



SAFE SKIES.
**SUSTAINABLE
FUTURE.**



ICAO APAC/MID ATFM-FF-ICE Seminar 2025

Dubai, UAE, 23 – 26 February 2025

Stuart Ratcliffe

Co-Chair CANSO ATFM/A-CDM WG
Product Manager Aireon

CANSO Support for Cross Border ATFM

Existing ATFM ConOps

Why Cross Border ATFM

Instances Of Cross Border
ATFM

How is CANSO Supporting
Cross Border ATFM

Questions

ATFM Global ConOps



Domestic ATFM

Only Domestic Flights subject to ATFM Measures

- Australia
- Colombia
- Brazil
- India
- New Zealand
- South Africa
- Japan



Centralized ATFM

Only flights departing and arriving from airports in EUROCONTROL are of Responsibility subject to ATFM measures

- EUROCONTROL: 41 states



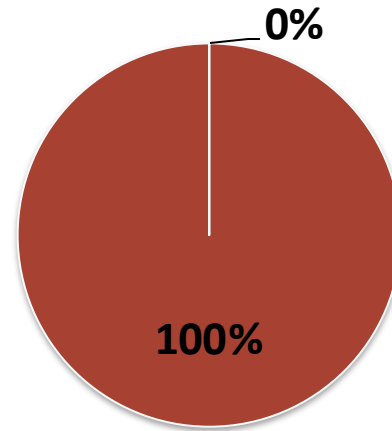
Regional ATFM

Flight from Adjoining countries could be subject to ATFM measures

- FAA
- Canada
- Mexico
- NARAGH

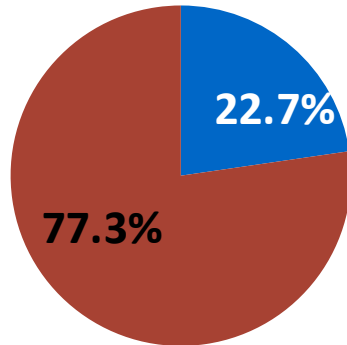
Need for Regional Cross Border ATFM

Hong Kong International,
Singapore Changi, Doha, Dubai

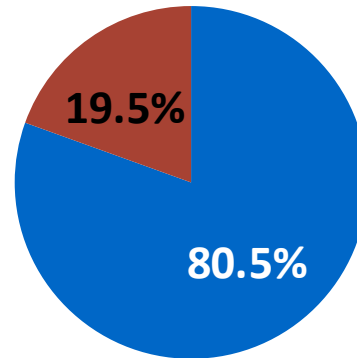


- Domestic
- International

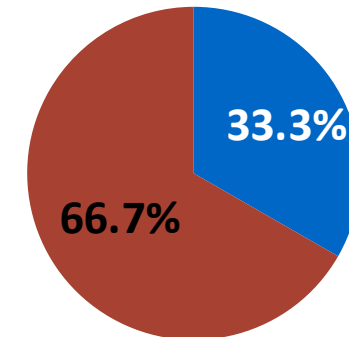
