

INTERNATIONAL CIVIL AVIATION ORGANIZATION



REPORT OF THE TENTH MEETING OF THE ASIA/PACIFIC AIR TRAFFIC FLOW MANAGEMENT STEERING GROUP (ATFM/SG/10)

Video Teleconference, 04 – 08 MAY 2020

The views expressed in this Report should be taken as those of the
Meeting and not the Organization

Approved by the Meeting
and published by the ICAO Asia and Pacific Office, Bangkok

ATFM/SG/10
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INTRODUCTION

Meeting

1.1 The Tenth Meeting of Air Traffic Flow Management Steering Group (ATFM/SG/10) was held by Video Teleconference (VTC) from 04 to 08 May 2020.

1.2 The previously planned Aeronautical Meteorology (MET)/ATFM Seminar and Joint Plenary Session of ATFM/SG/10 and the Ninth Meeting of the Meteorological Requirements Working Group (MET R WG/9) was postponed until a date when a full five-day face-to-face meeting may be conducted, post COVID-19 pandemic.

Attendance

2.1 The ATFM/SG/10 VTC was attended by 95 participants from 16 Administrations and four International Organizations including Australia, Bangladesh, China, Hong Kong China, India, Indonesia, Japan, Malaysia, Mongolia, Myanmar, Nepal, Philippines, Republic of Korea, Singapore, Thailand, USA, ACI, CANSO, IATA, IFALPA, and ICAO. A list of registered participants is at **Appendix A** to this report.

Officers and Regional Office

3.1 Mr. Piyawut Tantimekabut, Air Traffic Management Network Manager, AEROTHAI, Thailand, chaired the ATFM/SG/10 meeting.

3.2 Mr. Shane Sumner, Regional Officer Air Traffic Management and Aeronautical Information Management (ATM/AIM), ICAO Asia and Pacific Regional Office, was Secretary for the ATFM/SG/10 meeting. He was assisted by Mr. Hiroyuki Takata, Regional Officer ATM (ATFM), ICAO Asia and Pacific Regional Sub-Office and Ms. Prakayphet Chalayonnawin, Programme Analysis Associate (ATM), ICAO Asia and Pacific Regional Office.

Opening of the Meeting

4.1 On behalf of Mr. Arun Mishra, Regional Director of the ICAO Asia and Pacific Regions, Mr. Shane Sumner welcomed all the participants to the meeting.

4.2 Mr. Piyawut Tantimekabut welcomed participants to the meeting.

Documentation and Working Language

5.1 The working language of the meeting and all documentation was English. There were 19 working papers, two information paper, 17 presentations and two flimsies considered by the meeting. A list of papers is included at **Appendix B** to this report.

Draft Conclusions, Conclusions, Draft Decisions and Decisions of ATFM/SG – Definition

6.1 ATFM/SG records its actions in the form of Draft Conclusions, Draft Decisions and Decisions within the following definitions:

Draft Conclusions deal with matters that, according to APANPIRG terms of reference, require the attention of States, or action by the ICAO in accordance with established procedures;

Conclusions deal with matters of a technical nature relating to regional guidance material for publication on the ICAO Asia/Pacific Regional Office website.

Draft Decisions deal with the matters of concern only to APANPIRG and its contributory bodies; and

Decisions of ATFM/SG that relate solely to matters dealing with the internal working arrangements of ATFM/SG.

List of Conclusions, Draft Conclusions, Decisions and Draft Decisions

7.1 List of Conclusions

Conclusion ATFM/SG/10-2: ADP Exchange Procedure Working Draft		
What: That, noting the proposed review and amendment of the Regional Framework for Collaborative ATFM, the ATFM Daily Plan (ADP) Exchange Procedure at ATFM/SG/10 WP/14 Attachment A be uploaded to the ICAO APAC Regional Office eDocuments web-page in Working Draft form for immediate use by APAC Administrations, pending its inclusion in the planned amendment to the Regional ATFM Framework.	Expected impact: ☐ Political / Global ☐ Inter-regional ☐ Economic ☐ Environmental ☒ Ops/Technical	
Why: To provide a procedure for ADP exchange for immediate use by APAC Administrations, pending its inclusion in the planned amendment to the Regional ATFM Framework	Follow-up: ☐ Required from States	
When: 8-May-20	Status:	Adopted by ATFM/SG
Who: ☐ Sub groups ☒ APAC States ☒ ICAO APAC RO ☐ ICAO HQ ☐ Other:		

ATFM/SG/10
Report on Agenda Items

7.2 List of Draft Conclusions

Draft Conclusion ATFM/SG/10-1: ATFM Post-Operations Analysis Recommended Framework Version 1.0	
What: That: 1. The ATFM Post-Operations Analysis Recommended Framework Version 1.0 at ATFM/SG/10 WP/13 Attachment A be uploaded to the ICAO Asia/Pacific Regional Office eDocuments web-page, to replace the existing working draft version; and 2. States are urged to utilize the guidance provided in the document when implementing ATFM post-operations analysis in accordance with the performance expectations of the Regional Framework for Collaborative ATFM.	Expected impact: ☐ Political / Global ☐ Inter-regional ☐ Economic ☐ Environmental ☒ Ops/Technical
Why: To update and replace the guidance material provided in the working draft version of the ATFM Post-Operations Analysis Recommended Framework, as currently published on the ICAO Asia/Pacific e-Documents web-page	Follow-up: ☒ Required from States
When: 21-Aug-20	Status: Draft to be adopted by Subgroup
Who: ☒ Sub groups ☐ APAC States ☐ ICAO APAC RO ☐ ICAO HQ ☐ Other:	

Draft Conclusion ATFM/SG/10-3: Adoption of AFTN/AMHS based Interface Control Document (ICD) to the Asia/Pacific Regional Framework for Collaborative ATFM	
What: That, the revised AFTN/AMHS-based Interface Control Document at Appendix C to the report be uploaded to the Asia/Pacific Regional Office website, to replace the existing version, for use by Asia/Pacific Administrations in implementing cross-border ATFM communications in accordance with the provisions of the Regional Framework for Collaborative ATFM.	Expected impact: ☐ Political / Global ☐ Inter-regional ☐ Economic ☐ Environmental ☒ Ops/Technical
Why: To improve regional interoperability by broadening the technical applicability of the ICD to conform with system requirements of all APAC States	Follow-up: ☐ Required from States
When: 21-Aug-20	Status: Draft to be adopted by Subgroup
Who: ☐ Sub groups ☒ APAC States ☐ ICAO APAC RO ☐ ICAO HQ ☒ Other: ATFM/SG/10 and ATFM/IR/SWG	

7.3 List of Decisions and Draft Decisions

Nil.

REPORT ON AGENDA ITEMS

Agenda Item 1: Adoption of Agenda

- 1.1 The provisional agenda (WP01) was adopted by the meeting.

Agenda Item 2: Review Outcomes of Related Meetings

Related Meetings Outcomes (WP/2)

2.1 ICAO provided information on the outcomes relevant to ATFM/SG from related Asia/Pacific Regional meetings:

- Ninth Meeting of the Air Traffic Flow Management Steering Group (ATFM/SG/9, Bangkok, Thailand, 22 to 26 April 2019);
- Third Meeting of the Aerodrome Operations and Planning Sub-Group of APANPIRG (AOP/SG/3, Bangkok, Thailand, 24 to 26 June 2019);
- Seventh Meeting of the Air Traffic Management Sub-Group of APANPIRG (Bangkok, Thailand, 05 to 09 August 2019);
- Twenty-third Meeting of the Communications, Navigation and Surveillance Sub-Group of APANPIRG (CNS SG/2, Bangkok, Thailand, 02 to 06 September 2019); and
- Thirtieth Meeting of the Asia/Pacific Air Navigation Planning and Implementation Regional Group (APANPIRG/30, Bangkok, Thailand, 04 to 06 November 2019).

2.2 The meeting was informed that the Asia/Pacific (APAC) Flight Information Exchange Model (FIXM) 4.1 Extension, initiated by ATFM/SG and developed by the APAC System-Wide Information Management (SWIM) Task Force (SWIM TF), had been reviewed by the FIXM Change Control Board (CCB) and subsequently published on the FIXM website at <https://fixm.aero>. APANPIRG 30 subsequently adopted the FIXM extension under Conclusion APANPIRG/30/12 (CNS SG/23/6-SWIM TF/3/4) – Asia/Pacific FIXM Extension for ATFM. The FIXM extension was subsequently posted on the ICAO APAC Regional Office eDocuments web-page for immediate use by APAC administrations, where capability to do so existed (<https://www.icao.int/APAC/Pages/eDocs.aspx>).

2.3 The CNS/SG/23 meeting had adopted **Conclusion CNS SG/23/1 (ACSICG/6/1) – ATFM/AMHS-Based Interface Control Document for ATFM**, drafted by ATFM/SG/9, adopting and uploading the ATFM/AMHS-based Interface Control Document (ICD) for use by APAC Administrations in implementing cross-border ATFM communications. The ICD was also made available on the APAC Regional Office eDocuments web-page.

Agenda Item 3: ATFM/CDM Global Update

ATFM Sub-Group Input to ATMOPSP/WG/9 Planning Meeting (SP/1)

3.1 The Chair presented information on the input of the ATFM sub-group of the ATM Operations Panel (ATMOPSP) Working Group 9 Planning Meeting. The information provided included a summary of current tasks and deliverables, progress and context, a new approach managing its work and new activities, and a proposed plan for ATMOPSP/WG9. Current tasks and deliverables included creating Proposals for Amendment (PfAs) linking ICAO Doc 9971 *Manual on Collaborative ATFM* to ICAO Doc 4444 *Procedures for Air Navigation – ATM* (PANS-ATM) and the Standards and Recommended Practices (SARPS) in Annex 11.

3.2 New activities included the development of an operational handbook, similar to the *Global Operational Data Link (GOLD) Manual*, to foster understanding and implementation of ATFM, and to promote and further develop the concept of regional cross-border ATFM cooperation.

Agenda Item 4: Review of Current CDM/ATFM Operations and Problem Areas

BOBCAT Operational Updates (WP/3)

4.1 The meeting was provided with an operational analysis and overview of westbound flights through the Kabul Flight Information Region (FIR) associated with the Bay of Bengal Cooperative ATFM (BOBCAT) system for the two-year period from January 2018 to December 2019, and some partial information on the period between January and March 2020.

4.2 **Figure 1** illustrated the BOBCAT traffic demand from slot requests for 2018, 2019 and January to March 2020, and the effect of the Pakistan airspace closure from 27 February to 15 July 2019, and the onset of the COVID-19 pandemic in February 2020.

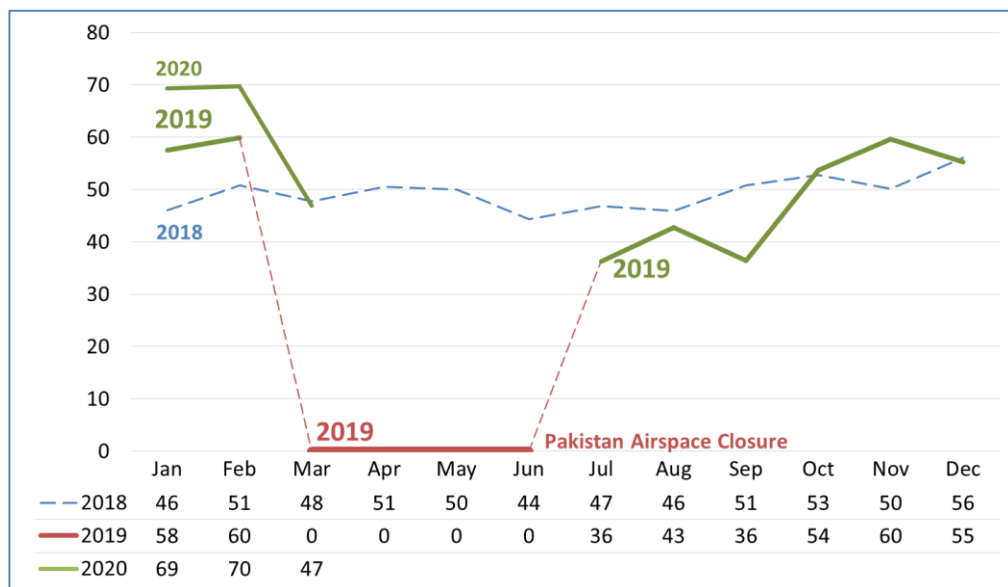


Figure 1: BOBCAT Traffic Demand from Slot Request: January 2018 – March 2020

4.3 Post-Operational Analysis indicated a high percentage of flights operating through the Kabul FIR at flight levels the same as or better than those requested. Overall, the percentage of flights with same or better flight levels were continuously in the range of 73 – 94 percent.

4.4 Major causes of flights not being able to enter the Kabul FIR at flight levels in accordance with those specified in BOBCAT slot allocation were non-compliance with Calculated Time Over (CTO, 46%), and Calculated Take Off Time (CTOT, 29%).

4.5 The conflict in Iraq/Iran airspace in January 2020 resulted in a significant portion of traffic from Southeast/South Asia to Europe that would have operated through Iranian airspace being rerouted through the Kabul FIR, resulting in increased demand for BOBCAT slot allocation. In response to this demand increase AEROTHAI established two contingency BOBCAT systems to support additional westbound daytime traffic and additional eastbound traffic from Europe. However, the contingency systems had not yet needed to be activated.

4.6 The COVID-19 pandemic started impacting on air traffic in the APAC region in late January 2020, with slot requests falling to 38 – 56 flights per night during the week of 15 to 21 March 2020. By 31 March 2020 there were less than 10 slot requests.

4.7 In response to a query on why different aerodromes in one State had significantly differing levels of CTOT compliance, it was noted that the distribution of ATFM measures by AFTN in accordance with the AFTN/AMHS-based ICD would help to ensure CTOT could be efficiently delivered and actioned, as in some operational units there was limited or no access web-based or email-delivered ATFM measures.

Progress Updates from Asia/Pacific Cross-Border Multi-Nodal ATFM Collaboration (WP/4, SP/3)

4.8 The meeting was informed of progress in the Asia/Pacific Cross-Border Multi-Nodal ATFM Collaboration (AMNAC), renamed from the Distributed Multi-Nodal ATFM Network. The project, having developed a Common Operating Procedure (**ATFM/SG/10 WP/4 Attachment 1**), had now become a part of routine ATM operations by core team Administrations, supported by the other members.

4.9 Progress included the development of a network post-operations analysis portal (<http://bit.ly/mn-network-poa>).

4.10 Key observations from the operations in 2019 were as follows.

1. The majority of the Ground Delay Programmes (GDPs) were initiated by in response to traffic congestion in the Bangkok and Sanya FIRs, and impacted more flights but with less overall ATFM delays, as proportionally compared to GDPs activated in response to airport disruptions.
2. Overall CTOT compliance rates by flights departing from Level-3 and Level-2 ATFM nodes were 73% and 70% respectively. There was room for improvement, as compliance by some ATFM nodes continued to be low. This was an ongoing issue that the project core team still has to address through widened engagement with members and support from CANSO and IATA.

