International Civil Aviation Organization
CAR/SAM Regional Planning and Implementation Group (GREPECAS)

Second GREPECAS–RASG-PA Joint Meeting

Twentieth Meeting of the CAR/SAM Regional Planning and Implementation Group

GREPECAS/20

Final Report

Salvador, Brazil, 15 – 18 November 2022

Prepared by the Secretariat

February 2023

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HISTORICAL

ii.1 Place and Date of the Meeting

The Second GREPECAS–RASG-PA Joint Meeting and the Twentieth Meeting of the CAR/SAM Regional Planning and Implementation Group (GREPECAS/20) were held at Salvador, Brazil, from 15 to 18 November 2022.

ii.2 Opening Ceremony

Messrs. Javier Vanegas, RASG-PA Co-Chairman, International Organizations/Industry, Héctor Porcella, GREPECAS Chairperson, Ary Rodrigues Bertolino, GREPECAS Vice-Chairperson, Melvin Cintron, Regional Director of the North American, Central American and Caribbean (NACC) Office of the International Civil Aviation Organization (ICAO) and GREPECAS Secretary, Juan Carlos Salazar, ICAO Secretary General, and Joao Tadeu Fiorentini, Director General of DECEA, Brazil, provided opening remarks. Furthermore, Brazil was thanked for hosting the meetings.

ii.3 Officers of the Meeting

As afore-mentioned, Second GREPECAS–RASG-PA Joint Meeting and the Twentieth Meeting of the CAR/SAM Regional Planning and Implementation Group (GREPECAS/20) were held with the participation of the Chairperson and Vice-Chairperson. Mr. Héctor Porcella, GREPECAS Chairperson, chaired the meeting plenary, supported by Rodrigues Bertolino, GREPECAS Chairperson. Mr. Melvin Cintron, Regional Director of the ICAO NACC Regional Office served as Secretary of the Meeting, supported by Mr. Fabio Rabbani, Regional Director of the ICAO SAM Regional Office, and by the Deputy Regional Directors of the ICAO SAM and NACC Regional Offices, Messrs. Oscar Quesada and Julio Siu.

ii.4 Working Languages

The working languages of the Meeting were English and Spanish. The working papers, information papers and draft report of the meeting were available to participants in both languages.

ii.5 Schedule and Working Arrangements

It was agreed that the working hours for the sessions of the meeting would be from 08:30 to 16:00 hours daily with adequate breaks.

ii.6 Agenda

Agenda Item 1: Adoption of the Provisional Agenda and Schedule

Agenda Item 2: Global and Regional Developments

- 2.1 Review of Actions Taken by the ICAO Air Navigation Commission (ANC) on GREPECAS and Regional Aviation Safety Group–Pan America (RASG-PA) Reports
- 2.2 Global Updates Related to COVID-19 Actions Including Outcomes from High-Level Conference on COVID-19 (HLCC 2021)
- 2.3 Programmes and Projects Progress Report
- 2.4 CAR/SAM Regional Air Navigation Plan Vol. III Work Update and Regional Progress
- 2.5 ICAO Assembly 41st. Session Results and Relevant Outcomes
- 2.6 CAR/SAM Regions Aviation Statistics and Forecasts

Agenda Item 3: Second GREPECAS-RASG-PA Joint Meeting

- 3.1 Follow-up on the GREPECAS and RASG-PA Conclusions and Decisions
- 3.2 CAR/SAM Regions Air Navigation Priorities, Targets and Emerging Risks
- 3.3 Air Navigation Subjects of Interest to RASG-PA and Safety Subjects of Interest to GREPECAS
- 3.4 Dates and Venue of the Next GREPECAS/21 & RASG-PA/13 Joint Meeting,

Agenda Item 4: Reports of the GREPECAS Contributory Bodies: Scrutiny Working Group (GTE), Latin American and Caribbean Association of Airfield Pavements (ALACPA), CAR/SAM Regional Bird/Wildlife Hazard Prevention Committee (CARSAMPAF) and Data Analysis Working Group (DAWG)

Agenda Item 5: GREPECAS Work Programme

- 5.1 Global Air Navigation Plan developments (GREPECAS Dashboard)
- 5.2 Reviewed Edition of the GREPECAS Procedural Handbook
- 5.3 GREPECAS Work Programme

Agenda Item 6: Election of the Chairperson and Vice-Chairperson of the GREPECAS

Agenda Item 7: Other Business

ii.7 Attendance

The Meeting was attended by 14 States/Territories from the NAM/CAR/SAM Regions, 8 International Organizations, totalling 73 delegates as indicated in the list of participants.

ii.8 Draft Conclusions and Decisions

The Meeting recorded its activities as Draft Conclusions and Decisions as follows:

GREPECAS records its action in the form of conclusions and decisions as follows:

Conclusions deal with matters, which in accordance with the Group's terms of reference require direct attention of States/Territories and/or International Organizations, or on which further action will be initiated by ICAO in accordance with established procedures.