Bangkok Suvarnabhumi



Jakarta Soekarno-Hatta



Kuala Lumpur International



Development of Distributed Cross Border ATFM

Distributed Multi Nodal Regional ATFM Concept
2014 -

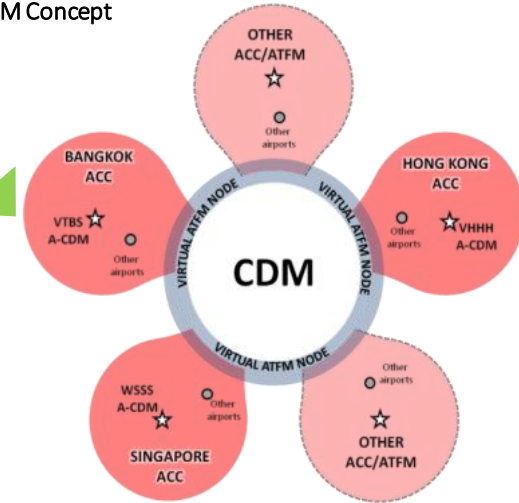
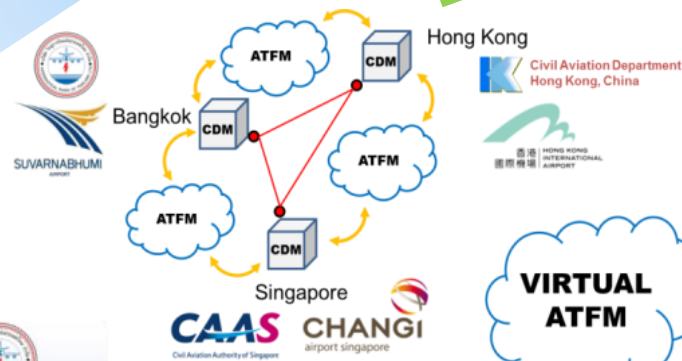
AIRBUS PRO SKY **CAAS** Civil Aviation Authority of Singapore
 Research Collaboration on Regional ATFM Concept
 2013

CANSO Whole of flight CDM
 Pilot Project between BKK-SIN
 2011-2012

CAAS Civil Aviation Authority of Singapore **canso**

Supported by

CHANGI airport singapore **SINGAPORE AIRLINES** **DCA** MALAYSIA **THAI** **AOT**



ATFM ConOps



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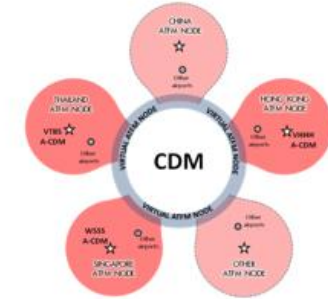
- EUROCONTROL: 41 states
- ASECNA: 18 States



Regional ATFM

Flight from Adjoining countries could be subject to ATFM measures

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Distributed Multi-Nodal ATFM

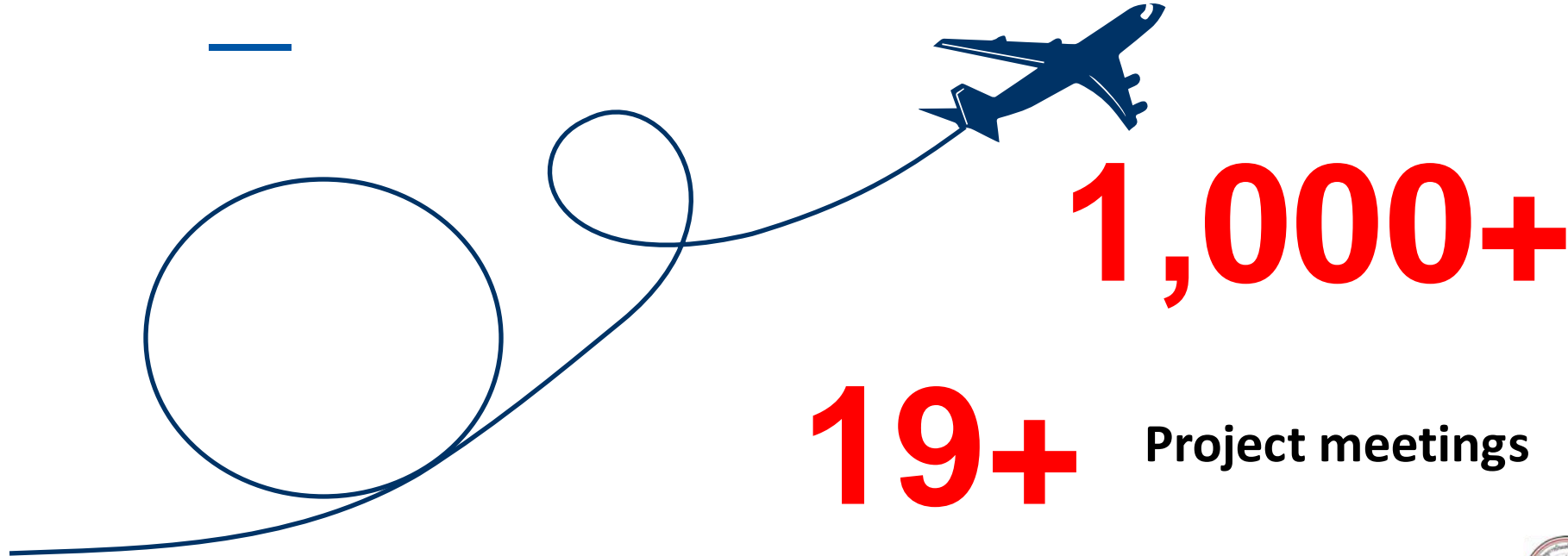
Each state performs ATFM for their area of responsibility, all states recognize ATFM measures and follow common operating procedures

