



# GOES-R

GEOSTATIONARY OPERATIONAL ENVIRONMENTAL SATELLITE R-SERIES

QUARTERLY NEWSLETTER ■ JANUARY-MARCH 2018 ■ ISSUE 21

## GOES-S HIGHLIGHTS

### A Note from Tim Walsh, Acting GOES-R System Program Director:



Another successful launch! GOES-S lifted off on a picture-perfect day right at the opening of the launch window on March

1. The satellite reached geostationary orbit on March 12 and was renamed GOES-17. GOES-17 is now undergoing post-launch testing in preparation for taking over as NOAA's GOES West operational satellite late this year. I am so proud of our accomplishments to get GOES-S into orbit alongside GOES-16 and so appreciative of all of your efforts toward the continued success of the GOES-R Series Program. Soon we will have two next-generation geostationary satellites keeping watch over the Western Hemisphere, from the west coast of Africa all the way to New Zealand!



GOES-S lifts off from Space Launch Complex 41 at Cape Canaveral Air Force Station on March 1. Credit: United Launch Alliance

### High Definition GOES West!

**GOES-S lifted off on March 1 at 5:02 p.m. EST** from Cape Canaveral Air Force Station in Florida. The satellite was launched on a United Launch Alliance Atlas V rocket at the opening of the two-hour launch window. After a successful separation from the Centaur upper stage, GOES-S began flying freely at 8:34 p.m. EST. Shortly after, the satellite completed the first stage deployment of its solar array that generates electricity for the spacecraft. [NOAA issued a press release highlighting the successful launch](#) once NASA deemed the spacecraft healthy and confirmed it was operating on its own power. View [launch photos](#) and [video of the launch](#) on the GOES-R Series website.

On March 12, GOES-S executed its sixth and final liquid apogee engine burn, placing the satellite in geostationary orbit 22,236 miles above the equator. Once it reached orbit, [GOES-S was renamed GOES-17](#).

## DID YOU KNOW?

The GOES-17 solar array generates more than 5,000 watts of energy to power the satellite, including all of the instruments, computers, data processors, attitude control sensors and actuators as well as the telecommunications equipment.

## GOES-S HIGHLIGHTS (CONTINUED)

GOES-17 performed its second stage solar array deployment on March 13, releasing the solar array yoke and solar-pointing platform. In the following days, a series of maneuvers were conducted to put GOES-17 in its 89.5 degrees west longitude checkout position. On March 22, the Magnetometer boom was deployed. All orbit-raising activities are complete and the instruments have been powered on. The Post-Launch Test Readiness Review was completed on March 26 and post-launch testing and calibration are underway. The first public imagery from the Advanced Baseline Imager (ABI) is expected in mid-May.

