



ADS-B update

ISPACG/28 Papeete, March 5 - 7 2014

ADS-B - Background

- 10 years of operational use of ADS-B
- Continuous (high level) ATS surveillance coverage across Australia
- 5NM separation
- ATS safety alerting (CLAM, RAM etc)

ADS-B mandate

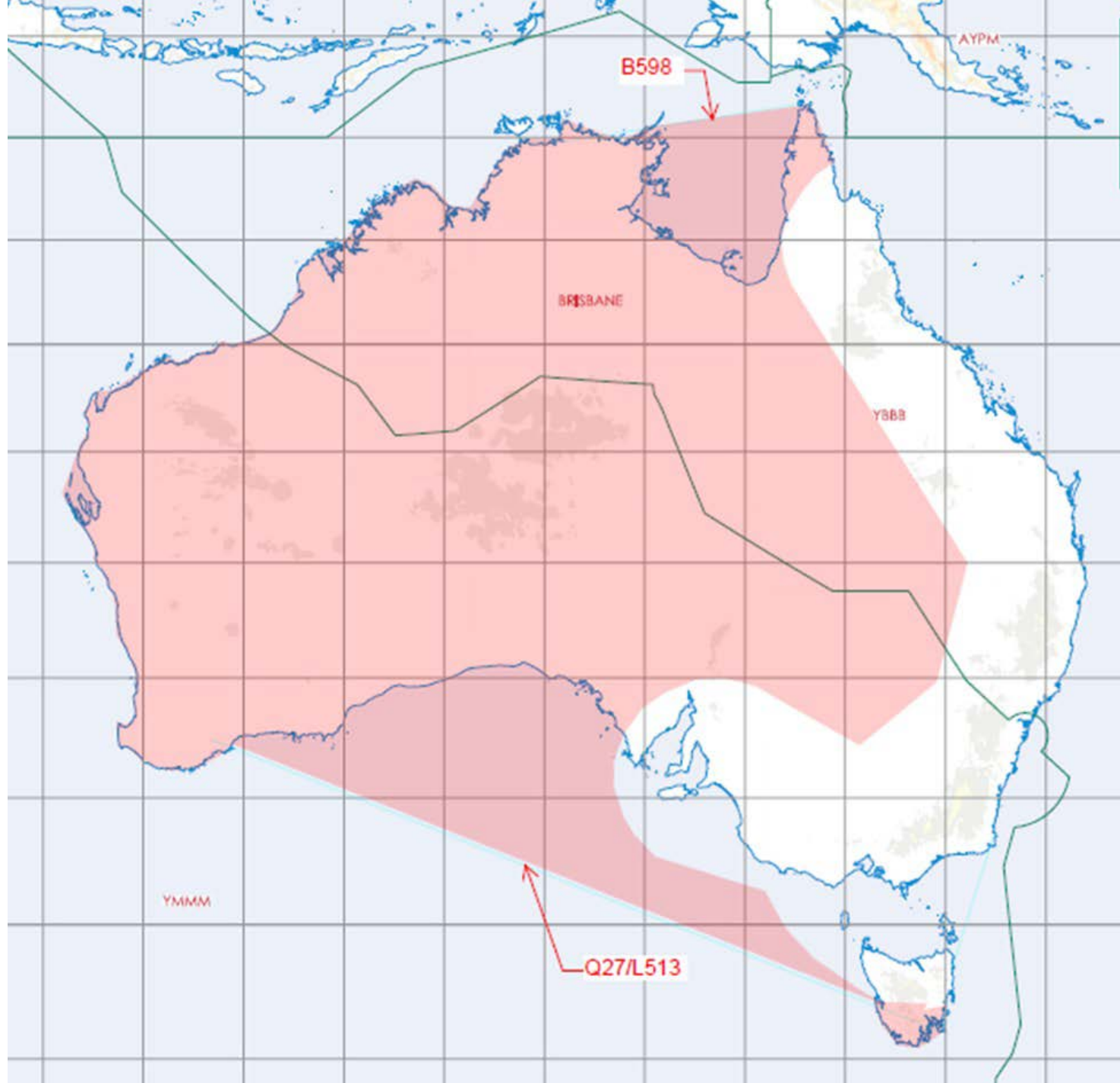
- Came into effect 12th December 2013
- Applies to all IFR non-State aircraft flying at or above FL290 in Australia's airspace
- Described in Australian AIP SUP H136/13
- Few changes from what was briefed in ISPACG/27 in WP02

