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

4.4 Projects of the ground-ground and ground-air communication infrastructure programme

Follow-up to the Implementation of Activities under the Projects of the CAR/SAM Ground-Ground and Ground-Air Communication Infrastructure Programme

(Presented by the Secretariat)

SUMMARY

This working paper presents updated information on the status of implementation of the activities under Projects *ATN Architecture* (D1) and *Ground-ground and air-ground ATN applications* (D2) of the *Ground-ground/air-ground communication infrastructure* programme for the SAM Region, and under Project *ATN infrastructure in the CAR Region and its ground-ground and ground-air applications (D) for the CAR Region*.

References

- Report of the First Meeting of the Programmes and Projects Review Committee (PPRC/1) (Mexico City, 25-27 April 2012);
- Report of the Second Meeting of the Programmes and Projects Review Committee (PPRC/2) (Lima, Peru, 16-18 July 2013); and
- Reports of the meetings/workshops of the SAM Implementation Group (SAM/IG/12, Lima, Peru, 14-18 October 2013, and SAM/IG/13, Lima, Peru, 21 to 25 April 2014).

ICAO Strategic Objectives:	*A – Safety* *C – Air navigation capacity and efficiency*

1. Introduction

1.1 The GREPECAS/16 meeting, with a view to implementing the performance-based regional plans in the CAR/SAM Regions, and pursuant to the Global Air Navigation Plan and the ATM Global Operational Concept, approved the modification of the GREPECAS organisation, eliminating the AERMET, AGA/AOP, AIM, and CNS/ATM subgroups and their respective task forces, and transforming the work programmes and terms of reference of these subgroups into Programmes and Projects. Accordingly, it formulated Decisions 16/45 and 16/47.

1.2 Planning for the implementation of activities related to the ATN and its applications is included in projects *ATN Architecture Implementation* (Project D1) and *ATN ground-ground and ground-air applications* (Project D2), both under the *Ground-ground and ground-air communication infrastructure* programme. In the CAR Region, projects D1 and D2 have been merged into a single project entitled *CAR ATN Infrastructure and its Ground-Ground and Ground-Air Applications*.

1.3 In order to make progress in the implementation of activities under the *Ground-ground/air-ground communication infrastructure* (D) programme projects, two meetings of the Programmes and Projects Review Committee were held (PPRC/1 and PPRC/2), and meetings of the air navigation implementation groups were held in each of the Regions, in addition to web-based teleconferences.

1.4 The PPRC/1 meeting considered that project activities under Programme D had been carried out as planned and in coordination with the other Programmes. It identified some delays in some of the tasks of Programme D projects due to the scarce number of experts available to generate the deliverables, and highlighted that the project description should include a field to describe the goals to be achieved in easily quantifiable terms and their target date. With this information, the PPRC will be able to assess the effectiveness and success of efforts made in each project and take action as appropriate.

1.5 The PPRC/2 meeting highlighted the progress made in the implementation of activities related to the new digital networks in the CAR and SAM Regions (MEVA III and REDDIG II, respectively), the implementation of new AMHS systems, the interconnection of AMHS systems, the implementation of the AIDC service between adjacent ACCs, as well as the drafting of a guide to support the implementation of programme activities.

1.6 The PPRC/2 meeting also noted that the delay in the implementation of project activities was due to the scarce number of experts to generate the deliverables and to the implementation of activities by the States.

2. Discussion

2.1 The conduction of project activities have been coordinated through communications among project members, the project coordinator, and the programme coordinator, mainly via teleconferences and scheduled meetings held at each Regional Office.

2.2 Project activities were aligned with CAR and SAM regional air navigation priorities and objectives, as defined in the Port-of-Spain and Bogota Declarations.

2.3 Likewise, as a follow-up to Conclusion 2/4 – *Follow-up by States and International Organisations to AN-Conf/12 recommendations*, **Appendix A** contains an analysis of the recommendations and their impact on project activities.