*Note 1: **AMNAC Level 3 Nodes:** able to generate, deliver and receive CTOTs, comply with CTOTs (Cambodia, China, Hong Kong China, Singapore, Thailand). **Level 2 Nodes:** able to comply with CTOTs received (Indonesia, Malaysia, Myanmar, Philippines, Viet Nam); **Level 1 Nodes:** Observe and participate in project progress (Lao PDR).*

Note 2: The performance objectives of the Asia/Pacific Regional Framework for Collaborative ATFM specify the criteria for determining which States should perform at the equivalent of AMNAC Level 3, and include the expectation that all other APAC Administrations perform at the equivalent of Level 2.

3. With more States/Administrations upgrading their ATFM capabilities over the years, the majority of flights included in the GDPs were departing from Level-3 and Level-2 ATFM nodes. This was a promising sign of ATFM development in the region and shows that States/Administrations are striving to comply with performance expectations set out in the Asia/Pacific Regional Framework for Collaborative ATFM and the ASEAN ATM Master Plan.

4.11 Recognizing that ATFM-on-SWIM was a vision that required long term development, the technical sub-group of the project had developed a Technical ICD to guide ATFM system procurement/development that would support AFTN/AMHS-based exchanges of ATFM messages, and had steered the testing of message exchange among core Air Navigation Service Providers (ANSPs), enabling the widened use of AFTN/AMHS-based ATFM messages in the region in the near term. During the transition period, States should consider bandwidth limitations of AFTN to avoid overburdening the system.

4.12 In the most recent update of the Common Operating Procedure an important change was made to resolve the ambiguity relating to CTOT revision. The intention was to ensure that the revised CTOT issued by the Initiating ATFMU was not so early that stakeholders were unable to react to it (**Figure 2**).

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 EARLIER	Revised CTOT is LATER
<i>Airspace User</i>	Current time + [max STT* + Buffer] New CTOT > Current time + 30 minutes	N/A
<i>Initiating ATFMU</i>	Current time + [reaction time] New CTOT > Current time + 45 minutes	

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*

Figure 2: Revised Procedure for Revision of CTOT (Asia/Pacific Cross-Border ATFM Collaboration Common Operating Procedures)

4.13 The project core team had also participated in discussions to harmonize sub-regional ATFM projects through the ATFM/SG ATFM Information Requirements Small Working Group (ATFM/IR/SWG), and had exchanged ATFM Daily Plans with Japan and Republic of Korea on a regular basis.

4.14 In response to a query on the frequency of ATFM/CDM teleconferences, which were in some cases conducted once per fortnight, the meeting was informed that Ground Delay Programmes were not run every day. CANSO stated that ANSPs should be encouraged to conduct CDM conferences every day, regardless of whether a programme of ATFM measures was necessary.

4.15 IFALPA noted that ANSPs differed in their approach to CTOT compliance. In the case of Thailand, the ANSP was proactive in ensuring compliance, including taking action for a CTOT revision in the event that the original CTOT window could not be met, while other ANSPs did not.

Hong Kong Air Traffic Flow Management Website (WP/5, SP/4)

4.16 Hong Kong, China informed the meeting of the Hong Kong ATFM website (www.atfmc.gov.hk), targeted to be operational in June 2020. The website aimed to provide stakeholders with a one-stop shop where ATFM information affecting flights to/from airports within the Hong Kong ATFM node and transiting Hong Kong FIR was readily available. CTOT information distributed by emails and Slot Allocation Messages (SAM) for airports within the Hong Kong node would be posted in the website to complement coverage and improve data accessibility (example in **Figure 3**). More automation was expected when data exchange via SWIM was implemented in the region.

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:

TO:

Latest ATFM Daily Plan (ADP)

Figure 3: ATFM Information for Flights Outbound from Hong Kong

4.17 The status of particular airports in the APAC region (not only those participating in the Multi-Nodal Collaboration) and Hong Kong FIR entry/exit fixes would be shown, with colour coding (**Figure 4**).

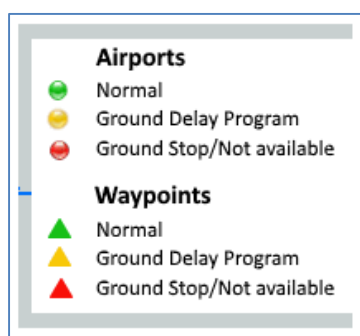


Figure 4: Colour-coded airport and waypoint status

4.18 Stakeholders could gain better understanding of the project through the Project History, and the Regional Framework for Collaborative ATFM and Regional ATM Concept of Operations, all of which were available on the Hong Kong ATFM website.

Progress of Interoperability between Hong Kong China and Japan (WP/6, SP/5)

4.19 The meeting was provided with a description of the operational trial of GDPs between Hong Kong China and Japan, in which Hong Kong ATFMU would notify Japan Air Traffic Management Centre (ATMC) of the CTOT based on Hong Kong International Airport (HKIA) capacity.

4.20 Operational issues to be evaluated and resolved during the trial included additional workload in the Japan ATMC due to the requirement to manually input CTOT received from Hong Kong ATFMU, the coordinated handling of departure aircraft from airports where a curfew was in place, and post-operations analysis. A Memorandum of Understanding (MOU) was being drafted, with planned commencement of the trial in Q3 2020, in two phases:

Phase 1: Hong Kong ATFMU issues “No delay CTOT” in order to evaluate the procedure and the reliability of message connection between Hong Kong China and Japan.

Phase 2: Hong Kong ATFMU issues genuine CTOT when HKIA or HKFIR has a capacity and demand imbalance.

4.21 Flow control in the form of Minutes in Trail (MINIT) had been implemented between Hong Kong China and Japan at FIR boundary limits of adjacent FIRs for quite some time. However, this method was inefficient and created wastage in the network due to traffic imbalances, and required frequent coordination other en-route FIRs, resulting in high workload and delays. It was hoped that the trial would continue to improve and streamline cross-border air traffic management between the FIRs in East Asia to unleash potential benefits of regional ATFM.

4.22 Japan noted that even considering that the number of CTOTs would be low due to COVID-19 impact, it remained important to promote post-operations analysis and check feedback from airlines.

4.23 The meeting also noted with interest the effect of curfew-controlled airports in Japan on CTOT management, which currently required manual management of CTOTs.

NARAHG Update (WP/7, SP/ 6)

4.24 The Northeast Asia Regional ATFM Harmonization Group (NARAHG – China, Japan, Republic of Korea) provided information on the activity status of the group, including the NARAHG Concept of Operations (CONOPS, **ATFM/SG/10 WP/7 Attachment 1**), and interoperability with other ATFM groups.

4.25 NARAHG characteristics included the establishment of ATFMUs in the participating States, the high ratio of international flights within each participating State, planning for future connection of each ATFM system and exchange of flight data at FIR boundaries, and the calculation of ATFM measures by the ATFMU for each FIR, which were shared with upstream ATFMUs.

4.26 It was noted that predicting traffic demand accurately and adjusting traffic volume according to airspace capacity was not easy, as FIR boundary information was not shared in real time, and affected flights were delayed more than necessary and, in some cases, subject to multiple restrictions.

4.27 As the first steps for interoperability, exchange of ATFM Daily Plans (ADPs) had been agreed through the ATFM/IR/SWG, and Japan had coordinated with Hong Kong ATFMU to exchange CTOT. Republic of Korea was also planning to experiment the exchange of CTOT with Hong Kong ATFMU. It was expected that this activity would help develop harmonization between NARAHG and the Multi-Nodal Collaboration.

4.28 Noting that NARAHG recognized the core concept of the Regional Framework for Collaborative ATFM, NARAHG believed that, also considering the future Trajectory-Based Operations (TBO), the time had come to develop the operation of CTO.

4.29 CANSO re-stated that, to ensure continuity of ATFM operations across the Region, different CONOPS should be avoided.

4.30 In response to a query, China advised that, following a system upgrade, Shanghai ATFMU would share ADPs with the AMNAC ATFMUs. There was no current plan for all China FIRs to share ADPs.

4.31 In discussing the different formats of ADP information shared between ATFMUs, it was noted that ATFM was currently based on available technology, and that in future ADP would be digitized for distribution in SWIM.

Cross-Border ATFM Mitigation (WP/8, SP/7)

4.32 The ATFM/IR/SWG presented information on State collaboration to mitigate cross-border ATFM for flights bound for Da Nang, Viet Nam (ICAO Location Indicator VVDN) by reviewing LOAs, increasing airspace capacity reducing ATFM measures and introducing strategic and pre-tactical ATFM.

4.33 Republic of Korea had been receiving ATFM measures every day for approximately 14 departure flights per day bound for Da Nang. After discussion with relevant ANSPs, the situation was determined to be **(Figures 5 and 6)**:

- Ho Chi Minh FIR did not apply any ATFM measures;
- Sanya FIR applied ATFM measures based on the LOA between Ho Chi Minh and Sanya FIRs;
- Other FIRs added measures to meet their own traffic situation, which were relayed to upstream FIRs.

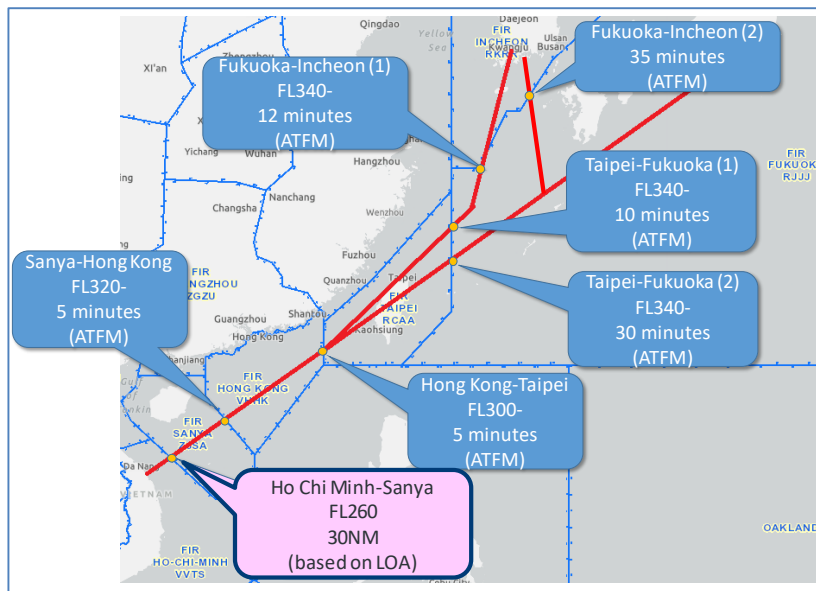


Figure 5: Measures applied to Flights Bound for Da Nang

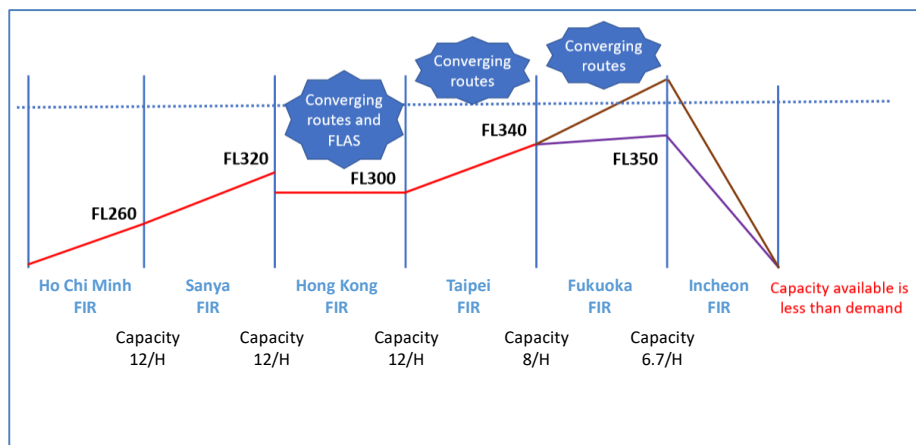


Figure 6: Flight Level Restrictions Applied to Flights Bound for Da Nang.

4.34 Recognizing the need to work collaboratively to mitigate the cross-border ATFM issues, the Administrations concerned reviewed LOAs, increased airspace capacity, reduced ATFM measures and introduced strategic and pre-tactical ATFM (**Figures 7 and 8**).

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)

Figure 7: Initiatives introduced for Flights Bound for Da Nang.

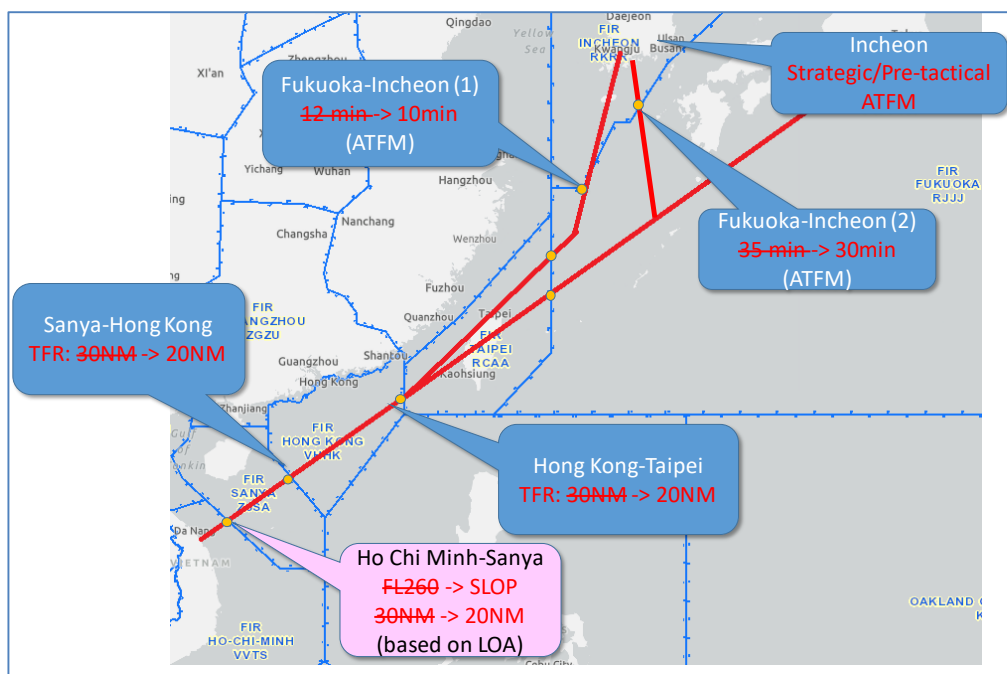


Figure 8: Changes to Measures Applied to Flights Bound for Da Nang

4.35 It was noted that the effect of the new initiatives had not yet been observed due to the COVID-19-related reduction in traffic volumes. However, it was important to carefully analyze the traffic flow to check for any negative impact, and the effect on Air Traffic Control (ATC) workload.

4.36 Importantly, the Administrations concerned recognized that excessive ATFM measures dramatically increased ATC workload in adjacent FIRs, and that mutual effort and cooperation among all relevant Administrations was necessary to mitigate cross-border ATFM effects.

4.37 The Republic of Korea noted that one of the difficulties was the dispersal of traffic demand at the strategic level, and highlighted the importance of increasing capacity, which could be provided by the use of conditional routes.

