



International Civil Aviation Organization

**FOURTEENTH MEETING OF THE
COMMUNICATIONS/NAVIGATION/SURVEILLANCE
AND METEOROLOGY SUB-GROUP OF APANPIRG
(CNS/MET SG/14)**



Jakarta, Indonesia, 19 – 22 July 2010

Agenda Item 6: Surveillance

- 1) **review outcome of Regulator's Workshop on ADS-B avionics equipment requirements and report of the Ninth Meeting of ADS-B Study and Implementation Task Force**
- 2) **review strategy for the surveillance systems**
- 3) **discuss other surveillance related issues**

ADS-B DATA SHARING: INDONESIA-AUSTRALIA

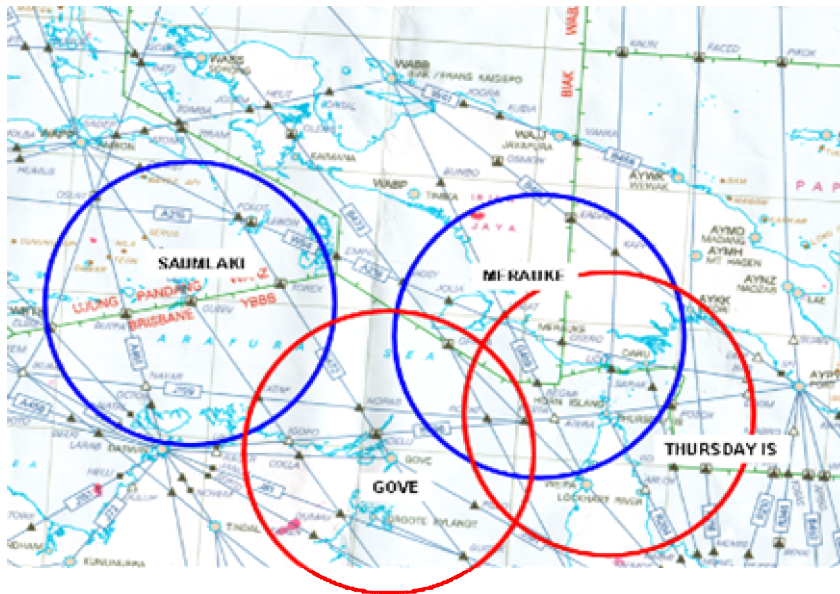
(Presented by Australia and Indonesia)

SUMMARY

Australia and Indonesia have developed a program to share Automatic Dependent Surveillance Broadcast (ADS-B) data to improve safety and efficiency at the Flight Information Region boundaries between the two States. A summary of progress to date and future activities are discussed.

1 Introduction

- 1.1 At **SEA ADS-B WG/4 (WP6)** Australia and Indonesia presented a proposal for an Automatic Dependent Surveillance Broadcast (ADS-B) data sharing project to improve safety and efficiency at the Flight Information Region (FIR) boundary between the two countries (specifically, between the Brisbane and Ujung Pandang FIRs).
- 1.2 Phase 1A involves Australia providing data from Gove and Thursday Island Ground stations and Indonesia providing data from Merauke and Saumlaki.



2 Project Objectives

2.1 The project intends to share ADS-B data to provide situational awareness and to support safety nets. In Phase 1 it is NOT proposed to use the data for the application of 5 NM separation standards. The data will be used to support existing procedural separation standards. The expected project outcomes are :

- reduced numbers of coordination incidents at the FIR boundary
- earlier detection of ATC and pilot errors (coordination errors, incorrect flight level etc)
- technical and operational analysis of data in preparation for future application of radar like separation services
- increased support and confidence in data sharing to allow introduction of radar-like separation at the FIR boundary in a future phase