APAC - 11 States

MIDEAST – Implementing

LATAM - Implementing

AMNAC Current Status



1,000+

Rounds of distributed
ATFM programs (GDPs)
activated

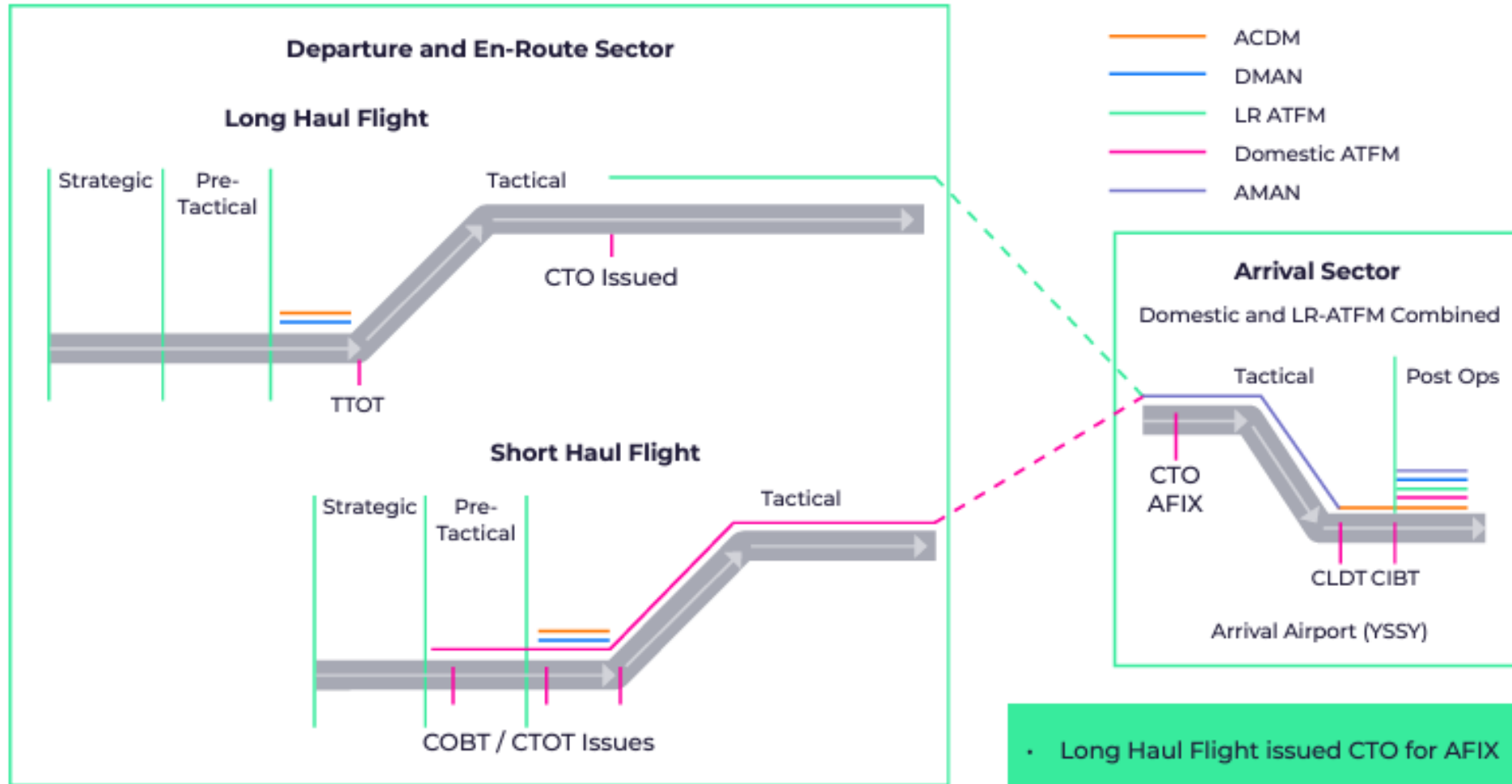
19+ Project meetings