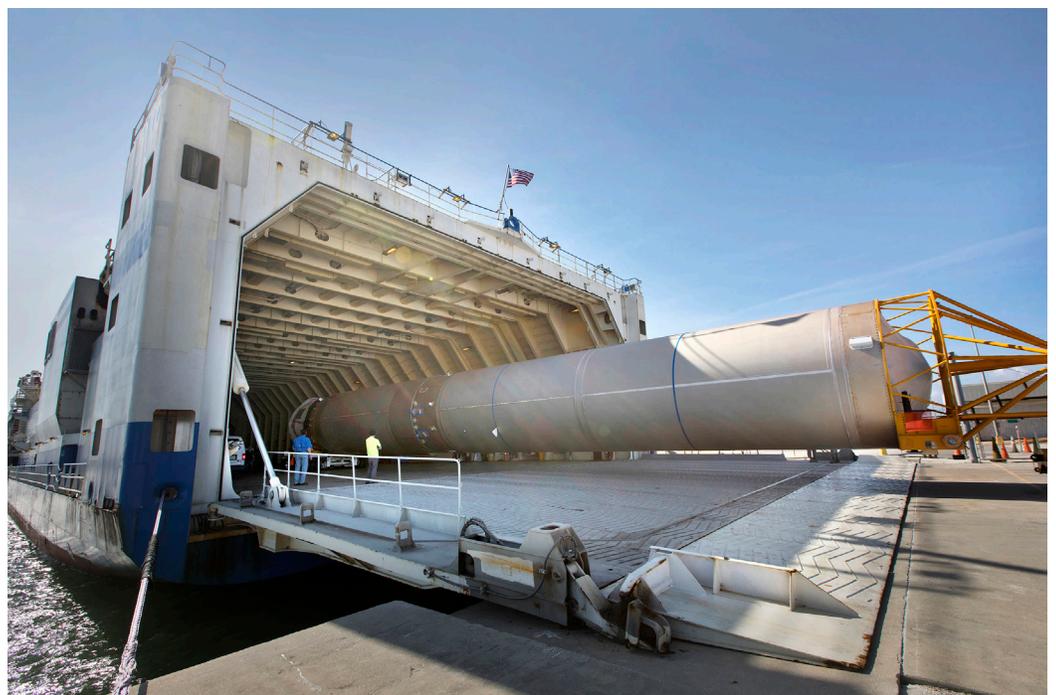
## ROAD TO LAUNCH



The **GOES-S media day** was held on **January 16** at Astrotech Space Operations in Titusville, Florida, where the spacecraft was undergoing preparations for launch. During the event, approximately 20 media representatives from local and national outlets had the opportunity view and photograph GOES-S and conduct interviews with National Weather Service, GOES-R Series Program, Lockheed Martin and Harris personnel.

**On January 19, the GOES-S Mission Readiness Review (MRR) was successfully completed** at Goddard Space Flight Center. The MRR assessed the readiness status of spacecraft systems prior to launch and was the final program review before launch. The review covered all activities required for a successful launch, including the flight preparedness of launch systems, flight systems, ground systems, supporting facilities, and operations personnel.

**The United Launch Alliance Atlas V booster and Centaur stage for GOES-S arrived** in Florida on January 22. A Mariner transport ship delivered the components to the Army Wharf at Cape Canaveral Air Force Station. The Atlas V booster was moved to the Atlas Spaceflight Operations Center near Space Launch Complex 41 and the Centaur was taken to the Delta Operations Center.



GOES-S Atlas V booster offloaded from the Mariner transport ship. Credit: NASA/Leif Heimbald



GOES-S Atlas V first stage booster lifted to vertical on stand. Credit: NASA/Ben Smegelsky

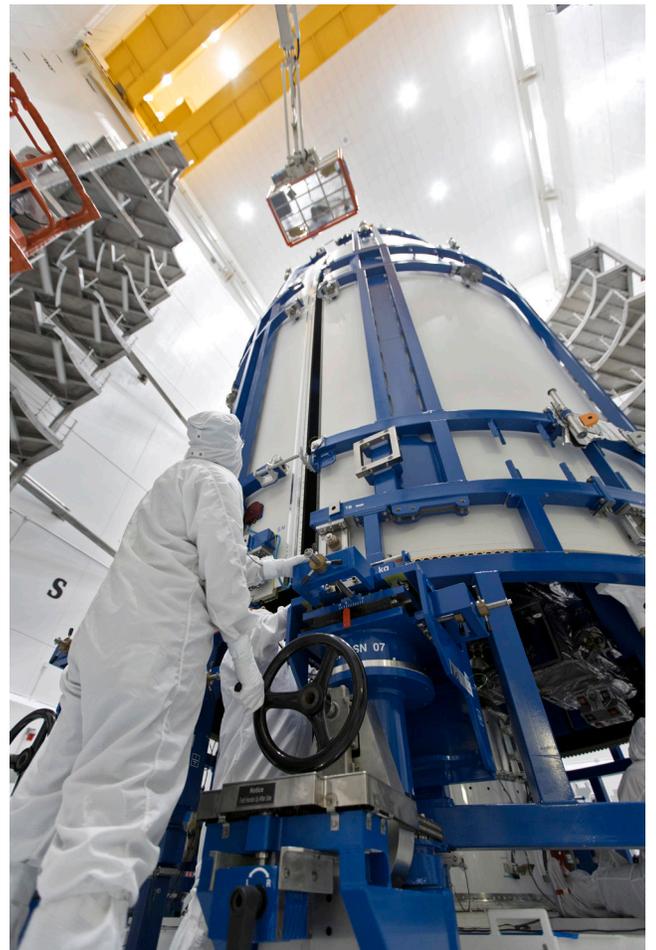
**The Atlas V first stage for GOES-S was lifted onto the stand** inside the Vertical Integration Facility at Space Launch Complex 41 on January 31. The first stage of the rocket holds the fuel and oxygen tanks that feed the engine for ascent and powers the spacecraft into geostationary orbit.

