ICAO International Civil Aviation Organization
North American, Central American and Caribbean Office

Joint Air Traffic Flow Management (ATFM) Implementation Task Force (ATFM/TF) of the NAM/CAR Air Navigation Implementation Working Group (ANI/WG)/CANSO Air Traffic Flow Management Data Exchange Network for the Americas (CADENA) Regional Implementation Group Meeting

(ATFM/TF/CADENA)

Final Report

Santo Domingo, Dominican Republic, 22 - 24 January 2019

Prepared by the Secretariat

March 2019

List of Contents

Contents	Page

HISTORICAL

ii.1 Place and Date of the Meeting

The Joint Air Traffic Flow Management (ATFM) Implementation Task Force (ATFM/TF) of the NAM/CAR Air Navigation Implementation Working Group (ANI/WG)/CANSO Air Traffic Flow Management Data Exchange Network for the Americas (CADENA) Regional Implementation Group Meeting (ATFM/TF/CADENA) was hosted by the Dominican Republic Institute of Civil Aviation (IDAC), and took place in the facilities of the *Academia Superior de Ciencias Aeronáuticas* (ASCA), in Santo Domingo, Dominican Republic, from 22 to 24 January 2019.

ii.2 Opening Ceremony

Mr. Roosevelt Peña, Dominican Republic ATFM/Collaborative Decision Making (CDM) Project Manager and ANI/WG/ATFM Task Force co-Rapporteur, described the ATFM/CDM implementation in Dominican Republic, and its challenges and opportunities for regional initiatives. Mr. Eddian Méndez, Regional Officer Air Traffic Management and Search and Rescue of the North American, Central American and Caribbean (NACC) Regional Office of the International Civil Aviation Organization (ICAO) provided opening remarks and thanked the IDAC for hosting the meeting. Mr. Javier Vanegas, CANSO Regional Director for Latin America and the Caribbean, welcomed the participants and highlighted the opportunity of ATFM improvement for the Region with the joint work between ICAO NACC Regional Office and CANSO. Mr. Melvin Cintron, Regional Director of the ICAO NACC Regional Office provided opening remarks through a video and thanked the participants for their support to this initiative, which will positively impact the safety and efficiency of the air operations in the CAR Region. Mr. Alejandro Herrera, Director General of the IDAC, welcomed the participants to Santo Domingo and officially opened the meeting.

ii.3 Officers of the Meeting

The ATFM/TF/CADENA Meeting was held with the participation of the ANI/WG/ATFM/TF co-Rapporteur, Mr. Roosevelt Peña, who chaired the meeting plenary. Mr. Eddian Méndez, Regional Officer Air Traffic Management and Search and Rescue of the ICAO NACC Regional Office served as Secretary of the Meeting, assisted by Mr. Javier Vanegas and Mr. Kapri Kupper, from CANSO.

ii.4 Working Languages

The working language of the Meeting was English. The working papers, information papers and report of the meeting were available to participants in English.

ii.5 Schedule and Working Arrangements

It was agreed that the working hours for the sessions of the meeting would be from 09:00 to 17:00 hours daily with adequate breaks. Ad Hoc Groups were created during the Meeting to do further work on specific items of the Agenda.

ii.6 Agenda

Agenda Item 1: **Provisional Agenda Approval**

Agenda Item 2: **ATFM/Collaborative Decision Making (CDM) Regional Training**

Agenda Item 3: **Contingency Planning: Lessons Learned during the 2018 Hurricane Season**

Agenda Item 4: **Integration of the CADENA Regional Implementation Group (RIG) and ICAO NACC NAM/CAR Air Navigation Implementation Working Group (ANI/WG) ATFM Task Force**

Agenda Item 5: **Regional Implementation Metrics and Key Performance Indicators**

Agenda Item 6: **ATFM Tools**

Agenda Item 7: **NAM/CAR Regional Performance-Based Air Navigation Implementation Plan (RPBANIP) Update Process**

Agenda Item 8: **ATFM Task Force Programme of Activities**

Agenda Item 9: **ATFM Task Force Report to the ANI/WG**

Agenda Item 10: **Other Business**

ii.7 Attendance

The Meeting was attended by 13 States/Territories from the NAM/CAR/SAM Regions, and International Organizations, totalling 29 delegates as indicated in the list of participants.

ii.8 Draft Conclusions and Decisions

The Meeting recorded its activities as Draft Conclusions as follows:

DRAFT CONCLUSIONS: Activities requiring endorsement by the NAM/CAR Air Navigation Implementation Working Group (ANI/WG) or the NACC Working Group (NACC/WG).

An executive summary of these conclusions is presented in **Appendix A** to this report.

