



JPSS

Joint Polar Satellite System



A collaborative mission between NOAA and NASA

www.jpss.noaa.gov



Harry Cikanek
Director

From Harry

As we reflect upon another successful year, we look forward to JPSS's continued progress in 2015 and beyond. 2014 marked tremendous strides. We passed the third anniversary of the launch of Suomi NPP. In just over three years of operations, we have seen continued excellent performance from the observatory, the ground, and the data product science. We also completed the integration of the first JPSS-1 instrument with the spacecraft and deployed the Block 2 ground hardware and full data product validation on almost all data products. These achievements represent the hard work and dedication of a highly capable, diverse, nationwide JPSS team. I appreciate all the efforts. If you haven't had a chance to read previous issues of the JPSS Newsletter, you can do so by clicking [here](#).

NOAA's JPSS Program Celebrates Three-Year Anniversary of Suomi NPP Launch

October 28, 2014, marked the three-year anniversary of the launch of the NOAA/NASA Suomi National Polar-orbiting Partnership (Suomi NPP) satellite from Vandenberg Air Force Base, California. On the anniversary of its launch, Suomi NPP had orbited earth 15,550 times. Since becoming operational, the satellite has improved the quality of weather and environmental observations from its five sophisticated instruments.

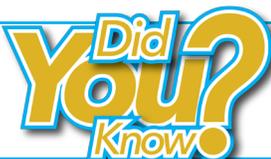
There are 122 NWS Weather Forecast Offices (WFOs) in the U.S., and JPSS, as a result of JPSS polar satellite data incorporation into NWS numerical weather prediction models, provides model data to all these locations. JPSS polar satellites are critical for weather forecasts beyond 48 hours and increase the consistency and accuracy of forecasts three to seven days in advance of a severe weather



Suomi NPP. Credit: NASA

event. These early warnings enable emergency managers to make timely decisions to protect American lives and property, including ordering effective evacuations.

Read about environmental data products derived from Suomi NPP as well as recent milestones and successes [here](#).



... The 2014 Science Digest has been released. The digest is a collection of technical articles generated from a series of monthly science seminars. Click [here](#) to read the 2014 Science Digest..

First Integration of a JPSS-1 Instrument with the Spacecraft

The Clouds and the Earth's Radiant Energy System (CERES) instrument that will fly on the Joint Polar Satellite System-1 spacecraft (JPSS-1), NOAA's next polar orbiting environmental satellite, has been successfully integrated with the spacecraft. CERES is the first JPSS-1 instrument to be integrated, marking the start of a new phase in the completion of the satellite's development. CERES was built by Northrop Grumman Aerospace Systems in Redondo Beach, California, and was shipped for integration to Ball Aerospace & Technologies Corp. in Boulder, Colorado.

CERES measures reflected sunlight and thermal radiation emitted by the Earth and builds on the highly successful legacy instruments flown on NOAA's previous Polar-orbiting Operational Environmental Satellites (POES) and NASA's Earth Observing System (EOS) missions. CERES data will help scientists and researchers continue to understand the links between the Earth's energy balance, both incoming and outgoing, and parts of the atmosphere that affect it. CERES' long-term satellite data will also improve observations of seasonal climate forecasts, including large-scale events like El Niño and La Niña.

"This is an exciting milestone for the JPSS program. CERES is the first JPSS-1 instrument to be integrated with the spacecraft and the others will be integrated in the coming year," said Harry Cikanek, JPSS Program Director. "We're on track to have JPSS-1 ready to launch by the 2nd quarter of FY 2017, enhancing NOAA's satellite fleet of polar-orbiting satellites that provide vital environmental



The CERES instrument is attached onto the JPSS-1 Spacecraft. Credit: Ball Aerospace and Technologies Corp.

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intelligence for the nation and the world."

The remaining four JPSS-1 instruments to be integrated with the spacecraft in 2015 are: the Ozone Mapping and Profiler Suite (OMPS), the Cross-track Infrared Sounder (CrIS), the Visible Infrared Imaging Radiometer Suite (VIIRS), and the Advanced Technology Microwave Sounder (ATMS).

Direct Broadcast Reception Site Completed in Miami

Latest Antenna to Directly Receive Suomi NPP Polar Satellite Data Now Installed.