4.38 ICAO reminded the meeting that *Strategic Lateral Offset Procedures* (SLOP) had a specific meaning in PANS-ATM 16.5. Caution should be exercised in using the term for other offsets that were applied differently to the PANS-ATM definition.

4.39 IATA congratulated all involved for this significant example of working together to achieve an operational improvement, and noted that it was an encouraging example of taking a network view to provide positive outcomes. Together with IATA, Hong Kong, China wished to place on record their appreciation for the considerable efforts of the ICAO Regional Officer concerned in coordinating and progressing this initiative.

Progress of Pre-Defined Coordination Procedure for Severe Weather (IP/2)

4.40 Republic of Korea provided information on the progress of establishing a pre-defined coordination procedure between the NARAHG States (China, Japan, Republic of Korea). The information provided included the impact of typhoon weather on ATFM measures, alternate route analysis based on past typhoons, and the formation of a team to share analysis results and discuss CDM process development and documentation procedures. Future consideration included an expanded coordination procedure for the APAC Region. Republic of Korea was requested to provide a working paper on the topic to the next meeting of ATFM/SG.

Update on ATFM Operations (WP/9, SP/8)

4.41 India informed the meeting of the status of ATFM implementation and the integration of ATFM with A-CDM at major airports in India. Envisaged implementation challenges were also highlighted.

4.42 Phases I and II of the implementation included the activation of 36 Flow Management Positions (FMPs) in different Air Traffic Service (ATS) units and the application of GDP and Ground Stop (GSt) programs, and the integration of ATFM and A-CDM at four major and 12 satellite airports. ATFM and A-CDM were already integrated at the four major airports – Mumbai, Kolkata, Chennai and Delhi. Phase II also included airspace flow programs. Due to the need for proactive participation by FMPs and ATC, it had been decided to use in-trail and sequencing programs initially. FMP and ATC training for airspace flow programs was planned, to be followed by a one-month trial of operations which, after addressing and mitigating any shortcomings, would lead to fully operational airspace flow programs at identified hotspots.

4.43 A Beta version of India's ATFM portal had been developed (www.atfmaai.aero/portal), where relevant data and documentation including ADPs, execution reports of ATFM measures, revised CTOTs and post-operations analysis of daily CDM was shared with all stakeholders.

4.44 CTOT compliance had been approximately 60% from April 2019 to March 2020, within a compliance window of minus five to plus 10 minutes. Noting that a $\pm$ three minutes compliance window was considered necessary for airspace flow programs, AAI was planning to conduct table top exercises and operational trials to understand the implications of different compliance windows for CTOT and CTO. China noted that this highlighted the benefits of future Trajectory-Based Operations, which would ultimately be the way forward for airspace flow programmes.

4.45 Thailand informed the meeting that it was important that stakeholders aimed at meeting the actual CTOT time, rather than the compliance window which was meant to provide flexibility for tactical ground traffic management.

4.46 In response to a query, India informed the meeting that cross-border ATFM was planned for inclusion in Phase III of the project, for implementation in 2021 or later.

4.47 ICAO noted that several ICAO missions had requested that India explore ATFM support for Nepal. In response, India advised the meeting that an agreement for ATFM assistance to Nepal was being considered by the Ministry of Civil Aviation.

Missing Departure (DEP) Messages (WP/10)

4.48 ICAO provided an update on the issue of missing Departure (DEP) messages, as discussed at ATFM/SG/8 and ATFM/SG/9, and presented to ATFM/SG/7 in August 2019.

4.49 The meeting was reminded of PANS-ATM section 11.2.1.1.1 specifications for the addressing of ATS messages, noting that there were multiple examples of APAC Administrations specifying non-compliant Flight Plan (FPL) addressing requirements in Aeronautical Information Publication (AIP) Section ENR 1.11, together with the use in AFTN addresses of three-letter designators that were not registered for use by the State in ICAO Doc 8585 *Designators for Aircraft Operating Agencies, Aeronautical Authorities and Services*. It was noted that specification of non-compliant addresses was a key factor in missing FPL and associated ATS messages (including DEP messages).

4.50 The meeting was informed of **Conclusion ATM/SG/7-5: ATS Message Reception and Handling**, which *inter alia* urged States to ensure that all FPL and ATS messages were addressed in accordance with PANS-ATM and remove non-compliant addressing requirements from AIP.

4.51 The meeting was informed of the ANS Deficiency Status of DEP message originating States where the most recent analysis indicated 5% or more of the required DEP messages were not received by en-route and/or destination ATS units, as agreed by APANPIRG/30:

- Deficiency deleted: Indonesia, Myanmar, Philippines, Republic of Korea
- New Deficiency recorded: Maldives, Nepal,
- Deficiency remained in place: Bangladesh, India, Malaysia, USA

4.52 Due to the impact of the COVID-19 pandemic on traffic volumes the data gathering and analysis activity planned for March-April 2020 would render any such analysis unrepresentative. The activity was deferred until such time as international traffic levels normalized. Analysis of incorrect FPL addressing requirements in AIP would continue, with a view to raising APANPIRG Air Navigation Deficiencies against non-compliance with ICAO Annexes and PANS.

Non-Receipt of DEP Messages (SP/9)

4.53 Thailand provided a detailed analysis of the monthly non-receipt of DEP messages for the period January 2018 to March 2020. While the non-receipt of DEP messages from all originators had reduced from 17% to 10% (**Figure 9**), the overall performance of APAC Administrations had improved from 12% to 3% (**Figure 10**).

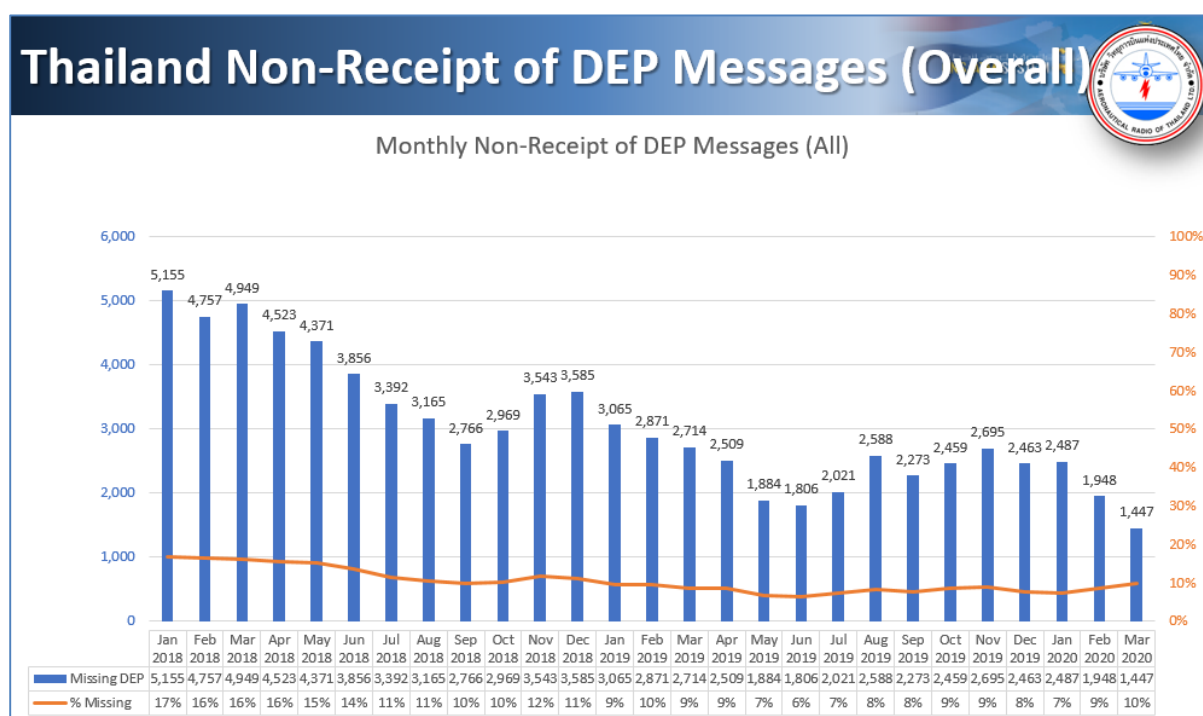


Figure 9: Thailand Non-Receipt of DEP Messages – All Originators (APAC and Non-APAC)

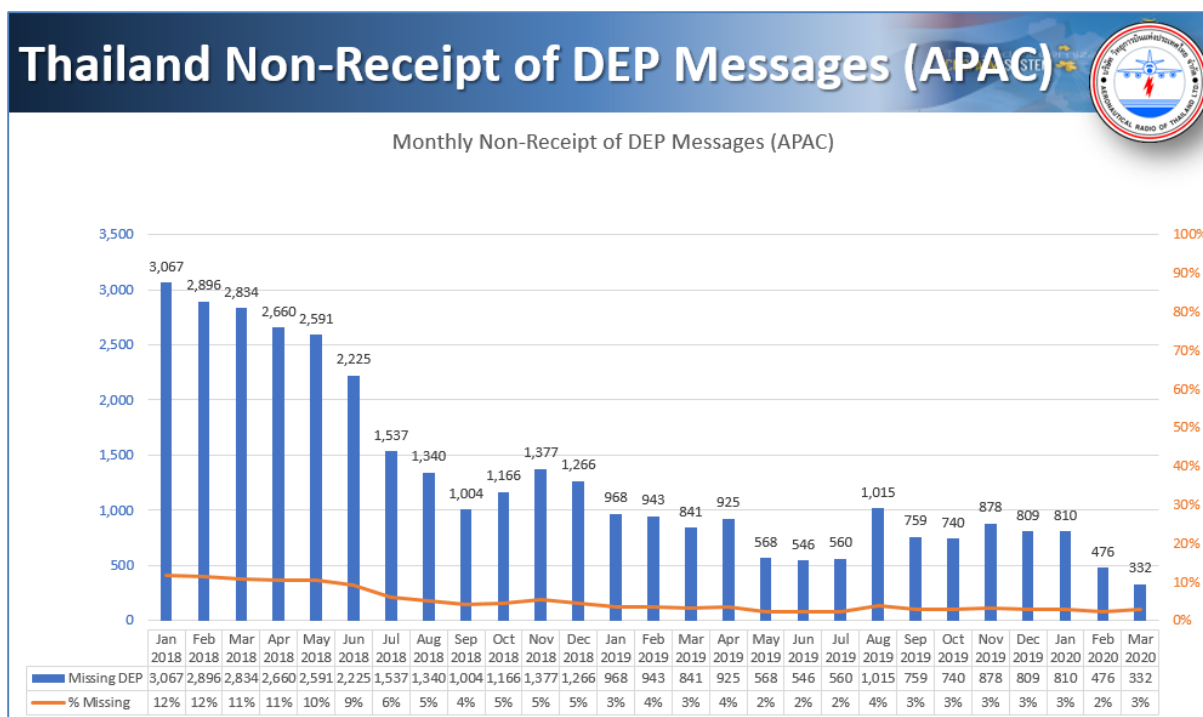


Figure 10: Thailand Non-Receipt of DEP Messages – APAC Originators

4.54 Detailed analyses were provided for non-receipt of DEP messages for flights originating in Bangladesh, Cambodia, India, Indonesia, Lao PDR, Malaysia, Maldives, Myanmar, Philippines, and Viet Nam. It was noted that there had been an increase in the percentage of missing DEP in the COVID-19-affected traffic environment.

4.55 It was proposed that States review their operational procedures and automated system configuration for originating FPL and DEP messages, consider an AIP amendment requiring inclusion of all FIR boundary Estimated Elapsed Times (EETs) in item 18 of FPL, or consider a Proposal for Amendment to ICAO Doc 7030 Regional Supplementary Procedures requiring same, and ensure compliance with requirements for addressing of FPL and other ATS messages in PANS-ATM 11.2.1.2.3.3, 11.4.2.2.3, 11.4.2.2.6 and 11.4.2.2.6.2.

Regional ATFM Implementation Status (WP/11)

4.56 ICAO provided a summary of ATFM implementation status of APAC Administrations, reported against the performance objectives of the Regional Framework for Collaborative ATFM. Reports, due by 30 April each year, were received from:

2018 and/or 2019:

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; and

2020:

India, Indonesia, Singapore and Thailand.

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4.57 It was noted that COVID-19-pandemic-related disruption to ICAO meeting planning and associated APAC ANSP activities may have contributed to the lack of reporting in 2020. APAC Administrations were encouraged to submit their ATFM Implementation Status Reports as soon as possible, to permit accurate reporting to ATM/SG/8 in August 2020.

4.58 Based on reports received States were assessed as having *Robust* (90-100%), *Marginal* (70-89%) or *Incomplete* (0-69%) implementation. Several States were recorded as *Incorrect Report*, where they reported against the criteria applicable to States that were not required to implement ATFM under performance expectations of the Asia/Pacific Seamless ANS Plan and Regional Framework for Collaborative ATFM. The remaining APAC States were recorded as *Did Not Report*.

4.59 India, Singapore and USA were assessed as having *Robust* implementation.

4.60 *Marginal* implementation was recorded for Cambodia, China, Japan, Republic of Korea, and Thailand.

4.61 Implementation by Bangladesh, Hong Kong China, Macao China, Indonesia, Maldives, Myanmar, Nepal, New Caledonia, New Zealand, Pakistan, Papua New Guinea, Philippines and Viet Nam was assessed as *Incomplete*.

4.62 The meeting was reminded that Annex 11 Section 3.7.5 obliged States to implement ATFM where demand exceeded, or was expected to exceed, capacity. Failure to report implementation status would be treated in the same way as non-implementation of Annex 11 standards for the purpose of ICAO reporting to ATM/SG and APANPIRG.

Agenda Item 5: Regional ATFM Framework and Guidance Material

Progress of the Technical Sub-Group of the Distributed Multi-Nodal ATFM Network Project (WP/12, SP/10)

5.1 China, Hong Kong China, Singapore, Thailand, CANSO and IATA shared the progress of and outputs of the Technical Sub-Group under the Distributed Multi-Nodal ATFM Network Project (now AMNAC), noting that the outputs could fulfil the objectives of the ATFM/IR/SWG.

5.2 The meeting was informed of the work of the Technical Sub-Group which had been critical to the development and adoption by the appropriate APAC technical bodies and air navigation planning of the AFTN/AMHS-based ICD for ATFM information exchange, and the APAC FIXM Version 4.1 ATFM Extension.

5.3 Most AMNAC Level 3 Nodes had completed the implementation of ATFM data exchange capability over AFTN/AMHS using Slot Allocation Messages (SAMs), Slot ~~Request~~ Revision Messages (SRMs) and Slot Cancellation Messages (SLCs) (**Table 1**).

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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.

Table 1: ATFM Data Exchange Capability – AMNAC Level 3 Nodes.

5.4 The Technical Sub-Group had identified an amendment to the AFTN/AMHS-based ICD that was necessary to align with provisions of Annex 10 *Aeronautical Telecommunications*. The amendment which was agreed by the meeting and incorporated in the consolidated amendment proposed and agreed under ATFM/SG/10 WP/14.

