eliminating the need for SPoRT to preprocess the products and deliver them to offices via the Local Data Manager (LDM). In addition, SPoRT initially developed and tested the AWIPS Integrated Reference (AIR) Tool that is now a baseline capability in AWIPS. SPoRT RGB Quick Guides are now accessible via the AIR and available to NWS forecasters to learn more about RGB products as they become available in AWIPS.

Note: NOAA's GOES-16 satellite has not been declared operational and its data are preliminary and undergoing testing. Users receiving these data through any dissemination means (including, but not limited to, PDA and GRB) assume all risk related to their use of GOES-16 data and NOAA disclaims any and all warranties, whether express or implied, including (without limitation) any implied warranties of merchantability or fitness for a particular purpose.

Social Media Corner

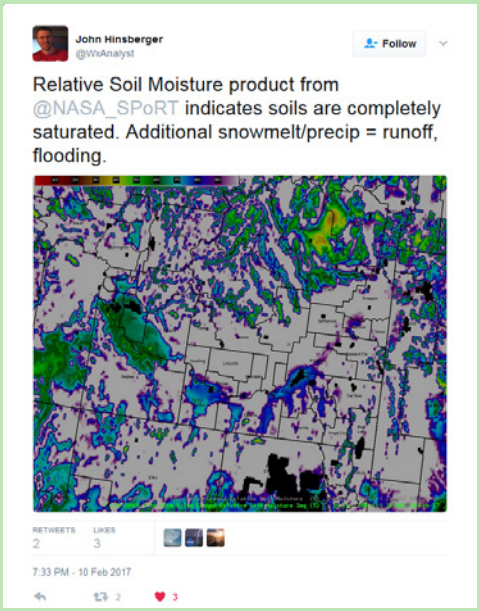
SPoRT engages with our partners in a number of ways, including through the use of social media. You can also follow us through Facebook (NASA SPoRT Center) and Twitter (@NASA_SPoRT). SPoRT also maintains the Wide World of SPoRT blog (http://nasasport.wordpress.com), where SPoRT scientists and our forecaster partners highlight interesting examples of product use. The SPoRT group is very appreciative of the efforts of all of our collaborative authors. If you would like privileges to post on the SPoRT blog, please send an email to Kris White (kris.white@noaa.gov). Thanks and we hope you'll keep reading!

Wide World of SPoRT Blog

The following posts were highlights from the Wide World of SPoRT Blog this quarter:

- Brett Williams, a forecaster at the New Braunfels, TX WFO and former SPoRT NASA intern student, demonstrated use of lightning data and the SPoRT-developed tracking meteogram tool for decision making during severe weather forecasting: https://nasasport.wordpress.com/2017/01/11/utilizing-total-lightning-and-the-tracking-meteogram-tool-to-assist-in-the-warning-decision-making-process/
- Jonathan Case highlighted impacts of an atmospheric river event in California that resulted in flooding in early January: https://nasasport.wordpress.com/2017/01/13/multiple-atmospheric-rivers-impact-california-in-early-2017/
- Brian Carcione, the Science Operations Officer at the Huntsville, AL WFO and former SPoRT Applications Integration Meteorologist, showed how total lightning data provided by SPoRT was used for lightning safety for incident decision support services following a methane explosion in rural northwest Alabama: https://nasasport.wordpress.com/2017/01/26/total-lightning-and-idss-in-stratiform-precipitation/
- Kevin Fuell has generated a number of amazing case studies demonstrating various RGBs. Scroll through https://nasasport.wordpress.com/ for these examples.

Tweets of the Quarter



Presentations

Bell, J. R. and **A. L. Molthan**, 2017: Initial Response Products Using Optical and SAR Imagery from Earth Observing Platforms for Decision Support Services (DSS). *28th Conference on Weather Analysis and Forecasting/24th Conference on Numerical Weather Prediction, 97th American Meteorological Society Annual Meeting*, Seattle, WA, 22-26 January, 5A.6.

Berndt, E., **N. J. Elmer**, **L. A. Schultz**, and **A. L. Molthan**, 2017: Multispectral Composites and Next-Generation Advanced Satellite Imagers. *Seventh Conference on Transition of Research to Operations, 97th American Meteorological Society Annual Meeting*, Seattle, WA, 22-26 January, 3.6.