List of Draft Conclusions and Decisions

ii.9 List of Working and Information Papers and Presentations

Refer to the Meeting web page:
https://www.icao.int/NACC/Pages/meetings-2019-atfmtf.aspx

WORKING PAPERS

Number	Agenda Item	Title	Date	Prepared and Presented by
WP/01	1	Provisional Agenda and Schedule	19/01/19	Secretariat
WP/02	2	NAM/CAR/ATFM/CDM Regional Training Programme	19/01/19	Secretariat
WP/03	3	CAR Contingency Planning and Response Strategy	19/01/19	CANSO
WP/04	6	Air Traffic Flow Management Tools and Capabilities	19/01/19	Secretariat

INFORMATION PAPERS

Number	Agenda Item	Title	Date	Prepared and Presented by
IP/01	--	List of Working, Information Papers and Presentations	05/02/19	Secretariat

PRESENTATIONS

Number	Agenda Item	Title	Presented by
1	4	Integration of the CADENA Regional Implementation Group (RIG) and ICAO NACC NAM/CAR Air Navigation Implementation Working Group (ANI/WG) ATFM Task Force	Secretariat

PRESENTATIONS

Number	Agenda Item	Title	Presented by
2	3	2017/2018 Hurricane Season – Lessons Learned	Trinidad and Tobago
3	5	EANA Argentina Update and Metrics	Argentina
4	5	CADENA ATFM KPIs	CANSO
5	8	ICAO ATFM Task Force Programme of Activities	Secretariat
6	10	Kingston FIR AIDC Activity and Route Changes Update	Jamaica
7	10	ATFM from ATM perspective in Dominican Republic	Dominican Republic

LIST OF PARTICIPANTS

ARGENTINA

Marcela Pons

BRAZIL

André Luis Santos da Rocha
James Souza Short

CAYMAN ISLANDS

Erick Bodden

COSTA RICA

Luis Miranda Muñoz
Mario Sequeira Quirós
Keneth Jackson León

CURAÇAO

Jacques Lasten

DOMINICAN REPUBLIC

Reynaldo Marichal
George A. Matthew B.
Carlos María Vargas
Gilberto García Fajardo
Carlos Elvis Sánchez

HAITI

Hérault Alcy
Fred Brisson

JAMAICA

Yannick Francis
Deano Ledford
Anphia Morgan

TRINIDAD AND TOBAGO

Barry Phirangee
Curtis Adrian Fraser

AMERICAN AIRLINES

Brian Gonzalez
Michael Beasley

ATLAS AIRLINES

Frank Alexander

DELTA AIRLINES

Robert Oberstar

JETBLUE

Alberto Ortega

CANSO

Javier Vanegas
Kapri Kupper

COCESNA

Henry Ranulfo Reyes Alfaro

IATA

Marco Vidal Macchiavello

ICAO

Eddian Méndez

CONTACT INFORMATION

Name / Position	Administration / Organization	Telephone / E-mail
Argentina		
Marcela Pons Dpto. Planeamiento - Gerencia Planificación Aeropuerto Córdoba	Empresa Argentina de Navegación Aérea (EANA)	Tel. +54 9 351 222 0056 E-mail mpons@eana.com.ar
Brazil		
André Luis Santos da Rocha Lieutenant	Departamento de Controle do Espaço Aéreo (DECEA)	Tel. +21 2101 6771 E-mail andrerochaalsr@cgna.gov.br
James Souza Short Colonel	DECEA	Tel. +21 2101 6576 E-mail shortjss@decea.gov.br
Cayman Islands		
Erick Bodden Air Traffic Control Manager	Airport Authority of Cayman Islands	Tel. +345 943 7070 E-mail erick.bodden@caymanairports.com
Costa Rica		
Keneth Jackson León ATC - Jefatura Radar MRLB	Dirección General de Aviación Civil (DGAC)	Tel. +506 2292 8000 E-mail kjackson@dgac.go.cr
Mario Sequeira Quirós ATC - ATFM	DGAC	Tel. +506 22428000 E-mail msequeira@dgac.go.cr
Luis Miranda Muñoz ATC - ANSP Jefe	DGAC	Tel. +506 2242 8000 E-mail lmiranda@dgac.go.cr
Curaçao		
Jacques Lasten Deputy Director	Dutch Caribbean Air Navigation Service Provider (DC-ANSP)	Tel. + 5999 8393550 E-mail J.Lasten@dc-ansp.org
Dominican Republic		
George A. Matthew B. ATFM CDM MGR TMO	Instituto Dominicano de Aviación Civil (IDAC)	Tel. +809 985 0413 E-mail george.mathhew@idac.gov.do
Giblerto García Fajardo ATFM CDM TMC	IDAC	Tel. +809 985 0413 E-mail gilberto.garcia@idac.gov.do
Carlos Elvis Sánchez ATFM CDM TMC	IDAC	Tel. +809 985 0413 E-mail elvis.sanchez@idac.gov.do