11 ANSPs participating in the project
(+ Airservices Australia in the beginning)

~8 Years since the start of
the implementation
(2015 – Today)



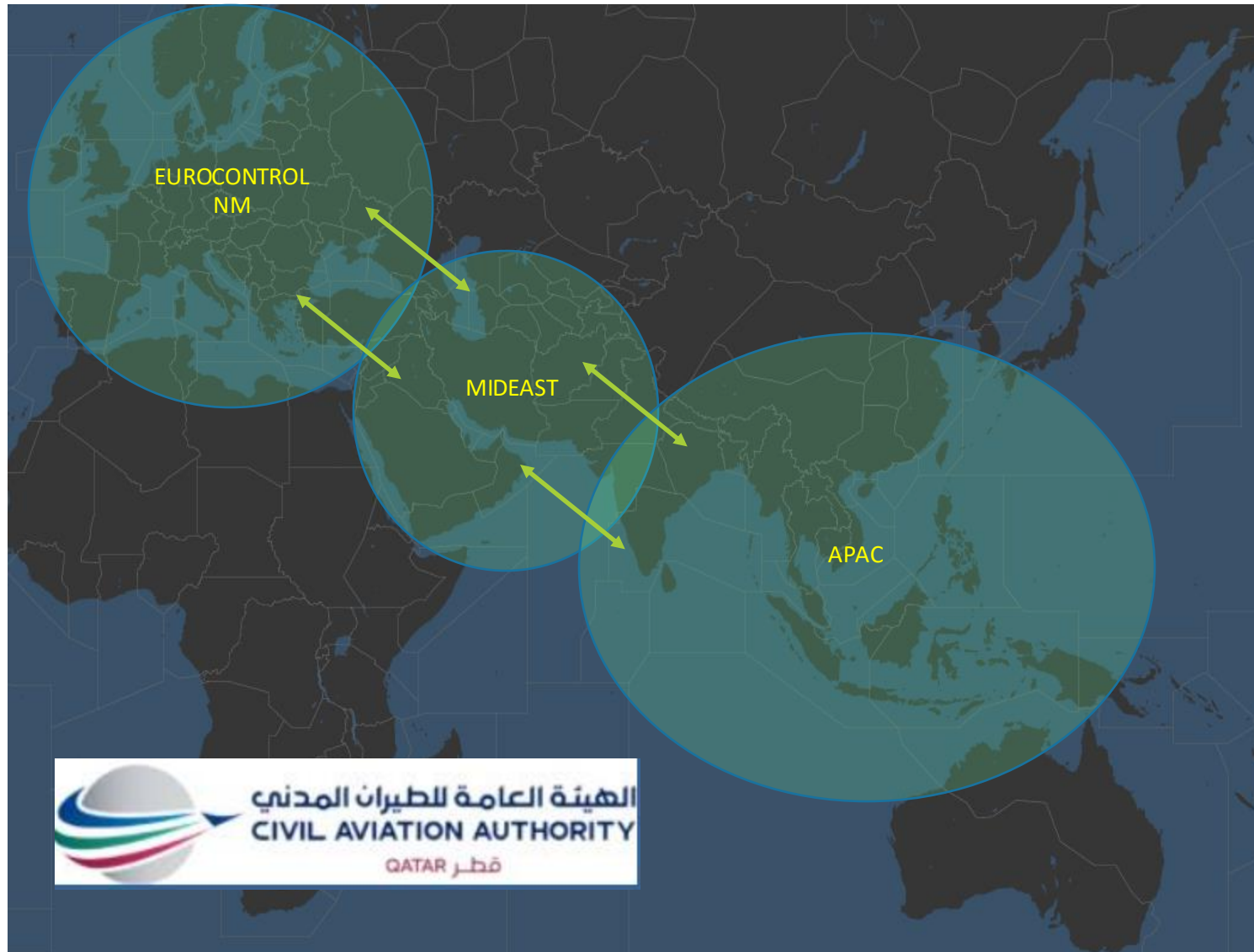
Need for Long Range ATFM (LR-ATFM)



