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CAPACITY & EFFICIENCY

ICAO ASIA PAC Regional Activities for ADS-B

ICAO/FAA Workshop on ADS-B and Multilateral Implementation
(ADS-B/IMP)

Mexico City, Mexico, 19 to 22 May 2014

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Contents

- Applications for ADS-B
- Regional Activities Overview



Applications for ADS-B

- **Ground Surveillance Applications**
 - To enhance ATS in non-radar areas
 - Reduce separation
 - Enhance situation awareness
 - To enhance ATS in radar areas
 - Faster update rate available
 - Back up existing radars
 - Airport surface surveillance
 - To support ATC tools
 - More timely ATC alerts
 - For verification of radar accuracy
 - For monitoring of NTZ



Applications for ADS-B

- Aircraft to Aircraft Surveillance Applications
 - Enhance traffic situational awareness on the airport surface
 - Enhance visual separation on approach
 - In trail procedures in oceanic airspace
 - Enhance traffic situational awareness during flight operations
 - Enhance sequencing operations



Regional Activities Overview

- States and ANSPs covered under the overview
 - Australia
 - Brunei Darussalam
 - China
 - Fiji
 - Hong Kong. China
 - Indonesia
 - Malaysia
 - Myanmar
 - New Caledonia
 - Pakistan
 - The Philippines
 - Republic of Korea
 - Singapore
 - Chinese Taipei
 - Thailand
 - Viet Nam



Australia (Upper Airspace Project)

- Installed 29 ADS-B Stations:
 - Thursday island, Gove, Doongan, Broome, Karratha, Mornington Island, Tennant creek, Balgo, Telfer, Newman, Meekatherra, Bilabong, Leonora, Warburton, Ayers rock, Alice Spring, Mt Isa, Esperance, Caiguna, Nullabor, Woomera, Birdsville, Broken hill, Jackson, Bourke, Longreach, Bundaberg, Oodnadatta, Lord Howe Island
- Receiving data from 4 Indonesian Stations:
 - Kintamani, Waignapu, Saumlaki, Merauke



Australia (Upper Airspace Project)

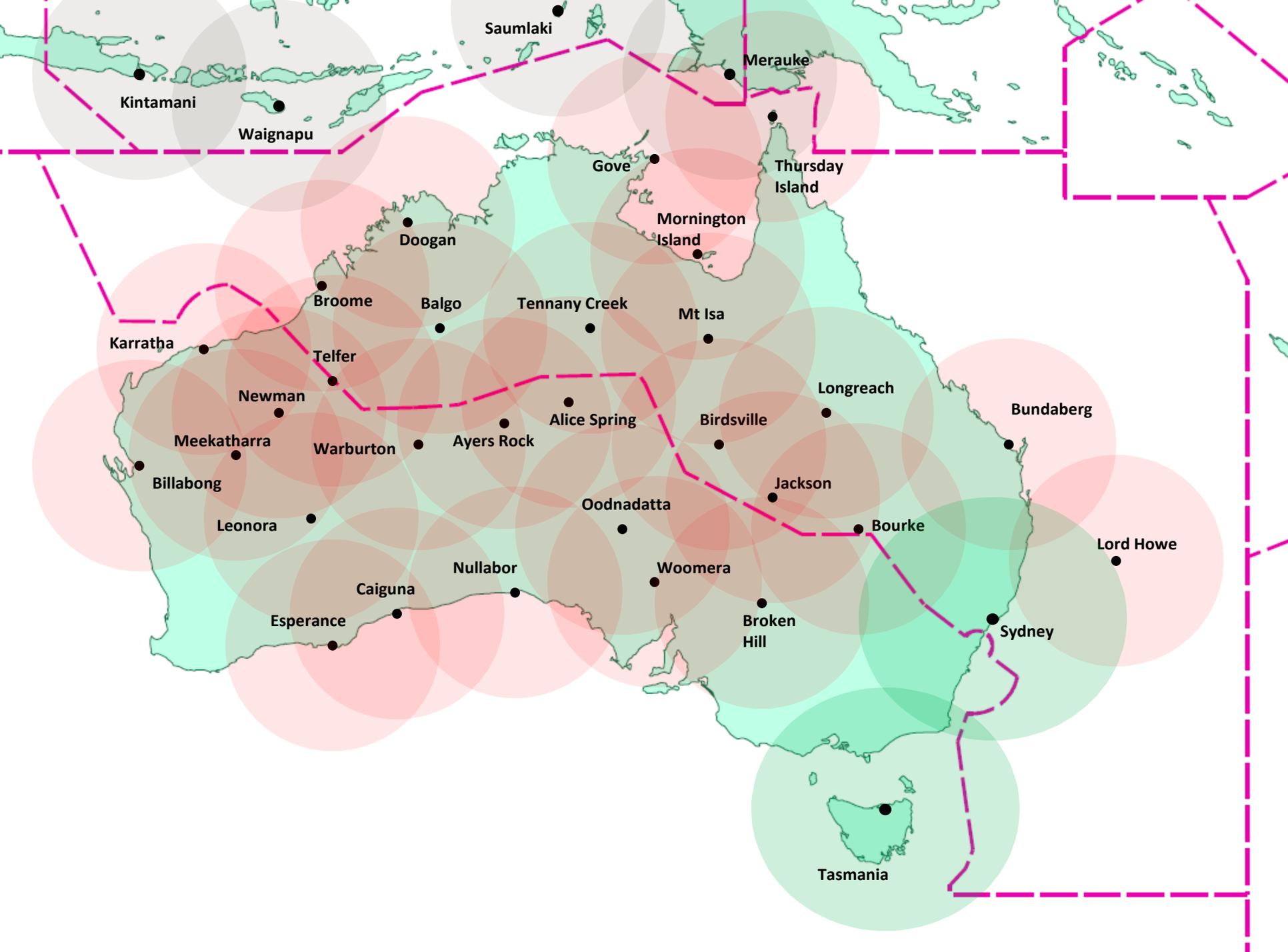
- UAP has been commissioned & operational
- Applicable of 5NM separation using ADS-B from operational sites.
- Coverage is currently available across the whole continent from 29 ADS-B sites, 1 WAM and 4 from Indonesia.



