

Inside Wallops

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Transforming Airspace One Plane at a Time

For the past decade, aeronautics researchers at NASA's Langley Research Center and NASA's Ames Research Center have been supporting research and testing of a new tracking system called Automatic Dependent Surveillance-Broadcast, (ADS-B), and how it can be used for air traffic management.

as weather data also can be broadcast from the ground.

Once installed in aircraft and ground facilities, ADS-B helps air traffic controllers to better schedule arrivals and departures, reduce runway incursions and improve operations in poor visibility.



ADS-B Technologies

Because the accuracy of ADS-B signals isn't made worse by distance, weather or other conditions as can happen with radar, controllers are more confident about an aircraft's actual position. They're able to let aircraft fly closer together, creating more efficient use of airspace.

One of the first tests of ADS-B was the Federal Aviation Administration's

Capstone Program, which was created in 1999. The program set out to determine whether this new technology could reduce the number of small aircraft accidents in Alaska caused by mountainous terrain and poor weather.

NASA supported the installation of ADS-B in more than 100 small aircraft, which involved transitioning cockpits from traditional analog instruments to digital avionics. ADS-B also was installed in ground stations. Unlike radar ground antennas, ADS-B ground units are quite small and don't require much power, so they can be installed in very remote areas. According to the FAA, from 2000 through the end of 2004 the rate of accidents for Capstone-equipped aircraft in Alaska decreased by 47 percent.

ADS-B also is being used on large jet transport aircraft. During the early 2000s, NASA was instrumental in conducting a series of "merging and spacing" flight trials

of ADS-B with the all-cargo air carrier UPS. Merging and spacing occurs every day in the national airspace. It involves achieving the desired spacing interval between successive arriving aircraft. ADS-B makes it possible to reduce those intervals and improve efficiency while maintaining safety. UPS has received certification and operational approval to install a second generation ADS-B avionics system on aircraft in their fleet.

Expectations remain high for ADS-B. It is in use by general aviation pilots in Alaska, and by UPS's large transport aircraft for approaches at its Louisville, Kentucky hub. Most importantly, the FAA has decided that ADS-B is now the preferred technology for use throughout the national airspace.

Ground Breaking for First Facility in Wallops Research Park

Northrop Grumman broke ground on October 1 for a new facility to be located in the Wallops Research Park across from the U.S. Navy Surface Combat Systems Center's (SCSC) Headquarters complex.

The one-story, 15,000 square foot building will house up to 55 Northrop Grumman employees supporting the Navy SCSC and NASA Wallops Flight Facility at Wallops Island.

The building will be the first in the Wallops Research Park, which is a joint effort to attract science, technology and educational organizations and provide high-tech jobs to the region.

Northrop Grumman provides the Navy with systems engineering, planning, installation, operations and maintenance services. It also designs, manufactures, tests, and provides launch support for the NASA Sounding Rocket Operations Contract.

ADS-B uses satellite-based Global Positioning System signals instead of ground-based radar signals. The system automatically provides information with pinpoint accuracy about how far one airplane is from another in the sky, as well as an airplane's position to the control tower. This exchange of information occurs real-time, the pilot in the cockpit and the air traffic controller on the ground "see" the same data at the same time.

ADS-B provides "air to ground, ground to air, and air to air" surveillance. ADS-B is automatic. The pilot doesn't have to turn anything on or off; data is displayed at all times in the cockpit.

Its accuracy is dependent on a Global Navigation Satellite System signal. It provides surveillance data like radar, and it broadcasts all of this information continuously to any other aircraft or ground facility that has been set up to receive ADS-B. Select information such

A Wet and Warm End to Summer by Ted Wilz, Senior Meteorologist

Across Delmarva, summer came to a wet/mild end in September. Thanks mainly to Tropical Storm Hanna at the beginning of September and the effects of Hurricane Kyle reaching the coast on Saturday, September 27, our area had 5.81 inches of rain during September. On the afternoon of September 27, three inches of rain was recorded in a two hour period. The monthly average is 3.50 inches of rainfall.

