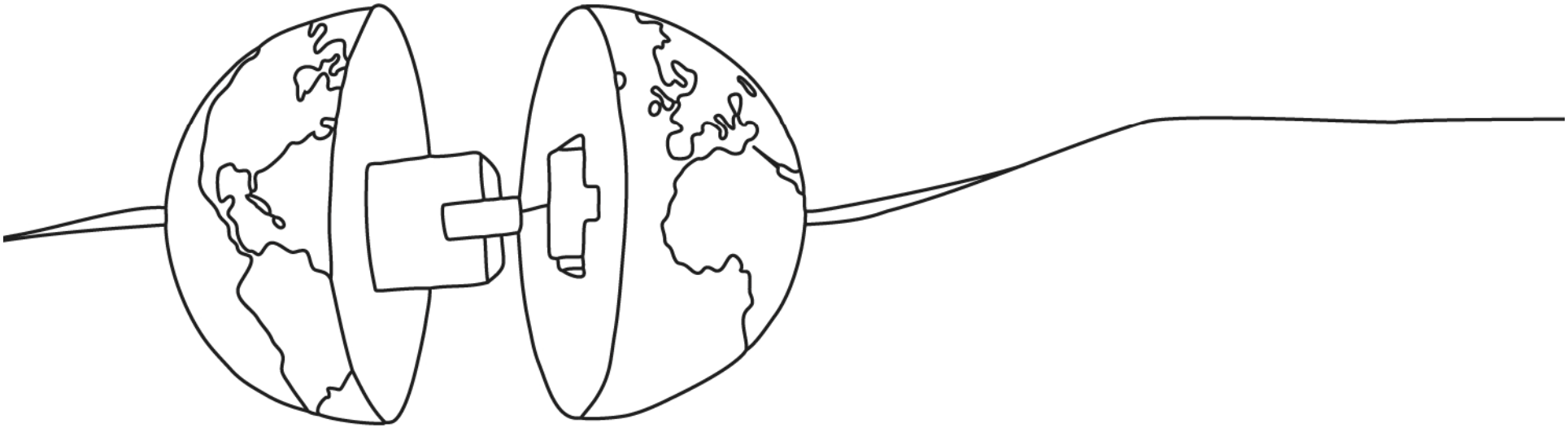
Seminar on ATM Automation-CAR/SAM

Rio de Janeiro, 11-13 Jun2008

ADS-B trials



Communication services

SITA

Overview

- SITA approach for ADS-B trial
- ADS-B trial implementation aspects
- ADS-B trial objectives
- Benefits & results
- SITA - Airservices Australia alliance
- Regional ADS-B service provision model – concept
- DGAC Indonesia ADS-B trial case
- ADS-B trials in CAR/SAM
- Conclusions

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SITA approach for ADS-B trial

- ADS-B Technology has been endorsed and recommended for implementation by ICAO

- An ADS-B trial can have different architecture as it can involve different components, depending on the objectives of the trial. Considering ANSP objectives, SITA will recommend adequate trial configuration and possible options scenarios.

- To perform ADS B trial, SITA and the ANSP should define all possible tools that will be used. These tools are systems that include software and hardware on the ground and in the air, and they represent the support resources. These support resources are recommended to be allocated for a period of 12 months at least.

