International Civil Aviation Organization
South American Regional Office
Twelfth Workshop/Meeting of the SAM Implementation Group (SAM/IG/12) - Regional Project RLA/06/901
(Lima, Peru, 14 to 18 October 2013)

Agenda Item 4: Implementation of air traffic flow management (ATFM) in the SAM Region

IMPLEMENTATION OF AIR TRAFFIC FLOW MANAGEMENT (ATFM) IN THE SAM REGION

(Presented by the Secretariat)

SUMMARY

This working paper presents the status of implementation of ATFM in the SAM Region. It also presents the Action Plan for its corresponding update, as well as several templates for States to complete the information on ATFM.

REFERENCES

- SAM/IG workshop/meeting reports

ICAO Strategic Objectives:	*A - Safety* *C - Environmental protection and sustainable development of air transport*

1. Background

1.1 The SAM/IG/11 meeting recognised the delay in some States to implement ATFM. It also noted that some States had not made runway capacity calculations to know how much demand can be absorbed at any given moment.

1.2 Regarding the teleconferences that were going to be conducted using the "*Go to Meeting*" system, unfortunately they were not possible due to the huge amount of tasks carried out at the Regional Office. Regarding the conferences led by the FAA, there are very few participants from the SAM Region.

1.3 Paraguay and Ecuador have started taking steps to implement ATFM in ACCs.

1.4 The second meeting of the GREPECAS Programmes and Projects Review Committee (PPRC/2) recognised the need to implement at least one ATFM position at the main control centres of the Region in view of the world events that will take place in 2014 and 2016.

2. Discussion

2.1 In 2012, only 21% of SAM States had made capacity calculations. In 2013, 57% of States have made the corresponding capacity calculations, an increase by 36%. Regarding the implementation of flow management units or positions, only 14% of the States had attained this goal in 2012. In 2013, 35% of the States have met the goal. The next table illustrates the evolution of implementation during the 2012-2013 period:

Percentage of States that have done runway and ATC sector capacity calculations

2012 21%	**ARG**	**BOL**	**BRA**	**CHI**	**COL**	**FGY**	**ECU**	**GUY**	**PAN**	**PAR**	**PER**	**SUR**	**URU**	**VEN**
	NO	NO	**YES**	NO	NO	N/A	**YES**	NO	NO	NO	NO	NO	NO	**YES**
2013 57%	**ARG**	**BOL**	**BRA**	**CHI**	**COL**	**FGY**	**ECU**	**GUY**	**PAN**	**PAR**	**PER**	**SUR**	**URU**	**VEN**
	YES	**YES**	**YES**	**YES**	**YES**	N/A	NO	NO	NO	**YES**	**YES**	NO	NO	**YES**

2.2 ICAO intends to post regional efficiency graphs on the public website of each of its Regional Offices, showing the regional status of implementation of the strategic objectives of the Organization for the 2014-2016 period, and showing the efficiency indicators foreseen for the Region.

