

**WRITTEN TESTIMONY OF  
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SERVICE  
NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION  
U.S. DEPARTMENT OF COMMERCE**

**OVERSIGHT HEARING ON  
NATIONAL WEATHER SERVICE AVIATION SUPPORT  
THROUGH CENTER WEATHER SERVICE UNITS**

**BEFORE THE  
COMMITTEE ON SCIENCE AND TECHNOLOGY  
U.S. HOUSE OF REPRESENTATIVES**

**FEBRUARY 26, 2008**

Thank you, Mr. Chairman and Members of the Committee, for this opportunity to testify on the National Weather Service's provision of aviation weather information to the Federal Aviation Administration (FAA). I am Jack Hayes, Assistant Administrator for Weather Services and the Director of the National Weather Service (NWS). The Weather Service is a line office of the National Oceanic and Atmospheric Administration (NOAA), within the Department of Commerce (DOC).

The NWS has a long history of providing weather support for aviation. In 1914, eleven years after the first manned flight by the Wright brothers, the U.S. Weather Bureau, the predecessor agency to NOAA's NWS, established an aerological section to provide weather forecasts specifically to meet the growing needs of aviation. In 1918 the Weather Bureau issued its first aviation weather forecast — for the Aerial Mail Service route from New York to Chicago. Today, forecasters across the nation comprise the aviation weather forecast team, including meteorologists at 122 local Weather Forecast Offices (WFOs), 21 Center Weather Service Units (CWSUs), the Aviation Weather Center (AWC) in Kansas City, Missouri; and the Alaska Aviation Weather Unit (AAWU) in Anchorage, Alaska.

In 1994, Public Law 103-272 directed the Secretary of Commerce to provide weather support for aviation and to give complete consideration to the recommendations of the FAA Administrator in doing so (49 USC 44720, Sec. (a)):

“The Administrator of the Federal Aviation Administration shall make recommendations to the Secretary of Commerce on providing meteorological services necessary for the safe and efficient movement of aircraft in air commerce. In providing the services, the Secretary shall cooperate with the Administrator and give complete consideration to those recommendations.”

The NWS has an extensive infrastructure supporting its products and services. NWS issues more than a trillion forecasts, and 10,000 warnings annually. Every day we process 1.7 billion surface and upper air observations from across the country and around the globe. These data are assimilated into complex computer models providing the backbone of weather information for all — government and private weather forecasters both nationally and internationally. The aviation industry is but one user of this vast array of weather information used for flight planning and safety.

The National Airspace System (NAS) is comprised of a system of airports, control towers, and other control centers, including Air Route Traffic Control Centers (ARTCC), working around the clock, 365 days a year, moving the country's people and goods around the United States. On an average day, nearly 50,000 flights transit the NAS. Flights include general aviation, commercial air carrier, air taxi, military, and cargo flights. Depending on the departure point, the length of time in flight, and the destination, each flight will encounter a variety of meteorological conditions.

Keeping aircraft away from hazardous weather in all phases of flight is a key to air safety. The NWS has a critical role in providing weather information for safe and efficient operations in the NAS and in support of the FAA's mission. NWS provides warnings, forecasts, meteorological advice, and consultation for partners and customers throughout all phases of flight – preflight, planning, and operations. In order to mitigate weather-induced disruptions to the NAS, the FAA, in conjunction with other NAS stakeholders, relies on this information as one of the elements in the traffic flow management planning process.

NWS and the Meteorological Office of the United Kingdom provide international flight planning forecasts and internationally required meteorological forecast parameters for global aeronautical operations via the World Area Forecast System as requested by the International Civil Aviation Organization. We operate three Meteorological Watch Offices: in Kansas City, Missouri; in Anchorage, Alaska; and in Honolulu, Hawaii – to help provide these warning, forecast, and advisory services for the national and international aviation community. The Alaska Meteorological Watch Office is part of the Alaska Aviation Weather Office (AAWU). Also part of the AAWU is the Alaska Volcanic Ash Advisory Center. NOAA operates two of the nine worldwide Volcanic Ash Advisory Centers, one in Washington, D.C. and the other in Anchorage, Alaska. Volcanic Ash Advisory Centers are the focal points for gathering and evaluating information on volcanic eruptions that could affect air travel. The Volcanic Ash Advisory Center in Anchorage, Alaska is managed and staffed by the NWS. The Volcanic Ash Advisory Center in Washington, D.C. is jointly managed and staffed by the NWS and the National Environmental Satellite Data and Information Service, a sister line office within NOAA.

The Aviation Weather Center (AWC) in Kansas City, Missouri, operates 24 hours a day, 7 days per week, throughout the year providing aviation warnings and forecasts of hazardous flight conditions at all levels within domestic and international air space including turbulence, icing, and convection forecasts. The Collaborative Convective

Forecast Product, a graphical representation of expected convective occurrence at 2-, 4-, and 6-hours, is produced by the AWC after collaboration with Meteorological Service of Canada, Center Weather Service Units, and meteorological offices of airlines and service providers. Its primary users are air traffic management which includes both FAA and the airline industry.

The number of cross-polar flights is increasing sharply. With less protective atmosphere above the polar regions, these flights are more susceptible to the effects of radiation. The NWS Space Weather Prediction Center (SWPC) in Boulder, Colorado, continually monitors and forecasts Earth's space weather environment and provides solar-radiation information and alerts.

On the local scale, 122 Weather Forecast Offices provide terminal area forecasts for approximately 625 locations every 6 hours, with updates as conditions change. These forecasts consist of the expected weather that is significant to a given airport or terminal area.