Australia

(Wide Area Multi-Lateration)

- Installed WAM in:
 - Tasmania with 14 receivers.
 - Sydney with 16 receivers.



Saumlaki

Merauke

Kintamani

Waignapu

Gove

Thursday Island

Mornington Island

Doogan

Broome

Balgo

Tennany Creek

Mt Isa

Karratha

Telfer

Newman

Alice Springs

Birdsville

Longreach

Bundaberg

Meekatharra

Warburton

Ayers Rock

Jackson

Oodnadatta

Bourke

Lord Howe

Leonora

Nullabor

Woomera

Caiguna

Broken Hill

Sydney

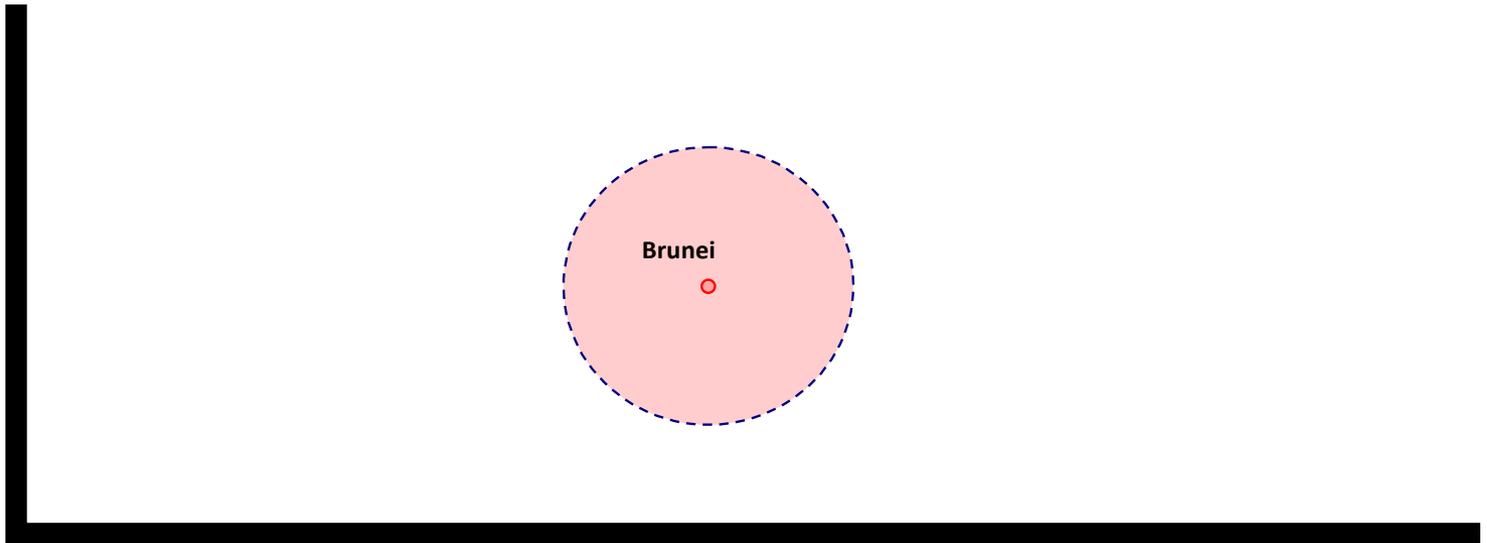
Esperance

Billabong

Tasmania

Brunei Darussalam

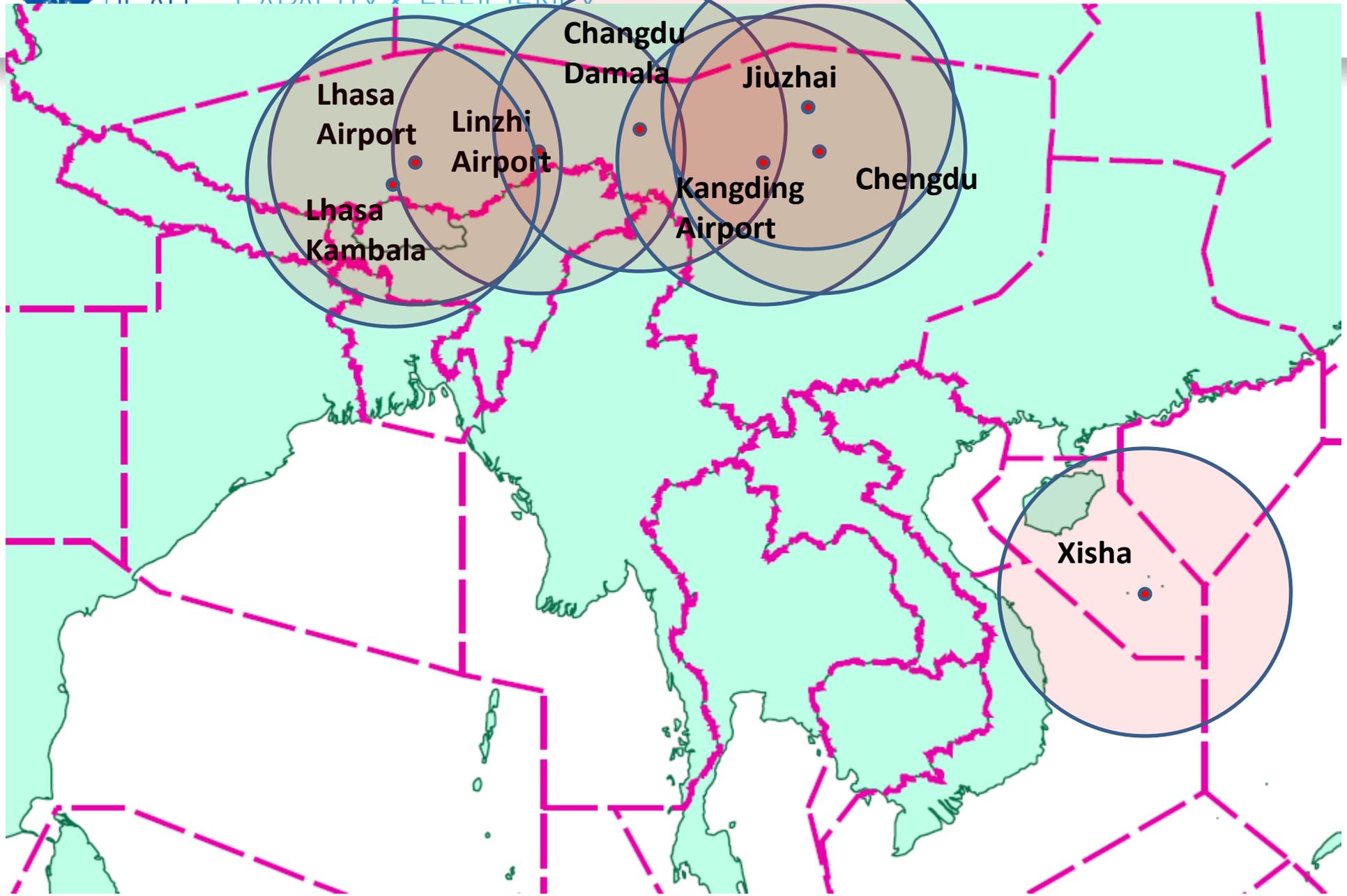
- Plan to install an ADS-B station to backup ATC surveillance system





