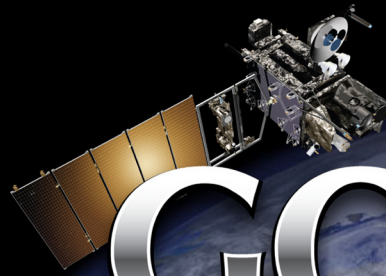




Quarterly Newsletter  
January – March 2014  
Issue 5



# GOES-R

Geostationary Operational Environmental Satellite R-Series



## A Note from Greg Mandt, GOES-R System Program Director

The GOES-R Series Program has entered a new phase of development with the delivery of four of the six instruments that will fly on GOES-R as well as the spacecraft propulsion module. In the coming months, the remaining instruments and spacecraft system module will be delivered, and satellite integration & testing will begin. GOES-S instrument development is also progressing on track. Every day our program is making significant strides and I look forward to continued success as we proceed toward the launch of GOES-R!

## Highlights

**Four of the six instruments that will fly on GOES-R** were delivered to Lockheed Martin in Littleton, Colo. for integration with the spacecraft bus. The Advanced Baseline Imager (ABI), Extreme Ultraviolet and X-ray Irradiance Sensors (EXIS), Space Environment In-Situ Suite (SEISS) and the Solar Ultraviolet Imager (SUVI) arrived in early February from their developers. [NESDIS](#) and [NASA](#) featured articles on February 26 to mark the new phase in the development of the GOES-R satellite. The remaining two instruments that complete the GOES-R payload are the Magnetometer and Geostationary Lightning Mapper (GLM). Both instruments are scheduled for delivery later this year. Once the instruments arrive in Littleton, they will be integrated with the spacecraft alongside the first four instruments.

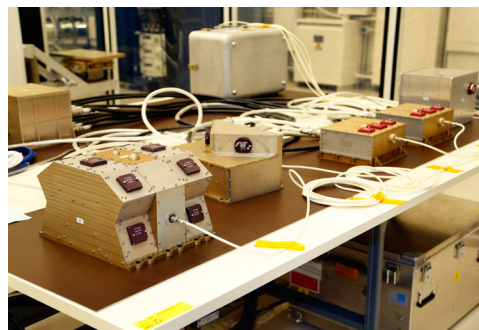
*Credit (all images): Lockheed Martin*



*ABI arrives at Lockheed Martin's Littleton facility from Exelis for integration with the GOES-R spacecraft bus.*



*EXIS arrives in Littleton from the Laboratory for Atmospheric and Space Physics facility in Boulder, Colo.*



*The SEISS instrument components built by Assurance Technology Corporation in Carlisle, Mass., ready for integration with the GOES-R spacecraft.*



*Lockheed Martin team hard at work unpacking the SUVI instrument after delivery and preparing it for integration with the spacecraft.*



...that GOES-R will not only help warn of impending severe weather but will also offer enhanced detection and monitoring of health hazards such as aerosols, smoke, dust and volcanic ash, which will improve air quality warnings?



**The GOES-R Ground Segment** reached a critical milestone with the completion of the Enterprise Infrastructure (EI) System by Harris Corporation. The EI consists of the hardware and software that will form the network infrastructure of the GOES-R Ground System. The equipment is being installed at Wallops Command and Acquisition Station (WCDAS) in Wallops, Va., NOAA Satellite Operations Facility (NSOF) in Suitland, Md., and the Remote Backup (RBU) facility in Fairmont, W.Va. Harris issued a [press release](#) on January 30 to mark the first delivery of EI equipment.



Racks of EI equipment for the GOES-R Core Ground System at WCDAS. Credit: Harris Corporation

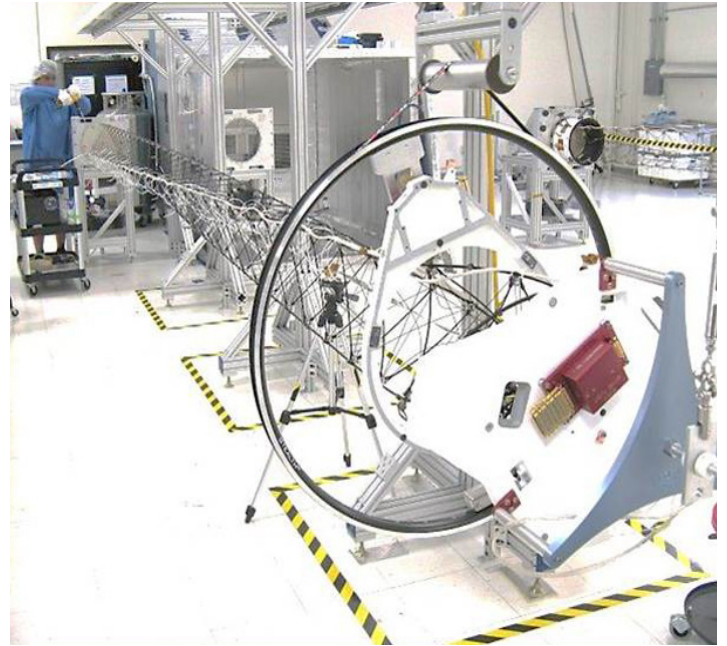
**The GOES-R spacecraft propulsion core module** successfully passed its Pre-Shipment Review (PSR) on February 26, signaling the completion of development work at Lockheed Martin's facility at the Stennis Space Center in Mississippi. The propulsion core module was delivered to Lockheed Martin's integration facility in Littleton, Colo., on March 4. The propulsion core is scheduled to be joined with the spacecraft system module this summer.