Name / Position	Administration / Organization	Telephone / E-mail
Dominican Republic		
Reynaldo Marichal ATFM CDM TMC	IDAC	Tel. +809 985 0413 E-mail reynaldo.marichal@idac.gov.do
Carlos María Vargas ATFM CDM TMQ	IDAC	Tel. +809 224 6658 E-mail carlos.vargas@idac.gov.do
Haiti		
Fred Brisson Quality Officer	Office National de l'Aviation Civile (OFNAC)	Tel. +509 3107 3199 E-mail bf7041@hotmail.com
Hérault Alcy Chief of Training Unit	OFNAC	Tel. +509 3755 6550 E-mail halcy83@gmail.com
Jamaica		
Anphia Morgan Operations Officer	Jamaica Civil Aviation Authority (JCAA)	Tel. +876 960 3948 E-mail anphia.morgan@jcaa.gov.jm
Yannick Francis Radar Specialist	JCAA	Tel. +876 960 3948 E-mail yannick.francis@jcaa.gov.jm
Deano Ledford Air Traffic Flow Manager	JCAA	Tel. +1 876 960 3948 E-mail deano.ledford@jcaa.gov.jm
Trinidad and Tobago		
Barry Phirangee Air Traffic Management Officer	Trinidad and Tobago Civil Aviation Authority (TTCAA)	Tel. +868 668 8222 ext2557 E-mail bphirangee@caa.gov.tt
Curtis Adrian Fraser Air Traffic Management Officer	TTCAA	Tel. +1 868 66 88222 ex2560 E-mail cfraser@caa.gov.tt
American Airlines		
Brian Gonzalez Air Traffic Manager	American Airlines	Tel. +1 305 301 6430 E-mail Brian.Gonzalez@AA.com
Michael Beasley Program Manager	American Airlines	Tel. +1 682 315 7636 E-mail michael.beasley@aa.com
Atlas Airlines		
Frank Alexander ATC Specialist	Atlas Airlines	Tel. +651 455 4776 E-mail frank.alexander@atlasair.com

Name / Position	Administration / Organization	Telephone / E-mail
Delta Airlines		
Robert Oberstar Supervisor - Flight Dispatch	Delta Airlines	Tel. +1 404 715 7715 E-mail robert.oberstar@delta.com
Jet Blue		
Alberto Ortega Manager, International Operations	JetBlue	Tel. (718) 709-3595 E-mail Reynaldo.Ortega@jetblue.com
CANSO		
Javier Alejandro Vanegas Regional Director for Latinamerica and the Caribbean	Civil Air Navigation Services Organisation (CANSO)	Tel. +5255-5786-5517 E-mail lamcar@canso.org
Kapri Kupper Director ATFM, CANSO Member and ATFM Representative	CANSO	Tel. +1 703 267 0796 E-mail Kapri.Kupper@gmail.com
COCESNA		
Henry Ranulfo Reyes Alfaro Air Traffic Controller / Executive	Corporación Centroamericana de Servicios de Navegación Aérea (COCESNA)	Tel. +504 2234 2507 E-mail henry.reyes@cocesna.org
IATA		
Marco Vidal Macchiavello Manager Safety and Flight Operations – The Americas	International Air Transport Association (IATA)	Tel. +1 786 536 3476 E-mail vidalm@iata.org
ICAO		
Eddian Méndez Regional Officer, Air Traffic Management and Search and Rescue	ICAO NACC Regional Office	Tel. +5255 5250 3211 E-mail emendez@icao.int

Agenda Item 1 Provisional Agenda Approval

1.1 The Secretariat presented WP/01 and invited the Meeting to approve the Provisional Agenda and Schedule. The Meeting approved the Agenda and Schedule as presented.

Agenda Item 2 ATFM/Collaborative Decision Making (CDM) Regional Training

2.1 Under this Agenda Item, the Meeting reviewed WP/02, which presents a proposal for the Air Traffic Flow Management (ATFM) Task Force to develop an ATFM Regional Training Programme.

2.2 This working paper emphasized the importance for ATFM service to be staffed by personnel with sufficient knowledge and understanding of the Air Traffic Management (ATM) system they are supporting and the potential effects that their work may have on the safety and efficiency of air navigation. In addition to the staff of the ATFM unit itself, there are several other units/areas/entities where staff should be aware of and understand the ATFM services provided and the specific roles and responsibilities they have in this process. Units where ATFM is exercised or directly experienced and where staff therefore needs training include:

a) Traffic Management Coordinators (TMC)
b) Air Traffic Controllers (ATC)
c) aircraft operators
d) pilots
e) airport operators
f) military, both service providers and users, and
g) regulatory bodies (Civil Aviation Authorities (CAAs) and equivalent).

2.3 The development of personnel with the necessary competencies to handle the implementation and operation of the ATFM is vital for the success of this process. Likewise, it is important to agree on the set of requirements that these training must meet, so that we can make the best use of the available resources can be made, and that the different regional entities, including the training centres, have a clear set of parameters that the training programme of the ATFM must comply with, and also for each specific training.

