



Agenda Item 2: Optimisation of SAM airspace

- a) **PBN regional implementation**
- b) **Actions to standardise the longitudinal separation of en-route aircraft**
- c) **Analysis of the SAM route network, Version 5, and CAR interfaces**

FOLLOW-UP TO PBN IMPLEMENTATION

(Presented by the Secretariat)

SUMMARY	
<p>This working paper presents the evolution of PBN implementation activities and other implementations related to SAM airspace optimisation, so that States may identify those activities on which they need to focus their efforts in order to meet the defined goals.</p>	
References:	
<ul style="list-style-type: none"> – SAM/IG meetings – ATS/RO meetings – PANS-OPS workshops – GREPECAS/18 meeting 	
ICAO strategic objectives:	<ul style="list-style-type: none"> <i>A - Safety</i> <i>E – Environmental protection</i>

1. Background

1.1 Pursuant to GREPECAS Decisions 16/45 and 16/47, the “*Performance-based navigation (PBN)*” programme was structured with the following associated projects:

- a) Project A1 - PBN operational implementation; and
- b) Project A2 - Air navigation systems in support of PBN.

1.2 The GREPECAS/18 meeting (Dominican Republic, 9-14 April 2018) conducted a detailed analysis of PBN programme implementation in the CAR and SAM Regions, highlighting that a key to the success of projects was compliance with State commitments within the context of actions defined by the working groups, and the participation of decision-makers.

1.3 GREPECAS/18 noted that the commitments assumed under the Declarations of Bogota and Port-of-Spain had been an effective element of integration and commitment towards air navigation implementation in the two Regions, without forgetting that these Declaration had to be seen as a political guide agreed by States in consensus.

1.4 In this regard, GREPECAS/18 urged States to strengthen interregional coordination and to enhance State processes for publication and implementation of new routes or optimised routes within the agreed timelines, in line with the amendment to the regional e-ANP.

2. Discussion

2.1 The GREPECAS/18 meeting underlined the need for better coordination of efforts and projects between the CAR and SAM Regions. Accordingly, based on the recommendation of the Secretariat for both groups (RASG-PA and GREPECAS) to implement a common project management approach, it was agreed that project management techniques should be applied to all CAR and SAM projects, following GREPECAS/18 guidance.

2.2 Likewise, GREPECAS/18 approved the following conclusion:

CONCLUSION SAM/IG/21-01		REGIONAL AND INTERREGIONAL HARMONISED PBN IMPLEMENTATION GOALS	
That: <i>SAM States, organisations, users, and stakeholders double efforts to meet regional and interregional performance-based air navigation implementation goals, based on GREPECAS projects, and contemplating the strengthening of national PBN implementation plans, so that they include performance indicators and the use of recognised project management tools and methods.</i>		Expected impact: <input type="checkbox"/> Political / Global <input checked="" type="checkbox"/> Interregional <input checked="" type="checkbox"/> Economic <input checked="" type="checkbox"/> Environmental <input checked="" type="checkbox"/> Technical/Operational	
Why: <i>To complete the implementation of GANP PBN components selected for the SAM Region, taking into account interoperability in the boundaries with the CAR Region.</i>			
When: <i>Before 2021</i>		Status: <i>Adopted by SAM/IG/21</i>	
Who: <input checked="" type="checkbox"/> Coordinators <input checked="" type="checkbox"/> States <input checked="" type="checkbox"/> ICAO Secretariat <input type="checkbox"/> ICAO HQ <input checked="" type="checkbox"/> Other: <i>Users/Industry</i>			

2.3 Regarding national PBN implementation plans, it underlined the importance of implementing performance indicators (with a new ‘efficiency indicator’ approach) and the need to incorporate these PBN plans into national air navigation plans. This matter of indicators is presented by the Secretariat in detail in **IP/04**, in which it addresses the sixth edition of the Global Air Navigation Plan, Doc 9750.

2.4 By May 2019, the status of PBN operational implementation is as follows:

PBN en route

2.5 Implementation of PBN en route is addressed at ATS route network optimisation (ATSRO) meetings, based on route network versions, to ensure the best possible airspace structure at all times, within an integrated development concept.

2.6 In accordance with the activities scheduled by the RCC/12 meeting of RLA/06/901, Version 5 of the route network has been developed. **WP/04** submitted by the Secretariat analyses progress made in regional and interregional (CAR/SAM) coordination activities for the implementation of the optimised route version.

2.7 Likewise, the Secretariat has submitted **IP/07** on the development of the regional route catalogue in April 2019.

PBN in TMAs

2.8 SAM States continue to work to meet the PBN-based TMA redesign implementation dates. The status of planning is shown in the following table, to be commented upon and updated by the States concerned as applicable:

Redesign of selected TMA airspaces based on PBN plans		
	State	Implementation
Argentina	BAIRES	Phase 1.- October 2017. Optimisation of available resources. Completed. Phase 2.- 2017-2020. Introduction of the PBN concept. (See SAM/IG/20-IP/04) Phase 3. Total PBN redesign. Implementation expected by 2022.
	Cordoba	Start of redesign 1Q 2019, Implementation 2Q 2020
	Comodoro Rivadavia	Implementation 6 Dec 2018
	Bahia Blanca	Implementation 31 Jan 2019
	Salta/Jujuy	Implementation 28 Mar 2019
	Ushuaia/Rio Grande	Implementation 2Q 2019
	Mendoza	Implemented 19 Jul 2018
	Tucumán	Implemented 12 Oct 2017
	Rosario	Implemented 11 Oct 2018
	Bariloche	Implemented 8 Nov 2018
	Posadas	Start of redesign 3Q2019 Implementation 2Q2020
Bolivia	Cochabamba	Phase 1.- November 2019. LA PAZ FIR PBN TMAs. Phase 2.- TBD. Definitive PBN designs in the LA PAZ FIR with ATS surveillance
	La Paz	
	Santa Cruz	