- Long Haul Flight issued CTO for AFIX
- Short Haul Flight issued CTOT
- ATFM AAR = AMAN AAR

Figure 2 - Perfect LRATFM Scenario

Need for Inter-Regional Cross Border ATFM



Trajectory based Operations

TBO's purpose is to smooth airspace and airport demand by managing the entire trajectory of all aircraft in four dimensions 'from gate to gate.

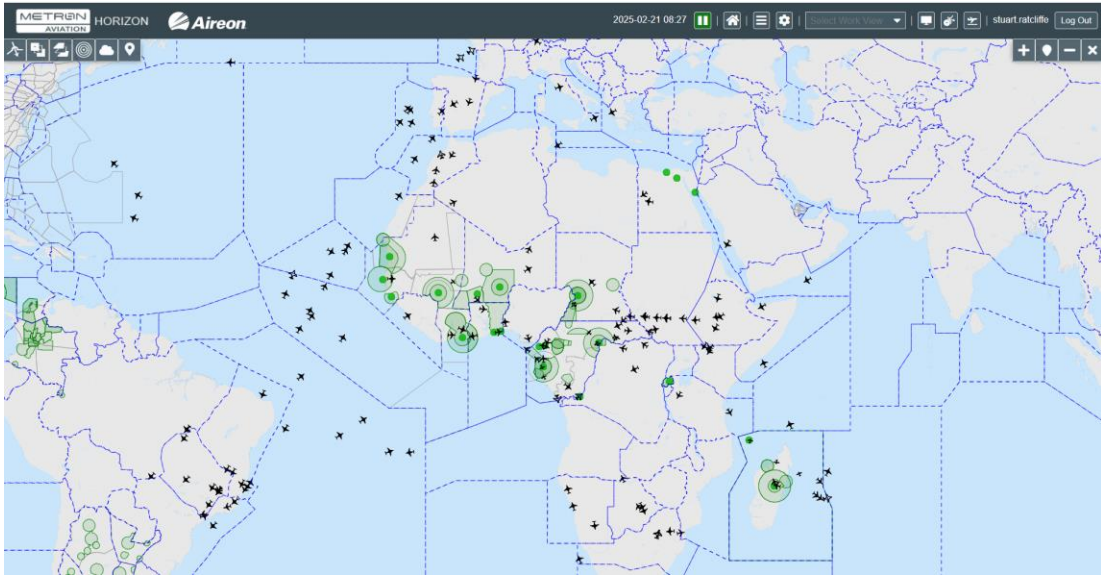
The goal of TBO is to achieve the optimal system outcome with minimal deviations from the user requested trajectory



Example of Centralised Cross Border ATFM

ASECNA

- Cloud Based
- Aireon and Metron supplying ATFM for entire ASECNA Airspace
- 18 Countries
- 7 FIRs
- Global ADS-B Surveillance data
- Centralised ATFM managed from Dakar Senegal
- All ANSPs and stakeholders' access to system via internet
- Operational on 1 January 2024



How is CANSO Supporting Cross Border ATFM?