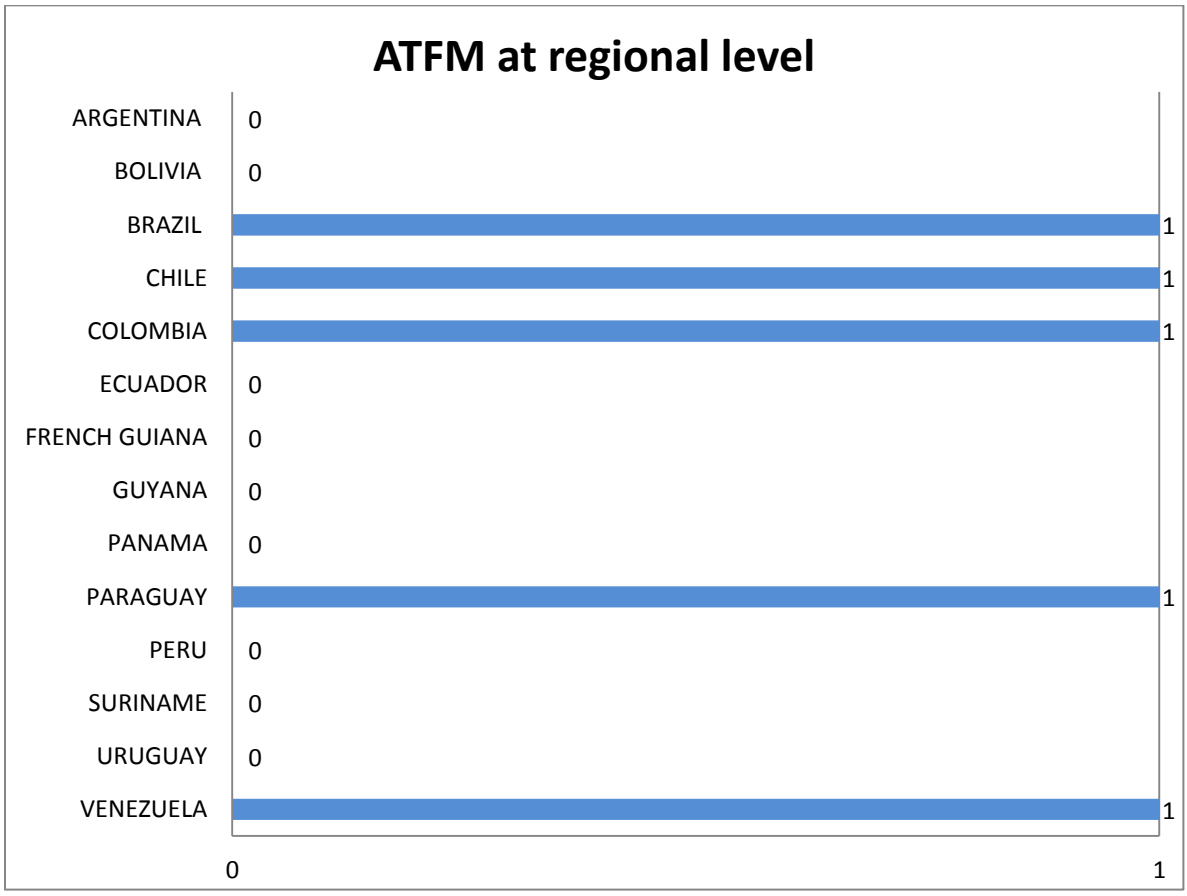
2.3 This information will help the PIRGs and the States to determine the areas that require special attention in order to improve the efficiency of air navigation worldwide. The first publication of this report is scheduled for April 2014.

2.4 To date, 2 centralised flow management units and 3 flow management units or positions (FMU/FMP) have been implemented in the SAM Region, one State is in the process of implementation, and 8 States are starting activities or have not taken any action for the implementation of ATFM.

2.5 The analysis revealed that 36% of SAM States have implemented FMUs or FMPs. The figure below shows the status of implementation of ATFM and the States that have started taking steps to implement FMUs/FMPs. The table below shows the evolution between 2012 and 2013.

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

2012 14%	**ARG**	**BOL**	**BRA**	**CHI**	**COL**	**ECU**	**FGY**	**GUY**	**PAN**	**PAR**	**PER**	**SUR**	**URU**	**VEN**
	NO	NO	**YES**	NO	**YES**	NO	N/A	NO	NO	NO	NO	NO	NO	NO
2013 36%	**ARG**	**BOL**	**BRA**	**CHI**	**COL**	**ECU**	**FGY**	**GUY**	**PAN**	**PAR**	**PER**	**SUR**	**URU**	**VEN**
	NO	NO	**YES**	**YES**	**YES**	NO	N/A	NO	NO	**YES**	NO	NO	NO	**YES**



2.6 Out of a total of 99 international airports in the SAM Region, the ATFM service is provided at 51 airports (27 in Brazil, 8 in Colombia, 7 in Chile, 2 in Paraguay, and 7 in Venezuela), accounting for 52% of the total number of airports in the Region. This percentage does not include airports in States that are in process of implementation. See table below:

Total number of airports	Airports with ATFM service	% airports with ATFM service
99	50	**52 %**

2.7 The Action Plan for the Implementation of ATFM shown in **Appendix A** to this working paper shall be updated at this Meeting and revised based on State plans.