2.4 Recently, the NAM/CAR Regions have received harmonized training, although provided by different institutions and based on different training programmes. There was consensus among participants that minimum ATFM training requirements should be developed, and the following draft conclusion was formulated:

<table>
<tr><td colspan="3">DECISION
ATFM/TF/CADENA/01 NAM/CAR ATFM/CDM REGIONAL TRAINING PROGRAMME</td></tr>
<tr><td colspan="2">What:
That, given the importance for ATFM service to be staffed by competent personnel and the identified need to harmonize different training and requirements in the Region, the ANI/WG/ATFM Task Force develop an ATFM Training Programme, including training requirements for each ATFM position and every level of training and objectives in line with ICAO TRAINAIR Plus Methodology, to be included as an Appendix to the CAR/SAM ATFM Concept of Operations (CONOPS), by 31 December 2019.</td><td>Expected impact:
☐ Political / Global
☒ Inter-regional
☒ Economic
☒ Environmental
☒ Operational/Technical</td></tr>
<tr><td colspan="3">Why:
In order to provide the Region with a harmonized requirement for ATFM/CDM Training.</td></tr>
<tr><td>When: 31 December 2019</td><td colspan="2">Status: ☒ Valid / ☐ Superseded / ☐ Completed</td></tr>
<tr><td>Who: ☐ States ☐ ICAO ☒ Other:</td><td colspan="2">ANI/WG ATFM Task Force</td></tr>
</table>

Agenda Item 3 Contingency Planning: Lessons Learned during the 2018 Hurricane Season

3.1 The Secretariat presented WP/03 to discuss the actions undertaken to develop and implement a Caribbean Regional Contingency Planning and Response strategy, in order to address the disruption, or potential disruption of air traffic services and related supporting services in the CAR Region, and its relationship with the ATFM System.

3.2 The Caribbean Region is periodically under the threat of hurricanes, making aviation infrastructure and operations vulnerable to their deadly impact, but at the same time, a quick recovery is required.

3.3 ATFM provides a process for mitigating the effects of disruption in an ATM systems resource, and contingency arrangements are required in the event of a failure of the ATFM system itself. ATFM and contingency arrangements are closely interlinked. The following decision was formulated accordingly:

<table>
<tr><td colspan="3">DECISION
ATFM/TF/CADENA/02 ATFM CONTINGENCY PLANS</td></tr>
<tr><td colspan="2">What:
That, in order to provide an adequate regional response to contingencies, and to reduce the harmful impact of these contingencies to the continuous flow of air traffic, the ANI/WG/ATFM Task Force develop guidelines for ATFM Contingency Plans to be included in the CAR/SAM ATFM CONOPS; taking into consideration the need to establish a clear differentiation between the ATM Contingency Plans and the ATFM Contingency Plans, by 31 December 2019.</td><td>Expected impact:
☐ Political / Global
☒ Inter-regional
☒ Economic
☐ Environmental
☒ Operational/Technical</td></tr>
<tr><td colspan="3">Why:
To support contingency planning and response at a Regional level</td></tr>
<tr><td>When: 31 December 2019</td><td colspan="2">Status: ☒ Valid / ☐ Superseded / ☐ Completed</td></tr>
<tr><td>Who: ☐ States ☐ ICAO ☒ Other:</td><td colspan="2">ATFM Task Force</td></tr>
</table>

3.4 Trinidad and Tobago presented P/02 to describe the actions undertaken in the Piarco Flight Information Region (FIR) in preparation and as a consequence of the hurricane season of 2017 and 2018. The presentation provided details on the impact of tropical cyclones to the provision of air navigation services in the Eastern Caribbean, the alternate routes utilized and lessons learned.

3.5 The Meeting took note with interest of the presentation. Participants highlighted the importance of the regional interaction required from other airports under the Piarco FIR.

3.6 For airline operators, the importance of contingency planning is related to the communication of any expected changes in the Air Traffic Services (ATS) provision. For example, it is very important to provide timely information about flight cancelations. Some flights are planned 20 hours in advance and some Air Navigation Service Providers (ANSPs) wait until the very last minute to provide information about their intentions when facing weather related events.

3.7 Airline operators also expressed the importance of flexible routes to face contingency situations.

Agenda Item 4 **Integration of the CADENA Regional Implementation Group (RIG) and ICAO NACC NAM/CAR Air Navigation Implementation Working Group (ANI/WG) ATFM Task Force**

4.1 The Secretariat provided in P/01 details regarding the integration of the CANSO Air Traffic Flow Management Data Exchange Network for the Americas (CADENA) Regional Implementation Group (RIG) and the ICAO NACC NAM/CAR Air Navigation Implementation Working Group (ANI/WG) ATFM Task Force activities.

4.2 In order to develop an effective joint work strategy, it is necessary to consider the different nature and objectives of both groups. The ANI/WG ATFM Task Force's main relationship is established with the civil aviation authority of the State, meanwhile CANSO works with ANSPs. In this sense, the combination of both ATFM Task Force and CADENA brings a combined approach to support implementation at both levels.

4.3 Some challenges were mentioned for the efficient combination of work agendas and different requirements for each organization. This could be solved by establishing a clear delimitation of each group's scope and responsibilities.

4.4 In order to comply with the expectations of each organization, the ANI/WG ATFM Task Force shall work to:

1) develop a work programme that responds to the ANI/WG requirements;
2) perform systematic assessment of the NAM/CAR Regional Performance-Based Air Navigation Implementation Plan (RPBANIP) ATFM-related Regional Performance Objectives;
3) support both CAA and ANSP ATFM implementation and oversight; and
4) work together with CADENA to develop guidance material that can be part of the CAR/SAM ATFM Concept of Operations (CONOPS) or additional documents distributed separately.