Berndt, E., M. J. Folmer, J. Halverson, and J. P. Dunion, 2017: Utility of NUCAPS Retrieved Profiles to Diagnose Extratropical Transition. *13th Annual Symposium on New Generation Operational Environmental Satellite Systems, 97th American Meteorological Society Annual Meeting*, Seattle, WA, 22-26 January, 16.1.

Coy, J. J., **C. J. Schultz**, and **J. L. Case**, 2017: An Assessment of Land Surface and Lightning Characteristics Associated with Lightning Initiated Wildfires. *Eighth Conference on the Meteorological Application of Lightning Data, 97th American Meteorological Society Annual Meeting*, Seattle, WA, 22-26 January, J11.5.

Elmer, N. J., **B. T. Zavodsky**, **A. L. Molthan**, **J. L. Case**, and **C. B. Blankenship**, 2017: Predicting Localized Flooding during the 2015 North Alabama Christmas Flood Event Using WRF-Hydro Simulated Streamflow. *31st Conference on Hydrology, 97th American Meteorological Society Annual Meeting*, Seattle, WA, 22-26 January, 19.

Elmer, N. J. and **A. L. Molthan**, 2017: Interactive Python Widget for Correcting WRF-Hydro Input Grids. *Seventh Symposium on Advances in Modeling and Analysis Using Python, 97th American Meteorological Society Annual Meeting*, Seattle, WA, 22-26 January, 2.2.

Elmer, N. J., **C. B. Blankenship**, **J. L. Case**, **B. T. Zavodsky**, and **A. L. Molthan**, 2017: Assimilating Satellite-derived Soil Moisture and Ingesting Real-time Vegetation into WRF-Hydro using the NASA LIS. *31st Conference on Hydrology, 97th American Meteorological Society Annual Meeting*, Seattle, WA, 22-26 January, 7.4.

Hain, C., M. C. Anderson, M. A. Schull, C. M. U. Neale, and X. Zhan, 2017: Development of a 375-m VIIRS-based Evapotranspiration Product over the MENA Region. *31st Conference on Hydrology, 97th American Meteorological Society Annual Meeting*, Seattle, WA, 22-26 January, 1056.

Hotz, D. G., A. Cavallucci, **G. T. Stano**, and T. Reavley, 2017: Use of Total Lightning Data at Chattanooga, Tennessee Emergency Management For Public Safety and Decision Making. *Eighth Conference on the Meteorological Application of Lightning Data, 97th American Meteorological Society Annual Meeting*, Seattle, WA, 22-26 January, J3.1.

Kustas, W. P., M. C. Anderson, H. Nieto, T. Xia, J. Prueger, L. G. McKee, J. G. Alfieri, F. Gao, **C. Hain**, A. F. Torres-Rua, M. Alarab, H. Geli, L. Sanchez, M. Mar Alsina, and K. Semmens, 2017: Utility of Thermal-based Two-Source Energy Balance Model for Estimating Vineyard Evapotranspiration at Field and Regional Scales. *31st Conference on Hydrology, 97th American Meteorological Society Annual Meeting*, Seattle, WA, 22-26 January, 14A.1.

Li, X., **J. Srikishen**, **B. T. Zavodsky**, and J. R. Mecikalski, 2017: Assimilation of GPM GMI rain-rate product with community GSI and case study result. *28th Conference on Weather Analysis and Forecasting/24th Conference on Numerical Weather Prediction, 97th American Meteorological Society Annual Meeting*, Seattle, WA, 22-26 January, 1164.

Mecikalski, J. R., C. P. Jewett, **L. A. Schultz**, **G. T. Stano**, and **B. T. Zavodsky**, 2017: An Integrated 0-1 hour First-Flash Lightning Nowcasting and Lightning Amount Algorithm. *Eighth Conference on the Meteorological Application of Lightning Data, 97th American Meteorological Society Annual Meeting*, Seattle, WA, 22-26 January, 5.1.

Meng, H., R. R. Ferraro, C. Kongoli, J. Dong, **B. T. Zavodsky**, B. Yan, L. Zhao, and N. Y. Wang, 2017: ATMS Snowfall Rate Product and Its Applications. *13th Annual Symposium on New Generation Operational Environmental Satellite Systems, 97th American Meteorological Society Annual Meeting*, Seattle, WA, 22-26 January, 15.2.

