



ICAO BANGKOK

UNITING AVIATION

# WP13 – Air Traffic Flow Management Update

SAIOACG/10 and SEACG/27

29 March – 02 April 2021

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## **Tenth Meeting of the Air Traffic Flow Management Steering Group (ATFM/SG/10) – as Reported to ATM/SG/8**

- Video Teleconference, 04 to 08 May 2020
- 95 Participants, 16 Administrations, four International Organizations
- 19 Working Papers, two information papers, 17 Presentations, two filmsies
- First ICAO APAC Regional attempt at a major technical meeting by VTC
- Condensed agenda.

<https://www.icao.int/APAC/Meetings/Pages/2020-ATFM-SG10.aspx>



- **Related Meeting Outcomes**
- **Bay of Bengal Cooperative Air Traffic Flow Management (BOBCAT)**
- **Asia/Pacific Cross-Border Multi-Nodal ATFM Collaboration (AMNAC) Progress**
- **Progress of the Technical Sub-Group of AMNAC**
- **Northeast Asia Regional ATFM Harmonization Group (NARAHG)**
- **Hong Kong ATFM Website**
- **Progress of Interoperability between Hong Kong China and Japan**



- **Cross-Border ATFM Mitigation**
- **India Update on ATFM Operations**
- **Regional ATFM Implementation Status**
- **ATFM Post-Operations Analysis Recommended Framework**
- **Progress of the ATFM/IR/SWG of ATFM/SG**
- **CANSO and IATA presentations**



## Related Meetings Outcomes

- **Asia/Pacific (APAC) Flight Information Exchange Model (FIXM) 4.1 Extension**
  - Initiated by ATFM/SG, developed by SWIM TF
  - Reviewed by FIXM Change Control Board: published <http://fixm.aero>
  - Approved by APANPIRG
    - ***Conclusion APANPIRG/30/12 CNS SG/23/6-SWIM TF/3/4 – Asia/Pacific FIXM Extension for ATFM***
  - Published on ICAO APAC eDocuments web-page
    - <https://www.icao.int/APAC/Pages/eDocs.aspx>



## Related Meetings Outcomes

- **AFTN/AMHS-Based Interface Control Document for ATFM**
  - Drafted/proposed by ATFM/SG/9, endorsed by the Sixth Meeting of the Aeronautical Communications Services Implementation Coordination Group (ACSCG/6)
  - Approved by APANPIRG
    - ***Conclusion APANPIRG/30/12 CNS SG/23/6-SWIM TF/3/4 – Asia/Pacific Extension for ATFM***
  - Published on ICAO APAC eDocuments web-page
    - <https://www.icao.int/APAC/Pages/eDocs.aspx>



### FIXM DOWNLOADS

Expand All

► **FIXM Applications**

▼ **FIXM Extensions**

Supports localized requirements from particular communities of interest. Extends basic flight data and/or applications.

► **US Extension**

▼ **APAC Flow**

FIXM Extension containing data attributes to support Air Traffic Flow Management operations in accordance with Distributed Multi-Nodal Air Traffic Flow Management Network concept and Airport-Collaborative Decision Making operations in Asia/Pacific region.

	Version	Core Version	Release Date	Release Package
Current Version	<a href="#">1.00</a>	<a href="#">FIXM Core 4.1.0</a>	11-Jul-2019	<a href="#">Download</a>
► Previous Versions		None		

