



QUARTERLY NEWSLETTER ■ APRIL-JUNE 2016 ■ ISSUE 14

## HIGHLIGHTS

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



We are less than four months from the launch of GOES-R! Launch services assigned the program a new launch date of November 4. GOES-R will lift off at 5:40 p.m. EDT from Space Launch Complex 41 at Cape Canaveral Air Force Station in Florida. The GOES-R satellite has completed all integration and testing activities and is scheduled to ship to Kennedy Space Center in August. The GOES-R team is also busy preparing for a series of reviews leading up to launch and planning launch week events. GOES-S is now complete with all instruments installed on the spacecraft and preparing for environmental testing in the fall. The new era of geostationary environmental satellites is almost upon us!

In June, GOES-R completed testing to confirm the electromagnetic signals produced by satellite components do not interfere with its operation, concluding a rigorous assessment to ensure the satellite can withstand the harsh conditions of launch and the space environment. Following a successful Pre-Shipment Review, GOES-R is now preparing for shipment from Lockheed Martin in Littleton, Colorado, to Kennedy Space Center in Cape Canaveral, Florida, in late August to begin integration activities for launch.



GOES-R in electromagnetic interference test configuration. Credit: Lockheed Martin



Dr. Stephen Volz at the 2016 Atlantic Hurricane Season Outlook press conference. Credit: NOAA

### GOES-R is the future of NOAA's geostationary weather satellites.

To coincide with NOAA's 2016 Atlantic Hurricane Season Outlook [press conference](#) on May 27, NOAA Satellite and Information Service and the GOES-R Series Program issued a [feature story](#) highlighting the advancements GOES-R will bring to severe weather forecasting. At the event, Dr. Stephen Volz, Assistant Administrator for NOAA's

Satellite and Information Service, emphasized the improvements GOES-R will provide for hurricane tracking and intensity forecasts.

## DID YOU KNOW?

In less than four years, ABI data production will equal the total data production from 1975 through 2015 of all prior GOES imager and sounder data combined.

# HIGHLIGHTS (CONTINUED)

**The GOES-R ground system is nearing completion** and is supporting mission readiness activities and operations preparations through a series of exercises, tests and rehearsals to verify pre-launch requirements and validate the system's operability. The ground system is also executing information security measures and is on track to receive authorization from NOAA to operate the system.

**In June, the GOES-R mission operations team successfully executed Mission Rehearsal 3**, which simulated on-station health and safety, contingency, and station change operations. [Mission rehearsals](#) simulate specific phases of the GOES-R mission using a satellite simulator and the new ground system to train operations personnel and test the readiness of operational products. The rehearsals simulate both nominal and contingency operations. The program will complete a total of six mission rehearsals before launch.

**GOES-R will not only be a game-changer for the United States, but also for the other countries in the Western Hemisphere.** The GOES-R Series Program is working with forecasters and researchers around the world to validate data and prepare for the new forecasting capabilities GOES-R will offer. In June, NOAA's Satellite and Information Service and the GOES-R Series Program issued a feature story highlighting [GOES-R's global partnerships](#) and how scientists around the world are preparing for the satellite's revolutionary capabilities.



GOES-R System Program Director Greg Mandt recently addressed the Technological Institute of Costa Rica. Credit: TEC



**With the installation of the Space Environment In-Situ Suite (SEISS) instrument in April**, all GOES-S instruments are now integrated with the spacecraft. The satellite is completing final integration activities in preparation for its Pre-Environmental Review, which will assess the readiness of the spacecraft to proceed into environmental testing.

The GOES-S satellite in a cleanroom at Lockheed Martin in Littleton, Colorado. Credit: Lockheed Martin

**The SEISS instrument that will fly on GOES-T completed its Pre-Environmental Review** at Assurance Technology Corporation in Carlisle, Massachusetts, in June. The review assessed the instrument test activities completed to date and the completeness and adequacy of the environmental test plans. An independent review team of aerospace engineers determined the instrument is ready to begin environmental testing.

**The GOES-U Extreme Ultraviolet and X-ray Irradiance Sensors (EXIS) completed its Pre-shipment Review** in April at the Laboratory for Atmospheric and Space Physics in Boulder, Colorado. An independent team verified the instrument was built according to specifications and meets all Government requirements. It will be held in storage until it is needed for integration with the GOES-U spacecraft. This completes all four GOES-R series EXIS instruments!

