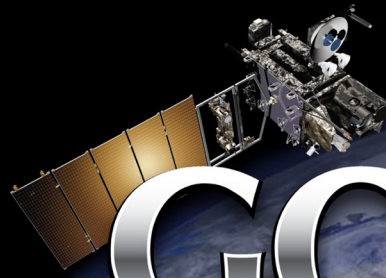




Quarterly Newsletter
July - September 2013
Issue 3



GOES-R

Geostationary Operational Environmental Satellite R-Series



A Note from Greg Mandt, GOES-R System Program Director

We had another successful quarter for the GOES-R Series Program, with the achievement of several critical milestones as you'll read below. Looking forward, we are nearing completion of the remaining instruments while continuing to make steady progress with the spacecraft and development of our ground segment. I thank you for your dedication and commitment to work aggressively to meet our goals. As always, we want to hear from you. If you have questions, feedback or additional ideas, email us at nesdis.goesr@noaa.gov.

Highlights

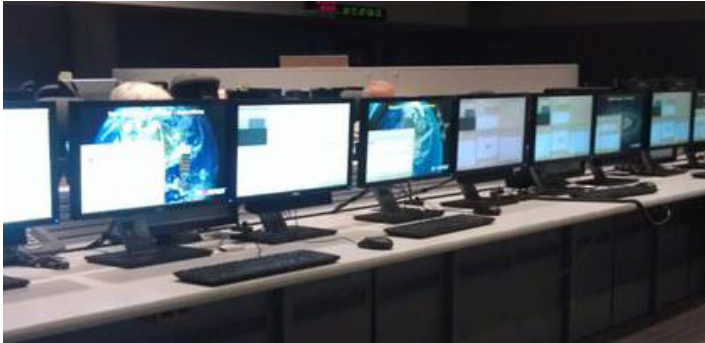
GOES-R's primary instrument, the Advanced Baseline Imager (ABI), successfully completed the ProtoFlight Model (PFM) Pre-Shipment Review (PSR) on September 26. The three day review culminated with concurrence from the Integrated Independent Review Team that the ABI PFM can proceed toward shipment. In early 2014, the ABI PFM will be shipped from its developer, Exelis, to the spacecraft developer, Lockheed Martin Space Systems Co. (LMSSC), to be installed onto the first GOES-R spacecraft. NOAA issued a [press release](#) on October 31 to announce the milestone. In addition, a new [video](#) and [fact sheet](#) featuring ABI were released, highlighting the many improvements that the instrument will bring to weather forecasting and issuing warnings. NASA issued a [web feature](#) and created a [Flickr gallery](#) of ABI images in support of the accomplishment.

Engineers at Exelis prepare the completed ABI PFM for transport to its Rochester facility where it will be stored until shipment to LMSSC for integration onto the GOES-R spacecraft. Credit: Exelis



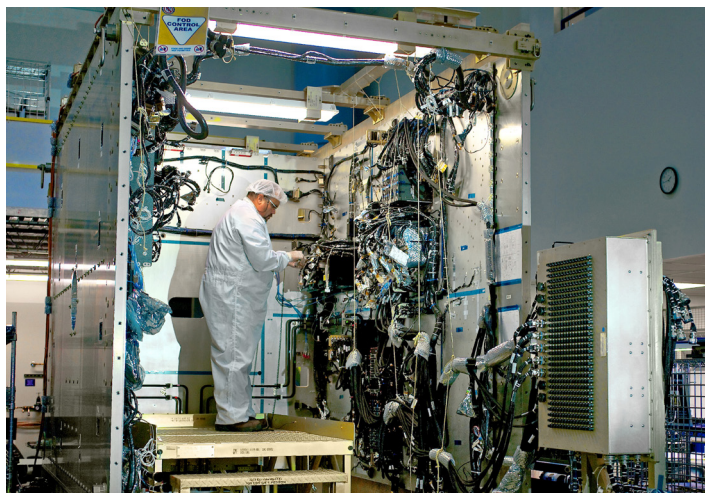
...that the GOES-R Ground Segment will process approximately 40 times more data than is possible today?

