*International Civil Aviation Organization*
South American Office
**Fifth Meeting of Air Navigation and Flight Safety Directors of the SAM Region (ANFS/5)**
(Lima, Peru, 20 to 22 August 2018)

ANFS/5-WP/03
18/07/2018

**Agenda Item 1: Follow-up to the implementation of air navigation priorities**

# ATFM PROJECT (ASBU: B0-SEQ, B0-FRTO, B0-NOPS and B0-ACDM)

(Presented by the Secretariat)

**SUMMARY**

This working paper presents to the Meeting the status of implementation of ATFM in the SAM Region.

**References:**

- GREPECAS/18 meeting report
- SAM/IG meeting reports
- ATSRO meeting reports
- RAAC/14 meeting report
- AN&FS/4 meeting report

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| *ICAO strategic objectives:* | *B - Air navigation capacity and efficiency*<br>*E - Environmental protection* |

## 1. Background

1.1 During the last ten years, indicators in the South American Region have shown growth in air operations and transported passengers. In several SAM States, this sustained growth has not been accompanied by an expansion in airport infrastructure and air navigation services. This adverse scenario affects efforts to increase air connectivity as a means for social and economic development in the Region.

1.2 The ATFM service has been envisaged by ICAO to meet possible imbalances that could occur between the capacity of air navigation services and facilities and the demand for aircraft operations requiring these facilities.

1.3 The objective of ATFM is to optimise capacity utilisation so that State and Regional industry growth does not come to a halt while expanding air navigation services and facilities, without neglecting safety.

1.4 Pursuant to GREPECAS Decisions 16/45 and 16/47 for the SAM Region, the ATFM Programme was structured in association to Project B1 - Improve demand-capacity balancing (DCB). Following is a description of the progress made by this Project.

## 2. Discussion

*Project B1 "Improve demand/capacity balancing"*

1.5 Achievements made in relation to ATFM implementation are not yet consolidated in the Region, despite the efforts made by States and Project RLA/06/901 through the development of guidance material and the provision of ATFM training courses.

1.6 In order to analyse the attainment of ATFM goals pursuant to the Declaration of Bogota, the following indicators have been considered:

a) Percentage of States that have conducted runway and ATC sector capacity calculations*.

b) Percentage of States that have implemented ATFM in flow management units (FMUs) or flow management positions (FMPs).

** Note.- The SAM/IG/20 meeting (Lima, 16-20 October 2017) presented separately the progress made in runway and ATC sector capacity calculations.*

1.7 At present, 85% of the States of the Region have performed runway capacity calculations as a task prior to implementation. Regarding ATC sector calculations, it was noted that nine States of the Region, that is 64%, had carried out these calculations.

1.8 This year, Bolivia is promoting ATFM implementation activities at the DGCA, without it meaning replacing the participation of the service provider (AASANA) in the provision of ATFM service at La Paz ACC.

1.9 Regarding the metrics on implementation of flow units in the SAM Region, the Region has achieved 71% ATFM implementation (7% higher with regard to May 2017) with the implementation of the ATFM service at the Ezeiza ACC in Argentina, as shown in the following table:

| **May 2018 71%** | **ARG** | **BOL** | **BRA** | **CHI** | **COL** | **FGY** | **ECU** | **GUY** | **PAN** | **PAR** | **PER** | **SUR** | **URU** | **VEN** |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | **YES** | **NO** | **YES** | **YES** | **YES** | **NO** | **YES** | **NO** | **YES** | **YES** | **YES** | **NO** | **YES** | **YES** |

**Percentage of States that have implemented ATFM at flow management units (FMUs) or flow management positions (FMPs)**

1.10 With regard to the operation of FMUs/FMPs, Argentina, Brazil, Chile, Colombia and Peru are developing the ATFM service on the basis of Doc 9971 and, due to the increase in aircraft operations and the overall growth of the industry in these States, ATFM and capacity management initiatives are being applied to mitigate demand/capacity imbalances generated by temporary or permanent factors.

1.11 Other units in the Region are more focused on coordination of ATFM elements, operating in association with their ACC, and generating the support to flow requirements of adjacent ACCs. The SAM ATFM Seminar, referred to further on, performed a review of ATFM regional implementation.

*Issuance of NOTAMs with flow control measures*

1.12 Conclusion SAM/IG/19-01 (SAM/IG/19 meeting (Lima, 22-26 May 2017)) instructed States to strengthen FMP/FMU functions with resources and trained personnel, and powers to coordinate the implementation of ATFM initiatives (TMIs) with ATS services.

1.13 Therefore, a substantial decrease was noted by May 2018 in the number of NOTAMs on flow control that was affecting flight efficiency (domino effect), especially on routes over the Pacific Ocean.