► **ATS\***

► **SESAR EFPL**

CNS SG/24  
Appendix E to the Report  
INTERNATIONAL CIVIL AVIATION ORGANIZATION



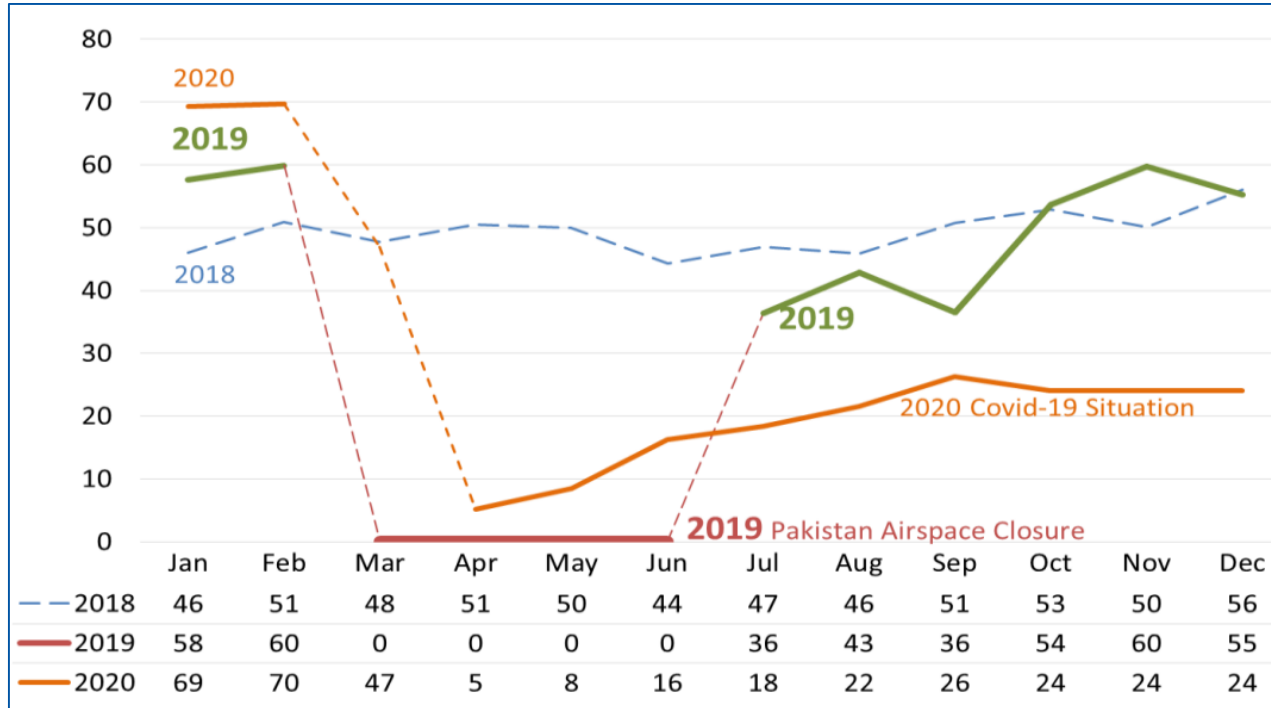
ASIA/PACIFIC REGION  
AFTN/AMHS-BASED INTERFACE CONTROL DOCUMENT  
FOR  
AIR TRAFFIC FLOW MANAGEMENT

Version 2.0

Approved by the Communications, Navigation and Surveillance  
Sub-Group of APANPIRG (CNS SG)