Redesign of selected TMA airspaces based on PBN plans			
State		Implementation	
Brazil	Brasília	12 Nov 2015 (implemented)	
	Belo Horizonte	12 Nov 2015 (implemented)	
	Sao Paulo (partial modifications)	12 Nov 2015 (implemented)	
	Salvador	27 Apr 2017 (implemented)	
	Manaus	17 Aug 2017 (implemented)	
	(PBN SUR)	Curitiba	12 Oct 2017 (implemented)
		Florianópolis	
		Joinville	
		Navegantes	
		Porto Alegre	
		São Paulo (modifications) CW FIR route network	
	Sao Paulo (restructuring)	September 2020	
	Fortaleza, Natal, João Pessoa, Recife	November 2021	
Belém, Campo Grande and Sao Luis	October 2022		
Cuiabá, Boa Vista, Porto Velho and Rio Branco	October 2023		
Chile	Santiago (South)	8 Dec 2016 (implemented)	
	Santiago FIR route network		
Colombia	Bogota	12 Oct 2017 (implemented)	
	Medellín	June 2019	
	Pereira	September 2019	
	Cúcuta	December 2019	
	Bucaramanga	June 2020	
	San Andres	December 2020	
Ecuador	Guayaquil	21 Jul 2016 (implemented)	
	Manta	October 2019	
Guyana	Georgetown	February 2019	
Panama	Panama	Project starting in 2019.	
Paraguay	Asunción	17 Aug 2017 (implemented)	
Peru	Arequipa	First semester 2019	
	Cusco	Implemented 05/02/2015 (SUP 01/15)	
	Juliaca	Second semester 2019	
	Puerto Maldonado	Second semester 2019	
Suriname	Paramaribo	January 2019	
Uruguay	Carrasco and Laguna del Sauce	First semester 2018 * The Carrasco TMA will be optimised, coinciding with Phase 2 of the Baires TMA. The plan will be reviewed as a result of the assistance agreement with DECEA	
Venezuela	Maiquetía	December 2017	
	Isla Margarita	Foreseen 25 April 2019	

Implementation of SIDs, STARs, and PBN approach procedures

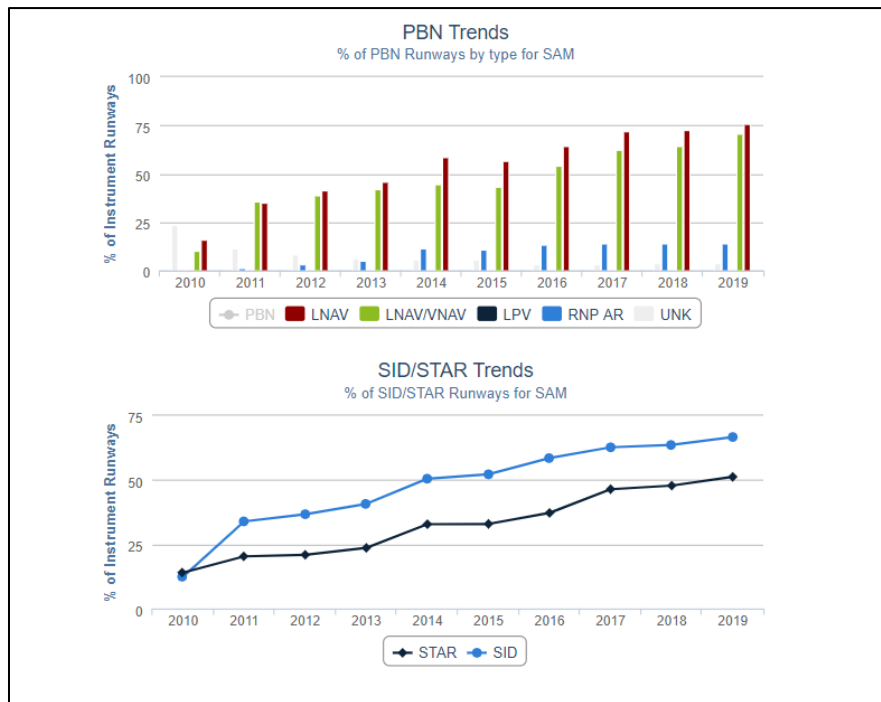
2.9 The ICAO iSTARS 3.0 website shows the status of implementation in 13 SAM States. Out of a total of 213 runway thresholds in the Region, PBN SID implementation reaches 66.7%, and PBN STAR implementation reaches 51.2%.

2.10 Associated to the design of arrival and departure procedures is the application of CDO and CCO methods, which have reached the following levels of implementation: CDO 34% and CCO 26%. In this regard, the ICAO SIMS website shows the first vertical efficiency indicators generated for CDO at some airports of the Region, as described in **IP/04**.

