



GOES-R

GEOSTATIONARY OPERATIONAL ENVIRONMENTAL SATELLITE R-SERIES

QUARTERLY NEWSLETTER ■ JULY-SEPTEMBER 2017 ■ ISSUE 19

A Note from Mike Stringer, Acting GOES-R System Program Director:



The 2017 hurricane season has given GOES-16 the opportunity to showcase its advanced capabilities.

Forecasters are marveling at the unparalleled imagery from the satellite and there's a great deal of interest from the media. As work continues to transition GOES-16 to operations in December, our team is focusing on preparing GOES-S for launch in the spring. Mechanical and environmental testing is complete and mission rehearsals have begun. We also reached a milestone with GOES-T, when the system module and core propulsion module were mated in September.

HIGHLIGHTS



The GOES-16 drift and transition plan is now available. GOES-16 is planned to drift to the GOES-East operational location of 75.2 degrees west longitude between November 30 and December 20. During the drift period, five instruments (ABI, GLM, SUVI, SEISS, and EXIS) will be placed in safe or diagnostic modes and will not be capturing or distributing data. The Magnetometers will be the only instruments that will continue to operate throughout the drift period. GOES-16 will officially become GOES-East when all instruments resume nominal operations by December 20. There will be a period of overlap with GOES-13, which will continue to provide instrument data until January 2, 2018, at which time instruments will be turned off and it will begin drifting to its storage location at 60 degrees west. All drift and transition operations will be led by the NESDIS Office of Satellite and Product Operations with GOES-R Program operational support. Final scheduling of drift operations may change based on operational needs and will be a NOAA-level decision. [Read the full details of the plan here.](#)

Though not yet operational, GOES-16 is providing critical data during the record-breaking 2017 hurricane season. Three major hurricanes (category 3 or higher) have made U.S. landfall already this season and the

DID YOU KNOW?

GOES-16 is allowing National Weather Service (NWS) forecasters to provide proactive, tactical wildfire decision support services. The increased spatial and temporal resolution with reduced latency gives forecasters the ability to identify new fires much quicker and relay detailed tactical information about fire progression and spread to state and county agencies. This often occurs ten to fifteen minutes before 911 notifications. *Source: NOAA NWS*

HIGHLIGHTS (CONTINUED)

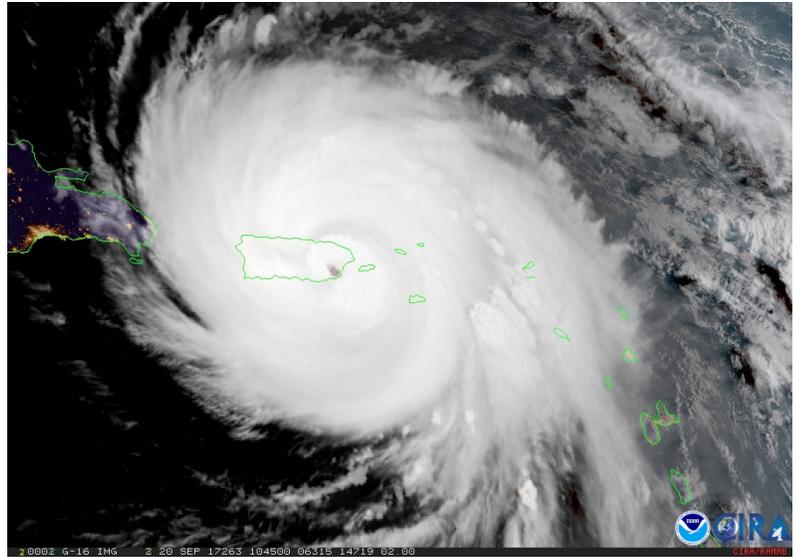
advanced capabilities offered by GOES-16 are aiding forecasters in tracking the storms. On September 20, Hurricane Maria knocked out radar in San Juan, Puerto Rico, as it neared the island. With this critical technology disabled and a major hurricane approaching, forecasters were able to utilize data from GOES-16 to track the storm in real-time. [Learn more in this feature story.](#)

GOES-16 monitored other hurricanes as well. As of the end of September, there have been 13 named storms in the Atlantic Basin and 16 in the East Pacific. The flexibility of the GOES-16 Advanced Baseline Imager (ABI) enables concurrent full disk, Continental U.S., and mesoscale scans, so forecasters can monitor all storms in the satellite's field of view while at the same time honing in on detailed images of a specific storm. The GOES-16 imager also has additional channels not available on current GOES. For instance, Band 13, or the "clean" longwave infrared band, is used to monitor clouds and storm intensity. In addition, the increased spatial resolution from the ABI provides greater accuracy of feature attributes, allowing for better characterization of the eyes of hurricanes. These improvements have been extremely helpful to forecasters monitoring hurricane activity. [Track all the 2017 hurricanes and view GOES-16 imagery of each storm with NOAA's hurricane tracking tool.](#)