2.4 Among the achievements and difficulties encountered in project execution since PPRC/2, the following should be noted:

CAR Region

Project D - *ATN infrastructure in the CAR Region and its Ground-Ground and Ground-Air Applications (D)*

2.5 Through the MEVA Technical Management Group (TMG), the bidding process for the MEVA III network was completed and negotiations are underway with the winning bidder. It is estimated that the contracts will be signed on 31 July 2014 followed by network implementation and commissioning of the MEVA III network by March 2015. More details about the MEVA III implementation activities may be found in WP/24.

2.6 As to ATN implementation, the IPv4 addresses assigned to the CAR Region have been reviewed and updated, identifying those that can be allocated to the network and for broadcast purposes, according to ATN physical links. This review is available at: http://www.icao.int/NACC/Documents/eDOCS/Fasid/NAMCAR-IPv4AddressingScheme.pdf.

2.7 The AMHS interconnection between United States and the Dominican Republic has been completed, and the interconnections of Saint Maarten, Cuba, Curaçao, and Trinidad and Tobago are underway in accordance with the CAR Regional AMHS implementation Plan. In this regard, there has been some coordination with the ANI/WG AMHS Task Force to avoid duplication of efforts in the generation of deliverables and in the activities.

2.8 The CAR Regional AIDC Implementation Plan was updated, and progress continues to be monitored.

2.9 In June 2014, a preliminary trial was satisfactorily conducted in the Pacific Oceanic sector of the Central American FIR to test ADS-C and CPDLC functionalities. Trials will continue in October 2014 with the complete protocols and the necessary test communications between ANSPs and airlines.

2.10 In view of the absence of immediate ATFM and OPMET requirements, these deliverables have been deleted from the work programme of the Project.

SAM Region

Project D1 – ATN Architecture

2.11 Almost all the activities contemplated in Project D1 have been completed, pending the monitoring of REDDIG II implementation, which is foreseen for the third quarter of 2014.

2.12 The activities of this project have been carried out without any difficulty. The bidding process for the implementation of the ATN network in the SAM Region (REDDIG II) has been completed and the implementation process has started. More information on REDDIG II implementation activities may be found in GREPECAS/17-WP/25.

Project D2 – Ground-ground and air-ground ATN applications

2.13 Regarding the interconnection of AMHS systems, following a test period that started in 2010 and some difficulties encountered, the interconnection between the AMHS development systems of Argentina-Peru, Brazil-Peru, and Brazil-Spain was successfully achieved. Commissioning with the AMHS systems in operation is foreseen for August 2014.

2.14 It is expected that all AMHS interconnections contemplated in the Region (26) will be implemented by 2016, in accordance with the Bogota Declaration.

2.15 The AIDC service between adjacent ACCs has not been implemented yet in the SAM Region. In this regard, successful operational trials have been conducted between Argentina-Paraguay (March 2014) through their development systems. Likewise, AIDC trials were conducted with partially successful results between Argentina–Chile, Chile-Peru, Colombia-Ecuador, Colombia-Panama, Colombia-Peru, and Ecuador-Peru (February-June 2014).

2.16 Regarding the AIDC service and in accordance with the Bogota Declaration, the goal is to implement 15 interconnections. The implementation schedule by year (2013-2015) is as follows: One in 2013, 8 in 2014 and 6 in 2015.

2.17 The *Guidance for the implementation of air-ground data link applications in the SAM Region* was developed in October 2013.

2.18 **Appendix B** to this working paper describes Project D for the CAR Region, and **Appendices C** and **D** describe Projects D1 and D2 for the SAM Region, respectively.

3. **Suggested action**

3.1 The Meeting is invited to:

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

b) review the status of implementation of project activities described in section 2 and Appendices A to D with a view to approving their planning, progress and implementation.

