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

Developing and launching satellite programs is complex and it comes with inherent challenges. This summer, NOAA, NASA and our partners at Lockheed Martin identified schedule risks that have impacted the launch readiness date for GOES-R. After extensive review, NOAA has decided it can best avoid these risks to the mission by releasing the March 2016 launch date. The program is now planning for an October 2016 GOES-R launch. The GOES-R program remains committed to working with its partners to ensure GOES-R is ready for launch while still moving forward with development of GOES-S, T, and U.

HIGHLIGHTS

The GOES-R satellite is shown post-testing after opening thermal vacuum chamber door.
Credit: Lockheed Martin

Thermal vacuum testing of the GOES-R satellite, which began on July 1, concluded on August 24. During thermal vacuum testing, the satellite was subjected to extreme temperatures to simulate the harsh conditions of launch and the space environment. During the testing, the satellite experienced a vast range of temperatures, with some parts reaching as high as 87 degrees Celsius and others dropping as low as -55 degrees Celsius. GOES-R will next undergo vibration testing, which simulates the stresses the satellite will experience during launch. Vibration testing ensures there are no structural weaknesses that could result in damage to the satellite.

The GOES-R satellite has been removed from the thermal vacuum chamber and is lowered onto transport back to the clean room.
Credit: Lockheed Martin
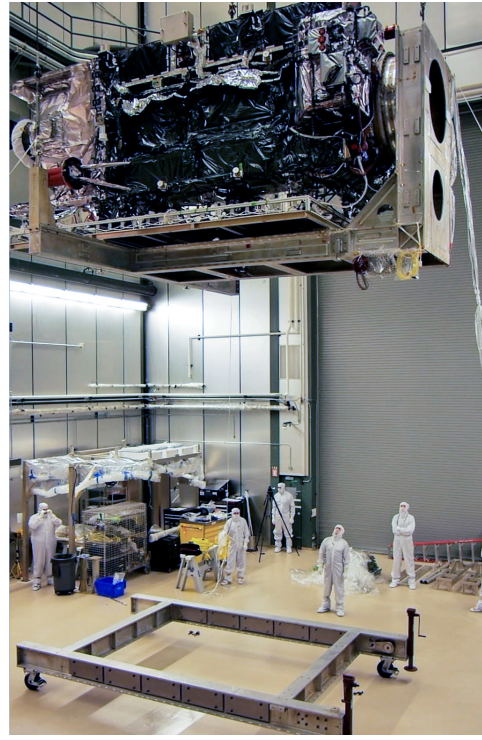
DID YOU KNOW?

...data from Japan Meteorological Agency's Himawari-8 satellite is helping prepare users for GOES-R? The Advanced Himawari Imager has similar capabilities to the GOES-R series Advanced Baseline Imager.

The GOES-R ground system data operations exercise 3 (DOE 3) was conducted August 17–September 8. DOE 3 exercised the data operations team's processes and procedures as well as the ground system's science data processing and distribution capabilities. During the 14-day exercise, data flowed to the National Weather Service and the Product Distribution and Access system from both the primary and backup GOES-R science data-processing nodes.

The proton therapy center at Massachusetts General Hospital. Credit: Mass Gen

In July, one of the sensors that will fly aboard the GOES-S satellite was given a clean bill of health from Massachusetts General Hospital in Boston. The Energetic Heavy Ion Sensor, part


SEISS Energetic Heavy Ion Sensor. Credit: Assurance Technology Corporation

of the Space Environment In-Situ Suite (SEISS), was successfully tested using the hospital's proton accelerator and deemed to be in good working order. Several GOES-R and GOES-S sensors have been tested using the hospital's proton accelerator, which is typically used for cancer treatment. On July 22, the GOES-R Series Program, NOAA and NASA Goddard co-issued a [feature story] about the unusual testing procedure.

GOES-S SUVI. Credit: Lockheed Martin

In August, the Solar Ultraviolet Imager (SUVI) was the first GOES-S instrument to be delivered for integration with the satellite. SUVI was successfully installed on the GOES-S solar-pointing platform in September. Also in September, the Extreme ultraviolet and X-ray Irradiance Sensors (EXIS), Advanced Baseline Imager (ABI), and SEISS instruments that will fly aboard GOES-S were delivered for integration.
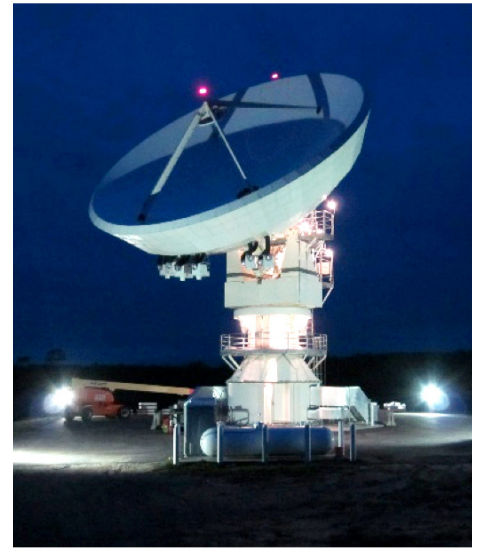
New GOES-R antenna at Wallops Command and Data Acquisition Station. Credit: Harris