**The GOES-S L-30 press briefing was held via teleconference on February 1.** This media call engaged national reporters who cover weather, climate and NOAA satellite programs about the upcoming GOES-S launch and GOES-R Series mission. Panelists included: Ajay Mehta, acting Deputy Assistant Administrator for Systems, NOAA's Satellite and Information Service; Tim Walsh, acting System Program Director, GOES-R Series Program; Joe Pica,

Director, Office of Observations, NOAA's National Weather Service; Sandra Smalley, Director, NASA Joint Agency Satellite Division; and Jana Luis, Division Chief of Predictive Services, CAL FIRE. [NOAA issued a press release to highlight the upcoming launch](#) and the benefits GOES-S will bring to the nation, particularly the Western U.S., Alaska and Hawaii.

**The GOES-S Safety and Mission Success Review (SMSR) was held February 1.** The SMSR certified that all required safety and mission assurance activities and assurance processes had been performed, that the baseline requirements were met, and that the program did not exceed the acceptable risk envelope. The SMSR provided the basis for the NASA Chief Safety and Mission Assurance Officer and the NASA Chief Engineer to sign a Certification of Flight Readiness.

**GOES-S was encapsulated inside its payload fairing at the Astrotech payload processing facility on February 7.** The payload fairing protects the spacecraft during its ascent through Earth's atmosphere on its way to orbit.



Technicians and engineers monitor progress as GOES-S is encapsulated in its payload fairing. Credit: NASA/Kim Shiflett

## ROAD TO LAUNCH (CONTINUED)

**On February 16 GOES-S, secured inside its payload fairing, was mated with the launch vehicle.** The satellite was transported from its processing location at Astrotech Space Operations to the United Launch Alliance Vertical Integration Facility at Cape Canaveral Air Force Station's Space Launch Complex 41. There, the satellite was raised into position atop the Atlas V rocket that sent it into orbit on March 1.

**The GOES-S Key Decision Point E was successfully briefed to the joint NOAA/NASA Agency Program Management Council on February 21.** As the final decision authority, the NOAA Deputy Undersecretary for Operations approved proceeding toward launch. This decision point confirmed the end-to-end system was fully integrated, the Mission Readiness Review was successfully completed, and the program was prepared for the Flight Readiness and Launch Readiness Reviews.

**The GOES-S Flight Readiness Review was successfully completed on February 23 at Kennedy Space Center in Florida.** At the conclusion of the review, senior NASA and contractor managers voted to proceed toward the targeted launch of GOES-S.

**NASA, NOAA and United Launch Alliance controllers and engineers conducted a full Mission Dress Rehearsal on February 23 for the launch of GOES-S.** Working from consoles in facilities at Cape Canaveral Air Force Station, the teams ran through the same systems and processes they would use for the actual launch on March 1.



The payload fairing containing GOES-S is lifted by crane for mating to the Atlas V rocket. Credit: NASA/Glenn Benson

**FOX24 abc16 WGXA**



**The GOES-S satellite media tour was held February 23 at NASA Goddard Space Flight Center.** This event allowed broadcast meteorologists to conduct short interviews via satellite with subject matter experts from NOAA and the GOES-R Series Program. Nearly 50 media outlets from across the United States participated.

