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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.

The GOES-R program reached several important milestones in 2008. The program entered the Acquisition and Operations phase of its development. 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 four-times the environmental information over a greater geographical location in less time, at higher resolutions, and with higher spectral content. Source selection efforts are underway to select the Flight Spacecraft prime contractor and Ground system prime contractor. Contract awards are expected in FY 2009.



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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

On January 4, 2008, the Under Secretary for Oceans and Atmosphere approved the next generation geostationary satellite series, called GOES-R, to proceed with the Acquisition and Operations phase. This key decision point, which signalled successful completion of the Program Definition and Risk Reduction phase, cleared the way for requests for proposals for both the spacecraft and ground segment contracts to be released to industry. This new generation of GOES satellites will improve hurricane tracking and severe weather forecasts by scanning the Earth nearly five times faster than the current GOES.

In December 2007, NOAA and the National Aeronautics and Space Administration selected Lockheed Martin Space Systems Company for a \$96.7 million (including options) contract award to design and develop 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.

All GOES-R instruments are now in the implementation phase. The Advanced Baseline Imager (ABI) is presently developing a prototype model (PTM), leading to the development of the first flight model. The flight model will improve severe weather early warning capability. 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.

Source selection efforts are underway for the spacecraft prime contractor and the ground system prime contractor, with contract awards expected in FY 2009.

The GOES-R Program schedule supports a GOES-R launch readiness date in FY 2015.

Continuity of GOES Operational Satellite Program