2.11 Regarding the implementation of PBN approaches pursuant to Resolution A37-11, out of a total of 213 runway thresholds (international airports), approach procedures with APV vertical guidance and/or LNAV minima only have been implemented in 185, reaching 86.9%, **accounting for 3.2% progress** with respect to 83.7% recorded in November 2018.

2.12 See details of the growing trend (2010-2019) of PBN regional implementation in Graph 1, in the ICAO portal:

<https://portal.icao.int/space/Pages/PBN-Status.aspx>



Graph 1.- PBN implementation trends

Transition from RNAV to RNP nomenclature

2.13 In September 2018, the PANS-OPS/3 workshop of the SAM Region addressed the initial planning of these activities. Information was provided on the publication of Circular 353, 'Transition Planning for Change to Instrument Flight Procedure Approach Chart Identification from RNAV to RNP', containing revised guidelines to support the implementation of the new PBN approach chart identification.

2.14 The purpose of the guidelines is to enable an effective management of the transition to the new chart identification, highlighting the need for coordinated transition planning at a global, regional and State level. It was noted that a regional plan for the transition to the identification of RNP instrument approach charts must be drafted and communicated to ICAO Headquarters.

2.15 Brazil has a significant number of charts to be updated (approximately 300). It is recognised that an action plan must be completed and aligned with the Regional Plan. Other States have between 80 and 100 PBN charts to be modified. It is expected that States will report on this matter at this Meeting.

2.16 The transition will require resources and great effort by all States, even more so because most of them are in the process of PBN implementation in TMAs and airports, a task that cannot be interrupted.

2.17 Circ. 353 defines ICAO Regions as the basis for transition planning. A joint CAR/SAM implementation scenario was analysed, and no need for synchronising dates for the two Regions was identified. The ANI PBN/TF meeting (NACC Office, Mexico DF, April 2019) addressed implementation based on the action plans of CAR States.

Seminar on the organisation of flight procedure design services (IFPD).

2.18 This seminar was conducted on 8-12 April 2019 to address the implementation of IFPD services in accordance with ICAO Annex 11 and LAR 211, aimed at strengthening the capacity of the Region to sustain PBN implementation and quality management over time. The results of this activity are presented by the Secretariat in **WP/23**.

Actions to optimise longitudinal separation between aircraft en route

2.19 A four-day workshop was conducted in November 2017 at the SAM Regional Office, in which an action plan was proposed to promote a reduction from 40 to 20 NM, and coordination took place for the signing and effective implementation of letters of agreement between States to consolidate the 40NM separation.

2.20 In this sense, Brazil has started standard implementation of the 20NM separation for aircraft entering its FIRs.

2.21 In this regard, each State must report the status of implementation of longitudinal separation minima between ACCs, with a view to updating the implementation follow-up table and revising the respective 2018-2019 action plan shown in Appendix A to this paper.

Project A2 - Air navigation systems in support of PBN

2.22 Regarding the implementation of GBAS technology, Brazil has reported that station SLS-4000 can be configured for use in Brazil for precision approaches between 6 a.m. and 6 p.m. (local time), using the CONUS (Continental United States) risk model, with possible discontinuities during operation due to satellite geometry.

2.23 Outside of that time frame, operation in accordance with ICAO SARPs of Annex 10, Vol. 1 cannot be guaranteed. The ionosphere over all the territory of Brazil shows severe behaviour, and the same operational restrictions must apply to the entire territory. The final report and the respective safety case are under development.

Activities and resources required for the implementation of the SAM Airspace Optimisation Action Plan, with the support of Project RLA/06/901

Activities and resources approved for 2019 with the support of Project RLA/06/901

2.24 The Twelfth meeting of the Coordination Committee of Project RLA/06/901 (RCC/12) approved the activities to be carried out in 2019 in support of SAM airspace optimisation, which have been scheduled/executed as follows:

- **(Completed)** Development of draft Version 05 of the SAM Route Network – Deliverable: SAM Route Network Version 05 document. (February 2019)
- **(Completed)** Seminar on the organisation of flight procedure design services (IFPD). – to address the implementation of the IFPD service in accordance with ICAO Annex 11 and LAR 211. Aimed at strengthening the capacity of the Region to sustain PBN implementation over time. (April 2019)
- **(Completed)** Development of a catalogue for planning and monitoring the implementation of regional ATS routes and flight procedures. Support for the first updating phase of the ICARD database. (April 2019)
- ATTSRO/10 - Follow-up to the implementation of Version 05 of the SAM Route Network. (Bogota, June 2019)
- Fourth workshop on PANS-OPS implementation. - Continue harmonising and coordinating PBN instrument procedures in the SAM Region, improving the PANS OPS design capacity of States. (October 2019)
- SAM/IG/24 - All air navigation implementation priorities in order to continue with implementation activities and the execution of action plans. (November 2019)

Strategy for PBN implementation through GESEA

2.25 SAM/IG meetings promote a strategy for PBN implementation in TMA airspace and en-route, through the approval of various activities. Other activities, such as aircraft separation workshops, the ATS/RO group, and the PANS-OPS workshop, are included in the airspace optimisation action plan.

2.26 Notwithstanding the above, the SAMIG/22 meeting agreed to establish the GESEA group, which seeks to increase the efficiency of the work promoted by the SAM/IG, without generating bureaucratic burden or additional costs.