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APPENDIX A

FOLLOW-UP TO AN-CONF/12 RECO9MMENDATIONS

REC	Description	Follow-up / Impact on the Projects
1/1	The draft Fourth Edition of the Global Air Navigation Plan (Doc 9750, GANP)	Note was taken / Taken under consideration in the projects activities
1/2	Implementation	Note was taken / No impact on the projects
1/3	Guidance on business cases	Note was taken / No impact on the projects
1/4	Architecture	Note was taken / No impact on the projects
1/5	Time reference accuracy	Note was taken / No impact on the projects
1/6	Data communications issues	Note was taken / Recommendation is being applied in programmes projects
1/8	Rationalization of radio systems	Note was taken / No impact on the projects
1/12	Development of the aeronautical frequency spectrum resource	Note was taken / Taken under consideration in the projects activities
1/13	Potential use of fixed satellite service spectrum allocations to support the safe operation of remotely piloted aircraft systems	Note was taken / No impact on the projects
1/14	Long-term very small aperture terminal spectrum availability and protection	Note was taken / Consideration has been given and necessary measures have been taken in the design and implementation of the new regional digital networks
1/15	Performance monitoring and measurement of air navigation systems	Note was taken / No impact on the projects
1/16	Access and equity considerations	Note was taken / No impact on the projects
2/2	Development of ICAO provisions for remotely operated air traffic services	Note was taken / No impact on the projects
2/3	Security of air navigation systems	Note was taken / Recommendation has been taken into account in the digital and ATN applications projects
4/4	Positioning and tracking over oceanic and remote areas, and flight data triggered transmission	Note was taken / Taken under consideration in the projects activities
4/8	Crisis coordination arrangements and contingency plans	Note was taken / No impact on the projects
6/1	Regional performance framework – planning methodologies and tools	Note was taken / Projects activities have been aligned in accordance with the recommendation

REC	Description	Follow-up / Impact on the Projects
6/2	Guidelines on service priority	Note was taken / No impact on the projects
6/3	Assessment of economic, financial and social implications of air traffic management modernization and aviation system block upgrades deployment	Note was taken / No impact on the projects
6/4	Human performance	Note was taken / Taken under consideration in the projects activities
6/11	Regional performance framework – alignment of air navigation plans and regional supplementary procedures	Note was taken / No impact on the projects
6/12	Prioritization and categorization of block upgrade modules	Note was taken / Taken under consideration in the projects activities
6/13	Development of Standards and Recommended Practices, procedures and guidance material	Note was taken / No impact on the projects

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APPENDIX B

PROJECT ON THE ATN INFRASTRUCTURE IN THE CAR REGION AND ITS GROUND-GROUND AND GROUND-AIR APPLICATIONS

CAR Region	**DESCRI PROJECT DESCRIPTION (DP)**	**DP N° D**	
Programme	**Project Title**	**Starting Date**	**Ending Date**
Ground-ground and air-ground communications infrastructure (ICAO programme coordinator: Julio Siu)	ATN infrastructure in the CAR Region and its ground-ground and ground-air applications Project coordinator: Dulce Roses (United States) Experts contributing to the project: Carlos Jimenez (Cuba) Fernando Casso (Dominican Republic) Roger Perez/Eduardo Vega/Mayda Avila (COCESNA) Veronica Ramdath/ Randy Gomes (Trinidad and Tobago) ANI/WG MEVA TMG	March 2010	June 2015
Objective	Support the implementation of the ATN network in the CAR Region and its ground-ground and air-ground applications, based on the regional performance objectives of the NAM/CAR performance-based implementation plan (NAM/CAR RPBANIP) and the CAR/SAM ANP CNS Tables 1Ba, 1Bb, and 1Bc.		
Scope	The project scope includes: • an analysis of the existing capacity for CAR networks for ATN implementation • an assessment and definition of technical improvements and/or requirements for ATN implementation • guidelines and recommendations to expedite the implementation of ground-ground (AIDC, AMHS) and air-ground applications, taking into account Doc GOLD		
Metrics	• Percentage of implementation of ATN architecture and routers • Number of AMHS applications implemented in the CAR Region • Number of completed guidelines planned for ATN and its applications.		
Strategy	• Project activities were coordinated and will be coordinated through communications amongst the project members, the project coordinator and the programme coordinator, mainly via teleconferences and eventual meetings held during events according to the activities programme, as was the case of the different meetings of the working groups for the implementation in the CAR Region. • The project Coordinator will coordinate with the programme Coordinator, requirements from other projects and information from the NAM/CAR implementation working groups. Additional experts will be incorporated as required for specialized tasks. • The deliverables of this project will be sent to the programme Coordinator for its application in the NAM/CAR implementation groups.		