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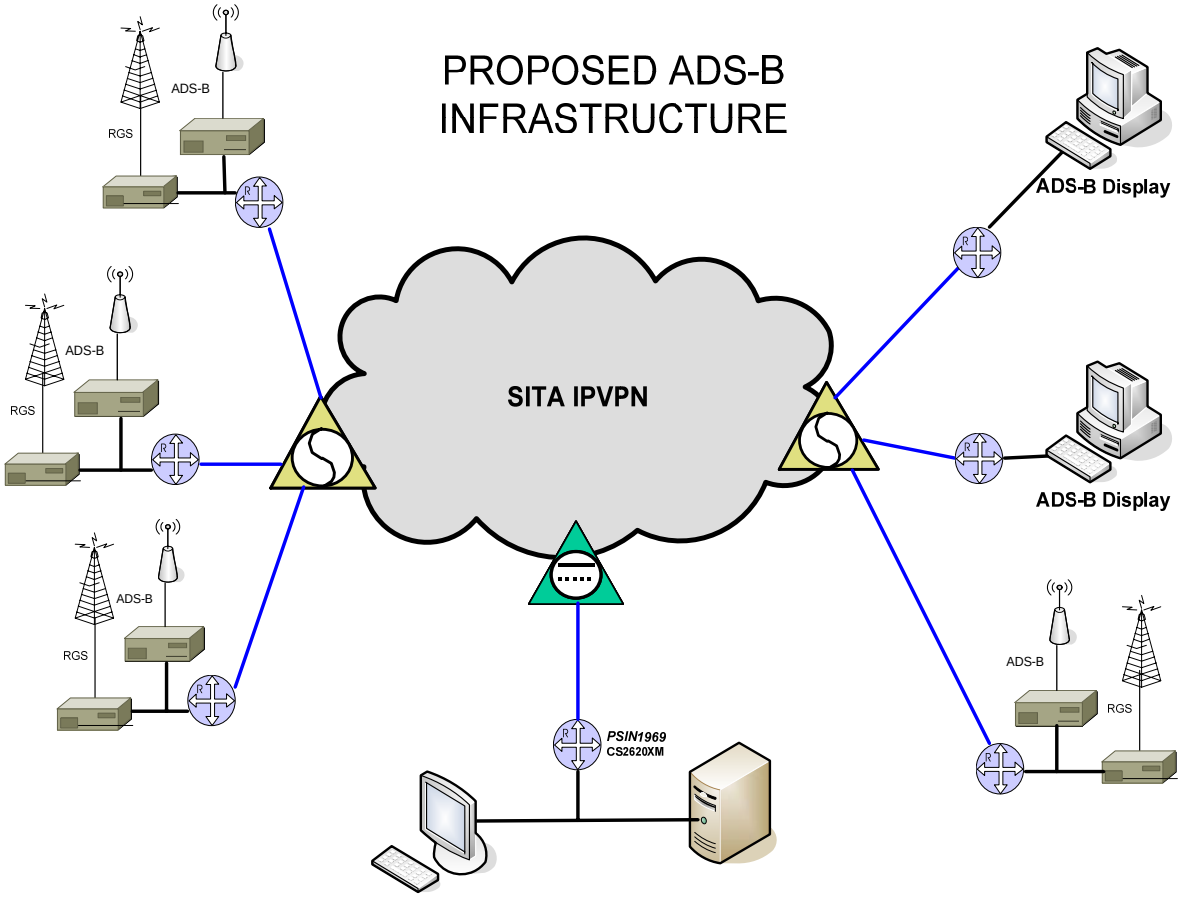
ADS B Trial Implementation aspects



ADS-B trials objectives

- Assess aircraft equipage levels and display ADS-B aircraft target parameters in real time;
- Demonstrate the functionality of ADS-B flight data to support air traffic surveillance;
- Compare ADS-B range and accuracy as compared to radar
- Provide exposure to Air Traffic Controllers
- Evaluate potential benefits of sharing ADS-B data with adjacent FIRs
- Acquire experience with the option of a managed service contract
- Establish conclusions and recommendations on the use of ADS-B technology in ANSP CNS/ATM transition plan and to consider to share the data with adjacent ATS providers.

Benefits & results

- A consolidate result report and implementation roadmap including:
  - Operational: on various aspects of operationalising → ATC procedures,
  - Advice regarding planning integration into ATC system, eg development of specification for ADS-B integration.
  - Fleet equipment analysis and recommendation to increase equipage level
  - Optionally ANSP may invite neighbor ATS Providers in order to discuss the benefits of sharing data and expanding the scope of the trial.

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SITA-Airservices Australia Alliance

- January 2006 – “ADS-B Alliance” established in with the primary objective of promoting, developing and offering a “Managed ADS-B Service”
- In recognition of the following key points:
  - 11th Air Navigation Conference endorsement of ADS-B
  - Forecast increased in ADS-B “out” equipped aircraft numbers increasing
  - APANPIRG decision to introduce ADS-B in the region from January 2006
- ADS-B Alliance provides Air Navigation Service Providers with viable an option to contract an “ADS-B service provider” for their airspace
- US FAA has decided to contract a service provider to deliver ADS-B services “NAS Wide ADS-B Acquisition”

Complementary Strengths

- **ADS-B operational expertise**
- **Procedure Development**
- **Controller Training**
- **Safety Case development**
- **Certification experience**
- **ATM Upgrades**