China

- To install ADS-B ground stations at:
 - Lhasa Kanbala, Lhasa Airport, Linzhi Airport, Changdu Damala and Kangding Airport
- Civil Aviation Flight University of China (CAFUC):
 - Installed 7 ADS-B stations
 - Equipped ADS-B on about 160 aircrafts
- Installed ADS-B trial ground stations in:
 - Chengdu and Jiuzhai
- Installed ADS-B ground station within Sanya FIR



Lhasa
Airport

Linzhi
Airport

Lhasa
Kambala

Changdu
Damala

Kangding
Airport

Jiuzhai

Chengdu

Xisha

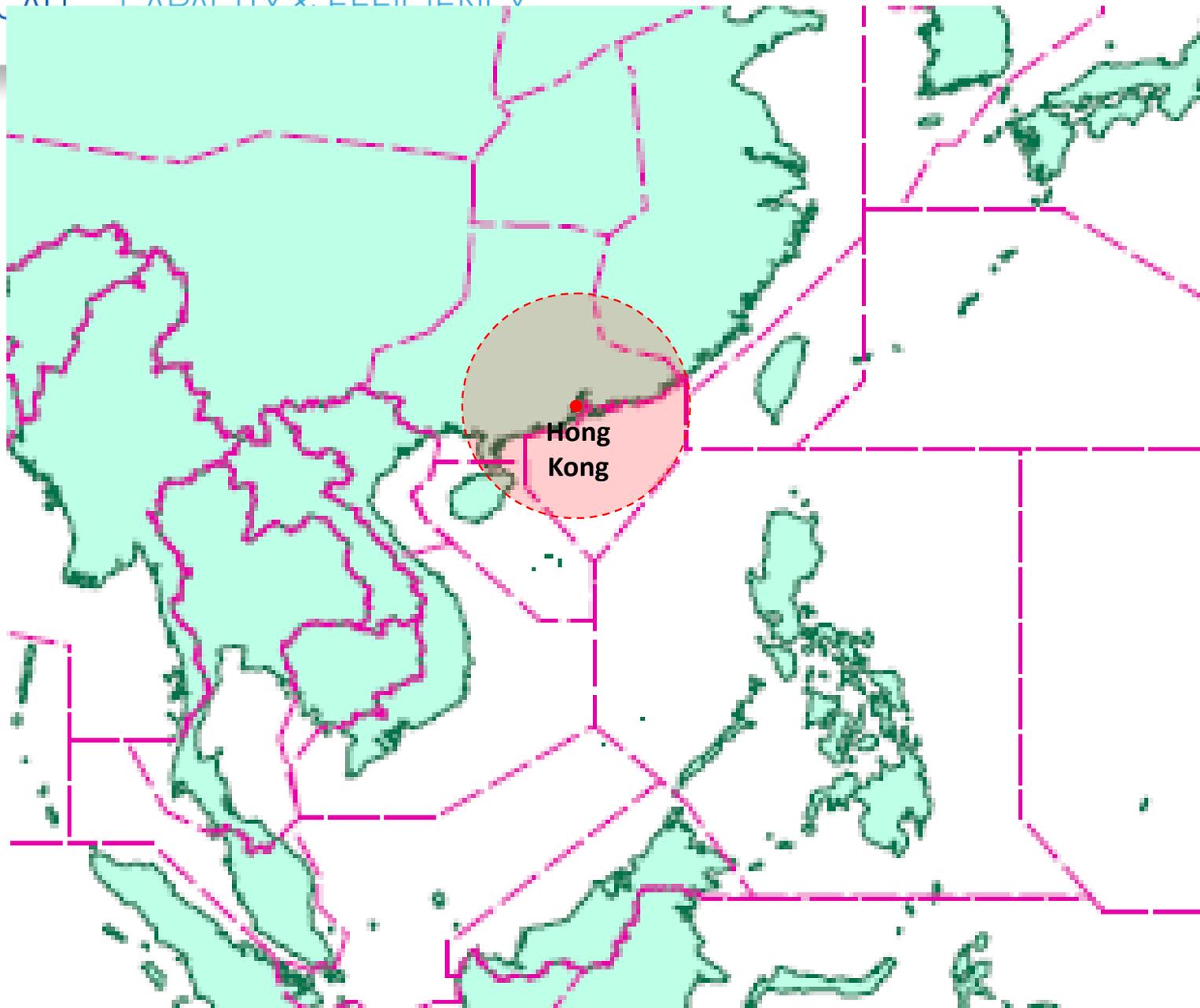


- New ATM system (FijRORA) installed and in operation in Nadi ATM Centre
- Installed 11 ADS-B ground stations (3 of them with interrogators)
- Issue ADS-B equipage mandate for aircraft operating in controlled airspace with effect from 20 Dec 2013
- Only 3 of the 45 Fiji-registered aircrafts are ADS-B equipped, the rest are expected to be equipped after Dec 2013



Hong Kong, China

- Plan to install an ADS-B station
- Mandate ADS-B carriage by end 2013
 - for aircraft flying over L642/M771
- Mandate ADS-B carriage by end 2014
 - for all aircraft flying within the Hong Kong FIR
- Mandate ADS-B carriage after 2015 (TBC)
 - for low flying aircraft, including general aviation aircraft and helicopters.



