



**Agenda Item 3: Review of the GREPECAS Programmes and Projects**

**3.2 Projects under the ATFM Programme (B0-SEQ, B0-FRTO, B0-NOPS and B0-ACDM)**

**Follow-up on the activities of Project B1 (Improve demand-capacity balancing) and Project B2 (Flexible use of airspace)**

(Presented by the Secretariat)

**SUMMARY**

This working paper presents the regional implementation activities of Programme “Air traffic flow management” and its associated Projects “Improve demand-capacity balancing” and “Flexible use of airspace”, approved by GREPECAS/16. By agreement in PPRC/2 Meeting, SAM regional strategy and working programme for the implementation of flexible use of airspace, is covered under Project A1 “PBN implementation” for the SAM Region.

**REFERENCES:**

- Doc 9750, Global Air Navigation Plan.
- Reports of SAM/IG/12, 13, 14 and 15 meetings.
- Report of GREPECAS/17 meeting.
- Report of the Second Programmes and Projects Review Committee meeting (PPRC/2)

**ICAO Strategic Objectives**

*A - Safety*  
*D - Economic development of air transport*  
*E - Environmental protection*

**1. Introduction**

1.1 The meetings of the SAM Implementation Group (SAM/IG) have analysed topics related to ATFM implementation in the South American Region and all associated activities. It has been noted that States already have enough training to begin with the implementation of at least one Flow Management Position (FMP) in each Area Control Centre (ACC), to expedite the ATFM implementation process in the SAM Region and comply with the commitments of the Bogota Declaration.

1.2 Furthermore, the PPRC/2 meeting agreed to finalize Project B2 on flexible use of airspace in the SAM Region, and to transfer the task on “*Regional strategy and work programme for the implementation of the flexible use of airspace based on a phased approach, starting with a more dynamic sharing of reserved airspace*” to Project A1 “*PBN Implementation*” of the SAM Region, since it considered that it fell under the broader airspace optimization concept.

1.3 During the implementation meetings in the CAR Region, the ATFM Task Force analysed topics related to ATFM implementation and all associated activities. It has been noted that Dominican Republic, Jamaica, Mexico, Trinidad & Tobago and COCESNA are already implementing the Air Traffic Flow Management (ATFM) in the CAR Region, to comply with the commitments of the Port of Spain Declaration. The ICAO NACC Regional Office is providing direct assistance to other States to develop their own ATFM implementation projects in the medium-term.

## 2. Discussion

### CAR Region

#### ***Project B1 “Improve demand-capacity balancing”***

2.1 Several events have been conducted in the CAR Region for the implementation of ATFM in the region and enhance CDM goals to increase capacity in relation to demand.

- 1) Technical assistance for the implementation of Air Traffic Flow Management (ATFM) in Kingston, Jamaica, from 6 to 10 October 2014.
- 2) Course/workshop for the implementation of Air Traffic Flow Management (ATFM) in COCESNA, from 16 to 20 February 2015. Review that airport capacity and ATC sectors are declared by the ATS authority. 6 States participated and 19 experts were trained.
- 3) Workshop on the implementation of Air Traffic Flow Management (ATFM) for CAR and SAM Regions (Panama City, Panama, from 25 to 29 May 2015). 12 States participated and 44 experts were trained.
- 4) Technical assistance for the implementation of Air Traffic Flow Management (ATFM) in Trinidad & Tobago, from 23 to 25 June 2015.
- 5) Technical assistance for the implementation of Air Traffic Flow Management (ATFM) in Dominican Republic, from 7 to 9 July 2015.
- 6) Technical assistance for the implementation of Air Traffic Flow Management (ATFM) in the Republic of Cuba, from 28 to 30 July 2015.

2.2 During these events, the need for the equipment on ATFM situational awareness as well as the requirement to collaborate with adjacent States in the organization of air traffic in order to increase efficiency and optimize ATS capacity, was identified.

2.3 During the workshop on implementation of Air Traffic Flow Management (ATFM) for CAR and SAM Regions held in Panama, reduction of minimum separation between aircraft from 80 NM to 40 NM by 2016 and 20 NM by 2017, applicable to adjacent Area Control Centres (ACC) counting with overlying radar coverage, was proposed.

2.4 ATFM implementation requires coordination by Area Control Centres (ACCs) of ATFM measures in the FIRs of their jurisdiction in the CAR Region. Considering the ATFM goal established in the Port of Spain Declaration, to date 100% of ACCs participate in the regional ATFM teleconferences programme, regionally and/or bilaterally coordinated by FAA, as required.