On the antenna system, the N-4 antenna at the NOAA Satellite Operations Facility (NSOF) in Suitland, Maryland, completed its Antenna Station Certification Review (ASCR) on August 11. All GOES-R antennas at NSOF are now complete. In September, the W-1 and W-2 antennas at Wallops Command and Data Acquisition Station in Wallops, Virginia, successfully completed their ASCRs. These antennas are now ready to support current GOES (and future GOES-R) operations.

August 29 marked ten years since Hurricane Katrina made landfall in southeast Louisiana. Katrina was the costliest natural disaster and one of the five deadliest hurricanes in U.S. history. Since Katrina, NOAA has taken many steps toward a more weather-ready nation, including the development of the GOES-R series of satellites. On August 24, NESDIS issued a [feature story] highlighting the remarkable advancements the GOES-R series will bring to weather forecasting and severe weather prediction, including more accurate forecasts and longer lead times.

The GOES-T EXIS completed its pre-shipment review in September. The review verified that the instrument meets all requirements and successfully completed its test program. It will be kept in storage until it is integrated with the GOES-T spacecraft.

Also in September, the GOES-U ABI completed its pre-environmental review. The review assessed the instrument test activities completed to date and the completeness and adequacy of the environmental test plans and determined that the instrument is ready to proceed with environmental testing.

CONFERENCES AND EVENTS

GLM science team meeting participants. Credit: GOES-R Series Program

On September 26, the Explore@NASAGoddard open house was held at NASA Goddard Space Flight Center. Over 20,000 people attended the event which included 130 hands-on activities and exhibits highlighting Goddard's work in the areas of Earth science, heliophysics, planetary science, astrophysics, engineering and technology. The GOES-R Series Program participated with a table showcasing the mission and next-generation capabilities the satellite series will provide for weather monitoring. Team volunteers provided hands-on demonstrations of GOES-R's mobile app "Satellite Insight" and showcased a satellite model and video features. In addition, stickers, temporary tattoos, buttons and other activities and handouts were provided to the public.

The GOES-R Geostationary Lightning Mapper (GLM) annual science meeting was held September 9–11 at the National Space Science and Technology Center on the campus of the University of Alabama in Huntsville. As part of the meeting, a developers' forum featured GLM Algorithm Working Group and Calibration Working Group tools and test cases to help build capacity, competency, and proficiency in using resources that will allow for the assessment of GLM on-orbit performance. Presentation topics included program and instrument overviews, post-launch test plans, post-launch test field campaign, and an introduction to the GLM data portal. Presentations from the meeting are available on the GOES-R website.

The 2015 EUMETSAT (European Organisation for the Exploitation of Meteorological Satellites) Meteorological Satellite Conference was held September 21–25 in Toulouse, France. This forum brought together meteorologists, scientists and researchers from around the world to share their experience and knowledge during plenary, poster and workshop sessions. The conference focused on advances in nowcasting and short-range numerical weather prediction and preparation for new geostationary satellites. Greg Mandt, GOES-R System Program Director, represented NESDIS at the conference and provided updates on NOAA current and planned activities and the GOES-R Series Program. Other GOES-R presentations highlighted the ABI and GLM instruments, ground system, education, training, and proving ground. Several posters outlined GOES-R capabilities and products.

GOES-R table at Explore@NASAGoddard event. Credit: GOES-R Series Program

PROVING GROUND AND PROGRAM SCIENCE
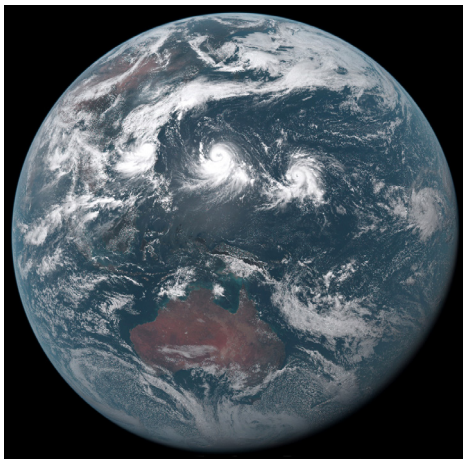
Himawari-8 true-color image from July 7, 2015. Credit: SSEC/JMA

On July 7, the Japan Meteorological Agency's (JMA's) Himawari-8 satellite became operational over the western Pacific Ocean. Launched in October 2014, the satellite carries the Advanced Himawari Imager, which is very similar to the GOES-R series ABI. NOAA and JMA are collaborating to develop innovate meteorological products that maximize the potential of the advanced observational data from GOES-R and Himawari-8. The Cooperative Institute of Research in the Atmosphere is providing real-time imagery from JMA data to help prepare users for the capabilities that will be available from the GOES-R ABI.