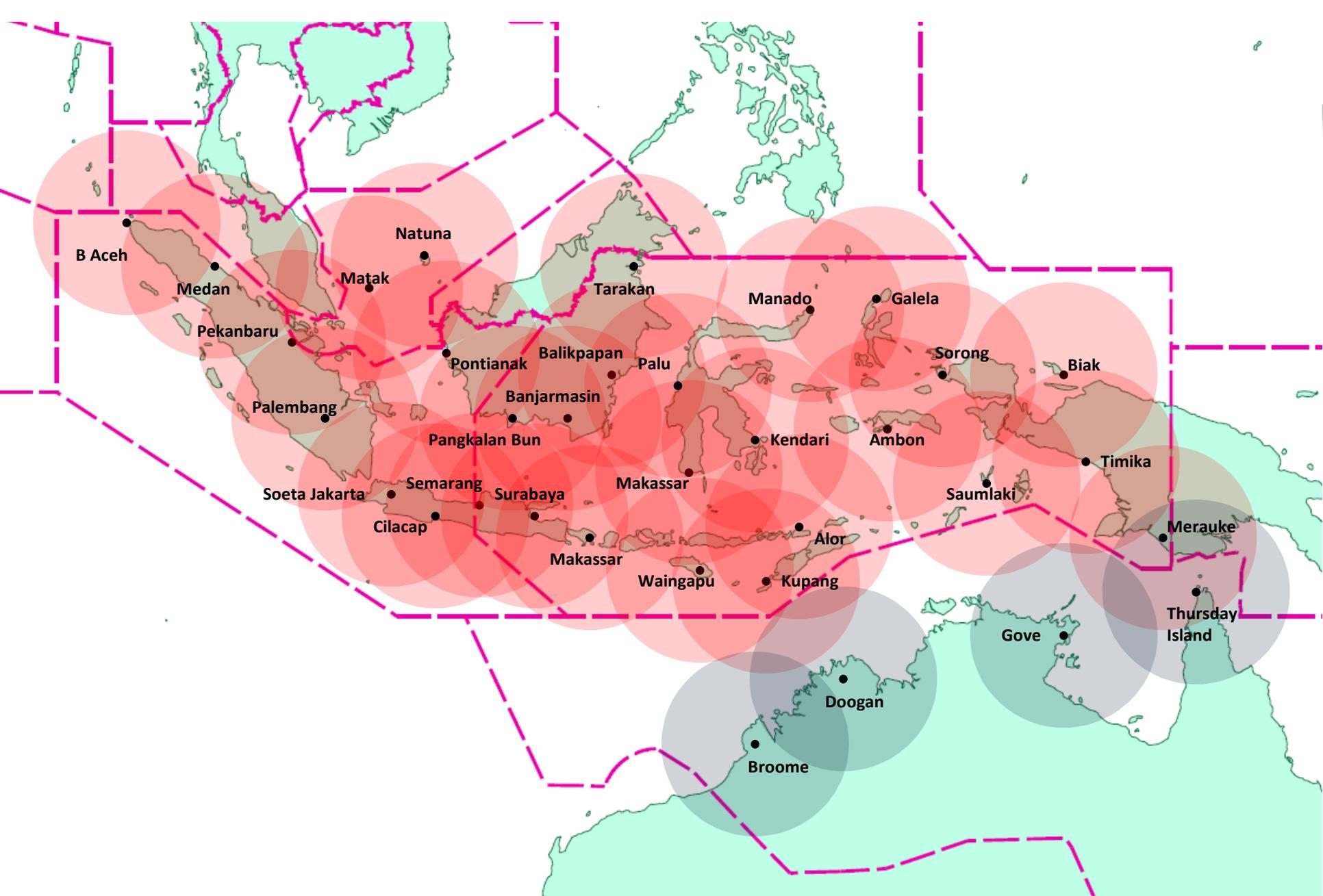


Indonesia

- Installed 30 ADS-B Stations in (as of Feb 2011):
 - Banda Aceh, Medan, Pekanbaru, Palembang, Matak, Natuna, Soeta Jakarta, Tarakan, Cilacap, Kintamani, Pontianak, Pangkalan Bun, Palu, Makassar, Waingapu, Kupang, Alor, Ambon, Sorong, Merauke, Saumlaki, Galela, Manado, Biak, Timika, Kendari, Surabaya, Semarang, Banjarmasin and Balikpapan.
- Receiving data from 4 Australian ADS-B Stations
 - Broome, Doogan, Gove, Thursday Island



- **Plans: Indonesia**
 - To set up ADS-B Implementation Team Task Force for ADS-B Planning.
 - In short term, DGCA Indonesia has a plan to use ADS-B for ATC Situational Awareness in Makassar Air Traffic Service Center (MATSC).
 - Cross FIR Operational Data Sharing as the initial application of ADS-B Services in Indonesia.
 - After successful implementation of ADS-B for situational awareness, Indonesia will implement ADS-B for provision of separation services.