2.5 Dominican Republic, Jamaica, Mexico, Trinidad & Tobago and COCESNA, representing 50% of the FIRs of the CAR Region, have implemented ATFM units or positions (FMU/FMP), which coordinate ATFM measures with the States of the FIR under their jurisdiction.

2.6 However, States are required to establish ATFM Letters of Agreement and/or update operational Letters of Agreement between ACCs of adjacent FIRs with ATFM procedures, which should be duly coordinated by formally implemented ATFM positions or units (FMP/FMU).

2.7 The short-term implementation of ATFM procedures and the reduction of ATC separation, require a proposal for amendment to ICAO Doc 7030. Considering that Doc 7030 is undergoing a global update process, it is necessary to coordinate required changes to Doc 7030, regionally, during 2015. Therefore, the Meeting is invited to consider following draft conclusion for the CAR Region:

**Draft**

**Conclusión PPRC/3-XX:            Actions for ATFM implementation in the CAR Region**

- a) That concerning ATFM implementation projects, States, Territories and International Organizations in the CAR Region:
  - i. Avoid the implementation of ATFM measures adversely impacting safety and efficiency of air operations;
  - ii. Introduce in their bilateral Letters of Agreement, appropriate ATFM procedures to regulate strategic application of ATFM applicable measures;
  - iii. Implement as soon as possible, ATFM Positions (FMP) or ATFM Units (FMU) in order to avoid an imbalance between capacity and demand, either by scheduled or by unforeseen events; and
- b) That ICAO NACC Regional Office takes the corresponding actions to develop a proposal for amendment to Doc 7030 concerning ATFM procedures and ATC minimum separation for aircraft transfer between adjacent Control Centres (ACC) counting with overlying radar coverage, as applicable, informing PPRC/4 meeting on the progress of such actions.

***Project B2 “Flexible use of airspace”***

2.8 The status of implementation of flexible use of airspace (FUA) was discussed at various CAR Region meetings. As a result, it has been noted that more than 80 percent of States had established civil/military coordination bodies between ATS civil aviation units and the corresponding air defense units, thus allowing the optimization of ATS airspace and SAR service provision.

2.9 A NAM/CAR/SAM meeting/workshop to improve Regional Search and Rescue (SAR) System and Civil/Military coordination, was held in Havana, Cuba, from 13 to 17 April 2015. As a result, it was identified that there still exist some high density traffic points between Havana-Miami Oceanic, Santo Domingo-San Juan-Piarco and Mexico-Miami Oceanic FIRs, thus requiring a revision of routes and improvement in the civil/military coordination.

2.10 Considering the increase of operations in the CAR Region, it was agreed to develop a short-term high priority project (2015-2016) for the comprehensive review of lower and upper airspace related to PBN implementation, in order to look for improvements in the flexible use of airspace while increasing ATS capacity.

### **SAM Region**

#### ***Project B1 “Improve demand-capacity balancing”***

2.11 SAM/IG/12 to SAM/IG/15 meetings continued with the follow-up on ATFM Project status of implementation, its action plan and relationship with Project B1 to improve demand-capacity balancing (DCB).

2.12 Since 2009 to date, within the ATFM training programme, under the auspices of RLA/06/901 Project and the support of the Centro de Gerenciamiento de Navegacion Aerea (CGNA) following courses were delivered:

- 1) Course on calculation of runway and ATC sectors capacity in Rio de Janeiro, Brazil, from 23 to 27 March 2009. 10 States participated. 32 experts were trained.
- 2) ATFM and CDM course in Rio de Janeiro, Brazil, from 22 to 30 March 2010. 8 States participated. 26 experts were trained..
- 3) ATFM and CDM course in Rio de Janeiro, Brazil, from 22 to 26 November 2010. 9 States participated. 24 experts were trained.
- 4) Course on calculation of runway and ATC sectors capacity for instructors in Lima, Peru, from 24 to 28 October 2011. 9 States participated and 16 experts were trained. This course was further reinforced via teleconferences to ex-students.
- 5) Theoretical/practical course on ATFM procedures in Rio de Janeiro, Brazil, from 17 to 28 November 2014. 6 States participated. 16 experts were trained.
- 6) Workshop on the implementation of Air Traffic Flow Management (ATFM) for CAR and SAM Regions in Panama City, Panama, from 25 to 29 May 2015. 12 States participated. 44 experts were trained.

2.13 The objective of the theoretical/practical course on ATFM procedures in Rio de Janeiro, was to continue with the training of experts of the Region in traffic analysis, implementation of measures, civil/military coordination processes, and exemption procedures. The event contemplated, *inter alia*, the following aspects:

- a) airspace monitoring processes;
- b) air traffic demand analysis;
- c) ATFM standards and procedures of an FMU/FMP;
- d) implementation of preliminary ATFM measures;
- e) implementation of TMI;
- f) ATFM messaging;
- g) conduction of international teleconferences;
- h) coordination of special events;
- i) civil/military coordination processes; and
- j) ATFM exemption procedures.