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- **Neutral status entity**
- **Experience in delivery, monitoring and delivery of global/regional services**
- **Regional data telecommunications capability**
- **Existing VHF data link sites throughout the region**
- **Existing relationships with all potential ANSPs and Airlines**
- **24/7 help desk, customer support, billing & reporting system**

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Regional ADS-B Service Provision Model - Concept

- Air Navigation Service Providers have traditionally acquired, owned, operated and maintained their own CNS infrastructure
- With the advances and complexity of CNS technology should we be looking at new ways to implement the next generation system ?
- Regional CNS Service Provision model is based on the concept of a “service provider” delivering CNS services across State boundaries using a common CNS infrastructure
- The airlines created SITA to provide global communications services based on a shared infrastructure
- FANS 1/A services have been delivered in this basis for over 10 years
- So is ADS-B service provision any different ?

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ICAO Air Navigation Commission Briefing

SITA-Airservices Australia ADS-B Alliance - March 2007

DGAC Indonesia ADS-B trial case

ATC GLOBAL 08
AMSTERDAM RAI • 11•13 MARCH

Jane's ATC Global Awards 2008

Enabling technology

Shortlist

- Thales – ADS-B for operational usage
- DGCA Indonesia – ADS-B trial
- Adacel Inc – Aurora software

Winner

DGCA Indonesia

The ADS-B trial in Indonesia enabled real-time surveillance data sharing between regional navigation service providers in 2007. Operational support was provided by SITA, Airservices Australia and Thales. ICAO has since formed a sub-regional task force to accelerate the implementation of ADS-B in the region, and Indonesia's DGCA is using the trial's recommendations to provide policy guidance to begin implementing ADS-B operationally in Indonesia starting in 2008.

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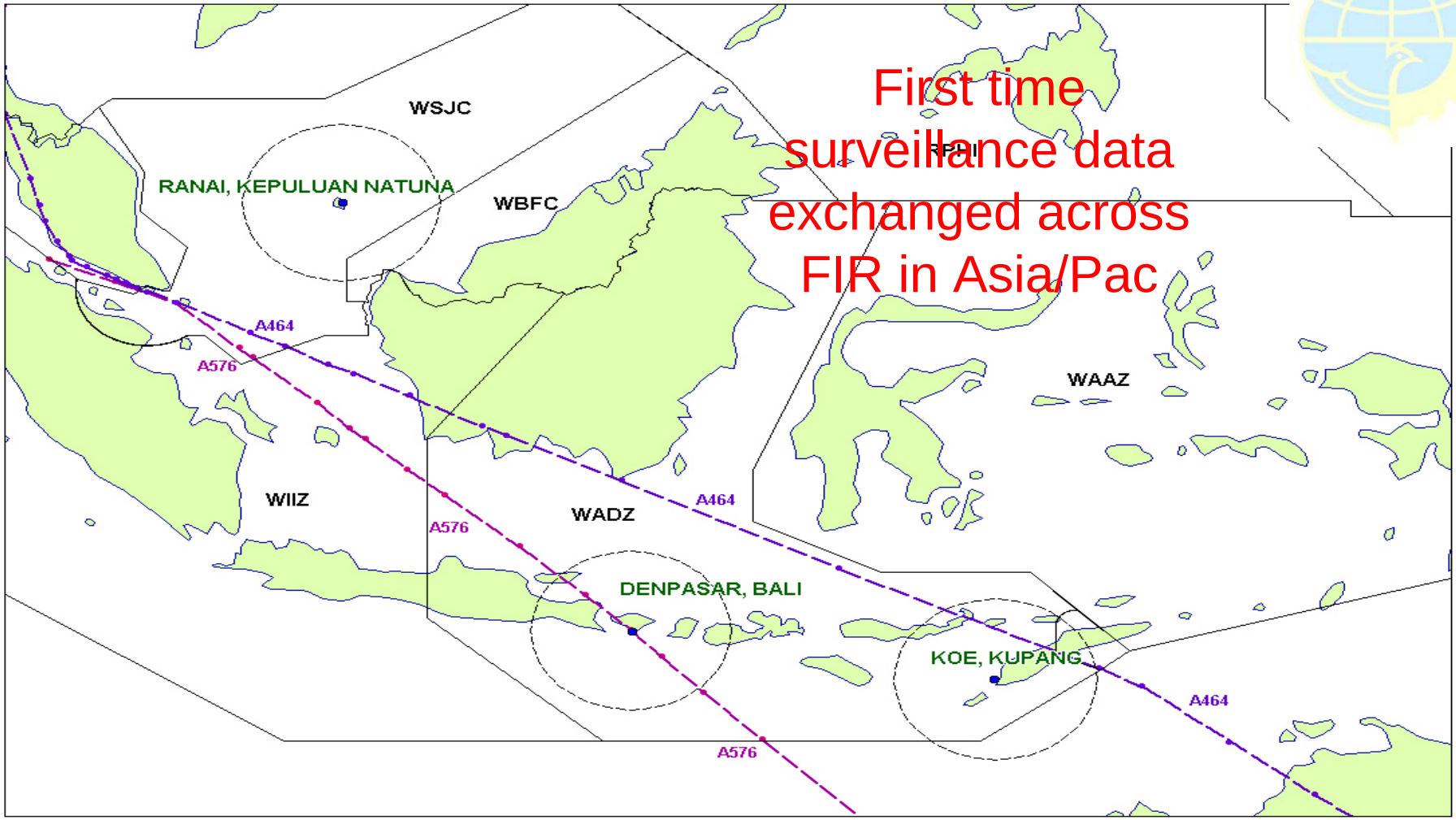
Pilot Managed ADS-B Service Indonesia Trial



