*International Civil Aviation Organization*

**NINTH MEETING OF THE COMMUNICATIONS/NAVIGATION/SURVEILLANCE AND METEOROLOGY SUB-GROUP OF APANPIRG (CNS/MET SG/9)**

Bangkok, Thailand, 11–15 July 2005

**Agenda Item 6: Surveillance**

# STATUS OF THE US DEPLOYMENT OF AUTOMATIC DEPENDENT SURVEILLANCE – CONTRACT (ADS-C) CAPABILITY

(Presented by USA)

**SUMMARY**

This information paper provides status on the U.S. deployment of Automatic Dependent Surveillance – Contract (ADS-C) capability.

## 1.0 Use of ADS-C for Surveillance in Oceanic Airspace

1.1 In the communications, navigation, surveillance/air traffic management (CNS/ATM) systems environment, surveillance is provided by Automatic Dependent Surveillance - Contract (ADS-C). ADS-C allows for the establishment of position reporting contracts between ground systems and an aircraft's avionics system. An ADS-C contract is a reporting plan that establishes the criteria for ADS-C data reporting and the frequency of the ADS-C reports. The implementation of ADS-C provides surveillance capability in oceanic airspace and is intended to replace Controller Pilot Data Link Communications (CPDLC) and verbal position reporting in areas where non-radar separation is currently applied.

## 2.0 Advanced Technologies and Oceanic Procedures (ATOP) Initial Operating Capability (IOC)

2.1 On June 30, 2004, Initial Operating Capability (IOC) of the Advanced Technologies and Oceanic Procedures (ATOP) system was declared at the Oakland Air Route Traffic Control Center (ARTCC). The ATOP system provides the United States Federal Aviation Administration (FAA) with a new automation platform for the provision of air traffic control (ATC) services in the Oakland oceanic flight information region (FIR). Since IOC declaration, the ATOP system has been in an extending testing phase and is being used for short durations in various portions of the Oakland FIR. It is planned to transition to full twenty four hours a day, seven days a week use in the entire Oakland FIR by October 2005. The ATOP system is also installed at the New York ARTCC and was declared operational on March 31, 2005. Finally, the ATOP system is planned to go operational in the Anchorage ARTCC in March, 2006.

## 3.0 The ATOP ADS-C Operational Concept

3.1 Each aircraft is tracked within the ATOP system by means of a cleared four dimensional (4-D) profile. An automated conflict probe ensures that all 4-D profiles being maintained by the system are separated from each other, both in space and time. The ADS-C application is used in the ATOP system as the primary surveillance means for ensuring that those aircraft with the requisite ADS-C avionics and satellite data communication equipment are conforming to their cleared 4-D profiles. Aircraft not using ADS-C must provide position reports by traditional means (e.g. high frequency (HF) radio).

3.2 ADS-C, combined with CPDLC and improved Required Navigation Capabilities (e.g. required navigation performance 4 (RNP 4), provides the basis for reduced separation in oceanic airspace. Limited use of 50 nautical miles (nm) longitudinal separation is underway using the ATOP system in the Oakland FIR. Work is progressing on the implementation of 30 nm lateral and 30 nm longitudinal (30/30) separation in the South Pacific portion of the Oakland FIR. It is expected that 30/30 can be implemented on a trial basis by the end of 2005.

## 4.0 Conclusion

4.1 The meeting is requested to note the material presented in this information paper, and consider its contribution to the implementation of a global satellite-based surveillance system using ADS-C.

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