As severe storms grow in frequency and cost, it is essential that weather forecasts continue to become even more accurate and timely. Polar-orbiting weather satellites provide data that enables forecasters to make more accurate predictions which can help save lives and protect property. On September 17, the Cooperative Institute for Meteorological Satellite Studies (CIMSS) installed a direct readout ground station at the NOAA Atlantic Oceanic and Meteorological Lab (AOML) in Miami, which will now receive data from polar-orbiting weather satellites as they pass overhead.

The Miami antenna is the fifth of six new polar satellite direct broadcast reception sites funded by [the Disaster Relief Appropriations Act of 2013](#)—commonly referred to as the Sandy Supplemental—to be completed. These sites are capable of receiving data from the sophisticated instruments on the NOAA/NASA Suomi NPP satellite as well as data from Japan Aerospace Exploration Agency's (JAXA) Global Change Observation Mission-Water (GCOM-W), all NOAA POES satellites, European Organisation for the Exploitation of Meteorological Satellites (EUMETSAT) Meteorological Operational (MeTOP) satellites, NASA EOS satellites, and all future JPSS satellites.

The antenna network comprises sites in Alaska, California, Florida, Hawaii, and Wisconsin, which cover all of North America provides reliable data to NOAA's National Center for Environmental Prediction. A future antenna site will be installed in Puerto Rico. JPSS uses the Disaster Relief Appropriations Act of 2013 funding to drive activity aimed at mitigating the impacts of a potential gap in environmental polar-satellite data. For example, the direct readout antennas will accelerate the speed with which forecasters receive data from the EUMETSAT MeTOP satellites when they pass overhead.

Given the Miami antenna's close proximity to the NWS's National Hurricane Center, tropical cyclone forecasters will have more rapid access to data that will enable them to forecast the hurricanes and tropical cyclones that frequent the Gulf and Caribbean areas. AOML will work to provide access to their data for the NWS Weather Forecast Office. This will allow them to evaluate the conditions for their local weather challenges and adjust their forecasts accordingly.

Direct broadcast antennas will continue to be a core capability to provide the data needed to meet the nation's environmental challenges. The new Miami antenna

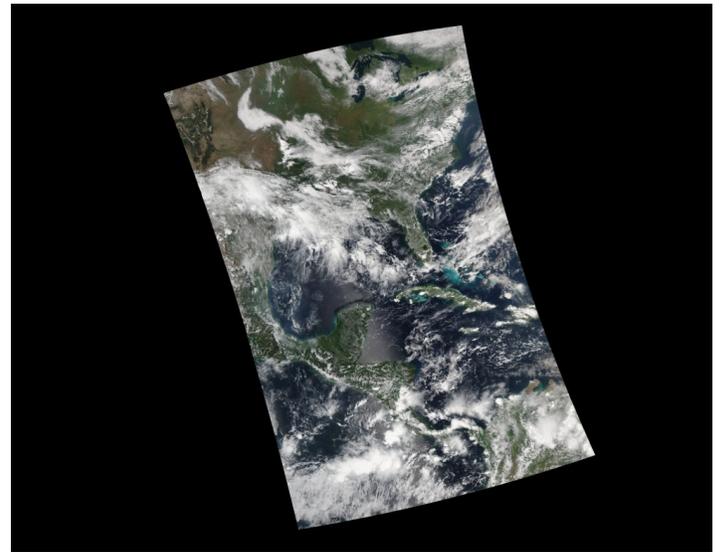
will provide an additional vital data source for the global database that is incorporated into our Nation's essential decision-making products to help secure a more "Weather-Ready Nation."

To learn more about The Disaster Relief Appropriations Act of 2013, visit http://research.noaa.gov/sites/oar/Documents/oarProgramOverview_SandySupplemental_CC.pdf

To learn more about the Cooperative Institute for Meteorological Satellite Studies, visit <http://cimss.ssec.wisc.edu/>.