2.14 For this course, it was also requested that participants have an expected labour horizon in the Administration of at least 5 years after receiving training, to ensure the transmission of their knowledge to other experts, thus ensuring optimum management of ATFM processes.

2.15 Referred to the above, SAM/IG/14 meeting requested that experts participating in this course present a subsequent training plan to train experts in their States, replicating the course taken. Six months later, during SAM/IG/15 meeting, it was not presented any planning by participants.

2.16 The achievements concerning implementation have not yet been as expected, despite the efforts made both by Project RLA/06/901 in the elaboration and development of guidance material, and by States themselves, in using such material and the training received for ATFM implementation.

2.17 Upon analyzing the reasons for the delays in the effective implementation of air traffic flow management units or air traffic flow management positions (FMU/FMP), it is noted that some States are of the opinion they not yet have the requirement or the need to implement ATFM because they had not reached traffic levels at their airports or ATC sectors that warranted the implementation of the elements or functions of an air traffic flow management system. Other States recognize that they are at the limit of their capacity but, for budgetary, available human resources, organizational or other reasons, had not been able to start or further develop their ATFM system.

2.18 The need for implementation of at least one ATFM management position (FMP) in ACCs is not in the traffic volume a particular flight information region (FIR) may regularly have, but in the scheduled or unforeseen events that exceed the capacity values established in that FIR. Among these, there may be meteorological, vulcanological events, and/or interruptions in CNS or ATM services for different reasons.

2.19 In fact, States that have not yet implemented a minimum ATFM service are those generating the major number of NOTAMs, establishing flow control with entry and exit restrictions in different points of bordering FIRs. This causes a domino effect which may affect other neighboring FIRs, some of which without radar equipment, impacting not only on capacity but also on safety. In some cases, the measures established have been disproportioned to the situation presented.

#### **Analysis of the achievement of goals, based on Project B1 indicators/metrics**

- Percentage of States that have done their runway and ATC sector capacity calculations.
- Percentage of States that have implemented ATFM in flow management units (FMUs) or flow management positions (FMPs).

#### **2.20 Percentage of States that have done their runway and ATC sector capacity calculations**

First semester 2015	ARG	BOL	BRA	CHI	COL	ECU	FGY	GUY	PAN	PAR	PER	SUR	URU	VEN
<b>85%</b>	YES	YES	YES	YES	YES	YES	YES	NO	YES	YES	YES	NO	YES	YES

2.21 The progress registered by States that have done their runway and ATC sector capacity calculations since GREPECAS/17 meeting to date, is 21%. 100% is expected to be achieved by 2016. 15% is missing.

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

First semester 2015	ARG	BOL	BRA	CHI	COL	FGY	ECU	GUY	PAN	PAR	PER	SUR	URU	VEN
35%	NO	NO	YES	YES	YES	N/D	NO	NO	NO	YES	NO	NO	NO	YES

2.23 Within this Project, scheduled tasks have been accomplished, adding as well those complementary tasks of the ATFM action plan to support and optimize implementation. Assistance of Project Coordinator at SAM/IG meetings has not been sustained. The Secretariat performed such activities.

2.24 Since GREPECAS/17 meeting to date, there has been no progress in the implementation of ATFM positions or units (FMU/FMP) in ACCs of SAM Region States. The goal is to achieve 100% of ACC units with less than one ATFM position or unit. 65% implementation is missing.

### 3. Conclusion

3.1 Congestion problems were registered in some FIRs because of scheduled events, and/or temporal contingencies. ATFM measures imposed by means of NOTAMs have not been the result of a strategically coordinated ATFM management, but a tactical resource, in some cases disproportionate, causing a negative impact in the capacity/demand balancing which should exist in strategically managed airspace.

3.2 Experts of the SAM Region States have been trained with the support of the Brazilian Administration, under the auspices of RLA/06/901 Project. Administrations of the Region have invested many financial and human resources in this effort, but these are not yet reflected in the effective implementation and the courses have not been replicated at local level, as requested by SAM/IG/14 meeting.

3.3 The lack of a Flow Management Position or Unit (FMP/FMU) could affect safety, mainly in those FIRs not prepared to manage an overload on demand as a result of the domino effect in the application of ATFM measures without a coordinated strategical planning.

3.4 Progress made since GREPECAS/17 meeting to date has been 21% in runway and ATC sector capacity calculations, achieving 85% implementation, missing 15% to complete the goal of 100% by 2016. No progress has been registered in the implementation of more ACC with FMP or FMU units and 65% implementation of ATFM units or positions to achieve the goal established in the Bogota Declaration is missing.