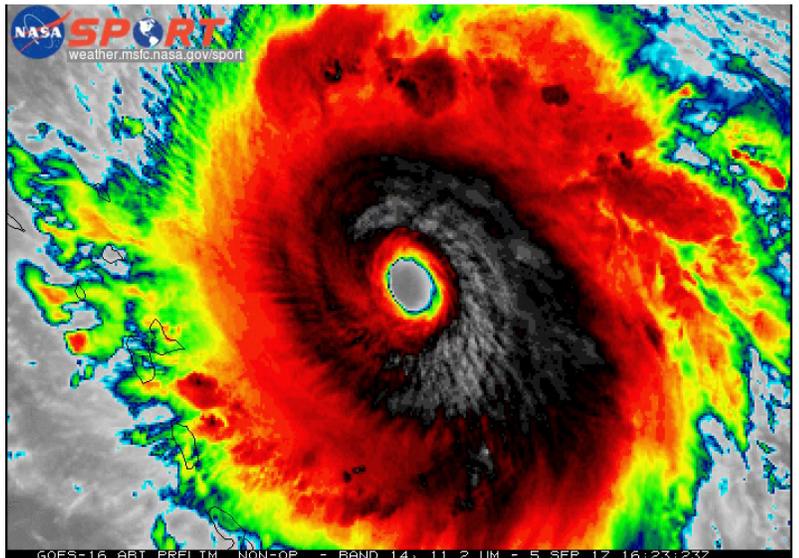
On August 21, the first total solar eclipse to move across the United States in 99 years occurred. GOES-16's ABI had a clear view of the moon's shadow as it traveled diagonally across the path of totality of the Continental United States from the Pacific Northwest through South Carolina. [Visit the GOES-16 multimedia gallery for animations from the eclipse.](#)

The GOES-16 ABI volcanic ash, rain rate, and hurricane intensity derived products completed beta validation maturity Peer Stakeholder-Product Validation Reviews this quarter. Panels of NOAA scientists and user representatives determined the data quality to be validated at "beta" maturity (minimally validated and not optimized for operational use; intended to help users gain familiarity with data formats and parameters).

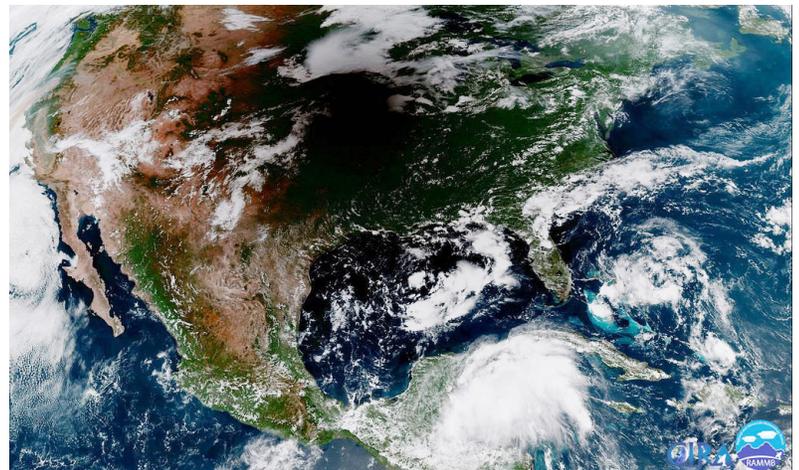
GOES-S is on track for a spring 2018 launch. The satellite recently completed electromagnetic interference and compatibility testing, ensuring that the electromagnetic signals produced by satellite components do not interfere with its operation.



GOES-16 geocolor image of Hurricane Maria over Puerto Rico as it made landfall on September 20, 2017. Credit: CIRA



GOES-16 colored infrared imagery of Category 5 Hurricane Irma on September 5, 2017, as it churned toward the Caribbean. Credit: NASA SPoRT



GOES-16 geocolor imagery of the moon's shadow over the Central Plains. Credit: CIRA

HIGHLIGHTS (CONTINUED)

The launch site support plan has been released and the mission operations team completed the first GOES-S mission rehearsal in September. Mission rehearsals use a satellite simulator and the GOES-R ground system to train operations personnel as well as test the readiness of operational products and the ground system. The first mission rehearsal covered the launch and separation scenario, a liquid apogee engine burn, and the solar array deployment.

The GOES-T System Integration Review (SIR) was successfully completed September 12-13 at Lockheed Martin in Littleton, Colorado. The SIR determined the flight and ground segment components are available and ready for integration with the overall GOES system. The review also confirmed the readiness of the facilities and support personnel as well as plans and procedures for integration of the GOES-T satellite.

