

GEOSTATIONARY OPERATIONAL ENVIRONMENTAL SATELLITE-R (GOES-R) SERIES

The National Oceanic and Atmospheric Administration's (NOAA's) GOES-R Series is essential to creating a more weather resilient nation

From hurricanes to tornadoes to wildfires, extreme weather creates the need for early and accurate detection to keep people safe and out of harm's way

ENABLING GOES-R IN SPACE

L3Harris' Advanced Baseline Imager (ABI) is the primary instrument for the GOES-R Series, providing imaging of Earth's weather, climate, oceans and the environment. Its advanced capabilities reflect more than 40 years of experience producing geostationary imaging radiometers.

ABIs are in orbit on GOES-East and GOES-West. ABIs will also provide advanced capabilities on GOES-T and GOES-U. In addition to supporting NOAA, ABI-class imagers are used onboard the Japanese Meteorological Agency (JMA)'s Himawari-8 and -9 satellites. The Geostationary Korea Multi-Purpose Satellite – 2A (GEO-KOMPSAt-2S) also carries an L3Harris ABI imager.

ADVANCEMENTS IN ABI

Advancing ABI's capabilities can affordably be achieved with low-risk, high-reward improvements to its flight-proven technology. ABI technology has enabled meteorologists to increase the accuracy of their products, both in forecasting and nowcasting.

- > Views the Earth with 16 spectral bands providing three times more spectral information, four times the spatial resolution and five times faster coverage than the previous system.
- > Provides visible and infrared images of the entire hemisphere as fast as five minutes at resolutions starting at half a kilometer.
- > Supports coverage of severe weather events in 30 seconds with simultaneous full-hemisphere imagery and data.
- > Detects water vapor at three levels of the atmosphere compared with a single level previously.





GOES-R Series

BENEFITS

- > The essential enabling technology to support severe weather forecasting in the U.S. and the Western Hemisphere
- Early position and intensity detection of tropical storms and hurricanes in the Atlantic and Eastern Pacific
- > Detailed data used for tracking storms, fires, fog, frontal systems and other weather patterns across the continental U.S.
- > Highly detailed imagery that improves the speed and accuracy of forecasting models



ENABLING GOES-R SERIES ON THE GROUND

Managing a growing constellation of satellites and sensors, rapidly processing even larger volumes of data and quickly delivering information and products to users worldwide requires a scalable ground system. L3Harris built NOAA's GOES-R Ground System to support the entire GOES-R constellation and future Space Weather Follow-On (SWFO) satellites. Drawing on its experience building this sophisticated ground system, L3Harris' next generation ground system architecture will empower NOAA to focus on the mission rather than hardware and facilities.

L3Harris' enterprise cloud-based services, high-performance computing, machine learning and artificial intelligence technologies ensure NOAA can cost-effectively keep pace with future data rate and volume demand. This highly scalable ground system architecture is expandable to support additional satellites and missions while maintaining high-throughput, low-latency data processing and high system reliability all with a reduced footprint.



ABI on GOES-16 captures imagery in 16 visible and infrared bands (NOAA/NASA)



NEXT-GENERATION GEOSTATIONARY WEATHER IMAGER:

- > Modular sensor technology that is adaptable to different instruments, orbits and business models
- Enhanced spatial resolution and additional channels that can meet future demands
- > Responsive interleaved scanning, providing data with unmatched accuracy, detail and speed from regions where active weather poses the greatest risk to life and property
- Furthers NOAA's ability to quickly identify dangerous weather and provide advanced warnings



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