Agenda Item 5 Regional Implementation Metrics and Key Performance Indicators

5.1 P/03, presented by Argentina, provided the Meeting with an update of the work performed by *Empresa Argentina de Navegación Aérea* (EANA) in the Argentina airspace, to provide the ATFM services and develop metrics to measure performance of the system.

5.2 EANA has worked to develop their metrics at all phases of operations:

- Strategic phase, using declared sector capacity to calculate arrivals and take offs rates.
- Pre-tactical phase, since May 2018 Flow Management Unit (FMU) provides ATFM service to Ezeiza FIR H24; it also produces an ATFM Daily Plan.
- Tactical phase, with physical presence in the Ezeiza Area Control (ACC), amendment of Traffic Management Measures (TMMs) are performed, using Collaborative Decision Making (CDM) methodology promoting collaboration among Area Control (ACC) supervisors, adjacent ACCs and users (Continuous Climb Operations (CCO), and airlines).
- Post-operational phase, with the objective of continuous improvement, FMU elaborates post-operations analysis daily, comparing planned vs. real demand. Currently, it is merely descriptive, later it will evolve to an analytic report.

5.3 The experience from EANA in Argentina can be taken as a regional reference for other ANSPs.

5.4 With P/04, CANSO presented CADENA ATFM Key Performance Indicators. CADENA ATFM KPIs are aimed to promote ANSPs performance by measuring capacity, efficiency and predictability of services.

5.5 CANSO acknowledged that the ability for individual ASNPs to measure ATFM Key Performance Indicators (KPIs) will vary based data availability and emphasized the need to develop regional KPIs to include a minimum set of measurements for which data is currently available. This process requires common definition between all stakeholders. States should limit KPIs to those which each ANSP can influence and prioritize KPIs to those that provide the best indication of capacity utilization and flight efficiency. KPIs should be SMART – Specific, Measurable, Achievable, Relevant, and Timely.

5.6 P/04 also included information on KPIs for each phase of flight and a description of ICAO defined ATFM KPIs.

5.7 The Meeting also worked to develop regionally accepted KPIs for different operational perspectives and types of operations.

5.8 The Meeting was divided into different Ad Hoc Groups. Each group consisted of multiple ANSPs, States representatives and an airline. IATA visited all groups. The different groups identified the following KPIs:

5.8.1
- Take off time
- Landing time
- Gate occupancy times
- Terminal airspace transit time
- Off Block time
- Taxi out
- En route
- Descent- Terminal
- Taxi-in
- In-blocks
- Turn-around time

5.8.2 The Meeting agreed that KPIs that States and ANSPs can implement now with current data and technology are:

1. Take off time:
   Percentage of flights taking off within their assigned ATFM slot
2. Off-Block time:
   Percentage of flights departing from the gate on-time
3. Filed versus Flown:
   Flight planned en-route distance compared to a reference ideal trajectory distance and, actual en-route distance flown compared to a reference ideal distance.

5.8.3 Therefore, the following decision was formulated:

<table>
<tr><td colspan="3">DECISION
ATFM/TF/CADENA/03 ATFM REGIONAL KPIs</td></tr>
<tr><td colspan="2">What:
That, in order to understand operational performance and develop means and methods to improve that performance the ANI/WG ATFM Task Force:
a) establish at a minimum KPIs for take-off time, off-block time, and, as able, filed versus flown;
b) when developing these KPIs, take into consideration when and how they will be measured, and with whom the information will be shared; and
c) include these KPIs along with associated guidelines are to be included in the CAR/SAM ATFM CONOPS, by 31 December 2019.</td><td>Expected impact:
☐ Political / Global
☒ Inter-regional
☒ Economic
☒ Environmental
☒ Operational/Technical</td></tr>
<tr><td colspan="3">Why:
To support States and ANSPs in improving operational performance.</td></tr>
<tr><td>When: 31December 2019</td><td colspan="2">Status: ☒ Valid / ☐ Superseded / ☐ Completed</td></tr>
<tr><td>Who: ☐ States ☐ ICAO ☒ Other:</td><td colspan="2">ATFM Task Force</td></tr>
</table>

Agenda Item 6 ATFM Tools

6.1 Under this Agenda Item, the Meeting reviewed WP/04, presented by CANSO, which includes a proposal to develop common requirements ATFM Tools should provide. The CAR Region is experiencing an increase in demand that puts a strain on available capacities resulting in increased delays, operational inefficiency, and reroutes that contribute to reduced throughput in airspace and airports. ATFM available tools and capabilities can be implemented and integrated by ANSPs to improve ATFM demand and capacity predictions, practices, solutions, safety, operational analysis, and CDM.

6.2 The objectives of AFTM tools and capabilities are to provide the best possible information to the right stakeholders at the right time. Accurate and timely demand and capacity predictions improve ATFM decision-making to provide appropriate flow solutions that meet operational requirements, utilize airspace and aerodrome capacity effectively and efficiently, and cause the least operational impact to the stakeholders as well as neighbouring ANSPs.

