



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 7: Development of Asia/Pacific Regional ADS-B implementation plan and
sub-regional ADS-B implementation plan**

POSSIBLE PROJECT: AUSTRALIA, INDONESIA AND PAPUA NEW GUINEA

(Presented by Australia, Indonesia and Papua New Guinea)

SUMMARY

This paper proposes an ADS-B Data Sharing project between Australia and Papua New Guinea with possible extension to Indonesia.

1. Background

1.1 The following proposal arises from ATM System modernisation planning activities in PNG. The project is still under consideration within the States concerned and does not yet have formal clearance. It outlines a possible project for consideration.

2. Context

2.1 Both Australia and Indonesia have ADS-B programs, have both deployed ADS-B ground stations and have both commenced sharing data across the FIR boundaries thus improving safety and efficiency. 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.

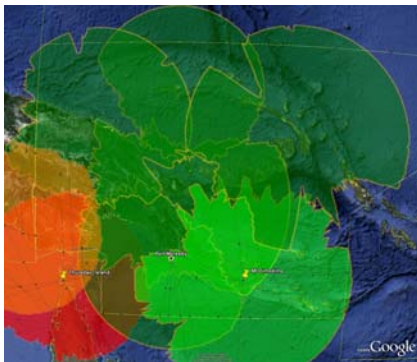
2.2 The use of foreign ADS-B data between Indonesia and Australia increases situational awareness and supports safety nets. It is used to support procedural separation standards. It is providing:

- 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

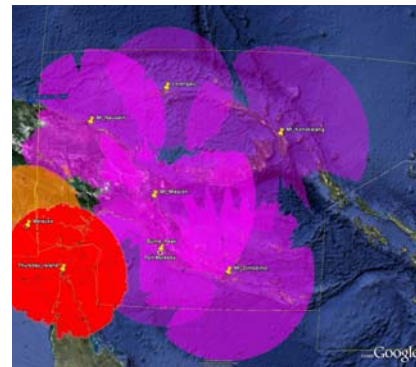
3. Papua New Guinea (PNG) ATMS Modernisation

3.1 Papua New Guinea (PNG) is commencing an ATMS modernisation program which includes plans to deploy ADS-B as its primary surveillance source. PNG is also developing regulatory requirements for aircraft to equip with ADS-B avionics.

3.2 PNG is planning to initially utilise ADS-B surveillance in its controlled airspace which will be designated as Class A and C. This will be above FL245 across the FIR and also in specific higher traffic areas between Port Moresby, Mt Hagen, Madang and Nadzab. The project will likely involve ADS-B deployment at Mt Nauwein, Mt Mission, Mt Konokalang, Mt Dimodimo, Lorengau, and Burns Peak at least. Coverage at the FIR boundary would be enhanced.



Envisaged coverage at FL300



Envisaged coverage at FL200

4. Possible extension to Indonesia

4.1 Subject to agreement with Indonesia, further operational benefit could be obtained if this project were expanded to include data sharing between PNG and Indonesia. The PNG sites at Burns Peak and Mt Nauwein are likely to be operationally useful to Indonesia. The Indonesian sites at Merauke, Timika and Biak are likely to be operationally useful to PNG.



4.2 From a technical point of view, it would be possible to establish this data sharing without additional communications links. Whilst there is no current direct link between Indonesia and PNG, a relay via Australia would be possible using existing communications bearers between Indonesia/Australia and Australia/PNG albeit with slightly lower continuity & availability.

5. Operational Concept & Scope

5.1 If the ADS-B program is adopted, an operational deployment of ADS-B cross-FIR boundary data sharing would be proposed to be deployed in a step by step manner as follows:

Phase 1 - Commence with initial ADS-B data transfer to/from Australia and PNG to support increased safety, situational awareness, automatic flight plan updating and safety nets.

This phase could commence operations before all infrastructures for radar-like separation at the boundary is in place. This phase could include:

- **Phase 1A** : Data sharing from existing ADS-B sites
 - o Thursday Island (Australia)

- **Phase 1B** : Data sharing from new ADS-B sites
 - o Mt Dimodimo (PNG)
 - o Burns Peak (PNG)

Phase 2 – This phase would introduce ADS-B data sharing between Indonesia and PNG

- o Burns Peak (PNG)
- o Mt Nauwein (PNG)
- o Merauke (Indonesia)
- o Timika (Indonesia)
- o Biak (Indonesia)

Phase 3 - A future phase could transition to full radar-like separation when both parties have in place suitable ATC infrastructure such as:

- o Duplicated data communication capability
- o Direct Controller pilot voice communication for both parties at the boundary
- o boundary separation standards and MOUs
- o Policies, regulations and extensive training

6. Schedule

6.1 The following target schedule milestones are proposed for Phase 1:

Complete data sharing agreement:	March 2012
Phase 1A - Transmittal of Data:	July 2012
Phase 1B - Transmittal of Data:	December 2012
Phase 2: For discussion between Indonesia and PNG	
NOTAM/AIC publication:	August 2012
First Operational use:	December 2012

7. Business Case concept

7.1 Phase 1 is justified on safety grounds and for strategic reasons – and to create the environment for a more comprehensive ADS-B separation service.

7.2 Australia is already committed to ADS-B and the long term maintenance of ADS-B systems to support Australia’s domestic needs. Therefore there are no additional ground station costs for this proposal.

7.3 Likewise, PNG is planning to deploy these ADS-B ground stations to support PNG’s domestic needs.

7.4 Aircraft will need to be fitted to support the Australian proposed mandate in 2013 or any published date for a future mandate required by CASA PNG. Prior to those dates benefits will only be provided to aircraft that choose to equip.

7.5 A high performance two way data link between Port Moresby and Brisbane has recently been established and it is expected that this link will be used for ADS-B data sharing.

Project Costs will include:

- Project management for each party
- Legal and other costs to establish Data sharing agreements
- Incremental procedure development

7.6 Additional link costs will be incurred for the Indonesia-PNG link if the existing link capabilities via Australia are not used.

7.7 PNG will need to deploy a Foreign ADS-B Filter to support data sharing.

8. Recommendation

8.1 It is recommended that the meeting support further development of this plan.