It was also a very warm month. Temperatures were a little over three degrees above normal. The first half of September was especially warm. Four new daily record high temperatures were set. This included a 93 degree reading on September 14, the warmest day of the month. Even with such balmy temperatures, no new record lows were set. The coolest day occurred when on September 24 when the temperature dropped to 53 degrees.

There also were two windy periods during the month. Tropical Storm Hanna brought 54 mph winds on September 6, and the Nor'Easter that moved through the area on September 25 brought winds of 47 mph.

The end of November should bring an end to the tropical storm/hurricane season. High temperatures at the beginning of November are usually in the mid 60's, cooling to the low to mid 50's by the end of the month. Average low temperatures start out in the upper 40's, but are usually in the mid to upper 30's as December approaches. The all time record high for the month is 83 degrees,

which occurred twice in 1974. The monthly record low is 19 degrees, which occurred on three occasions most recently in 1976.

This area averages 2.72 inches of rain during November, usually occurring on eight days. The first snowflakes of winter occasionally appear in November. November can be a highly variable month for precipitation as evidenced by the scant .05 inches of rain received during November 2001 to the 7.39 inches of rain received during the wettest November on record in 1997.

Cooler weather is on its way. Be sure to check your home heating system, have the chimney cleaned and unpack the sweaters.



House for Rent

Pocomoke, Md., 4 bedroom, 2.5 baths, 2 car garage, No Pets Available Nov. 1, \$1000 per month plus security deposit. Email: rwelsh1@comcast.net or call (301) 464-9596

Columbus Day
will be celebrated
October 13

The next *Inside Wallops*
will be October 20

Thrift Savings Plan Workshops

Wallops employees may participate in Thrift Savings Plan (TSP) workshops by telecom in Bldg. E-2, Training Room.

October 9 and October 28
8:30 a.m. to 12:30 p.m. - General Briefing
2 to 4 p.m. Pre-Separation Briefing for employees considering retirement within 5 years

Social Security Workshop

October 22
9 - 11 a.m. and 1 to 3 p.m.
Bldg. E-109, Rm 107

A representative from the Social Security Administration will be available by telecom to provide an in-depth discussion of benefits related to retirement, Medicare, disability survivor and family benefits.

To register, visit SATERN . If you are unable to attend any of these workshops and would like additional information contact Cathy Mason, Benefits and Retirement Consultant, at x66-8208 or Rich Billger at x2394.

Influenza Vaccinations

The Wallops Health Unit will begin influenza vaccinations on Wednesday, October 15 for all employees in the higher risk categories.

Immunizations will be given on Wednesdays and Fridays from 9 to 11:30 a.m.



The vaccine is an inactivated influenza vaccine, not a live virus vaccine. There is no risk of developing influenza from the vaccine

There will be no appointments this year. For information on who is in the higher risk category or if you have other questions, call the Heath Unit at x1266.



Wallops Shorts.....

In the Field

A NSROC team has departed for White Sands Missile Range, N.M., to support the launch of a Terrier-Black Brant sounding rocket currently scheduled for October 20.

"Dealing with Difficult People- -Part II"
October 20
11:30 a.m. to 12:30 p.m.
Bldg. E-2, Williamsburg Room

A Lunch & Learn with Peggy Swan and Sharon Parker of Accomac Family Counseling.

Learn strategies to deal with difficult people: those who are passive-aggressive, hostile, sarcastic, superficial, condescending, stubborn, argumentative, boring, critical, judgmental, pushy, or demanding.

Inside Wallops is an official publication of Goddard Space Flight Center and is published by the Public Affairs Office, x1584, in the interest of Wallops employees. Recent and past issues of *Inside Wallops* also may be found at: <http://www.nasa.gov/centers/wallops/news/newsletters.html>

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