6.3 In support of the Members, CADENA issued a Request for Information (RFI) regarding the capability to exchange Traffic Flow Management (TFM) data between the United States Federal Aviation Administration (FAA) and Air Navigation Service Providers (ANSPs) located in the Caribbean and Central America. CADENA acknowledges that ATFM requires a wide range of capabilities and information and encourages regional ANSPs to exchange TFM flight data to assess the regional airports and airspace demand accurately. The purpose of the RFI was to obtain information to assist in regional strategy development.

6.4 AFTM tools should at least provide the following features:

a) the capacity to predict and monitor demand;
b) automated ATFM capabilities for determining demand and capacity imbalances for both airports and airspace, and modelling and implementation of collaborative ATFM solutions;
c) the capability to automatically exchange ATFM measure, demand, and capacity information to operationally adjacent ATFM systems;
d) simulation and human-in-the-loop exercise capabilities to allow ANSPs and stakeholders to model and assess ATFM operational scenarios and solutions to develop improved operational concepts and procedures to reach the best possible operational outcome during periods of demand/capacity imbalance; and
e) operation performance reports to support analysis and alignment with agreed KPIs for post-operational reviews to promote continuous improvement.

6.5 Participants considered important to link ATFM Tools minimum operational requirements with technical (Communications Navigation and Surveillance) minimum recommendations. Additional technical details should be taken into consideration in order to allow proper system function and interaction. The ATFM Task Force should analyse the proper audience to address those technical requirements. The following draft conclusions was formulated accordingly:

<table>
<tr><td colspan="3">DRAFT CONCLUSION
ATFM/TF/CADENA/04 ATFM TOOLS MINIMUM REQUIREMENTS</td></tr>
<tr><td colspan="2">What:
That, considering the importance to implement and integrate ATFM tools and capabilities to improve ATFM demand and capacity predictions, practices, solutions, safety, operational analysis, and collaborative decision-making, the ANI/WG/ATFM Task Force:

a) include AFTM tools minimum requirements of Section 4.1actions in the CAR/SAM ATFM CONOPS;

b) request States to consider implementing automated ATFM tools to predict demand and balance that demand with available capacity; and

c) request States to model ATFM solutions to ensure the use of the least restrictive Traffic Management Measures necessary to achieve desired result so as to minimize impact on stakeholders and to utilize all available capacity to maximize airspace and airport throughput by 31 December 2019.</td><td>Expected impact:
☐ Political / Global
☒ Inter-regional
☒ Economic
☒ Environmental
☒ Operational/Technical</td></tr>
<tr><td colspan="3">Why:
To support States and ANSPs on the decision making process to select ATFM Tools</td></tr>
<tr><td>When: 31 December 2019</td><td colspan="2">Status: ☒ Valid / ☐ Superseded / ☐ Completed</td></tr>
<tr><td>Who: ☐ States ☐ ICAO ☒ Other:</td><td colspan="2">ANI/WG ATFM Task Force</td></tr>
</table>

Agenda Item 7 **NAM/CAR Regional Performance-Based Air Navigation Implementation Plan (RPBANIP) Update Process**

7.1 Under this Agenda Item, the Meeting reviewed the ATFM related Regional Performance Objectives of the NAM/CAR Regional Performance-based Air Navigation Implementation Plan (RPBANIP), Implementation of Flexible Use Airspace (FUA) and Improve Demand and Capacity Balancing (DCB).

7.2 The results of the proposed update are included in the **Appendix B** to this part of the report. The Meeting formulate the following draft conclusion:

<table>
<tr><td colspan="3">DRAFT CONCLUSION
ATFM/TF/CADENA/05 UPDATE RPBANIP ATFM RELATED RPOs</td></tr>
<tr><td colspan="2">What:
That, in order to promote the effective compliance of the NAM/CAR regional priorities, to maintain the validity, accuracy, and applicability of the RPBANIP, aligning the regional and national activities and strategies, ICAO take the appropriate steps to request the update of the RPBANIP ATFM related RPOs, with the inputs provided by the ATFM Task Force, before the ANI/WG/5 Meeting.</td><td>Expected impact:
☐ Political / Global
☐ Inter-regional
☐ Economic
☐ Environmental
☒ Operational/Technical</td></tr>
<tr><td colspan="3">Why:
to maintain the validity, accuracy, and applicability of the RPBANIP</td></tr>
<tr><td>When: Before the ANI/WG/5 Meeting</td><td colspan="2">Status: ☒ Valid / ☐ Superseded / ☐ Completed</td></tr>
<tr><td>Who: ☐ States ☒ ICAO ☐ Other:</td><td colspan="2"></td></tr>
</table>

Agenda Item 8 ATFM Task Force Programme of Activities

8.1 The Secretariat presented P/05, to provide information on the process to develop the ATFM Task Force Programme of Activities, including information on the responsibilities established in the revised Terms of Reference. It also provided importance information on the link between the ATFM Task Force deliverables and the CAR/SAM Planning and Implementation Regional Group (GREPECAS) Projects.