3.5 SAM Regional Office assisted these States to include in the Operational Letters of Agreement between adjacent FIRs, procedures to avoid the imposition of ATFM tactical measures that are not provided or strategically coordinated, taking into account the characteristics of the airspace or affected air traffic volume.

3.6 Based on the aforesaid, the Meeting is invited to consider following draft conclusion for the SAM Region:

**Draft****Conclusión PPRC/3-XX:      Actions for ATFM implementation in the SAM Region**

That States of the SAM Region:

- a) Replicate at local level, the ATFM training obtained by their experts in courses under the auspice of RLA/06/901 Project, in order to increase ATFM training of their specialized personnel;
- b) Avoid the implementation of ATFM measures affecting users and having an impact in safety, mainly those administrations not having established the units to strategically manage flow control measures;
- c) Introduce in their bilateral Letters of Agreement, the appropriate procedures to regulate strategical application of these measures, avoiding its impact in efficiency and safety.
- d) Implement as soon as possible, Flow Management Positions (FMP) or Units (FMU), in order to avoid capacity-demand imbalance, even by scheduled or unforeseen events; and
- e) Present to PPRC/4 meeting actions performed according to preceding paragraphs.

3.7            Details of the activities can be found under **Attachment A**, for Projects of the CAR Region and **Attachment B**, for Projects of the SAM Region.

4.            **Suggested action:**

4.1           PPRC/3 Meeting is invited to:

- a) take note of the information contained in this working paper;
- b) analyse and approve, if deemed appropriate, draft conclusions proposed under paragraphs 2.5 and 3.5;
- c) review and/or propose actions concerning activities of projects under Attachments A and B.

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## APPENDIX A / APÉNDICE A

**IMPROVE DEMAND AND CAPACITY BALANCING (DCB) /  
MEJORAR EL EQUILIBRIO ENTRE LA DEMANDA Y LA CAPACIDAD (DCB)**

<i>CAR Region / Región CAR</i>	<b>PROJECT DESCRIPTION / DESCRIPCION DEL PROYECTO (DP)</b>	<b>DP N° B1</b>	
<i>Programme / Programa</i>	<b>Title of the Project / Título del Proyecto</b>	<b>Start / Fecha inicio</b>	<b>End / Fecha término</b>
<i>Improve demand and capacity balancing (DCB) / Mejorar el equilibrio entre demanda y capacidad (DCB) (Programme Coordinator / Coordinador del Programa: Victor Hernandez)</i>	<p align="center"><i>Improve demand and capacity balancing (DCB) / Mejorar el equilibrio entre demanda y capacidad (DCB)</i></p> <p align="center">Project Coordinator / Coordinador del Proyecto: Frank Macintosh (United States / Estados Unidos) Agustín Rolon (México) Julio Mejía (Dominican Republic / República Dominicana) Fernando Soto (COCESNA)</p>	2008	2016
<b>Objective / Objetivo</b>	Support the ATFM implementation based on the regional performance objectives of the Performance-based Air Navigation Implementation Plan for NAM/CAR Regions (RPBANIP NAM/CAR). / Apoyar la implementación ATFM en base a los objetivos regionales de performance del Plan de Implementación basada en la Performance para las Regiones NAM/CAR (RPBANIP NAM/CAR).		
<b>Scope / Alcance</b>	Progressive implementation of the ATFM service in CAR Region to ensure demand and capacity balancing (DCB). / Implantación progresiva del servicio ATFM en la Región CAR para asegurar un equilibrio entre demanda y capacidad (DCB).		
<b>Metrics / Métricas</b>	<ul style="list-style-type: none"> <li>• % of States with coordination ATFM procedures implemented / % de Estados con procedimientos de coordinación ATFM implementados.</li> <li>• % of States with Flow Management Unit (FMU) or Flow Management Position (FMP) implemented. / % de Estados con unidades de Gestión de flujo (FMU) o puestos de gestión de Flujo (FMP) implementadas.</li> </ul>		