**The GOES-S Launch Readiness Review was successfully completed on February 27 at Kennedy Space Center.** Managers from NASA, NOAA, U.S. Air Force 45th Space Wing and United Launch Alliance gave a unanimous "go" for launch of the GOES-S spacecraft on March 1 at 5:02 p.m. EST. The Certificate of Flight Readiness was signed at the conclusion of the review.

GOES-R Series Program Satellite Products Manager James Sims speaks with WGXA-TV in Macon, Georgia. Credit: WGXA

## ROAD TO LAUNCH (CONTINUED)



The United Launch Alliance Atlas V rocket and its GOES-S payload were moved to the launch pad on February 28. View the [NASA EDGE GOES-S Rollout Show video](#), which includes live coverage of the rollout and interviews with Ed Grigsby, GOES-R Series Program Deputy System Program Director; Mike Stringer, GOES-R Series Program Assistant System Program Director; and Pam Sullivan, GOES-R Series Program Flight Project Manager.

Atlas V carrying GOES-S rolls to the launch pad. Credit: NASA/Ben Smegelsky

## LAUNCH WEEK EVENTS

Two press briefings were held at the Kennedy Space Center press site on February 27.

A [mission overview briefing](#) was held at 1:00 p.m. and a [science/users briefing](#) at 2:30 p.m.

Panelists included high-level officials and subject matter experts from NOAA, NASA, the GOES-R Series Program, United Launch Alliance, and the U.S. Air Force.

The GOES-S launch Science Workshop was held February 28 at Kennedy Space Center.

There were approximately 25 attendees in person with additional remote participants. Topics included updates from the Algorithm Working Group and Calibration Working Group and research ideas going forward.



GOES-S pre-launch mission briefing panelists, from left, Tori McClendon, NASA Communications; Dr. Stephen Volz, Director, NOAA's Satellite and Information Service; Tim Walsh, acting GOES-R Series Program System Program Director; Sandra Smalley, Director of the Joint Agency Satellite Division at NASA Headquarters; Tim Dunn, NASA Launch Director at Kennedy; Scott Messer, NASA Programs Manager for United Launch Alliance; and Kathy Winters, Launch Weather Officer for the U.S. Air Force 45th Weather Squadron at Cape Canaveral Air Force Station. Credit: NASA/Kim Shiflet

## LAUNCH WEEK EVENTS (CONTINUED)



GOES-R Series Program acting System Program Director Tim Walsh speaks to GOES-S social participants about NOAA's geostationary satellites and how they fit into the international constellation. Credit: NASA/Kim Shiflett

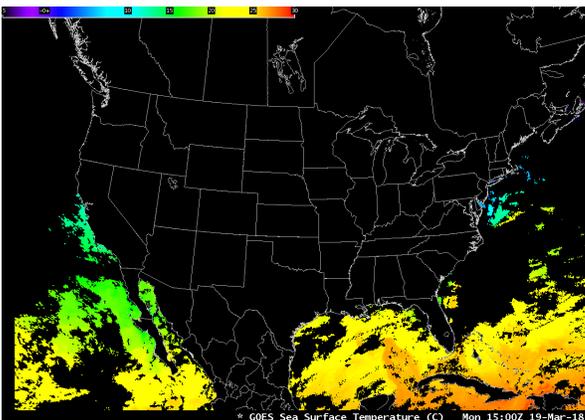
**The GOES-S Launch Social was held February 28 – March 1 at Kennedy Space Center.** Forty-two participants were chosen to receive social media accreditation for the GOES-S launch, where they were given a special insider's look to share with their social media followers. Participants toured KSC and United Launch Alliance Atlas Spaceflight Operations Center, spoke with the scientists and engineers that developed the spacecraft and instruments, heard from NOAA and NASA experts during a special pre-launch briefing, viewed and photographed the Atlas V rocket at Space Launch Complex 41, and experienced the launch in person. [The GOES-S Social briefing can be viewed in the NASA Image and Video Library.](#)