3 Australian Approval

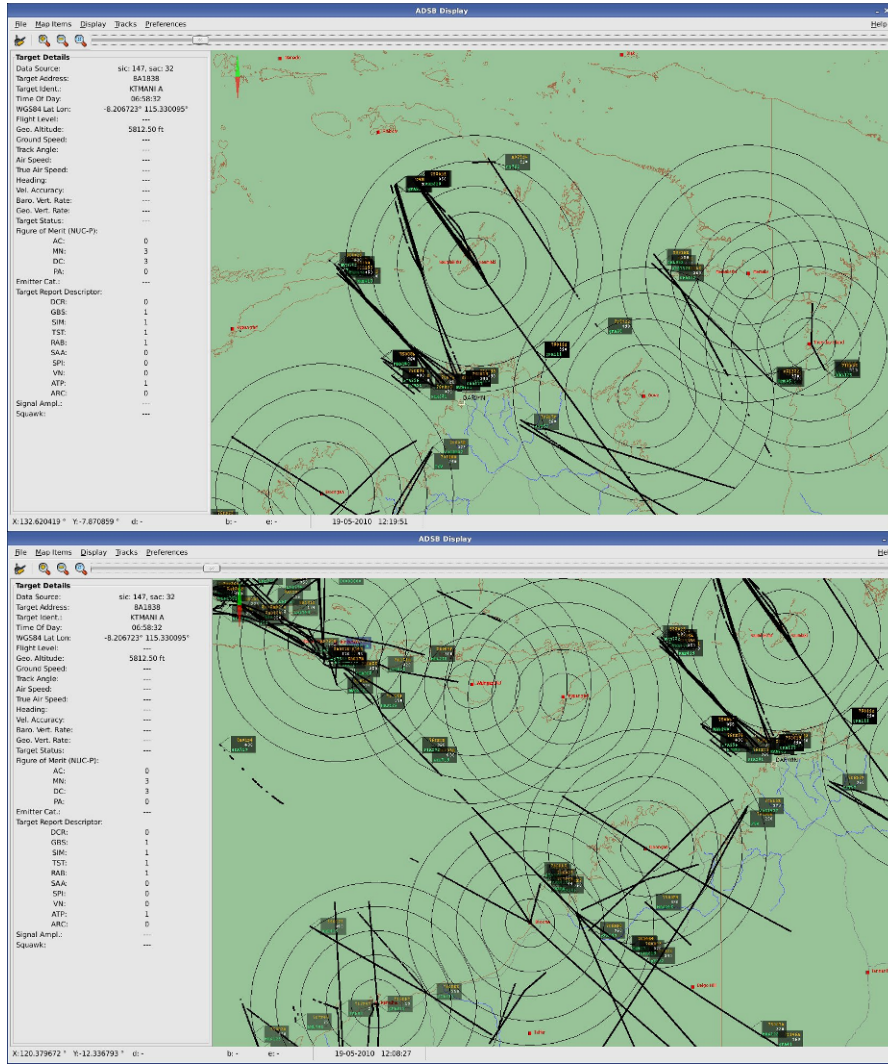
3.1 Airservices Australia has approved Phase 1 and funds have been made available for development and deployment of an ADS-B filter.

4 Indonesian Approval

4.1 Indonesia's Directorate General of Civil Aviation (DGCA) has also approved Phase 1 and an ADS-B Filter has been developed by Infokom and installed at the Makassar Air Traffic Services Centre (MATSC). The ADS-B Filter has been tested and integration of local and foreign ADS-B data into the MATSC ATC System (Eurocat-X) was successful.

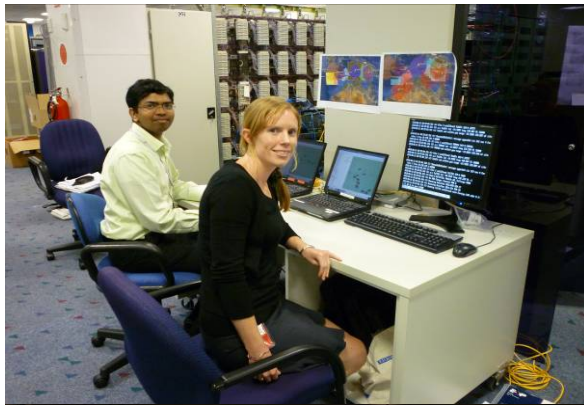
5 Current status

5.1 All four ADS-B ground stations are installed and operating. The following shows the overlap achieved by these ground stations already.

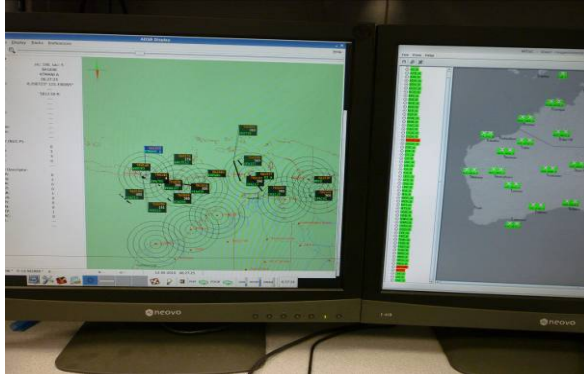


5.2 Testing activities were undertaken in May 2010. A satellite datalink has been established to exchange the ADS-B data using multicast and using Asterix Category 21 Version 0.23. The testing of this link (Indosat 64Kb) is now complete.

5.3 Operational ADS-B data from Indonesia was successfully displayed in Australia on the Remote Control & Monitoring System (RCMS). Data will not be displayed to air traffic controllers until the Deed of Agreement between the two countries is signed and the formal commissioning activities associated with the link and Filter are completed. However, the technical infrastructure is largely in place.