Goals	With this Project it is expected to support the following implementation goals of the NAM/CAR Regions : NAM/CAR RPBANIP ASBU-FICE Targets
Justification	Support implementation proposing core documentation so States can use it as a reference for the transition, testing, and ATN interconnection and to expedite ATN applications implementation according to the operation benefits expected.
Related projects	This project is related to the projects of Programme C (Situational Awareness)

Project Deliverables	**Relationship with the regional performance-Objectives (RPO) and ASBU B0 modules**	**Responsible**	**Status of Implementation[1]**	**Date of delivery**	**Comments**
Performance assessment of the MEVA II REDDIG interconnection	RPO 6 of NAM/CAR RPBANIP/ ACDM- FICE	Project D		Completed	Assessments made during MEVA TMG meetings
Technical study of CAR networks for ATN implementation	RPO 6 of NAM/CAR RPBANIP/ ACDM- FICE	Project D		Completed	Assessments made during MEVA TMG meetings
Assessment of preliminary test results to determine the required bandwidth for the ATN network in the CAR and SAM Regions	RPO 6 of NAM/CAR RPBANIP/ ACDM- FICE	Project D		Completed	Completed in 2010
Study for the configuration of an IP backbone network	RPO 4,5, 6, 7 and 8 of NAM/CAR RPBANIP/ RSEQ-SURF-ASUR-SNET-TBO-ACDM-FICE-DAIM-AMET	Dom. Rep/ COCESNA		December 2014	New IPv4 Addressing scheme proposed

[1] *Grey* *Task not started yet*
Green *Activity being implemented as scheduled*
Yellow *Activity started with some delay, but expected to 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	Status of Implementation[1]	Date of delivery	Comments
~~Study of communication requirements to support ATFM implementation~~	~~RPO 3 and 9 NAM/CAR RPBANIP~~	~~Cuba/ COCESNA~~		~~January 2014~~	~~Postponed by AFTM requirements definition for October 2013~~
~~Study of communication requirements to support the migration to the new OPMET format~~	~~RPO 9 and 12 NAM/CAR RPBANIP~~	~~United States/Cuba~~		~~January 2014~~	~~Requirements definition of the new OPMET format is pending~~
Plan for the transition of ATN and its applications in the CAR Region	RPO 4,5, 6, 7 and 8 of NAM/CAR RPBANIP/ RSEQ-SURF-ASUR-SNET-TBO-ACDM-FICE-DAIM-AMET	United States/COCESNA		Nov 2015	Adjusted due to MEVA III implementation
AMHS addressing plan	RPO 6 of NAM/CAR RPBANIP/ ACDM- FICE	States/ Territories/ International Organisations		Completed	
Plan for the implementation of ATN ground-ground applications (AMHS)		United States/Dom. Rep/ Cuba/ Trinidad and Tobago		Completed	CAR Regional Implementation Plan used by the CAR Implementation Groups. Two AMHS circuits are being tested.
Plan for the implementation of ATN ground-ground applications (AIDC)	RPO 6 of NAM/CAR RPBANIP/ ACDM- FICE	United States/COCESNA/ Cuba/ Trinidad and Tobago		Completed	Initial CAR Plan of AIDC implementation, through CPL-LAM messages: currently 2 AIDC services implemented in the CAR Region
Assessment and recommendations guide for the ATN applications ground-air implementation according to Doc GOLD	RPO 6 of NAM/CAR RPBANIP/ ACDM- FICE	United States/COCESNA/ Trinidad and Tobago		Dec 2015	In accordance to GOLD TF

Project Deliverables	Relationship with the regional performance-Objectives (RPO) and ASBU B0 modules	Responsible	Status of Implementation[1]	Date of delivery	Comments
Plan for the transition of ATN ground-air applications	RPO 6 of NAM/CAR RPBANIP/ ACDM- FICE	Project D		June 2016	
Monitoring of the implementation of available technology for ATN ground-air applications	RPO 6 of NAM/CAR RPBANIP/ ACDM- FICE	ICAO/ States/ Territories		June 2016	
Resources needed	Designation of experts and activities execution by the group of experts (WGs).				