2.8 Under the auspices of Project RLA/06/901, several training courses have been conducted in the Region, and even a Guide for calculating runway and ATC sector capacity was developed. In **Appendix B**, States shall specify those airports in which runway and/or ATC sector capacity has been calculated.

2.9 Some ATFM focal points in several States of the Region are missing, and contact information needs to be updated for ATFM coordination, since some focal points have varied. The latest list (31 August 2013) available at the Secretariat is shown in **Appendix C**.

2.10 Ecuador submitted the survey at the SAM/IG/11 meeting. The other States shall complete the survey shown in **Appendix D** at this Meeting and submit it to the Secretariat.

3. **Suggested action:**

3.1 The Meeting is invited to update the ATFM Action Plan shown in Appendix A and to complete the information requested in Appendices B, C, and D.

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APPENDIX A

ACTION PLAN FOR THE IMPLEMENTATION OF ATFM AT SAM AIRPORTS

A: AIRPORT				
Task description	**Start**	**End**	**Responsible party (designate individual or organisation in charge)**	**Remarks**
1. Airport demand/capacity (runway capacity) analysis				
1.9 Carry out Calculation of Airport and Airspace Capacity of main airports by States. 1. Identify personnel available in each State to carry out calculation of runway capacity. 2. Identify which airports already have calculation of runway capacity. 3. Identify, prioritize and report what airports require calculation of runway capacity. 4. Carry out calculation of runway capacity. 5. Identify airports exceeding runway capacity.	Sep 2009	SAM/IG/12	States	**Valid** States that have not yet done so are encouraged to submit the required information. Item 4 has to be presented to SAM/IG/13.
1.10 Identify airports where periods exist where the demand is greater than existing capacity including simulations, if necessary, by States.	Sep/Oct 2009		States	**Permanent** Brazil, Paraguay and Peru presented the data. Assure States that the aim of these tasks is to share information.
1.11 Determine operational factors affecting airport demand and capacity to optimise utilisation of existing capacity, including simulations, is necessary.	Sep/Oct 2009		States	**Valid** Brazil, Paraguay and Peru presented the data.
1.13 Notify airport capacity in terms of aircraft operation in main airports.	SAM/IG/12		States	**Permanent** Updated in each SAM/IG.
2. Coordination with the ATM community				

A: AIRPORT				
Task description	**Start**	**End**	**Responsible party (designate individual or organisation in charge)**	**Remarks**
2.3 Promote seminars to the ATFM community considering the CDM concept for the implementation of ATFM and initiate corresponding coordination. 1. Consider the implementation of a CDM process in main airports. 2. States will notify airports with this process.	**SAM/IG/11**		States	**Valid** ATFM operational concept, ATFM manual and ATFM roadmap will be taken into account.
3. Infrastructure and database				
3.2 Establish a data base format to be used for automation.	SAM/IG/11		States	**Valid**
4. Policy, standards, and procedures				
4.7 Ask States to submit AIP/AIC published information on ATFM. 1. Standardize this information. 2. Update the information.	SAM/IG/11		States	**Permanent** Information will be presented in each SAM/IG
5. Training				
5.1 Draft ATFM training plans and submit them.	SAM/IG/11		States	**Permanent**
5.6 Train FMP/FMU staff for application of ATFM measures for airports.	SAM/IG/11		States	**Permanent**
5.7 Monitor the training of the ATM community.	SAM/IG/11		States	**Permanent**
6. Final implementation decision				
6.1 Identify and review factors that may affect the implementation decision.			States	**Valid**