ATFM Post Operations Analysis Recommended Framework (WP/13)

5.5 The final draft version of the ATFM Post-Operations Analysis Recommended Framework, initially developed by the core team of the AMNAC and further improved by input from India and Japan was presented by China, Hong Kong China, Singapore, Thailand, CANSO and IATA for consideration by the meeting (**ATFM/SG/10 WP/13 Attachment A**).

5.6 Major additions to the existing working draft document included methods to characterize assess and analyze MINIT/MIT, ATFM/CDM planning conference leveraging for sharing post-operations analysis results, issues and lessons learned, and case studies from States that had conducted post-operations analysis work.

5.7 The meeting agreed to the following Draft Conclusion for consideration by ATM/SG:

Draft Conclusion ATFM/SG/10-1: ATFM Post-Operations Analysis Recommended Framework

That:

1. The ATFM Post-Operations Analysis Recommended Framework Version 1.0 at **ATFM/SG/10 WP/13 Attachment A** be uploaded to the ICAO Asia/Pacific Regional Office eDocuments web-page, to replace the existing working draft version; and
2. States are urged to utilize the guidance provided in the document when implementing ATFM post-operations analysis in accordance with the performance expectations of the Regional Framework for Collaborative ATFM.

5.8 Australia informed the meeting that they could provide case studies of post-operations analysis. Thailand agreed to coordinate directly on the matter.

Progress of the ATFM/IR/SWG (WP/14)

5.9 The meeting was provided with information on the formation of the ATFM/IR/SWG, a summary of progress made, a proposed ADP exchange procedure for inclusion in the Regional Framework for Collaborative ATFM, and a proposed amendment to the AFTN/AMHS-based ATFM ICD.

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5.10 The Terms of Reference (TOR) of ATFM/IR/SWG had stated that it would conduct its activities mainly by electronic means between meetings of the ATFM/SG, with face-to-face meetings conducted only where necessary and in conjunction with other meetings where opportunity presents. **Table 2** summarizes meetings that had been held.

1 st tele-conference		June 2018	
1 st face-to-face meeting	Beijing, China	August 2018	
2 nd tele-conference		November 2018	
2 nd face-to-face meeting	Singapore, Singapore (hosted by CAAS)	November 2018	in conjunction with Multi-Nodal core meeting
3 rd tele-conference		March 2019	
3 rd face-to-face meeting	Tokyo, Japan (hosted by JCAB)	April 2019	in conjunction with NARAHG meeting
4 th tele-conference		August 2019	
4 th face-to-face meeting	Bangkok, Thailand (hosted by Aerothai)	November 2019	in conjunction with A-CDM/ATFM workshop
5 th tele-conference		March 2020	

Table 2: Meetings of the ATFM/IR/SWG

5.11 Difficulties associated with teleconferencing had been observed, including communications interference and reliability challenges, and the challenges of the group being largely constituted of non-native English language speakers. It had also been noted that not all participants actively cooperated, which resulted in delayed activities, especially discussion on harmonization and interoperability. Noting that it was critical and urgent to find a way of harmonizing ATFM operations in the APAC Region, commitment and active engagement of all SWG members was necessary.

ADP Exchange Procedure

5.12 ATFM/IR/SWG had been tasked under its TOR to draft an Operational Requirements Document for regional ATFM, including *inter alia* ADP exchange.

5.13 ATFM/IR/SWG/4 had agreed to an ADP exchange procedure (**ATFM/SG/10 WP/14 Attachment A**) including ADP content and format, ADP exchange protocols and frequency, dissemination of ADP to local stakeholders, and contact information for ADP exchange. A Draft Conclusion was proposed, to incorporate the ADP exchange procedure in the Asia/Pacific Regional Framework for Collaborative ATFM. However, noting that the Regional Framework was to be subject to a review and amendment, the meeting agreed to the following Conclusion:

Conclusion ATFM/SG/10/-2: ADP Exchange Procedure Working Draft

That, noting the proposed review and amendment of the Regional Framework for Collaborative ATFM, the ATFM Daily Plan (ADP) Exchange Procedure at **ATFM/SG/10 WP/14 Attachment A** be uploaded to the ICAO APAC Regional Office eDocuments web-page in Working Draft form for immediate use by APAC Administrations, pending its inclusion in the future amendment to the Regional ATFM Framework.

Proposed Amendment – AFTN/AMHS-based ICD

5.14 The meeting acknowledged that the supporting technology used for current ADP distribution did not readily allow the user to identify whether the ADP was the most recent. This could be determined where websites had been established for ATFM information sharing.

5.15 Following the adoption by CNS/SG/23 of the AFTN/AMHS-based ICD for ATFM data exchange, further discussion at ATFM/IR/SWG and input by NARAHG member States, India and CANSO had identified the need for an amendment which would permit non-AMNAC States to move forward on the necessary system upgrade of AFTN/AMHS automation. The meeting agreed to the following Draft Conclusion for referral to ACSICG:

Draft Conclusion ATFM/SG/10-3: Amendment of the AFTN/AMHS-based Interface Control Document (ICD)

That, the revised AFTN/AMHS-based Interface Control Document at **Appendix C to the Report** be uploaded to the Asia/Pacific Regional Office website to replace the existing version, for use by Asia/Pacific Administrations in implementing cross-border ATFM communications in accordance with the provisions of the Regional Framework for collaborative ATFM.

5.16 The amended ICD at **Appendix C** includes the amendments proposed by the Technical Sub-Group of AMNAC under ATFM/SG/10 WP/10.

Approach to Interoperability

5.17 It was noted that harmonization/interoperability of ATFM operations between the AMNAC group and NARAHG remained distant, although new initiatives were also reported to the meeting. Discussions, and studies on major traffic flows such as airway A1 between Northeast Asia and Southeast Asia had been held between Hong Kong China and Japan. A CTOT paper trial based on the Multi Nodal ATFM concept had been completed and an operational trial would commence in 2020 when the traffic demand of Hong Kong FIR and Hong Kong international airport exceeded capacity. In that case, CTOT for departures from Fukuoka FIR would be issued by Hong Kong ATFMU, communicated initially by email exchange. This could be upgraded to AFTN or AMHS based on the abovementioned draft ICD in the future.

5.18 Republic of Korea, having a significant volume of traffic between to/from Southeast Asia through Fukuoka FIR, Taipei FIR, and Hong Kong FIR, sought to communicate with them to implement cross-border ATFM based on the Multi Nodal ATFM concept.

5.19 ATFM/IR/SWG had acknowledged that these initiatives could be facilitate further coordination on harmonization/interoperability.

Way Forward to Progress ATFM Interoperability through the ATFM/IR/SWG (WP/15, SP/11)

5.20 China, Hong Kong China, Singapore, Thailand, CANSO and IATA presented information discussing the accomplishments of the ATFM/IR/SWG, and proposing the way forward to fulfilling its TOR.

5.21 Since its first face-to-face meeting in August 2018 the SWG had worked towards interoperability between sub-regional cross-border ATFM groups in the APAC Region, and had progressed the development of a roadmap for Interoperability Concept of Operations (I-CONOPS). As interoperability was one of the most crucial discussion topics it required active interaction between members of the various ATFM groups and projects. It would therefore be advantageous that relevant Administrations and Organizations were present and appropriately represented in meeting discussions.

5.22 The information provided for discussion by the meeting included recognition of the variation between CONOPS of sub-regional groups. The proposed I-CONOPS was based on a methodology that considered available technologies and tools, and could cater for the differing level of ATFM maturity of States in the APAC Region.

5.23 The meeting was further informed that, for the ATFM/IR/SWG to deliver on its TOR, participating States/Administration would need to adopt a collaborative effort and commit to the agreed timeline and items listed in the ATFM/IR/SWG roadmap, the first item of which was to address the requirement for interoperable cross-border ATFM operations utilising conventional information exchange protocols and CONOPS supported by current technology. This would form the foundation to facilitate further discussion when SWIM capabilities facilitate more tangible ATFM operations. Noting the impact of the COVID-19 pandemic, it was proposed that ATFM/IR/SWG members could use the opportunity to progress its agenda in preparation for the rebound in air traffic demand.

5.24 It was noted that the hosting of face-to-face meetings required considerable budgetary commitment and workload, and that given the current outlook for the aviation sector there was a need for an alternative means to collaborate and progress tasks.

5.25 In response to a query on cases where aircraft already in flight had been subject to ATFM delays of two hours or more, the meeting was informed that such examples should in no circumstances be considered to be correct application of ATFM. A two-hour airborne delay would invariably exceed the flight's divert time. Such delays should not be generated for airborne flights. The imposition of flow restrictions 'with immediate effect' (WIE) indicated that the ATFM processes were not correctly developed or implemented.

5.26 The meeting was further informed that in some cases ATFM was being misused to supplant tactical ATC capacity, as shown in cases where CTO compliance windows were being tightened to achieve a separation outcome.

5.27 It was further noted that such cases must be fully analyzed in post-operations analysis, and the systemic problems leading to them must be solved at the strategic level.

5.28 Japan noted that, with the exception of the current COVID-19-related traffic reduction, traffic in the APAC region was generally increasing, but progress in interoperability was slow. Traffic to/from Southeast Asia could be treated separately from the traffic flows between NARAHG States. It was however important that the opportunity presented by the current reduction in traffic was taken to advance interoperability.

5.29 ICAO re-stated that there was already an APANPIRG-agreed regional ATFM CONOPS, and that another CONOPS should not be developed. In response, it was clarified that the proposal related to interoperability only, but was not intended as another regional ATFM CONOPS.

5.30 ICAO further noted that there was a need for much more active engagement from some participants.

5.31 In discussing the operation and future of ATFM/IR/SWG, it was noted that this SWG was run in a very different way than was normally the case with such groups, which usually consisted of nominated experts working collaboratively offline between meetings of the parent body.

5.32 The meeting agreed that there was a need for:

- targeted communications to relevant ANSPs to ensure more active engagement;
- a shift towards supporting operationalization of ATFM, and supported by the technical output that the SWG had already produced;
- development of a schedule of web-conferences to fill any need for SWG meetings supplemented by face-to-face meetings in conjunction with face-to-face meetings of ATFM/SG.

5.33 The meeting agreed that the ATFM/SG Chair and Secretariat would coordinate to clarify the expected output of the SWG. The need for continuance of the SWG, or its potential replacement by a different working mode, would then be reviewed by ATFM/SG after one further year.

Survey on Current and Future MET Information Services to Support ATM (WP/16, SP/12)

5.34 The Chair of the MET/R WG presented a revised version of the draft survey on provision of current and future MET information services by States to support ATM, in particular ATFM. The revision of the draft survey was undertaken in response to an action item arising from the 23rd Meeting of the Meteorological Sub-Group of APANPIRG (MET SG/23, Action/Task 23/13), requesting *inter alia* further development of the survey questionnaire and its TOR.

5.35 The ATFM/SG Chair noted that it was important that the ATM/ATFM community engaged in this activity to ensure future MET information services provided the information necessary for effective ATFM operations.

5.36 The meeting noted that it would be useful if an example of a completed survey could be provided, to assist States in understanding what information was needed. This would be further discussed at the upcoming meeting of MET/R WG.

5.37 The meeting reviewed the survey questionnaire and its TOR, and did not propose any change.

APAC User Requirements for SWIM-Based MET Information Services Supporting ATFM (WP/19, SP/13)

5.38 Australia, Hong Kong China and Thailand presented a refined proposal to develop APAC use cases and user requirements for SWIM-based MET information services supporting ATFM. The information provided included recent global and regional developments relating to MET and ATM in the SWIM environment (**ATFM/SG/10 WP/19 Appendix A**).

5.39 The SWIM TF/3 meeting held in May 2019 had agreed that SWIM implementation to support cross-border ATFM operation should be given high priority. Draft topics to be included in a proposed regional document for SWIM-based MET information services to support cross-border ATFM were provided in **ATFM/SG/10 WP/19 Appendix C**).

5.40 MET/R WG/8 had discussed the proposal, which was further supported by Decision MET SG/23-7: Development of APAC User Requirements for SWIM-based MET Information Services, directing MET/R WG to, in conjunction with ATFM/SG, establish an ad hoc group to develop use cases and user requirements for future SWIM-based MET information services supporting ATFM.

5.41 The meeting reviewed the proposal, including the TOR, and did not propose any change.

5.42 The meeting was also reminded of ATM/SG Action Item 7/7, relating to the circulation of an invitation to ATFM experts to support the proposal in the decision by encouraging subject matter experts to participate in the ad hoc group.

5.43 Australia, Hong Kong China, Singapore, Thailand, CANSO and IATA indicated that they would participate in the ad hoc group.

Agenda Item 6: Any Other Business

Implementation of ATFM COVID-19 Recovery Plans (WP/18, SP/14, SP/15)

6.1 CANSO presented information with a view to encourage the APAC Region and ANSPs to develop a COVID-19 recovery plan in anticipation of increased traffic demand. CANSO considered that recovery planning required a consolidated network view of the evolution of traffic demand and planning of services delivered in the recovery phase to match the expected demand in a safe, efficient and coordinated manner.

6.2 The European Network Operations Recovery Plan 2020, was provided in ATFM/SG/10 WP/18 Attachment A to demonstrate an example of a recovery plan developed in a cooperative manner with all operational stakeholders. The Plan was published on the EUROCONTROL Network Manager Operations Portal, and was updated once per week. CANSO recommended that States and ANSPs develop individual recovery plans, and that a regional plan be developed and put in place through the various ATFM initiatives that were already active in the Region.

6.3 CANSO also presented information on air traffic demand prediction during COVID-19 recovery, including several State examples. Analysis could assist ANSPs in their recovery plans by anticipating the demand, merging anticipated demand with capacity data, modelling demand-capacity imbalances, preparing resources for the demand and balancing demand and capacity. Analysis could be done for any continent, region or individual State.

6.4 In discussion, it was noted that recovery planning was dependent on many factors, including *inter alia* political decisions on the opening or closure of State borders, what capacity to recommence airline operations may have (likely to be considerably less than 100% of pre-COVID-19 capacity), public confidence in the virus-related safety of air travel and associated contagion prevention and/or social distancing, and public confidence to enter States where there had been significant outbreaks. The financial ability of some airlines to recover was also a challenge. Phased recovery was the most likely future scenario, based on city pairs between States agreeing to open borders.

6.5 It was also noted that an understanding of ANSP capacity was critical, as ATS unit and centre operations would be affected by social distancing and team segregation to prevent contagion. It was also important to open frequent discussion with neighbouring States, to ensure all were informed and ready for any recovery to normal operations.

CADENA Support During the Situation Impacted by COVID-19 (SP/16)

6.6 The USA Federal Aviation Administration (FAA) CANSO ATFM Data Exchange Network for the Americas (CADENA) Project Manager presented information on the CADENA network activities since its establishment in June 2016, its participating stakeholders, and its activities in assisting in the COVID-19-related situation. The information provided included operational limitation reports, ADP information, alternate aerodromes information, airline operational outlook,

COVID-19-related coordination activities, and stakeholder feedback.

6.7 It was noted that the current reduced traffic environment had opened the opportunity to introduce new operational initiatives, such as Continuous Climb Operations (CCO) and Continuous Descent Operations (CDO), which had been introduced among CADENA States.