APPENDIX C

SAM Region	PROJECT DESRICPTION (PD)	PD N° D1	
Programme	**Project Title**	**Starting Date**	**Ending Date**
Ground-ground and Air-ground Telecommunications Infrastructure (*Programme Coordinator: Onofrio Smarrelli)*	ATN Architecture in the SAM Region *Project Coordinator:* *Contributing experts: Omar Gouarnalusse (Argentina), Michel Areno (France), Jose Luis Paredes (Peru), Aldo Pereira (Paraguay), Francisco Almeida (Brazil) and Murilo Albuquerque Loureiro (Brazil)*	May 2010	November 2014
Objective	Study and implementation of optimum architecture for an IP protocol backbone network (REDDIG II) for the SAM Region		
Scope	Study and implementation of an IP backbone network for the SAM Region, including an optimum configuration and considering, among other deliverables, the following: • Technical review of the regional telecommunications networks (ground, satellite or mixed) for the implementation of ATN under a cost-benefit analysis • Holding of trials to determine the ATN bandwidth necessary to support ground applications • IP addressing scheme (IPv4 and IPv6) and analysis of the data communications infrastructure in support to ATS operational requirements in the short, medium and long term • Drafting of a safety guideline for the implementation of IP networks and of a routing policy for the SAM Region • Support in the bidding process by TCB (Montreal) and in the implementation of the IP backbone network for the SAM Region (REDDIG II)		
Metrics	• Drafting of a study for an IP backbone network for the SAM Region (REDDIG II) • Drafting of technical specifications for REDDIG II implementation • Drafting of a safety guideline for the implementation of IP networks and of a routing policy for the SAM Region • REDDIG II implementation phases completed		
Strategy	• All tasks will be conducted by experts nominated by States of the SAM Region members of the project *ATN Architecture in the SAM Region*, 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 and REDDIG II is implemented, 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	• Complete the drafting of a study for an IP backbone network for the SAM Region by October 2010 (completed) • Complete the drafting of technical specifications for REDDIG II implementation by August 2011 (completed) • Complete the drafting of a safety guideline for the implementation of IP networks and of a routing policy for the SAM Region by May 2013 (completed) • Complete the REDDIG II implementation phases by September 2014
Justification	• Implementation of an ATN IP backbone network for the SAM Region will permit the region having a high availability communications platform meeting current and future (voice and data) services requirements in support of air navigation, thus guaranteeing the required capacity, efficiency and safety. • This project contributes to the implementation of ASBU modules B0 FICE, B0 ASUR, B0 DATM and B0 AMET and SAM PFF CNS 01, CNS04, ATM 05, ATM 06, MET 04 and AIM 02 of the *Air Navigation System Performance-Based Implementation Plan for the SAM Region (SAM PBIP)*
Related Projects	• Automation • Improve ATM Situational Awareness • ATN Ground-ground and Air-ground Applications

Project Deliverables	Relationship with Performance Based Regional Plan (PFF) and ASBU Block 0 modules	Responsible	Status of Implementation[1]	Delivery Date	Remarks
Analysis of the current SAM communications network (REDDIG)	PFF SAM CNS 01	REDDIG Administration, Project Coordinator and Omar Gouarnalusse (Argentina)		August 2010	**Completed**
Analysis of the current MEVA II/ REDDIG interconnection	PFF SAM CNS 01	REDDIG Administration		June 2011	**Completed**
Analysis of the AMHS band width impact on the current REDDIG satellite infrastructure	PFF SAM CNS 01 B0 FICE	Project Coordinator and Omar Gouarnalusse (Argentina)		September 2010	**Completed**