Molthan, A. L., **J. L. Case**, **J. Srikishen**, and **B. T. Zavodsky**, 2017: *28th Conference on Weather Analysis and Forecasting/24th Conference on Numerical Weather Prediction, 97th American Meteorological Society Annual Meeting*, Seattle, WA, 22-26 January, 1173.

Naeger, A., B. A. Colle, and **A. L. Molthan**, 2017: Evaluation of Cloud Microphysical Schemes in a Simulated Warm Frontal Snowband During the GPM Cold Season Precipitation Experiment (GCPEx). *28th Conference on Weather Analysis and Forecasting/24th Conference on Numerical Weather Prediction, 97th American Meteorological Society Annual Meeting*, Seattle, WA, 22-26 January, 13.3.

Nunez, R. and **G. T. Stano**, 2017: Implementing Total Lightning Observations at Center Weather Service Unit Houston. *Eighth Conference on the Meteorological Application of Lightning Data, 97th American Meteorological Society Annual Meeting*, Seattle, WA, 22-26 January, 2.1.

Pulido, A., **A. L. Molthan**, **A. LeRoy**, and **E. Berndt**, 2017: Development of L3 GPM-IMERG Product Training Utilizing the ADDIE Model. 26th Symposium on Education, *97th American Meteorological Society Annual Meeting*, Seattle, WA, 22-26 January, 197.

Ward, B., A. Mostek, R. Van Til, L. Spayd Jr., F. W. Alsheimer, M. T. Stavish, D. Nietfeld, B. C. Carcione, N. Eckstein, W. Abshire, P. Dills, **G. T. Stano**, J. G. LaDue, M. A. Bowlan, D. Bikos, B. H. Connell, E. Szoke, E. L. Dagg, S. Bachmeier, S. Lindstrom, J. Gerth, and T. Schmit, 2017: The Satellite Foundational Course for GOES-R: A Collection of Lessons to Prepare National Weather Service Forecasters for GOES-R. *13th Annual Symposium on New Generation Operational Environmental Satellite Systems, 97th American Meteorological Society Annual Meeting*, Seattle, WA, 22-26 January, 4.1.

White, K. D., **J. L., Case**, and **B. T. Zavodsky**, 2017: The SPoRT Land Information System and the Research to Operations Process. *28th Conference on Weather Analysis and Forecasting/24th Conference on Numerical Weather Prediction, 97th American Meteorological Society Annual Meeting*, Seattle, WA, 22-26 January, 7A.5.

Zavodsky, B. T., N. Smith, J. F. Dostalek, E. Stevens, K. Nelson, E. Weisz, **E. Berndt**, W. Line, C. D. Barnet, A. Gambacorta, T. Reale, and D. Hoese, 2017: A Gridded CrIS/ATMS Visualization for Operational Forecasting. *28th Conference on Weather Analysis and Forecasting/24th Conference on Numerical Weather Prediction, 97th American Meteorological Society Annual Meeting*, Seattle, WA, 22-26 January, 7A.2.

Zavodsky, B. T., **F. J. LaFontaine**, **E. Berndt**, **P. Meyer**, and G. J. Jedlovec, 2017: Satellite Data Product and Data Dissemination Updates for the SPoRT Sea Surface Temperature Composite Product. *13th Annual Symposium on New Generation Operational Environmental Satellite Systems, 97th American Meteorological Society Annual Meeting*, Seattle, WA, 22-26 January, 255.

Proposals

GOES-R3 Lightning Jump

Dr. Chris Schultz led a proposal entitled "Utilizing Sub-Flash Properties of GLM to Monitor Convective Intensity with Probabilistic Guidance" in collaboration with researchers at the University of Alabama in Huntsville and the National Severe Storms Laboratory/University of Oklahoma- Cooperative Institute for Mesoscale Meteorological Studies that was selected for funding by the NOAA GOES-16 Risk Reduction Program. The goal of this proposal is to investigate the incorporation of sub-flash properties from GLM into the lightning jump algorithm for severe weather decision support, which leverages some SPoRT capabilities in total lightning and development of products for AWIPS following previous assessment performed with forecasters at various southeast U.S. NWS offices.

