

Eyes in the SKY

Sector-built Global Hawks Support Hurricane Missions

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Deployed to the U.S. East Coast in September, Aerospace Systems-built unmanned NASA Global Hawks are able to better support environmental scientists during Hurricane and Severe Storm Sentinel (HS3) missions. The HS3 missions aim to study the processes of hurricane formation and intensity change in the Atlantic Ocean.

This year's HS3 missions mark the first time the unmanned aircraft were employed from NASA Wallops Flight Facility in Virginia — not from their regular base of operations at the Dryden Flight Research Center at Edwards Air Force Base, Calif. Additionally, this is the first time pilots have controlled the aircraft from two locations: ground stations at both NASA Dryden and NASA Wallops.

Aerospace Systems is contributing pilots, mission planners, maintenance and

engineering support at Wallops Island and NASA Dryden for these science missions.

Kent Fuller, the Aerospace Systems pilot lead to the NASA-Northrop Grumman Global Hawk team, has flown with the team for three years and participated in all of the science campaigns. "This year, being able to fly the Global Hawk from the East Coast rather than from the West Coast allows us greater flexibility," Fuller said. "Being closer to the storms and areas of interest means more loiter time over the storms, which is a real plus for the scientists."

Fuller enjoys the demanding aspects of his job. "My favorite part of my job is the challenge of taking an airplane that was designed for one mission — meaning it flies a specific set of sensors along a preplanned path — and operating it in an ever-changing flight research environment," he said.

NASA Wallops was selected as a deployment site because the area of scientific interest is the Atlantic Ocean, particularly the eastern Atlantic where hurricanes begin to form. Although Global Hawks have flown over hurricanes in the Atlantic from NASA Dryden in California, flights from Wallops will travel farther out over water and collect data for a longer period. The long-range, endurance and high-altitude capability of these aircraft provide access to storms forming off the coast of Africa, and the aircraft can track storms far into the Caribbean.

In 2010, NASA Global Hawk completed the first science research campaign called GloPac, studying the atmosphere over the Pacific and Arctic. Later that year, the aircraft was used in the Genesis and Rapid Intensification Processes hurricane surveillance missions that provided extended monitoring of



Photo by Northrop Grumman Corp.

Now deployed to the U.S. East Coast, the Aerospace Systems-built unmanned NASA Global Hawk is able to better support environmental scientists during Hurricane and Severe Storm Sentinel missions. NASA Global Hawk AV-6 collected data over Hurricane Leslie on Sept. 6-7 and Hurricane Nadine on Sept. 11-12.

changes in hurricane intensity during five different storms in the southern Caribbean and western Atlantic.


In spring 2011, NASA flew winter storm missions over the Pacific and Arctic, observing — among other weather phenomena — an "atmospheric river," which sometimes causes flooding on the West Coast. Last fall, Airborne Tropical Tropopause Experiment flights over the Pacific studied the composition of the tropopause by climbing and descending between 65,000 feet and 45,000 feet. 



Photo by Northrop Grumman Corp.

Kent Fuller, the Aerospace Systems pilot lead to the NASA-Northrop Grumman Global Hawk team, has flown with the team for three years and participated in all of the science campaigns. Here, he sits in the Global Hawk remote cockpit in a trailer on a runway at Wallops Island, Va.

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