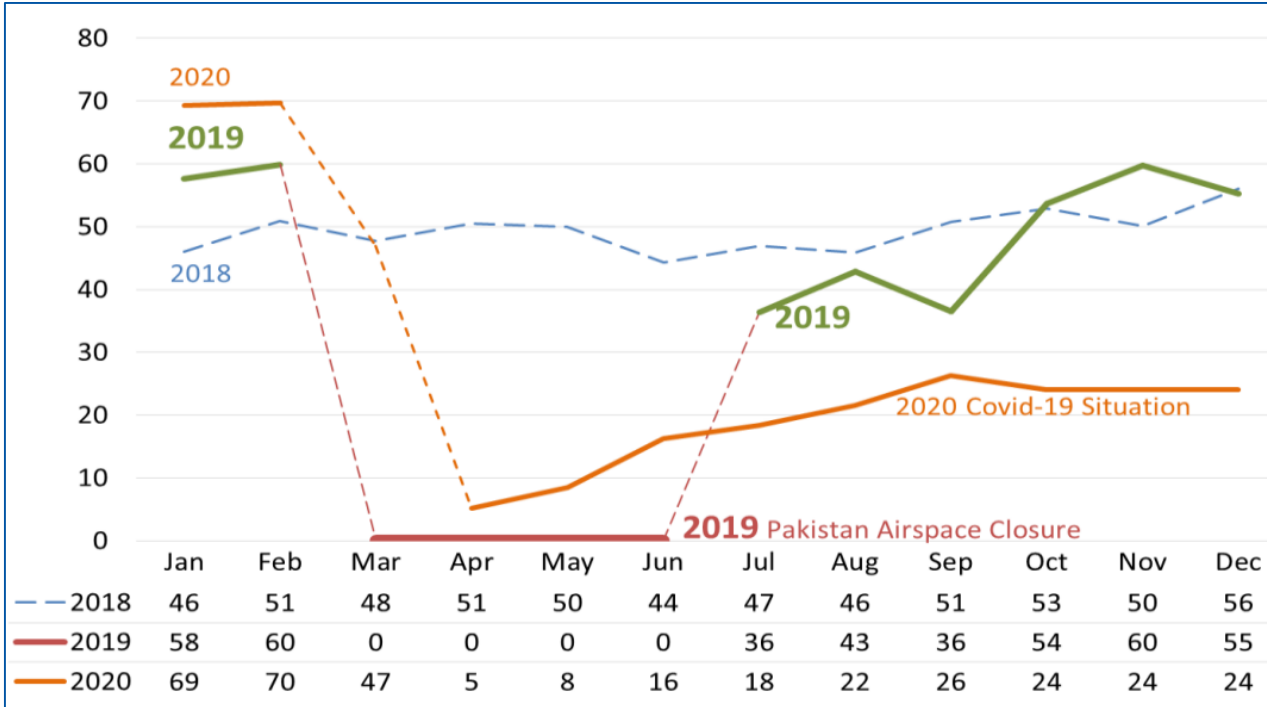
# Bay of Bengal Cooperative Air Traffic Flow Management (BOBCAT)





# Bay of Bengal Cooperative Air Traffic Flow Management (BOBCAT)

**Not in WP13**  
  
See separate IP03 for full details





## Update from Asia/Pacific Cross-Border Multi-Nodal ATFM Collaboration

(AMNAC - formerly the Distributed Multi-Nodal ATFM Network)

- Common Operating Procedure Developed
  - Now part of routine operations among *core team* members
- Network post operations analysis portal <http://bit.ly/amnac.poa>
- Key observations:
  - Majority of Ground Delay Programmes (GDPs) in response to congestion in Bangkok and Sanya FIRs
    - More flights affected but less overall ATFM delay, compared to GDPs responding to reduced airport capacity
  - Overall Calculated Take Off Time Compliance
    - Departing Level 3 Nodes: 73%
    - Departing Level 2 Nodes: 70%

} Room for improvement



## Update from Asia/Pacific Cross-Border Multi-Nodal ATFM Collaboration Common Operating Procedure Update – CTOT revision

4.28 A revision of CTOT should also take into consideration the operational restrictions airspace users and airport operators are subjected to. To mitigate disruptions from insufficient reaction time for the processing of revised CTOT, stakeholders should lodge CTOT revision request as soon as practicable. In issuing a revised CTOT, Initiating ATFMU should ensure that the revised CTOT is not too early as to render stakeholders unable to react to it. **Table 9** specifies conditions for the revised CTOT.

Changes Initiated by	Earliest Revised CTOT Allowable	
	Revised CTOT is <b>EARLIER</b>	Revised CTOT is <b>LATER</b>
<i>Airspace User</i>	Current time + [max STT* + Buffer] <b>New CTOT &gt; Current time + 30 minutes</b>	N/A
<i>Initiating ATFMU</i>	Current time + [reaction time] <b>New CTOT &gt; Current time + 45 minutes</b>	

Table 9 - Lead Time Requirement for CTOT Revision Processing

\*Max STT refers to maximum standard taxi-out time used in CTOT calculation among the airports in the network: for current operations, the maximum STT is 20 minutes



## Progress of the Technical Sub-Group of AMNAC

- Significant contribution to development of AFTN/AMHS ICD for ATFM (more on this later...)
- Level 3 nodes: ATFM data exchange *capability* over AFTN/AMHS mostly implemented (SAM, SRM, SLC messages)

Level-3 ATFM nodes	Status	Remark
AEROTHAI	Completed	
SANYA ATFMU	Completed	Only SAM implemented
CATS	Completed	
HKCAD	Completed	
CAAS	In-Progress	Undergoing reliability testing, estimated completion by Q2 2020.