NOAA Atlantic Oceanic and Meteorological Lab in Miami, Florida. Credit: CIMSS



First VIIRS true color imagery from the new direct readout station at AOML in Miami, Florida. Credit: CIMSS

Events and Conferences

2014 EUMETSAT Meteorological Satellite Conference

The 2014 EUMETSAT Meteorological Satellite conference reviews the status of current and future operational satellite missions and their applications for various societal benefit areas. The primary objective of STAR JPSS participation was to provide and update of the status of terrestrial product development, including active fire products, from the Suomi NPP satellite. EUMETSAT is a critical international partner through the joint operation of satellite constellations. Through presentations as well as individual interactions STAR, JPSS team members promoted the use of Suomi NPP data as the primary operational NOAA satellite on the afternoon orbit. Copies of the JPSS STAR presentations can be found at: <http://www.star.nesdis.noaa.gov/jpss/meetings2014.php#S781370>.

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SPIE Asia-Pacific Remote Sensing Conference

Ocean Color (OC) team members presented three JPSS-related papers at the 9th Annual Society of Photographic Instrumentation Engineers (SPIE) Asia-Pacific Remote Sensing 2014 Program in Beijing, China, on October 13-16, 2014. The program focused on "Remote Sensing for Earth System Science and Environmental Health Monitoring." The scope of the symposium encompasses: Earth system science in energy, water, and biochemical cycles; global change mapping; prevention and mitigation of disaster; and management of natural resources. Copies of the papers can be found at: <http://spie.org/asia-pacific-remote-sensing.xml>.

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Maryland Space Business Roundtable

On November 12, 2014, Harry Cikanek, NOAA Joint Polar Satellite System Director, was invited to present the keynote address on "NOAA Satellites and the Weather

Enterprise: Focus on JPSS." The Maryland Space Business Roundtable (MSBR) is an organization that encourages the growth and development of aerospace-related business in Maryland. The presentation detailed the JPSS program as well as its critical contributions.

Interesting Images

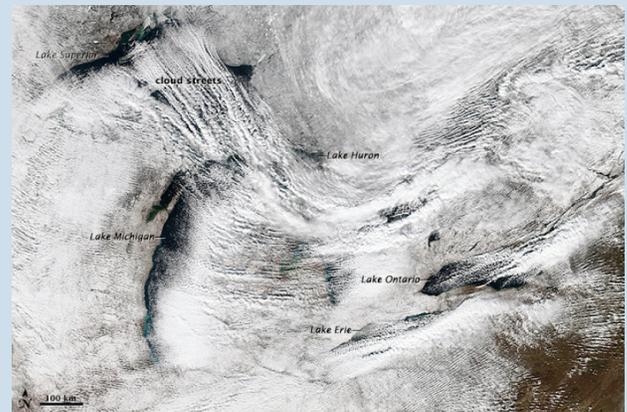
JPSS-1 Spacecraft is Mated with Propulsion Tank

On October 3, 2014, NOAA's next polar-orbiting environmental satellite, JPSS-1, was successfully joined with its propulsion tank. The tank contains the fuel for the propulsion system that will be used after launch to send the satellite into its operational orbit. Once on orbit, the thrusters may also periodically be used to maintain the orbit and for collision avoidance maneuvers. The JPSS-1 satellite propulsion tank is also covered in a protective material to defend against penetrating orbital debris in space.



Major Lake Effect Snow Event

Cold arctic air (surface air temperatures in the upper teens to lower 20s F) flowing across the still-warm waters of Lake Erie and Lake Ontario were two ingredients that helped create a major lake effect snowfall event on November 18, 2014, in this VIIRS visible image with surface analysis. Storm total snowfall amounts were as high as 65 inches in Erie County, New York (NWS Buffalo Public Information Statement). The band over Lake Erie was nearly stationary for several hours, producing snowfall rates as high as four inches per hour at some locations just south of Buffalo, New York.



Mobile Apps

NOAA's academic partner, the Space Science and Engineering Center (SSEC) at the University of Wisconsin-Madison, has developed two mobile apps for iPhones that bring the ability to see and capture satellite data to mobile users' fingertips. The [SatCam](#) app allows mobile users to capture observations of sky and ground conditions at the same time that an Earth observing satellite is overhead. The [WxSat](#) (short for Weather Satellite) app displays and animates full-resolution, real-time weather satellite data. [WxSat](#) leverages the SSEC Data Center holdings to provide global coverage for visible, infrared, and water vapor channels.

