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Southwest Airlines Helps Revolutionize Weather Forecasting With Water Vapor Sensing Systems

Southwest Airlines teams up with National Oceanic and Atmospheric Administration to provide a missing link in weather forecasting data

DALLAS, Dec. 12, 2013 /PRNewswire/ -- [Southwest Airlines](#) (NYSE: LUV) recently completed installation of Water Vapor Sensing Systems (WVSS-II) on 87 Boeing 737 aircraft. The water vapor initiative, a result of a partnership between Aeronautical Radio Incorporated (ARINC), National Oceanic and Atmospheric Administration (NOAA) and SpectraSensors, has the potential to improve weather forecasting by providing real-time and frequent humidity data when aircraft takeoff and land at airports around the country.

"Southwest's meteorology team has always worked closely with ARINC and NOAA, and the WVSS-II project is symbolic of our strong reliance on each other. We are proud to be the only passenger airline currently participating in the project and look forward to the many ways WVSS-II will impact and improve both weather forecasting and the impact on airline operations," said Rick Curtis, Chief Meteorologist, Southwest Airlines.

National Weather Service (NWS) forecasters routinely use WVSS-II observations in their day-to-day operations. Monitoring the distribution of moisture in the atmosphere and how the moisture levels change with time play an integral role in forecast preparation. Aviation forecasters rely on WVSS-II data to help determine location and timing of fog, cloud formation, and dissipation, and altitudes of cloud ceilings, all critical to determining safe conditions for aircraft travel.

"Water vapor is the most rapid-changing and under-sampled element in the atmosphere," said Carl Weiss, an aviation meteorologist for NOAA. "On the heels of a tumultuous weather year, WVSS-II is part of a larger initiative contributing to Weather Ready Nation, our initiative focused on building community resilience in the face of extreme weather events. WVSS-II data upon takeoffs and landings allow forecasters to monitor and stay on top of how moisture is changing in the atmosphere, specifically in severe weather situations when preparedness is especially important."

WVSS-II, manufactured by SpectraSensors, Inc., measures water vapor in the atmosphere hundreds of times during an aircraft's flight. These measurements are automatically transmitted to ARINC's headquarters in Annapolis, MD, via the ARINC GLOBALink/VHFTM data link service. The moisture data along with other aircraft weather data are then forwarded in near real-time to the U.S. National Weather Service, which uses them to improve the accuracy of its computer-generated weather forecasts and severe weather warnings.

"The WVSS-II observations add a critical new piece of weather data to the forecasting puzzle," says Jeannine Hendricks, ARINC's Manager for the WVSS program. "For the first

time in aircraft operations, we are collecting water vapor data that measures the humidity in the air. This has the potential to revolutionize weather forecasting—especially when predicting thunderstorms—a significant weather occurrence for aviation."

While weather balloons, previously the only method for capturing weather data, measure wind, temperature, and humidity data just twice per day at certain locations, the water vapor sensors gather humidity data throughout the day at multiple points across the nation. The improved water vapor data will have a direct benefit in the accuracy of forecasts of precipitation and clouds, which will benefit the aviation community, its customers, and the general public.

Southwest Airlines plans to continue working with ARINC and NOAA in conjunction with the National Weather Service to expand WVSS-II installations on its aircraft fleet. To learn more about the WVSS-II initiative, watch the video [here](#).

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the most advanced weather and flood warning and forecast system in the world, helping to protect lives and property and enhance the national economy. Working with partners, NOAA's National Weather Service is building a Weather-Ready Nation to support community resilience in the face of increasing vulnerability to extreme weather.

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