6.8 The information was shared at CADENA OIS website, <https://www.cadenaois.org/>.

IATA ASPAC COVID-19 Recovery Coordination Centre – CRCC (SP/17)

6.9 IATA informed the meeting of the development of the IATA CRCC, intended to support airlines during the COVID-19 crisis and recovery through coordination of information to assist airline operations, assisting airlines to resolve operational issues, liaison with States and ANSPs regarding airlines operations, providing information to support States and Regional Groups such as Contingency Coordination Teams (CCTs), and supporting ICAO APAC.

6.10 The presentation discussed the updating of points of contact due to the essential nature of coordination and communication in restart and recovery pre-planning, an overview of CRCC activities and information services, assistance to IATA members for flight approvals and other operational matters, and an example of the planned IATA COVID-19 Situation Management dashboard.

6.11 In discussion, IATA stressed that the purpose of the CRCC was to support IATA membership in moving towards recovery, and to support any regional programs that may arise.

6.12 The meeting was also informed that, while there had been a considerable reduction in scheduled traffic, there had also been a significant increase in non-scheduled traffic, such as cargo and relief flights, with resultant challenges in obtaining flight approvals.

IATA April 2020 COVID-19 Impact Forecast (SP/18)

6.13 IATA provided a briefing on the current forecast impact of the COVID-19 pandemic. The information provided included a global and regional summary of the reduction in worldwide flights at end of Q1 2020, the forecast that the global economic recession resulting from the pandemic would be about twice as large as the Global Financial Crisis of 2008/2009, and the expected falls in Revenue Passenger Kilometres (RPKs) and revenue for the Asia/Pacific Region and one example State (Australia).

ICAO COVID-19-Related ATM Information Sharing (Flimsy 1)

6.14 ICAO provided a summary of current and near-term planned activity in COVID-19-related ATM information sharing being undertaken by ICAO Headquarters and APAC Regional Office. Information was provided on ICAO global (HQ) and regional (APAC Office) information sources, and the proposed APAC COVID-19 Contingency and Recovery Planning Group (ACCRPG)

6.15 The meeting was informed of the Asia/Pacific ATM/ATFM Status Update document (**ATFM/SG/10 Flimsy 1 Attachment A**), routinely updated once per fortnight and as required for significant changes reported by participating States. The document, together with a template for the submission of status reports, was available on the ICAO APAC Regional Office COVID-19 BCP web-page at <https://www.icao.int/APAC/Pages/COVID-19-BCP.aspx>.

6.16 The meeting was also informed of the urgent need for updating of ATM Contingency and ATC points of contact, in preparation for a preliminary VTC to be conducted by the APAC Regional Office in early to mid-May 2020. A checklist of references to assist States in planning ATM contingency operations arising from the COVID-19 pandemic, and a survey on COVID-19 contingency operations and recovery planning (**ATFM/SG/10 Flimsy 1 Attachments B and C**) had also been circulated.

6.17 The current APAC ATM Contact List was provided in **Flimsy 2**. Participants were requested to take action to ensure their Administration's listed points of contact were up-to-date.

6.18 In response to the suggestion that a regular conference call among APAC member Administrations could be initiated, possibly on a weekly basis, it was suggested that this was a worthwhile consideration, which should be kept in mind pending the discussions in the ICAO APAC VTC.

Agenda Item 7: Review of Task List

Review of ATFM/SG Terms of Reference and Task List (WP/17)

7.1 The meeting reviewed the ATFM/SG Terms of Reference at **ATFM/SG/10 WP/17 Attachment A**.

7.2 The ATFM/SG Task List, as reviewed and updated by the meeting, is provided at **Appendix D to the Report**.

Agenda Item 8: Date and Venue of the Next Meeting

8.1 The next meeting of ATFM/SG was planned to be held by VTC in the second half of November 2020, and would be focused on the review and amendment of the Regional Framework for Collaborative ATFM.

Agenda Item 9: Closing of the Meeting.

9.1 The Chair thanked all participants for their contributions to the ATFM/SG/10 meeting.

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List of Participants

	STATE/NAME		TITLE/ORGANIZATION	TEL/FAX/E-MAIL
1.	AUSTRALIA (2)			
	1.	Mr. Ashwin Naidu	Senior Aviation Customer Lead Bureau of Meteorology, Australia Level 16, 300 Elizabeth Street, Sydney NSW 1300 <u>AUSTRALIA</u>	Tel: +61 4340 76585 Fax: E-mail: ashwin.naidu@bom.gov.au ;
	2.	Dr. Jesper Bronsvoort	Network Strategy & Development Manager Airservices Australia Tower Road Melbourne Airport <u>AUSTRALIA</u>	Tel: +61 3 9339 2443 Fax: E-mail: jesper.bronsvoort@airservicesaustralia.com ;
2.	BANGLADESH (2)			
	3.	Mr. Mohammad Masud Rana	Assistant Director, ATS Civil Aviation Authority of Bangladesh Air Traffic Control Centre, Hazrat Shahjalal Int'l Airport, Dhaka-1229 <u>BANGLADESH</u>	Tel: +8801708167232 Fax: +8802 8901411 E-mail: mdmrana@yahoo.com ;
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3.	CHINA (7)			
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	7.	Mr. Sun Yi	Deputy Director ATFM Office, ATCC, EC ATMB,CAAC No.38 Lv Zhou Road, QingPu District, Shanghai <u>CHINA</u>	Tel: +86 21 22320882 Fax: +8621 22320899 E-mail: suny@atmb.cn ;
	8.	Mr. Chen Weiqing	Engineer Equipment Dept EC ATMB,CAAC No.171 Kong Gang YiRoad Hongqiao Airport, Shanghai <u>CHINA</u>	Tel: +86 21 22326822 Fax: +86 21 22326820 E-mail: chenwq@atmb.cn ;
	9.	Mr. Tan Wei	Assistant ATC Division, MSATMB, CAAC No.3 Nanyun East Street Airport Road, Baiyun District, Guangzhou <u>CHINA</u>	Tel: +86 20 86125693 Fax: +86 20 36229685 E-mail: tanwei1@atmb.org ;

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	STATE/NAME		TITLE/ORGANIZATION	TEL/FAX/E-MAIL
	10.	Mr. Fu Yongqiang	Director Sanya Area Control Office II, Hainan ATMB, MS ATMB, CAAC Meilan International Airport, Haikou, Hainan <u>CHINA</u>	Tel: +86 13876027727 Fax: +86 898 65751741 E-mail: hnsfyq@gmail.com ;
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4.	HONG KONG, CHINA (4)			
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WORKING PAPERS

NUMBER	AGENDA	WORKING PAPERS	PRESENTED BY
WP/1	1	Provisional Agenda/Order of Discussion	Chairman
WP/2	2	Related Meetings Outcomes	Secretariat
WP/3	4	BOBCAT Operational Updates	Thailand
WP/4	4	Progress Update from Asia/Pacific Cross-Border Multi-Nodal ATFM Collaboration	China, Hong Kong China, Singapore, Thailand, CANSO and IATA
WP/5	4	Hong Kong Air Traffic Flow Management Website	Hong Kong China
WP/6	4	Progress of Interoperability Between Hong Kong China and Japan	Hong Kong China and Japan
WP/7	4	NARAHG Update	NARAHG
WP/8	4	Cross-Border ATFM Mitigation	ATFM/IR/SWG
WP/9	4	Update on ATFM Operations – India	India
WP/10	4	Missing DEP Messages	Secretariat
WP/11	4	Regional ATFM Implementation Status	Secretariat
WP/12	5	Progress of the Technical Sub-Group of the Distributed Multi-Nodal ATFM Network	China, Hong Kong China, Singapore, Thailand, CANSO and IATA
WP/13	5	ATFM Post Operations Analysis Recommended Framework	China, Hong Kong China, Singapore, Thailand, CANSO and IATA
WP/14	5	Progress of the ATFM Information Requirements Small Working Group	ATFM/R/SWG
WP/15	5	Way Forward to Progress with ATFM Interoperability through the ATFM/IR/SWG	China, Hong Kong China, Singapore, Thailand, CANSO and IATA
WP/16	5	Survey on Current and Future MET Information Services to Support ATM	MET/R WG Chair
WP/17	7	ATFM/SG Terms of Reference and Task List	Secretariat
WP/18	6	Implementation of ATFM COVID-19 Recovery Plans	CANSO
WP/19	5	APAC User Requirements for SWIM-Based MET Information Services to Support ATM - Revised	Australia, Hong Kong China and Thailand

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Appendix B to the Report

INFORMATION PAPERS

NUMBER	AGENDA	INFORMATION PAPERS	PRESENTED BY
IP/1	-	List of Papers	Secretariat
IP/2	4	Progress of Pre-Defined Coordination Procedure for Severe Weather	Republic of Korea

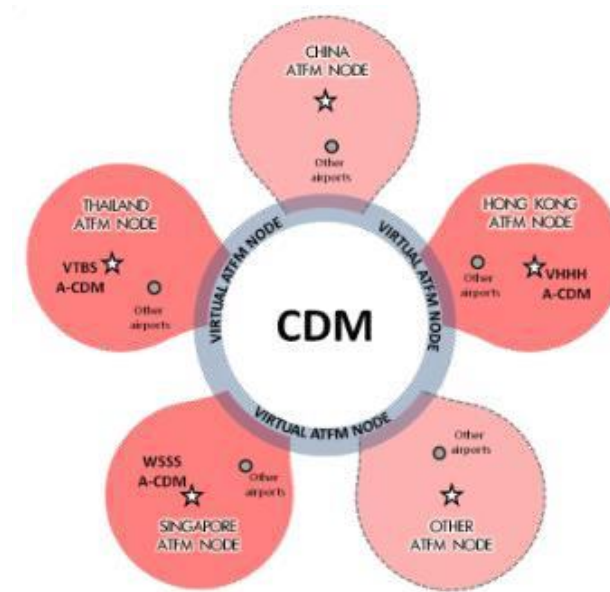
PRESENTATIONS

NUMBER	AGENDA	PRESENTATIONS	PRESENTED BY
SP/1	3	ATMOPSP-ATFM Sub-Group input to ATMOPSP/WG/9	Chair
SP/2	4	BOBCAT Operational Updates (WP/3)	Thailand
SP/3	4	Progress Update from Asia/Pacific Cross-Border Multi-Nodal ATFM Collaboration (WP/4)	China, Hong Kong China, Singapore, Thailand, CANSO and IATA
SP/4	4	Hong Kong Air Traffic Flow Management Website	Hong Kong, China
SP/5	4	Progress of Interoperability Between Hong Kong China and Japan (WP/6)	Hong Kong China and Japan
SP/6	4	NARAHG Update (WP/7)	NARAHG
SP/7	4	Cross-Border ATFM Mitigation (WP/8)	ATFM/IR/SWG
SP/8	4	Update on ATFM Operations – India (WP/9)	India
SP/9	4	Non-Receipt of DEP Messages	Thailand
SP/10	5	Progress of the Technical Sub-Group of the Distributed Multi-Nodal ATFM Network (WP/12)	China, Hong Kong China, Singapore, Thailand, CANSO and IATA
SP/11	5	Way Forward to Progress with ATFM Interoperability through the ATFM/IR/SWG (WP/15)	China, Hong Kong China, Singapore, Thailand, CANSO and IATA
SP/12	5	Survey on Current and Future MET Information Services to Support ATM (WP/16)	MET/R WG Chair
SP/13	5	APAC User Requirements for SWIM-Based MET Information Services to Support ATM (WP/19)	Australia, Hong Kong China and Thailand
SP/14	6	EUROCONTROL Partnering for Recovery (WP/18)	CANSO
SP/15	6	Air Traffic Demand Prediction During COVID-19 (WP/18)	CANSO
SP/16	6	CADENA Support during the Situation Impacted by COVID-19	FAA/CADENA
SP/17	6	IATA Asia/Pacific COVID-19 Recovery Coordination Centre	IATA
SP/18	6	IATA April 2020 COVID-19 Impact Forecast	IATA

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FLIMSIES

NUMBER	AGENDA	FLIMSIES	PRESENTED BY
1	6	ICAO COVID-19-Related ATM Information Sharing	Secretariat
2	6	Points of Contact List	Secretariat



Distributed Multi-Nodal Air Traffic Flow Management

AFTN/AMHS Based Interface Control Document

08 February 27 November 2019

Version: 0.1 1.0

Revision Record

Revision	Description	Date	Authored By	Approved By
Original	Initial version for discussion			

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List of Acronyms

ACID	Aircraft Identifier
ACType	Aircraft Type
ADEP	Departure Airport
ADES	Arrival Airport
ADEXP	ATS Data Exchange Presentation
ADF.....	Application Data Field
ADS.....	Automatic Dependent Surveillance
ADS-C.....	Automatic Dependent Surveillance - Contract
AFIL	Filed in Air
AFIX	Arrival Fix
AFTN	Aeronautical Fixed Telecommunications Network
AIDC	ATS Interfacility Data Communications
aka	Also Known As
ALTN	Alternate Destination
AMHS	ATS Message Handling System
ANSP	Air Navigation Service Provider
ARCID	Aircraft Identification
ARR	Arrival message
ASCII	American Standard Code for Information Interchange
ATC.....	Air Traffic Control
ATFCM	Air Traffic Flow and Capacity Management
ATFM	Air Traffic Flow Management
ATS	Air Traffic Services
ATSU	Air Traffic Services Unit
CCITT	ITU-T Telecommunication Standardization Sector of the International Telecommunications Union (formerly known as Consultative Committee for International Telephony and Telegraphy)"
CDM	Collaborative Decision Making
CFL	Cleared Flight Level
CHG	Change message
CNL.....	Cancellation message
CPDLC	Controller-Pilot Data Link Communications
CSF	Communication Status Field
CTOT	Calculated Take-Off Time

DCT.....	Direct Routing
DEP	Departure message
DEP	Departure Airport
DEST.....	Destination Airport
DFIX	Departure Fix
DLA	Delay message
DOF.....	Date of Flight Departure
EET	Estimated Elapsed Time
EOBD	Estimated Off-Block Date
EOBT	Estimated Off-Block Time
ETFMS	Enhanced Tactical Flow Management System
FAN.....	FANS Application Notification
FANS	Future Air Navigation System
FMH	Facilities Notification Message Header
FMP.....	Flow Management Position
FPL	Flight Plan message
FPO	Facilities Notification Current Position
HDG	Heading
IA5	International Alphabet Number 5
IATA	International Air Transport Association
IBT	In-Block Time
ICAO	International Civil Aviation Organization
ICD	Interface Control Document
IFPLD	Individual Flight Plan
IFPLID	Individual Flight Plan Identifier
IFPS.....	Integrated Initial Flight Plan Processing System
IOBD	Initial Off-Block Date
IOBT	Initial Off-Block Time
IP	Internet Protocol
K	Kilometer
LDT	Landing/Touch Down Time
M	Mach
N	Knot
NM	Network Manager

OAC	Oceanic Area Control Centre
OBT.....	Off Block Time
ODF.....	Optional heading information Data Field
OTD	Off Track Deviation
OTIS	Operational Terminal Information Service
PRL	Pilot Request Level
REG.....	Aircraft Registration
RFL	Requested Flight Level
RIF	Route details to the revised destination airport
RVR	Runway Visual Range
SAM	Slot Allocation Message
SLC	Slot Cancellation Message
SMI	Standard Message Identifier
SRM	Slot Revision Message
SSR	Secondary Surveillance Radar
TDF	Track Data Field
TOT	Take Off Time
TRU.....	Track Update
TYP	Aircraft Type
UTC.....	Coordinated Universal Time (aka Greenwich Mean Time)

1 ICD Scope

This section identifies the scope, purpose, and organization of this Interface Control Document (ICD) and identifies the subsystem responsibility list.