The Core Ground Segment Mission Management System was delivered to the NOAA Satellite Operations Facility (NSOF) by Harris Corporation in September. The new Mission Management System consists of hardware, software and a graphical user interface that will enable NOAA satellite operators to prepare ground-based command and control operations and processes ahead of the GOES-R launch. Harris issued a [press release](#) on September 30.



GOES-R Mission Management System at NSOF in Suitland, Md. Credit: Harris Corporation

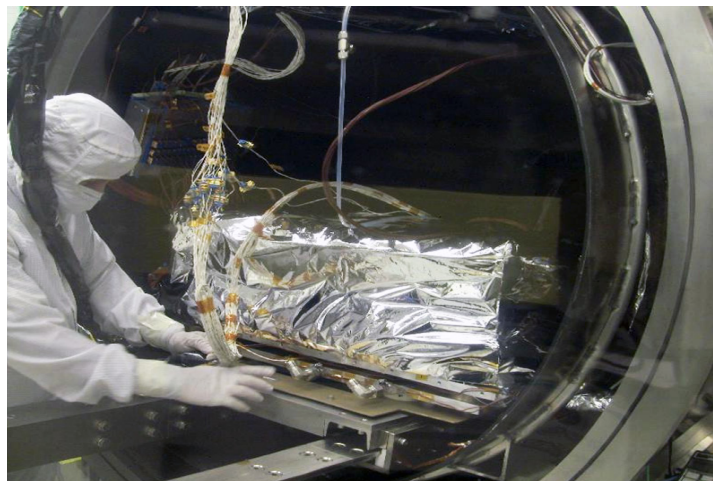
The GOES-R spacecraft system module was powered on for the first time on September 26, at LMSSC's Newtown, Pa. facility. Power-on of the spacecraft's avionics and major electronic subsystems is a key milestone to delivery of the first satellite in the GOES-R series. The system module will be shipped to LMSSC's Waterton facility near Denver in early 2014 to be integrated with the propulsion module. A [press release](#) was issued by LMSSC on October 2.



Power-on of the spacecraft's avionics and major electronic subsystems. Credit: LMSSC

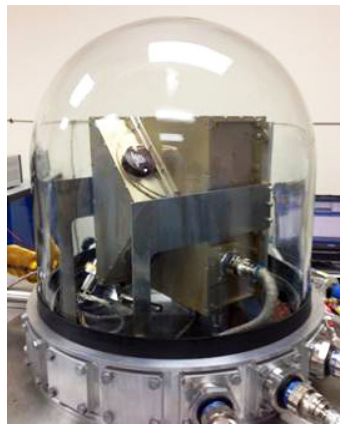
The Solar Ultra Violet Imager (SUVI) Flight Model 1 (FM1) successfully completed electrical, mechanical and thermal environmental testing in July. Lockheed Martin Advanced Technology Center (LMATC) subsequently issued a [press release](#) highlighting the successful completion of all environmental testing for SUVI FM1. SUVI successfully completed a PSR dry run in September and is preparing for its PSR, currently scheduled for mid-December.

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SUVI FM1 undergoes thermal vacuum testing in July. Credit: LMATC

The Space Environment In-Situ Suite (SEISS) FM1 completed suite-level thermal vacuum cycling and a Comprehensive Performance Test at ambient temperature and pressure in July.



SEISS MPS-LO Radiated Emissions test. Credit: Assurance Technology Corporation

The SEISS Magnetospheric Particle Sensor — Low Energy Range (MPS-LO) completed in-vacuum Electromagnetic Interference/Electromagnetic Compatibility testing in August. This test was the first of its kind on a GOES-R instrument.

On the GOES-R Antenna System, the NSOF 9.1 meter antenna upgrade components (feed and electronics) passed PSR on August 27. Harris began upgrading all four existing NSOF 9.1 meter antennas in September. At the Remote Backup Unit in Fairmont, W.Va., antenna structure assembly is complete.