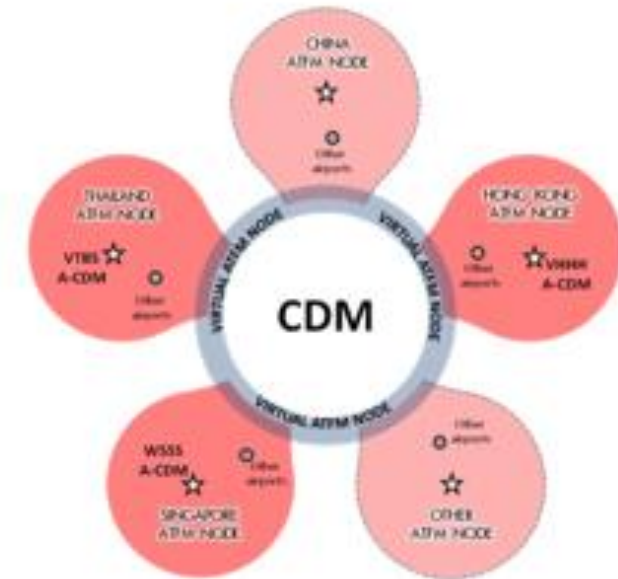
- Next Generation ATFM
- CATS
- Mombasa
- CANSO OIS
- Our Library of Documents

Next Generation ATFM AMNAC Oct 2024

Soh Poh Theen (CANSO)
Stuart Ratcliffe (CANSO)

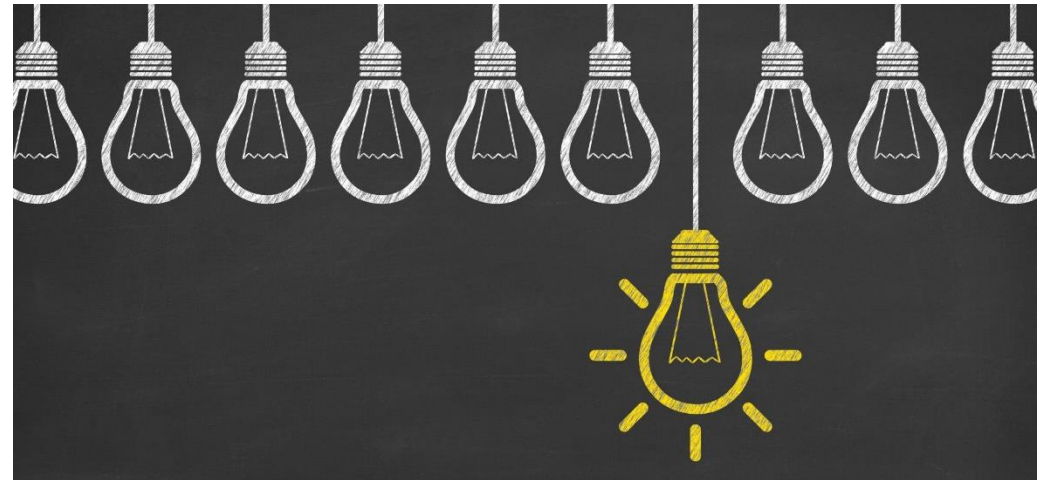
Questions posed to the AMANC Core Team

- Are we practicing the best processes in ATFM?
- What is the best practice in ATFM?
- How can we enhance how we are currently doing ATFM?
- How can we get more ANSPs to participate in ATFM?
- How can we get a regional situational awareness?
- How can we get to a regional Network Management process?
- Are we ready for Inter-Regional ATFM?
- Do we want to be the leaders in regional ATFM implementation?
- Is the current ConOps going to support FF-ICE/TBO?
- Is how we practice ATFM today going to manage the flows of cross border traffic in the future?