2.27 GESEA will work through teleconferences and electronic mail and, as appropriate, in face-to-face activities under the RLA/06/901. The meeting formulated the following conclusion:

CONCLUSION SAM/IG/22-01 SAM Airspace Study and Implementation Group (GESEA)	
That: <i>The SAM Airspace Study and Implementation Group (GESEA) be established in accordance with the terms of reference approved by the SAM/IG meeting.</i>	Expected impact: <input type="checkbox"/> Political / Global <input type="checkbox"/> Inter-regional <input checked="" type="checkbox"/> Economic <input type="checkbox"/> Environmental <input checked="" type="checkbox"/> Technical/Operational
Why: <i>Considering that the PBN/SAM/IG needs to improve its work models in order to:</i> <ul style="list-style-type: none"> a) <i>address procedure design issues that are mainly discussed at the PANSOPS workshops;</i> b) <i>facilitate work by delving into specific and complex topics;</i> c) <i>provide the best conditions for working outside of meetings, via teleconferencing; and</i> d) <i>encourage the participation of new professionals in SAM airspace planning, as well as in other PANS OPS-related activities.</i> 	
When: <i>At SAM/IG/23</i>	Status: <i>Adopted by SAM/IG/22</i>
Who: <input type="checkbox"/> Coordinators <input checked="" type="checkbox"/> States <input checked="" type="checkbox"/> CAO Secretariat <input type="checkbox"/> CAO HQ <input type="checkbox"/> Other: Users/Industry	

2.28 The Secretariat was entrusted with sending a letter to States asking them to express their interest and capacity to designate technicians and experts to participate in the Group. In response, Bolivia, Brazil, Colombia, Chile, Paraguay, Peru and Uruguay expressed their interest. **Appendix B** contains the proposed list of experts to support GESEA.

2.29 As proposed by SAMIG/22, this Meeting shall define the coordinators for GESEA, the ATM planning subgroup, the PANS OPS subgroup, and others as required. Likewise, the definitive terms of reference of the Group must be defined.

3. Conclusion

3.1 Under the sponsorship of Project RLA/06/901, direct assistance continued to be provided to SAM States for PBN implementation in selected airspaces. The tools used for this purpose by the SAM Regional Office have been the PBN workshops and the implementation meetings (SAM/IG). GESEA supplements the work of SAM/IG and allows for a flexible organisation of the work of State experts, taking into account the complexity of some implementation issues.

3.2 Furthermore, the factors that hinder the attainment of objectives in the SAM Region have been identified, namely:

- a) scarce training (recurrent, refresher courses, etc.) offered to PANS OPS design and ATM/CNS planning personnel, and difficulty to retain such personnel;

- b) lack of specialised PANS OPS design software in 40% of the States; and
- c) overlap of ATS and airspace improvement activities, new mapping requirements that affect PBN implementation within the foreseen timeframe in some States.

4. **Suggested action**

4.1 The Meeting is invited to:

- a) take note of the information provided in this working paper;
- b) update the tentative dates for PBN-based redesign implementation in selected TMA airspaces;
- c) update information in **Appendix A** on the status of implementation of longitudinal separation optimisation in the SAM Region;
- d) analyse the composition of GESEA and the corresponding subgroups, based on the candidates listed in **Appendix B**;
- e) review the information provided in **Appendix C** regarding PBN implementation focal points;
- f) analyse the strategy for the transition from RNAV to RNP chart nomenclature; and
- g) coordinate with the Secretariat in case the States need to update or sign longitudinal separation LOAs or MOUs.

APPENDIX A

STATUS OF IMPLEMENTATION OF OPTIMISED LONGITUDINAL SEPARATION

ARGENTINA						
ACC	ACC ADJ	Longitudinal Separation				Comments
		40 NM GNSS/DME	Date of implementation	20 NM GNSS/DME	Date of implementation	
CORDOBA	IQUIQUE	YES	03/12/18			
	LA PAZ	YES	01/01/17			
	EZEIZA			YES	13/10/2016	
	MENDOZA			YES	13/10/2016	
	RESISTENCIA			YES	13/10/2016	There are some problems with VHF Com.
RESISTENCIA	ASUNCION		01/01/17			
	LA PAZ	YES	01/01/17			
	CORDOBA			YES	13/10/2016	
	CURITIBA	YES	01/01/17			
	EZEIZA			YES	13/10/2016	
EZEIZA	MONTEVIDEO	YES	01/01/17			
	COMODORO RIVADAVIA			YES	13/10/2016	
	MENDOZA			YES	13/10/2016	
	PUERTO MONTT	YES	03/12/18			
	CORDOBA			YES	13/10/2016	
MENDOZA	RESISTENCIA			YES	13/10/2016	
	MONTEVIDEO	YES	01/01/17	YES	2010	PAPIX, KUKEN and DORBO 20 NM
	EZEIZA			YES	13/10/2016	
	SANTIAGO			YES	03/12/2018	
	CORDOBA			YES	13/10/2016	
COMODORO RIVADAVIA	EZEIZA			YES	13/10/2016	
	PUNTA ARENAS	YES	03/12/18			
	PUERTO MONTT	YES	03/12/18			

*Updated by SAM/IG/22 Nov.2018

BOLIVIA						
*Updated by SAM/IG/22 Nov.2018						
ACC	ACC ADJ	Longitudinal Separation				Comments
		40 NM GNSS/DME	Date of implementation	20 NM GNSS/DME	Date of implementation	
LA PAZ	AMAZONICO	YES	01/01/17			Not being applied.
	ASUNCION	YES	01/01/17			Not being applied.
	CURITIBA	YES	01/01/17			Not being applied.
	CORDOBA	YES	01/01/17			Not being applied.
	LIMA	OG				Without agreement.
	IQUIQUE	OG				Agreements being handled.
	RESISTENCIA	YES	01/01/17			Not being applied.

