

NESDIS NEWS

National Environmental Satellite, Data, and Information Service

August 2016

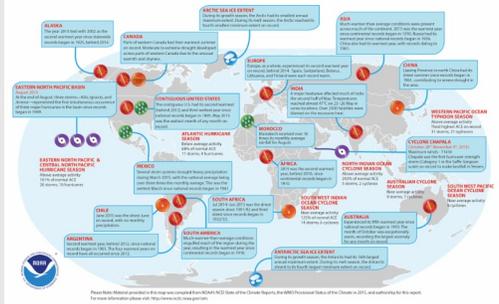


Following years of preparation, the GOES-R satellite was shipped on August 22, 2016 from Lockheed Martin in Littleton, Colorado, to Kennedy Space Center in Cape Canaveral, Florida, on board an U.S. Air Force C-5 transport aircraft. It arrived in Florida at 3:16 pm on August 22, 2016. In the image above, the GOES-R satellite is being removed from the C-5 at Kennedy Space Center. Once unloaded, the GOES-R satellite will be taken to the commercial Astrotech processing facility in Titusville, Florida. It will be unboxed from its shipping container for the start of final testing, fueling, and encapsulation. Earlier in August, the GOES-R ground support equipment was packed for shipment and sent to Astrotech where the test team ensured that the ground support equipment was set up and ready to receive the GOES-R satellite. The GOES-R satellite is planned for launch on November 4, 2016 at 5:40 PM. Liftoff is aboard an United Launch Alliance Atlas 5 rocket. GOES-R will be renamed as GOES-16 once it reaches geostationary orbit. Please visit [here](#) for a photo story on the delivery of GOES-R to Florida.

DID YOU KNOW?

Spectrum and Environmental Observations

Access to radio frequency (RF) spectrum is vital to NOAA's mission. Data transmission over spectrum



[Selected world events from the State of the Climate in 2015 report](#) (Credit: NOAA/NCEI)

An annual [State of the Climate](#) report has confirmed that 2015 surpassed 2014 as the warmest year on record since at least the mid-to-late 19th century.

Last year's record heat resulted from a combination of long-term global warming and one of the strongest El Niño experienced since at least 1950. Scientists also found that most indicators of climate change continued to reflect trends consistent with a global warming.

Other notable findings include:

- 1) Greenhouse gases were the highest on record.
- 2) Global surface temperature was the highest on record.
- 3) Sea surface temperature was the highest on record.
- 4) Global sea level rose to a new record high in 2015.
- 5) Global upper ocean heat content highest on record.
- 6) Tropical cyclones were well above average, overall.
- 7) The Arctic continued to warm; sea ice extent remained low.

The report is compiled by NOAA's [Center for Weather and Climate](#) at the [National Centers for Environmental Information](#), and is based on contributions from over 450 scientists from 62 countries around the world. The State of the Climate is a peer-reviewed publication published as a supplement to the [Bulletin of the American Meteorology Society](#).

Record Rainfall

The U.S. Climate Reference Network (USCRN) station in Lafayette, Louisiana recorded an all-time record two-day storm total of 22.89 inches from August 11-13, 2016.

This was also the largest two-day total in the conterminous United States, exceeded only by a two day event at the USCRN station in Hilo, Hawaii, of 26.29 inches recorded in February 2008.

The total at Lafayette, Louisiana also exceeded the 13-year station history

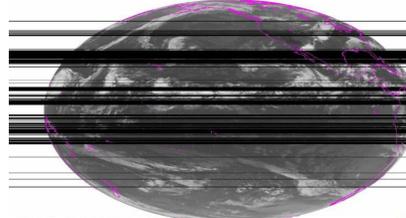
is critical to nearly all facets of the environmental information we gather. Every NOAA satellite currently in orbit uses some portion of the RF spectrum to communicate with the ground or other satellites.

24 hours a day, seven days a week, our satellites use a specially designated portion of the spectrum to beam back their vital observations. These observations are used to create accurate daily weather forecasts as well as monitor and predict dangerous weather phenomena such as tornadoes, hurricanes, flash floods, volcanic eruptions, and fast moving wildfire.

But there's a problem. Spectrum is a finite physical resource, and there is only so much of it to go around.

As the commercial demand for spectrum grows, frequencies currently used for satellite transmission are being proposed for reallocation to companies and other private entities. This can lead to serious problems when more powerful signals from commercial satellites interfere with the less powerful meteorological satellite signals. When this happens, it becomes very difficult to receive a complete satellite signal, risking the loss of crucial satellite data. By impacting NOAA's ability to provide real-time environmental observations, radio frequency interference will affect millions of users across the nation.

Please read [here](#) to learn more about radio frequency spectrum, the importance to the NOAA mission, and current issues and concerns.



This image was taken on August 17, 2015. The black areas in the image are areas in which weather observations were lost due to spectrum interference during the testing of the 1675 to 1680 MHz.