A: AIRPORT				
Task description	**Start**	**End**	**Responsible party (designate individual or organisation in charge)**	**Remarks**
6.2 Declare the pre-operational implementation in the defined area.			States	**Valid**
6.3 Declare the final operational implementation in the defined area.			States	**Valid**
7. Monitor system performance				
7.1 Draft performance indicators according to CDM manual.	SAM/IG/11	SAM/IG/12	States	**Valid**
7.2 Implement the ATFM post-implementation follow-up programme at airports.			States	**Valid**
7.3 Develop an indicators follow-up programme	SAM/IG/11		States	**Valid**

ACTION PLAN FOR ATFM IMPLEMENTATION IN THE SAM REGION				
B- AIRSPACE (ATC Sector)				
Task description	**Start**	**End**	**Responsible party (designate individual or office in charge)**	**Remarks**
1. Airspace demand and capacity analysis				
1.2 Carry out ATC sectors calculation. 1. Identify personnel available in each State to carry out calculation of air space capacity. 2. Identify which sectors already count with calculation of capacity. 3. Identify, prioritize and report what sectors require calculation of capacity. 4. Identify sectors exceeding capacity.	SAM/IG/11	SAM/IG/11	States	**Permanent** States that have not yet done so are encouraged to submit the required information.

ACTION PLAN FOR ATFM IMPLEMENTATION IN THE SAM REGION				
B- AIRSPACE (ATC Sector)				
Task description	**Start**	**End**	**Responsible party (designate individual or office in charge)**	**Remarks**
1.4 Carry out the States estimate airspace ATC sector capacity at the major airports.	Sep 2009	SAM/IG/13	States	**Valid**
1.5. Identify airspace sectors where demand sometimes exceeds capacity, including simulations by the States, if necessary.	TBD		States	**Permanent** Brazil has presented their studies.
1.6 Identify factors affecting airspace demand and capacity in order to optimise the use of existing capacity, including simulations if necessary.	TBD		States	**Permanent** Brazil has presented their studies.
1.7 Present conclusions on the existing airspace capacity.	TBD		States	**Permanente** Brazil has presented their studies.
2. Coordination with the ATM community				
2.2 Promote seminars to the ATFM community considering the airspace capacity concept for the implementation of ATFM and initiate corresponding coordination.	SAM/IG/11		States	**Valid**
3. Infrastructure and database				
3.1 The ATFM/IG Group will present the basic requirements for a regional automated system.	TBD	SAM/IG/12	ATFM/IG	**Valid** Brazil has already implemented.
3.2 Coordinate implementation activities with the Automation Group.			ATFM/IG	**Valid** Depends on information of 3.1.
4. Policy, standards, and procedures	TBD	Jun 2013	States	
4.1 Develop ATFM policies, taking into account the objectives and principles established in the CAR/SAM ATFM CONOPS.	TBD	TBD	States	**Valid**

ACTION PLAN FOR ATFM IMPLEMENTATION IN THE SAM REGION				
B- AIRSPACE (ATC Sector)				
Task description	**Start**	**End**	**Responsible party (designate individual or office in charge)**	**Remarks**
4.2 Develop a regional strategy and framework for the implementation of Centralized ATFM units.	2008	2014	Regional Project RLA/06/901	**Valid**
4.3 Develop template/contents for operational agreements between Centralized ATFM units for interregional demand/capacity balancing.	2008	2014	Regional Project RLA/06/901	**Valid**
4.4 Define common elements of situational awareness between FMUs; • common traffic displays; • common weather displays (Internet); • communications (teleconferences, web):	2008		States	**Permanent**
4.5 Review the regional ATFM implementation roadmap to be used by States as FMU/FMP implementation guide.	SAM/IG/11	SAM/IG/12		**Valid**
4.6 Develop a regional strategy to implement the use of a flexible upper airspace (FUA): • evaluate the management processes in the use of the airspace; • improve the current domestic airspace management to adjust dynamic changes to the traffic flows in tactical stages; • introduce improvements to the ground ATS systems and associated procedures for the extension of the FUA with dynamic management processes in the use of the airspace; • dynamically implement ATC sectorization with the aim of providing a better balance between demand and capacity that responds in real time to changing situations in the traffic flows and to accommodate in the short-term the users preferred trajectories.	2008	2015	Regional Project RLA/06/901	**Valid**