1.1 Introduction

Distributed Multi-Nodal Air Traffic Flow Management (ATFM) Network concept is based on a network of Air Navigation Service Providers (ANSPs) leading independent ATFM operation within their area of responsibility and connecting to each other through information sharing framework.

Unlike regional-centralized ATFM where there is an overarching authority responsible for ATFM operation for the entire region, each ANSP together with associated Airspace Users (AUs) and Airport Operators (AOs) within their **area of jurisdiction comprising one or more FIRs** ~~respective FIR~~ (Flight Information Region), ~~participating~~ **participates** in cross-border ATFM following this Distributed Multi-Nodal ATFM Network concept, ~~and form forms an~~ ATFM Node where ~~the~~ ANSP as ~~a~~ Node Leader is responsible for ~~engagement~~ **engaging** with various Node stakeholders and ensuring that the Node as a whole is ready and able to participate in the regional cross-border ATFM process.

By establishing common ATFM operating procedures and utilizing fully-interconnected information sharing mechanism among ATFM Nodes, ATFM programs based on Collaborative Decision Making (CDM) process, involving both domestic and intra-regional international flights can be effectively implemented in the region.

To achieve the efficient information dissemination required for such ATFM operation, the baseline standard for information exchange among related stakeholders is needed. This Interface Control Document (ICD) specifies the interface requirements which ATFM support system of each Node Leader must meet in order to be able to communicate with systems of other ATFM Nodes participating in the cross-border ATFM and to ensure the compatibility between them.

1.2 Scope

This ICD details the interface between nodes of the distributed Multi-Nodal ATFM.

This ICD:

- Establishes data exchange, functional, and performance requirements
- Assigns responsibilities for interface implementation and maintenance

1.3 Subsystem Responsibility List

The **leader of each node** ~~node leader of each FIR~~ develops and maintains ~~their~~ **its** own ATFM software in accordance to this ICD.

1.4 Operational Requirement

Distributed Multi-Nodal ATFM Network comprises ATFM Nodes, each of which ~~is~~ **is** led by ~~an~~ ANSP responsible for ATFM operation within their **area of jurisdiction** ~~respective FIR~~. With various ATFM support systems ~~which have been developed or procured independently~~ **developed**

independently or procured by different ANSPs and lack of information linkage between among them, a major an airline operating flights across such areas falling under jurisdiction of different ANSPs with a number of flights originating from many places is required to access different systems to obtain ATFM information on all their flights, consequently creating a possible roadblock to scaling the ATFM Network due to the high workload in accessing their related information. The requirement of accessing multiple and varying ATFM support systems increases workload on part of an airliner and so creates a possible roadblock to expanding ATFM Network to areas falling under jurisdiction of different ANSPs. This calls for the need of a so-called single-point information access able to be achieved by establishing the interconnection between ATFM support systems aiming at enabling the seamless information sharing among stakeholders. However, to maintain the flexibility to accommodate new users and additional customized functions of ATFM support systems developed or procured separately as previously mentioned and to minimize the impact of changes between among them, loose system coupling is still required. Furthermore, to attain cost-effective communication among stakeholders and to gain the network-wide scalability, common standards for information exchange are needed to be considered. On the other hand, with the nature of decentralized ATFM operational approach where ATFM support system of each ATFM Node locating geographically dispersed, security across systems is of paramount importance. Technical requirements to address the operational need for information sharing between ATFM support systems stated above can be summarized as follows.

- 1) Loose system coupling
- 2) Common standards for information exchange
- 3) System-wide security

To facilitate the aforementioned requirements, this document describes an interface connection that is designed using the currently deployed AFTN networking (or AMHS).

In particular, considering variation in interactions between among stakeholders required at different phases of ATFM operation and keeping in mind the objective of having systems loosely coupled, a data exchange architecture based on existing messaging is chosen to exchange ATFM information. This solution is intended to eventually be deprecated and replaced by a SWIM based solution that uses FIXM data models. However, considering the timeline for deployment of all nodes of the multi-nodal network, it is considered a necessary first step to initially deploy ATFM using data exchange with AFTN/AMHS.

2 Applicable Documents

List of all applicable documents:

ICAO DOC 4444

ICAO DOC 9971

FIXM 4.1.0 core

FIXM XXX APAC extension for MN

SWIM Version of the Multi-Nodal ICD

MN COP

3 Interface Characteristics

This section provides the general, functional, and physical characteristics for each AFTN node and the AFTN/AMHS interface.

3.1 General Characteristics

This section identifies the interfacing subsystem(s); the point(s) of interface including associated cable terminations, functions, and services provided by the interface; and each layer implemented within the interfacing subsystem(s) necessary to achieve connectivity.

Figure 1 identifies the interface described within this ICD and depicts how the systems fit into the logical architecture context of the implementation.

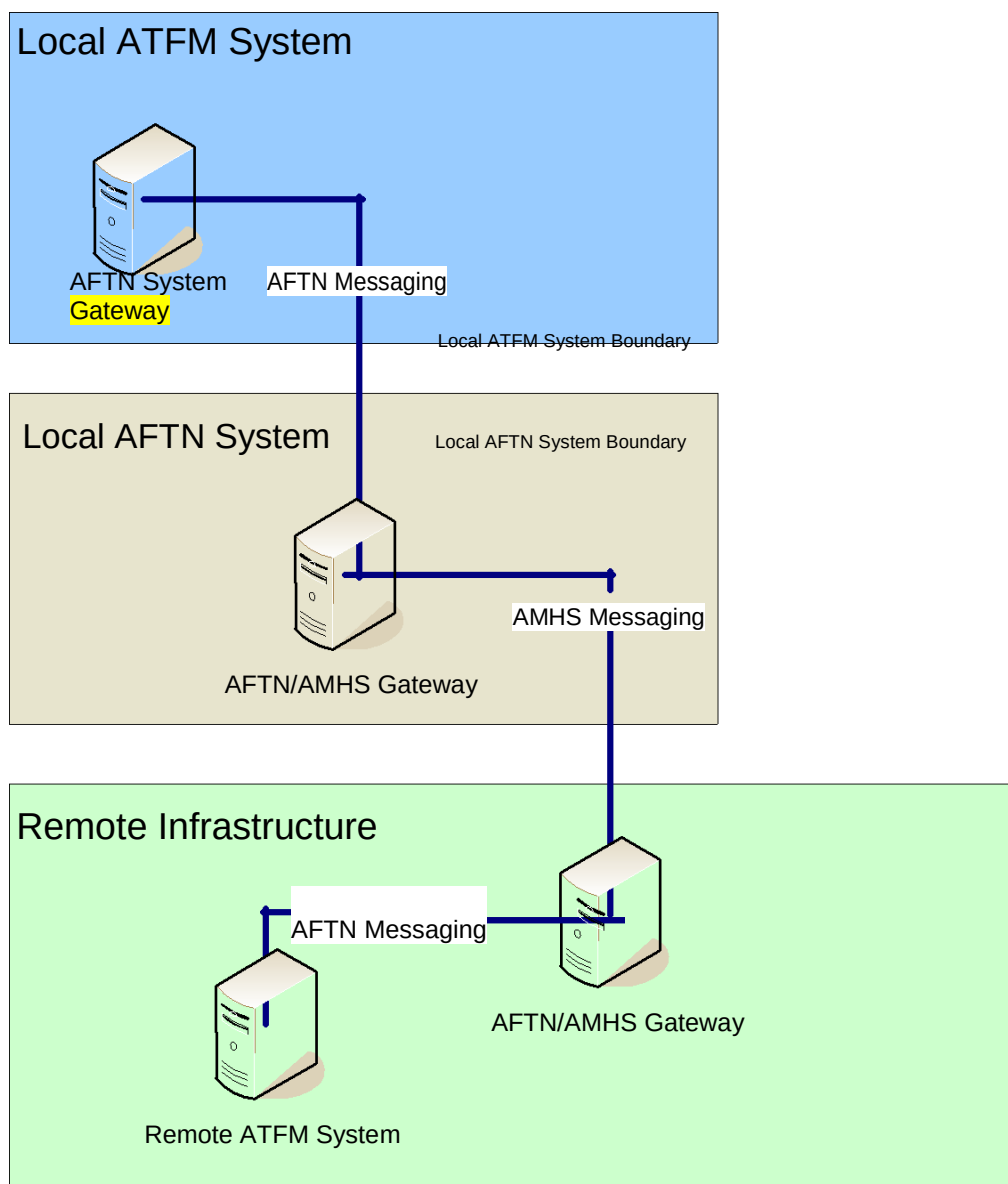


Figure 1. Logical Architecture Showing Interface Demarcation between the Local ATFM system and AFTN/AMHS

3.1.1 Data Format

In general, data that is sent to the local ATFM System across the interface will use text-based messages, as defined by the *ICAO Doc 4444* standard for exchange of flight information messages. Specifically, the communication described in this ICD is based on the message transfer

requirements necessary to exchange character-based International Alphabet Number 5 (IA-5) AFTN message data¹ between two ATM systems. IA-5 is a modified subset of American

¹ This ICD includes a collection of information from several standards that are applicable to the interface. This is because the Multi-Nodal concept only needs a subset of all of the messages available from the relevant standards. Universally, when discussing the general characteristics of the data format of the messages: the message

Standard Code for Information Interchange (ASCII) characters that can only be supported by AFTN and AFTN/AMHS Gateway. The information in this document pertaining to the message transmission is based on the CCITT 1984 X.25 standard².

There are messages not defined by *ICAO Doc 4444*. These are defined by AIDC and ADEXP. For simplicity, aside from some helpful contrasting information between ICAO Doc 4444 and AIDC messaging, only messages related to multi-nodal operations are included in this ICD.

3.1.2 Messages defined by ADEXP

For the Slot Allocation Message (SAM) and the Slot Revision Message (SRM), the Slot Cancellation Message (SLC), the standard that is applied is referenced using the EUROCONTROL document: *ATFCM User's Manual Edition 21*, dated 03 May 2018. The SAM, SRM, and SLC follow the same form as required by *ICAO Doc 4444* and as reiterated in this ICD (see section 3.1.4).

3.1.3 Message Construction

Each AFTN message, regardless of the data format, contains a specific structure that is compliant with IA-5 and defined in *ICAO Annex 10*. This structure is summarized in Table 1.

Table 1. Summary of IA-5 Fields used in messages sent via AFTN/AMHS

Field #	Description	Format	Example
1	Start of Message/ Start of heading	4 letters 1 character	ZCZC 0/1
2	Transmission Identification	3 letters + 3 numbers	HAR001
3	Additional Service Indication	Optional <11 characters	123456
4	Priority Indicator	2 letters	FF
5	Addressee of the message	8 letters	EGLLRZX
6	Day / time of the message	DDHHMM (UTC)	041345
7	Originator of the message	8 letters	OPSTQZX
8	Optional Heading Information	ODF – See AIDC	See AIDC
9	ATS Message Payload	...	...
10	End of Message	4 letters 1 character	NNNN 0/3

composition is defined as IA-5 as described in *ICAO Annex 10, Volume I*, paragraph 4.11.1; message format is as specified in *Volume II*, section 4.4.16; and message text shall be as specified in *Volume II*, section 4.4.16.3.

Generally, ICAO, ADEXP, and AIDC use the IA-5 format to send messages over AFTN/AMHS. However, there are key differences in how ICAO and ADEXP use the fields. These differences are explained in the following sections and follow the format illustrated in Figure 2 and Figure 3.

```
FAB3887 251146
FF WSJCZQZX
251146 WMFDYFYX
(DEP-MAS2530/A2165-WMKK1146-WBGG-
DOF/150125)
```

Figure 2. IA-5 Illustration of ICAO Message

```
WSB0903 250145
FF YMMLJSTX
250145 VTBBFDMC
—TITLE SAM
—ARCID SAA123
—ADEP FAJS
—ADES FADN
—EOBD 100303
—EOBT 1020
—CTOT 1035
```

Figure 3. IA-5 Illustration of ADEXP Message

3.1.3.1 IA-5 Message Field 1: Start of Message

The Start of Message / Start of heading is handled outside the scope of this ICD, but it is included for completeness.

3.1.3.2 IA-5 Message Field 2: Transmission Identification

The transmission identification field includes a prescribed sequence of characters intended to convey a specific keyboard (terminal) and a channel on which the terminal will communicate:

- a) Transmitting-terminal letter
- b) Receiving-terminal letter
- c) Channel-identification letter
- d) Channel-sequence number

For the purposes of this ICD, the transmission Identification for the local ATFM system will be **XXXXX**

3.1.3.3 IA-5 Message Field 3: Additional Service Indication

For the purposes of this ICD, the additional service indication field is the time of the transmission.

3.1.3.4 IA-5 Message Field 4: Priority Indicator

The priority indicator is a two (2)-letter identifier that provides context for the associated message. The following priority indicators are possible:

- FF – Standard Air Traffic Service (ATS) Message
- SS – Distress message

- DD – Urgent message
- GG – One of the following: ○
Meteorological message
 - Flight Regularity Message
 - Aeronautical Information Services message
- KK – Aeronautical Administrative message.

For the purposes of this ICD, the ATFM messaging will only send FF messages.

3.1.3.5 IA-5 Message Field 5: Addressee of the Message

The addressee of the message is an eight-character code that is interpreted by the network to determine the routing location that the message will be sent.

When the number of addressees required is more than the operational system parameters allow, two or more transmissions of the message must be made. The eight (8)-letter combination addressee indicators are composed as follows:

- The four (4)-letter ICAO location indicator, as defined by *ICAO DOC 7910 (Location Indicators)*.
- A three (3)-letter designator for the facility type/office, or if no designator has been assigned, ZZZX for aircraft in flight, or YYYY for all other cases. The source of the facility designator is *ICAO DOC 8585, Designators for Aircraft Operating Agencies, Aeronautical Authorities and Services*.
- The eighth character of the address indicates the end system application and is determined by the Air Traffic Services Unit (ATSU).

3.1.3.6 IA-5 Message Field 6: Day / Time of the Message

The day/time field is the time the message is sent by a local ATFM System or filed for sending (for incoming messages). The field is a six (6)-digit date/time group that follows the format, DDHHMM in Coordinated Universal Time (UTC).

3.1.3.7 IA-5 Message Field 7: Originator of the Message

The originator of the message is an eight-character code of the ANSP, organization, and application which is sending the message. Similar to IA-5 Message Field 5, the originator address is constructed in three parts:

- The four (4)-letter ICAO location indicator, as defined by *ICAO DOC 7910 (Location Indicators)*.
- A three (3)-letter designator for the facility type/office, as defined by *ICAO DOC 8585, Designators for Aircraft Operating Agencies, Aeronautical Authorities and Services*.
- The eighth character of the address indicates the end system application and is determined by the ATSU.

