



JOINT POLAR SATELLITE SYSTEM PROGRAM **NEWSLETTER**

2017 • QUARTER #2



FROM GREG

As we move towards launch, all eyes are on the prize. The spacecraft is in final testing at the Ball Aerospace facility in Boulder, CO and then will head to Vandenberg Air Force Base for checkout and pairing with the payload fairing and launch vehicle.

This quarter saw a successful review of our Proving Ground and Risk Reduction initiatives, wherein our user community and scientific and technical experts work together to improve the acquisition and applications of the JPSS data. It has also been a busy time of the year for JPSS users, as the data has been used to monitor flooding and forest fires, two natural phenomenon

that have devastated the nation and the world in recent months. The necessity of polar weather satellites is more evident now than ever, so it is with great excitement we prepare for the launch of JPSS-1, providing continuity of this life-saving data.

To learn more, you can read previous issues of the JPSS Newsletter [here](#).

ANNUAL INITIATIVE, FOCUS AREA AND PROJECT REVIEW

Many people think that weather satellites measure rainfall, but in fact satellites record environmental data, including cloud top temperature and water vapor, and advanced models then turn them into anticipated rain and snowfall rates.

The process of transforming raw satellite data into useful products is complex and always being improved by the JPSS [Proving Ground and Risk Reduction](#) (PGRR) team, which recently completed the 2017 PGRR Project Review, held May 23–25 at the Earth System Science Interdisciplinary Center at the University of Maryland.

Established in 2012, PGRR represents the bridge between the technical and societal aspects of JPSS. Its primary objective is to enhance user applications of Suomi NPP/JPSS data, algorithms and products. The PGRR team connects different levels of the NOAA network: from systems to services to stakeholders, to enhance communication, engagement and satisfaction.

To accomplish this, the PGRR team focused on topics including hydrology, river ice and flooding, the Arctic, oceans and coasts, fires and smoke. PGRR also maximizes the use of JPSS data through training and innovation. The team is comprised of JPSS scientists and engineers as well as members of the end-user communities such as the National Weather Service (NWS) Weather Forecasting Offices and the National Ocean Service. These users play a critical role in providing feedback on the utility and quality of the data. They also meet regularly to discuss current applications of JPSS data and how to improve them, and then smaller application-focused groups evaluate how to implement those changes.



The JPSS Program established a comprehensive review process for the initiatives which is critical to provide effective oversight of PGRR efforts. May's multi-day event included presentations from seven initiatives as well as 14 dedicated focus areas and key projects. Each group presented their objectives, key milestones, user engagement strategies and status and significant accomplishments. Review teams and evaluation criteria were established and reviewers were selected based on their technical expertise. Review teams worked together to combine their feedback into a single set of remarks to be provided to the project teams.

From this review it was clear that the PGRR teams have demonstrated several successes helping NWS users to leverage JPSS capabilities to support key areas including weather, fires and flooding. River ice is a significant threat in Alaska where ice can dam and flood a river quickly. PGRR products are used to track ice and flooding conditions in this area and proved valuable in helping [residents respond to a flooding event](#) on the Yukon River in May 2013 and have been in use during Alaskan spring ice break-up ever since. Additionally, the U.S. Army Corp of Engineers used JPSS data in their decision-making in response to Midwest flooding in January 2016 and March 2017.



Smoke from the Fort McMurray fire was swept up into a cyclonic spin over northern Canada.

The Fire and Smoke team described how they were able to build on their success evaluating products during the Fort McMurray fire in Alberta, Canada in May 2016. Imagery from the Visible Infrared Imaging Radiometer Suite (VIIRS) was able to help differentiate the fire line from the city lights of Fort McMurray. VIIRS Day/Night Band imagery showed the fire progression in consecutive nights and how the smoke was moving into the continental U.S. The team used its visualization products to show at what levels the smoke was present and its fire model to project the smoke's movement. These capabilities are now available for fire weather support personnel in Alaska and the NWS Western Region as they prepare for their 2017 fire seasons.

In addition to the NWS, the National Ocean Service and the National Marine Fisheries Service also benefit from JPSS data products. For example, sea surface temperature is a critical measurement for [coral reefs](#) and is measured twice daily for the entire globe by the VIIRS instrument. This data product, as well as ocean color and nighttime maps, helps us protect the health of the marine environment on short- and long-term timescales. Ocean and coastal products from JPSS were received well by reviewers for these projects.

Polar-orbiting satellites provide data that is both scientifically interesting and beneficial to society. The JPSS Program helps NOAA serve society by providing important weather and environmental monitoring capabilities and supporting the development of a "Weather-Ready Nation." The periodic review of the PGRR projects has proven to be critical in the road to ensure the long-term success of the JPSS Program.



For the latest news, check out the dedicated JPSS-1 launch page at www.nesdis.noaa.gov/jpss-1



MEET THE TEAM: WILLIAM STRAKA III

Researcher, Cooperative Institute for Meteorological Satellite Studies/Space Science & Engineering Center



Q: How and why do you use JPSS data?

A: I use JPSS data in a variety of ways. I work on integrating and developing algorithms for the JPSS Enterprise Framework. In addition, I analyze imagery from the VIIRS instrument, in particular the Day/Night Band (DNB), from around the world, using a visualization and data analysis software package developed at the University of Wisconsin-Madison Cooperative Institute for Meteorological Satellite Studies called McIDAS-V. While I look at the data very often, I keep an eye out on features of interest and scientific phenomena. I collaborate with Steve Miller at Colorado State University Cooperative Institute for Research in the Atmosphere, primarily looking at features in the nightglow signal from the mesosphere (~75–90km above the Earth), which can be seen when the moon is not out. The DNB has extended the paradigm of visible light imagery and applications to the nighttime side of the Earth.