<p><b>Strategy / Estrategia</b></p>	<p>The implementation activities will be coordinated between Project members, the Project Coordinator and the Programme Coordinator. The Programme Coordinator will coordinate with the Project Coordinator requirements of other projects and NAM/CAR implementation working groups. Experts nominated by States, Territories and International Organizations will be incorporated, as required. / La ejecución de las actividades será coordinada entre miembros del Proyecto, el Coordinador del Proyecto y el Coordinador del Programa. El coordinador del Programa coordinará con el Coordinador del Proyecto los requerimientos de otros proyectos y Grupos de Trabajo de Implementación NAM/CAR. Se incorporarán expertos nominados por los Estados, Territorios y Organizaciones Internacional, según sea requerido.</p>
<p><b>Targets / Metas</b></p>	<ul style="list-style-type: none"> <li>• 60% of CAR States with ATFM units or Flow Management Position by December 2014. / 60% de Estados de la Región CAR con unidades ATFM o puestos de gestión de flujo implementados en Diciembre de 2014</li> <li>• 90% of CAR States with ATFM procedures implemented by December 2016. / 90% de Estados de la región CAR con procedimientos ATFM implementados en Diciembre de 2016.</li> </ul>
<p><b>Justification / Justificación</b></p>	<p>GREPECAS supported the ATFM implementation to ensure an optimum traffic flow when demand exceeds or is expected to exceed the available capacity of the ATS system. / El GREPECAS apoyó la implantación de la ATFM para garantizar una afluencia óptima de tránsito aéreo durante períodos en los cuales la demanda excede o se espera exceda la capacidad disponible del sistema ATS.</p>
<p><b>Related Projects / Proyectos relacionados</b></p>	<ul style="list-style-type: none"> <li>• PBN Implementation. / Implementar la Navegación Basada en la Performance (PBN).</li> <li>• Flexible use of airspace. Uso flexible del espacio aéreo.</li> <li>• Improve ATM Situational Awareness. / Mejorar la Conciencia Situacional ATM.</li> </ul>

Project deliverables / Entregables del Proyecto	Relationship with RPB- ANIP NAM/CAR / Relación con el RPB-ANIP NAM/CAR	Responsible / Responsable	Status of implementation / Estado de Implantación*	Delivery date / Fecha entrega	Remarks / Comentarios
Develop regional procedures for efficient use of aerodrome and runway capacity. / Desarrollar procedimientos regionales para un uso eficiente de la capacidad de aeródromo y de pista	RPOs 2, 3, 4, 5, 7,	States, Territories, International Organizations / Estados, Territorios, Organizaciones Internacionales		Completed / Finalizado	Developed Airport Acceptance Rate (AAR) regional procedures. / Procedimientos regionales elaborados para el régimen de aceptación de aeropuerto (AAR)
Develop methods to establish demand/capacity forecasting / Elaborar métodos para establecer pronósticos de demanda/capacidad.	RPOs 3	States, Territories, International Organizations / Estados, Territorios, Organizaciones Internacionales		Completed / Finalizado	Based on regional ATFM procedures, major demand of services has been identified during winter and hurricane seasons. / En base a los procedimientos regionales ATFM, se ha identificado una mayor demanda de servicios durante la temporada invernal y de huracanes.
Identify and analyse traffic flows and develop methods for improving efficiencies on gradual basis, through enhancements in the airspace organization and management (AOM) and ATS routes structure / Identificar y analizar las corrientes de tránsito y elaborar métodos para mejorar la eficiencia de manera gradual, mediante mejoras en la organización y gestión del espacio aéreo (AOM) y estructura de rutas ATS.	RPOs 1, 2, 3, 9	States, Territories, International Organizations / Estados, Territorios, Organizaciones Internacionales		Completed / Finalizado	Developed a PBN airspace concept in CAR Region to improve airspace organization and management (AOM). Established 3 main traffic flows in CAR Region in coordination with PBN TF, / Se desarrolló un concepto de espacio aéreo PBN en la Región CAR para mejorar la organización y gestión del espacio aéreo (AOM). Se establecieron 3 principales flujos de tráfico en la Región CAR en coordinación con PBN TF.

<p>Define common elements of ATM situational awareness between FMUs;</p> <ul style="list-style-type: none"> <li>▪ common traffic displays,</li> <li>▪ common weather displays (Internet),</li> <li>▪ communications (teleconferences, web), and</li> <li>▪ regular teleconference /messages methodology advisories /</li> </ul> <p>Definir los elementos comunes de conciencia situacional ATM;</p> <ul style="list-style-type: none"> <li>▪ visualización común de tránsito,</li> <li>▪ visualización común de condiciones meteorológicas (Internet),</li> <li>▪ comunicaciones (conferencias telefónicas, web), y</li> <li>▪ metodología de asesorías regulares mediante conferencias telefónicas</li> </ul>	RPOs 1, 2, 3, 9	States, Territories, International Organizations / Estados, Territorios, Organizaciones Internacionales		2016	<p>Regional teleconferences are carried out on weekly basis through agreed methodology. Additional situational awareness requirements will be defined in the short term. /</p> <p>Teleconferencias regionales se llevan a cabo semanalmente con la metodología acordada. Requisitos adicionales de conciencia situacional ATM serán definidos en el corto plazo.</p>
<p>Identify training needs and develop corresponding guidelines. /</p> <p>Identificar necesidades de entrenamiento y desarrollar lineamientos correspondientes</p>	RPOs 3	States, Territories, International Organizations / Estados, Territorios, Organizaciones Internacionales		Completed / Finalizado	<p>Some ANSPs developed training plans, as needed. Regional ATFM workshop was held in Panama City in May 2015. /</p> <p>Algunos ANSPs han desarrollado planes de capacitación, según sus necesidades. Se llevo a cabo un Taller Regional sobre ATFM en mayo de 2015 en la Ciudad Panamá.</p>