3.1.3.8 IA-5 Message Field 8: Optional Heading Information

The optional heading information field is used for AIDC messages. It is rarely used for ICAO or ADEXP messages; therefore, it is not included in this ICD.

3.2 Functional Design Characteristics

This subsection describes the functional design characteristics of this interface and focuses on the AFTN messages that contain the information necessary to manage flight data for multi-nodal operations, or are related to the communication between a local ATFM system and AFTN. These messages are independent of the messaging system—AFTN or AMHS.

Every AFTN message contains a combination of identifying fields for uniqueness and specific flight data attributes for the flight. Table 2 shows the information contained in each field and which fields are sent with each message type from *ICAO Doc 4444 ATM/501* and includes all AFTN messages. Table 3 shows a similar table for those messages defined in ADEXP³.

3 Table 3 indicates the messages, as defined by the ADEXP; however, the source of the table is actually the Air Traffic Flow & Capacity Management Operations *ATFCM Users Manual*, edition 22.1, dated 14 November 2018.

Table 2. Fields and corresponding flight information contained in each ICAO 4444 message type

DESIGNATOR		MESSAGE FIELDS																						FIELD TYPE NUMBER	
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22		
Alerting	ALR			3		5		7	8	9	10			13			15	16		18	19	20			Emergency messages
Radiocommunication failure	RCF			3				7														21			
Filed flight plan	FPL			3				7	8	9	10			13			15	16		18					Field flight plan messages and associated update messages
Delay	DLA			3				7						13				16		18					
Modification	CHG			3				7						13				16		18			22		
Flight plan cancellation	CNL			3				7						13				16		18					
Departure	DEP			3				7						13				16		18					
Arrival	ARR			3				7						13				16	17						
Current flight plan	CPL			3				7	8	9	10			13	14		15	16		18					Coordination messages
Estimate	EST			3				7						13	14			16							
Coordination	CDN			3				7						13				16					22		
Acceptance	ACP			3				7						13				16							

Table 3. Fields and corresponding flight information contained in each ADEXP message type

PRIMARY FIELD COMPOSITION OF TACTICAL ATFCM MESSAGES EXCHANGE (1)														
Message Field	SAM	SRM	SLC	SIP	FLS	DES	RRP	RRN	ERR	SMM	SPA	SRJ	FCM	RJT
-TITLE	1	1	1	1	1	1	1	1	1	1	1	1	1	1
-IFPLID	1	1	1	1	1	1	1	1	(1)	(1)	(1)	(1)	(1)	(1)
-ADDR	(1)	(1)	(1)	(1)	(1)	(1)								
-ARCID	1	1	1	1	1	1	1	1	(1)	1	1	1	1	1
-ADEP	1	1	1	1	1	1	1	1	(1)	1	1	1	1	1
-EOBD	1	1	1	1	1	1	1	1	(1)	(1)	(1)	(1)	(1)	(1)
-EOBT	1	1	1	1	1	1	1	1	(1)	1	1	1	1	1
-JOBBD	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)
-JOBTD	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)
-CTOT	1			1			(1)	(1)		1				
-NEWCTOT		1		1			(1)	(1)			1			
-NEWPTOT							(1)	(1)						
-REJCTOT												1		
-REASON	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)					
-ADES	1	1	1	1	1	1	1	1	(1)	1	1	1	1	1
-REGUL	1<	1<		1<	0<								0<	
-ORGRTE							1	1						
-PTOT					(1)		(1)	(1)						
-NEWRTE							1	1						
-RRTEREF							(1)	1						(1)
-RVR	(1)	(1)			(1)								(1)	
-RESPBY				1	(1)		1	1						
-ORGMMSG									(1)					
-FILTIM									1					
-ERRFIELD														
-MINLINEUP														
-COMMENT	0<	0<	0<	0<	0<	0<	0<	0<	0<					
-TAXTIME	1	1	1	1	1	1	1	1	(1)					
-REGCAUSE	1	1			(1)									
-OBTLIMIT - VALPERIOD							1	1						
-TTO	1	1												

'1' means: exactly one field of the specified type is required
'(1)' means: a single optional field of the specified type is allowed

a 'blank cell' means: this field is not in a message
'n<' means: n or more occurrences of this field can appear in a message

The messages needed to perform the slot management functionality are the SAM, SRM and SLC. Each message sent by the Local ATFM system to AFTN/AMHS or received by the local ATFM System from AFTN/AMHS is compliant with ADEXP. The table 3 above is for reference only, please refer to the table 4 below for the exact ADEXP fields to be sent in the respective SAM, SRM and SLC messages.

3.2.1 ADEXP ATS Message Payload –Message Fields

Table 4 provides an overview of the data that is contained in each field for the ADEXP messages defined in this document. The complete structure and the format of the information in each field can be found in the *EUROCONTROL Specification for ATS Data Exchange Presentation (ADEXP), version 3.2*.

Each ATFM message comprises a number of fields, some of which are mandatory and some of which are optional. This may vary from message to message. Specific requirements are given in this document according to the principles of the ADEXP Standard document already mentioned. All ATFM messages shall begin with the TITLE field. The order of other fields is optional.

The field IFPLID, the unique identifier assigned to a flight by EUROCONTROL's Integrated Initial Flight Plan Processing System (IFPS) (two (2) alphabetic characters followed by eight (8) digits, e.g. —IFPLID AA12345678), will be in all ADEXP messages issued by the Network Manager (NM). EUROCONTROL's Enhanced Tactical Flow Management System (ETFMS) will accept the IFPLID when provided in an incoming message in ADEXP format. Therefore, messages sent to NM may include the Individual Flight Plan (IFPLD). The field is optional and it is not used in any other system worldwide so the value can be anything such as AA00000000.

The M and O designation in Table 4 indicates mandatory or optional fields for the specific message; if the field is blank it is not used for the specific message.

Table 4. Flight data attributes associated with ADEXP message fields

ADEXP Field Name	Message & Example	SAM	SRM	SLC
TITLE	-TITLE SAM	M	M	M
ADDR	-BEGIN ADDR -FAC LLEVZPZX -FAC LFFFZQZX -END ADDR	O	O	O
ARCID	-ARCID AMC101	M	M	M
IFPLID	-IFPLID AA12345678	O	O	O
ADEP	-ADEP EGLL	M	M	M
ADES	-ADES LMML	M	M	M
EOBD	-EOBD 160224	M	M	M
EOBT	-EOBT 0950	M	M	M
IOBD	-IOBD 160224	O	O	O
IOBT	-IOBT 0950	O	O	O
CTOT	-CTOT 1030	M		
NEWCTOT	-NEWCTOT		M	
REGUL	-REGUL RMZ24M	O	O	O
TAXITIME	-TAXITIME 0020	M	M	M
REGCAUSE	-REGCAUSE CE 81	M	M	
REASON	-REASON	O	O	O
RVR	-RVR	O	O	O
COMMENT	-COMMENT	O	O	O

3.2.1.1 TITLE Field

The TITLE field is a three (3)-letter identifier of the message. The TITLE field always is first in the payload. The syntax required for this field is:

'-' "TITLE" titleid

3.2.1.2 ADDR Field

List field that requires BEGIN and END (i.e., -BEGIN ADDR and -END ADDR) as brackets around a listing of eight character addresses with subfields (e.g., -FAC CFMUTACT). The eight-character identifiers are the same as that which is identified for location identifiers in section 3.1.3.5. The syntax required for this field is:

'-' "BEGIN" "ADDR" 1 { fac } '-' "END" "ADDR"

3.2.1.3 ARCID Field

The ARCID field is the registration marking of the aircraft, or the ICAO designator of the aircraft operator followed by the flight identifier. The syntax required for this field is:

'-' "ARCID" aircraftid

3.2.1.4 IFPLID Field

IFPS Identification. This is the unique flight plan identification which is issued by EUROCONTROL's Flight Planning System (IFPS). It is only available in flight plans that have been distributed in ADEXP format. The IFPLID is two (2) alphabetic characters followed eight (8) digits, e.g. —IFPLID AA12345678), and will be in all ADEXP messages issued by the NM. EUROCONTROL's ETFMS will accept the IFPLID when provided in an incoming message in ADEXP format. Therefore, messages sent to NM may include the IFPLD. The field is optional and it is not used in any other system worldwide, so for sending the message to any other ATFM system, the value can be anything such as AA00000000.

The Syntax required is:

'-' "IFPLID" 2{ALPHA}2 ! 8{ DIGIT }8

3.2.1.5 ADEP Field

ICAO indicator for Aerodrome of Departure. The syntax required is:

'-' "ADEP" (icao aerodrome | 'AFIL' | 'ZZZZ')

3.2.1.6 ADES Field

ICAO indicator for Aerodrome of Destination. The syntax required is:

'-' "ADES" (icao aerodrome | 'ZZZZ')

3.2.1.7 EOBD Field

Estimated Date of Flight. The format is YYMMDD (i.e., no century). The syntax required is:

'-' "EOBD" YYMMDD

3.2.1.8 EOBT Field

Estimated Off-Block Time. The syntax required is:

'-' "EOBT" hhmm

3.2.1.9 IOBD Field

Initial Off-Block Date. The format is YYMMDD (i.e., no century). The syntax required is:

'-' "IOBD" YYMMDD

3.2.1.10 IOBT Field

Initial Off-Block Time. The syntax required is:

'-' "IOBT" hhmm

3.2.1.11 CTOT Field

Calculated Take-Off Time. Importantly, the send or receipt of an SAM message (with a CTOT) is only done at approximately two hours before EOBT. This relative delivery time will allow the ATFM systems to determine whether the CTOT is intended for the current day or next day. Specifically, if the CTOT will be late enough in the day relative to current time that it actually is for the next day, the ATFM systems can assume it is the next day and use the EOBD to determine the correct day of flight. The syntax required is:

'-' "CTOT" hhmm

3.2.1.12 NEWCTOT Field

A new Calculated Take-Off Time, as updated by an ATFM system. Importantly, the send or receipt of an SRM message (with a NEWCTOT) is only done at approximately two hours before EOBT. This relative delivery time will allow the ATFM systems to determine whether the NEWCTOT is intended for the current day or the next day. Specifically, if the NEWCTOT will be late enough in the day relative to current time that it actually is for the next day, the ATFM systems can assume it is the next day and use the EOBD to determine the correct day of flight. The syntax required is:

'-' "NEWCTOT" hhmm

3.2.1.13 REGUL Field

The —REGUL field indicates the name of the ATFM Measure affecting the flight. Several —REGUL fields may be present, the first one being the ATFM Measures field that controls the flight. The syntax required is:

'-' "REGUL" regulid

3.2.1.14 TAXITIME Field

The difference in time between the ‘off blocks time’ and the ‘take-off time’. The times referred to could be actual or estimated depending upon the context. The syntax required is:

'-' "TAXITIME" hhmm

3.2.1.15 REGCAUSE Field

In order to provide more specific nomenclature for delay causes and, at the same time, to assist the post-flight analysis, the ADEXP field —REGCAUSE comprises:

- a) ATFM Measure cause code (one (1)-letter code corresponding to the cause assigned by the Flow Management Position [FMP] upon the implementation of the ATFM measure).
- b) ATFM Measure Location code—one (1)-letter code: D, E or A, describing the phase of the flight (Departure, Enroute, and Arrival) of the constraint that triggered the ATFM Measure.
- c) A space.
- d) The IATA Delay Code in numeric (e.g., 81, 82, 83, 89) or 00 when no IATA Code available.
 - The following codes comprise the list of Air Traffic Control (ATC) delay codes. There are other codes related to airline operations that are not applicable to this ICD and are therefore omitted. The codes are as follows:
 - i. 81 (AT) ATFM due to ATC EN-ROUTE DEMAND/CAPACITY, standard demand/capacity problems
 - ii. 82 (AX) ATFM due to ATC STAFF/EQUIPMENT EN-ROUTE, reduced capacity caused by industrial action or staff shortage, equipment failure, military exercise, or extraordinary demand due to capacity reduction in neighboring area
 - iii. 83 (AE) ATFM due to RESTRICTION AT DESTINATION AIRPORT, airport and/or runway closed due to obstruction, industrial action, staff shortage, political unrest, noise abatement, night curfew, special flights
 - iv. 84 (AW) ATFM due to WEATHER AT DESTINATION
 - v. 85 (AS): Mandatory security
 - vi. 86 (AG): Immigration, Customs, Health
 - vii. 87 (AF): Airport Facilities, parking stands, ramp congestion, buildings, gate limitations
 - viii. 88 (AD): Restrictions at airport of destination, airport/runway closed due obstruction, industrial action, staff shortage, political unrest, noise abatement, night curfew, special flights
 - ix. 89 (AM): Restrictions at airport of departure, airport/runway closed due obstruction, industrial action, staff shortage, political unrest, noise abatement, night curfew, special flights, start-up and pushback, ...

The —REGCAUSE appears in the SAM and SRM messages, and is associated only with the controlling ATFM Measure. The code appearing in the message is the code valid at the time the delay was given to the flight.

The syntax required is:

'-' "REGCAUSE" regulationreasoncode locationccode ” “ IATAdelaycode

3.2.1.16 REASON Field

Reason to explain an action by the FMP (e.g. rejection, cancellation, etc.). The syntax required is:

'-' "REASON" 4{ALPHA}12

3.2.1.17 RVR Field

Runway Visual Range. The syntax required is:

'-' "RVR" 1{ DIGIT }3

3.2.1.18 COMMENT Field

This field provides additional information. The syntax required is:

'-' "COMMENT" 1 { LIM_CHAR }

3.2.1.19 REFDATA field

This is reference data for the message being transmitted that collectively defines the unique message number. This field has three subfields, namely the sender subfield, the receiver (recvr) subfield, and the sequence number (seqnum) subfield. The sender subfield indicates the eight (8)-letter facility address of the sending facility; the receiver subfield indicates the eight (8)-letter facility address to which the message is being sent; and the sequence number subfield indicates the three (3)-digit serial number of the message being sent.

The message sequence number progresses sequentially from 001 to 000 (representing 1000), thence repeats from 001, for all messages sent to the same addressee, regardless of the type of message.

The three (3)-digit sequence number, the sender and receiver address, creates a unique combination used as the reference data. This is the equivalent of Field type 3, element (b) called ‘message number’ in *ICAO Doc 4444*.

The syntax required is:

'-' "REFDATA"

'-' "SENDER" '-' "FAC" 1{ LIM_CHAR }30

'-' "RECVR" '-' "FAC" 1{ LIM_CHAR }30

'-' "SEQNUM" 3{DIGIT}3

3.2.1.20 MSGREF field

Reference data for associated, previously transmitted messages. This field has three subfields, namely the sender subfield, the receiver (recvr) subfield and the sequence number (seqnum) subfield. Together the MSGREF field is intended to provide the necessary reference context

for a message being sent. The sender subfield indicates the eight (8)-letter facility address that sent the original message; the receiver subfield indicates the eight (8)-letter facility address to which the original message was sent; and the sequence number subfield indicates the three (3)-digit serial number of the original message sent.

This is the equivalent of Field type 3, element (c) called 'reference data' in *ICAO Doc 4444*.

