**Into the Storm: Hurricane Hunters of NOAA Gather the Data We Need to Protect Our Communities – A FEMA info-training**

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Data is at the heart of every weather forecast, including hurricane forecasts. Having the right data at the right time is critical to both FEMA and emergency managers so they can make informed decisions and protect their communities before, during and after a hurricane. We’ll never be able to stop a hurricane, but we can use data to help people before, during and after the storm.

But where does this data come from?

While the National Oceanic and Atmospheric Administration (NOAA) has many forecasting tools to gather and interpret data at its disposal such as radar, satellites and computer models and satellite imagery, the best data comes from the inside the actual storm. The smallest wobble in a hurricane’s track can mean the difference between life and death. A change in a storm’s intensity could alter a community forever.

That’s why the work that NOAA Hurricane Hunters do is so important.

**Flying into Danger**

While others flee the path of a hurricane, the NOAA’s teams of Hurricane Hunters head toward the storm. Flying low-altitude missions, the teams gather critical data on the storms using an array of scientific equipment.

The largest of NOAA’s fleet of specialized aircraft are two WP-3D Orions, which are affectionately called “Kermit” and “Miss Piggy.”

These aircraft deploy tools such as drop-wind-sondes. These tube-shaped instruments fall at 10 meters a second and take four minutes to reach the surface. While in transit, they transmit data about the storm’s pressure, temperature, humidity, wind speed and wind direction data back to the aircraft.

The aircraft can also deploy airborne expendable bathy-thermographs, which measure ocean temperature and use the NOAA developed Step Frequency Microwave Radiometers to collect data to determine wind speed at the ocean’s surface.

The planes also feature Doppler radar system on both the belly and tail of the aircraft. The first radar system scans the storm horizontally, the second vertically. Together, these systems allow forecasters and researchers to see the storm’s multiple layers and internal structures.

This information is critical to the National Hurricane Center’s job of developing hurricane forecasts. In turn, FEMA and state and local emergency managers use these forecasts to pre-position lifesaving and life-sustaining resources to communities in the storm’s path.

Additionally, emergency managers use these forecasts to determine who should evacuate and when evacuations should happen.

**The data Helps Preparation, Response and Recovery**.

In addition to Kermit and Miss Piggy, NOAA has additional aerial assets it deploys before and after a hurricane makes landfall. “Gonzo,” a small and fast Gulfstream aircraft, flies at high altitudes to gather information about weather in the upper atmosphere, including systems which can steer hurricanes either toward a coastline or out to sea.

Since its 1997 debut, data collected by “Gonzo” has been used to improve hurricane landfall and track forecasts by approximately 20%, saving countless lives and millions of dollars in emergency services costs.

After a storm, NOAA’s National Geodetic Survey (NGS) deploys a small, nimble aircraft with high resolution digital cameras and other critical technology to capture post-storm images. These images can help emergency response activities because they show, in near real-time the location and extent of damage in an area.

Understanding the scope and severity of storm effects helps inform the decisions FEMA and local emergency managers make as they assess damage and develop recovery strategies.

Displaced residents from hurricane affected areas can also use these extremely detailed photos to check the condition of their homes and communities.