Develop an ATFM proposal for amendment (PFA) to regional supplementary procedures (Doc 7030) . / Desarrollar una propuesta de enmienda (PFA) a los procedimientos suplementarios regionales (Doc 7030)	RPOs 2, 3	States, Territories, International Organizations / Estados, Territorios, Organizaciones Internacionales		Dec 2015	Valid /Válida
Develop a regional strategy and framework for the implementation of ATFM units / Desarrollar una estrategia y marco de referencia para la implantación de unidades ATFM	RPOs 3	States, Territories, International Organizations / Estados, Territorios, Organizaciones Internacionales		Completed / Finalizado	Dominican Republic, Jamaica Mexico, Trinidad and Tobago and COCESNA have established ATFM Units (FMUs). Flow management units are used by the other States. / Jamaica, México, República Dominicana, Trinidad y Tabago y COCESNA han establecido Unidades ATFM. Otros Estados utilizan puestos de gestión de Flujo (FMP).
Develop a performance measurement programme / Desarrollar un programa de medidas de la performance	RPOs 1, 2, 3	ICAO / OACI		Completed / Finalizado	Implementation achievements are submitted to the NACC/DCA Meetings. / Los resultados de implementación se presentan a las Reuniones NACC/DCA.
Develop operational agreements between ATFM units for interregional demand/capacity balancing. / Desarrollar acuerdos operacionales entre unidades ATFM para equilibrar la demanda/capacidad interregional.	RPOs 3	States, Territories, International Organizations / Estados, Territorios, Organizaciones Internacionales		Dec 2016	Develop a model of ATFM LOAs based on the ICAO Doc 9971, that includes a Model of ATFM LOA. / Desarrollar un modelo de LOAs basado en el Doc 9971 de la OACI, que incluye un modelo de LOA ATFM.
Monitor System Performance / Monitorear la performance del sistema	RPOs 1, 2, 3	ICAO / OACI		2016	ICAO NACC Regional Office conducts this activity. / La Oficina Regional NACC de la OACI lleva a cabo esta actividad.

<b>Required Resources / Recursos necesarios</b>	CAR Regional Project with the participation of States to support ATFM training aspects. / Proyecto regional CAR con la participación de los Estados para apoyar los asuntos de capacitación ATFM.
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*Grey / Gris: Task not started / Tarea no iniciada;*

*Green / Verde: Activity underway as scheduled / Actividad en progreso de acuerdo con el cronograma;*

*Yellow / Amarillo: Activity started with some delay but expected to be complete don time / Actividad iniciada con cierto retardo pero estaría llegando a tiempo en su implantación;*

*Red / Rojo: It has not been posible to implement this activity as scheduled; mitigating measures are required / No se ha logrado la implantación de la actividad en el lapso de tiempo estimado se requiere adoptar medidas mitigatorias.*

