NASA TECHNOLOGY TO HELP AIRLINES CUT FUEL CONSUMPTION

News / Airlines

Two passenger airlines in the U.S. will soon test an application developed by NASA that is designed to help carriers save time, substantially reduce fuel consumption and slash carbon emissions.

During the next three years, Virgin America and Alaska Airlines will use the Traffic Aware Planner (TAP) application, to make "traffic aware strategic aircrew requests" (TASAR).

"TAP connects directly to the aircraft avionics information hub on the aircraft," said David Wing, TASAR project lead at NASA's Langley Research Centre in Hampton, Virginia.

"It reads the current position and altitude of the aircraft, its flight route, and other real-time information that defines the plane's current situation and active flight plan," Wing said.

"Then it automatically looks for a variety of route and altitude changes that could save fuel or flight time and displays those solutions directly to the flight crew," Wing said.

TAP also can connect with the plane's Automatic Dependent Surveillance-Broadcast (ADS-B)

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receiver and scan the ADS-B signals of nearby air traffic to avoid potential conflicts in any proposed flight path changes, making it easier for air traffic controllers to approve a pilot's route change request.

For airlines with Internet connectivity in the cockpit, TAP also can access information - such as real-time weather conditions, wind forecast updates and restricted airspace status - to further increase flight efficiency.

The software is loaded onto a tablet computer, which many airline pilots already use for charts and flight calculations.

Wing and his team have tested the TASAR software twice aboard a Piaggio P180 Avanti aircraft, a high-performance technology test bed owned and operated by Advanced Aerospace Solutions, LLC of Raleigh, North Carolina.

The system worked well on its initial test flight from Virginia to Kentucky, according to its test pilot.

"We used it to make a route change request from air traffic control, which they granted. We got a shortcut that saved four minutes off the flight time," the test pilot said.

Even four minutes of flight time shaved off of each leg of a trip made by an airline could result in massive fuel and time savings, according to researchers.

The software provided similar results as flight tests continued in the northeast corridor. A second round of flight tests was recently completed to ensure readiness for operational use by partner airlines.

The TASAR flight tests came after a dozen pilots provided feedback on the technology in a simulation at the University of Iowa Operator Performance Laboratory.

In addition, aerospace systems manufacturer Rockwell Collins of Cedar Rapids, analysed TASAR to make sure it is safe and can be readily certified by the Federal Aviation Administration.

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