Argos DCS: Caribou and Climate in Northern Alaska

[NOAA's Argos Data Collection and location System \(DCS\)](#) is a data collection and relay program that provides global coverage and platform location.

The [system](#) consists of *in situ* data collection platforms equipped with sensors and transmitters and the Argos instrument aboard polar-orbiting satellites. This permits worldwide coverage for a wide variety of applications such as monitoring drifting ocean buoys and studying wildlife migration paths.



A caribou stag backdropped by Mt McKinley in the Denali National Park, Alaska. Credit: Kim Heacox/M.Nieman

In one example, the U.S. Geological Survey and Alaska Department of Fish and Game are collaborating on studies to assess resource selection and space use of adult female caribou from the Central Arctic Herd relative to weather variables and the phenology of forage quality and abundance throughout the summer growing season.

Climate change is affecting caribou populations by altering the

maximum monthly total of 18.88 inches, set in June 2003. The month-to-date total for August in Lafayette is now at 25.07 inches.

SARSAT Saves

The [Search and Rescue Satellite Aided Tracking](#) system detects and locates mariners, aviators, and recreational enthusiasts in distress. The satellites relay distress signals from emergency beacons to a network of ground stations and ultimately to the U.S. Mission Control Center in Suitland, Maryland. The Center processes the distress signal and alerts the appropriate search and rescue authorities to who is in distress and where they are located.

Select recent SARSAT rescues:

1) On August 15, 2016, the signals from two electronic locator transmitters (ELT) were detected approximately 10 nautical miles south of Kingsville, Texas. The ELTs were activated when an instructor and student pilot ejected from a T-45 trainer jet. The signal was received by NOAA's Satellite Operations Facility in Suitland, Maryland, and was sent to the Air Force Rescue Coordination Center, (AFRCC) who contacted the Naval Air Station Kingsville which received a MAYDAY from the pilots prior to the ELTs being activated. The position generated from the SARSAT alert was relayed from the AFRCC to the local Sheriff's office who located the pilots at the SARSAT coordinates and transported them to a medical facility for evaluation.

2) On August 15, 2016, the signal from an emergency position-indicating radio beacon (EPIRB) was detected approximately 36 nautical miles offshore from Toms River, New Jersey. The EPIRB was activated when the F/V Gertrude, with three people on board, was taking on water and eventually sank. The signal was received by NOAA's Satellite Operations Facility in Suitland, Maryland, however, the Coast Guard District 1 had received a DSC alert as well as a radio distress call prior to the EPIRB activation. The Coast Guard District 1 issued an Urgent Marine Information Broadcast (UMIB) and launched an aircraft and patrol boat to the position indicated by the SARSAT alert. A good samaritan vessel responding to the UMIB arrived on scene and rescued all three people from a life raft.

Select Publications

1) A scientist from [NOAA's National Centers for Environmental](#)

quality of growing season habitats in the Arctic. Current declines of caribou on the North Slope are amplifying concerns of climate-mediated effects on habitat quality, yet, the direction and magnitude of realized effects for this species are uncertain. The ability of caribou populations to remain abundant in the Arctic will depend, in part, on the resilience of individuals to survive and reproduce despite environmental changes.

With data from a sample of 30 adult females fitted with ARGOS/GPS collars, the capacity of free-ranging caribou to cope with the projected effects of climatic shifts over the next several decades on their summer habitats will be estimated. For more, please visit [here](#).

NOAA Signs Arrangement with EUMETSAT for Sentinel-3 Data

NOAA's Office of Satellite Products and Operations have signed a Technical Operating Arrangement with the European Organisation for the Exploitation of Meteorological Satellites (EUMETSAT) on Sentinel data sharing.



The Technical Operating Arrangement covers NOAA and EUMETSAT cooperation on the [Sentinel-3 Earth observing satellite constellation](#), as well as methods for NOAA to receive Sentinel-3 data. Similar to arrangements with the European Space Agency, this Technical Operating Arrangement grants NOAA near-real time operational access to all Sentinel data under the Copernicus program.

The most complex of all the Sentinel satellites, the [Sentinel-3 mission](#) is based on a constellation of two satellites, both orbiting Earth at an altitude of 814.5 km. [Sentinel-3A](#) was launched on February 16, 2016, and began operations on July 13, 2016. Sentinel-3B is preparing for launch in 2017.

Sentinel-3 is owned by the European Commission, operated by EUMETSAT, and provides sea and land surface temperature, ocean and land color, and ocean altimetry data. NOAA will use Sentinel-3 data to monitor ocean health, ocean heat content, and other important applications, and will distribute Sentinel-3 data to other users within the United States.

Satellite Image Shows Nearly Ice-Free Northwest Passage

[Information](#) recently co-authored an article in the Space Weather Journal, titled [The May 1967 great storm and radio disruption event: extreme space weather and extraordinary responses](#).