BRAZIL						
*Updated by SAM/IG/22 Nov. 2018						
ACC	ACC ADJ	Longitudinal Separation				Comments
		40 NM GNSS/DME	Date of implementation	20 NM GNSS/DME	Date of implementation	
AMAZÓNICO	BRASILIA	---	---	---	---	10 NM
	BOGOTÁ	YES	13/10/16	YES	01/12/17	20 NM for Amazonico and 40 NM for Bogota
	CAYENNE	---	---	---	---	10 minutes
	CURITIBA	---	---	---	---	10 NM
	GEORGETOWN	YES	07/01/16			
	LA PAZ	YES	01/01/17			
	LIMA	YES	31/03/16	YES	01/12/2017	
	MAIQUETIA	YES	23/10/16			
	PARAMARIBO	YES	13/10/16			
	RECIFE	---	---	---	---	10 NM
BRASILIA	ATLANTICO	---	---	---	---	10 minutes
	AMAZÓNICO	---	---	---	---	10 NM
	CURITIBA	---	---	---	---	5 NM
CURITIBA	RECIFE	---	---	---	---	5 NM
	ASUNCION	YES	Mar/2016	YES	29/03/2018	20 NM for Curitiba and 40 NM for Asuncion
	AMAZONICO	---	---	---	---	10 NM
	BRASILIA	---	---	---	---	5 NM
	LA PAZ	YES	01/01/17			
	MONTEVIDEO	YES	01/01/17	YES	15/11/2018	10 NM under coordination
	RECIFE	---	---	---	---	5 NM
	RESISTENCIA	YES	01/01/17			
RECIFE	ATLANTICO	---	---	---	---	10 minutes
	AMAZONICO	---	---	---	---	10 NM
	BRASÍLIA	---	---	---	---	5 NM
	CURITIBA	---	---	---	---	5 NM
ATLANTICO	ATLANTICO	---	---	---	---	10 minutes
	AMAZÓNICO	---	---	---	---	10 minutes
	CURITIBA	---	---	---	---	Problems Com. VHF
	RECIFE	---	---	---	---	
ATLANTICO	CAYENNE	---	---	---	---	
	RECIFE	---	---	---	---	
	CURITIBA	---	---	---	---	

NOTE.- Before SAM/IG/21, 20 NM will be applied to receive traffic, entering the FIR of Brazil..

CHILE						
*Updated by SAM/IG/22 Nov. 2018						
ACC	ACC ADJ	Longitudinal Separation				Comments
		40 NM GNSS/ DME	Date of implementation	20 NM GNSS/ DME	Date of implementation	
SANTIAGO	IQUIQUE	NA	---	----	-----	5 NM
	MENDOZA	YES	3/12/2018			
	PUERTO MONTT	NA	----	----	----	5 NM
IQUIQUE	CORDOBA	YES	3/12/2018			
	LA PAZ	OG				Managing agreements
	LIMA	OG				Managing agreements
PUERTO MONTT	SANTIAGO	NA	---	----	----	5 NM
	PUNTA ARENAS	NA	----	----	---	5 NM
	EZEIZA	YES	3/12/2018			
	COMODORO RIVADAVIA	YES	3/12/2018			
PUNTA ARENAS	PUERTO MONTT	NA	----	----	----	5 NM
	COMODORO RIVADAVIA	YES	3/12/2018			

COLOMBIA						
*Updated by SAM/IG/22 Nov. 2018						
ACC	ACC ADJ	Longitudinal Separation				Comments
		40 NM GNSS/ DME	Date of implementation	20 NM GNSS/ DME	Date of implementation	
BOGOTA	AMAZONICO	YES	30/09/16			
	CENAMER	NO				MoU was not elaborated, for not guaranteeing efficient communications in the border area.
	GUAYAQUIL	YES	13/10/16			
	LIMA	YES	10/11/16			
	MAIQUETIA	YES	21/03/17			
	PANAMÁ	YES	13/10/16			
	BARRANQUILLA	YES	05/10/16			

COLOMBIA						
*Updated by SAM/IG/22 Nov. 2018						
ACC	ACC ADJ	Longitudinal Separation				Comments
		40 NM GNSS / DME	Date of implementation	20 NM GNSS/ DME	Date of implementation	
BARRANQUILLA	MAIQUETIA	YES	21/03/17			
	PANAMÁ	YES	13/10/16			
	BOGOTÁ	YES	05/10/16			
	KINGSTON	YES	15/06/13			
	CURAZAO	NO				MoU was not elaborated, for not guaranteeing efficient communications in the border área.

ECUADOR						
*Updated by SAM/IG/22 Nov. 2018						
ACC	ACC ADJ	Longitudinal Separation				Comments
		40 NM GNSS/ DME	Date of implementation	20 NM GNSS/ DME	Date of implementation	
GUAYAQUIL	BOGOTÁ	YES	13/10/16	O/G		The reduced separation of 40 NM is applied. Memorandum of Understanding between ATC service providers, signed.
	LIMA	YES	10/11/16	O/G		Implemented..
	CENAMER	NA	---	---	---	Oceanic separation.