## **Northeast Asia Regional ATFM Harmonization Group – NARAHG** **(China, Japan, Republic of Korea)**

- Activity update, including the NARAHG Concept of Operations (CONOPS)
- Information on NARAHG characteristics including:
  - Establishment of ATFMUs in participating States
  - High ratio of international flights
  - Future planning for connection of each ATFM system and exchange of flight data at FIR boundaries
  - Calculation of ATFM measures by each ATFMU – shared with upstream ATFMUs



# Hong Kong Air Traffic Flow Management Website

[www.atfmc.gov.hk](http://www.atfmc.gov.hk)

### Flight Inbound and Outbound VHHH

INBOUND							OUTBOUND			
	Callsign	ADEP	ADES	Flight date	EOBT	CTO	CTOT	CLDT		
1	CPA701	VHHH	VTB2	20200117	0805		0845			
2	CPA111	VHHH	VTBS	20191016	0828		0848			
3	PAC237	VHHH	RKSI	20191114	0830		0930			
4	CPA222	VHHH	VTBS	20191016	0836		0856			
5	CPA555	VHHH	VTB	20191016	0900		1000			
6	CPA111	VHHH	VTBS	20191015	0910		1015			
7	CPA222	VHHH	VTBS	20191015	0920		1130			
8	CPA888	VHHH	VTBS	20191015	1000		1020			
9	CPA777	VHHH	VTBS	20191015	1010		1040			
10	AIQ2530	VHHH	VTSG	20191114	1230		1300			

Search filters:

Callsign:

ADEP:

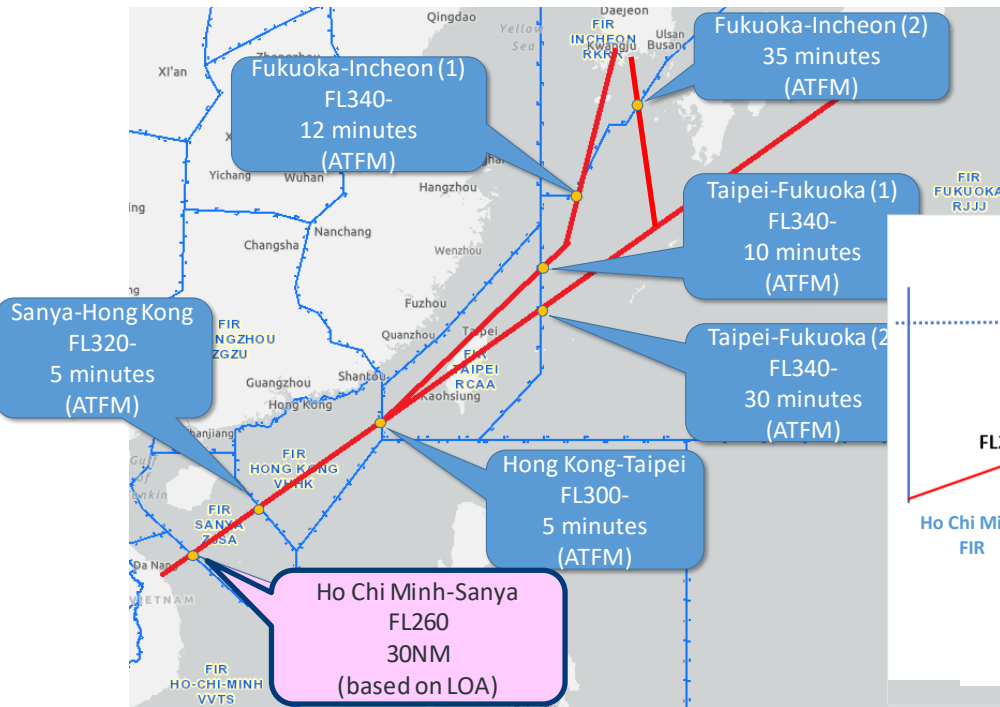
ADES:

