



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**

AUSTRALIAN ADS-B UPDATE

(Presented by Australia)

SUMMARY

The purpose of this IP is to inform ADS-B Task Force of progress achieved in the Australian ADS-B program during the past year.

1. ADS-B Upper Airspace Project (UAP)

1.1 The ADS-B Upper Airspace Project (UAP) has been operationally commissioned and air traffic controllers are authorised to provide 5 NM separation services using ADS-B data from all operational sites. Operational coverage is currently provided across the whole continent from 29 sites ADS-B sites and one WAM system comprising 14 sites.

1.2 The full system has now been operational for more than 1 year since the final stage was completed on 19 December 2009.

1.3 The following diagram shows all sites of UAP together with radar coverage. All sites are now operational delivering data suitable for ADS-B separation.

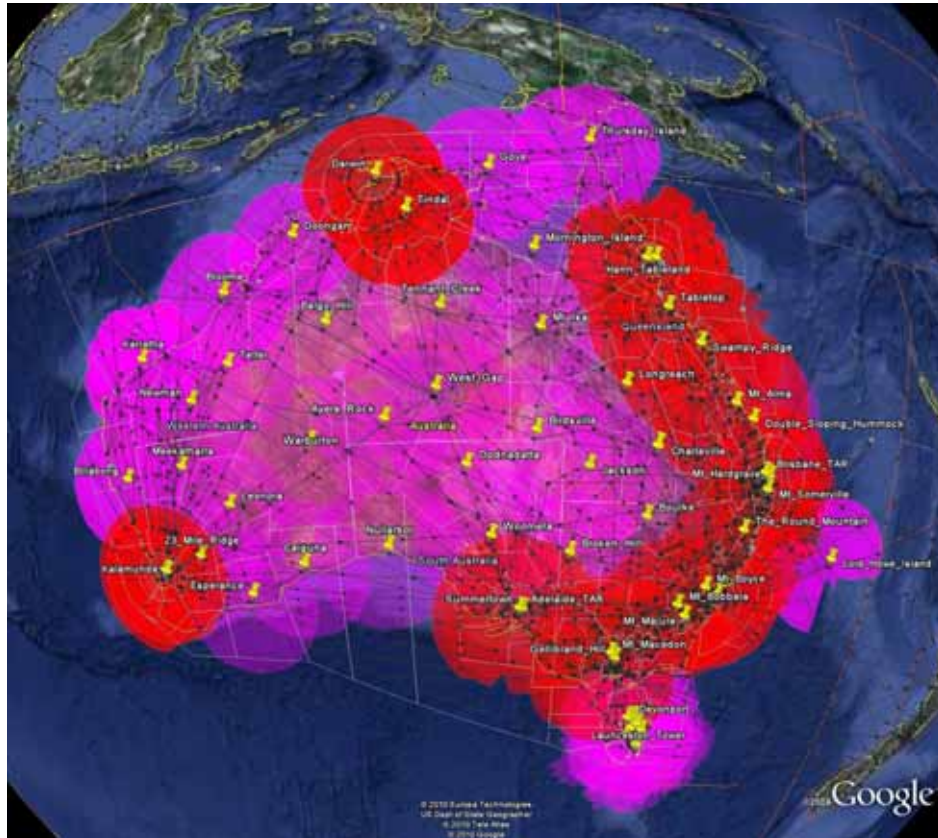


Figure 1 : ADS-B predicted coverage at FL300 from 29 ADS-B Ground stations and 14 TAS WAM (Ground stations. Radar coverage in Red)

1.3 Operational feedback since commissioning has been extremely positive.

1.4 In recent months CASA has adopted new procedures for ADS-B approval taking into account the conclusions of the ADS-B Task Force meeting in Jakarta last year. Foreign aircraft must now obtain operational approval from their state of registry before approval for delivery of ADS-B services in approved. This is expected to significantly slow approval for aircraft from some states.

- States need to note that post December 2013, ADS-B is mandatory at and above FL290. Hence approvals need to be obtained before that time.
- Aircservices is working on a safety case, to abandon the use of the aircraft by aircraft filtering system. Once abandoned, the ATC system will present all aircraft ADS-B transmissions with adequate quality, other than known (blacklisted) aircraft having faulty transmissions, to ATC. The ATC system will not know whether aircraft are approved or not. As for transponders, the ATC system will assume that all transmitting aircraft have ADS-B equipment that operates correctly in accordance with the regulations.