NOAA's GOES-14 backup satellite was brought out of storage on August 10 and operated in Super Rapid ScanOperations for GOES-R (SRSOR) mode through August 21. During the SRSOR experiment, GOES-14 provided special one-minute rapid scan imagery and special data sets simulating the capabilities that will be available in the GOES-R era. The one-minute imagery from severe storms occurring in several geographic areas was demonstrated in real-time and evaluated in the forecast and warning decision-making process each day through the GOES-R Proving Ground and Storm Prediction Center.
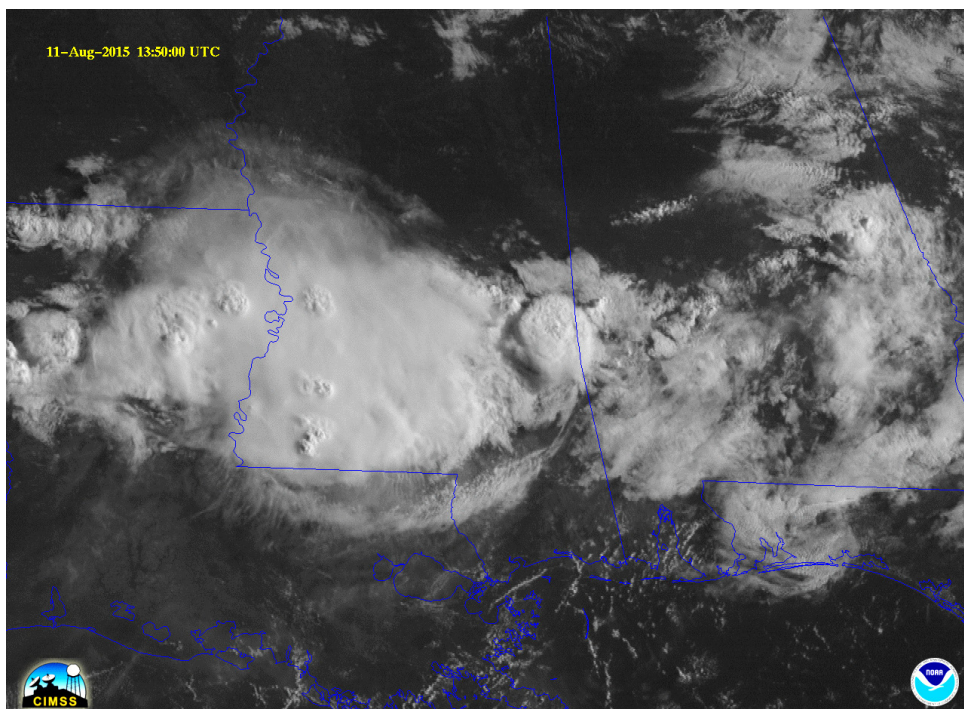
GOES-14 visible image of severe weather over Arkansas, Louisiana and Mississippi reveals numerous over-shooting tops. Credit: CIMSS

MEET THE TEAM

In this issue, meet Adrian Rad, Senior Systems Engineer. As the GOES-R Risk Manager he coordinates and facilitates the program, projects, and organizational-level risk management board meetings and maintains the program's risk tracking and reporting database system.

Adrian has been with GOES-R since 2005 and is responsible for implementing a comprehensive and proactive joint NOAA/NASA risk management process for the GOES-R program. He considers establishing and co-locating a single GOES-R program with smart people from disparate institutions dedicated to a common goal to be the single most important risk mitigation for the program.

A challenging and also rewarding part of his job is successfully translating technical "risk-ese" into straightforward language to help management understand issues and determine a path forward. Identifying potential problems that may have technical, cost, schedule, or safety consequences and taking actions to reduce or eliminate those threats is essential to a successful GOES-R series mission.

Adrian and his wife Aviva own and operate a horse riding and boarding facility named Horsepen Hill Farm. The 16-acre farm includes pastures, stables and riding arena as well as a pecan orchard dating back to 1916. The farm was also once a thoroughbred breeding farm and home to the horse-racing stallion "Star DeNaskra." Aviva is an avid equestrian currently competing two of her horses and is also a riding instructor and judge specializing in dressage.

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