CTOT FROM: 2020-04-17

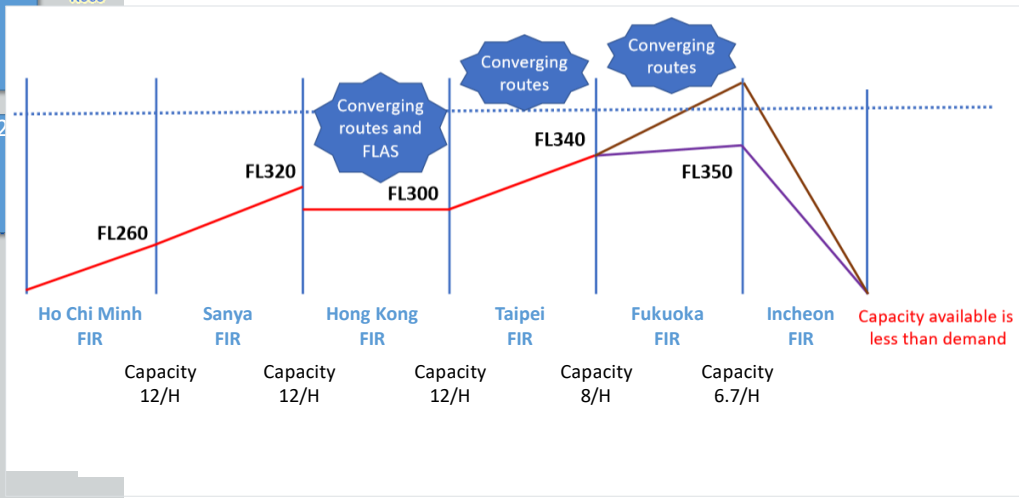
TO: 2020-04-17

Latest ATFMC Daily Plan (ADP)

# Cross-Border ATFM Mitigation (ATFM/IR/SWG)



## Flights from Republic of Korea to Da Nang, Viet Nam





## Cross-Border ATFM Mitigation (ATFM/IR/SWG)

FIR	Approach	Previously	Currently	When
Ho Chi Minh FIR Sanya FIR	Increase capacity	FL260 restriction	No longer exists (SLOP remains the same)	Nov 2019
	Increase capacity	30NM transfer	20NM transfer	Mar 2020
Sanya FIR Hong Kong FIR	Increase capacity	30NM transfer	20NM transfer	Mar 2020
Hong Kong FIR Taipei FIR	Increase capacity	30NM transfer	20NM transfer	Mar 2020
Fukuoka FIR	Reduce ATFM measures	(1) 12min FL340- (2) 35min	(1) 10min FL340- (2) 30min	Nov 2019
Incheon FIR	Implement ATFM	AIP publish for ATFM Tactical ATFM (CTOT)	Strategic/Pre-tactical/Tactical ATFM (CTOT, slot swapping, Reroute, etc.)	Mar 2020 (Jun 2019)

Flights from Republic of  
Korea to Da Nang, Viet  
Nam



## India update on ATFM operations

- **ATFM implementation status, ATFM – A-CDM integration**
- **Phases I and II implementation**
  - 36 FMPs in ATS units, application of GDP and GSt programs
  - Integration of ATFM and A-CDM at four major and 12 satellite airports
  - Initial use of in-trail and sequencing
  - FMP and ATC training planned
- **ATFM portal beta version [www.atfmaai.aero/portal](http://www.atfmaai.aero/portal)**
- **CTOT compliance approx. 60%**
  - CTOT compliance window -5 to +10 minutes
  - $\pm 3$  minutes necessary for CTO
- **Cross-border ATFM planned for Phase III in 2021 or later**
- **ATFM assistance to Nepal under consideration by MoCA**