The values of Sub-fields "sender", "recvr", and "seqnum", within Primary field "msgref", shall be those of the same Sub-fields within Primary field "refdata" of the OLDI message referred to

'-' "MSGREF"

'-' "SENDER" '-' "FAC" 1{ LIM_CHAR }30

'-' "RECVR" '-' "FAC" 1{ LIM_CHAR }30

'-' "SEQNUM" 3{DIGIT}3

3.2.2 ADEXP ATS Message Payload Types

3.2.2.1 SAM Message Composition

An SAM is sent by the local ATFM System any time a flight is assigned a CTOT. The SAM is used to inform of the Calculated Take-Off Time (CTOT) for each individual flight. The SAM is to be sent approximately 2 hours before EOBT. The construct shown is inclusive of only the mandatory messages.

—	TITLE	SAM
—	ARCID	Aircraft ID
—	IFPLID	TBD value
—	ADEP	Departure Airport
—	ADES	Arrival Airport
—	EOBD	Estimated Off Block Day
—	EOBT	Estimated Off Block Time
—	CTOT	Calculated Take-Off Time
—	TAXITIME	Estimated Taxi Time
—	REGCAUSE	ATFM Measure Cause Code

3.2.2.2 SRM Message Composition

An SRM is sent by an ATFM system any time a flight that has already received an SAM message, is assigned a revised CTOT. The SRM is used to inform of the new Calculated Take-Off Time (CTOT) for each individual flight. Since the goal is to send the original CTOT (via SAM) approximately 2 hours before EOBT, the SRM should not be sent until after the SAM has been acknowledged, + a short interval of time (e.g., 5 minutes). That way, the SAM will always be the first message sent with a CTOT, and SRM messages are suppressed until the CTOT is sent. All revisions to the CTOT should be sent via SRM. The construct shown is inclusive of only the mandatory messages.

—	TITLE	SRM
—	ARCID	Aircraft ID
—	IFPLID	TBD value
—	ADEP	Departure Airport
—	ADES	Arrival Airport
—	EOBD	Estimated Off Block Day
—	EOBT	Estimated Off Block Time
—	NEWCTOT	New Calc Take-Off Time
—	TAXITIME	Estimated Taxi Time
—	REGCAUSE	ATFM Measure Cause Code

3.2.2.3 SLC Message Composition

An SLC is sent by an ATFM system any time a flight is no longer assigned a CTOT. The SLC is used to inform that the previously assigned Calculated Take-Off Time (CTOT) no longer applies for an individual flight. The construct shown is inclusive of only the mandatory messages.

—	TITLE	SLC
—	ARCID	Aircraft ID
—	IFPLID	TBD value
—	ADEP	Departure Airport
—	ADES	Arrival Airport
—	EOBD	Estimated Off Block Day
—	EOBT	Estimated Off Block Time
—	TAXITIME	Estimated Taxi Time

3.2.3 Message Summary Table

Table 5 provides a summary of the message including the ID, message title, whether it is required, and the message flow direction.

Table 5. Message Summary

ID	Message Title	Message Direction
SAM	Slot Allocation Message	Local AFTN System ↔ AFTN
SRM	Slot Revision Message	Local AFTN System ↔ AFTN
SLC	Slot Cancellation Message	Local AFTN System ↔ AFTN

3.2.4 Protocol Implementation

TBD – dependent on specific site implementation

3.2.5 Security

This is a direct connection between AFTN / AMHS and the local ATFM system through a cable connection and after the data is ingested into local ATFM System, the interface is controlled explicitly via firewall rules and precise protocols.

3.3 Physical Design Characteristics

TBD – dependent on specific site implementation

3.3.1 Electrical Power and Electronic Characteristics

3.3.1.1 Connectors

TBD – dependent on specific site implementation

3.3.1.2 Wire/Cable

TBD – dependent on specific site implementation

3.3.1.3 Electrical Power/Grounding TBD –
dependent on specific site implementation

3.3.1.4 Fasteners

TBD – dependent on specific site implementation

3.3.1.5 Electromagnetic Compatibility

Not applicable.

Air Traffic Flow Management Steering Group

Task List

(last updated ATFM/SG/10, 08 May 2020)

ACTION ITEM	DESCRIPTION	TIME FRAME	RESPONSIBLE PARTY	STATUS	REMARKS
2/2	Research guidance material on ATFM compliance analysis and improvement	ATFM/SG/9	Secretariat Participating States to be confirmed by Secretariat coordination (ATFM/SG/8)	Closed	Can be sourced from EUROCONTROL Updated ATFM/SG/8 Transferred to Task 9/2
5/1	Poor on time performance of BOBCAT aircraft subject to ATFM procedures has direct impact on efficiency of ATFM procedures. All parties to undertake investigation as to reason for poor on-time performance including: a) Non compliance with BOBCAT CTOT– early and late departures b) Non compliance with BOBCAT Kabul FIR CTO– early and late at Kabul entry fix.	Ongoing	Affected States, IATA	Open	Transferred to ATFM/SG by SAIOACG/5 Poor punctuality performance is actively being monitored and rectified where possible by IATA/States. SAIOACG/5: this is still problematic. TASK 6/2 also refers Reviewed by ATFM/SG/10 The task should be actioned further after traffic recovery (COVID-19)

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ACTION ITEM	DESCRIPTION	TIME FRAME	RESPONSIBLE PARTY	STATUS	REMARKS
5/4	Cross-boundary restrictions on flights through the Sanya FIR (several States)	Ongoing	China/Hong Kong China/Singapore/Thailand/RSO	~~Open~~ Closed	Transferred to ATFM/SG by SEACG/22 The SEACG/21 meeting was apprised of concerns that the Sanya FIR was occasionally imposing increased longitudinal spacing requirements. The parties to meet and discuss a resolution plan. Updated ATFM/SG/8. Reviewed/retained ATFM/SG/9
5/10	Develop First Draft Operational Requirements Document	~~ATFM/SG/10~~ ATFM/SG/12	ATFM/IR/SWG	Open	Dependent on meeting schedule cycle Updated ATFM/SG/8
5/11	In cooperation with the SWIM/TF, develop a first draft interface control document (ICD) for cross border ATFM described in the Regional Framework for Collaborative ATFM	ATFM/SG/10	ATFM/IR/SWG	~~Open~~ Completed	Dependent on meeting schedule cycle ICD ADEXP completed, referred to ACSICG ICD-SWIM to be presented to SWIM/TF/3 Updated ATFM/SG/9

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ACTION ITEM	DESCRIPTION	TIME FRAME	RESPONSIBLE PARTY	STATUS	REMARKS
5/12	Research and Development (from Framework)	ATFM/SG/9	Secretariat to coordinate	Closed	Dependent on meeting schedule cycle Updated ATFM/SG/8 Transferred to task 9/2
5/13	Research ATFM for long range flights	Ongoing	Australia/India/Japan/New Zealand /Singapore/Thailand/CANSO/IATA	Open	Updated ATFM/SG/8
5/14	Review of Regional Collaborative Framework for ATFM	Ongoing	ATFM/SG	Closed	Transferred to task 9/2
6/1	Analysis of non-receipt of FPL and DEP messages, and State Letter/follow-up	ATM/SG/6	ICAO, States, IATA	Completed	Subject to Agreement of APANPIRG to DC ATFM/SG/6-2 States to provide data, ICAO to conduct analysis and follow-up. Analysis conducted. Follow up actions and outcomes to be reported to ATM/SG/6 Updated at ATFM/SG/8 Refer supplementary Task 9/5
6/2	Detailed list of non-compliance with BOBCAT entry times	Ongoing	Thailand	Open	To be provided in conjunction with BOBCAT update papers, with a link to where the list is available. Task 5/1 also refers. Updated at ATFM/SG/8 ATFM/SG/10

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ACTION ITEM	DESCRIPTION	TIME FRAME	RESPONSIBLE PARTY	STATUS	REMARKS
7/1	Investigate and Develop a draft PfA for Doc 7030 Regional Supplementary Procedures for Cross-border ATFM	~~ATFM/SG/10~~ ATFM/SG/12	China/Japan/Singapore/Thailand/Secretariat	Open	Final Decision on this yet to be made. Update ref ATFM/SG/9 report ADEXP and EET in FPL First draft provided Action Item pdated at ~~ATFM/SG/8~~ ATFM/SG/10
7/2	Review Doc 9971 – Manual on Collaborative ATFM and propose changes to Regional Framework for Collaborative ATFM to ensure alignment or identify acceptable differences and develop a proposal for amendment of the Framework	ATFM/SG/9	China/Hong Kong China/Secretariat	Closed	Thailand provided an analysis of differences. Updated at ATFM/SG/8 Transferred to task 9/2
7/3	Get information on planned implementation of surveillance-based separation, current capacity limitations and any planned capacity improvements in Kabul FIR and examine any outcomes for BOBCAT	ATFM/SG/9	IATA/Secretariat/Thailand	Closed	Review being undertaken by SAIOACG (BOBTFRG) Updated at ATFM/SG/9
7/7	Develop operational scenarios for FIXM Extension	31 July 2018	China/Hong Kong China/Japan/Singapore/Thailand/Secretariat	Completed	Subject to further scenario development as Regional ATFM matures. Updated at ATFM/SG/8

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ACTION ITEM	DESCRIPTION	TIME FRAME	RESPONSIBLE PARTY	STATUS	REMARKS
7/8	Finalize APAC FIXM Extension Version 1	ATFM/SG/10	SWIM TF	~~Open~~ Completed	Changed to reflect the responsibility for development of exchange models, as assigned by APANPIRG, and the likely need for future Regional ATFM and A-CDM FIXM attributes To be submitted to FIXM CCB ICD incl. Extension to be reviewed by SWIM/TF/3 May 2019 Draft Conclusion ATFM/SG/9-2 Updated at ATFM/SG/9
8/1	Follow-up with MET R WG on Asia/Pacific Regional Guidance for Meteorological Information Supporting ATM.	21 May 2018	Secretariat	Completed	
8/2	Coordinate use of IATA A-CDM Brochure in development of Regional A-CDM implementation plan, and uploading to Regional Office web-page	APA-CDM/TF/3	Secretariat	Completed	
8/3	Investigate and report on reasons for high rates of non-compliance with received CTOT at Jakarta. Report to ATM/SG/7 and Multi-Nodal/18	Multi-Nodal/18 ATM/SG/7 ATFM/SG/12	Indonesia Chair/Secretariat	Open	Refer also ATFM/SG/9 IP/13

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ACTION ITEM	DESCRIPTION	TIME FRAME	RESPONSIBLE PARTY	STATUS	REMARKS
8/4	Research State requirements for and implications of different qualification schemes for ATFM personnel	ATFM/SG/9	India, Japan, Secretariat	Closed	Included in Task 9/2
8/5	ATFM Points of Contact for Implementation Status Reporting	~~31/05/2019~~ Ongoing	States	Open	Reports to be submitted by end of April each year
8/6	Refinement of suite of ATFM coordination phrases	25 May 2018	CANSO/Secretariat	Completed	Clarify call/reply communication procedure-related items only. Conclusion ATFM/SG/9-4
8/7	Review and provide comment to SWIM TF on FIXM scenarios	31 May 2018	States	Closed	ATFM/SG/8 Meeting Report 5.19
8/8	First Draft of ATFM Post-Operations Analysis Framework	ATFM/SG/9	Australia, Hong Kong China, India, Japan, Singapore, Thailand, USA	Completed	Conclusion/SG/9-4
9/1	Draft regional guidance for advance notice of ATFM measures	ATFM/SG/10 ATFM/SG/11	China/Japan/Singapore/Thailand/Secretariat	Open	
9/2	Review and Update Regional ATFM Framework per ATFM/SG/9 Report para 4.11 (maximum achievable airborne delay) para 4.16 (ATFM qualification schemes) para 4.30 (use case for CTO) para 5.7 (example post-ops analysis) para 5.11 (example demand analysis) para 6.23 (DLA messages) para 6.29 (major review)	ATFM/SG/11	China, Hong Kong China, India, Japan, Mongolia, Singapore, Thailand, USA	Open	First draft to be provided at ATFM/SG/11 (planned Video Teleconference Q3 or Q4 2020)

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ACTION ITEM	DESCRIPTION	TIME FRAME	RESPONSIBLE PARTY	STATUS	REMARKS
9/3	Develop operational scenario/use case for CTO for airborne flights	~~ATFM/SG/10~~ ATFM/SG/11	Australia, Japan, New Zealand, Singapore, Thailand	Open	FIXM use case included in APAC FIXM Version 4.1 ATFM Extension. First draft of operational scenario/guidance to be included in draft revision to Regional ATFM Framework document ATFM/SG/11. Action Item 5/13 LR ATFM also refers
9/4	Revise ATFM Implementation Status Report Form Question 24 (report para 4.54) and remove duplicated question in Tier B.	03 May 2019	Secretariat	~~Open~~ Completed	
9/5	Missing DEP messages follow-up multi-State analysis	~~30 June 2019~~ 24 July 2020	Australia, China, India, Japan, Mongolia, Singapore, Thailand	Open	To be coordinated/confirmed, depending on level of traffic recovery post-COVID-19 pandemic
9/6	Provide input on ATFM-specific information that requires a stand-alone information exchange model (report para 5.29 ref. future ATFM Exchange Model under dev.)	ATMRPP/37 (July 08 2019)	All States/IOs	~~Open~~ Closed	
9/7	Provide list of disruption scenarios for FIXM extension testing	26 April 2019	IATA	Completed	
9/8	Provide CADENA post-ops analysis model (spec. stakeholder feedback mechanisms) for post-ops analysis framework finalization	01 July 2019	CANSO/USA	~~Open~~ Closed	
9/9	Analysis of MET requirements to support Non-ASBU elements of Seamless ATM Plan	~~MET R WG 9~~ ATFM/SG/12	Secretariat/MET R WG Chair	Open	To be discussed by MET/R WG/9

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ACTION ITEM	DESCRIPTION	TIME FRAME	RESPONSIBLE PARTY	STATUS	REMARKS
10/1	Streamline Status Reporting requirements	ATM/SG/8	Secretariat	Open	Shifting meeting schedules, and ICAO requests for status reports to SAIOACG/SEACG, which were usually held before the annual due date for implementation status reports.
10/2	Additional case studies for inclusion in Post Operations Analysis Recommended Framework	24 July 2020	Australia/Thailand	Open	To be included in the document for consideration by ATM/SG/8
10/3	Nomination of ATFM Experts to participate in MET/R WG Ad Hoc Group	11 May 2020	Australia, Hong Kong China, Singapore, Thailand, CANSO, IATA	Open	Email to secretariat ssumner@icao.int ;
10/4	Communication strategy and enhanced work plan for ATFM/IR/SWG	15 May 2020	Chair/Secretariat	Open	Action Item 5/10 also refers
10/5	Develop agenda and offline work schedule for ATFM/SG/11	15 May 2020	Chair/Secretariat	Open	Agenda focused on Review of Regional ATFM Framework Work schedule to include frequent VTC progress meetings.
10/6	Nominate experts to work on offline tasks for Review of Regional ATFM Framework	15 May 2020	States/IOs	Open	Email to Secretariat ssumner@icao.int
10/7	Respond to survey on MET services for ATM, to be distributed by State Letter	TBC State Letter	All Administrations	Open	