Test environment in Brisbane ATC

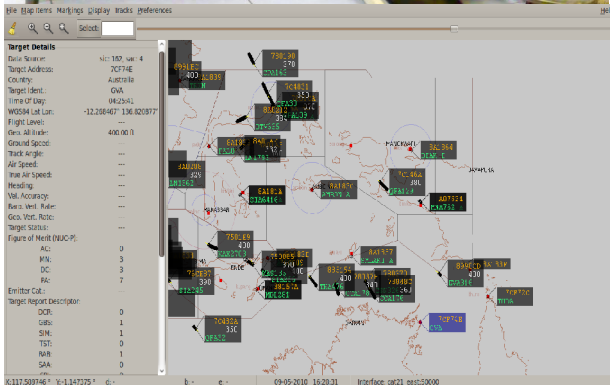


Indonesian data on Brisbane operational RMCS

5.4 Operational ADS-B data from Australia was successfully displayed in Indonesia on the Indonesian RCMS and was displayed on the ATC platform.



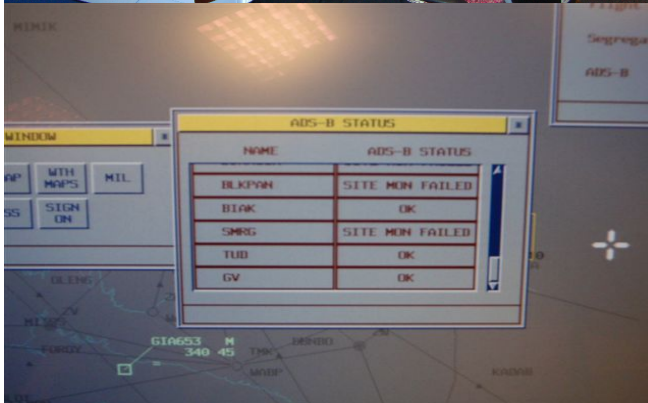
Test environment in Makassar ATC



Australian site monitors on Indonesian RCMS



Operational ATC system in Makassar



Australian site monitors declared "OK" on operational ATC system in Makassar



Display ADS-B Data on Operational ATC system in Makassar

- 5.5 During testing Australia and Indonesia enabled transmission of ADS-B ground stations at Broome, Doongan, Kupang and Kintamani. This corresponds with much of the proposed Phase 1B implementation. The data was successfully processed in each receiving country.
- 5.6 A number of small deficiencies were identified and have been corrected or will soon be corrected.
- 5.7 Over seventy percent (70%) of international flights entering Australia are approved to receive ADS-B services in Australia.
- 5.8 International flights entering the Ujung Pandang FIR can be monitored by air traffic controllers at MATSC.

5.9 A draft Deed of Agreement to support ADS-B data sharing has been developed and is in the final stages of co-ordination before signature by Australia and Indonesia. The agreement is based in large part on the sample agreement developed by **SEA ADS-B WG**.

5.10 Both Indonesia and Australia have developed and have tested ADS-B filters to control and manage data flow under the data sharing agreement. These filters are now installed in the respective ATC centres

5.11 The planned schedule is now as follows:

	Milestone	Planned date
1.	Signature of Data sharing agreement	TBD
2.	Complete Inter FIR datalink installed for testing	Completed April 2010
3.	Completion of data link testing:	Completed May 2010
4.	Use of foreign ADS-B data for situational awareness by ATC	August 2010 for Australia
5.	Use of ADS-B data for monitoring by ATC	June 2010 for Indonesia
6.	Use of ADS-B data for situational awareness by ATC	2011 for Indonesia

6 Next Phases

6.1 It is hoped that the project will extend to Phase 1B and possibly Phase 2. These future phases will add more sites and extend the operational use of ADS-B at the FIR boundary.

6.2 The current plan is to make Phase 1A operational before commencement of Phase 1B.

6.2.1 Phase 1B - This phase, if approved, would comprise the sharing of three sites from Indonesia and three sites from Australia as follows:

Australia: Broome, Doongan, TBD **
Indonesia: Waingapu, Kintamani, Kupang

(** Airservices Australia has decided to not install an ADS-B ground station at Darwin because a new SSR only radar is being installed at this location. An alternate site is being considered.)

6.2.2 Phase 2 - This phase, if approved, could transition to full radar-like separation when both parties have in place suitable ATC infrastructure such as:

- duplicated data communication capability
- Direct Controller Pilot Communication (DCPC) for both parties at the boundary
- revised boundary separation standards and Memorandums of Cooperation
- Policies, regulations and extensive training

7 Recommendation

It is recommended that

- 7.1 The meeting note that the proposed plan presented at SEA WG/4 has been approved by both Indonesian and Australia organisations and is progressing well
- 7.2 The meeting note that the benefits of data sharing will only be provided for ADS-B equipped aircraft.
- 7.3 The meeting support the continued execution of this plan and development of future phases.
