International Civil Aviation Organization
CAR/SAM Regional Planning and Implementation Group (GREPECAS)
Seventeenth Meeting of the CAR/SAM Regional Planning and Implementation Group (GREPECAS/17)
(Cochabamba, Bolivia (Plurinational State of), 21 to 25 July 2014)

Agenda Item 4: **Regional Air Navigation Planning and Implementation Performance Framework: Review of Programmes and Projects**
4.3 ATM Automation and Situational Awareness Programme Projects

Follow-up on automation and ATM situational awareness project(s) activities

(Note presented by the Secretariat)

EXECUTIVE SUMMARY

This working paper presents the implementation status of project(s) activities under Programme C: *ATM automation and situational Awareness* and the deliverables assigned to these projects.

Strategic Objectives:	• Safety • Air Navigation Capacity and Efficiency
References:	• First NAM/CAR Air Navigation Implementation Working Group Meeting (ANI/WG/01), Mexico City, Mexico, 29 July to 1 August 2013 • Second Programmes and Projects Review Committee Meeting (PPRC/2), Lima, Peru, 16 to 18 July 2013 • ANI/WG Air Traffic Services Inter-Facility Data Communication (AIDC) and Automatic Dependent Surveillance – Broadcast (ADS-B) Task Forces (TF) teleconferences • Automation System and Integrated Telecommunications for Air Navigation Services/System-Wide Information Management (SWIM) Workshop (AUTO/SWIM), Mexico City, Mexico, 21 to 24 April 2014 • ICAO/FAA Workshop on ADS-B and Multilateration Implementation (ADS-B/IMP), Mexico City, Mexico, 19 to 22 May 2014 • RLA/06/901 - Twelfth SAM Implementation Group Workshop/Meeting (SAM/IG/12), Lima, Peru, 14 to 18 October 2013 • Thirteenth SAM Implementation Group Workshop/Meeting (SAM/IG/13) Lima , Peru, 21 to 25 April 2014

1. Introduction

1.1 The Second Programmes and Projects Review Committee Meeting (PPRC/2) reviewed the Programme C activities implementation progress since the PPRC/1 Meeting, highlighting its objectives to support optimization of existing automation capabilities, interoperation and increased automation levels, situational awareness implementation in air traffic services (ATS) units and the new ICAO model Flight Plan form implementation.

1.2 The PPRC/2 Meeting approved the following changes to Programme C:

a) In order to facilitate and optimize participation of State experts in the Programme C projects, the CAR Region agreed to merge the tasks and deliverables of Projects C1 – *Interoperability of automated systems in the CAR Region* and C2 – *Improve ATM situational awareness* into a single project entitled Project C – *Automation and improved ATM situational awareness.*

b) A field has been added to the project description document to define project goals.

1.3 The PPRC/2 Meeting noted the completion, including several minor Programme C Project activity delays according to the established schedule, reprogramming of several activities due to merging the C1 and C2 Projects in the CAR Region, as well as the progress on the SAM C2 Project Memorandum of Understanding (MoU) for the interconnection of automated systems.

2. Discussion

2.1 Project activities have been coordinated among project members, the project coordinator, and the programme coordinator mainly through teleconferences and meetings held from time to time in accordance with work programme activities or face-to-face meetings scheduled at the Regional Offices. Similarly, the Project was supported by the CAR implementation groups and the SAM Implementation Group (SAM IG) mechanism.

2.2 Regarding PPRC Conclusion 2/5 - *Follow-up to AN-Conf/12 Recommendations by GREPECAS*, item b), the C Projects studied the recommendations of the Twelfth Air Navigation Conference (AN-Conf/12) and initiated the appropriate follow-up actions in accordance with the distribution presented by the PPRC/2. A follow-up report on these activities is presented at **Appendix A**.

2.3 Since the PPRC/2 Meeting, several important events occurred that have required adjustment of the activities and dates of the C Projects, such as:

a) Update of regional implementation plans (NAM/CAR Regional Performance-Based Air Navigation Implementation Plan (NAM/CAR RPBANIP) and SAM RPBIP

b) Establishment of the Bogota and Port-of-Spain Declarations

c) Restructuring of the CAR implementation groups as the NAM/CAR Air Navigation Implementation Working Group (ANI/WG)

2.4 Considering the above-mentioned and project achievements and difficulties encountered in their execution, the following is highlighted:

CAR Region

Project C - *Automation and Improved ATM Situational Awareness*

2.5 CAR Project C reviewed the project metrics/goals in accordance with the RPBANIP, Version 3.1, the Regional air navigation targets for the NAM/CAR Regions, and proposes some adjustment in the dates and activities as presented in **Appendix B**.