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
Long term applications requirements in the SAM Region	PFF SAM CNS 01 PFF SAM CNS 04 PFF SAM MET 04 PFFs SAM ATM 05 and 06 PFF SAM AIM 02 B0 FICE B0 ASUR B0 DATM B0 AMET	ICAO		September 2010	**Completed**
Comparative study on satellite, ground and mixed (satellite and ground) IP based network models for the SAM Region	PFF SAM CNS 01	Project Coordinator, Omar Gouarnalusse (Argentina) and REDDIG Administration		October 2010	**Completed** Approved by REDDIG Member States
Definition of ATN IP network infrastructure model for the SAM Region	PFF SAM CNS 01	Project Coordinator, Omar Gouarnalusse (Argentina) and REDDIG Administration		October 2010	**Completed** Approved by REDDIG Member States

Project Deliverables	Relationship with Performance Based Regional Plan (PFF) and ASBU Block 0 modules	Responsible	Status of Implementation[1]	Delivery Date	Remarks
Completion of IPv4 addressing plan for the SAM Region	PFF SAM CNS 01	Project Coordinator and Omar Gouarnalusse (Argentina)		August 2010	**Completed** The addressing scheme was approved through GREPECAS Conclusion 16/37
Drafting of technical specifications for REDDIG II	PFF SAM CNS 01 PFF SAM CNS 04 PFF SAM MET 04 PFFs SAM ATM 05 and 06 PFF SAM AIM 02	Project Coordinator, Omar Gouarnalusse (Argentina) and REDDIG Administration		August 2011	**Completed** Approved by REDDIG Member States
Drafting of safety guideline for implementation of IP networks	PFF SAM CNS 01	REDDIG Administration		May 2013	**Completed** Presented and approved at SAM/IG/11 meeting
Drafting of routing policy document for the SAM Region	PFF SAM CNS 01	Project Coordinator		May 2013	**Completed** Presented and approved at SAM/IG/11 meeting

Project Deliverables	Relationship with Performance Based Regional Plan (PFF) and ASBU Block 0 modules	Responsible	Status of Implementation[1]	Delivery Date	Remarks
Support in the bidding process and in the offer evaluation	PFF SAM CNS 01	Project Coordinator, Omar Gouarnalusse (Argentina), Michel Areno (France), José Luis Paredes (Peru), Aldo Pereira (Paraguay) and REDDIG Administration		April 2012	**Completed**. The bidding was conducted by TCB, under coordination with the ICAO Regional office. The evaluation process will count with the REDDIG Administration and CNS experts selected by the REDDIG Member States
Support in the implementation of REDDIG II	PFF SAM CNS 01	REDDIG II Project Administration and REDDIG II focal points		November 2013-November 2014	The REDDIG SDD design document revision was completed (November 2013) The in-factory course was conducted (April 2014) The REDDIG II operation in factory inspection was carried out (May 2014) Coordination with all REDDIG II focal points regarding technical and administrative preparations for REDDIG II implementation, were carried out
Monitor the ATN architecture project activities in the SAM Region		ICAO		March 2010-November 2014	
Resources necessary	Economic contribution necessary for the implementation of REDDIG II				

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APPENDIX D

SAM Region	**PROJECT DESCRIPTION (PD)**	**PD N° D2**	
Programme	**Project Title**	**Starting Date**	**Ending Date**
Ground-ground and Air-ground Telecommunications Infrastructure (*Programme Coordinator: Onofrio Smarrelli)*	ATN Ground-ground and Air-ground Applications in the SAM Region *Project Coordinator: Gustavo Chiri (Argentina)* *Contributing experts: Javier Vittor (Argentina), Ruben Guillermo Silva (Argentina), Andres Jansen (Brazil), Murilo Loureiro (Brazil), Jorge Garcia (Perú) and Pedro Pastrian (Chile)*	May 2010	June 2016
Objective	Develop the implementation of ATN ground-ground and air-ground applications in the SAM Region		
Scope	Implementation of SAM ATN ground-ground and air-ground applications, including, at least: • Operational integration of international AMHS connections in the SAM Region • Operational integration of international AIDC connections in the SAM Region • Guidelines for the implementation of ground-air data in the SAM Region • Guideline for the implementation of AIDC		
Metrics	• Number of AMHS interconnections as per CAR/SAM FASID Table 1Bb • Number of AIDC interconnections as per CAR/SAM FASID Table 1Bb • Drafting of following guidelines: Guideline for the implementation of AIDC / Guideline for the implementation of ground-air data links in terminal, approach and aerodrome areas / DCL, DATIS and DVOLMET / CPDLC service through VDL 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 *ATN Ground-ground and Air-ground Applications in the SAM Region, and States of the SAM Region,* 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		
Goals	• Complete the migration towards the implementation of AMHS interconnection through IP protocol by December 2015 • Complete AIDC installation between adjacent FIRs by mid-2016 • Complete the drafting of guideline material for the implementation of AIDC; for the installation of ground/air data links in terminal, approach and aerodrome areas; DCL, DATS and DVOLMET; CPDLC service through VDL in the SAM Region by December 2013.		