**IMPLEMENTATION OF FLEXIBLE USE OF AIRSPACE (FUA)  
/IMPLEMENTACIÓN DEL USO FLEXIBLE DEL ESPACIO AÉREO (FUA)**

<i>CAR Region / Región CAR</i>	<b>PROJECT DESCRIPTION / DESCRIPCION DEL PROYECTO (DP)</b>	<b>DP N° B2</b>	
<i>Programme Programa</i>	<b>Title of the Project / Título del Proyecto</b>	<b>Start / Fecha inicio</b>	<b>End / Fecha término</b>
<i>Implementation of flexible use of airspace (FUA) / Implementación del uso flexible del espacio aéreo (FUA) (Programme Coordinator Coordinador del Programa: Victor Hernandez)</i>	<p align="center"><i>Implementation of flexible use of airspace (FUA) / Implementación del uso flexible del espacio aéreo (FUA)</i></p> <p align="center">Project Coordinator / Coordinador del Proyecto: Frank Macintosh (United States / Estados Unidos) Agustin Rolon (México) Julio Mejia (Dominican Republic / República Dominicana) Fernando Soto (COCESNA)</p>	2008	2016
<b>Objective / Objetivo</b>	<p>Support the implementation for the optimization, balance and equity in the use of airspace between different users and achieve a better civil/military coordination and cooperation, reinforcing air safety based on regional performance objectives of the Performance based Implementation Plan for NAM/CAR Regions (NAM/CAR RPBANIP) / Apoyar la implementación para la optimización, equilibrio y equidad en el uso del espacio aéreo entre los diferentes usuarios y lograr una mejor coordinación y cooperación civil/militar reforzando la seguridad operacional, en base a los objetivos regionales de performance del Plan de Implementación basada en la Performance para las Regiones NAM/CAR (RPBANIP NAM/CAR)</p>		
<b>Scope / Alcance</b>	Development of guides for the implementation of flexible use of airspace (FUA) / Elaboración de guías para la implantación del uso flexible del espacio aéreo (FUA)		
<b>Metrics / Métricas</b>	<ul style="list-style-type: none"> <li>• % of States with civil/military coordination Committees / % de Estados con Comités de Coordinación Civil/Militar</li> <li>• % of reduction in number of permanent reserved airspace / % de reducción del número de espacios aéreos reservados de carácter permanente</li> <li>• Reduction in number of permanent reserved airspace / Reducción del número de espacios aéreos reservados de carácter permanente</li> </ul>		

<p><b>Strategy / Estrategia</b></p>	<p>The implementation of activities will be coordinated between members of the Project, the Project Coordinator and the Programme Coordinator. The Programme Coordinator will coordinate with the project coordinator the requirements of other projects and NAM/CAR implementation working groups. Experts nominated by States, Territories and International Organizations will be incorporated to develop tasks as required / La ejecución de las actividades será coordinada entre miembros del Proyecto, el Coordinador del Proyecto y el Coordinador del Programa. El Coordinador del Programa coordinará con el Coordinador del Proyecto los requerimientos de otros proyectos y Grupos de Trabajo de Implementación NAM/CAR. Se incorporarán expertos nominados por los Estados, Territorios y Organizaciones Internacionales para desarrollar las tareas, según se requiera</p>
<p><b>Goals / Metas</b></p>	<ul style="list-style-type: none"> <li>• 80% of CAR Region States having implemented civil/military Coordination Committees for the flexible use of airspace (FUA) / 80% de los Estados de la Región CAR con Comités de Coordinación Civil/Militar implantados para el uso flexible del espacio aéreo (FUA)</li> </ul>
<p><b>Justification / Justificación</b></p>	<p>GREPECAS supported the implementation of flexible use of airspace (FUA) for the optimization of ATS airspace and air traffic flow management (ATFM) efficiency / El GREPECAS apoyó la implantación del uso flexible del espacio aéreo (FUA) para optimizar la eficiencia del espacio aéreo ATS y la gestión de la afluencia del tránsito aéreo (ATFM).</p>
<p><b>Related Projects / Proyectos relacionados</b></p>	<ul style="list-style-type: none"> <li>• Implement PBN / Implementar la PBN</li> <li>• Improve balance between demand and capacity / Mejorar el equilibrio entre la demanda y capacidad</li> <li>• Improve ATM situational awareness / Mejorar la Conciencia Situacional ATM</li> </ul>

Project deliverables / Entregables del Proyecto	Relationship with RPB-ANIP / Relación con el RPB-ANIP NAM/CAR	Responsible / Responsable	Status of implementation / Estado de Implantación*	Delivery date / Fecha entrega	Remarks / Comentarios
Regional Guidance material / Material Regional Guia	RPOs 2	States, Territories, International Organizations / Estados, Territorios, Organizaciones Internacionales		Completed / Finalizado	ICAO Circular 330 contains guidance material on civil/military coordination to be used by States/Territories to develop national policies, procedures and rules. States have requested ICAO to conduct an event on regional Civil-Military Coordination / La Circular 330 de la OACI contiene material de orientación sobre coordinación civil/militar a utilizar por parte de los Estados/Territorios para elaborar políticas, procedimientos y normas nacionales. Los Estados han solicitado a la OACI llevar a cabo un evento regional de Coordinación Civil-Militar
Establish civil-military coordination bodies / Establecer cuerpos de coordinación civil-militar	RPOs 2	States, Territories, International Organizations / Estados, Territorios, Organizaciones Internacionales		Completed / Finalizado	About 80% of States have established civil-military coordination bodies. Revision of agreements will be carried out in 2014 / Aproximadamente el 80% de los Estados han establecido cuerpos de coordinación civil-militar. La revisión de acuerdos se llevará a cabo en 2014.
Conduct a regional review of special use of airspace / Llevar a cabo una revisión regional del espacio aéreo de uso especial.	RPOs 1, 2, 3	PBN TF		2016	Revision of the special use of airspace will be carried out in 2015-2016 / La revisión del espacio aéreo de uso especial se llevara a cabo en 2015-2016