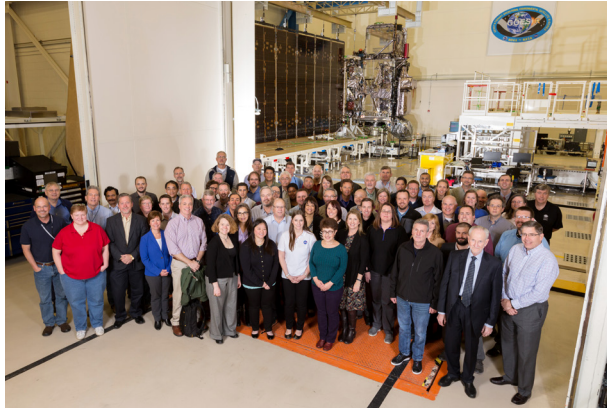


GOES-R Flight Project Manager Pam Sullivan (far left) and System Program Director Greg Mandt (far right) present Frank Eparvier, EXIS Principal Investigator, and Mike Anfinson, EXIS Project Manager, with a plaque honoring the achievement of completing all GOES-R series EXIS instruments. Credit: LASP

**The Solar Ultraviolet Imager (SUVI) that will fly on GOES-U is also nearing completion.** The instrument successfully concluded its Pre-Environmental Review in June and is now ready to proceed with environmental testing.

# CONFERENCES AND EVENTS

**The GOES-R Series Program held its spring summit** at Lockheed Martin's facility in Littleton, Colorado, April 26-28. The summit brought together all elements of the GOES-R Series Program including spacecraft, instruments, and ground system teams to provide a comprehensive status review of the program. The summit focused on launch-related activities, operations, user readiness, and post-launch testing, along with technical and business status reviews for each of the program's primary contractors.



Attendees of the GOES-R Series Program spring summit pose with the completed GOES-R spacecraft in a Lockheed Martin cleanroom. Credit: Lockheed Martin

**The 2016 NOAA Satellite Proving Ground/User Readiness Meeting** was held May 9-13, 2016 at the National Weather Center in Norman, Oklahoma. The meeting focused on accomplishments to date, current efforts underway, and future actions regarding infrastructure and training, to ensure the National Weather Service is ready for the receipt and operational use of GOES-R and JPSS-1 data. [Presentations](#) from the meeting can be found on the GOES-R website.

From left: Satellite liaison Eric Stevens, GOES-R System Program Director Greg Mandt, and Dick Reynolds at the NOAA Satellite Proving Ground/User Readiness Meeting. Credit: Maureen Reynolds



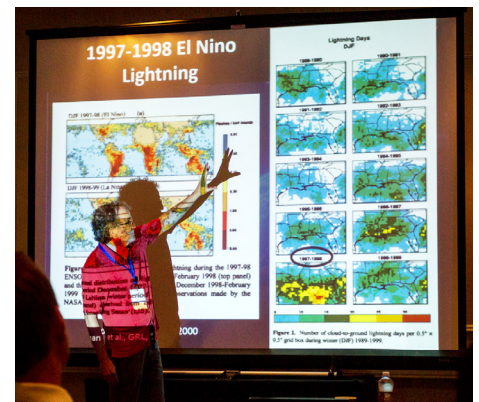
## PROVING GROUND AND PROGRAM SCIENCE

**The 2016 GOES-R/JPSS Proving Ground Hazardous Weather Testbed (HWT) spring experiment** was conducted in Norman, Oklahoma, April 18-May 13. Each week, three National Weather Service forecasters and one broadcast meteorologist utilized simulated GOES-R products to issue experimental forecast updates and severe thunderstorm and tornado warnings. In conjunction with the [HWT spring experiment](#), the GOES-14 backup satellite was brought out of storage and operated in [Super Rapid Scan Operations for GOES-R \(SRSOR\)](#) mode. The SRSOR experiment provided special one-minute imagery to simulate the capabilities that will be available with the GOES-R series ABI for evaluation by algorithm developers, research partners, forecasters, and Proving Ground participants.



Forecasters evaluate GOES-R products during the 2016 Proving Ground HWT spring experiment. Credit: GOES-R Series Program

**The GOES-R Preview for Broadcasters short course** was held June 14, 2016, preceding the 44th American Meteorological Society Conference on Broadcast Meteorology in Austin, Texas. The course provided broadcast meteorologists with information on GOES-R and its capabilities, how broadcasters can improve services to the viewing public, where to find additional information on GOES-R, and what equipment upgrades are needed to handle the new data and products. The course included a mix of presentations and hands-on exercises on the Advanced Baseline Imager (ABI), Geostationary Lightning Mapper (GLM), GOES-R derived products, broadcaster participation in the GOES-R Proving Ground, and vendor services to broadcasters in the GOES-R era. Twenty broadcast meteorologists from around the U.S. participated. [Course Materials](#) can be found on the GOES-R website.