Q: How does your work with JPSS help lives and the economy?

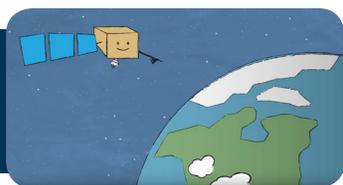
A: The algorithms produced by the enterprise processing system will be available for use by a wide variety of users. The imagery I provide is used by various groups in public outreach, educating the public about various significant weather and anthropogenic events. In addition, we hope that the research into the measurements of the gravity waves in the mesosphere will help our understanding of the energy balance of the atmosphere.



Ahead of launch, NOAA and NASA hosted an event to showcase the JPSS-1 spacecraft and instrumentation to social media gurus. Twenty-five writers, bloggers, videographers, teachers, artists and meteorologists attended the JPSS social on June 19, 2017 in Boulder, Colorado.

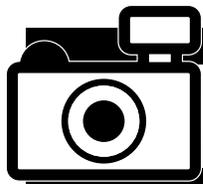
The day started with a tour of the NOAA facilities including the Space Weather Prediction Center and the National Weather Service for the Denver area, presentations by the Ozone and Water Vapor Group and the National Centers for Environmental Information, and demonstrations of JPSS data on the original Science On A Sphere display. After lunch, participants were given in-depth presentations about the JPSS-1 mission by the Program Director, Gregory Mandt, and the JPSS-1 Program Manager from Ball Aerospace, Alex Chernushin, and were able to interact with technical and scientific mission experts.

Social media participants posted about JPSS before, during and after the event using the hashtag designation #JPSS1. Reviews and post-event coverage, from several points of view, include articles, podcasts and videos, can be found online using this hashtag. We thank all of the participants, speakers and experts for a successful and exciting day.

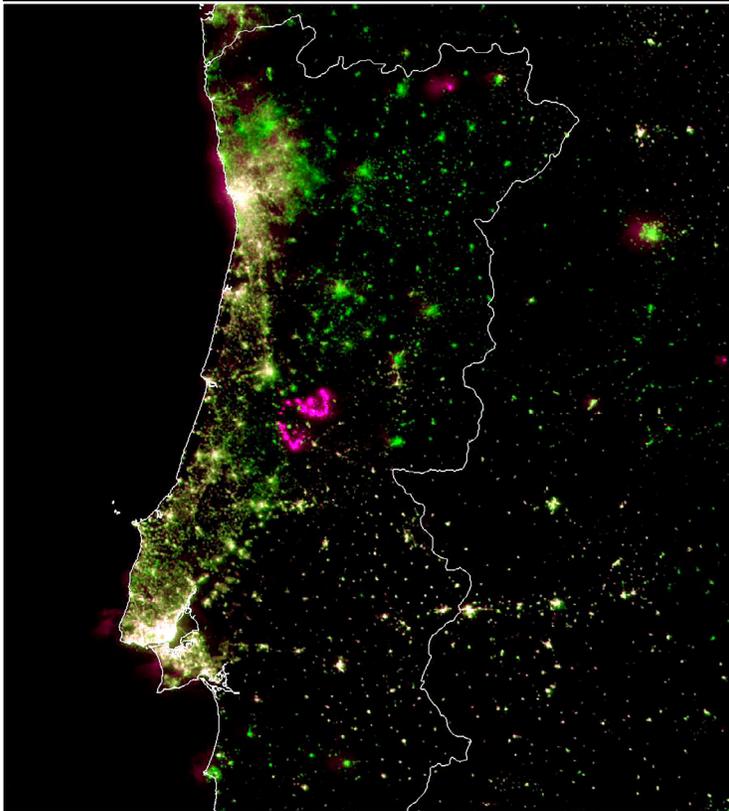


Learn about the ways JPSS serves the environment and the public with this great *animated video* from the SciJinks team!





INTERESTING IMAGES



◀ FIRES RAGE IN PORTUGAL

Portugal's Civil Protection Agency stated that about 2,400 firefighters and 24 water-dropping aircraft were fighting the deadly wildfire around the area of Pedrógão Grande, which was raging for a third consecutive day about 150 kilometers (90 miles) north of Lisbon. In some areas, the wildfires were gradually ebbing and being contained, according to Portugal's Secretary of State for the Interior. However, a new fire near Góis, about 20 km from Pedrógão Grande was growing "very fast and very explosive" and had forced the evacuation of 11 hill villages.

Both fires are still evident in the images taken by the Day/Night Band of the VIIRS instrument on the NOAA/NASA Suomi NPP satellite as the spacecraft passed over Portugal on June 19. In the infrared bands, the fires are intense enough to have a signature in the I05 channel (fuchsia color), though not enough for the I04 band to be saturated out.

Credit: [NOAA/NASA](#)

RECORD FLOODING ► IN THE SOUTHEAST

This true-color image from the VIIRS instrument aboard the NOAA/NASA Suomi NPP satellite shows the massive storm system that tore through the Mississippi Valley and Southern Plains states on April 29 and 30, 2017.

According to several media reports, strong storms erupted over parts of the Southern Plains and Mississippi Valley. A variety of media outlets reported the storms caused the deaths of at

least 13 people, produced widespread heavy rain resulting in flash floods, high winds that downed trees and left thousands without power, a late-season blizzard in Kansas and several tornadoes.



Credit: [NOAA/NASA](#)