Following the GOES-T SIR, the spacecraft primary subassemblies were “mated” on September 22. During the mate, the system module or “brain” and propulsion module or the “body” of the spacecraft were merged together to form the integrated GOES-T spacecraft. More than 70 electronics boxes mounted within the system module provide the functionality to operate the spacecraft and its six instruments. The core propulsion module forms the main central structure of the satellite and carries the propellant needed to maneuver the spacecraft after it is separated from the launch vehicle and operational in geostationary orbit. [Learn more in this feature story.](#)



GOES-T spacecraft mate. Credit: Lockheed Martin

The Pre-shipment Review for the Solar Ultraviolet Imager instrument that will fly on GOES-U was successfully completed on August 2 at Lockheed Martin in Palo Alto, California. The review verified the instrument was built according to specifications and meets all Government requirements. The instrument is now ready for integration with the GOES-U spacecraft.

CONFERENCES AND EVENTS

The 2017 NOAA Satellite Conference (NSC) was held July 17-21 at the City College of New York. NSC 2017 brought together users and providers of polar-orbiting and geostationary satellite data, data products and applications from the public, private and academic sectors. The theme for the conference was “A New Era for NOAA Environmental Satellites.”



The conference included sessions on the GOES-R Series as well as GOES-16 introductory and advanced training. [Presentations from the conference are available on the NSC 2017 website.](#)

On August 23, a workshop for educators was held at Lockheed Martin in Littleton, Colorado. The Science, Technology, Engineering and Math (STEM) workshop provided information on the GOES-R Series as well as weather and satellite applications for the classroom. The teachers also

GOES-S Educator Workshop participants pose with the GOES-S satellite in a clean room at Lockheed Martin. Credit: Lockheed Martin



GLM Science Team Meeting participants. Credit: NOAA

had an opportunity to view the GOES-S satellite in the clean room. [View additional photos and presentations from the workshop.](#)

The Geostationary Lightning Mapper Annual Science Team meeting was held September 12-14 at the University of Alabama in Huntsville. The meeting focused primarily on post launch in-orbit testing, calibration and performance validation using data from the airborne science field campaign and various ground-based lightning networks and instruments. Participants included the GOES-R Program Office, Flight Project, Calibration Working Group, Algorithm Working Group, Product Readiness and Operations team, Lockheed Martin, university partners, international collaborators, and the National Weather

Service. A GLM product feedback forum was also held.

The 42nd Annual National Weather Association Meeting was held September 16-21 in Garden Grove, California.

The theme for the 2017 meeting, "Putting Science into Service," emphasized the knowledge and understanding of the science in weather, climate and related fields, which operational meteorologists apply in service to a wide variety of partners and users. The meeting included a session dedicated to GOES-16 as well as several other talks on the GOES-R Series and a GOES-R/JPSS training course. The training session offered a realistic operational environment scenario in which participants forecast severe weather events using GOES-R Series and JPSS capabilities.

AWARDS AND ACCOLADES

Acting GOES-R Series Program Director Mike Stringer accepted the Department of Commerce Gold Medal on behalf of the GOES-R team at the 69th Annual Honor Awards Ceremony held on September 26. The program was cited "for their tireless dedication and contributions by completing the GOES-R satellite, which launched on November 19, 2016. The GOES-R team completed a highly complex, integrated operational mission-system development; readied the satellite and system for launch and operations, including active engagement with a network of operational users; and delivered the GOES-

16 satellite to orbit within cost and meeting all technical requirements. Their excellence sets the foundation for the next 20+ years of weather forecasting for our Nation." The Gold Medal, the highest honorary award given by the Department of Commerce, is granted by the Secretary for distinguished performance, characterized by extraordinary, notable, or prestigious contributions that impact the mission of the Department and/or one operating unit and that reflect favorably on the Department.

MEET THE TEAM



In this issue, meet Matthew Butler, acting GOES-R Series Program Chief of Staff. Matt joined the program in July from NESDIS, where he was an International Relations Specialist covering Europe, Russia, the Middle East, the Coordination Group for Meteorological Satellites, and the United Nations Committee on the Peaceful Uses of Outer Space. In his new role, Matt is supporting front office leadership in coordination of activities with NESDIS, NOAA and the Department of Commerce.

Matt is getting up to speed, learning faces and names, and is enjoying meeting all the people on the program who help ensure the GOES-R Series Program benefits people around the country and the world. He's excited to work with the team in preparation for the GOES-S launch.

Matt holds a Bachelor of Arts degree in Political Science and Russian Studies from Macalester College in St. Paul, Minnesota, and a Masters of Arts in Global Governance Politics and Security from American University School of International Service. He's an avid golfer, and was the captain of the varsity golf team at Macalester College. You'll often find him headed out to the golf course after work when the weather permits.

If you haven't yet met Matt, stop by the program office, introduce yourself and welcome him to the GOES-R Series team.

Upcoming Events

NWS GOES-16 User Applications Workshop

November 14-16, 2017
Kansas City, Missouri

2017 American Geophysical Union Fall Meeting

December 11-15, 2017
New Orleans, Louisiana

98th Annual American Meteorological Society Meeting

January 7-11, 2018
Austin, Texas

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