



# NEWS FROM NOAA

## NATIONAL OCEANIC & ATMOSPHERIC ADMINISTRATION • US DEPARTMENT OF COMMERCE

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### **NOAA GULFSTREAM-IV HURRICANE SURVEILLANCE JET TAKES ON PACIFIC WINTER STORMS TO IMPROVE MODEL FORECASTS**

*Hawaii Middle School Teacher Will Be Member of Flight Crew*

In an effort to improve forecasts released 24 to 96 hours before a winter storm, the National Oceanic and Atmospheric Administration has deployed its high-altitude Gulfstream-IV jet from a temporary base in Honolulu. The jet is acquiring atmospheric data from severe winter storms originating over the Pacific Ocean that will affect the continental United States, Hawaii and Alaska. The flights are in support of the winter storms reconnaissance program of the National Centers for Environmental Prediction, part of NOAA's National Weather Service.

While conducting the winter storms project, the aircraft will fly extended patterns over the north Pacific launching dropwindsonde atmospheric profiling devices to more accurately characterize the environment of developing winter cyclones and snowstorms. Data from these instruments will be screened aboard the aircraft, transmitted to NCEP by satellite communication, and used in NOAA's most sophisticated forecasting models to improve warnings of severe weather events. The G-IV crew also will measure concentrations of ozone on each flight for the chemical sciences division of NOAA's Earth System Research Laboratory.

"Our NOAA aircraft crew, made up of pilots, flight engineers, meteorologists and electronic technicians, is prepared to fly north of Hawaii on a daily basis as the winter storms intensify over the Pacific. The storms we profile will affect areas from California and the Pacific Northwest to the U.S. East Coast," said Jack Parrish, G-IV program manager and flight director.

To provide full coverage of the Pacific jet stream, which affects weather patterns over the United States, two Air Force Reserve WC-130J aircraft will fly missions out of Anchorage, Alaska, from February 12 to March 12 in conjunction with the NOAA jet.

After passing through quality control measures at NCEP, all observational data are carefully analyzed to distill a detailed snapshot of the atmosphere at the time of the observations. This analysis is then fed into sophisticated numerical models of the atmosphere that are used to project the current weather into the future. The model forecasts are disseminated worldwide and used as a basis for most weather forecasts.

In its seventh year, the WSR program has improved forecast accuracy an average of 20 percent while accuracy for individual targeted events has been increased by as much as 60 to 80 percent in 24 to 96 hour forecasts during past missions.

Joining NOAA personnel on one of the missions in February will be Jessica Schwarz, a seventh grade science and math teacher from West Hawaii Explorations Middle School in Kona, Hawaii. Participating in NOAA's Teacher in the Air program, an offshoot of NOAA's Teacher at Sea program, she will write logs and lessons that correspond with the G-IV's research. Her work will be posted on NOAA's Teacher at Sea Web site at [www.teacheratsea.noaa.gov](http://www.teacheratsea.noaa.gov).

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"I am thrilled to have the unique opportunity to fly with the crew through the NOAA Teacher in the Air program," Schwarz said. "By sharing my knowledge and experiences, I hope to enrich science curriculum while inspiring my students, some of whom already have aspirations to be a pilot one day."

The G-IV also will be utilized by NOAA's Earth System Research Laboratory to investigate the transport of ozone in the vicinity of the Pacific jet stream. Ozone is a gas that occurs both in the troposphere, where it affects climate and is a pollutant at the Earth's surface, and stratosphere, where it is more abundant and absorbs much of the sun's harmful ultraviolet radiation. Data from ozone-measuring instruments will be combined with the dropwindsonde data being gathered during the mission to help researchers unravel the jet stream's complex effects on the atmosphere.

That mission should help scientists learn more about factors affecting the amount of ozone in the air that eventually arrives at the U.S. West Coast, which influences air quality in that region. Measurements have indicated that this ozone has been increasing in recent years; the 2007 study should provide insights into the natural and human-caused factors that underlie those observations.

NOAA's G-IV jet is based at NOAA's Aircraft Operations Center at MacDill Air Force Base in Tampa, Fla. AOC is part of NOAA's Office of Marine and Aviation Operations (OMAO), which includes civilians as well as officers of the NOAA Corps, the smallest of the nation's seven uniformed services. NOAA Corps pilots and civilian meteorologists, flight and electronics engineers, and technicians are highly trained to operate in adverse weather conditions. OMAO also administers NOAA's Teacher in the Air and Teacher at Sea programs.

NOAA, an agency of the U.S. Commerce Department, is celebrating 200 years of science and service to the nation. From the establishment of the Survey of the Coast in 1807 by Thomas Jefferson to the formation of the Weather Bureau and the Commission of Fish and Fisheries in the 1870s, much of America's scientific heritage is rooted in NOAA.

NOAA is dedicated to enhancing economic security and national safety through the prediction and research of weather and climate-related events and information service delivery for transportation, and by providing environmental stewardship of our nation's coastal and marine resources. Through the emerging Global Earth Observation System of Systems (GEOSS), NOAA is working with its federal partners, more than 60 countries and the European Commission to develop a global monitoring network that is as integrated as the planet it observes, predicts and protects.

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**NOTE TO EDITORS:** Media who wish to go on one of the G-IV's flights, approximately 6 to 8 hours, or interview a member of the flight crew should contact Delores Clark in Honolulu at (808) 532-6411.