NSOF 9.1 meter antenna upgraded for GOES-R. Credit: Harris Corporation

The GOES-R Series Program, in conjunction with NOAA's Search and Rescue Satellite Aided Tracking (SARSAT) Program, introduced a new mobile game, Rescue 406, in September. Users respond to a distress call, coordinate and direct a rescue using information from NOAA's geostationary and polar-orbiting satellites. [Rescue 406](#) is available in the Apple iTunes store for iOS devices.



The GOES-R Solar Electric Propulsion (SEP) thrusters were shipped to NASA's Stennis Space Center for integration with the GOES-R spacecraft in August. The SEP (or Arjet) thrusters use the electric power generated by the spacecraft's solar arrays to generate and sustain an

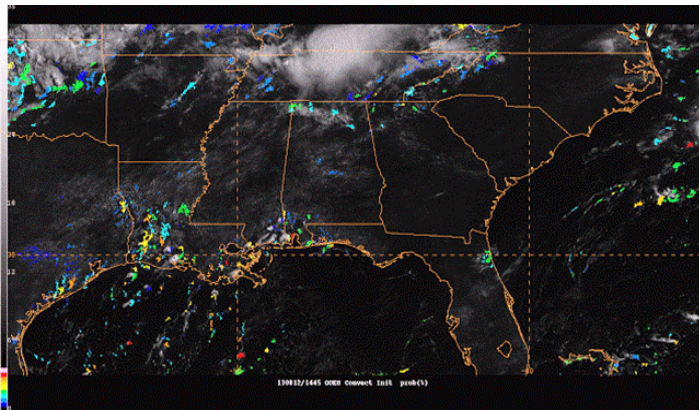
electric arc inside a hydrazine rocket engine, boosting the performance of the engine by a factor of three. The arcjet thrusters will enable the GOES-R satellite to be launched on an Atlas V 541, resulting in substantial cost savings over an all-chemical propulsion approach. A [press release](#) was issued by Aerojet Rocketdyne on August 13.

The GOES-R Series Program and System Program Director Greg Mandt were featured in the July edition of SatMagazine. The cover [feature](#) provided an in-depth look at GOES-R, including mission components, logistics and the important benefits the satellite series will provide the nation. The piece also outlined GOES-R's plans for preparing the user community for the new data and products that will be available with the satellite series.

The Mission Specific Requirements Review for the GOES-R Launch Vehicle (LV) was successfully held at LV contractor United Launch Alliance (ULA) on August 21. Approval was given by a joint ULA/Kennedy Space Center Engineering Review Board to proceed to the Mission Specific Preliminary Design Review.

Proving Ground and Program Science

The GOES-R Proving Ground Aviation Weather Test-bed (AWT) 2013 Summer Experiment was conducted August 12–23 at the Aviation Weather Center in Kansas City, Mo. The experiment included demonstrations of simulated satellite imagery, nearcasting, convective initiation, cloud top cooling, overshooting tops and cloud properties products, as well as a number of lightning datasets including the Pseudo Geostationary Lightning Mapper. Details of the experiment can be found on the [AWT blog](#).

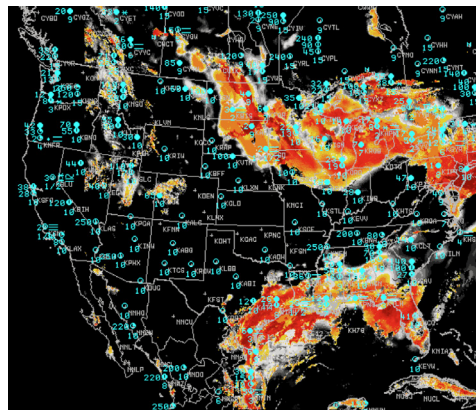


Convective initiation product demonstration during the AWT 2013 Summer Experiment. Credit: GOES-R Proving Ground

In an effort to promote more frequent communication with the user community about GOES-R science and demonstration activities, the GOES-R Series Program