**On March 1 media had a unique opportunity to visit NOAA's Gulfstream IV (G-IV) aircraft** at Kennedy Space Center's Shuttle Landing Facility. There, they learned about its specialized instruments and interviewed NOAA experts who conduct research or use data from this aircraft and the GOES satellite system. The G-IV is a high-tech aircraft piloted by NOAA Corps officers and crewed by NOAA civilian engineers and meteorologists and used for hurricane forecasting and research.



Media gathered around the NOAA G-IV aircraft during the open house held on March 1. Credit: NOAA/NASA, Michael Starobin

## GOES-16 HIGHLIGHTS



This image from NOAA's GOES-East satellite shows sea surface temperature in the waters surrounding the United States. The warm water of the Gulf Stream is shown in orange and red. Credit: CIMSS

**A number of GOES-16 data products completed Provisional Peer-Stakeholder Product Validation Reviews this quarter.** Once a product reaches provisional maturity status, it is ready for operational use but not yet fully validated. The Geostationary Lightning Mapper data was provisionally validated in January and several ABI products reached provisional validation in February: Derived Motion Winds, Clear Sky Mask, Cloud Top Height, Cloud Top Phase, Cloud Top Pressure, Cloud Top Temperature, Total Precipitable Water, Legacy Vertical Moisture Profile, Legacy Vertical Temperature Profile, Cloud Phase and Cloud Optical Depth. In March, the Sea Surface Temperature, Land Surface Temperature, Fire Detection and Rainfall Rate products were provisionally validated.

## GOES-16 HIGHLIGHTS (CONTINUED)



**The East Coast of the United States was hit with a series of powerful nor'easters in March and GOES-16 captured stunning images of the storms.** A nor'easter is a type of storm that forms along the East Coast of North America, named after the direction from which the strongest winds typically blow over the northeast states, including New England and the Mid-Atlantic. The storms brought wind, snow, rain and flooding to these regions. [Learn more about nor'easters in this article from our partners at SciJinks.](#)

NOAA's GOES East satellite (GOES-16) captured the nor'easter over the East Coast on March 13. It was the third such storm in 10 days to hit New England. Credit: NOAA

## MEET THE TEAM

**In this issue, meet Joe Kolesnick, acting GOES-R Series Program Chief of Staff.**

Joe joined the program in March from NESDIS, where he was a Program, Policy, and Management Analyst for the Chief of Staff Office as part of the Presidential Management Fellows program. Most recently he was on a detail assignment as the Europe Desk Officer in the NESDIS International and Interagency Affairs Division. As the acting GOES-R Series Program Chief of Staff, Joe is supporting front office leadership in coordination of activities with NESDIS, NOAA and the Department of Commerce until the permanent Chief of Staff joins the team or until his six-month detail is over.

Joe has only been with the program a short time but he's enjoying getting to know everyone and appreciates how inclusive the team is and how attentive people are to the task at hand. He appreciates the flexibility NOAA as an agency has for approaching issues and thinks it helps people work smarter. In his new role, he looks forward to supporting management and helping the program move forward.

Joe holds a Bachelor of Arts in History from Buffalo State College (SUNY), a Master of Arts in European History (with specializations in political, military and diplomatic history) from the University at Buffalo (SUNY), and a Master of Arts in Global Governance, Politics, and Security from American University. His educational background has focused on inter and intra-governmental interaction. Outside of work, Joe hosts a weekly board game night featuring everything from party games to cooperative games to classics like Risk and Monopoly.

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



## Upcoming Events

**First public GOES-17 ABI, SEISS and EXIS imagery/data**

May 2018

**First public GOES-17 SUVI imagery**

June 2018

**Atlantic hurricane season begins**

June 1, 2018

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