ADS-B mandate

“ADS-B airspace” defined as airspace at or above FL290:

- mainland Australia and Tasmania;
- the sea south of and including air route B598 (Gulf of Carpentaria);
- the sea north of and including air routes L513 and Q27 (Great Australian Bight)

outside radar coverage East of a line CDU-MTI



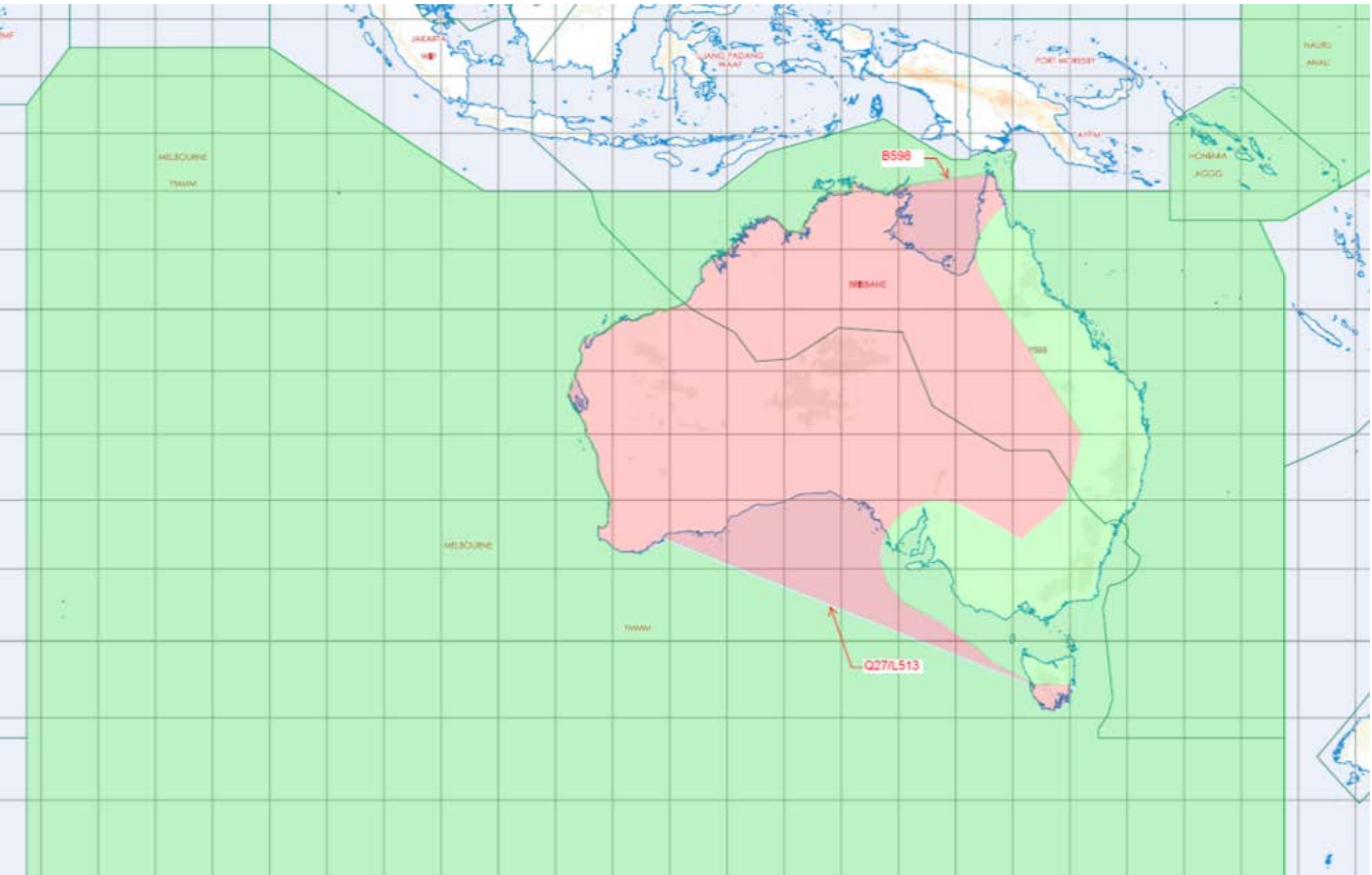
ADS-B mandate

For a non-ADS-B-equipped aircraft to operate within this ADS-B airspace, it must:

- be a STATE aircraft; or
- have received an approval from Airservices Australia; or
- be subject to an Emergency or declared a MERCY flight

ADS-B mandate

“ADS-B Exempt Airspace” has been defined as Australian administered airspace that is not “ADS-B airspace”



ADS-B mandate

CASA may provide exemptions for aircraft to operate within this area at or above FL290. Aircraft with an exemption must plan with “RMK/ADSB EXEMPT” in item 18 of the flight plan. If a non-ADS-B aircraft operator intends to plan within this area, it must:

- be a STATE aircraft; or
- have been issued with an exemption from CASA; or
- have been issued with an approval from Airservices; or
- be subject to an Emergency or be declared a MERCY flight

ADS-B mandate - additional

Effective Date	Surveillance type	Mandate summary
6 Feb 2014	ADS-B	Forward Fit - IFR aircraft must be fitted with ADS-B OUT Applies to: <ul style="list-style-type: none"> •New aircraft on register from 6 Feb 2014
4 Feb 2016	ADS-B	Applies to: All IFR aircraft operating within 500 Nm East/North of Perth must be fitted with ADS-B OUT
2 Feb 2017	ADS-B	All IFR aircraft must be fitted with ADS-B OUT

ADS-B repeater unit

- Several sites where ADS-B ground station coverage is sub optimal (e.g. due to terrain)
- Solution is to deploy a small avionics unit that has line of sight coverage to area of poor coverage as well as to existing ground system
- Unit re-broadcasts ADS-B signals to existing unit
- Message processed as if received directly from aircraft

ADS-B repeater unit

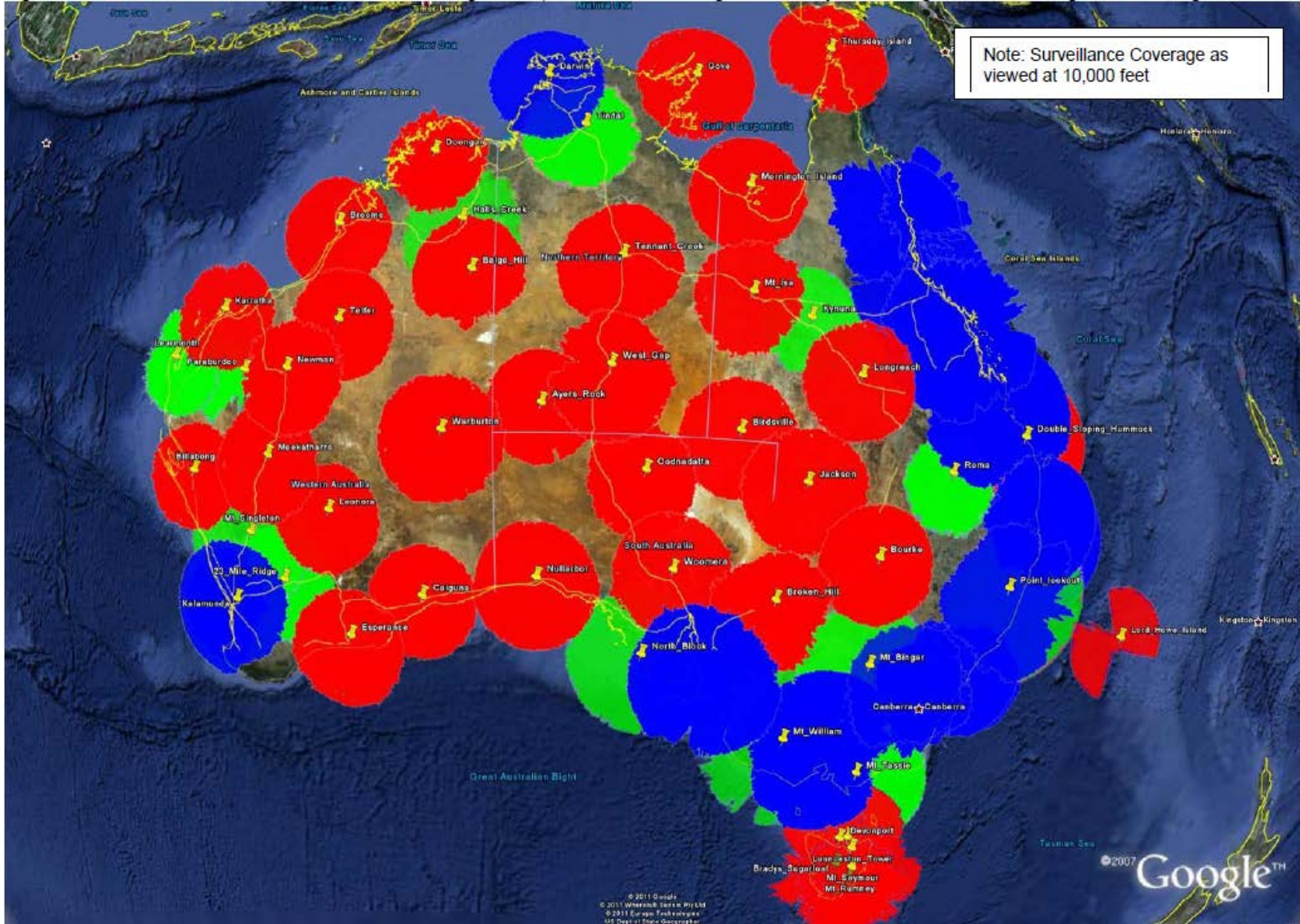
Only intended for use in low traffic density environments; e.g.