The article details the events of late May 1967 in the intersecting categories of solar-terrestrial interactions and the political-military backdrop of the Cold War. The authors explain how the May 1967 storm was nearly one with ultimate societal impact, were it not for the efforts of the United States Air Force in expanding its terrestrial weather monitoring-analysis- warning-prediction efforts into the realm of space weather forecasting.

NESDIS in the NEWS

You can find the most recent editions of **NESDIS Newsletters** [here](#).

SpaceFlight Now

[Sophisticated New U.S. Weather Observatory Being Readied for Launch](#)

Nature

[Mobile phone expansion could disrupt key weather satellites](#)

Sat PR News

[GOES-3 satellite decommissioned after linking Antarctica to the world for more than 20 years](#)

The Hill

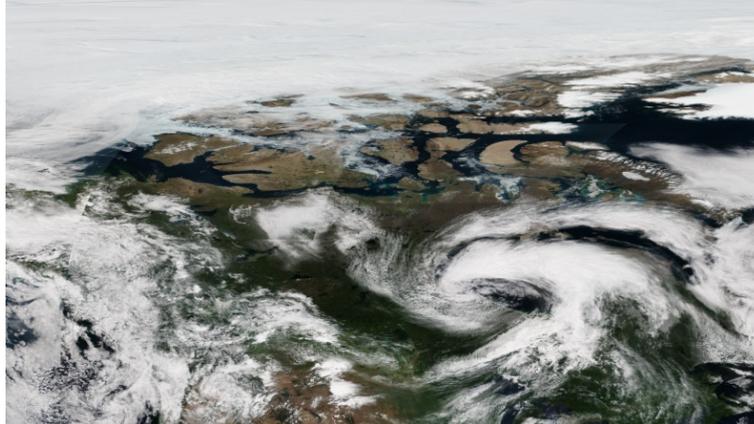
[July was hottest month on record, scientists say](#)

Motherboard

[Every Month This Year Has Been the Hottest in Recorded History](#)

MarineLink.com

[NOAA's Beacon Registraion Surpasses Half Million](#)



On August 9, 2016, the VIIRS instrument aboard the NOAA/NASA Suomi NPP satellite captured this true-color image of the Northern Hemisphere featuring a nearly ice-free Northwest Passage (NWP).

The NWP is a collection of possible shipping routes through the Canadian Arctic that allows for the transport of goods between Europe and Asia. The route is 9,000 kilometers (km) shorter than the route through the Panama Canal and 17,000 km shorter than the route around South America's Cape Horn.

For the first time in recorded human history, the Northwest Passage may become a useful shipping route during Arctic summer. This new reality will have impacts not only on the environment, but also on the world economy and national security, as nations compete to gain rights to shipping lanes and newly accessible resources in the Arctic.

Climate scientists are particularly concerned about the decrease of sea ice because its white surface reflects up to 80 percent of incoming sunlight, deflecting additional energy away from the planet. With less ice present, the dark surface of ocean water absorbs considerably more solar energy, leading to further warming of the atmosphere and more melting of ice, which leads to further warming. Scientists are actively studying the effects of this positive feedback loop to help them understand and predict how the observed decrease in Arctic sea ice will affect the global climate system.

Message from Dr. Stephen Volz

Assistant Administrator for NESDIS

I am proud to share with you the [2016 NESDIS Strategic Plan](#).

For the first time in several years, NESDIS has taken the time to critically assess its current state and chart a course for the future. The intent is for this plan to serve as a long-term vision for NESDIS, establishing strategic direction and scope for the organization and its activities for the next five years.



At the heart of the plan are three principles of commitment, community, and capability that embody the six facets of our new, agile organization.

NESDIS is dedicated to achieving six mutually supportive goals:

- The continuity of products and services that the Nation

relies on.

- Assuring the quality, accuracy, and preservation of the Nation's environmental data.
- Planning an integrated observing system that can adapt as new conditions and capabilities emerge.
- Creating use-inspired science that yields new and better information products and services.
- The development and retention of an agile, expert workforce.
- Maintaining and fostering strong, effective partnerships.

While NESDIS has already begun taking steps toward achieving these goals, there is still much work to do. The development and release of this strategic plan is only the first step in a multi-step process in preparation for the future. NESDIS is currently developing an implementation plan to guide the organization through the implementation process.

In addition, we are now accepting nominations for the [2017 NOAA-David Johnson Award](#) for Outstanding Innovative Use of Earth Observation Satellite Data.

The award, presented by the National Space Club, is given annually to young professionals who have developed an innovative application of Earth observation satellite data.

Nominations are due to NOAA by September 30, 2016. To make a nomination, click [here](#).

I thank Congress for your continued support of our important work. Please contact Sierra Jones at 202.482.6140 or sierra.jones@noaa.gov if you have any questions regarding NOAA's [NESDIS](#), or would like to set up a meeting.

STAY CONNECTED



www.nesdis.noaa.gov