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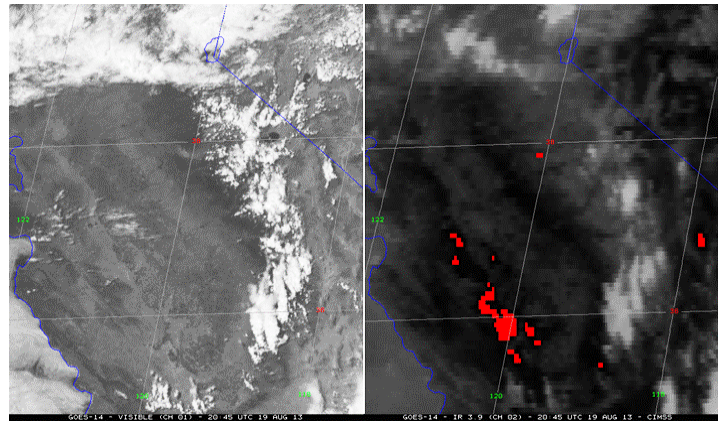
began providing semi-monthly virtual science seminars in July. The seminars allow scientists to highlight their recent work to the rest of the community. The inaugural seminar on July 26 focused on risk reduction and featured talks by Dan Lindsay from the NOAA Center for Satellite Applications and Research and Rebecca Cintineo and Jason Otkin from the Cooperative Institute for Meteorological Satellite Studies (CIMSS) at the University of Wisconsin-Madison. On September 27, Mike Pavolonis, NOAA/NESDIS Physical Scientist, and Paul Iniguez, San Joaquin Valley Weather Forecast Office Science and Operations Officer, spoke



about GOES-R Fog and Low Stratus (FLS) products. Presentations and audio recordings from the [seminars](#) can be found on the [GOES-R.gov](#) website.

The GOES-R FLS products were developed to improve upon the traditional FLS products. The GOES-R products work day and night and provide information even when multiple cloud layers are present. Credit: Mike Pavolonis (NOAA/NESDIS)

The GOES-14 imager completed a two-week Super Rapid Scan Operations (SRSO) experiment for GOES-R on August 28. After the experiment, GOES-14 was returned to a normal storage mode configuration with the instruments turned off. Many unique one-minute imagery datasets were acquired, including developing severe storms, fires (such as the Yosemite Rim Fire), smoke and fog. These data were used operationally at a number of national centers and will help forecasters better prepare for the new mesoscale imagery capability that will be available from the ABI on GOES-R. More information, images and animations can be found on the [CIMSS SRSO](#) page and [CIMSS blog](#).



GOES-14 visible (left) and Infrared (right) imagery of the Yosemite Rim Fire on August 27. Credit: CIMSS

Conferences and Events

The GOES-R Program Senior Scientist remotely participated as an invited speaker at the World Meteorological Organization Training Workshop on Nowcasting Techniques, which was held August 5–6 in Buenos Aires, Argentina. Steven Goodman, Ph.D., provided an overview and status of the GOES-R mission and highlighted capabilities of the GOES-R ABI and Geostationary Lightning Mapper (GLM).

The GOES-R System Program Director represented NOAA at the 2013 European Organisation for the Exploitation of Meteorological Satellites (EUMETSAT) Meteorological Satellite Conference September 16–20 in Vienna, Austria. Greg Mandt presented a status of current NOAA satellite activities and an update on the GOES-R Program.

The final report for the NOAA Satellite Conference was released on August 22. The report included summaries from each presentation, recommendations and user feedback, survey results and more. The [report](#) can be downloaded from the GOES-R.gov website.

The GOES-R GLM Science Team Meeting was held September 24–26 at the University of Alabama in Huntsville/ NASA Marshall Space Flight Center facility in Huntsville, Ala. A broad representation of research and operational scientists from NOAA/NESDIS, GOES-R, National Weather Service, Office of Atmospheric Research, NASA, Instituto Nacional de Pesquisas Espaciais (InPE Brazil), EUMETSAT, universities and NWS commercial data providers participated. Sessions and presentations addressed lightning science and forecast/warning applications, forecaster use of total lightning at the proving grounds, calibration/validation and proposed field campaigns (national and international) and training.

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National Weather Service Warning Decision Training Branch GOES-R Lead Jim LaDue discusses warning decision-making and training at the GLM Science Team Meeting. Credit: Steve Goodman

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