## Regional ATFM Implementation Status

- Reported against *Regional Framework for Collaborative ATFM* performance expectations
- Regional ATFM Plan Monitoring and Reporting Form
- Reports received:
  - **2018 and/or 2019 – 23 Administrations** Australia, Bangladesh, Cambodia, China, Hong Kong China, Macao China, India, Indonesia, Japan, Malaysia, Maldives, Myanmar, Nepal, New Caledonia, New Zealand, Pakistan, Papua New Guinea, Philippines, Republic of Korea, Singapore, Thailand, Viet Nam and USA
  - **2020 – 10 Administrations (COVID-19 impact?)** Australia, Bangladesh, Cambodia, Hong Kong China, India, Indonesia, Japan, Malaysia, Singapore, Thailand



## Regional ATFM Implementation Status

**ROBUST** – India, Singapore, USA

**MARGINAL** – Australia, Cambodia, China, Japan, Republic of Korea, Thailand

**INCOMPLETE** – Bangladesh, Hong Kong China, Macao China, Indonesia, Maldives, Myanmar, Nepal, France (New Caledonia), New Zealand, Pakistan, Papua New Guinea, Philippines, Viet Nam

**DID NOT REPORT** – Afghanistan, Bhutan, Brunei Darussalam, Cook Islands, Fiji, France (French Polynesia), DPR Korea, Kiribati, Lao PDR, Marshall Islands, Micronesia, Nauru, Palau, Samoa, Solomon Islands, Timor Leste, Tonga, Tuvalu, Vanuatu



# Regional ATFM Implementation Status - Reporting

	A	B	C	D	E	F	G	H	I	J	K	L	M
1	<b>REGIONAL ATFM PLAN MONITORING AND REPORTING FORM</b>												
2	<b>ATFM PERFORMANCE INDICATORS</b>												
3	The following indicators are based on the Performance Improvement Plan of the Asia/Pacific Regional Framework for Collaborative												
4	ATFM, which should be read in conjunction with this form. The information provided will be used by the relevant Regional bodies to												
5	assess individual Administration and overall regional compliance with the Framework, and may be used by Administrations to internally												
6	evaluate their implementation status.												
7													
8	<b>INSTRUCTIONS</b>												
9													
10	<b>A</b>	If your administration is <b>expected, or intends, to implement and distribute cross-border ATFM measures</b> under the terms of											
11		the Performance Improvement Plan of the Asia/Pacific Regional Framework for Collaborative ATFM:											
12		<b>Answer Questions 1 to 31</b>											
13													
14	<b>B</b>	If your Administration is <b>not expected to implement and distribute cross-border ATFM measures</b> as described above:											
15		<b>Answer Questions 32 to 46</b>											
16													
17	<b>C</b>	<b>Not implemented = 0</b>	<b>Partial implementation = 0.5</b>	<b>Full implementation = 1</b>									
18													
19	<b>D</b>	Forward the completed form in MS Excel format to <a href="mailto:apac@icao.int">apac@icao.int</a> .											



## Progress of the ATFM/IR/SWG (of ATFM/SG)

- **Some issues relating to conferencing and participation**
  - Impact on harmonization and interoperability
- **ADP Exchange Procedure**
  - *Conclusion ATFM/SG/10-2: ADP Exchange Procedure Working Draft*
  - Now posted on ICAO APAC eDocs web-page, pending inclusion in re-worked Regional ATFM Framework
- **Proposed amendment to the AFTN/AMHS ICD – incorporated in version 2**



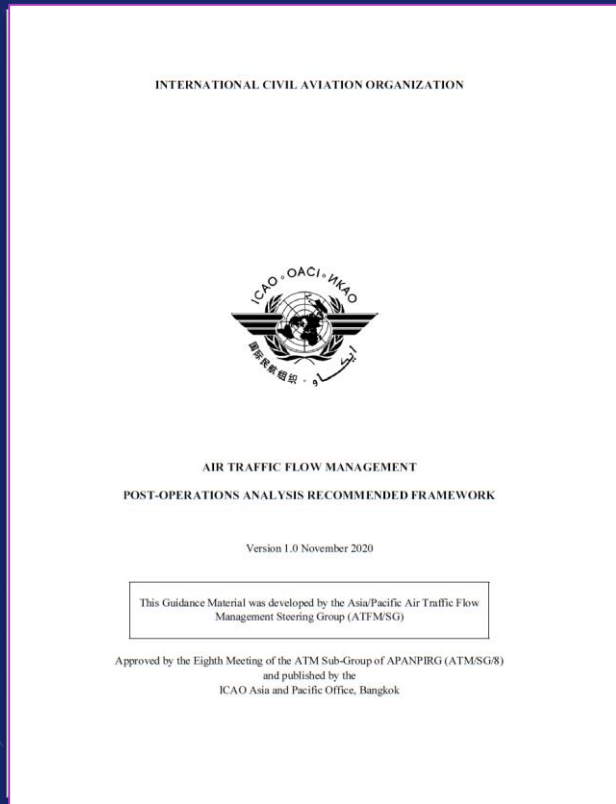
## ATFM Post-Ops Analysis Recommended Framework