AMNAC Special Topics Meeting

- AEROTHAI Hosting 2-day Workshop Middle March
- AMNAC (Core Team)
- Clean Sheet
- Develop Plan for New/Revision of current ConOps



Complete Air Traffic System (CATS)



To create global airspace that is safe, fair, sustainable, intelligent and interoperable, leveraging revolutionised design, technology and services to power sustainable global mobility and prosperity.

CATS Global Council Members

ANSP

AUs
(Civil, mil)

OEMs

Airports
vertiports

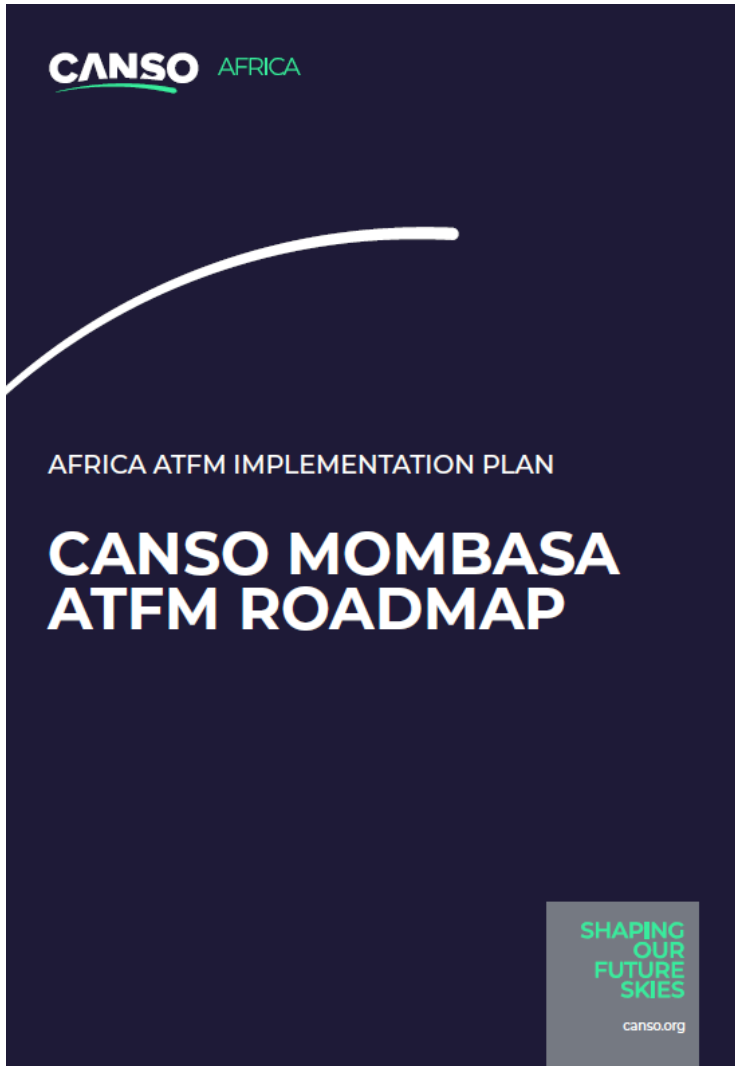
ITs

CAO
UTM/
UAS/
eVTOL

PSOs

R&D,
consultant

CANSO Initiated Mombasa Roadmap



2018 CANSO Africa Conference

- Mombasa Roadmap was developed and lays out the way for implementation of ATFM in Africa