First time surveillance data exchanged across FIR in Asia/Pac

Trial launched by Director General DGCA Indonesia, December 2006 – Completed end May 2007

Indonesian ADS-B Trial Sites

Bali Radar

Natuna

Regional ICAO HQ

Kupang

Trial reports outline

ADS B trial summary report

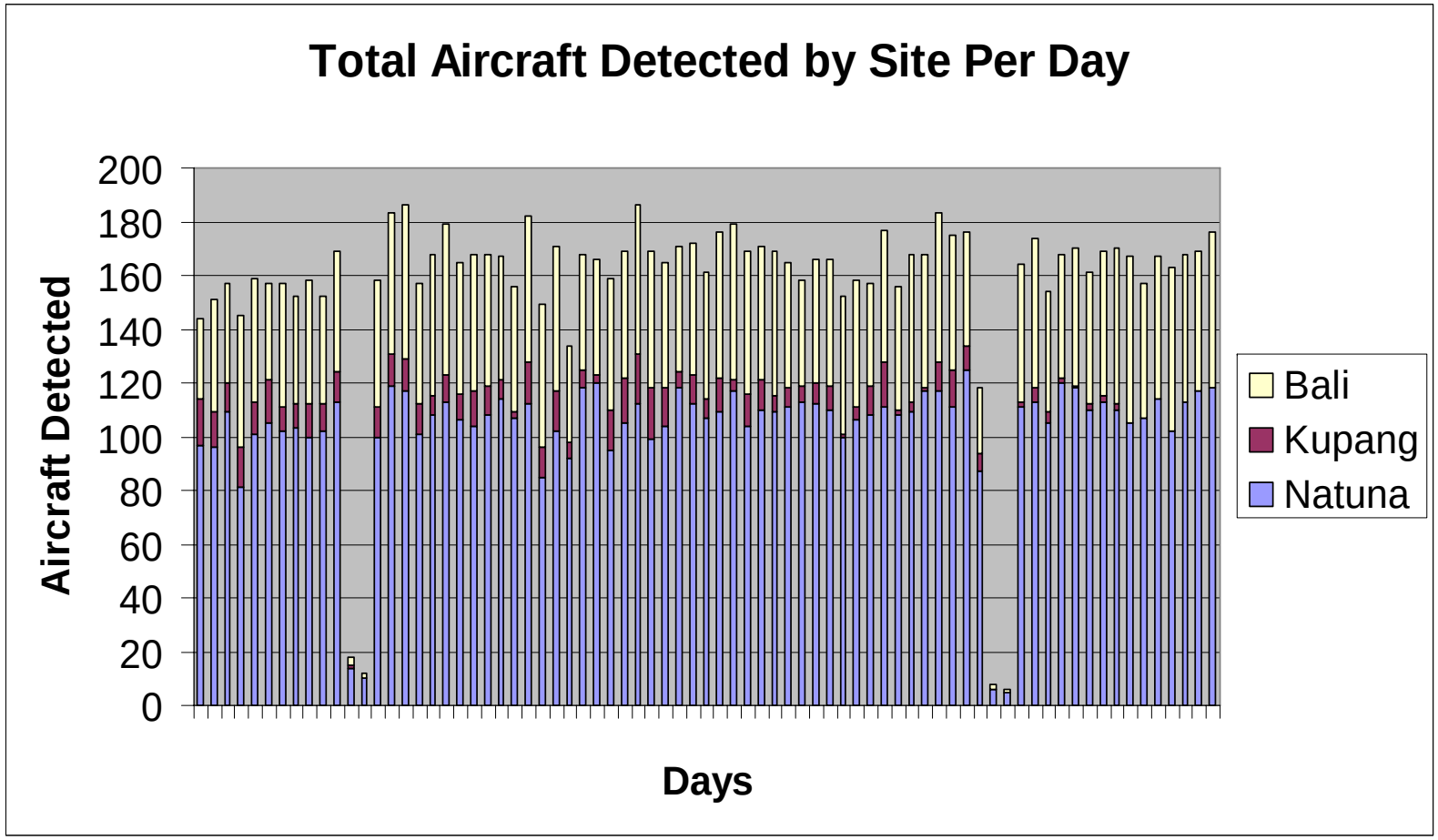
	Natuna		Kupang		Bali				
Airline	**Total Number of Aircraft detected**	**Valid Aircraft Detected**	**Total Number of Aircraft detected**	**Valid Aircraft Detected**	**Total Number of Aircraft detected**	**Valid Aircraft Detected**	**Total all aircraft detected**	**Total of all ADSB equip aircraft detected**	**Airlines with 100% ADSB equip aircraft**
Air Asia	17	17			16	1	33	18	no
Air Atlanta Icelandic	2	2					2	2	yes
Air Canada	1						1	0	no
Air China International	12	9					12	9	no
Air Hong Kong	6						6	0	no
All Nippon Airways	2	1					2	1	no