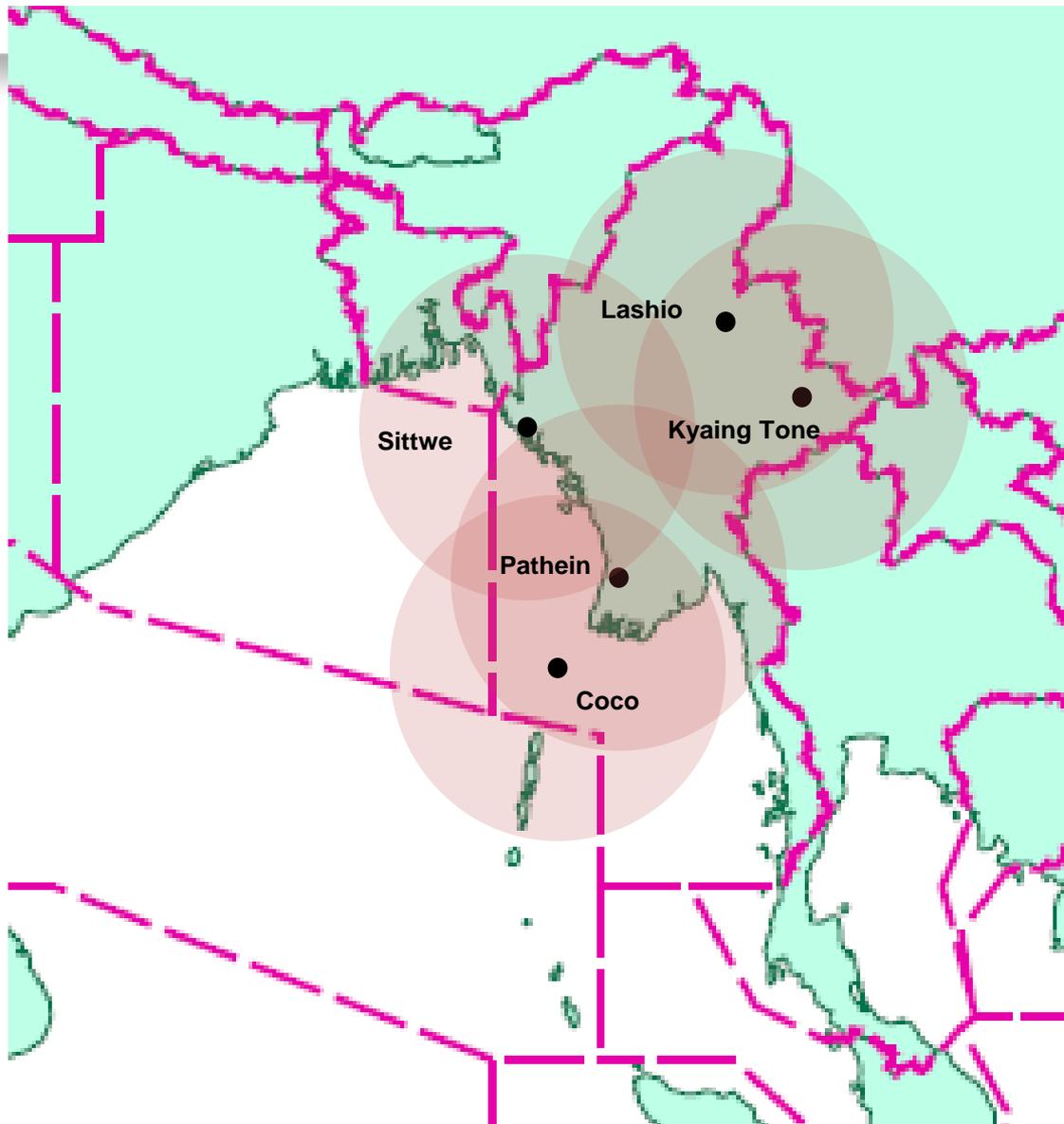
Malaysia

- Installed Multi-lateration and ADS-B in Terengganu Airport (commissioned end-2009).
- Upgraded ATM system in Sep 2011 to integrate with ADS-B.



Myanmar

- Myanmar has plans to install ADS-B stations at
 - Lashio
 - Sittwe
 - Kyaing Tone
 - Pathein
 - Coco
- The Project started in 2012 and to be complete by 2015



Nepal

- Replacement of Radar in 2013
- Plans to install 1 ADS-B ground station by 2018
 - Tribhuvan International Airport





New Caledonia

- ADS-B installation plans as follows:
 - Installed 3 ground ADS-B stations in 1H 2010
 - ADS-B controller positions available since 30 Jul 2010 at Tontouta and Magenta airports
 - For situation awareness & search and rescue



