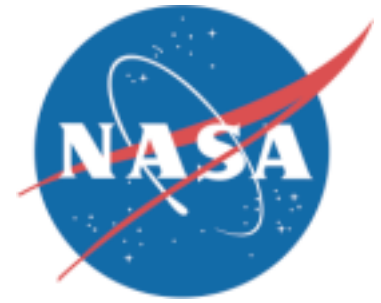


FactSheet

National Aeronautics and
Space Administration

Langley Research Center
Hampton, Virginia 23681-2199



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Researchers used a NASA 757 research aircraft to demonstrate the Advanced Terminal Area Approach Spacing computer-based tool at Chicago's O'Hare International Airport.

NASA technology could help decrease air traffic delays

Researchers at NASA's Langley Research Center in Hampton, Va., are developing technology for airliners that could help decrease air traffic delays and may help reduce air traffic controllers' work loads.

One piece of that puzzle is an airborne computer system called ATAAS or Advanced Terminal Area Approach Spacing that would give pilots automatic speed information and guidance so that planes can be precisely spaced on their final approach into the airport.

Unlike drivers on the ground who can judge time and distance by car lengths, pilot can't always see the traffic in front of them. They depend on air traffic controllers who are in charge of guiding

aircraft in for landings, especially during bad weather.

To keep planes safely on track, controllers issue control instructions over the radio to the many pilots in the air on approach. These instructions include the speeds, altitudes and headings the pilots have to sustain to land safely and efficiently.

NASA's ATAAS computer-based tool automatically calculates the speed and distances between aircraft that pilots need to maintain and sends that information to displays in the cockpit.

ATAAS also incorporates Global Positioning System (GPS) satellite signals and Automatic Dependent Surveillance-Broadcast (ADS-B)

technology to give flight crews their own location, the identity of the traffic in front of them, a history of where the lead aircraft has been and the best position of their plane for a precisely spaced landing.

NASA researchers developed and analyzed the ATAAS computer software in an air traffic operations lab at NASA Langley. Then they tested it, with the help of a number of experienced pilots, in one of NASA Langley's cockpit motion facility simulators.

The ATAAS system was demonstrated for the first time in a real world environment in September, 2002 at one of the busiest airports in the world, Chicago's O'Hare International Airport.



NASA Langley research pilots Jeff Moultrie (left) and Harry Verstynen (right) tested the approach spacing system in a simulator patterned after a B 757-200

A former B757-200 airliner now used as a NASA flying laboratory was outfitted with the equipment to support the approach spacing concept.

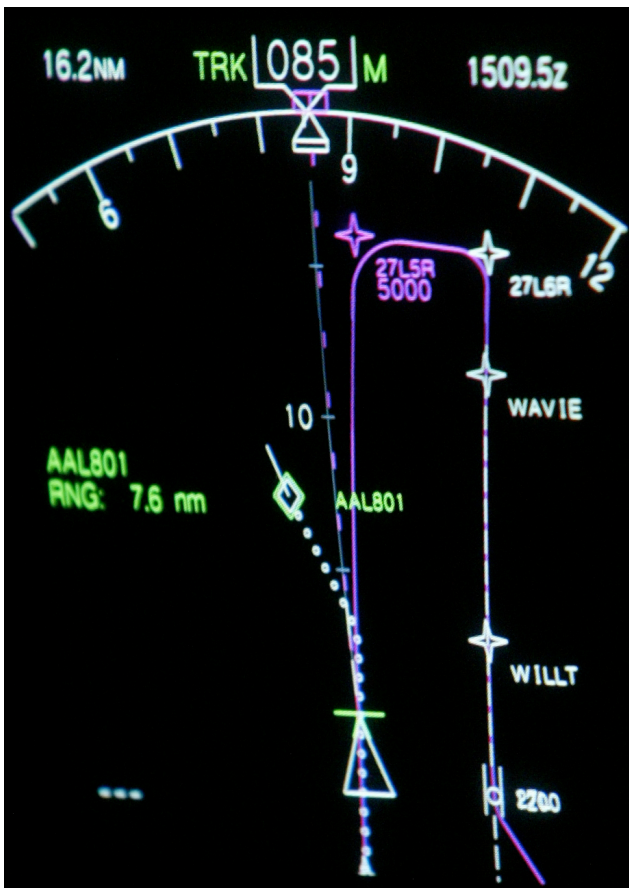
The Airborne Research Integrated Experiments System or ARIES aircraft recorded data to validate the ATAAS system with the help of two other aircraft, a Rockwell Collins Sabreliner and a Piper Chieftain, owned by Chicago-based Aviation Navigation Satellite Program, Inc.

The three planes flew a number of approaches at night into O'Hare to show that the software can offer more delivery precision than is currently available, because of approach speed variability, radar inaccuracies and flight technical errors.

More precision would potentially give airports a more consistent traffic flow and the ability to better adhere to schedules.

NASA researchers say the approach spacing tool is one concept that could help air terminal congestion in the short term, until airports can expand to meet future demand.

For more information, please call the NASA Langley Public Affairs Office at 757 864-6124 or visit <http://www.larc.nasa.gov>



With ATAAS cockpit navigation displays would show pilots additional information on approach.