GOES-R3 Integrated Lightning Product

Dr. Chris Schultz was a Co-Investigator on a proposal entitled "Bayesian Merging of GLM Data with Ground-Based Networks", which was selected for funding by the NOAA GOES-16 Risk Reduction Program. This proposal is led by the University of Alabama in Huntsville and focuses on integrating space and ground-based lightning measurements into a single product for decision support services within the NWS. This project leverages previous NASA and U.S. Air Force funding to develop a product that will attempt to track lightning probability from the first in-cloud strike during convective initiation through lightning cessation.

ROSES Modeling, Analysis, and Prediction

Dr. Chris Schultz (PI) and Dr. Andrew Molthan (Co-I) led a proposal entitled "Implementation of CELLS Electrification Scheme into NU-WRF to improve modeling of Extreme Storms", which was selected for funding in the NASA ROSES Modeling, Analysis, and Prediction Program. This project is a collaboration with scientists at Goddard Space Flight Center and the University of Toulouse to integrate an electrification scheme into the NASA Unified Weather Research and Forecasting model to investigate how extreme flash rates are generated in severe thunderstorms. This project will enable a new approach for assimilating GLM data into a regional forecast model and expands SPoRT expertise in the areas of total lightning and modeling and data assimilation.

Satellite Proving Ground Activities

STAT Meeting Participation

Drs. Emily Berndt and Geoffrey Stano participated in the Satellite Training Advisory Team (STAT) meeting in Boulder, Colorado (27-31 March). The previous STAT meeting focused on the final preparations for the GOES-R Foundational Course and the SOO/DOH GOES-R Prep Course. This session focused on the next stage of training for GOES-16: applications. SPoRT is providing guidance on the style of training to the full STAT team. In addition, SPoRT is taking leading roles on two particular topics. The first will be with applications on the use of the RGB composite imagery that combines multiple Advanced Baseline Imager channels and channel differences. These applications range from identifying fog, dust, and other microphysical parameters. The second will be with the Geostationary Lightning Mapper (GLM). This will include additional details about the GLM that does not use proxy data as well as the operational applications. These range from severe weather decision support to lightning safety.

Participation in SOO/DOH Course

SPoRT continued support for the National Weather Service Science and Operations Officer/Development and Operations Hydrologist (SOO/DOH) Prep Course for GOES-R Course in Kansas City, Missouri. The course has brought SOOs from every NWS office to receive additional training on the capabilities of GOES-R (now GOES-16). The first two sessions occurred at the end of 2016 with the remaining five occurring this quarter. SPoRT, along with our partners at the Huntsville NWS Office, has led the effort of training on the AIR tool, a capability whereby training will be delivered directly to forecasters through their decision support systems, and the GLM. Feedback from the attendees has shown that the GLM training has been extremely well-received. The interactive discussions during the training is valuable for the SPoRT team as well. Much of the discussions will directly guide the next stage of training for GOES-16 applications.

Publications

Berndt, E., **A. Molthan**, **W. W. Vaughan**, and **K. Fuell**, 2017: Transforming satellite data into weather forecasts, *Eos*, **98**, no. 3, doi:10.1029/2017EO064449.

Berndt, E. B., **N. J. Elmer**, **A. L. Molthan**, and **L. A. Schultz**, 2017: A Methodology to Determine Recipe Adjustments for Multispectral Composites Derived from Next-Generation Advanced Satellite Imagers. *Journal of Oceanic and Atmospheric Technology*, *Submitted*.

Fisher, J. B., Melton, F., Middleton, E., **Hain, C.**, Anderson, M., Allen, R., McCabe, M., Hook, S., Baldocchi, D., Townsend, P. A., Kilic, A., Tu, K., Miralles, D., Perret, J., Lagouarde, J.-P., Waliser, D., Purdy, A. J., French, A., Schimel, D., Famiglietti, J. S., Stephens, G. and Wood, E. F. (2017), The Future of Evapotranspiration: Global requirements for ecosystem functioning, carbon and climate feedbacks, agricultural management, and water resources. *Water Resour. Res.*, *In Press*. doi:10.1002/2016WR020175.

Terborg, A., and **G. T. Stano**, 2017**:** Impacts to Aviation Weather Center operations using total lightning observations from the Pseudo-GLM. *J. Operational Meteor.*, **5 (1)**, 1-13. doi:10.15191/nwajom.2017.0501.