*Updating of the CAR/SAM ATFM CONOPS*

1.14 The text of the Air Traffic Flow Management Operational Concept for the Caribbean and South American Regions (AFTM CONOPS) refers to version 1.2 of June 2007. Accordingly, the aforementioned document needs to incorporate the guidelines and improvements contained in ICAO Doc 9971 - Manual on Collaborative Air Traffic Flow Management, 3rd Edition, 2018.

1.15 Consequently, coordination is underway between the ICAO NACC and SAM Regional Offices for the updating of the CAR/SAM ATFM CONOPS, and it is expected that the first draft will be ready by the third quarter of 2018.

*SAM ATFM Seminar*

1.16 The Seminar on Air Traffic Flow Management (ATFM) for the SAM Region was carried out in Lima, Peru, on 11-15 June 2018, under Regional Project RLA/06/901. Twenty-nine experts and planners from 11 States and six IATA-LATAM experts participated. Complete information and material related with this event is found at:

https://www.icao.int/SAM/Pages/MeetingsDocumentation.aspx?m=2018-ATFM

1.17 The main achievement of the Seminar was that participants obtained a regional vision of opportunities to address capacity gaps through the use of CDM tools, in addition to an exchange of experiences and good practices in ATFM implementation in various States.

1.18 Furthermore, a general overview of A-CDM in the Region was presented, and ATFM planners identified the link between this tool and the ATFM service, defining that both implementations are supplementary and mutually beneficial, without it entailing that one is pre-requisite for the other.

1.19 It was suggested that the following initiatives of the Seminar be furthered and coordinated through the SAM/IG forum:

a) Opportunities for joint development were identified, including the drafting of standard ATFM manuals, procedures and work guides based on material already developed in various States, and the use of basic calculation tools.

b) Application of a revised methodology to calculate sector and runway capacity.

c) Formulation of performance indicators, in collaboration with IATA-LATAM, which has operational data and analytical tools.

d) Increase collaboration by States that have made more progress in ATFM towards those States that need to promote the service.

e) Importance and benefits of calculating ATS sector and runway capacity, which enables predicting and preparing for capacity/demand imbalances, even in airports or airspaces that currently do not experience congestion or delays. Imbalances could occur very quickly given the significant development of low-cost operators throughout the Region.

## 3. Conclusion

3.1 In view of the above, States and Territories must foster the implementation of at least one ATFM position (FMP) per FIR, in order to balance the demand for aircraft operations and airspace and international aerodrome service capacity, also taking into account the impact of meteorological and vulcanological events and/or temporary disruptions in air navigation services.

3.2 The ATFM CONOPS is being updated, and based on this document, action plans must be reformulated in order to organise implementation activities in CAR and SAM States. The ATFM CONOPS must define metrics and indicators for said implementation, so as to facilitate result-based management.

3.3 Updated information on ATFM implementation activities can be found in the appendix to this paper.

## 4. Suggested action

4.1 The Meeting is invited to:

a) take note of the information provided in this working paper;

b) request States that have not done it yet, to strengthen their efforts to implement at least one ATFM position (FMP) in each FIR, and organise the ATFM service in each State in accordance with ICAO Doc 9971, 2018 Edition;

c) request States to avoid the implementation of flow control measures that have an impact on users and safety; and

d) recommend other actions as deemed appropriate.

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# APPENDIX A

## PROJECT B1 – IMPROVE DEMAND-CAPACITY BALANCING

| ***SAM Region*** | **PROJECT DESCRIPTION (DP)** | DP N° B1 | |
|---|---|---|---|
| ***Programme*** | **Project Title** | **Start** | **End** |
| *Air traffic flow management (ATFM)*<br><br>*(Programme coordinator: ATM RO Fernando Hermoza Hubner)* | *Improve demand-capacity balancing*<br><br>*Project coordinator: Martha Soto Ansaldi (Peru)* | 2012 | 2019 |
| **Objective** | Avoid overloading the ATC and airport systems, strengthening safety, taking into consideration the reduction in the number of delays caused by meteorological and traffic conditions, thus reducing fuel consumption and contaminating emissions. Likewise, improve prediction and management of surplus demand for services in ATC sectors and aerodromes. | | |
| **Scope** | The scope of this project establishes that ATFM implementation should start with airport and airspace monitoring in order to identify significant increases in ground delays and in-flight holding, as well as bottlenecks (ATC sector, runway, apron, and airport facilities). Furthermore, capacity calculation and air traffic demand analysis are important elements to improve demand/capacity balancing. | | |
| **Metrics** | • % States that have calculated runway and ATC sector capacity<br>• % States that have implemented ATFM in flow management units (FMUs) or flow management positions (FMPs) | | |