2.6 The following progress is reported:

- Adoption of the NAM Interface Control Document (ICD) for AIDC implementation
  Recommendation: CAR/SAM to review/amend or adopt the same NAM reference as NAM/CAR/SAM ICD
- ADS-B Implementation Operational Concept initial draft document
- Updated AIDC Regional Plan implementation with Current Flight Plan (CPL) - Logical Acknowledgement Messages (LAM)
- Graphical use of SIGMET tool as implementation reference for States in the NAM/CAR Regions
- Participation in the AUTO/SWIM and ADS-B Workshops
- Several deliverables deleted due to lack of operational need such as Air Traffic Flow Management (ATFM)

SAM Region

Project C1 - Automation

2.7 The following progress is reported:

- Updated the six Memoranda of Understanding (MoUs) established in the Region for the interconnection of automated systems between adjacent Area Control Centres (ACCs) and signed between States with indications of their scope, implementation dates and focal points
- Drafting and signature of new MoUs for the interconnection of automated systems considered as priority in the Declaration of Bogota for the period 2014-2016
- Operational automation interconnection between Brazil and Venezuela
- Conduct interconnection trials between the following States: Argentina-Paraguay, Argentina-Chile, Peru-Chile, Peru-Ecuador and Peru-Colombia
- Radar data interconnection between Brazil and the adjacent States; an INDRA system installed would not be undertaken until a feasible implementation is found for both parties
- RLA/06/901 - Seminar/Workshop on Technical and Operational Aspects for the Implementation and Operation of ATC Automated Systems in the SAM Region, Sao Jose dos Campos, Brazil, 24 to 28 February 2014

Project C2 – Improved ATM Situational Awareness in the SAM Region

2.8 There is no significant progress in the C2 project since the CRRP/2 Meeting, some activities were updated taking in consideration the regional implementation activities priority specified in the Declaration of Bogotá. In this respect, the pending activities as the drafting of the Guide on technical operational considerations for MLAT was rescheduled to March 2015; regarding the drafting of the Guide on technical considerations in support of ATFM, the revised guide from the ATFM Group is expected in order to have the operational requirements well-defined for the guide development. Finally, the group that supports the project activities will make a draft on an an action plan if deemed necessary for the ADS-B implementation in the SAM Region and in accordance with the SAM PBIP harmonized with Aviation System Block Upgrades (ASBU). For this task, Brazil and Peru will provide support. The action plan will be presented in November 2014 in the SAM/IG/14 Meeting.

2.9 **Appendix B** describes the projects C for the CAR Region, and **Appendices C** and **D** show the descriptions of each of the projects C1 and C2 of SAM Region, respectively.

3. Suggested Action

3.1 The Meeting is invited to:

a) take note of the information presented in this note;

b) analyze the project description document and recommendation for each project described in Appendices A to D, in order to approve planning, progress and execution; and

c) analyze other considerations respectively, as deemed appropriate by the Meeting.

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APPENDIX A
FOLLOW-UP ON AN-CONF/12 RECOMMENDATIONS

REC	Description	Follow-up/clarification/impact on the Project´s content
1/1	The Draft Fourth Edition of the Global Air Navigation Plan (Doc 9750, GANP)	Noted Project updated
1/2	Implementation	Noted/No impact on projects
1/3	Guidance on business cases	Noted/No impact on projects
1/4	Architecture	Noted/No impact on projects
1/5	Time reference accuracy	Noted/No impact on projects
1/7	Automatic Dependent Surveillance — Broadcast	Already contemplated in projects and in Implementation Groups.
1/8	Rationalization of radio systems	Noted/No impact on projects
1/9	Space-based automatic dependent surveillance - broadcast	Noted/No impact on projects
1/10	Automatic Dependent Surveillance — Self organizing Wireless data networks	Noted/No impact on projects
1/11	Automation Roadmap	Noted/No impact by now on projects
1/12	Development of the aeronautical frequency spectrum resource	Noted/Considered by implementation groups/Considered in project activities development
1/15	Performance monitoring and measurement of air navigation systems	Noted/No impact on projects
1/16	Access and equity considerations	Noted/No impact on projects
2/2	Development of ICAO provisions for remotely operated air traffic services	Noted/No impact on projects
3/5	Operational performance through flight and flow – information for a collaborative environment	Noted/Considered by implementation groups/ No impact on projects

