

# National Environmental Satellite, Data, and Information Service (NESDIS) January 2015 Newsletter



## Operations – New England Blizzard

### True-Color Imagery and Weather Forecasting

The January 26-28 blizzard impacting nearly 30 million residents from the mid-Atlantic to Maine left upwards of 3 feet of snow in parts of southern New England. The image below, as viewed from the Visible Infrared Imager Radiometer Suite (VIIRS) instrument on-board the NOAA/NASA Suomi NPP satellite, was taken on January 28 and depicts the new snow cover that resulted from the blizzard. The JPSS-1 satellite will continue the observations started by the Suomi NPP satellite. The VIIRS true color imagery will allow analysts at NOAA's National Ice Center to more accurately map the distribution of snow and ice, an important input into the forecast models, allowing forecasters at NOAA's National Weather Service to more accurately disseminate forecasts and warnings.



## Image of the Month



### Bitter Cold Rings in the New Year for Eastern U.S.

This image was taken on the morning of January 8, 2015 by the Day/Night Band of the VIIRS instrument on board the NOAA/NASA Suomi NPP satellite. A storm that brought rare snow to Southern California and the Southwest continued to spread across the eastern United States. This image captured a fairly clear view of portions of the eastern United States. The image highlights the snow on the ground, and major cities are also evident. As of January 13, 2015, total [ice cover of the Great Lakes](#) was estimated to be 29.3%.

For more great satellite imagery please visit the [NOAA Environmental Visualization Laboratory](#).

## Spotlight – Weather and Climate in 2014

### Billion Dollar Weather and Climate Events in 2014

The National Climatic Data Center (NCDC) tracks and evaluates climate events in the United States (U.S.) and globally that have great economic and societal impacts. NCDC is frequently called upon to provide summaries of temperature and precipitation trends, extremes, and comparisons in their historical perspective.

The U.S. has sustained 178 weather and climate disasters since 1980 where overall damages/costs reached or exceeded \$1 billion. The total cost of these 178 events exceeds \$1 trillion.

In 2014, there were eight weather and climate disaster events with losses exceeding \$1 billion each across the U.S.. These included the western U.S. drought, the Michigan and Northeast flooding event, five severe storm events, and one winter storm event. Overall, these events resulted in the deaths of 53 people and had significant economic effects on the areas impacted.

U.S. 2014 Billion-Dollar Weather and Climate Disasters



## Message from Dr. Stephen Volz

### Assistant Administrator for NESDIS

Happy New Year! 2015 has been off to a busy start.

In early January I, along with many of my NOAA colleagues, attended the American Meteorological Society Annual Meeting in Phoenix, Arizona. This year's theme was "Fulfilling the Vision of Weather, Water, and Climate Information for Every Need, Time, and Place." The meeting urged participants to collaborate and innovate to develop - and ultimately deliver - actionable, user-specific weather, water and climate information. Dr. Kathryn Sullivan, Administrator of NOAA, delivered the [keynote address](#), and presentations given by NESDIS employees focused on [Science on a Sphere](#), [NOAA View](#), and overviews of the [JPSS](#) and [GOES-R](#) programs.

The FY 2016 President's Budget Request is expected to be released on February 2. We look forward to meeting with you to discuss our budget priorities for the next fiscal year, so please stay tuned!

[www.nesdis.noaa.gov](http://www.nesdis.noaa.gov)

# GOES-R Proving Ground

In our November 2014 Newsletter, we introduced you to the JPSS Proving Ground. This month we focus on the [GOES-R Proving Ground](#) in which simulated GOES-R products are being tested and evaluated before the GOES-R satellite is launched in the 2Q FY 2016.

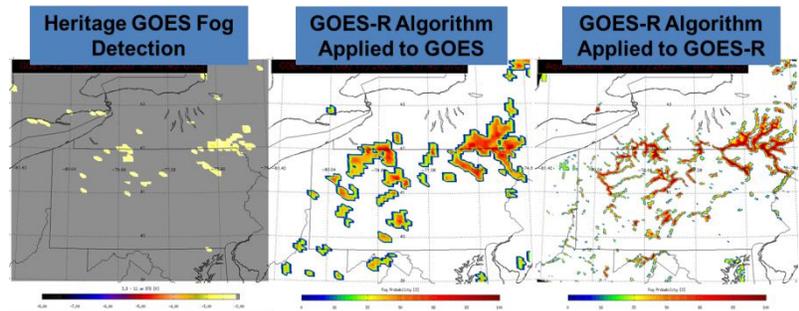
The Proving Ground was established to realize the benefits of the GOES-R system as soon as the satellite is launched and operational. The Proving Ground engages the National Weather Service (NWS) forecast and warning community in preoperational demonstrations of selected capabilities anticipated from GOES-R. The Proving Ground facilitates research-to-operations with the principal focus being on the forecaster/AWIPS-II environment; getting real-world experience by leveraging existing resources, and evaluating GOES-R products for tailoring. The Proving Ground also engages NOAA Cooperative Institutes, Federal agencies, and other operational environments in pre-operational demonstrations with the objective to bridge the gap between research and operations by:

- Utilizing current systems (satellite, terrestrial, or model/synthetic) to emulate future GOES-R capabilities;
- Infusing GOES-R-like products and techniques into NWS operations with emphasis on AWIPS and transitioning to AWIPS-II;
- Engaging in a dialogue to provide feedback between developers and users.

The simulated GOES-R products are generated using combinations of currently available geostationary data, along with higher resolution data provided by instruments on polar-orbiting satellites such as MODIS on NASA's Aqua and Terra satellites as well as model synthetic satellite data. Many of the GOES-R products will be aimed at monitoring severe weather and helping forecasters issue earlier, more accurate severe weather warnings.

One of the future GOES-R products that are already demonstrating its usefulness in the Proving Ground is the GOES-R Fog & Low Stratus Product. This product will significantly improve geostationary satellite fog monitoring capabilities through:

- 1) Algorithm technology - the GOES-R algorithm provides quantitative information on fog probability, while heritage GOES fog detection products are more qualitative in nature. See below for an example of the enhancements.
- 2) Sensor technology - the Advanced Baseline Imager (ABI) will greatly improve spectral information, spatial resolution, and temporal resolution



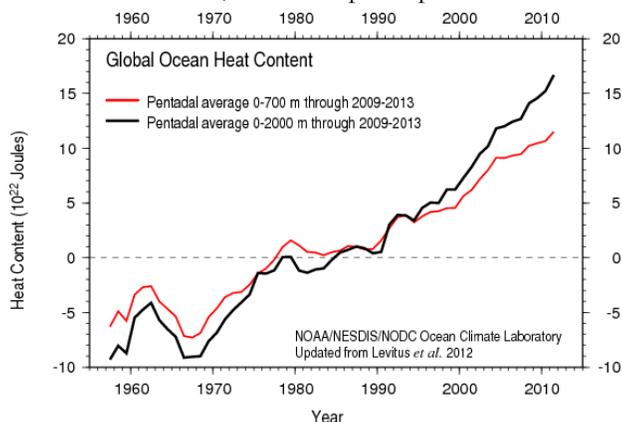
The following entities are involved in the GOES-R Proving Ground activities:

- [National Centers for Environmental Prediction](#)
- [Short-term Prediction Research and Transition Center](#)
- [Cooperative Institute for Climate and Satellites](#)
- [Cooperative Institute for Alaska Research](#)
- [Cooperative Institute for Mesoscale Meteorological Studies](#)
- [Cooperative Institute for Meteorological Satellite Studies](#)
- [Cooperative Institute for Research in the Atmosphere](#)
- [Cooperative Institute for Research in Environmental Sciences](#)
- [Joint Institute for Marine and Atmospheric Research](#)
- [Joint Institute for the Study of the Atmosphere and Ocean](#)

## National Environmental Information Office (NEIO) Highlights

### National Oceanographic Data Center (NODC)

Researchers at NOAA's NODC have documented the increase in the heat content of the world's oceans from 1955 through 2013 by compiling data from millions of temperature observations. Results have shown that about 80-90% of the heat has been absorbed by the world's oceans. As you might expect, the world's oceans have therefore become warmer, even at depths up to 2000 meters.



For additional information, please contact Sierra Jones at (202) 482-6140 or at [Sierra.Jones@noaa.gov](mailto:Sierra.Jones@noaa.gov)

### National Geophysical Data Center (NGDC)

The NGDC Marine Geophysics Division participated in the Arctic Task Force meeting in Seattle, Washington this month. The goal of the meeting was to strengthen Arctic coordination and planning across NOAA. Key areas of emphasis were energy development, transportation and economic development, and climate change impacts. NGDC and the NOAA-University of Colorado National Snow and Ice Data Center in Boulder, CO provide data stewardship and scientific product development related to seafloor mapping, navigation, coastal flooding, and sea ice extents and maxima.

### National Climatic Data Center (NCDC)

Together with the National Drought Mitigation Center, the National Integrated Drought Information System, and the American Association of State Climatologists, NCDC announced the release of a new [Drought Assessment](#). Entitled "from too much to too little," the central U.S. drought of 2012 evolved out of a devastating flood in 2011 and the report identifies how the drought developed, progressed, and impacted the region, and how different states responded to the challenge.