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Agenda Item 3: CNS Developments
3.5 Review of the Planning and Implementation of Surveillance Systems and Follow-up to their Respective Action Plan(s).

FOLLOW-UP ON SURVEILLANCE INITIATIVES BY TRINIDAD AND TOBAGO

(Presented by Trinidad and Tobago)

Summary
This Information Paper presents a position on aeronautical surveillance from a Trinidad and Tobago perspective.

1. Introduction

1.1 The First Surveillance Task Force Meeting (CNS/SUR/TF/1) of the CNS Committee of the GREPECAS CNS/ATM/SG held in Trinidad and Tobago, 20 – 21 July 2007 developed the following Conclusions relating to the conduct of trials utilizing emerging technologies to enhance aeronautical surveillance:

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- CNS/SUR/TF 1/1 – ADS-C Trials in the CAR/SAM Regions,
- CNS/SUR/TF 1/2 – Application of MLAT as a surveillance option, and
- CNS/SUR/TF 1/3 – ADS-B Trials.

1.2 States, Territories and International Organisations were expected to proceed with plans for carrying out trials keeping in view the works towards the development of a Surveillance Strategy for the CAR/SAM Regions.

2. Discussion

2.1 The above Conclusions were given to the responsible ATM personnel in the Trinidad and Tobago Civil Aviation Authority for study and to develop in conjunction with the responsible CNS personnel in the CAA ATM/CNS Team an action plan for the conduct of trials.

2.2 In conducting the study, the ATM Team took on board the Basic Operational Requirements and Planning Criteria, the ICAO Global CNS/ATM Plan, ICAO Strategic Objectives for the period 2005-2010, the ICAO Global Plan Initiatives, the CAR/SAM ANP, E/CAR/DCA/20 and lately the E/CAR/DCA/21 Reports, CNS/SUR/TF/1 Report, applicable GREPECAS Conclusions and Decisions, and other relevant documentation.

2.3 The TTCAA ATM/CNS Team carried out a review of the FIRs resident aircraft fleet equipage as well as that of the non-resident aircraft fleet which operate within the FIR. It also reviewed the current traffic density and growth trends plus the near-term CNS infrastructure using 2007 as a baseline.

2.4 Currently, Trinidad and Tobago is in the midst of an ATM/CNS Modernisation Project, which involves the sharing of Radar Data from the French Antilles and Barbados initially. This phase of the Project will realise Enroute Surveillance capability within 80% of the airspace west of the 057ºW Meridian and should be available for operational use by the end of the third quarter 2008. Following on this phase the Radar Data from the Trinidad and Tobago (new) radar will be fused with the existing data (that from the French Antilles and Barbados) resulting in a seamless Enroute Surveillance System covering all the airspace west of 057ºW in the Piarco FIR. This phase of the Project should be available for operational use by end of the third quarter 2009.

2.5 In addition, the ATM Modernization Project caters for the processing of data from the following sources/sensors PSR/SSR/MSSR/ADS-B/ADS-C/TIS-B and MLAT.

2.6 With regard to the various sensors available for aeronautical surveillance, Trinidad and Tobago as custodian of the Piarco FIR will eventually migrate to ADS-B as it is envisaged as the main mode of surveillance in accordance with the CAR/SAM Regional Plan. For the near to medium term surveillance will be via MSSR since the existing and planned Radars are relatively new and are expected to be available for use beyond 2015.

2.7 Survey of the aircraft fleet that currently operate within and through the FIR revealed that more than 97% of those aircraft were transponder equipped allowing for Radar Surveillance and the use of MLAT as an alternate method for surveillance. The majority of the domestic fleet are not Mode-S or 1090 MHz-ES transponder equipped and therefore ADS-B trials and implementation will only involve the non-resident fleet in the main. Further, the domestic fleet comprises, aside from those long-range aircraft with country of Operator being France, only one other operator with medium-range aircraft that are fitted with the technologies to allow for ADS-B trials and/or surveillance. The majority of the fleet comprises commuter type aircraft – Dash 8 and smaller.

2.8 Bearing in mind that ADS-B and MLAT Ground Stations in general are more-or-less similar except for the software involved as well as the traffic volume, migration from Radar surveillance to ADS-B via MLAT seems to be the better option for Trinidad and Tobago at this time. This option will give the domestic operators a longer gestation period to retrofit or re-equip for ADS-B surveillance towards the end of the medium term and into the long term. In that connection, Trinidad and Tobago is continuing its studies on the matter, giving serious consideration towards going to MLAT as its first option. It is expected that a firm decision will be arrived at, following on from the studies and the deliberations at this Second Task Force Meeting (CNS/SUR/TF/2) which will be held in Lima, Peru over the period 2008 May 09 – 10..

2.9 In so far as Trinidad and Tobago is concerned, ADS-C has been tested and proven technology which requires no trials for the time being. Trinidad and Tobago will be prepared to commence ADS-C Surveillance with a period of Pre-Operational Trials in 2010/11 when the (new) ATM/CNS System is up and running.

3. Findings thus Far

3.1 Based on the current scenario and up to the end of the medium term, it is envisaged that Surveillance within the Piarco FIR will be best served through the use of radar.

3.2 MLAT, based on successful trials appears to be the better option taking into consideration the traffic density, projected growth trends and fleet equipage within the Piarco FIR at this time.

3.3 Surveillance within the Piarco FIR should migrate to ADS-B via MLAT and that ADS-B trials are conducted not before 2015 within the FIR.

3.4 Implementation of ADS-C should be carried out in 2010/11 when the ATM System is fully up and running.

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