2. ADS-B DATA SHARING WITH INDONESIA

2.1 On February 1, Airservices Australia ATC commenced using Indonesian ADS-B data operationally. Further details are available in a separate paper.

3. ADDITIONAL GROUND STATIONS

3.1 Deployment of additional ground stations is being examined in light of the very large Airservices capital works program. The proposal to deploy additional ground stations is being re-examined and hence some delay is anticipated.

4. ADS-B INTEGRITY FOR DELIVERY OF 5 NAUTICAL MILE SEPARATION SERVICES

4.1 During 2010 Airservices prepared a Safety Case arguing that 5 NM separation services can be delivered when the ADS-B integrity parameter HPL is less than 2.0 NM instead of the previously conservative value of 0.5 NM.

4.2 The Australian regulator CASA has recently provided Airservices with authorisation to use ADS-B data with quality factors.

	DO260	DO260A/B
5 NM separation	NUC>=4 (HPL<1.0 NM)	NIC>=4 (HPL <2.0NM)

Instead of the previous more demanding values

5 NM separation	NUC>=5 (HPL<0.5 NM)	NIC equivalent to HPL <0.5NM
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CASA also advised Airservices that it anticipates acceptance of the argument for a change for DO260 avionics to NUC>=3 pending further analysis and evidence of the position accuracy of NUC=3 data.

4.3 The new values were successfully put into operation in February 2011 and is expected to reduce the number of ADS-B outages due to GPS satellite geometry issues.

5. TAS WAM

5.1 The Tasmanian Wide Area Multilateration system was operationally commissioned in February 2010 and now provides both SSR and ADS-B coverage to ATC consoles in Melbourne centre. This system includes 14 receivers each of which is ADS-B capable.

6. SYDNEY WAM

6.1 The testing of the Sydney Wide Area Multilateration system was recently completed. The safety case has been submitted to the regulator. Airservices expects to use the Sydney WAM for 3 NM separation delivery in the Sydney TCU. It is also planned to deliver Precision Runway monitoring (PRM) functionality using Sydney WAM once a separate PRM safety case has been completed.

6.2 This system comprises 16 receivers and extensive ADS-B coverage is provided as shown below. ADS-B data will be used in the enroute centres only. ADS-B data will not be used in the Sydney TCU until the associated ATC system is upgraded.

6.3 Airservices experience is that WAM systems can be costly and somewhat difficult to deploy when all associated costs and systems are included. Extreme care to consider the full lifecycle costs is required before one considers WAM as an alternative to radar. For niche applications like PRM functionality it appears cost effective.

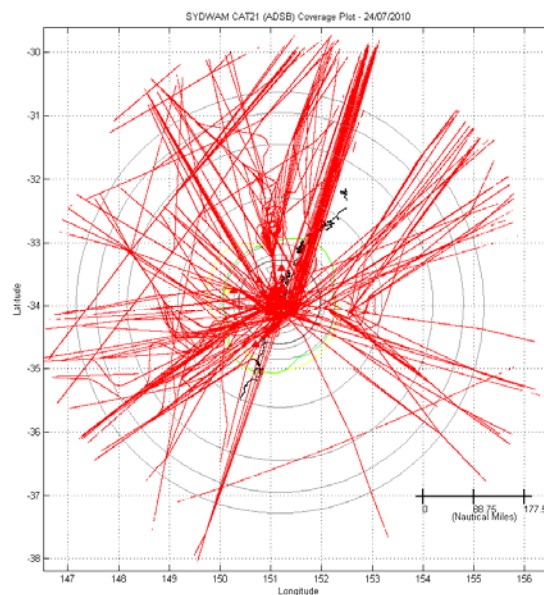


Figure 2: ADS-B data from Sydney WAM. (Outer ring is 200 NM radius)

7. RVSM MONITORING AND ADS-B

7.1 Research continues between Australia and the FAA in the use of ADS-B data for RVSM Monitoring. Whilst the work is not yet complete, initial results are very promising.

8. CONCLUSIONS

8.1 The meeting is invited to consider the progress of ADS-B activities in Australia.