- Lord Howe Island (LHI), where terrain partially obstructs coverage (and optimal sites for an ADS-B receiver are not available due to World Heritage environmental concerns);
- (Potentially) on offshore gas platforms where the platform superstructure causes obstructions.

Testing (LHI) early 2014

ACME (Coverage and Communications Enhancement Project)

- 14 new ADS-B ground stations will be installed between 2014 and 2016
- Thirteen of these sites will be located on mainland Australia;
- One will be located on the Bayu Undan Gas Platform, between northern Australia and Indonesia



Coverage at 10, 000 ft

■ Radar coverage

■ Existing ADS-B coverage

■ Additional ADS-B coverage

ACME

- Provides additional surveillance for Australia's regional fleet in support of the upcoming ADS-B mandates,
- Supports large increases in traffic levels in Western Australia (due to mining activity).
- Reduces the risk of weather induced ADS-B outages

ACME

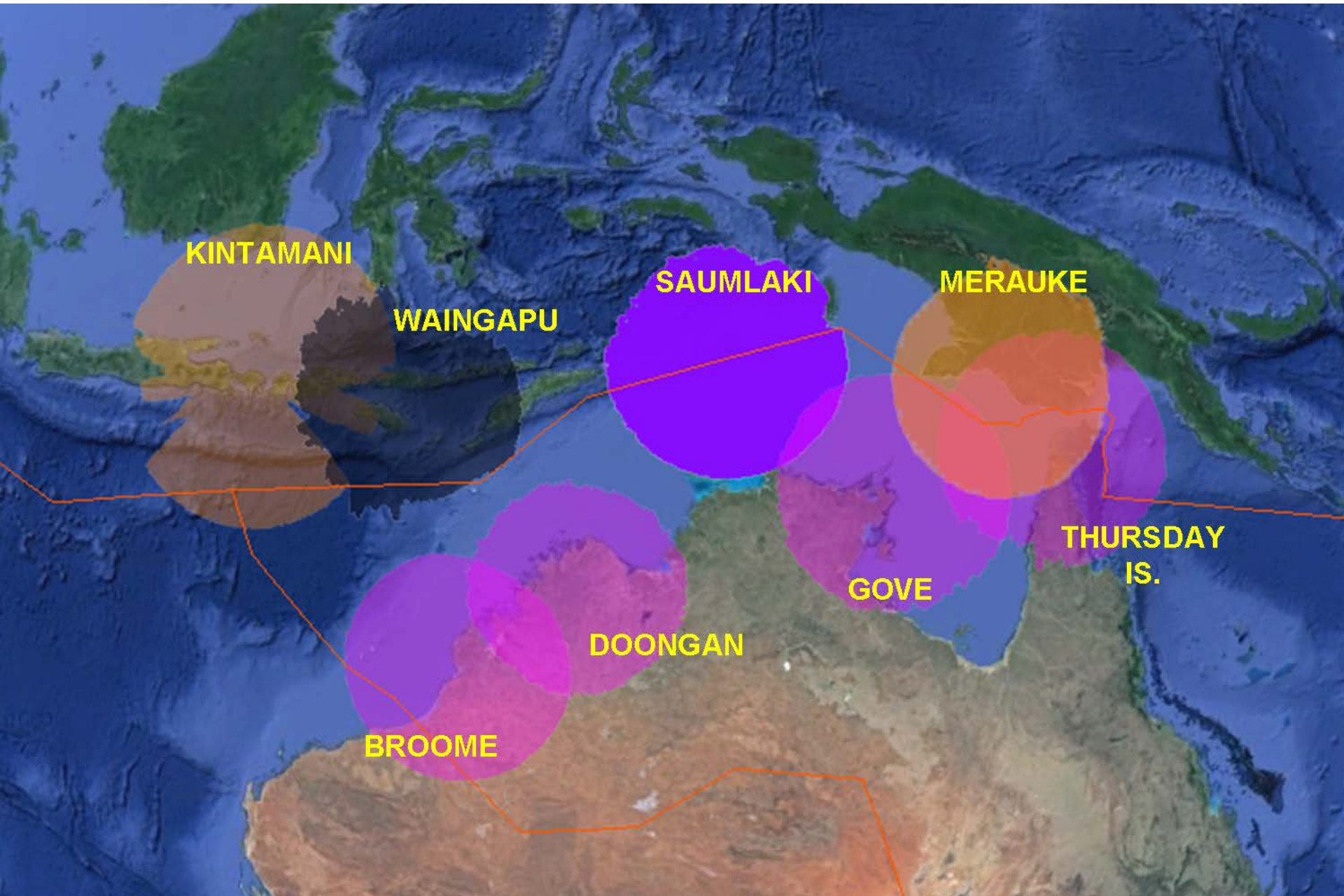
Date of implementation	Location
28 th Nov 14	Mt William, Halls Creek, 23 Mile ridge
20 th March 2015	Mt Tassie, Roma, Mt Singleton
26 th June 2015	North Block, Kynuna, Learmonth
30 th September 2015	Mt Bingar, Tindal, Kalamunda
27th November 2015	Paraburdoo

Sharing ADS-B information

- In 2010, an agreement was reached between Australia and Indonesia for the exchange of ADS-B information received by a number of ADS-B sites in the vicinity of the common FIR boundary

Australia: Broome, Doongan, Gove and Thursday Island

Indonesia: Kintamani, Kupang/ Waingapu, Saumlaki and Merauke



KINTAMANI

WAINGAPU

SAUMLAKI

MERAUKE

BROOME

DOONGAN

GOVE

**THURSDAY
IS.**

Sharing ADS-B information

- Display of aircraft permits controllers to cross-check the information received in coordination against the actual three dimensional position of the aircraft
- Allows controllers to correct coordination discrepancies before it becomes operationally significant

Sharing ADS-B information

In six month period (01/07/2013 to 31/12/2013) the following coordination discrepancies were identified and reported

Coordination element	Number of occurrences
Estimate error (>3 minutes)	4
Incorrect level	5
Incorrect advice that an aircraft was “on route”	1
Incorrect route information	1
Incorrect weather deviation	2
Weather deviation not coordinated	8

Sharing ADS-B information

- A number of flight crew “non-compliances” were also observed

ADS-B flight planning inconsistencies

Refer to working paper