



International Civil Aviation Organization

**THE TENTH MEETING OF AUTOMATIC
DEPENDENT SURVEILLANCE –
BROADCAST (ADS-B) STUDY AND
IMPLEMENTATION TASK FORCE
(ADS-B SITF/10)**



Singapore, 26 -29 April 2011

**Agenda Item 6: Review States' activities and interregional issues on trials and
implementation of ADS-B and multilateration**

ADS-B DATA SHARING: INDONESIA-AUSTRALIA

(Presented by Australia and Indonesia)

SUMMARY

Australia and Indonesia have developed and commissioned Automatic Dependent Surveillance Broadcast (ADS-B) data sharing. This is improving safety and efficiency at the Flight Information Region boundaries between the two States. Transition to full operation was achieved on 1 February 2011. ADS-B data from foreign FIRs is now on-screen in both Brisbane and Makassar ATC centres.

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 Both Indonesia and Australia have extensive ADS-B coverage and display ADS-B data at operational positions. Australian ATC is authorised to use ADS-B for delivery of 5 nautical mile separation services to approved aircraft.

1.3 The initial plan for Phase 1A involved Australia providing data from Gove and Thursday Island Ground stations and Indonesia providing data from Merauke and Saumlaki. The plan was later revised to include sharing additional sites from each state at Broome, Doongan, Kintamani and Kupang.

2. Project Achievement

2.1 Transition to full operation was achieved on 1 February 2011. ADS-B data from foreign FIRs is now on-screen in both Brisbane and Makassar ATC centres.

2.2 The system increases situational awareness and supports safety nets. It is used to support procedural separation standards. It is expected to provide :

- 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

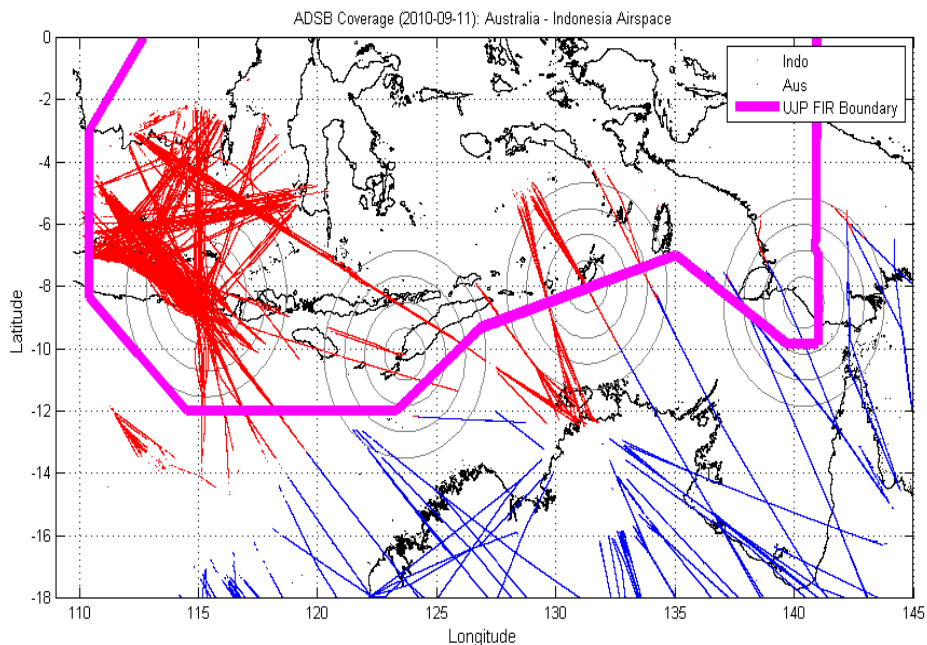
3. Activities

3.1 A Deed of Agreement to support ADS-B data sharing was developed and was signed on 20 September 2010. The agreement is based in large part on the sample agreement developed by **SEA ADS-B WG**.

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

3.3 A satellite datalink was established to exchange the ADS-B data using multicast and using Asterix Category 21 Version 0.23.

3.4 International flights entering the Ujung Pandang FIR are monitored by Air Traffic Controllers at MATSC. International flights entering the Brisbane FIR are monitored by Air Traffic Controllers in the Brisbane centre.