Agenda Item 9 ATFM Task Force Report to the ANI/WG

9.1 Under this Agenda Item, the Meeting discussed the requirement for the ATFM Task Force co-Rapporteurs to prepare their report to the Fifth NAM/CAR Air Navigation Implementation Working Group Meeting (ANI/WG/5) that will take place in Mexico City, Mexico, from 27 to 31 May 2019.

9.2 The Co-Rapporteurs acknowledged and understood this requirement, and will comply with this as usual, taking into consideration the work undertaken by the Task Force and its results.

Agenda Item 10 Other Business

10.1 P/06, presented by Jamaica, provided the Meeting an update of the Kingston FIR Air Traffic Services Inter-facility Data Communication (AIDC) Activity and Route Changes.

10.2 P/07, presented by Dominican Republic, described the ATFM from ATM perspective in Dominican Republic. Dominican Republic explained the Meeting the actions undertaken to adapt their operations to the changes implemented by United States in the Miami Atlantic Coast Route (ACR), providing details on the impact and consequences of these changes.

10.3 Dominican Republic urged that, for future implementations, States should be more aware about the impact of changes to the International community, especially to our neighbouring facilities. New implementations should be based on the need of the users through a real CDM.

APPENDIX A
EXECUTIVE LIST OF DRAFT CONCLUSIONS AND DECISIONS

Number	Conclusion/Decision	Responsible for action	Deadline
DECISION ATFM/TF/CADENA/01	**NAM/CAR ATFM/CDM REGIONAL TRAINING PROGRAMME**		
	That, given the importance for ATFM service to be staffed by competent personnel and the identified need to harmonize different training and requirements in the Region, the ANI/WG/ATFM Task Force develop an ATFM Training Programme, including training requirements for each ATFM position and every level of training and objectives in line with ICAO TRAINAIR Plus Methodology, to be included as an Appendix to the CAR/SAM ATFM Concept of Operations (CONOPS), by 31 December 2019.	ANI/WG ATFM Task Force	31 December 2019
DECISION ATFM/TF/CADENA/02	**ATFM CONTINGENCY PLANS**		
	That, in order to provide an adequate regional response to contingencies, and to reduce the harmful impact of these contingencies to the continuous flow of air traffic, the ANI/WG/ATFM Task Force develop guidelines for ATFM Contingency Plans to be included in the CAR/SAM ATFM CONOPS; taking into consideration the need to establish a clear differentiation between the ATM Contingency Plans and the ATFM Contingency Plans, by 31 December 2019.	ANI/WG ATFM Task Force	31 December 2019

Number	Conclusion/Decision	Responsible for action	Deadline
DECISION ATFM/TF/CADENA/03	**ATFM REGIONAL KPIs**		
	That, in order to understand operational performance and develop means and methods to improve that performance the ANI/WG ATFM Task Force:		
	a) establish at a minimum KPIs for take-off time, off-block time, and, as able, filed versus flown;	ANI/WG ATFM Task Force	31 December 2019
	b) when developing these KPIs, take into consideration when and how they will be measured, and with whom the information will be shared; and	ANI/WG ATFM Task Force	31 December 2019
	c) include these KPIs along with associated guidelines are to be included in the CAR/SAM ATFM CONOPS, by 31 December 2019.	ANI/WG ATFM Task Force	31 December 2019
DRAFT CONCLUSION ATFM/TF/CADENA/04	**ATFM TOOLS MINIMUM REQUIREMENTS**		
	That, considering the importance to implement and integrate ATFM tools and capabilities to improve ATFM demand and capacity predictions, practices, solutions, safety, operational analysis, and collaborative decision-making, the ANI/WG/ATFM Task Force:		
	a) include AFTM tools minimum requirements of Section 4.1actions in the CAR/SAM ATFM CONOPS;	ANI/WG ATFM Task Force	31 December 2019
	b) request States to consider implementing automated ATFM tools to predict demand and balance that demand with available capacity; and	ANI/WG ATFM Task Force	31 December 2019
	c) request States to model ATFM solutions to ensure the use of the least restrictive Traffic Management Measures necessary to achieve desired result so as to minimize impact on stakeholders and to utilize all available capacity to maximize airspace and airport throughput by 31 December 2019.	ANI/WG ATFM Task Force	31 December 2019

Number	Conclusion/Decision	Responsible for action	Deadline
DRAFT CONCLUSION ATFM/TF/CADENA/05	**UPDATE RPBANIP ATFM RELATED RPOs**		
	That, in order to promote the effective compliance of the NAM/CAR regional priorities, to maintain the validity, accuracy, and applicability of the RPBANIP, aligning the regional and national activities and strategies, ICAO take the appropriate steps to request the update of the RPBANIP ATFM related RPOs, with the inputs provided by the ATFM Task Force, before the ANI/WG/5 Meeting.	ICAO	Before the ANI/WG/5 Meeting