REC	Description	Follow-up/clarification/impact on the Project´s content
4/2	ICAO Aviation System Block Upgrades relating to ground surveillance using Automatic Dependent Surveillance – Broadcast/Multilateration, air traffic situational awareness, interval management and airborne separation	Noted/Considered by implementation groups for ASBU B1/No impact on projects
4/3	ICAO Aviation System Block Upgrades relating to airborne collision avoidance systems and ground-based safety nets	Noted/Considered by implementation groups/ No impact on projects
4/4	Positioning and tracking over oceanic and remote areas, and flight data triggered transmission	Noted/No impact on projects
4/8	Crisis coordination arrangements and contingency plans	Noted/Considered by implementation groups/ No impact on projects

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APPENDIX B
CAR REGION PROJECT C

CAR Region	**PROJECT DESCRIPTION**		**DP N° C**	
Programme	**Title of the Project**		**Start**	**End**
AUTOMATION AND ATM SITUATIONAL AWARENESS (ICAO programme coordinator: Julio Siu)	**AUTOMATION AND IMPROVED ATM SITUATIONAL AWARENESS IN THE CAR REGION** Project coordinator: Experts contributing to the project:	Carlos M. Jimenez (Cuba) Alejandro Romero (COCESNA) Carlos Miguel Jimenez, Jorge Centella (Cuba) Julio Cesar Mejia (Dominican Republic) Michael Polchert / Bill Blake(United States) Adriana Mattos (SITA) ANI/WG	October 2011	December 2015
Objectives	Based on the of the NAM/CAR Regional Performance-Based Air Navigation Implementation Plan (RPBANIP) regional performance objectives: 1. Support NAM/CAR States with implementation of automated systems and interconnection at a regional level 2. Support implementation of situational awareness improvements at CAR Region ATS units			
Scope	The project contemplates the assessment and identification of the main levels of automation, production of guides for use of existing capabilities, proposed improvements to automation levels to enhance operations and safety, development of studies and guidelines for automation and operational use of capabilities to attain these situational awareness improvements, supporting implementation of different applications such as common display of traffic, common display of meteorological conditions, and communications in general.			
Metrics	• Number of States/ANSPs participating in regional automation tests • Number of States/ANSPs implementing ATC automation functionalities between systems • Complete proposals and guidance material for the reduction of operational errors with before and after effective date of implementation guides for the CAR/NAM Region • Number of States/ANSPs reporting a reduction of incidents resulting from implementing improvements in electronic ground and air alerts • Number of States/ANSPs conducting ADS-B data or multilateration trials using the guides developed			
Goals	This Project is expected to support States with operational improvement resulting from the implementation of ATM automation systems: • NAM/CAR RPBANIP ASBU-ASUR Targets • NAM/CAR RPBANIP ASBU-AMET SIGMET Targets • NAM/CAR RPBANIP ASBU-SNET Targets • NAM/CAR RPBANIP ASBU-FICE AIDC Target			

CAR Region	PROJECT DESCRIPTION	DP N° C	
Programme	**Title of the Project**	**Start**	**End**
Strategy	• Project activities will be coordinated and executed amongst project members, the project coordinator, and the programme coordinator mainly through teleconferences and meetings held from time to time in accordance with work programme activities. • The project coordinator will coordinate, as necessary, requirements of other projects and information from the NAM/CAR implementation working group with the programme coordinator. Additional experts will be included based on tasks and specialised work to be conducted.		
Justification	With the emergence of new technologies in ATM automated systems, as well as the standardization of communication protocols, data exchange in ATS units is actually viable in different ways. Available protocols in systems such as OLDI and AIDC allow ATS units to establish automated coordination, improving operational reliability and procedural effectiveness. Likewise, the standardization in processing surveillance data in ASTERIX format allows easy radar data exchange between FIRs. These automated exchanges will result in a significant reduction of ATS incident rates and operational errors. Improving situational awareness facilitates coordination, improves efficiency and safety, and ensures that the different members of the ATM community have the same information when adopting decisions collaboratively.		
Related projects	This project is related to Programme D Project (ATN and its ground-ground and air-ground applications)		