FRENCH GUYANA						
*Updated by SAM/IG/20 Oct.2017						
ACC	ACC ADJ	Longitudinal Separation				Comments
		40 NM GNSS/ DME	Date of implementation	20 NM GNSS/ DME	Date of implementation	
CAYENNE	AMAZONICO	---	---	---	---	10 minutes
	PARAMARIBO	---	---	---	---	10 minutes
	PIARCO					No information available.

GUYANA						
*Updated by SAM/IG/22 Nov. 2018						
ACC	ACC ADJ	Longitudinal Separation				Comments
		40 NM GNSS/ DME	Date of implementation	20 NM GNSS / DME	Date of implementation	
GEORGETOWN	AMAZONICO	YES				Georgetown will propose 20nm tests.
	PIARCO	YES	17/08/2017			Georgetown will propose 20nm tests.
	MAIQUETIA	YES	19/03/2018			Georgetown will propose 20nm tests.

PANAMÁ						
*Updated by SAM/IG/22 Nov. 2018						
ACC	ACC ADJ	Longitudinal Separation				Comments
		40 NM GNSS/ DME	Date of implementation	20 NM GNSS/ DME	Date of implementation	
PANAMÁ	BOGOTÁ	YES	Oct/16	NO	TBD	Start conversations January 2019
	BARRANQUILLA	YES	Oct/16	NO	TBD	Start conversations January 2019
	CENAMER	YES	15/11/16	OG	April 2019	Likely date of implementation.
	KINGSTON	YES	10/12/16	NO	TBD	Start conversations January 2019
	PARAMARIBO	YES				Georgetown will propose 20nm tests.

PARAGUAY						
*Updated by SAM/IG/22 Nov. 2018						
ACC	ACC ADJ	Longitudinal Separation				Comments
		40 NM GNSS/ DME	Date of implementation	20 NM GNSS / DME	Date of implementation	
ASUNCION	CURITIBA	YES	Mar/16 date of SAMIG 16		28/03/ 2018	Traffic from Asuncion to Curitiba.
	LA PAZ	YES	01/01/17			
	RESISTÊNCIA	YES	01/01/17			Not being applied. Coordination with Argentina is required.

PERU						
*Updated by SAM/IG/22 Nov. 2018						
ACC	ACC ADJ	Longitudinal Separation				Comments
		40 NM GNSS/DME	Date of implementation	20 NM GNSS/DME	Date of implementation	
LIMA	AMAZONICO	YES	31/03/16			Pending revisión in LoA ACC Lima – ACC Amazonico. It is expected to apply from June 2019. In OSL Workshop full implementation was agreed
	BOGOTÁ	YES	31/03/16			Implemented
	OCEANICO	NA	---	---	---	Oceanic Separation
	IQUIQUE	OG				Managing agreements
	GUAYAQUIL	YES	10/11/16			Implemented
	LA PAZ	OG				There are limitations in the scope of air-ground communications. Without agreement.

SURINAME						
*Updated by SAM/IG/22 Nov. 2018						
E	ACC ADJ	Longitudinal Separation				Comments
		40 NM GNSS/DME	Date of implementation	20 NM GNSS/DME	Date of implementation	
PARAMARIBO	AMAZONICO	YES	13/10/16			Signed.
	GEORGETOWN	YES	29/03/16			Signed.
	PIARCO	N/A	---	---	---	Oceanic Separation.
	CAYENNE	N/A	---	---	---	10 minutes.

URUGUAY						
*Updated by SAM/IG/22 Nov. 2018						
ACC	ACC ADJ	Longitudinal Separation				Comments
		40 NM GNSS/DME	Date of implementation	20 NM GNSS/DME	Date of implementation	
MONTEVIDEO	CURITIBA	YES	01/01/17	YES	15/11/18	Coordinated with CAM and effective surveillance, can be 10 nm.
	EZEIZA	YES	01/01/17	YES	01/08/2017	
	RESISTENCIA	YES	01/01/17	YES	15/03/2018	

VENEZUELA						
*Updated by SAM/IG/22 Nov. 2018						
ACC	ACC ADJ	Longitudinal Separation				Comments
		40 NM GNSS/DME	Date of implementation	20 NM GNSS/DME	Date of implementation	
MAIQUETIA	AMAZONICO	YES	12/12/15			
	BOGOTA	YES	21/03/17			
	BARRANQUILLA	YES	21/03/17			
	PIARCO	OG				Negotiating
	CURAZAO	YES	31/01/19			Close to the signing of the LOA
	SAN JUAN	NO				San Juan does not have conditions to implement.
	GEORGETOWN	YES	19/03/18			

ACTION PLAN 2018 – 2019
"IMPROVEMENT AND NORMALIZATION OF MINIMUM LONGITUDINAL SEPARATIONS
EN ROUTE"

Phase 1; Consolidation of SLM 40 NM and initial actions to apply SLM 20 NM

- Define agreements to apply SLM 40 NM with CAR States (April 2018)
- Define application of SLM 40 NM in FIR La Paz (SAMIG/21)
- Feedback from Brazil on SLM 20 NM application (SAMIG/21)
- Feedback from COL, PER, ECU, VEN, PAN on SLM 20 NM application (SAMIG/21)
- Complete implementation of SLM 40 NM in the SAM continental space (SAMI /21)