Visitors

Ms. Janice Bunting

Ms. Janice Bunting of the National Weather Association (NWA) visited SPoRT during her visit to Huntsville on 6-8 March. Her main purpose of coming was to learn about the operationally-oriented weather activities ongoing here in Huntsville to determine the viability of a future NWA Annual Meeting. During her visit, discussion revolved around how SPoRT can integrate more end user focused product and application training into the NWA for benefit of their members. Janice thanked SPoRT for its continued support and published work that shows the benefits of NASA's Earth Observing and modeling capabilities to operational end users.

Dr. Thomas Zurbuchen

Dr. Thomas Zurbuchen, the NASA Associate Administrator for the Science Mission Directorate, visited MSFC on 21 March. The objective of his visit was to learn more about science activities ongoing at MSFC. SPoRT briefed Dr. Zurbuchen on our project activities during a 15-minute visit to the SPoRT Visualization and Collaboration Lab. SPoRT's presentation provided a brief overview of the history of the project, research to operations philosophy, and some recent examples of NASA products that have been transitioned to operational NWS forecasters. As an action from this meeting, SPoRT provided Dr. Zurbuchen with 3 success stories of impactful transition to operations with our partners at the NWS, FEMA, and the private sector.

Transitions and Assessments

Gridded NUCAPS Evaluation for Cold Air Aloft

SPoRT has been funded by the JPSS Proving Ground, in collaboration with NOAA/NESDIS and other NOAA Cooperative Institutes, to develop and assess a gridded NUCAPS visualization in the NWS AWIPS system. In mid-December, an evaluation kicked off with the Alaska Center Weather Service Unit and Alaska Aviation Weather Unit to use plan view and cross section visualizations both within AWIPS and on the web to identify areas of Cold Air Aloft (i.e., less than -65° C), which is identified by the aviation community as a hazard for aircraft. This assessment is scheduled to run through late February.

SPoRT has been funded by the JPSS Proving Ground, in collaboration with NOAA/NESDIS and other NOAA Cooperative Institutes, to develop and assess a gridded NUCAPS visualization in the NWS AWIPS system. From mid-December through mid-March, forecasters at the Alaska Center Weather Service Unit used plan view and cross section visualizations both within AWIPS and on the web to identify areas of Cold Air Aloft (i.e., less than -65° C), which is identified by the aviation community as a hazard for aircraft. A total of 18 surveys were completed by the forecasters. The forecasters found that having the data within their AWIPS system was the biggest step towards regular forecaster use and that the cross section capabilities afforded by the gridded products was the best tool for viewing CAA events. Having data on the CIRA website was also deemed valuable in viewing the data. Gridded NUCAPS was most useful when CAA was occurring over the Bering Sea and/or western part of forecast domain where there are not radiosonde observations. Face-to-face training, Powerpoint training slides, and Quick Guide were all valuable and forecasters did not feel that they needed to retrain throughout the evaluation. Perhaps the most valuable pieces of information for increasing the operational utility of the products were short videos produced by Kris White (NWS Huntsville) to show how to access the data and example application.

Upcoming Calendar of Events

- United States Drought Monitor Forum (Keystone, SD; April 3-5)
- Alaska Wildfire Meeting (Fairbanks; April 3-6)
- National Hurricane Conference (New Orleans, LA; April 17-21)
- NOAA Testbeds and Proving Ground Workshop (Kansas City, MO; April 25-26)
- AWIPS II National Centers Perspective Technical Interchange Meeting (Fort Collins, CO; May 1-5)
- ECOSTRESS Science Team Meeting, (Davis, CA; May 15-17)
- Applied Space Environments Conference (Huntsville, AL; May 15-19)
- JCSDA Technical Meeting and Science Workshop (College Park, MD; May 17-19)
- TROPICS Applications Workshop (Miami, FL; May 8-10)
- WRF Users' Workshop (Boulder, CO; June 12-16)
- NASA Disaster Coordinator Meeting (Washington, D.C.; June 13-16)
- Southwest Aviation Weather Safety Workshop VII (Long Beach, CA; June 15-16)
- Hazardous Weather Testbed (Norman, OK; June 19-23)
- Global Flood Partnership 2017 Conference (Tuscaloosa, AL; June 23-29)
- CSPP/IMAPP Meeting (Madison, WI; June 27-29)

National Aeronautics and Space Administration

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