Project Deliverables	Relationship with the regional performance-Objectives (RPO) and ASBU B0 modules	Responsible Party	Status of Implementation[1]	Date of Delivery	Comments
Level of automation existing in the CAR Region	RPO 4 and 6 of NAM/CAR RPBANIP/ RSEQ-SURF-ASUR-SNET-TBO-ACDM- FICE	ICAO - Carlos Jimenez, Cuba		Completed	
~~Sample of MoU for automation between States~~	~~RPO 4 and 6 of NAM/CAR RPBANIP/ RSEQ-SURF-ASUR-SNET-TBO-ACDM- FICE~~	~~Carlos Jiménez, Cuba~~		~~November 2014~~	~~There are several examples that are going to be reviewed to recommend States in this implementation.~~
Guidance material and considerations for the drafting of automation agreements/ Sample of MoU for automation between States	RPO 4 and 6 of NAM/CAR RPBANIP/ RSEQ-SURF-ASUR-SNET-TBO-ACDM- FICE	Carlos Jiménez, Cuba		February 2015	New joint activity
Proposals or guidelines for improving the operation and performance of flight plan data processing system, ~~tools for electronic transmission~~ and automatic exchange of ATS messages	RPO 4 of NAM/CAR RPBANIP/ RSEQ-SURF-ASUR-SNET-TBO	Alejandro Romero COCESNA		December 2015	In accordance with AIDC TF activities
Proposals and guidance on the use and benefits of additional/advanced automation support tools to increase aeronautical information sharing	RPO 4 of NAM/CAR RPBANIP/ RSEQ-SURF-ASUR-SNET-TBO	Bill Blake, United States		December 2015	
Monitor the implementation of ATM automation and surveillance data exchange – Progress Report	RPO 4 of NAM/CAR RPBANIP/ RSEQ-SURF-ASUR-SNET-TBO	Alejandro Romero		Completed	A regional AIDC implementation plan has been developed as part of ATM automation

[1] *Grey* *Task not started yet*
Green *Activity being implemented as scheduled*
Yellow *Activity started with some delay, but will be implemented on time*
Red *Activity not implemented on time; mitigation measures are required*

Project Deliverables	Relationship with the regional performance-Objectives (RPO) and ASBU B0 modules	Responsible Party	Status of Implementation[1]	Date of Delivery	Comments
~~Review of the Regional Implementation Oversight Strategy for systems in support of situational awareness improvement~~	~~RPO 4 and 6 of NAM/CAR RPBANIP/ RSEQ-SURF-ASUR-SNET-TBO-ACDM- FICE~~	~~Alejandro Romero~~		~~June 2013~~	~~It will be reviewed according ASBU methodology.~~
Guidelines for improving electronic ground and airborne alerts	RPO 4 and 6 of NAM/CAR RPBANIP/ RSEQ-SURF-ASUR-SNET-TBO-ACDM- FICE	Carlos Miguel Jimenez, Cuba		December 2014	Lack of response to survey; new date is December 2014
Guidelines on the operational implementation of ADS-B and data exchange	RPO 4 and 6 of NAM/CAR RPBANIP/ RSEQ-SURF-ASUR-SNET-TBO-ACDM- FICE	Adriana Mattos, SITA / Michael Polchert , Bill Blake, USA		November 2014	CONOPS of ADS-B implementation under development; initial draft available of ADS-B CONOPS
~~Guidance in support of ATFM implementation~~	~~RPO 4 and 6 of NAM/CAR RPBANIP/ RSEQ-SURF-ASUR-SNET-TBO-ACDM- FICE~~	~~Michael Polchert/ Bill Blake, USA~~		~~May 2014~~	~~Rescheduled due to the operational requirements submission of Programme B~~
Guidance on the use of AIDC to reduce coordination errors	RPO 4 and 6 of NAM/CAR RPBANIP/ RSEQ-SURF-ASUR-SNET-TBO-ACDM- FICE	Julio Cesar Mejia, Dominican Republic		December 2014	Date adjusted with AIDC TF
Guidance on the preparation of SIGMETs in graphic format	RPO 4, 6 and 8 of NAM/CAR RPBANIP/ RSEQ-SURF-ASUR-SNET-TBO-ACDM- FICE-AMET	Alejandro Romero, COCESNA		Completed	Graphical support can be observed at the following website: http://apps.cocesna.org/eAIM/servlet/metarview.
Resources needed	• Designation of experts for the execution of the deliverables • Implement required facilities that allow interconnection of automated systems according to the established dates in the elaborated and signed MoU, respectively.				