AREA 1	AREA 2	AREA 3	AREA 4	AREA 5
Eritrea	Botswana	Angola	Cameroon	Benin
Ethiopia	Comoros Islands	Angola	Central Africa Republic	Burkina Faso
Kenya	eSwatini (Swaziland)	Democratic Republic of the Congo	Chad	Cape Verde
Madagascar	Lesotho	Malawi	Equatorial Guinea	Gambia
Rwanda	Mauritius	Zambia	Gabon	Ghana
Seychelles	Mozambique		Niger	Guinea
Somalia	Namibia		Nigeria	Guinea Bissau
Tanzania	South Africa		Rep. of the Congo	Ivory Coast
Uganda	Zimbabwe			Liberia
				Mali
				Mauritania
				Senegal
				Sierra Leone
				Togo



CANSO Initiated CADENA and CANSO OIS

- Operational 23 June 2016
- Regional Cross Border ATM Communication
- ATFM Daily Plan repository
- Stakeholders have access via Internet
- Conduct regular web conferences
- Chat Room
- Planned Airway System Alternatives (PASA)
- End- to-End Routes



<https://www.cadenois.org/index.html>

Cross Border Forums CANSO Contributing to:

- AMNAC (Core Team)
- APAC ICAO ATFM SG
- MID EAST ICAO ATFM Task Force (Core Team)
- ICAO ATMOPS –ATFM WG

22nd Meeting of the
 Asia-Pacific Cross-Border
 Multi-Nodal ATFM Collaboration
 (AMNAC/22)

Meeting Detail

Hosted by: Civil Aviation Authority of Singapore (CAAS)
 Meeting Venue: Raffles City Convention Centre, Singapore
 Meeting Dates: 14 – 18 October 2024
 • Core team Session: 14 – 15 October 2024
 • Plenary Session: 16 – 18 October 2024



ATFM/SG/12 – WP/01
 13 – 16/09/2022



ICAO

International Civil Aviation Organization

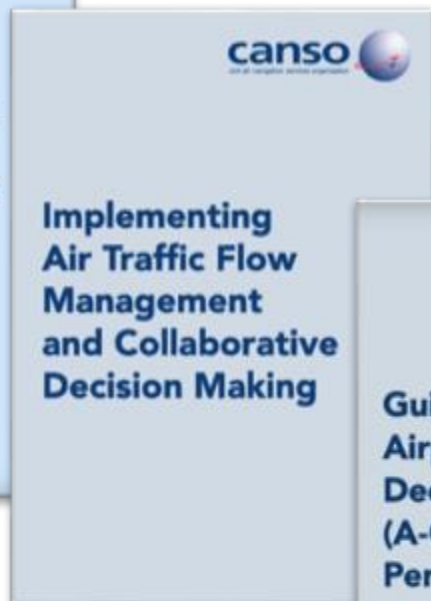
Twelfth Meeting of the Asia/Pacific Air Traffic Flow Management Steering Group (ATFM/SG/12)

Video Teleconference, 13 – 16 September 2022

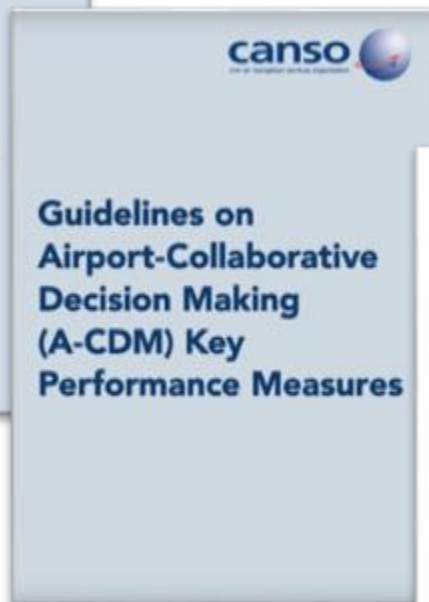
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**Published
Jun 2016**



**Published
Apr 2019**



**Published
May 2019**



**Published
Oct 2020**



**Published
Jul 2022**



**Published
Feb 2024**

Thank You

