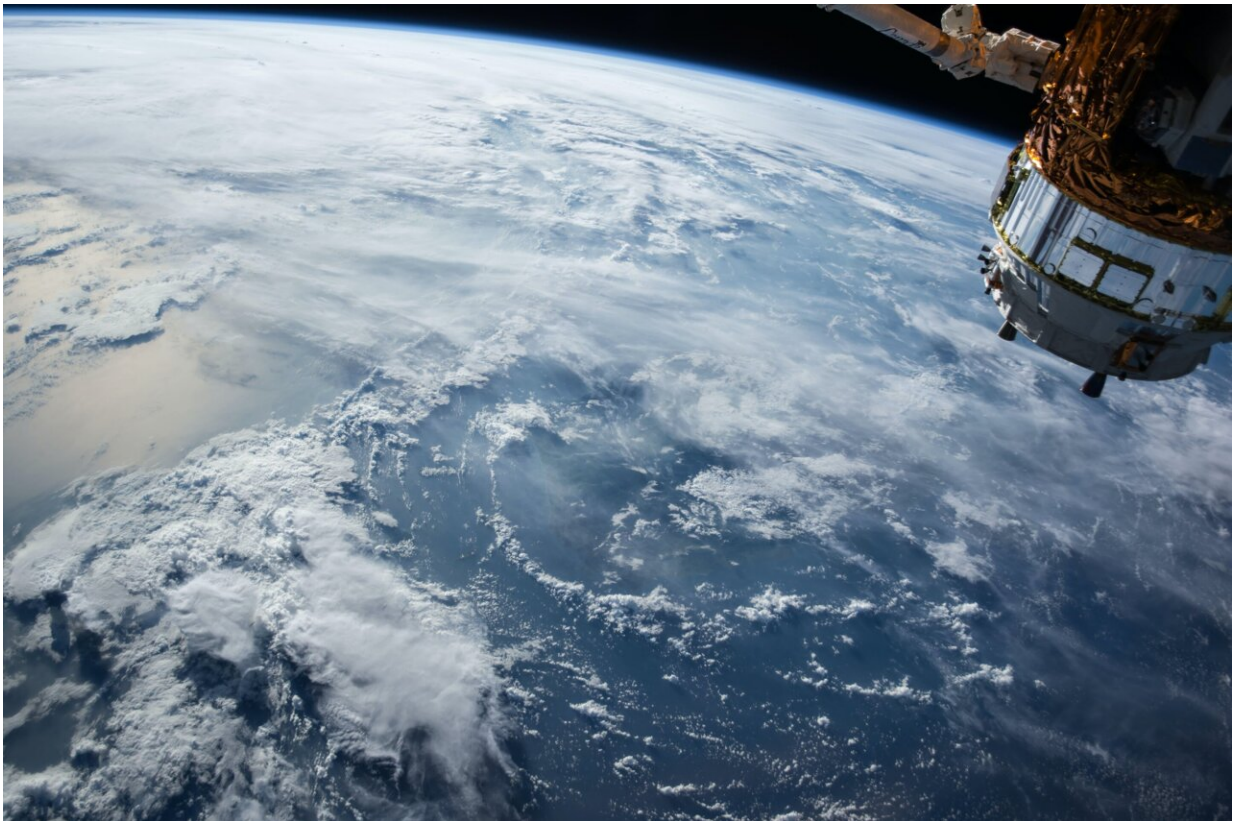


NASA, NOAA to get new weather eyes in the sky with March launch from Cape Canaveral

February 4 2022, by Joe Mario Pedersen



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Soon, weather scientists will have an even stronger pair of eyes in the sky once a new advanced weather satellite launches this March.

The GOES-T, short for Geostationary Operational Environmental Satellite, is aiming for liftoff March 1 from Cape Canaveral Space Force Station on a United Launch Alliance Atlas V rocket thanks to a collaboration between the National Oceanic and Atmospheric Administration and NASA along with several other partners.

GOES-T, roughly the size of a small school bus, is the third in the GOES-R series of four advanced weather satellites. The value of GOES-T isn't exactly clear as the NOAA doesn't individually price out satellites one by one, said Pam Sullivan director of the GOES-R program. However, Sullivan did say the four-part project costs \$11.7 billion.

"The value is returned to us public in benefits provided," Sullivan. "The observations of these satellites is even more critical now that the U.S. is experiencing a record number of billion dollar disasters."

Last year, dry and heated conditions led to an unprecedented amount wildfires in the northwest U.S. with thousands of acres burnt. Both Germany and China experienced historic flooding, and the Atlantic observed 21 named tropical systems—the third highest amount behind 2020's 30 named storms and 2005's 27 total.

GOES-T should be able to help meteorologists determine potential areas of disaster before they occur, said John Gagosian, Director, NASA's Joint Agency Satellite Division

The satellite will allow scientists to monitor and predict environmental conditions like hurricanes, thunderstorms, floods, dense fog and fire.

The GOES-R satellites are equipped with advanced technology that deliver 60 times more imagery than the previous generation, Sullivan said, such as the new Advanced Baseline Imager (ABI), which can view the Earth in 16 different kinds of spectral bands including two visible

channels, four near-infrared channels, and 10 infrared channels. The previous generation of GOES could only view five different bands. The ABI will help scientists predict where fires on the west coast could start before they ever form, Sullivan said. GOES-T is also equipped with a lightning camera that tracks severe storms that spawn tornadoes and damaging winds.

Juggling even more than terrestrial weather, GOES-T will have a hand in monitoring space weather, too. Keeping an eye on solar storms that could potentially harm Earth's power grids. The satellite is equipped with space weather tools like a particle flux sensor, solar irradiance monitor and a magnetometer, Sullivan said.

Aiding GOES-T's development was the United Launch Alliance, L3Harris and Lockheed Martin; the latter of which helped developed the spacecraft, lightning mapper and solar imager. GOES-T's spacecraft was mated to a payload adaptor in January, which is a piece of hardware that interfaces mechanically between ULA's Atlas V rocket and the spacecraft.

"It is the start of integrated operations, which is now the satellite and the rocket are starting to come together," said GOES-T Mission Manager Rex Engelhardt. "We've been doing a lot of analysis, but this is the first piece of rocket hardware that we're putting together with the satellite."

GOES-T has quite a big family tree of geostationary satellites stemming back to 1974, and it appears to have a long future soaring ahead of it as well with scientists planning to use it into the 2030s.

GOES-T is set to launch 4:38 p.m. ET March 1 from Canaveral's Space Launch Complex 41. Once it is in position, GOES-T will take on the name GOES-18 and replace GOES-17 and will monitor the western part of the United States as well as Alaska and Hawaii, according to the

NOAA.

GOES-17 is being replaced after it experienced some ABI degradation due to a thermal disruption blocking a flow of coolant, said Larry Crawford, the ABI program manager. The hardware responsible was identified and eliminated from GOES-T's construction.

After the March 1 launch, the newly designated GOES-18 will spend the majority of a year getting ready to become operational. Its first images won't be seen until May 2023. ABI data will be flowing in an operational sense, but the [satellite](#) still won't be 100% ready for usage, Sullivan said. However, data will be made available by early July 2023 for forecasters as an additional data set to compare to.

While GOES-T is prepped for launch, the NOAA is already thinking about the future, planning its sixth generation geostationary observing station called GOXO which will operate into the 2050s with even more advanced technology, Sullivan said.

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