National Oceanic and Atmospheric Administration
U.S. Department of Commerce

NOAA and Hurricanes

Before, during and after

As the nation's weather and oceans agency, NOAA plays a major role before, during and after a hurricane strikes the United States. NOAA is providing authoritative information about the intensity of storms and has sole authority to issue the watches and warnings that federal, state and community-level officials need to respond quickly and appropriately.

NOAA's agency-wide response includes assets such as our geostationary and polar-orbiting weather satellites, ocean-observing and coastal water-level monitoring systems, our fleet of ships and aircraft, and critical information collected by NOAA scientists on land, on the water, in the air — and in the eye of the hurricane itself. NOAA is working hand-in-hand with federal, state and community-level response agencies to ensure the nation is prepared for the worst and recovers quickly.

Before the storm arrives

NOAA forecasts the storm and generates numerous data products. NOAA's National Weather Service predicts, forecasts and issues official warnings for all types of severe weather, including hurricanes. NOAA's National Hurricane Center (NHC) works 24/7 to widely issue timely and accurate watches, warnings, forecasts and analyses to help keep the population safe, protect property and minimize economic impacts to communities.

The NHC produces a complete suite of forecast products, updated every six hours. Within 36 to 48 hours of a hurricane's landfall, the NHC issues updates every three hours. Meteorologists use a variety of data sources for its forecasts, including real-time data from NOAA's polar orbiting and geostationary weather satellites, ocean and coastal observing systems, and land-based radars. NOAA's local National Weather Service forecast offices incorporate forecasts and anticipated impacts into local weather products, which include severe weather alerts for inland high winds, flooding and severe weather — including tornadoes.

Data from the atmosphere are also critical: NOAA's Hurricane Hunter aircraft and unmanned research vehicles obtain weather and intensity data at various altitudes to study storms in areas where our satellites and radars cannot. NOAA operational tools, such as our water level "QuickLook" product (http://tidesandcurrents.noaa.gov/quicklook.shtml) and coastal models, help officials determine areas at-risk for high winds, flooding and storm surges.

When landfall happens

NOAA communicates warnings and watches that save lives and property. NOAA warns the public of the storm as it's approaching through a variety of public information, as well as traditional and social media and constituent outreach. Our forecasts, observations, and other critical data are free and publicly accessible.

- **ONLINE**: hurricane forecasts, watches and warnings: www. hurricanes.gov and www.noaa.gov.
- **WEATHER RADIO**: NOAA Weather Radio users receive constant updates of anticipated local impacts: www.weather.gov/nwr/

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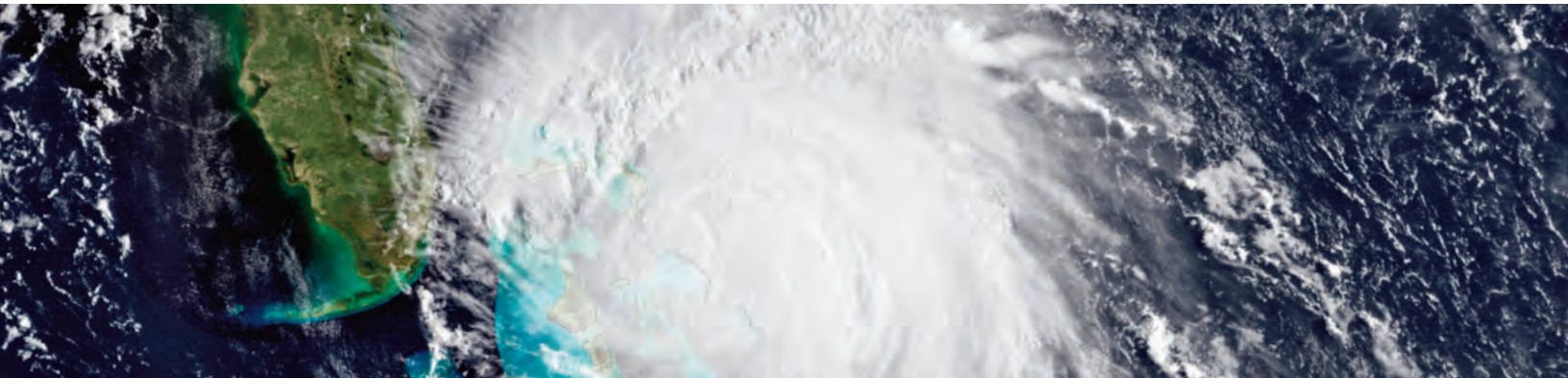

- **TWITTER:** @noaa, @NHC_Atlantic, @NHC_Pacific
- **FACEBOOK:** NOAA, NOAANational Hurricane Center, and National Weather Service
- **MEDIA RELATIONS:** www.noaa.gov/media.html

After the storm passes

NOAA helps resume the flow of commerce after landfall

The agency's three-person Navigation Response Teams are deployed to scan critical shipping lanes for sunken debris and hazards to navigation, allowing U.S. ports to reopen and mariners to resume their delivery of much-needed supplies to affected regions. Aerial survey teams assess storm damage using NOAA's specially equipped aircraft; these flights capture bird's-eye imagery hazmat officers, emergency responders, coastal officials, the public and many others use to view the damage and make informed decisions on how best to respond. NOAA also works closely with states to assess impacts to fishing fleets, fishing infrastructure and important coastal habitats.

NOAA responds to environmental impacts and wildlife emergencies

NOAA's hazardous material officers work with the U.S. Coast Guard and other federal, state and local officials to respond to oil and chemical spills along the coast and assess injuries to natural resources. The agency's extensive network of highly trained veterinarians and volunteers respond to marine mammal and sea turtle emergencies along the coast, which might also include strandings and entanglements. NOAA's marine wildlife survey overflights enable aviators and marine biologists to identify impacted species or hazards to critical habitat along the coast.

NOAA helps coastal communities recover and prepare for the next storm

NOAA assists in long-term recovery planning in areas affected by a hurricane. These services can include economic impact studies and pre- and post-hurricane imagery and elevation data that depict impacts and changes to coastal communities and ecosystem. NOAA and its partners also conduct sampling of oyster tissue, sediment and water to measure for contaminants in coastal and estuarine waters, such as pesticides, herbicides, nutrients, metals, flame retardants, biphenyls and human pathogens. The agency also monitors spikes in death rates of marine mammals and sea turtles that could indicate a storm-related "unusual mortality event."

Hurricane research is ongoing

NOAA research is the key to improving hurricane forecasts and warning times

Our ability to predict the track and intensity of a hurricane is critical to millions of U.S. residents. While forecasting tools have improved significantly in recent decades, NOAA researchers are working on ways to predict hurricane behavior with greater confidence and accuracy. From better computer models to new hurricane data gathering systems, these improvements will make a difference in protecting life and property from these monster storms.

Hurricanes and a changing climate

We know through global scientific observations that our oceans are warming and that warm sea-surface temperature is one critical factor in hurricane development. However, the precise relationship of how a variable and changing climate is influencing hurricane frequency and intensity — and how this may change in the coming decades — remains a focus of active scientific investigation at NOAA.

To learn more, visit NOAA on the Web at: http://www.hurricanes.gov/ and www.noaa.gov.