ACTION PLAN FOR ATFM IMPLEMENTATION IN THE SAM REGION				
B- AIRSPACE (ATC Sector)				
Task description	**Start**	**End**	**Responsible party (designate individual or office in charge)**	**Remarks**
5. Training	**TBD**	**TBD**		
5.3 Train personnel in the sector capacity calculation and subjects related to ATFM for the airspace.	TBD	TBD	States	**Permanent**
5.4 Prepare plans and ATFM training material	TBD	TBD	States	**Valid**
5.5 Conduct training of personnel involved.	TBD	TBD	States	**Valid**
6. Final implementation decision				
6.1 Analyse factors affecting the implementation decision.	N/A		States	**Valid**
6.2 Declare pre-operational implementation in the area defined.	N/A		States	**Valid**
6.3 Declare definitive operational implementation in the area defined.	N/A		States	**Valid**
7. Monitor system performance				
7.1 Draft performance indicators	2010		Regional Project RLA/06/901	**Valid**
7.2 Develop an indicators follow-up programme.	TBD		States	**Valid**

APÉNDICE B / APPENDIX B

CALCULO DE CAPACIDAD DE PISTA Y SECTORES ATC EN LOS PRINCIPALES AERÓDROMOS DE LA REGIÓN SAM COMO PARTE DEL PLAN DE IMPLEMENTACIÓN ATFM

ATC SECTORS AND RUNWAY CAPACITY CALCULATION IN THE MAIN AIRPORTS OF THE SAM REGION AS PART OF THE ATFM IMPLEMENTATION PLAN

Estado/ State	Lista de aeródromos con cálculo de capacidad de pista realizado / List of airports with runway capacity calculation carried out	Lista de Unidades ATC con cálculo de capacidad de sectores ATC realizado / List of ATC units with ATC sectors capacity calculation carried out	Información en AIP / AIP information
ARGENTINA			
BOLIVIA			
BRASIL/ BRAZIL			
CHILE			
COLOMBIA			
ECUADOR			
GUYANA FRANCESA/ FR. GUIANA			
GUYANA			
PANAMÁ			

Estado/ State	Lista de aeródromos con cálculo de capacidad de pista realizado / List of airports with runway capacity calculation carried out	Lista de Unidades ATC con cálculo de capacidad de sectores ATC realizado / List of ATC units with ATC sectors capacity calculation carried out	Información en AIP / AIP information
PARAGUAY			
PERÚ			
SURINAME			
URUGUAY			
VENEZUELA			

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APÉNDICE C / APPENDIX C

LISTA DE CONTACTOS PARA PUNTOS FOCALES ATFM Y DE LAS UNIDADES ATFM ESTABLECIDAS /

LIST OF CONTACTS FOR ATFM FOCAL POINTS AND ESTABLISHED ATFM UNITS

Estado/ State	Responsable ATFM-Nombre, FMU/ACC, correo electrónico, teléfono / ATFM responsible-Name, MU/ACC, e-mail, telephone
ARGENTINA	
BOLIVIA	Miguel Castillo Jefe de la Unidad ATM/SAR Tel.: (591) 2211-4465 Cel.: (591) 7204-6745 E-mail: mcastillo@dgac.gob.bo Daniel Bustamante Inspector ATM/SAR Tel.: Cel.: 591-7220 1865 E-mail: dbustamante@dgac.gob.bo
BRASIL / BRAZIL	
CHILE	Mauricio Silva Cañete FMP ACC Santiago Tel.: (562) 22836-4017 Cel.: E-mail: msilvac@dgac.gob.cl Patricio Zelada Ulloa FMP ACCS Santiago Tel.: (562) 22836 4017 Cel.: E-mail: pzelada@dgac.gob.cl
COLOMBIA	