3.5 Over seventy percent (70%) of international flights crossing the FIR boundary between Australia and Indonesia are approved to receive ADS-B separation services in Australia.

3.6 In December 2013 ADS-B equipage is mandatory for domestic and foreign aircraft operating in Australia at and above FL290.

3.7 Indonesia has changed the update rate of Kintamani's GS, Waingapu's GS, and Saumlaki's GS from 3 sec to 1 sec.

3.8 On March 27, 2011, EUROCAT-X at Ujungpandang has been configured to drop ADS-B data with low accuracy indicator (FOM/PA below 5) and pass the data with FOM/PA more than 4. This new configuration has reduced the occurrence of false STCA (Short Term Conflict Alert) warnings. Before the configuration change, false STCAs were probably being generated between ADS-B tracks with good position data and other ADS-B tracks with poor ADS-B positional data & FOM/PA=0.

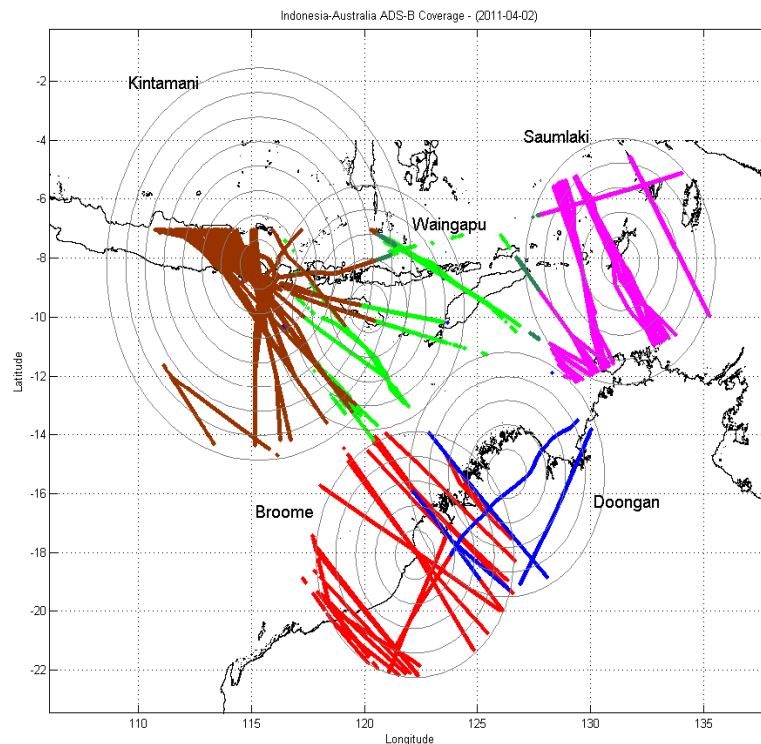
4. Post commissioning experience

4.1 Operational feedback in Australia has been very positive.

4.2 Soon after commissioning, the Indonesian Ground station at Kupang was struck by lightning and the ground station was taken out of service. Indonesia agreed with Australia to quickly enable an additional ADS-B Ground station at Waingapu that was originally envisaged in Phase 1B. Thus, the project has proceeded to partial transition to Phase 1B.

4.3 The new sharing environment is Gove/Thursday/Broome/Doongan from Australia and Merauke/Saumlaki/Kintamani/Waingapu with Kupang currently unserviceable.

4.4 The Waingapu coverage sometimes allows continuous coverage from Broome to Bali as shown below:



4.5 Whilst phase 1B originally comprised Darwin (Australia) and Waingapu (Indonesia), Australia has not installed a ground station in Darwin because a new radar has been commissioned at this location. An alternate site, possibly on an oil rig is being considered.

5. Next Phases

5.1 It is hoped that future phases will add more sites and extend the operational use of ADS-B at the FIR boundary.

5.2 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

There is currently no schedule for phase 2. Additional operational experience with Phase 1 is desired to quantify reliability before consideration of Phase 2.

6. Recommendation

It is recommended that:

6.1 The meeting note that the plan for ADS-B data sharing first proposed at SEA WG/4 has been commissioned.

6.2 The meeting note that the benefits of data sharing will only be provided for ADS-B equipped aircraft.

6.3 The meeting note the benefits of ADS-B data sharing, and recommend that other states consider deployment of ADS-B data sharing to achieve similar results.