- Final draft of the Post-Ops Analysis Framework
- Presented to ATFM/SG/10 by China, Hong Kong China, Singapore, Thailand, CANSO and IATA.
- Further input from India and Japan
- Major additions to the existing working draft document
- **Agreed by ATM/SG/8**

***Conclusion ATM/SG/8-1: ATFM Post-Operations Analysis Recommended Framework***

- Now posted on ICAO Asia/Pacific Regional Office eDocuments web-page

# WHAT IT IS



This document provides **recommendations** on how **ATFM operations analysis** can be conducted, with overview of analyses that can be carried out during each phase of ATFM operations **from planning demand and capacity to post-operations analysis** of an ATFM program with various ATFM measures.

# DOCUMENT STRUCTURE

1 Introduction	Introduction to the document with objectives, structures, nomenclature
2 Guidance Documents	Post-operations analysis as mentioned in guidance documents
3 Demand Reliability	How to assess accuracy and reliability of traffic demand information

4 Capacity Analysis	How to determine and analyze operational capacity
5 ATFM Analysis	How to analyze the “success” of an ATFM measure
6 Collaborative POA	How to collaboratively perform post-ops analysis with stakeholders
7 Case Studies	Case studies on post-operations analysis from those with experiences

# ANALYZING AN ATFM MEASURE: THE 3 QUESTIONS

What did we “DO” to the flights?

**Impact Analysis**

Who are impacted by the ATFM program and how?

How did the flights “REACT”?

**Compliance Assessment**

How well do stakeholders comply?

And was it “HELPFUL”?

**ATFM Effectiveness Analysis**

How effective was it in delivering the outcome intended?



## **CANSO and IATA Presentations**

- **CANSO – Implementation of ATFM COVID-19 Recovery Plans**
  - Encouraged development of a coordinated COVID-19 recovery plan
  - Demonstrated example: European Network Operations Recovery Plan 2020
  - Air traffic demand recovery prediction service
- **IATA – COVID-19 Recovery Coordination Centre – CRCC – and COVID-19 Impact Forecast**
  - Assistance to airline operations
  - Flight approvals challenges



### 3. ACTION BY THE MEETING

#### 3.1 The meeting is invited to:

- a) note the information contained in this paper;
- b) note the adoption by APANPIRG/30 of the Asia/Pacific Extension for FIXM;
- c) note the progress of the AMNAC ATFM effort, and the need for further effort by all APAC Administrations to comply with ATFM measures received;
- d) note the AMNAC procedure for revised CTOT;
- e) note the progress of:
  - i) NARAHG
  - ii) Hong Kong, China ATFM website;
  - iii) ATFM interoperability activities between Hong Kong China and Japan;
  - iv) ATFM implementation in India;



- f) Note the benefits of collaboration between multiple administrations demonstrated by the cross-border mitigation of flights between Republic of Korea and Viet Nam;
- g) Note the continued slow regional progress in implementation of the performance expectations of the Regional Framework for Collaborative ATFM;
- h) Note the *Conclusion ATM/SG/8-1: ATFM Post-Operations Analysis Recommended Framework*;
- i) Note the availability of the working draft ADP Exchange Procedure;
- j) *Conclusion CNS SG/24/3 (ACSICG/7-2 (ATFM/SG/10-3): Amendment of the AFTN/AMHS-based Interface Control Document (ICD)*; and
- k) discuss any relevant matters as appropriate.

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THANK YOU