ATTACHMENT 2 - Total (Valid and Invalid), and By Airlines

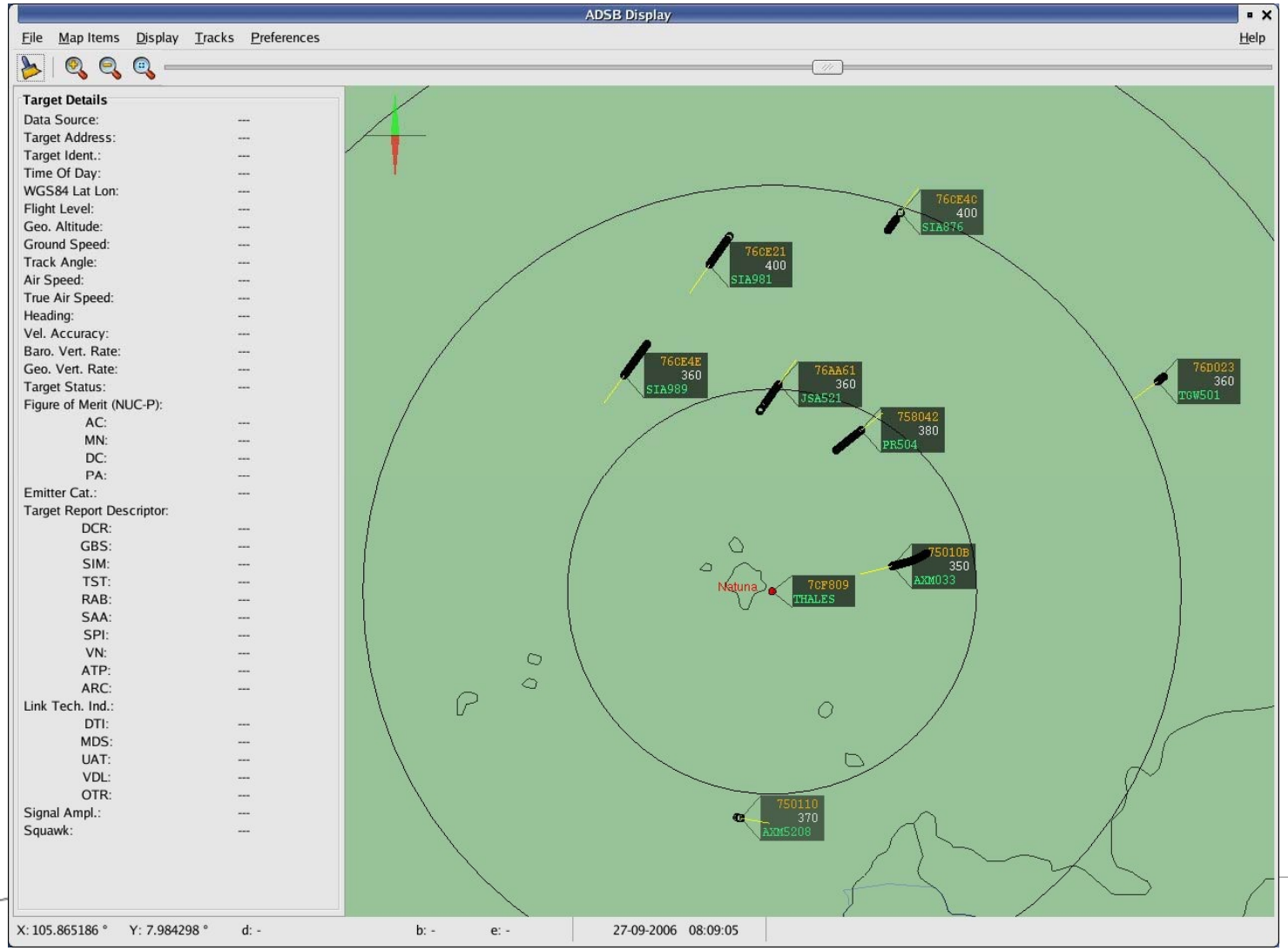
Sample of ADS B transmitting aircraft

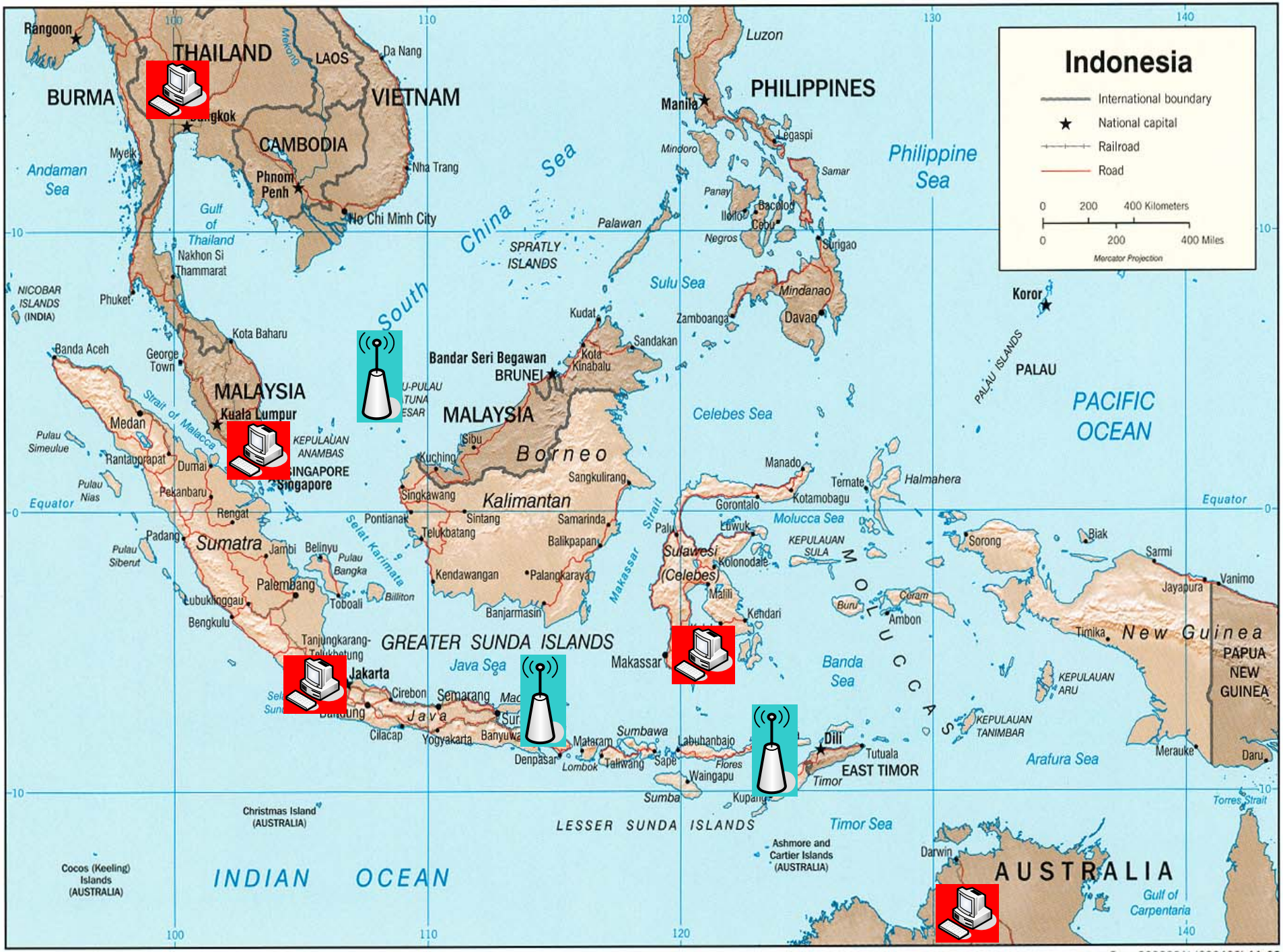
Aircraft	Avg FOM/PA	Airline
06A03F	6.86	Qatar Airways
14FBFE	0.00	Dalavia (Khabarovsk Aviation)
3C4AC1	0.00	Lufthansa
400406	7.00	British Airways
484350	5.94	
4CC3B7	5.61	Air Atlanta Icelandic
4CC3B8	0.00	Malaysia Airlines
4CC3C7	5.89	Air Atlanta Icelandic
71BC00	5.83	Korean Air
71BC03	5.64	Korean Air