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APPENDIX C

SAM Region	**PROJECT DESCRIPTION (DP)**	**PD N° C1**	
Programme	**Project Title**	**Starting Date**	**Ending Date**
Automation and ATM Situational Awareness *(Programme Coordinator: Onofrio Smarrelli)*	Automation *Project Coordinator: Alessander Santoro (Brazil)* *Contributing experts: Omar Gouarnalusse (Argentina), Ruben Silva (Argentina), Murilo Loureiro (Brazil), Johnny Avila (Peru) and SAM/IG ATM Automation Group*	May 2008	June 2016
Objective	Support States of the SAM Region in the implementation of automated systems, and in their regional interconnection		
Scope	The scope of the project includes the initial drafting of guidelines, trials for the identification of the automation level required at the Region's ATS units in the short and medium term, and the implementation of automation systems and their interconnection through the VSAT based South American digital network (REDDIG)		
Metrics	• Drafting of the following documents: ✓ Guidance document on automated systems requirements at ATS units (SSS) ✓ Guideline for the implementation of integrated automated systems ✓ Action plan for the interconnection of automated systems ✓ Preliminary interface control document (ICD) between systems for the interconnection of ACCs in the SAM Region ✓ Memorandum of Understanding (MoU) model for the interconnection of automated systems • Interconnection of automated systems between adjacent ACCs in the SAM Region: • Reduction in number of operational errors, including LHD in the SAM Region		
Strategy	• All tasks will be conducted by experts nominated by States and organizations of the SAM Region members of the Project *Automation, and SAM States*, under management of the project coordinator, in coordination with the programme coordinator. Communications among project members, as well as between the project coordinator and programme coordinator, shall be carried out through teleconferences and the Internet. In addition, the programme coordinator, together with the project coordinator and the contributing experts, can convene at SAM/IG implementation meetings • Once studies are completed, the results will be submitted to the ICAO programme coordinator as a final consolidated document for its analysis, review, approval and presentation at the GREPECAS PPRC		

Justification	• The CAR/SAM air traffic control centres have had difficulties in duly coordinating air traffic, an important factor contributing in air traffic incidents. The air traffic control automated centres' interconnection will permit a coordinated automated air traffic for the transfer of responsibilities between CAR/SAM adjacent area control centres, thus reducing the risk in aeronautical incidents generated by undue coordination activities and improving, at the same time, the planning phases for an efficient control of flights from/to corresponding Flight Information Regions (FIR). • The interconnection of automated systems would be facilitated, in view of REDDIG (SAM VSAT regional network), which has the necessary capability to transport automated systems applications • This project contributes towards the implementation of modules B0 FICE, B0 ASUR and B0 SNET of the *Air Navigation System Performance-Based Implementation Plan for the SAM Region (SAM PBIP)*
goals	• Initial drafting of 15 MoU for the interconnection of automated systems 6 MoU period 2009-2013 (implemented) 9 MoU period 2013-2016 • Implementation of the interconnection of automated systems *Flight plan (AIDC)* *Asterix protocol radar data* 8 radar data exchanges using Asterix protocol period 2011-2016 1 radar data exchange owner for 2013 (implemented)
Related Projects	• ATFM • Improve ATM Situational Awareness

Project Deliverables	Relationship with Performance Based Regional Plan (PFF) and ASBU Block 0 Modules	Responsible	Status of Implementation[1]	Delivery Date	Remarks
Regional guideline document for the automation level required according to the ATM service provided in airspace and international aerodromes, assessing • operational architecture design, • characteristics and attributes for interoperability, • data bases and software FPL, CPL, CNL, RLA, etc., and • technical requirements.	PFF SAM CNS 04 PFF SAM ATM 05 PFF SAM ATM 06 B0 ASUR B0 SNET	Project Coordinator and ATM Automation Group		Completed June 2011	The System and Subsystem Specifications (SSS) document has been drafted for the identification of automated requirements necessary at ATS units (ACC), and a revision process has been conducted with the support of RLA/06/901 project and SAM/IG ATM Automation Group. Document published in site www.lima.icao.int.
Guideline for the integration of automated systems and corresponding action plan	PFF SAM CNS 04 PFF SAM ATM 05 PFF SAM ATM 06 B0 ASUR	Project Coordinator and ATM Automation Group		Completed October 2010 Completed May 2012	The following has been drafted: Guideline for the integration of automated systems and revision process. Action plan revision for the integration of automated systems and continuous revision. Both documents drafts with the support of RLA/06/901 project and the SAM/IG ATM Automation Group. Document published in site www.lima.icao.int.