Center Weather Service Units (CWSU) were established in 1977 in response to National Transportation Safety Board recommendation A-77-68, resulting from a serious weather related accident over New Hope, Georgia, which caused numerous fatalities. This recommendation called for the FAA to "Formulate rules and procedures for the timely dissemination by air traffic controllers of all available severe weather information to inbound and outbound flights in the terminal areas." Based on this recommendation, FAA, with the assistance of NWS, formed the CWSUs.

NWS forecasters at CWSUs provide advisories and forecasts to the aviation community as well as advice and consultation to air traffic controllers in maintaining an efficient national airspace. These CWSUs are located at each of the 21 FAA ARTCCs. CWSU meteorologists provide Meteorological Impact Statements, Center Weather Advisories, periodic face-to-face briefings, and on-demand consultations. CWSU meteorologists also provide briefings, as needed, to FAA Terminal Radar Approach Control personnel and tower personnel, and they train controllers on the interpretation of weather information.

Under an interagency agreement, the FAA provides basic equipment, communications, space and supplies at the CWSUs, and currently reimburses the NWS about \$12M per year, for staff. Based on local requirements, CWSUs operate 16 hours per day, typically between 5:00 a.m. and 9:30 p.m. local time, seven days a week, when air traffic is at its peak. If weather conditions pose a threat to an ARTCC's area of responsibility at other times, the Traffic Management Officer, in conjunction with the CWSU Meteorologist-In-Charge, has the option to retain CWSU forecasters on overtime.

The NWS has a long history of working in partnership with the FAA and the aviation community to define requirements for the provision of aviation weather services. In that vein FAA's System Operation Services sent NWS a letter dated September 23, 2005, requesting NWS restructure its CWSU support. FAA requested NWS reduce the number of CWSUs in the contiguous states, reduce personnel costs by 20 percent, increase

coverage to 24 hours a day, seven days a week, and provide improved products, services, collaboration and training, as well as create national standards. NWS chartered a team to examine options to meet the FAA request. NWS presented its proposal for restructuring its aviation weather services to FAA in October 2006. A second letter from FAA in April 2007 stated it would not adopt the NWS restructuring plan, but instead had begun a process of refining requirements for weather services provided by the CWSUs.

On January 10, 2008, FAA submitted to NWS specific requirements for CWSU support, asking NWS to provide three business case solutions to meet those requirements: support from a single, central site; regional support from several sites; and CWSU service support from the existing 21 ARTCCs. I chartered a team to develop solutions to meet FAA's requirements and we have made progress with our comprehensive analysis. The NWS response is due to FAA by May 7, 2008. FAA promises to reply by August 7, 2008.

In 2007, the Government Accountability Office (GAO) conducted a review of aviation weather services between the FAA and NOAA. The draft report, entitled *Aviation Weather: FAA is Reevaluating Services at Key Centers; Both FAA and the National Weather Service Need to Better Ensure Product Quality*, does a fair job in assessing the status of the NWS's plans for providing aviation weather services at FAA's en route centers and evaluating current abilities to ensure consistency and quality of these services. In its draft report, the GAO made two recommendations to NOAA: (1) "Assist FAA in developing performance measures and metrics for the products and services to be provided by center weather service units; and (2) "Perform annual evaluations of aviation weather services provided to en route centers and provide feedback to the center weather service units." NOAA agrees with Recommendation 1 and we are currently working with the FAA to develop performance measures and metrics for the Center Weather Service Unit products and services. We believe subsequent collaboration between NOAA and FAA should lead to a shared service level agreement on milestones, performance measures and goals. With regard to Recommendation 2, NOAA will work with the FAA to develop methods for performance monitoring and evaluation based upon the FAA's service requirements. We expect these methods will involve annual evaluations, at a minimum.

We believe GAO is on target with its analysis identifying shortcomings and variability in some of the existing CWSU support for FAA. We are taking action to improve CWSU services to the FAA and are working toward taking the best ideas from all of our CWSUs and creating a more consistent and responsive customer service oriented program. Furthermore, we are also working toward consistency between various aviation related forecasts, warnings, and advisories issued by the NWS. We drafted a plan to evaluate the CWSUs and have begun coordination with the FAA.

As you know, the Next Generation Air Transportation System (NextGen) is intended to meet projected 2025 U.S. air transportation demands for significant growth in air traffic and airport services. NOAA/NWS is actively involved in NextGen through its participation on the Joint Planning and Development Office (JPDO) Board and in providing leadership for the JPDO Weather Working Group.

NOAA/NWS recognizes that NextGen will result in a system-wide transformation including the manner by which weather-related information is collected, managed, disseminated, and utilized in decision-making. To that end, NOAA/NWS plans to fully integrate NOAA's weather development activity into NextGen development; link NOAA funding requests for acquisition and development of weather information needed to support NextGen to FAA NextGen funding requests; design NOAA's contributions for NextGen-era weather support to meet FAA's requirements; and ensure NOAA's contributions are compatible with NextGen dissemination and display systems.

Finally, NOAA/NWS recognizes the need for extraordinarily close coordination within the federal weather community to meet NextGen weather support needs and believes it is essential that the federal community bring all of our assets together effectively, along with strong private sector participation, to ensure success. NOAA is committed to a long-term partnership with FAA, and the rest of the federal community, to make this happen.

The support NWS provides – whether it is a terminal forecast from a WFO, a Center Weather Advisory from a CWSU, an icing warning from the AWC, or a radiation alert from our SWPC – all help FAA create a National Airspace System that is safe, efficient and cost effective for the people of this country.