GOES-R satellite propulsion core module in the cleanroom at Lockheed Martin's Littleton facility. Credit: Lockheed Martin

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**The first functional deployment of the GOES-R Magnetometer boom** was successfully conducted in February, and boom vibration testing was completed in March. The instrument is on track for completion and delivery to Lockheed Martin in April for integration with the spacecraft.



GOES-R Magnetometer boom. Credit: ATK Goleta

**In January the GOES-R Product Definition and Users' Guide (PUG) Volume 1: Main was issued.** The PUG document is divided into five volumes and provides a product description and data format users' guide for all data and products made available to users by the GOES-R Core Ground Segment. Also in January, an update to the [PUG Volume 4: GOES-R Rebroadcast \(GRB\)](#) was released.

**Harris Corporation successfully migrated the PATRON** (Product Anomaly, Ticket, Relationship, Organization, and Notification) services from Harris servers in Melbourne, Fla., to servers at the NSOF facility in Suitland, Md., in January.

**The 16.4m Antenna Structure #5 for RBU Site-3** passed its PSR in February, and the first stage of the antenna structural components for the R-3 antenna station arrived at the facility in Fairmont, W.Va., in March. Installation is currently underway.

**The Ground System Release Mission Management Upgrade (RMMU)** factory integration and testing was completed in March. RMMU was shipped in early April and installation is underway. It remains on track for handover to the Mission Operations Support Team by the end of April.

**The Geostationary Lightning Mapper (GLM) Flight Model 1** completed testing and post-thermal vacuum comprehensive performance testing in March.

**Progress continues on Flight Model 2 (FM2) instruments** that will fly on GOES-S. All SEISS FM2 components are complete and unit-level integration testing is under-

way. ABI FM2 post-environmental testing is in progress. SUVI FM2 integration continues while EXIS FM2 post-environment test and calibration is complete.

## Awards and Accolades

**In March, the GOES-R Series Program received the President's Award** for exceptional performance in support of NOAA's 2013 Combined Federal Campaign, achieving the highest participation rate within NESDIS and surpassing the number of pledges made in 2012.

*Right, NESDIS Campaign Manager and GOES-R staff member Nicole Solomon with the GOES-R President's Award. Credit: GOES-R Series Program*



**Also in March, Eric Bruning, Ph.D.**, GOES-R GLM algorithm team member and Assistant Professor of

Atmospheric Science in the Department of Geosciences at Texas Tech University, was awarded a National Science Foundation CAREER grant. The five-year project, titled "Thunderstorm Electrical Energy Structure, Dissipation, and Visualization," will support two years of field observations in 2015 and 2016. A comparison of turbulence data from high-resolution doppler radar with lightning flash rate and extent will test the hypothesis that turbulent convective motions are the source of electrical energy in storms, and that those motions are a primary control on the size of lightning flashes as they organize a thunderstorm's charge.