[1] ***Gray**: Activity has not started*
***Green**: Activity has or will deliver planned milestone as scheduled*
***Yellow**: Activity is behind schedule on milestone, but still within acceptable parameters to deliver milestone on time*
***Red**: Activity has failed to deliver milestone on time, mitigation measures need to be identified and implemented*

Project Deliverables	Relationship with Performance Based Regional Plan (PFF) and ASBU Block 0 Modules	Responsible	Status of Implementation[1]	Delivery Date	Remarks
Preliminary interface control document (SICD) between systems for the interconnection of ACCs in the SAM Region	PFF SAM CNS 04 PFF SAM ATM 05 PFF SAM ATM 06 B0 FICE B0 ASUR	Programme Coordinator, Project Coordinator and ATM Automation Group		Completed October 2008 October 2012	Document ICD drafted. Document elaborated with the support of RLA/98/003 and later, RLA/06/901. Document published in site www.lima.icao.int. The document requires updating in view of installation of new automated and surveillance systems in the Region
Guidelines for elaboration of Memorandum of Understanding (MoU) for the implementation of the automation system interconnection	PFF SAM CNS 04 B0 FICE B0 ASUR	Project Coordinator and ATM Automation Group		Completed October 2009	A model MoU for the interconnection of automated systems has been developed, with the support of RLA/06/901 project and SAM/IG ATM Automation Group. The MoU model is published in site www.lima.icao.int.
Initial drafting of Memorandum of Understanding (MoU) for the interconnection of automated systems	PFF SAM CNS 04 B0 FICE B0 ASUR	SAM States		March 2016	Six MoU have been drafted during the 2009-2013 period. Nine MoU would be implemented during the 2013-2016 period.

Project Deliverables	Relationship with Performance Based Regional Plan (PFF) and ASBU Block 0 Modules	Responsible	Status of Implementation[1]	Delivery Date	Remarks
Interconnection of automated systems between adjacent ACCs	PFF SAM CNS 04 PFF SAM ATM 05 PFF SAM ATM 06 B0 FICE B0 ASUR	SAM States		June 2016	1. Radar data has been interconnected between Argentina-Uruguay using IP protocol through REDDIG; 2. Flight plan and radar data operational interconnection has been carried out between Brazil-Venezuela through REDDIG; 3. Successful automated systems interconnection tests have been conducted (AIDC over AMHS) between Argentina-Paraguay 4. Partially successful AIDC tests have been conducted between Chile-Peru, Ecuador-Peru, Colombia-Peru, Colombia-Panamá and Colombia-Ecuador. 5. For 2016, 8 interconnections are expected to be implemented (radar data and AIDC), as well as 9 AIDC-only.
Monitor implementation progress of automation activities in the SAM Region		Programme Coordinator and Project Coordinator		May 2008 – June 2016	
Resources necessary	Implement facilities required by SAM States permitting the interconnection of automated systems in accordance with the dates established in the MoUs drafted and signed to this end				

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APPENDIX D

SAM Region	**PROJECT DESCRIPTION (PD)**	**PD N° C2**	
Programme	**Project Title**	**Starting Date**	**Ending Date**
ATM Automation and Situational Awareness *(Programme Coordinator: Onofrio Smarrelli*)	Improve ATM Situational Awareness in the SAM Region *Project Coordinator: Paulo Vila (Peru)* *Contributing experts: José Rubira, Marcos Vidal and Jorge Otiniano (Peru); Javier Vittor (Argentina), André Jansen (Brazil)*	October 2011	May 2015
Objective	Develop guidelines supporting the implementation of improvements in the situational awareness of ATS units in the South American Region		
Scope	Guidelines supporting the implementation of various applications, such as common traffic visualization, common meteorological conditions visualization and communications in general • Analysis of the current surveillance infrastructure and identification of necessary improvements to support en route and terminal airspaces, airspace classification, PBN and ATFM • Implementation of ADS-B, ADS-c and/or MLAT surveillance systems at selected airspaces • Minimum common electronic information and data bases required in support of decision-making process and alert systems towards an interoperable situational awareness among centralized ATFM units • Implement flight plan data process systems (new FPL format) and data communications tools among ACC´s • Implement advanced automation support tools to contribute towards the sharing of aeronautical information		
Metrics	Drafting of following documents: • Regional surveillance strategy for the implementation of systems in support of improvement of situational awareness – revised • Evaluation of the surveillance systems coverage in the SAM Region - completed • Guideline on technical/operational considerations for ADS-B implementation – completed • Guideline on technical/operational considerations for MLAT implementation - completed • Guideline on technical considerations in support of ATFM implementation – completed • Guideline for the presentation of MET products in graphic fomat - completed		
Strategy	• All tasks will be conducted by experts nominated by States and organizations of the SAM Region members of the Project *Improve ATM situational awareness in the SAM Region*, under management of the project coordinator. Communications among project members, as well as between the project coordinator and programme coordinator, shall be carried out through teleconferences and the Internet. • Once studies are completed, the results will be submitted to the ICAO programme coordinator as a final consolidated document for its analysis, review, approval and presentation at the GREPECAS PPRC		