Justification	• The implementation of ground-ground and air-ground data communications infrastructure will contribute to the reduction of air traffic control incidents, increasing the capacity of the transition of information with regard to the currently analogue based applications • This project contributes to the implementation of the ASBU modules B0 FICE, B0 TBO, B0 AMET and B0 DATM and SAM PFF SAM CNS 01, CNS 02, ATM 05, ATM 06, MET 03, MET04 and AIM 02 of the *Air Navigation System Performance-Based Implementation Plan for the SAM Region (SAM PBIP)*
Related Projects	• Automation (systems interconnection) • ATFM • Improve ATM Situational Awareness

Project Deliverables	Relationship with Performance Based Regional Plan (PFF)	Responsible	Status of Implementation[1]	Delivery Date	Remarks
Review of the regional strategy for the implementation of ground-ground and air-ground applications in the SAM Region	PFF SAM CNS 01 CNS 02 B0 FICE B0 TBO	Omar Gouarnalusse (Argentina)		June 2012	An initial review of the strategy was presented at SAM/IG/8 meeting (Lima, Peru, 10-14 October 2011). In July 2012, the Project Coordinator presented a preliminary version of the Guide, which was reviewed by the Programme Coordinator and presented at SAM/IG/10 implementation meeting for its review and approval
Guideline for the use of AIDC with the aim of reducing coordination errors	PFF SAM CNS 01 ATM 06 B0 FICE	Javier Vittor (Argentina) Ruben Guillermo Silva (Argentina)		April 2013	**Completed** The guideline was finalized and presented at SAM/IG/11 meeting (13-17 October 2013) and circulated to SAM States for review.
Guideline for the implementation ground-air data links in the SAM Region	PFF SAM CNS 02 ATM 06 B0 TBO	Andrés Jansen (Brazil)		October 2013	**Completed** The finalized guideline was presented and approved at SAM/IG/12 meeting

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)	Responsible	Status of Implementation[1]	Delivery Date	Remarks
Operational integration of AMHS among States	PFF SAM CNS 01 ATM 05 ATM 06 MET 03 MET 04 AIM 02 B0 FICE B0 AMET B0 DATM	States / Project Coordinator / Programme Coordinator		December 2015	Of all the AMHS installed in the Region, the following are interconnected in AMHS (P1 Protocol) Argentina-Paraguay, Colombia-Peru, Guyana-Suriname and Ecuador-Peru. Successful operational trials have been carried out between Brazil-Argentina, Brazil-Peru and Brazil-Spain
Operational integration of AIDC service between adjacent ACCs	PFF SAM CNS 01 ATM 06 B0 FICE	States / Project Coordinator / Programme Coordinator		June 2016	AIDC successful operational trials have been conducted between Argentina-Paraguay through the AMHS circuit. In addition, partially successful tests have been carried out between Argentina–Chile, Chile-Peru, Colombia-Ecuador, Colombia-Panamá, Colombia-Peru and Ecuador-Peru (February- June 2014)
Monitor the implementation of ATN ground-ground and air-ground applications activities in the SAM Region		ICAO		March 2010- June 2016	
Resources necessary	Implementation of AIDC operational integration by the States of the Region				