Estado/ State	Responsable ATFM-Nombre, FMU/ACC, correo electrónico, teléfono / ATFM responsible-Name, MU/ACC, e-mail, telephone
ECUADOR	Pedro William Plaza Muñoz Tel.: (5932) 228 2851 Cel.: (5939) 9819 9007 E-mail: pedro.plaza@dgac.gob.ec Galo Efraín Cevallos Alomía Tel.: (5932) 254 9814 Cel.: (5939) 9251 6822 E-mail: ams_transitoaereo@dgac.gob.ec
GUYANA FRANCESA / FR.GUIANA	
GUYANA	
PANAMÁ	Arsenio Bethancourt Tel.: Cel.: E-mail: abethancourt@aeronautica.gob.pa
PARAGUAY	Sindulfo Ibarrola Aquino FMU SGAS Tel.: Cel.: E-mail: fmu.asu@gmail.com
PERÚ	José Mondragón Hernández Inspector de Navegación Aérea Dirección General de Aerónautica Civil Tel.: (511) 615 7881 Cel.: (51) 99044 0563 E-mail: jmondragon@mtc.gob.pe
SURINAME	

Estado/ State	Responsable ATFM-Nombre, FMU/ACC, correo electrónico, teléfono / ATFM responsible-Name, MU/ACC, e-mail, telephone
URUGUAY	Gustavo Turcatti Jefe Depto Operativo, , Tel.: (5982) 604 0408 Int.5111 Cel.: E-mail: dota@dinacia.gub.uy Adriana San German Jefe Depto Tècnico Tel.: (5982) 604 0408 Int. 5109 Cel.: E-mail: dtta@dinacia.gub.uy
VENEZUELA	Maribel Mayora Vallenilla Responsable ATFM Wilfredo Gil Jefe ACC Tel.: (58212) 355 2912 Cel.: E-mail: atfm@inac.gob.ve Maruska Borges R. Unidad FMU/ATFM/Venezuela ATC/Aeropuerto Intl.Maiquetía. Experto ATFM Tel.: (58212) 355 2912 Cel.: (58414) 299 3995 E-mail: ma.borges@inac.gob.ve

APPENDIX D

SURVEY ADDRESSED TO SAM STATES AS PART OF THE ATFM IMPLEMENTATION PLAN

Country /State: _____ Airport:_____

Person responding the survey:_____

Date: _____

1. Regarding the SAM ATFM implementation plan, indicate if FMU/FMP units have been established. If the answer is YES, indicate the responsible unit. If the answer is NO, indicate plans for ATFM implementation based on regional requirements.

_____
_____
_____
_____

2. Indicate if you have personnel trained in ATFM implementation and if such personnel is currently performing the corresponding functions in accordance with the implementation plan.

_____
_____
_____
_____

3. If NO trained personnel is available, indicate the number of people available for receiving training in the ATFM implementation plan.

_____
_____
_____
_____

4. In your State/country, how many airports have runway capacity calculation? List the most important ones. If your answer is NONE, indicate what airports have runway capacity calculation. List the most important ones. If your answer is NONE, indicate what airports you consider require such calculation.

_____
_____
_____
_____

5. In your State/country, how many airports have apron capacity calculation? List the most important ones. If your answer is NONE, which airports to you consider require such calculation?

_____
_____
_____
_____

6. In your State/country, what airports have ATS sector capacity calculation? List the most important ones. If your answer is NONE, what airports you think require it?

_____
_____
_____
_____

7. For the airport that you consider of greatest importance, indicate the following in terms of the number of operations per hour:

- Runway capacity: _____
- Apron capacity: _____
- ATS sector capacity: _____

8. For the airport that you consider of greatest importance, indicate the number of trained people in a position to calculate, in terms of operations per hour:

- Runway capacity: _____
- Apron capacity: _____

- ATS sector capacity _____

9. List the airports in which demand exceeds runway capacity and indicate the operational factors affecting them.

_____
_____
_____
_____
_____
_____