Goals	• Regional surveillance strategy for the implementation of systems in support to situational awareness improvement for July 2012 (completed) • Evaluation of SAM surveillance systems coverage for October 2012 (completed) • Guideline on technical/operational considerations for ADS-B implementation for June 2012 (completed) • Guideline for the drafting of SIGMET in graphic format (March 2013) (completed) • Guideline for technical/operational considerations for MLAT implementation for March 2015 • Guideline for technical considerations in support of ATFM implementation • Action plan for ADS-B implementation in the SAM Region (November 2014)
Justification	• Improve situational awareness has been identified as a great support for ATM, contributing in the increase of safety and in flight efficiency • In addition, a close relationship with the other programmes and their respective projects is necessary, with the aim of collecting the operational requirements demanded by the mentioned applications and their respective tentative implementation dates • This project contributes to the implementation of modules B0 ASUR, B0 SURV, B0 NOPS and B0 AMET of the *Air Navigation System Performance-Based Implementation Plan for the SAM Region (SAM PBIP)*
Related Projects	• Air Navigation Systems in Support of PBN • Automation • ATFM • ATN Ground-ground and Air-ground Applications

Project Deliverables	Relationship with Performance Based Regional Plan aligned with ASBU	Responsible	Status of Implementation[1]	Delivery Date	Remarks
Evaluation of surveillance infrastructure and identification of surveillance systems improvements					
Evaluation of current surveillance systems coverage in the SAM Region	PFF SAM CNS 04 B0 ASUR	Paulo Vila (Peru)		October 2012	Presented as Appendix to the Guideline on technical/operational considerations for ADS-B implementation.
Drafting of regional plan for ADS-B and MLAT implementation					
Guideline on technical/ operational considerations for ADS-B implementation	PFF SAM CNS 04 B0 SURF B0 ASUR	José Rubira (Peru) Marco Vidal (Peru)		October 2012	The Guideline includes comments from Brazil, Chile and Guyana, presented through SAM/IG/11-WP/06. The Meeting approved the Guide. Peru will later include considerations to determine the values recommended for NIC, SIL and NAC for operational application.
Guideline on technical/ operational considerations for MLAT implementation	PFF SAM CNS 04 B0 SURF B0 ASUR	(Brazil)		March 2015	The Guideline has not been started, as MLAT installation in Brazil is being awaited for.

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***Red**: Activity has failed to deliver milestone on time, mitigation measures need to be identified and implemented*

Project Deliverables	Relationship with Performance Based Regional Plan aligned with ASBU	Responsible	Status of Implementation[1]	Delivery Date	Remarks
Guideline on technical considerations in support of ATFM implementation	PFF SAM ATM 05 B0 NOPS	Pending designation		March 2015	The guideline will base itself on the CAR/SAM ATFM Manual approved through GREPECAS Conclusion 16/35. The ATFM Guide is being awaited for in order to define the operational requirements enabling the drafting of this Guideline.
Guideline for the presentation of MET products in graphical format	PFF SAM MET 03 B0 AMET	Jorge Otiniano (Peru)		2013	The document was delivered to the Secretariat (MET) for its review by the corresponding meteorology specialists.
Action plan for regional ADS-B implementation	BO 84	Paulo Vila (Peru)		October 2014	The action plan will be drafted by experts from Brazil and Peru.
Resources necessary	Experts in the carrying out of the deliverables				

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