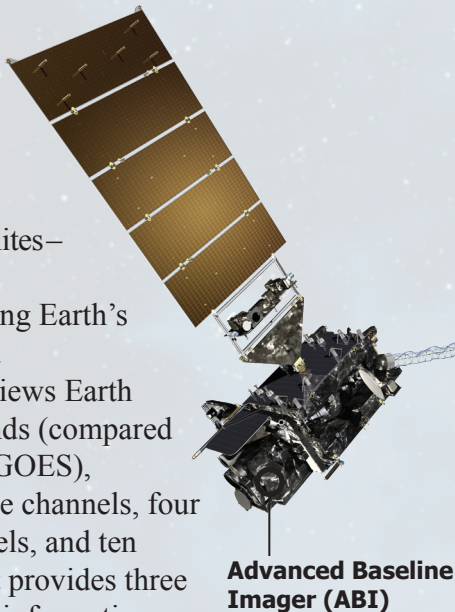# Advanced Baseline Imager (ABI)

GOES-R Series

New capabilities
Higher resolution
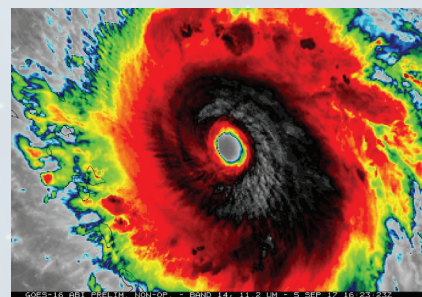*Faster coverage*

The Advanced Baseline Imager (ABI) is the primary instrument on the Geostationary Operational Environmental Satellites–R Series (GOES-R) spacecraft for imaging Earth's weather, oceans and environment. ABI views Earth with 16 spectral bands (compared to five on previous GOES), including two visible channels, four near-infrared channels, and ten infrared channels. It provides three times more spectral information, four times the spatial resolution, and five times faster coverage than previous GOES.

Advanced Baseline Imager (ABI)

Advanced imaging

ABI is a multi-channel imaging radiometer that observes the Western Hemisphere and provides variable area imagery and radiometric information of Earth's surface, atmosphere and cloud cover. ABI is used for a wide range of applications related to severe weather, hurricanes, aviation, natural hazards, the atmosphere, oceans and cryosphere.

Previous GOES 5-minute capability

GOES-R Series 5-minute capability

ABI covers the Earth five times faster than the previous imager.

ABI can multitask. The default scan mode concurrently takes a full disk image every 10 minutes, an image of the contiguous U.S. every 5 minutes, and two smaller, more detailed images of areas where storm activity is present, every 60 seconds (or one every 30 seconds). Alternatively, ABI can run in full disk mode, continuously imaging the full disk every 5 minutes.

Benefits

ABI tracks and monitors cloud formation, atmospheric motion, convective development, land and sea surface temperatures, ocean dynamics, flow of water, fire, smoke, volcanic ash, aerosols and air quality, and vegetative health. Data from ABI helps meteorologists pinpoint and track an area of developing storms in much greater detail. Knowing how rapidly storm clouds are forming leads to earlier warnings. Better data quality and faster scan speed contribute to fewer weather-related flight delays as well as earlier preparation for tropical storms and hurricanes. ABI is also very useful for providing real-time data during radar outages or in areas where radar coverage is sparse.
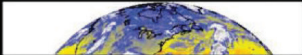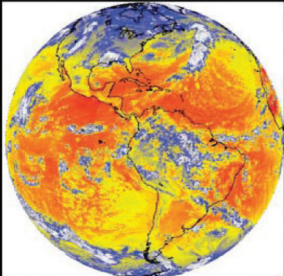
By delivering a better and larger suite of weather, climate and environmental products, ABI has ushered in a new era in weather forecasting, benefitting public safety, protection of life and property, and our nation's economic health and prosperity.

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

√ Improved hurricane track and intensity forecasts
√ Increased warning lead time for severe storms
√ Improved aviation flight route planning
√ Improved fog/low cloud detection
√ Improved air quality warnings and alerts
√ Better fire detection and intensity estimation
√ Better detection of heavy rainfall and flash flood risks
√ Better monitoring of smoke and dust
√ Data for long-term climate variability studies

Instrument Contractor

HARRIS®
Fort Wayne, Indiana

Learn more
http://www.goes-r.gov/spacesegment/abi.html