By identification number, airline, flight number and the navigation uncertainty category (NUC) value


Total Aircraft Detected by Site Per Day
Aircraft Detected
200
180
160
140
120
100
80
60
40
20
0
Days
Bali
Kupang
Natuna

Natuna Island

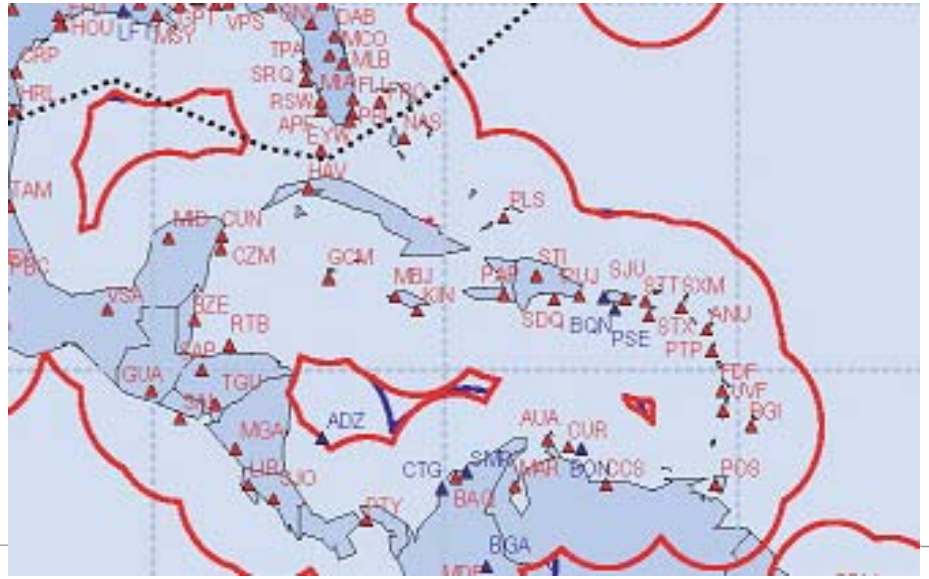




Base 802899AI (C00429) 11-02

Potential CAR ADS-B Trial

SITA VHF Data Link Sites



Conclusions

- GREPECAS has directed States/Territories/International Organizations, in collaboration with airspace users, to establish and execute an ADS-B trials programme using available services and technology in order to improve knowledge on ADS-B and to assess the benefits for air traffic management in the CAR/SAM Regions.
- Since 2007, SITA participates on dedicated task force, lead by Trinidad Tobago CAA (TTCAA) to develop an ADS-B strategy for CAR/SAM region and also carry out the first ADS-B regional trial.
- Many developing States lack the know-how for effective, sustainable implementation of ADS-B infrastructure and operational aspects
- SITA and its industry partners provides a feasible option to States to rapidly introduce the technology to deliver sustained operational benefits to airspace users.

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- Any questions?

www.sita.aero/ads-b

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