



CGMS-37, NOAA-WP-06
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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 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 spacecraft is under going post storage testing and is ready for launch in March 2009. 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 April 2010.

Steady progress continued on the development of the GOES-R program in 2009. The spacecraft, ground segment and all instruments are in the implementation phase. The new GOES-R instruments will advance operational environmental remote sensing technology by several decades. The technological advances will provide 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.

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 spacecraft is under going post storage testing and is ready for launch in March 2009. 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 April 2010. 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

Steady progress on the development of the GOES-R system continued in 2009. The Spacecraft, Ground Segment, and all the instruments are now under contract.

In May, 2009, Lockheed Martin Space Systems Co. was selected to build two satellites for the GOES-R Series. The basic contract is for two satellites with options for two additional satellites. The total estimated value of the basic contract, including the options, is \$1.09 billion. The new series, poised to begin launching in 2015, will provide more than 30 times the information of today's GOES satellites.

Harris Corporation was awarded a 10-year, potential \$736 million contract to provide a complete, end-to-end solution for the NOAA GOES Ground Segment. The Harris team will design, develop, deploy and operate the GOES-R ground segment, which will receive and process satellite data, and generate and distribute weather data to more than 10,000 direct users. Harris will also provide the command and control of operational satellites. Harris is providing a service-based, open-architecture solution that will accommodate the dramatic increase in data to be ingested, processed and distributed.

All the GOES-R instruments are in the implementation phase. Lockheed Martin is designing and developing a new GOES-R instrument, the Geostationary Lightning Mapper (GLM). The GLM instrument will detect all lightning flashes, including the cloud-to-ground and in-cloud lightning, occurring anytime and anywhere in the Western Hemisphere, including lightning flash patterns that are early indicators of severe thunderstorms and tornadoes. Lightning is the second highest storm-related killer in the United States, causing \$4 to \$5 billion in losses each year, including \$2 billion annually in airline operating expenses and passenger delays. GLM is a first of its kind capability—today’s ground-based national lightning detection networks are designed to locate mostly cloud-to-ground lightning—a small fraction of the total.

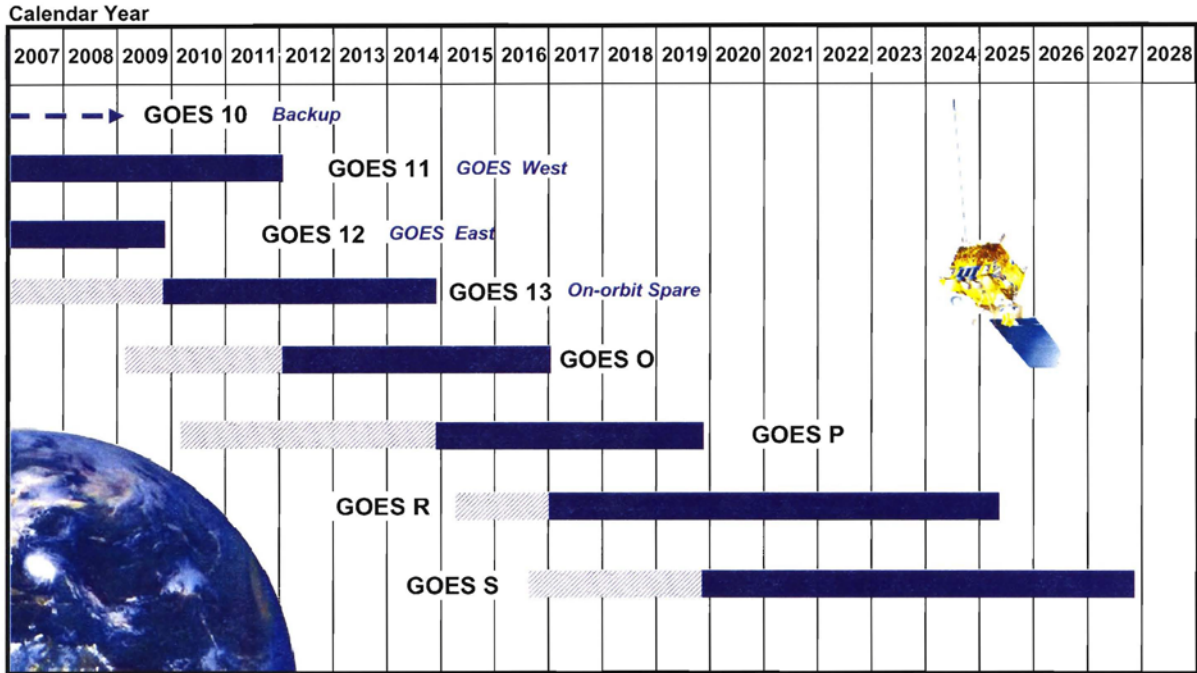
ITT Corporation is presently nearing completion of a prototype model of the the Advanced Baseline Imager (ABI), leading to the development of the first flight model. The flight model will improve hurricane monitoring and severe weather warning capability by scanning the earth nearly five times faster with a four- fold improvement in spatial resolution over the current GOES. The space weather and solar imaging instruments [Space Environment In-Situ Suite (SEISS), the Solar Ultra Violet Imager (SUVI) and Extreme Ultraviolet and X-Ray Irradiance Sensor (EXIS)] are continuing their development efforts. These space environmental sensors will significantly improve NOAA’s ability to detect space phenomena and provide warning to affected earth systems such as communications systems, GPS navigation, aviation routing, and power grids.

The next generation of GOES satellites will provide critical atmospheric, hydrologic, oceanic, climatic, solar and space data. Additional capabilities include improved direct services, such as GOES-R Re-Broadcast (GRB), Search and Rescue (SAR), Data Collection System (DCS), Emergency Managers Weather Information Network (EMWIN) and High Rate Information Transmission (HRIT).

The new instruments, improved spacecraft, and ground segment will allow for a host of new environmental products and services, while improving most of the products and services that are currently provided. The new observations will contribute to dramatically improved weather, water, and space environmental services in the next decades, enhancing public safety and providing economic benefits to the U.S. and our international partners.

The GOES-R Program schedule supports a GOES-R launch in CY 2015.

Continuity of GOES Operational Satellite Program



Approved Abigail Hargis

 Satellite is operational beyond design life
 On-orbit GOES storage
 Operational

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