Phase 2; Implementation of SLM 20 NM

- Post-implantation analysis SLM 40NM (SAMIG/22)
- Analysis of 20 NM unilateral application results in Brazil (SAMIG/22)
- Analysis of the results of SLM 20 NM States tests (SAMIG/22)
- Analysis of limitations and shortages (SAMIG/22)
 - a. ATS sectorization, ATS capacity measurement
 - b. Flow Management, appropriate application of initiatives.
 - c. Direct communications in VHF
 - d. ATS route network
 - e. Application of the AIDC, management of the FPL.
- Risk evaluation
- Define agreements to apply SLM 20 NM with CAR States (SAMIG/22)
 - a. Stage 1, aircrafts that land in the FIR
 - b. Stage 2, all aircrafts that enter the FIR
- Define agreements and application date of SLM 20 NM among SAM States (SAMIG/22)
 - a. Stage 1, aircrafts that land in the FIR
 - b. Stage 2, all aircraft that enter the FIR
- Complete implementation of SLM 20 NM in the SAM continental space (SAMIG/23 - 2019)
- SLM 20 NM post-implantation analysis (SAMIG/23 - 2019)

Phase 3; Implementation to apply SLM 10 NM, with ATS surveillance

(TBD)

APÉNDICE B / APPENDIX B

**ESPECIALISTAS PRESENTADOS PARA EL GRUPO GESEA /
ESPECIALISTS PRESENTED TO GESEA GROUP**

Bolivia

Luis Benjamín Rojas Santa Cruz

Brasil

Clovis Fernandes Junior

Colombia

Freddy Celis Ardila
Oscar Angarita Quiroga

Chile

Manuel A. Alvarez
Hector P. Ibarra

Paraguay

Tomas Yentzch
Liz Rocio Portillo
Robin Dacak

Peru

Tomas Macedo Cisneros

Uruguay

Gabriel Falco
Rosanna Baru
Gustavo Turcatti
Miguel Miraballes
Daniel Burgos
Irene Becker
Gonzalo Lima

APPENDIX C / APÉNDICE C

LIST OF CONTACTS FOR OPERATIONAL PBN FOCAL POINTS

LISTA DE CONTACTOS PARA PUNTOS FOCALES PBN

Updated during SAM/IG/22 / Actualizados en la SAM/IG/22

State / Estado	PBN FOCAL POINTS / PUNTOS FOCALES PBN
ARGENTINA	<p>Mariana Fernandez Administración Nacional de Aeronáutica Civil (ANAC) A/C Departamento Programación Técnica Tel: +54 11 5941 3000 Ext. 69193 E-mail: mafernandez@anac.gov.ar</p> <p>Rodrigo Devesa Diseño de Espacio Aereo Empresa Argentina de Navegación Aérea (EANA) Tel: +54 11 4320 2010 Cel: +54911 4088 6542 E-mail: rdevesa@eana.com.ar</p> <p>Diego Alberto Gamboa Jefe Departamento Diseño de Espacio Aéreo Empresa Argentina de Navegación Aérea (EANA) Tel: +5411 3092 7597 E-mail: dgamboa@eana.com.ar</p> <p>Maria Estela Leban Directora de Regulaciones Normas y Procedimientos Tel: 541159413000 int 69728 E-mail: meleban@anac.gob.ar</p>
BOLIVIA (Plurinational State of) / BOLIVIA (Estado Plurinacional de)	<p>Luis Benjamín Rojas Santa Cruz Dirección General de Aeronáutica Civil (DGAC) Especialista Planificación de Espacios Aéreos y Procedimientos de Vuelo Tel.: +591 4 422 1696 Cel.: +591 7203 5429 E-mail: lrojas@dgac.gob.bo lbrsc@hotmail.com</p>

State / Estado	PBN FOCAL POINTS / PUNTOS FOCALES PBN
BRAZIL / BRASIL	<p>Hugo Dominato Rossi Jefe ATM Departamento de Control del Espacio Aéreo (DECEA) Av. General Justo, 160 – Centro Rio de Janeiro 20.021-130, Brasil Tel: +55 21 2101 6278 E-mail: rossihr@decea.gov.br</p> <p>Rochelly de Miranda Corrêa Auxiliar ATM Departamento de Control del Espacio Aéreo (DECEA) Av. General Justo, 160 – Centro Rio de Janeiro 20.021-130, Brasil Tel: +55 21 2101 6197 E-mail: rochellyrhc@decea.gov.br</p>
CHILE	<p>Alfonso de la Vega Encargado Sección Navegación Aérea Dirección General Aeronáutica Civil (DGAC) Miguel Claro 1314 Providencia, Santiago, Chile Tel: +56 2 2439 2952 E-mail: adelavega@dgac.gob.cl; adelavega@vtr.net</p> <p>Hector Ibarra Martínez ATC Planificador ATM Dirección General Aeronáutica Civil (DGAC) Miguel Claro 1314 Providencia, Santiago, Chile Tel: +56 2 2836 4020 E-mail: hibarra@dgac.gob.cl</p> <p>Marco Abarca Daza ATC Diseñador de Procedimientos Dirección General Aeronáutica Civil (DGAC) Miguel Claro 1314 Providencia, Santiago, Chile Tel: +56 2 2290 4718 E-mail: mabarca@dgac.gob.cl</p>