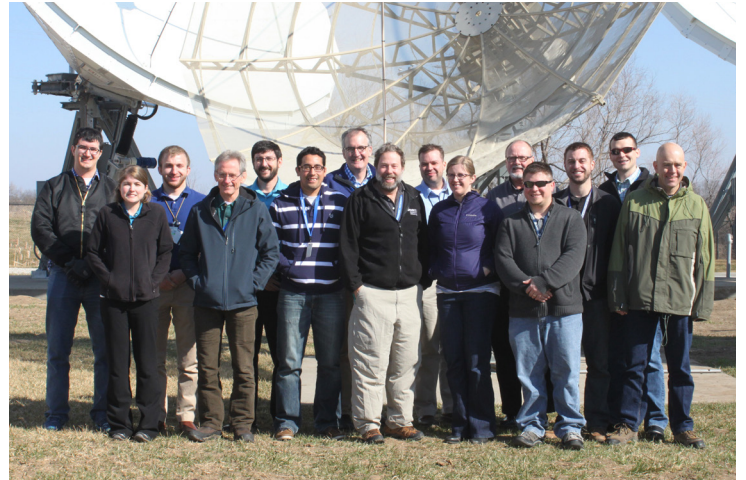


Scott Lindstrom highlights GLM capabilities and forecast applications at the GOES-R Preview for Broadcasters short course. Credit: Chris Schmidt

**The 2016 GOES-R/JPSS OCONUS (Outside the Contiguous United States) Satellite Proving Ground technical meeting** was held June 27-30 at the University of Hawaii in Honolulu. The meeting assessed the GOES-R and JPSS science portfolios and NOAA's operational objectives for the satellites, identifying priorities as they pertain to Alaska, Hawaii, and U.S. territories in the Pacific Ocean. [Presentations](#) from the meeting can be found on the GOES-R website.

# MEET THE TEAM

**In this issue, meet the GOES-R satellite liaisons.** The position was created in 2010 to prepare forecasters for the data that will be available from NOAA's next generation of environmental satellites and aid in the transition to operations. Satellite liaisons are stationed at NOAA National Centers across the United States and at the National Weather Service training center. They are a critical link between the research and operations communities. The liaisons bring forward new products to allow forecasters to test their utility, facilitate the learning process, and provide forecaster feedback to the product developers for improvements. This results in products that are most useful to forecasters and forecasters who are up to speed on the latest developments and ready to fully utilize the data once the satellites are operational.



GOES-R satellite liaisons during ABI training at the Aviation Weather Center in Kansas City, Missouri, in April. Credit: CIMSS

Satellite liaisons are challenged by the vast amount of data that will be available from the new satellites and must find innovative ways to make the data useful to forecasters without becoming overwhelming.

"My most significant achievement since becoming a satellite liaison would be seeing new satellite products being used in current operations without any provocation. There have been a few instances where the products added value to the forecaster's decision-making process and led to life-saving forecasts," said Michael Folmer, who is stationed at the Weather Prediction Center and Ocean Prediction Center in College Park, Maryland. "It's an incredible feeling!" he added.

Communication is also key, especially since the satellite liaisons cannot always interact with forecasters in person and must meet an array of operational needs. Developing clear training procedures and tailoring the information to specific audiences is essential. "Each

individual forecaster is uniquely talented," noted Aviation Weather Center satellite liaison Amanda Terborg. "It's important to reach out to each of them on a playing field that they know. It requires creative thinking and is a fantastic challenge. I think I learn as much (if not more) from the forecasters as they do from me."

The satellite liaisons are passionate about meteorology and new satellite technology, and are using their enthusiasm and expertise to demonstrate the value of satellite data to forecasters. Their work is essential to preparing users for a new era in weather forecasting, enabling meteorologists to issue more accurate and timely forecasts to help save lives and protect communities.

## ROAD TO LAUNCH



## Upcoming Events

**Joint 21st American Meteorological Society (AMS) Satellite Meteorology, Oceanography and Climatology Conference and 20th AMS Conference on Air-Sea Interaction**  
August 15-19, 2016  
Madison, Wisconsin

**National Weather Association 41st Annual Meeting**  
September 10-15, 2016  
Norfolk, Virginia

**2016 EUMETSAT Meteorological Satellite Conference**  
September 26-30, 2016  
Darmstadt, Germany

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