

NAVIGATION GUY NORRIS / LOS ANGELES

UPS to test 'SafeRoute' next year

Carrier to fly system that uses ADS-B data and cockpit displays to assist pilots in the air and on the ground

Aviation Communication & Surveillance Systems (ACSS) and launch customer and development partner UPS Airlines expect to start flight tests in 2006 of a system that will enable pilots to monitor spacing between aircraft during

approaches, and to guard against runway incursions on the ground.

The SafeRoute system is a series of automatic dependent surveillance – broadcast (ADS-B) software applications that are designed to enhance situational awareness

through two main subfunctions – surface area movement management (SAMM) and the “merging and spacing” feature.

The system will be installed on the UPS fleet by 2007 and is capable of being fitted to “any

product”, says Cyro Stone, chief technologist for ACSS, an L-3 Communications and Thales joint venture. SafeRoute is a surveillance computer that can be installed as part of any of its hazard warning systems – such as T2CAS, TCAS 2000 or 3000 – or hosted within another supplier's product.

Using satellite-derived positioning data from the ADS-B, the “merging and spacing” function allows crews to descend at a regular, smoother rate that is both safer and more fuel efficient. “It enables you to perform a continuous descent approach,” says Stone. “Controllers provide radar vectors to delay two aircraft from merging at the same waypoint. That is done at lower altitudes, which increases fuel burn, noise and emissions. If you do it before the start of descent, even if you have to do it with radar vectors, it is a lot better all round,” he adds.

The system will provide data on the speed, distance and identity of the aircraft in front, “and it will tell you to slow down or speed up”, says Stone. The SafeRoute-equipped aircraft will still gain benefits from operating around non-equipped aircraft, and will “not be penalised in any manner”, says Stone. The data will help pilots maintain typical spacing of 90s in trail in good weather, or 105s during poorer weather.



As these two graphics show, the display can alert pilots to potential conflicts such as an occupied runway

Display improves situational awareness

ACSS's SafeRoute's surface area movement management feature provides flightcrews with enhanced situational awareness on the ground by showing the position of the host aircraft on an airport surface map in relation to surrounding aircraft and ground vehicles.

Shown on a Class 3 electronic flight bag (EFB) or, in the case of UPS, a dedicated cockpit display of traffic information (CDTI), the unit tracks the movements of both aircraft and ground vehicles on the airport surface and alerts pilots to any potential conflicts.

Initial flight tests towards supplemental type

certification for SafeRoute will be conducted with ACSS's Beechcraft King Air testbed.

However “as part of our relationship with UPS, we will also be conducting flight demonstrations using several of its aircraft”, says Cyro Stone, chief technologist for ACSS, who adds the express freight airline is “much more than a launch customer”.

UPS, a long-time proponent of automatic dependent surveillance – broadcast, plans to install the system in its fleet of 268 aircraft, and has used it and the CDTI display at its Louisville, Kentucky hub to test flight SafeRoute procedures.