

FAA Approves UPS ADS-B Operations

DAVID HUGHES/WASHINGTON

UPS will soon begin using advanced automatic dependent surveillance-broadcast (ADS-B) procedures at Louisville, Ky., now that the FAA has approved its application for the first satellite-guided merging and spacing operations the U.S.

The software suite, called SafeRoute, for this novel type of operation was developed by Aviation Communication & Surveillance Systems (ACSS), a Thales and L-3 Communications company. The approval for this project builds on a decade of work pioneering ADS-B at UPS led by Capt. Karen Lee, director of flight operations at UPS, and Bob Hilb, a technical pilot there. ADS-B relies on GPS-derived aircraft position that is transmitted to the ground for ATC use and, in the UPS example, to other aircraft so the position of other freighters lining up to land can be shown to pilots on a cockpit display of traffic information (CDTI).

In addition to the flight deck-based Merging and Spacing function that helps pilots line up during approach at the optimum interval, the application allows CDTI "assisted visual separation," which enables a visual approach to continue even as visibility drops below the normal requirement for visual separation, and Surface Area Movement Management (SAMM). The SAMM feature shows UPS pilots about to land at Louisville and those taxiing on the airport surface the locations of all other freighters operating there. It will also facilitate more efficient handling by UPS managers of the freighters on the ground.

The prompt arrival of freighters is essential to the package-sorting operation at the UPS Worldport Hub at Louisville In-

ternational Airport (Standiford Field). UPS and ACSS have certified the software to operate on a Boeing/Aeronautics Class 3 Electronic Flight Bag as the display and interface device with an auxiliary display in the forward field of view provided by Gables Engineering. Electronic information displayed to the crew contains data such as closure rate on the aircraft ahead and its speed and altitude.

This *Aviation Week & Space Technology* pilot flew on a UPS 767 freighter to see an earlier version of ADS-B at work (AW&ST Nov. 6, 2006, p. 56) and saw the SAMM feature of the new ADS-B system in use on the ground in a 757 at Louisville (AW&ST June 18, 2007, p. 80). The pilot can see every freighter on the ground and on short final at Louisville—in that sense SAMM will be the most comprehensive safety system in use in the U.S. to help avoid runway incursions.

In late 2009, ACSS will certify an alerting feature to tell the flight crew that a runway is occupied or about to be occupied. Airlines are showing much more interest in comprehensive display and warning systems to prevent runway incursions.

The flight deck-based Merging and Spacing function will allow continuous-descent arrival procedures in which controllers delegate the task of maintaining accurate in-trail spacing to the flight crew during the entire descent from en route airspace to the runway.

UPS aims to cut noise and emissions by about 30% and fuel burn by 40-70 gal. for each arrival by nearly eliminating low-altitude vectoring as a technique to line up aircraft for landing.



This Surface Area Movement Management (SAMM) display from ACSS gives UPS freighter pilots a view of all the company's cargo jets operating at Louisville's Standiford Field.