APPENDIX B

NAM/CAR REGIONAL PERFORMANCE OBJECTIVES

2. IMPLEMENTATION OF FLEXIBLE USE AIRSPACE (FUA)				
Benefits				
Efficiency **Continuity**	• Increase airspace capacity • Improve ATS route structure efficiency • Ensure safe and efficient action in the event of unlawful interference • Make available military restricted airspace more hours of the day so that aircraft can fly on their preferred trajectories • Improve search and rescue services			
Strategy				
ATM Component	**TASK DESCRIPTION**	**START-END**	**RESPONSIBLE**	**STATUS**
AOM	a) Establish civil/military coordination bodies	2013-~~2016~~2019	States, Territories	Valid
	b) Arrange for permanent liaison and close cooperation between civil ATS units and appropriate air defence units	2013-~~2016~~2019	States, Territories	Valid
	c) Conduct a regional review of Special Use Airspace: i. assess use of airspace management processes; ii. collaborate with the FUA users and develop LOAs to ensure best use of all available airspace ~~ii. improve current national airspace management to adjust dynamic changes in tactical stage to traffic flows; and~~ iii. ~~introduce improvements in ground support systems and associated procedures for the extension of FUA with dynamic airspace management processes~~	2013-~~2016~~2023	States, Territories, Int. Orgs, ICAO	Valid
	d) implement dynamic ATC sectorization in order to provide the best balance between demand and capacity to respond in real-time to changing situations in traffic flows and to accommodate the preferred routes of users in short-term	2013-~~2018~~2021	States, Territories, Int. Orgs, ICAO	Valid
	e) Develop performance measurement programme	2013-~~2016~~2021	States, Territories, Int. Orgs	Valid
	f) Monitor implementation progress	2013-~~2018~~2023	ICAO	Valid
GPIs	GPI/1: Flexible Use Airspace			

3. IMPROVE DEMAND AND CAPACITY BALANCING (DCB)				
Benefits				
Environment **Efficiency**	• Reduced weather and traffic-induced holding leading to reduced fuel consumption and emissions • Improved and smoother traffic flows • Improved predictability • Improved management of excess demand for service in ATC sectors and aerodromes • Improved aerodrome and airspace operational efficiency			
Strategy				
ATM Component	**TASK DESCRIPTION**	**START-END**	**RESPON-SIBLE**	**STATUS**
DCB	a) Identify key stakeholders (ATC service providers and users, military authorities, airport authorities, aircraft operators and relevant organizations) for purposes of coordination and cooperation - using a CDM process	2013-~~2016~~2019	States, Territories, Int. Orgs	Valid
	b) Develop, train, and implement agreed strategic, pre-tactical, and tactical CDM processes and procedures between ANSPs and key stakeholders	2017-2020	States, Territories, Int. Orgs	Valid
	c) Develop and implement regular CDM quality review processes with key stakeholders	2017-2020	States, Territories, Int. Orgs	Valid
	~~b)~~d) Analyze traffic flow problems and develop, train and implement, methods for improving efficiencies ~~on a gradual basis~~, as needed for: i. Aerodrome capacity ii. ATS capacity iii. ATS letters of agreement iv. Airspace sector capacities ~~iii.~~v. Airspace and route optimization	2013-~~2016~~2021	States, Territories, Int. Orgs	Valid
	~~c)~~e) Define, train and implement, common elements of situational awareness between FMUs and Stakeholders: i. Common understanding of traffic ~~displays~~demand ii. Common understanding of constraints and associated traffic management measures ~~ii.~~iii. Common weather displays ~~iii.~~iv. Communications (teleconferences, web) ~~iv.~~v. Daily teleconference/messages methodology advisories	2013-~~2016~~2021	States, Territories, Int. Orgs	Valid
	~~d)~~f) Develop and implement methods to establish demand/capacity forecasting	2013-~~2016~~2023	States, Territories, Int. Orgs	Valid
	g) Develop and implement methods for reliable demand prediction	2019-2023	States, Territories, Int. Orgs	Valid
	~~e)~~h) Define common electronic information and minimum databases required for decision support and alerting systems for interoperable situational awareness between ~~centralized~~ ATFM units	2013-~~2016~~2023	States, Territories, Int. Orgs	Valid
	~~f)~~i) Develop regional ~~procedures~~ KPIs for efficient and optimum use of aerodrome and runway capacity	2013-~~2016~~2020	States, Territories, Int. Orgs	Valid

	~~g)~~i) Develop, train and implement a national ATFM Procedures Manual to manage demand/capacity balancing	2013-~~2016~~2020	GREPECAS	~~Completed~~Valid
	~~h)~~k) Develop regional coordination for implementation of ATFM units	2013-~~2016~~2020	States, Territories, Int. Orgs	Valid
	~~i)~~l) Develop operational agreements between ATFM units for interregional demand/capacity balancing	2013-~~2016~~2021	States, Territories, Int. Orgs	Valid
	~~j)~~m) Monitor implementation progress	2013-~~2016~~2023	ICAO	Valid
GPIs	GPI/1: Flexible Use Airspace; GPI/6: Air Traffic Flow Management; GPI/7: Dynamic and Flexible ATS Route Management; GPI/9: Situational Awareness; GPI/13: Aerodrome Design and Management; GPI/14: Runway Operations; and GPI/16: Decision Support Systems and Alerting Systems			