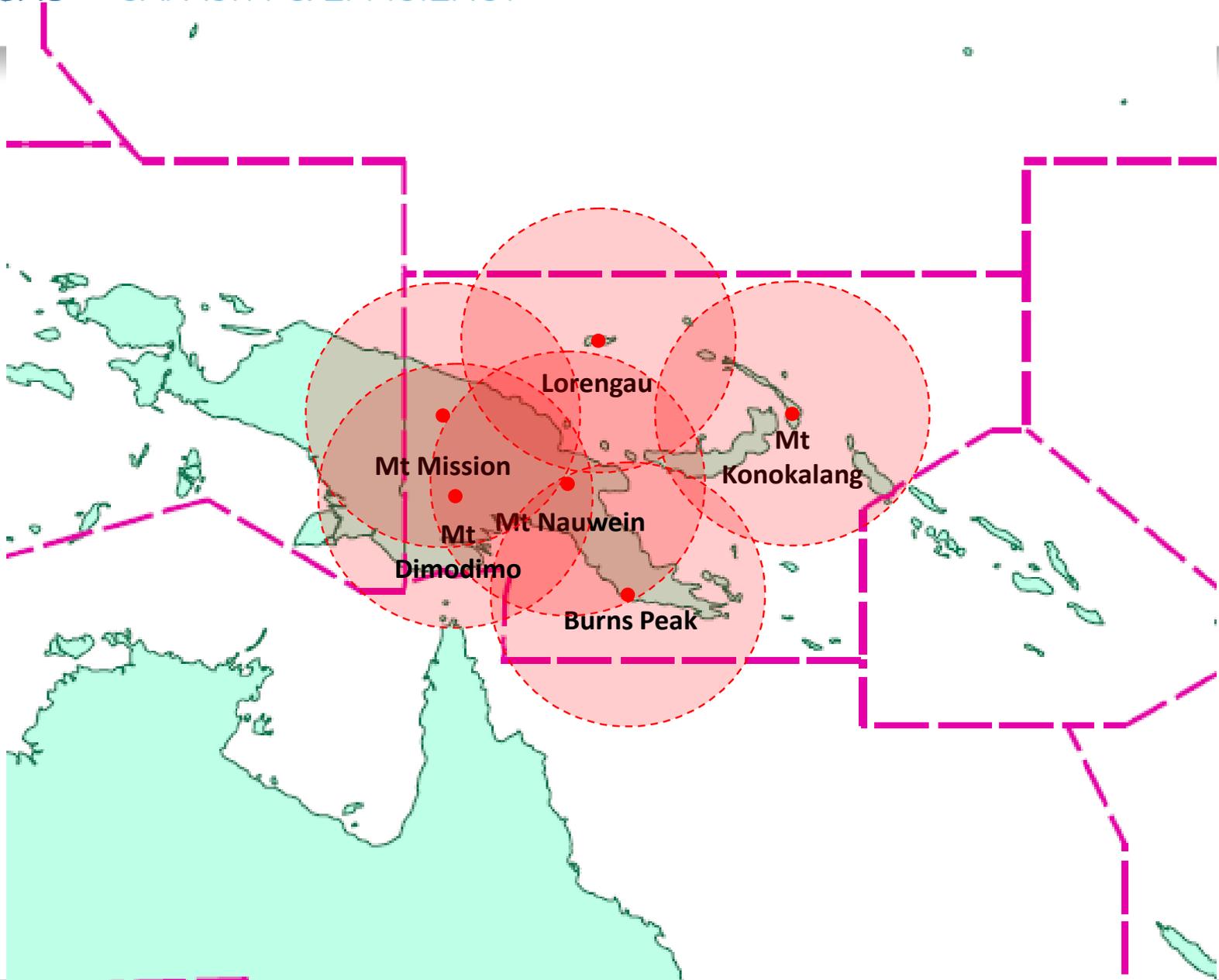
Pakistan

- Installed 1 trial ADS-B station at Karachi ACC for one year



Papua New Guinea

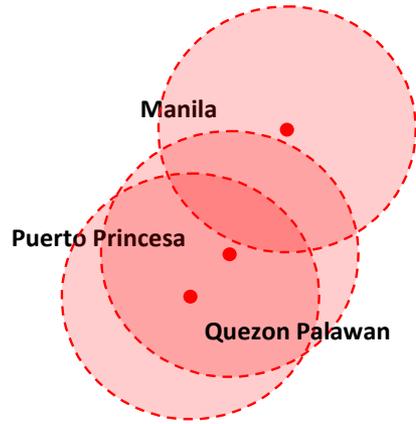
- Commencing ATMS modernisation program including plans to deploy ADS-B as its primary surveillance source
- Plans to install 6 ADS-B ground stations by 2013
 - Mt Nauwein
 - Mt Dimodimo
 - Burns Peak
 - Mt Mission
 - Mt Konokalang
 - Lorengau





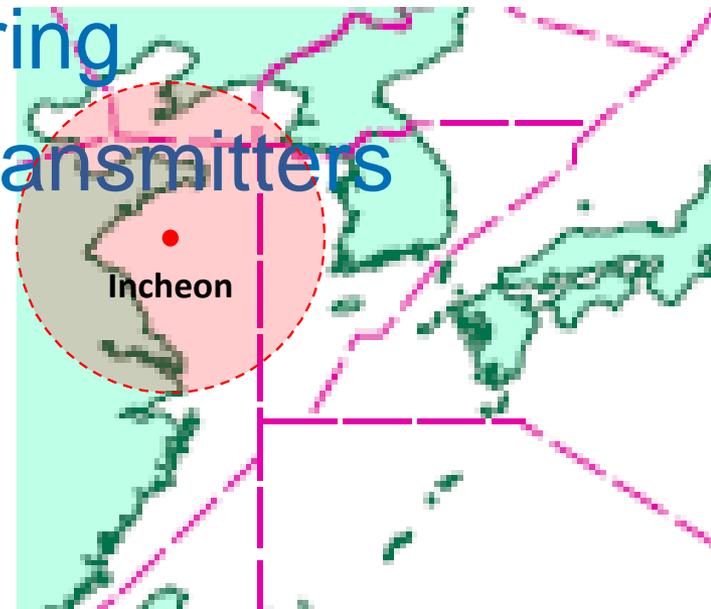
The Philippines

- Installed a new Mode-S SSR radar:
 - Capable of processing 1090ES ADS-B reports
 - Range of 100NM
 - Intend to include ADS-B capability in other Mode S SSR station
- installed ADS-B stations in 2012 in:
 - Manila and Puerto Princesa
- Another possible site is Quezon Palawan*



Republic of Korea

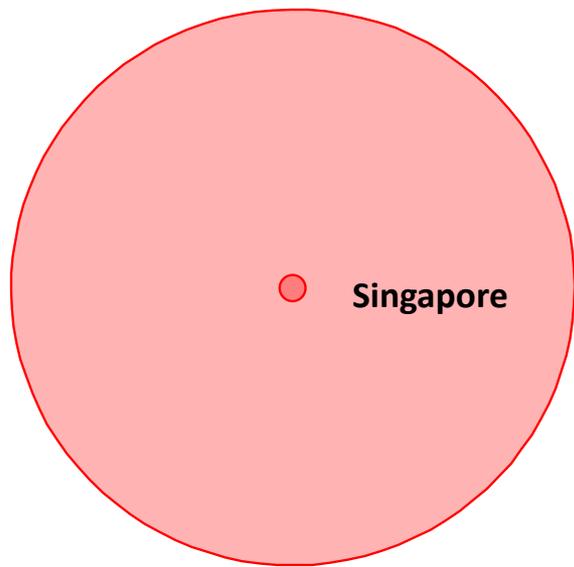
- Installed 4 ADS-B stations at Incheon International Airport.
- 44 ADS-B vehicle transmitters are installed for vehicle monitoring
- 6 portable ADS-B vehicle transmitters are available for future use