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| **Strategy** | Project activities define ATFM implementation in the SAM Region through an airspace demand and capacity analysis, taking into account that States that are in the process of implementation shall coordinate with the ATM community to define the actions required for ATFM implementation. The infrastructure and the database, as well as the policy, standards, and procedures, are important components for the execution of this Project. |
| **Goals** | • SAM States with experts trained in runway and airspace capacity (ATC sector) calculation<br>• ATFM performance oversight plan<br>• CAR/SAM inter-regional coordination |
| **Rationale** | GREPECAS considered that early ATFM implementation should ensure optimum air traffic flow to or through certain areas during periods in which demand exceeded or was expected to exceed the available capacity of the ATC system. Therefore, the ATFM system should reduce aircraft delays, both in flight as well as on the ground, and avoid system overload. |
| **Related projects** | • Automation. |

| Project deliverables | Relationship with the performance-based regional plan (PFF) | Responsible party | Status of implementation* | Delivery date | Comments |
|---|---|---|---|---|---|
| Assess the progress made in the ATFM implementation work programme | B0-NOPS | Programme coordinator | | 2016 | On-going task |
| Calculation of airspace (ATC sector) capacity | B0-NOPS | Juarez Franklin Gouveia | | SAM/IG/9 | Brazil and Colombia submitted their studies. |
| List of airspace sectors that have periods in which demand exceeds the existing capacity, including, if necessary, simulations by the States | B0-NOPS | Juarez Franklin Gouveia | | SAM/IG/9<br>SAM/IG/10 | Brazil and Colombia submitted their studies. |
| List of operational factors affecting demand and airspace capacity for the optimisation of existing capacity, including simulations, if necessary. | B0-NOPS | Juarez Franklin Gouveia | | SAM/IG/9 | Brazil and Colombia submitted their studies. Brazil, Paraguay, and Peru presented data at the SAM/IG/11 meeting. |
| Definition of the common elements of situational awareness | B0-NOPS | Paulo Vila | | 2012 | The States that exchange information are: Chile, Colombia, Paraguay, and Venezuela. |

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| Training of personnel in strategic ATFM airspace measures | B0-NOPS | Project RLA/06/901 | | 2019 | In 2010, an ATFM/CDM course was conducted in Brazil with the participation of several States.<br>In March 2009, a course on runway and ATC sector capacity calculation was conducted in Brazil.<br>In 2012, a course for instructors on runway and ATC sector capacity calculations was conducted in Lima.<br><br>An ATFM seminar has been scheduled for June 2018 to address the proper implementation of ATFM measures. |
| List of factors affecting the implementation decision | B0-NOPS | Programme coordinator | | 2010 | The following causes were identified at the SAM/IG/11 meeting:<br>- States that do not have the requirement or the need to implement ATFM;<br>- Budgetary and organisational reasons;<br>- Lack of personnel specifically devoted to ATFM activities;<br>- The personnel responsible for ATFM are involved in other functions. |
| Updating of runway capacity calculations | B0-NOPS | Programme coordinator | | 2019 | 85% of States have updated runway capacity calculations. Guyana and Suriname are still lacking capacity calculations. |
| Updating of airspace (ATC sector) capacity calculations | B0-NOPS | Programme coordinator | | 2019 | 6 States of the Region have performed ATC sector capacity calculations prior to implementation, 5 have not performed the activity, and information is still to be received from 3 States. |

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| Airspace monitoring processes<br>Traffic demand analysis processes<br>Standards on FMU/FMP procedures<br>Implementation of preliminary ATFM measures<br>Implementation of TMIs<br>ATFM messaging<br>Coordination of special events<br>Civil/military exemptions and coordination | B0-NOPS | CGNA course Project RLA/06/901 | | November 2014 FINALISED | Completed on time |
| Replication of ATFM courses at national level | B0-NOPS | States | | 15/05/2015 FINALISED | The States replicated ATFM courses at national level. |
| ATFM measures during the Rio 2016 Olympic and Paralympic Games in Brazil | B0-NOPS | Brazil | | 13/05/2016 FINALISED | Details of the AIC of Brazil can be found in: http://publicacoes.decea.gov.br/?i=publicacao&id=4339 |
| Status of implementation of ATFM | B0-NOPS | Programme coordinator | | 31/10/2016 | By May 2017,71 % of the States had implemented ATFM. |
| **Resources needed** | Designation of experts for the execution of some of the deliverables. | | | | |

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**Grey** **Task not started**
**Green** **Activity underway as scheduled**
**Yellow** **Activity started with some delay but expected to be completed on time**
**Red** **It has not been possible to implement this activity as scheduled; mitigation measures are required**