Monitor System Performance / Monitorear la performance del sistema	RPOs 2	ICAO / OACI		2016	ICAO NACC Regional Office conducts this activity / La Oficina Regional NACC de la OACI lleva a cabo esta actividad
<b>Required Resources / Recursos necesarios</b>	CAR Regional Project with the participation of States to support civil-military coordination for the flexible use of airspace (FUA) / Proyecto regional CAR con la participación de los Estados para apoyar la coordinación civil-militar para el uso flexible del espacio aéreo (FUA)				

*Grey / Gris: Task not started / Tarea no iniciada;*

*Green / Verde: Activity underway as scheduled / Actividad en progreso de acuerdo con el cronograma;*

*Yellow / Amarillo: Activity started with some delay but expected to be complete on time / Actividad iniciada con cierto retardo pero estaría llegando a tiempo en su implantación;*

*Red / Rojo: It has not been possible to implement this activity as scheduled; mitigating measures are required / No se ha logrado la implantación de la actividad en el lapso de tiempo estimado se requiere adoptar medidas mitigatorias.*

**APPENDIX B**

**PROJECT B1: IMPROVE DEMAND/CAPACITY BALANCING**

<b>PROJECT DESCRIPTION (DP)</b>		<b>DP N° B1</b>	
<b>Programme</b>	<b>Title of the Project</b>	<b>Start</b>	<b>End</b>
<p><i>Air traffic flow management (ATFM)</i></p> <p><i>(Programme Coordinator: Roberto Arca Jaurena)</i></p>	<p><i>Improve demand/capacity balancing</i></p> <p><i>Project Coordinator: Mauricio Corredor</i></p>	2012	2016
<b>Objective</b>	<p>Avoid overloading the ATC and airport systems, while strengthening safety, taking into account 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.</p>		
<b>Scope</b>	<p>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.</p>		
<b>Metrics</b>	<ul style="list-style-type: none"> <li>• % of States that have calculated runway and ATC sector capacity.</li> <li>• % of States that have implemented ATFM in flow management units (FMU) or flow management positions (FMP).</li> </ul>		

<b>Strategy</b>	Project execution defines 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.
<b>Goals</b>	<ul style="list-style-type: none"><li>• SAM States with experts trained in the calculation of airspace (ATC SECTOR) capacity.</li><li>• ATFM system performance oversight plan.</li></ul>
<b>Rationale</b>	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 on the ground, and avoid system overload.
<b>Related projects</b>	<ul style="list-style-type: none"><li>• Automation.</li></ul>

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	Permanent 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 subject to periods in which demand exceeds the existing capacity, including, if necessary, simulations by the States.	B0-NOPS	Juarez Franklin Gouveia		SAM/IG/9 SAM/IG/10	Brazil and Colombia submitted their studies.
List of operational factors affecting demand and airspace capacity for the optimisation of the 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.

Personnel trained in strategic ATFM measures for airspace	B0-NOPS	Project RLA/06/901		2010	In 2010, an ATFM/CDM course was conducted in Brazil with the participation of several States. In March 2009, a course on runway and ATC sector capacity calculation was conducted in Brazil. In 2012, a course for training instructors on runway and ATC sector capacity calculation was conducted in Lima.
List of factors affecting the implementation decision	B0-NOPS	Programme Coordinator		2010	The following causes were identified at the SAM/IG/11 meeting: - States that do not have the requirement or the need to implement ATFM; - Budgetary and organisational reasons; - Lack of personnel specifically devoted to ATFM activities; - The personnel responsible for ATFM are involved in other functions.
Update the calculation of airspace (ATC SECTOR) capacity and runway capacity.	B0-NOPS	Programme Coordinator		November 2015	Completed by 85% of States
Airspace monitoring processes. Air traffic demand analysis. ATFM standards and procedures of an FMU/FMP. Implementation of preliminary ATFM measures. Implementation of TMI. ATFM messaging. Coordination of special events. Civil/military coordination processes and ATFM exemption procedures.	B0-NOPS	ATFM Course Project RLA/06/901		November 2014	Completed on schedule

Replication of ATFM courses at national level	B0-NOPS	States		15/05/2015	States did not replicate the ATFM course at national level.
ATFM Implementation Status	B0-NOPS	Programme Coordinator		31/10/2015	35% of States implemented ATFM
<b>Resources required</b>	Designation of experts in the execution of some of the deliverables.				

\*

*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; mitigating measures are required*