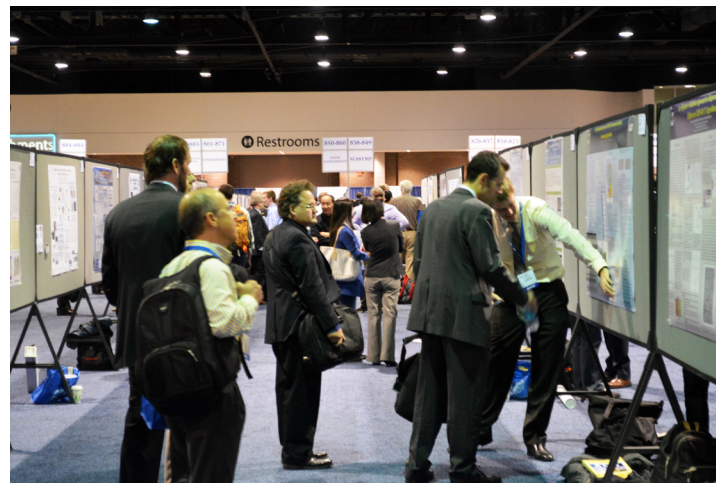
## Conferences and Events

**The GOES-R Algorithm Working Group (AWG)** held a Calibration/Validation Workshop January 9–10 at the NOAA Center for Weather and Climate Prediction in College Park, Md. Meeting topics included the GOES-R program's plans for post-launch validation activities, potential synergies with the Suomi National Polar-orbiting Partnership and Joint Polar Satellite System (JPSS) calibration/validation activities, status of AWG teams' ongoing and planned efforts for the development of tools and capabilities for GOES-R Level-2 baseline product validation activities, and planning for calibration/validation field campaigns for GOES-R.

**The American Meteorological Society (AMS)** held its 94th Annual Meeting February 2–6 in Atlanta. The AMS meeting also hosted the 10th Symposium on New Generation Operational Environmental Satellite Systems, which highlighted many of the development activities, program science and user-readiness preparations underway in the GOES-R Series Program. Several members of the GOES-R team presented at the conference. GOES-R was also prominently featured at the NOAA Booth in the main exhibit hall with a variety of multimedia and communications and education materials made available. GOES-R also participated with NESDIS at WeatherFest, an interactive science and weather fair designed to instill a love for math and science in children of all ages. GOES-R

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[Presentations](#) and [photos](#) from the meeting are available on the GOES-R Series Program website.



*GOES-R/JPSS poster session at the 2014 AMS Annual Meeting. Credit: GOES-R Series Program*

**Rocket City Weather Fest** was held February 22 at the University of Alabama, Huntsville. Weather Fest is a free weather festival for weather enthusiasts of all ages hosted by local student and professional chapters of AMS and National Weather Association. The GOES-R Series Program had a booth at the event which included demonstrations, lectures and a Weather Communication Town Hall attended by social scientists, industry partners, the Warning Coordination Meteorologist from the Storm Prediction



Center in Norman, Okla. and the local Huntsville Weather Forecast Office, and the severe storm expert on-air talent from The Weather Channel.



*GOES-R Visiting Scientist Themis Chronis of the University of Alabama, Huntsville explains the capabilities and benefits of the GOES-R series satellites to attendees of Rocket City Weather Fest. Credit: GOES-R Series Program*

**NOAA Satellite Science Week** was held March 10–14 at the Cooperative Institute for Meteorological Satellite Studies in Madison, Wis. NOAA Satellite Science Week is a joint web-based, virtual meeting and on-site review of the GOES-R AWG, GOES-R and JPSS risk reduction science activities, and calibration/validation. The meeting promoted a dialogue between product developers and user communities, ensuring a path for the transition of research to operations and user readiness. Members of the Satellite Science and Demonstration Executive board, the National Weather Service Operational Advisory Team and the Independent Advisory Committee also met in Madison to discuss satellite science applications, calibration



*GOES-R System Program Director Greg Mandt provides an update on the GOES-R Series Program at the 2014 NOAA Satellite Science Week meeting. Credit: Lon Goldstein*

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and validation, and user education and training. [Presentations](#) and [photos](#) from Science Week can be found on the GOES-R Series Program website.

**In March, the GOES-R satellite liaisons met with scientists from the Cooperative Institute for Meteorological Satellite Studies** to discuss current status and future plans for Proving Ground demonstrations at the NOAA testbeds. The meeting included group presentations and one-on-one discussions concerning topics for each testbed as well as current and new products and proposals funded under GOES-R and JPSS. The satellite liaisons have also revamped the GOES-R and JPSS National Centers Perspective Blog to provide opportunities for the satellite liaisons and forecasters to share lessons learned from demonstrations of current and future satellite products across all satellite proving grounds. The new [Satellite Liaison Blog](#) demonstrates current and future capabilities of the GOES-R and JPSS satellite programs at the National Weather Service (NWS) National Centers, NOAA testbeds and various NWS Weather Forecast Offices.

**The GOES-R Series Program Spring Summit** was held March 18–20 at Harris Corporation's facility in Melbourne, Fla. Quarterly summits are held to bring together multiple elements of the GOES-R Series Program such as instrument, spacecraft and ground system contractors and GOES-R program management and engineers to conduct project status review meetings and engage in technical discussions.



*GOES-R Flight Project Manager Pam Sullivan provides an update on the project at the GOES-R Series Program Spring Summit. Credit: GOES-R Series Program*