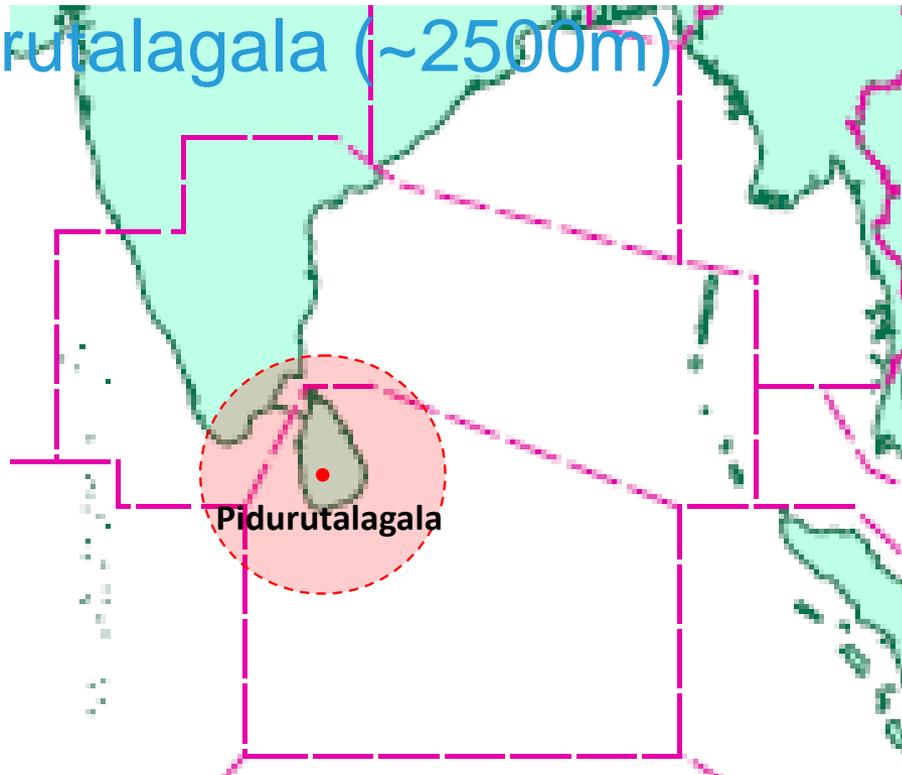
Singapore

- Installed 1 ADS-B station and ADS-B processor in Singapore
- Implemented a new ATM System with ADS-B processing capability Purchased a stand-alone controller position to conduct operational trial starting since 2011
- Issued Aeronautical Information Circular on plans to implement ADS-B operations after 2013.



Sri Lanka

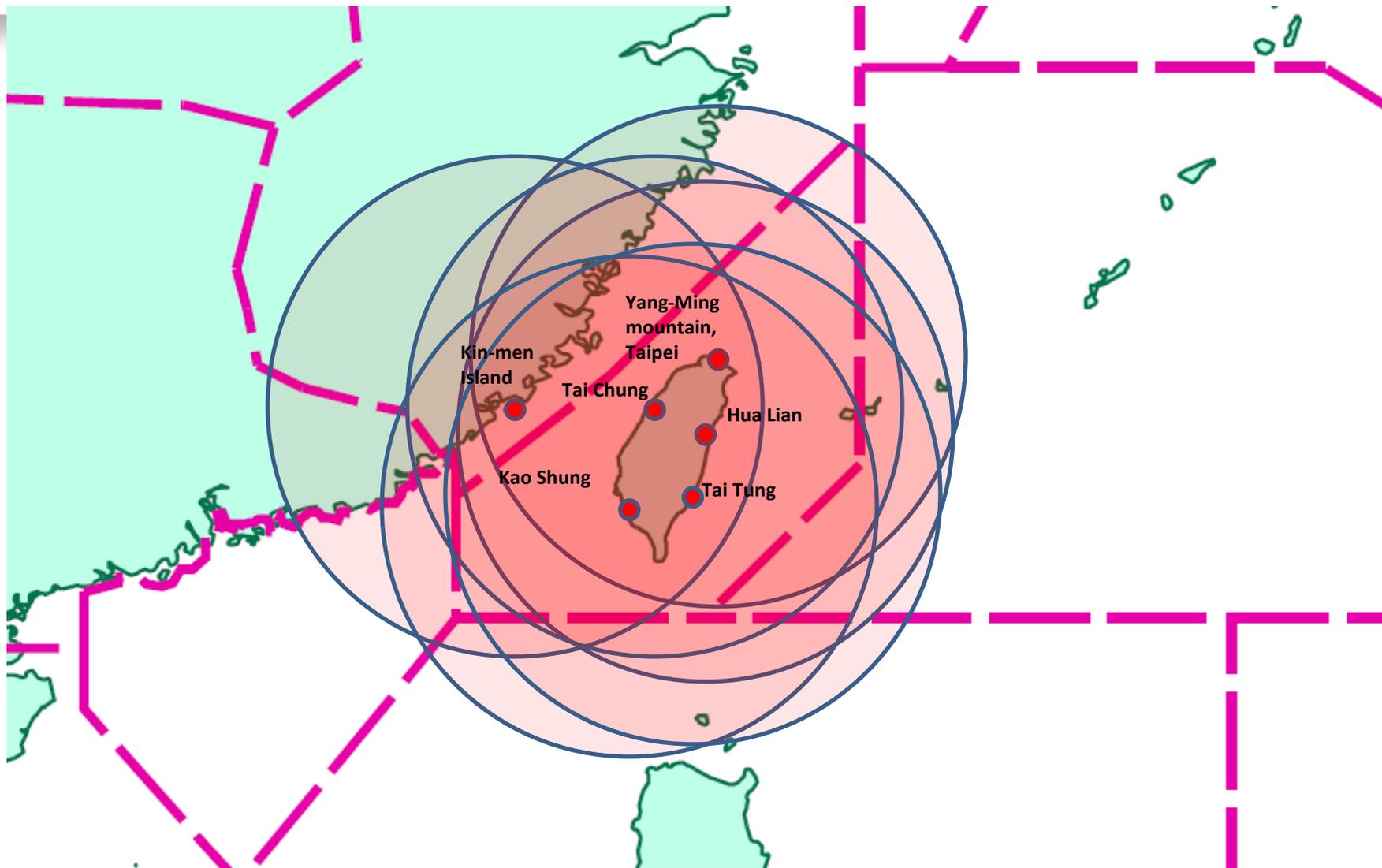
- Has plans to install 1 ADS-B ground station by end-2012
 - Pidurutalagala (~2500m)





