



Report on the Status of Future Geostationary Meteorological Satellite Systems

NOAA-WP-06 provides a status and an overview of the future GOES satellite system.

The United States normally operates two meteorological satellites in geostationary orbit over the equator. Each satellite views almost a third of the Earth's surface: one monitors North and South America and most of the Atlantic Ocean, the other North America and the Pacific Ocean basin. GOES-12 (or GOES-East) is positioned at 75 W longitude and the equator, while GOES-11 (or GOES-West) is positioned at 135 W longitude and the equator.

The GOES-13 satellite was successfully launched May 24, 2006 and is currently in on-orbit storage mode as the primary backup for the operational GOES satellites. The GOES-O satellite has completed post storage testing for the Imager, Sounder and X-ray Imager is complete. The GOES-O planned launch date is April 2008. GOES-P is currently in ground storage and is planned to be launched in May 2009. The new GOES-N series ground system handed over from NASA to NOAA on October 23, 2007.

The GOES-R program reached several important milestones in 2007. The System Program Definition and Risk Reduction (PDRR) contracts, awarded in late 2005 to Boeing, Northrup Grumman and Lockheed Martin, ended in April 2007. All instruments are in the implementation phase with the exception of the Geostationary Lightning Mapper (GLM). The new GOES-R instruments will advance operational environmental remote sensing technology by several decades. The technological advances will provide four-times the environmental information over a greater geographical location in less time, at higher resolutions, and with higher spectral content.



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1. GOES-I Series

GOES-12, launched July 23, 2001, continues to provide data as GOES-East at 75 W. GOES-11, launched May 30, 2000, is operational as GOES-West at 135 W. GOES-10 is located at 60 W providing coverage of South America. GOES-13 (launched May 24, 2006) is in backup mode at 160 E.

2. GOES-N Series

The GOES-13 satellite was successfully launched May 24, 2006 and is in on-orbit storage mode at 105 W as the primary backup for the operational GOES satellites. The GOES-O satellite is under going post storage testing. The GOES-O planned launch date is April 2008. GOES-P has completed system integration and testing and is in ground storage at the spacecraft contractor facility, in El Segundo, California. It is planned to be launched in May 2009. The GOES-N series utilizes an advanced attitude control system using star trackers, a spacecraft optical bench, and improved Imager and Sounder mountings provides enhanced instrument pointing performance for improved image navigation and registration to better locate severe storms and other events important to the NOAA National Weather Service. NASA Goddard Space Flight Center (GSFC) and the NOAA National Environmental Satellite, Data and Information Service (NESDIS) have set a higher standard of location accuracy for the GOES-N series, including data picture element (pixel) location to approximately two kilometers from geosynchronous orbit of 33,900 km (22,300 miles) above the Earth's surface.

3. GOES-R Series

The GOES-R program reached several important milestones in 2007. The System Program Definition and Risk Reduction (PDRR) contracts, awarded in late 2005 to Boeing, Northrup Grumman and Lockheed Martin, ended in April 2007. All instruments are in the implementation phase with the exception of the Geostationary Lightning Mapper (GLM). The GLM is in the final stages of competitive source selection, and the implementation contract will be awarded in November 2007. The Advanced Baseline Imager (ABI) successfully completed its Critical Design Review in February 2007. The contractor is presently in manufacturing and assembly of the prototype test model (PTM). The space weather and solar imaging instrument implementation contracts were awarded in September and October. Preparations for the Acquisition and Operations (A&O) Phase continue. In March 2007, the DOC approved a major management strategy change in order to leverage the organizational expertise of NOAA and NASA. As a result, there will be separate spacecraft and ground system prime contracts awarded in 2008.

The new GOES-R instruments will advance operational environmental remote sensing

technology by several decades. The technological advances will provide four-times the environmental information over a greater geographical location in less time, at higher resolutions, and with higher spectral content. The instruments will provide forecasting data to permit significant improvements in severe weather warning lead time and storm prediction. The GOES-R program will meet NOAA's mission objectives for continuous observations of atmospheric, oceanic, climatic, solar, and space infrared and imaging data of the northern hemisphere surface and atmosphere; supporting all of NOAA's mission goals in ecosystems, climate, weather and water, and commerce and transportation.

The GOES-R Program schedule supports a GOES-R launch readiness date of late 2014.

Continuity of GOES Operational Satellite Program

