August 30, 2011

Backgrounder

NOAA and Hurricane Irene: Before, During and After the Storm

Irene: A Historical Perspective

Irene was the first hurricane to hit the United States since Hurricane Ike struck Texas in September 2008 and was the first storm to threaten the New York City area since Hurricane Gloria in September 1985.

Irene tracked across the U.S. East Coast as expected — first as a Category 1 hurricane and later as a Tropical Storm —producing the strong winds, heavy rain and storm surge as forecast by NOAA's National Hurricane Center. By August 30, the death toll had risen to 40 people, and millions were without power. More than a dozen states dealt with significant and dangerous flooding, downed trees and property damage. Economic losses, so far, are estimated in the billions, and NOAA's NCDC reported that Irene was the year's 10th $1 billion disaster.

Despite the loss of life and extensive damage, Hurricane Irene was a forecast success story. By all accounts, NOAA's forecast track was extremely accurate. Fortunately, an accurate hurricane track forecast, skillful emergency management, and decisive leadership saved many lives that might have been lost. Five days before Irene first hit, NOAA's National Hurricane Center accurately predicted Irene's landfall. Twenty-four hours before landfall near Cape Lookout, N.C., the NHC had forecast the storm's next-day location within about 10 miles.

How NOAA Kept the Public Informed Even as Our Facilities Were Hit

As Hurricane Irene made its way up the U.S. East Coast, NOAA's Satellite and Information Service maintained steady and reliable operations 24 hours a day, receiving and processing over 490 data sets (100% reliability) from our geostationary (GOES) and Polar-Orbiting (POES) satellites focused on the East coast that were delivered to weather forecasters, emergency managers, and decision makers. NOAA maintains three operations facilities, two of which were directly in the Irene's path (Wallops, Va. and Suitland, Md.). All three continued 24/7 operations throughout the storm.

Despite very challenging conditions, not one byte of data from the GOES satellite scanning the hurricane and the rest of the nation was lost. In fact, NOAA's satellite downlink facility at Wallops Island, Va., sustained winds gusting to 73 mph. Despite these harrowing conditions, operators stayed onsite, providing satellite operations support for three GOES satellites and

safely securing six of the installation's delicate satellite-receiving dishes before winds gusts rose and risked damage.

NOAA's Fairbanks Satellite Operations Facility in Alaska provided a seamless transition for NOAA's affected operations centers on the East Coast. The facility provided full data downlink and command and control for our West Coast geostationary satellite and priority polar downlink transmissions.

Moreover, Operations personnel from NOAA's Satellite Operations facilities along with additional software, hardware and satellite engineering personnel provided around-the-clock operations support for the weather satellites.

Irene: After the Storm

Immediately following Irene, NOAA's Office of Coast Survey provided emergency hydrographic services for affected port areas. It had already positioned seven Navigation Response Teams ahead of the storm. These mobile emergency response units are using echo sounders to check for submerged obstructions that pose hazards to vessels, collect data to update nautical charts and provide mapping support. The work of these response teams is essential to speeding the reopening of ports and waterways.

The day after Irene made landfall (Aug. 28), NOAA's National Geodetic Survey began flying photo survey missions aboard a specially-equipped NOAA King Air turboprop to assess storm damage. The high-definition imagery is providing emergency and coastal managers with critical information they need to develop recovery strategies, facilitate search and rescue efforts, identify hazards to navigation and HAZMAT spills, locate errant vessels, and determine damage assessment through before and after imagery.

NOAA's Long-term Hurricane Response

NOAA stands ready to provide assistance in long-term recovery planning in areas impacted by the storm. For weeks, months, even years after Irene has passed, NOAA's National Ocean Service will continue its work to restore the valuable coastal economies and lost or injured habitat.

Contamination assessments: NOAA's National Status and Trends (NS&T) Program, part of the National Centers for Coastal Ocean Science, coordinates with multiple partners to develop strategies to assess the environmental impacts of contaminants in coastal and estuarine waters in the aftermath of hurricanes. Of special concern is assessing the risk to human health of eating fish and shellfish and ensuring seafood safety.

Maps and data analysis: Following a hurricane, the NOAA Coastal Services Center provides the satellite and aerial images needed to generate maps that help officials understand the long-term effects of the hurricane. These data products include pre-hurricane imagery and digital-elevation data from a variety of sources, before and after imagery comparisons, and maps depicting ecological impacts, debris assessment and wetlands loss along the coast. The CSC may also conduct studies that focus on a storm's economic impacts.

Long-term recovery planning: NOAA's Coastal Services Center and the Office of Ocean and Coastal Resource Management provide assistance in long-term recovery planning in areas impacted by a hurricane. Staff may assist in the development of coastal project plans, coordinate with other federal and state organizations involved in recovery planning, and assist with the design and implementation of activities to involve local communities in planning for their own long-term recovery.

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The Importance of Being 'Weather-Ready'

Governors and mayors like Chris Christie of New Jersey and Michael Bloomberg of New York City took bold actions to protect lives and livelihoods as Irene approached some of the most densely populated areas on the Eastern seaboard. Federal and political leadership moved swiftly to move people and assets out of harm's way, and the American public largely gave this weather event the respect it deserved. Had winds been a little stronger or swells been greater, the disaster could have been much worse — without question, more lives would have been lost and even greater environmental and economic losses would have mounted.

In the extended period between storms, "hurricane amnesia" can develop. Irene reminds us that tropical storms and hurricanes are not limited to the Gulf Coast or Southeast U.S. Any part of the U.S. coastline from southern Texas to northern Maine can be impacted, and flooding and severe weather can affect areas well inland.

NOAA's National Weather Service launched its "Weather-ready Nation" initiative to address the needs of our increasingly weather-sensitive society. The year 2011 has been one of extremes. And despite long-range outlooks and extended warning lead times, hundreds have already lost their lives to severe weather. Reducing society's vulnerability to weather events requires an integrated approach that involves investment in and application of scientific research and technology, but also the incorporation of social science and the strengthening interactions among the emergency management community, the media and the public.

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As of August 30, 2011