Chinese Taipei

- Installed 6 ADS-B trial stations at:
 - Yang-Ming Mountain (Taipei), Hua Lian, Tai-Tung, Kao-Shung, Tai-Chung and Kin-Men
- Installed Airport Multi-lateration at
 - Kinmen Airport with 6 sensors
 - Taoyuan Airport with 16 sensors
- Perform trials on Wide-Area Multi-lateration using the 6 ADS-B trial stations.





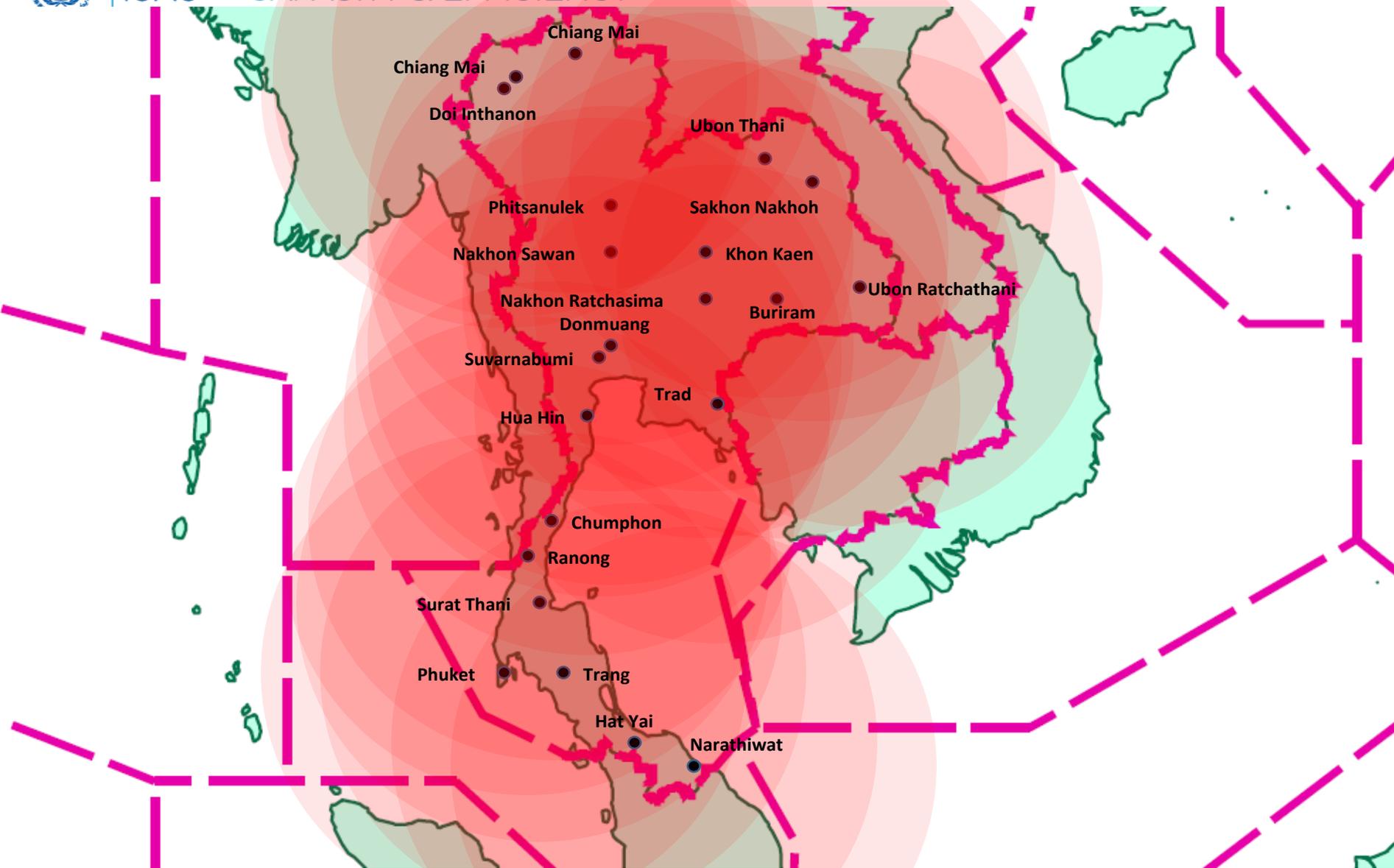
Thailand

- **Planning to install 22 ADS-B ADS-B:**
 - Ubon Ratchathani, Hat Yai, Udon Thani, Chumphon, Trang, Samui (Surat Thani), Chiang Mai, Chiang Rai, Khon Kaen, Phitsanulok, Doi Inthanon (Chiang Mai), Nakhon Ratchasima, Sakhon Nakhon, Buriram, Suvarnabhumi (Samut Prakan), Donmuang (Bangkok), Hua Hin (Prachuap Khiri Khan), Phuket, Narathiwat, Trad, Nakhon Sawan, and Ranong.



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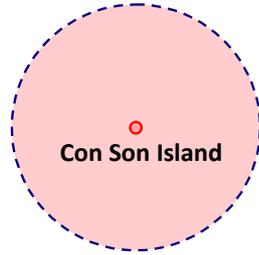
Viet Nam

- Installed ADS-B station at Con Son by 2011
- Plan to install two ADS-B stations in the Eastern part of Ho Chi Minh FIR
- Plan to upgrade ATM system in Ho Chi Minh to integrate with ADS-B
- Plan to install new ATM system with ADS-B processing capability in Ha Noi



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Con Son Island



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Central African
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Dakar

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Questions?

Thank You