

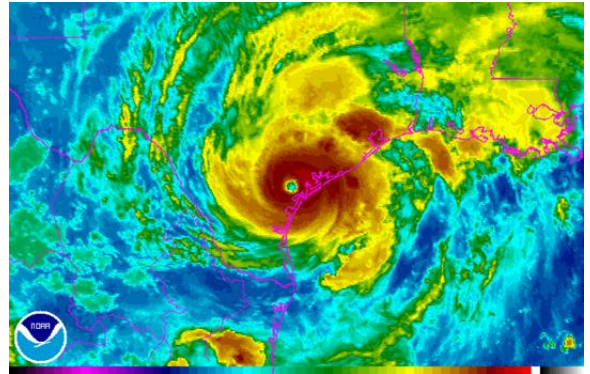


# NOAA's National Weather Service

## Evolving to Build a Weather-Ready Nation

The National Oceanic and Atmospheric Administration's (NOAA's) National Weather Service (NWS) is the Nation's official source for weather, water, and seasonal data, forecasts and warnings to protect life and property and enhance the economy. From information accessed on smartphones to weather broadcasts provided by local television stations – the forecasts and warnings that people, businesses, and communities trust and rely on come from NWS. NWS is committed to making the United States a Weather-Ready Nation, where all communities are prepared for and able to respond to extreme events, including hurricanes, tornadoes, wildfires, winter storms, flash floods, as well as dangerous heat and cold, droughts, and solar storms and geomagnetic activity.

NWS collects data using satellites, Doppler radars, data buoys, weather balloons, aircraft, and surface observing systems. These data feed sophisticated environmental prediction models running on powerful supercomputers. The dedicated NWS workforce uses advanced technology to understand the environment and produce timely and accurate life-saving weather and water forecasts and warnings, and provide decision support to our partners in every county, every day. More than 4,000 employees around the country constitute a local, regional, and national prediction and service delivery capability unmatched anywhere.



An interred image of Hurricane Harvey as it made landfall along the Texas coast.

Destructive and deadly hurricanes and tornadoes, devastating floods, droughts and wildfires, and powerful winter storms impact society more than ever, with 16 billion-dollar weather and climate disasters in 2017. As part of building a Weather-Ready Nation, NWS is evolving to provide more effective and consistent information to the public and our partners across the country.

To continue building a Weather-Ready Nation, with the support of Congress, NWS requires:

- A modernized observation, information technology, and facility infrastructure.
- A fully integrated forecast process to deliver consistent products and services.
- An organization that is nimble and adaptable to changing demands.
- Continued advancement in computer models to provide more accurate and reliable forecasts and warnings.
- A workforce trained and organized to meet the growing needs for impact-based decision support services and communications.
- An engaged partnership with emergency managers, weather industry, and academic community to leverage the nation's capacity to build a Weather-Ready Nation.



A Doppler radar at NWS Weather Forecast Office in Spokane, Washington.



For more information, please visit the [NWS website \(https://www.weather.gov/\)](https://www.weather.gov/).





# Recent Mission Highlights



## **NWS kicks off 2018 with massive supercomputer upgrade**

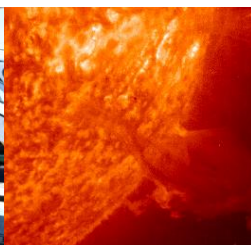
In 2018, NOAA's combined weather and climate supercomputing system became one of the 30 fastest in the world, with the ability to process 8 quadrillion calculations per second. With this upgrade, U.S. weather supercomputing paves the way for NOAA's National Weather Service to implement the next generation Global Forecast System, known as the "American Model," next year.

## **National Blend of Models Improved Consistency of Forecasts**

Emergency managers across the country value NWS local presence and having a forecaster at their side providing important information during critical situations. To enable forecasters to spend more time supporting their local partners, NWS is planning to implement a new starting point for forecasts called the National Blend of Models, which automatically blends multiple computer forecast models, and will save forecaster time spent manually editing databases. In 2017, experimental NBM version 3.0 began running on the supercomputers, which incorporates additional weather elements, adds more computer models to the blend, and provides nation-wide forecasts hourly. NBM will help forecasters spend more time on impact-based decision support services, and help provide more accurate, timely and consistent forecasts to the public.

## **Saving Lives in a Record-Breaking Year of Hurricanes**

Devastation from the 2017 Atlantic hurricane season was unprecedented with Hurricanes Harvey, Irma, Maria and Nate impacting roughly 26 million people. Harvey and Irma made landfall as Category 4 hurricanes, the first in 12 years. NWS led with the most accurate track predictions for a hurricane season while providing outstanding support to emergency managers and first responders before, during and after the storm. Working with other assets in NOAA, these efforts saved thousands of lives despite Hurricanes Harvey, Irma and Maria becoming 3 of the top 5 costliest hurricanes on record. NWS staff in Houston waded through waist deep water to report to work and provide critical forecast information during historic flooding. In Lake Charles, timely forecasts by the local NWS office allowed the safe evacuation of approximately 30,000 residents and the orderly shutdown of refineries, saving industries over \$100M. In NWS Key West office, forecasters stayed onsite and online through the ferocity of Hurricane Irma, providing lifesaving warnings and critical on-site recovery support as the island became isolated from the mainland after Irma. In Puerto Rico, forecasters used experimental satellite data to provide flood warnings during a potential breach of a major lake, maintaining constant support to emergency management during the recovery operations, despite significant personal impacts and losses.



**National Oceanic and Atmospheric Administration**

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