State / Estado	PBN FOCAL POINTS / PUNTOS FOCALES PBN
COLOMBIA	<p>Medardo Arcesio Figueroa Guerrero Coordinador Grupo Gestión y Organización del Espacio Aéreo (ASM) Aeropuerto El Dorado – Centro de Gestión Aeronáutica de Colombia Bogotá, Colombia Tel: +57 1 4251000 ext 1461 E-mail: medardo.figueroa@aerocivil.gov.co</p>
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FRENCH GUIANA / GUYANA FRANCESA	<p>Philippe Rondel E-mail: philippe.rondel@aviation-civile.gouv.fr</p>
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PANAMÁ	<p>Ana Teresa Montenegro Inspectora ANS/PANS-OPS; Oficina de Vigilancia de la Seguridad Operacional para los Servicios de Navegación Aérea; Autoridad Aeronáutica Civil. Edif. N° 646 Ave. Demetrio Korsi, calle Héctor Conte Bermúdez, Albrook, Panamá. Tel: +507 315 9031 E-mail: amontenegro@aeronautica.gob.pa; anadeleón@aeronautica.gob.pa</p> <p>Alberto De Icaza Jefe de Diseño de Procedimiento de vuelo y Espacio Aéreo; Dirección de Navegación Aerea; Autoridad Aeronáutica Civil; Edif. N° 646 Ave. Demetrio Korsi, calle Héctor Conte Bermúdez, Albrook, Panamá. Tel: +507 315 9834 E-mail: adeicaza@aeronautica.gob.pa</p>

State / Estado	PBN FOCAL POINTS / PUNTOS FOCALES PBN
PARAGUAY	<p>José Luis Chávez Subdirector Gerente Servicios Aeronáuticos Dirección Nacional de Aeronáutica Civil Edif. Centro de Control de Área Unificado – Mariano Roque Alonso Av. Mompox c/ José Félix Bogado Tel: +59521 758 5022 Cel: +595 99 1 249 969 E-mail: joselch@gmail.com</p> <p>Tomas Alfredo Yentzch Irala Subdirector de Navegación Aérea Dirección Nacional de Aeronáutica Civil Mariscal López e/ 22 de setiembre – Edif. Ministerio de Defensa Nacional Tel: + 59521 211978 Cel: + 595 981 535886 E-mail: tayi68@gmail.com; tyentzch@dinac.gov.py</p>
PERÚ	<p>Sady Orlando Beaumont Valdez Inspector Navegación Aérea Dirección General de Aeronáutica Civil (DGAC) Ministerio de Transportes y Comunicaciones Jirón Zorritos 1203 Lima, Perú Tel: +51 1 615 7880 E-mail: sbeaumont@mtc.gob.pe</p> <p>Tomás Ben-Hur Macedo Cisneros Experto PANS-OPS en el Área de Normas y Procedimientos Controlador de Tránsito Aéreo CORPAC S.A. Av. Elmer Faucett 3400 Callao, Perú Tel: +511 414 1364 E-mail: tmacedo@corpac.gob.pe</p>

State / Estado	PBN FOCAL POINTS / PUNTOS FOCALES PBN
SURINAM / SURINAME	<p>Kalawatie Radha Atwaroe Air Traffic Controller / Controlador de Tráfico Aéreo (ATM) Suriname Civil Aviation Department Tel: +597 855 5025 Email: radha_atwaroe@hotmail.com</p> <p>Quincy Cyrus Air Traffic Controller / Controlador de Tráfico Aéreo Suriname Civil Aviation Department Tel: +597 857 0648 Email: qcyrus83@gmail.com</p>
URUGUAY	<p>PUNTOS FOCALES PBN DEL ESTADO</p> <p>DINACIA / DGAC Tte Cnel. (Av.) Pedro Cardeillac Director de Navegación Aérea Tel: +598 2 604 0408 Ext 4001 E-mail: pcardeillac@dinacia.gub.uy</p> <p>DINACIA / DGAC Rosanna Barú Inspectora Navegación Aérea Tel: +598 2 604 0408 Ext 4461 E-mail: rbaru@dinacia.gub.uy</p> <p>PUNTOS FOCALES PBN ANSP OPERACIONALES</p> <p>DINACIA / DGIA Tte Cnel. (Nav.) Gabriel Falco Director de Circulación Aérea Tel: +598 2 604 0408 Ext 5101 Cel: +598 9 804 6848 E-mail: gfalco@dinacia.gub.uy</p> <p>DINACIA / DGIA Director de Tránsito Aéreo Gustavo Turcatti Tel: +598 2 604 0408 Ext 5105 E-mail: dta@dinacia.gub.uy</p> <p>DINACIA / DGIA Miguel Miraballes Tel: +598 2 604 0408 ext 5105 E-mail: miguel.miraballes@dinacia.gub.uy</p>

State / Estado	PBN FOCAL POINTS / PUNTOS FOCALES PBN
VENEZUELA (Bolivarian Republic of) / VENEZUELA (República Bolivariana de)	Omar Enrique Linares Coordinador Nacional ATS Jefe de Área de Planificación de Espacios Aéreos Instituto Nacional de Aviación Civil - INAC Aeropuerto Internacional Simón Bolívar Edificio ATC, piso 1, Oficina AIS Maiquetía, Vargas República Bolivariana de Venezuela Tel: +58 212 3034513; +58 424 4318754 E-mail: o.linares@inac.gob.ve ; ollinaresomar2@gmail.com

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