

# GOES-R heads to orbit, will improve weather forecasting

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Credit: NOAA Headquarters

GOES-R, the first of NOAA's highly advanced geostationary weather satellites, lifted off from Cape Canaveral, Florida, at 6:42 p.m. EST today. The satellite will boost the nation's weather observation network and NOAA's prediction capabilities, leading to more accurate and timely forecasts, watches and warnings.

In about two weeks, once GOES-R is situated in orbit 22,300 miles above Earth, it will be known as GOES-16. Within a year, after

undergoing a checkout and validation of its six instruments, the new satellite will become operational.

"The next generation of weather satellites is finally here. GOES-R is one of the most sophisticated Earth-observing platforms ever devised," said NOAA Administrator Kathryn Sullivan, Ph.D. "GOES-R's instruments will be capable of scanning the planet five times faster and with four times more resolution than any other satellite in our fleet. With these new instruments and powerful new capabilities, GOES-R will strengthen NOAA's ability to issue life-saving forecasts and warnings and make the United States an even stronger, more resilient Weather-Ready Nation."

GOES-R will scan the skies five times faster than today's GOES spacecraft, with four times greater image resolution and three times the spectral channels. It will provide high-resolution, rapid-refresh satellite imagery as often as every 30 seconds, allowing for a more detailed look at a storm to determine whether it is growing or decaying.

GOES-R data will help improve hurricane tracking and intensity forecasts, the prediction and warnings of severe weather, including tornadoes and thunderstorms. Additionally, GOES-R's improved rainfall estimates will lead to more timely and accurate flood warnings.

"We are ready to receive and process GOES-R data into our forecasts as soon as it is available," said NOAA National Weather Service Director Louis W. Uccellini, Ph.D. "Forecasters will not only have sharper, more detailed views of evolving weather systems, they will have more data – better data – ingested into our weather models to help us predict the weather tomorrow, this weekend and next week. This is a major advancement for weather forecasting."

For the aviation sector, GOES-R will deliver clearer views of clouds at different atmospheric levels, generating better estimates of wind speed

and direction and improved detection of fog, ice and lightning. This will improve aviation forecasts and flight route planning to avoid hazardous conditions such as turbulence.

"GOES-R will significantly improve the ability of emergency managers across America to prepare for, and respond to, weather-related disasters. Better situational awareness will result in better outcomes—from where to best position resources ahead of a storm to delivering more targeted information to local officials to decide if an evacuation is necessary," said Craig Fugate, FEMA administrator.

GOES-R is flying six new instruments, including the first operational lightning mapper in geostationary orbit. This new technology will enable scientists to observe lightning, an important indicator of where and when a storm is likely to intensify. Forecasters will use the mapper to hone in on storms that represent the biggest threat. Improved space weather sensors on GOES-R will monitor the sun and relay crucial information to forecasters so they can issue space weather alerts and warnings. Data from GOES-R will result in 34 new, or improved, meteorological, solar and [space weather](#) products.

"We've crossed an historic performance threshold with GOES-R," said Stephen Volz, Ph.D., director, NOAA's Satellite and Information Service. "NOAA is now operating the most sophisticated technology ever flown in space to help forecast weather on Earth."

There are four satellites in the GOES-R series: –R, –S, –T and –U, which will extend NOAA's geostationary coverage through 2036.

"NOAA and NASA have partnered for decades on successful environmental satellite missions," said Sandra Smalley, director of NASA's Joint Agency Satellite Division, which worked with NOAA to manage the development and launch of GOES-R. "Today's launch

continues that partnership and provides the basis for future collaboration in developing advanced [weather satellites](#)."

Beyond [weather](#) forecasting, GOES-R will be part of SARSAT, an international satellite-based search and rescue network. The satellite is carrying a special transponder that can detect distress signals from emergency beacons.

**More information:** Additional GOES-R satellite information is available online: [www.goes-r.gov/](http://www.goes-r.gov/)

Provided by NOAA Headquarters

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