Decisions deal with matters of concern only to the GREPECAS and its Contributory Bodies organization.

ii.8 List of Conclusions

ii.8 Conclusions and Decisions

Number	Title	Page
GREPECAS/20/01	***AMENDMENT TO PROJECTS A1 OF THE CAR AND SAM REGIONS ON THE IMPLEMENTATION OF PBN, WITH THE PURPOSE OF DEVELOPING CONCEPTS FOR THE OPTIMIZATION OF THE AIRSPACE.***	2-9
GREPECAS/20/02	***APPROVAL OF THE PROJECTS ON THE IMPLEMENTATION OF THE SEARCH AND RESCUE SERVICE (SAR) FOR THE CAR AND SAM REGIONS***	2-11
GREPECAS/20/03	***STUDY ON OPERATIONAL PRIORITIES FOR THE IMPLEMENTATION OF ADS-B AND ASPECTS OF THE USE OF ADS-B IN ATC UNITS.***	2-13
GREPECAS/20/11	***APPROVAL OF THE GTE/MAC TERMS OF REFERENCE***	3-6

ii.9 List of Working and Information Papers and Presentations

Refer to the Meeting web page:
https://www.icao.int/NACC/Pages/meetings-2022-grepecas20.aspx

WORKING PAPERS

Number	Agenda Item	Title	Date	Prepared and Presented by
WP/01 Rev2.	1	Adoption of the Provisional Agenda and Schedule	27/10/22	Secretariat
WP/02	2.2	Global updates related to COVID-19 Actions, including the outcomes of the High-Level Conference On COVID-19 (HLCC 2021) and its impact on ANS	18/10/22	Secretariat
WP/03	2.3	AIS/AIM Program Review	20/10/22	Secretariat
WP/04	2.3	Performance-Based Navigation - PBN and Air Traffic Flow Management - ATFM programs	05/11/22	Secretariat
WP/05	2.3	Review and status of aerodrome F program projects	20/10/22	Secretariat
WP/06	2.3	CNS programmes and projects - CAR/SAM	24/10/22	Secretariat
WP/07	2.3	Report of the MET Program for the SAM Region	09/11//22	Secretariat
WP/08	2.3	SAR implementation support project in the CAR/SAM regions / Proyecto de apoyo a la implementación SAR en las regiones CAR/SAM	03/11/22	Secretariat
NE/09	2.4	Actualización del Plan Regional de Navegación Aérea y Formulación del Vol. III	07/11/22	Secretariat
WP/10	2.4	Procedures proposal for amendments to VOL.-III of the Regional Air Navigation Plan	09/11/22	Secretariat
WP/11	2.5	Relevant outcomes on air navigation matters of the 41st Session of the ICAO Assembly	10/11/22	Secretariat

WORKING PAPERS

Number	Agenda Item	Title	Date	Prepared and Presented by
WP/12 Rev.	2.6	Aviation statistics and forecasts for CAR/SAM regions	20/10/22	Secretariat
WP/13	3.3	Air navigation issues of interest to RASG-PA and operational security issues of interest to GREPECAS	8/11/22	Secretariat
WP/14 Rev.	3.2	Mitigation measures implemented due to the commissioning of 5G technology	07/11/22	Secretariat
WP/15	2.3	Avance del desarrollo del sitio web de AIM	29/10/22	Secretariat
WP/16 Rev.	4	Report of the Scrutiny Working Group	29/10/22	Secretariat
WP/17	Cancelled			
WP/18	4	Second Meeting of the GREPECAS Data Analysis Working Group (DAWG 02)	31/10/22	Secretariat
WP/19 Rev2.	2.3	Air space optimization	27/10/22	Secretariat
WP/20	Cancelled			
WP/21	5.3	GREPECAS work proposal for the 2022-2025 triennium	20/10/22	Secretariat
WP/22	2.1	Council review of PIRG and RASG reports	14/10/22	Secretariat
WP/23	6	Election of the new Chairperson and Vice-Chairperson of GREPECAS	07/11/22	Secretariat
WP/24	7	Management of 5LNC codes follow up	12/10/22	Secretariat
WP/25	7	Green ATM Accreditation Programme - Supporting Operational Measures for Green Aviation	17/10/22	CANSO
WP/26	3.2	Cybersecurity in air navigation services	17/10/22	CANSO
WP/27	2.5	Management of aeronautical frequencies for Air Navigation Services	11/11/22	Secretariat
WP/28 Rev.	2.3	Guidance for states on parameters to monitor the performance of Automatic Dependent Surveillance - Broadcast (ADS-B) systems	11/11/22	Secretariat
NE/29 Rev.	2.3	El AIM en Brasil	25/10/22	Brazil
NE/30 Rev.	2.3	Uso de imágenes de aeronaves pilotadas a distancia en la elaboración de Cartas aeronáuticas de aeródromos (ADC) y Plataforma (PDC) En Brasil	25/10/22	Brazil

WORKING PAPERS

Number	Agenda Item	Title	Date	Prepared and Presented by
NE/31 Rev.	2.3	Verificación automática de las discrepancias en las altitudes de los obstáculos mediante modelos digitales de elevación	25/10/22	Brazil
NE/32	7	Programa SIRIUS Brasil	25/10/22	Brazil
NE/33 Rev.	2.3	El Sistema de gestión de la calidad aplicado al AIM en Brasil	25/10/22	Brazil
NE/34 Rev.	2.3	Zona de restricción de vuelo (FRZ) para las operaciones de aeronaves no tripuladas alrededor de los aeródromos	25/10/22	Brazil
NE/35 Rev.	2.3	Toma de decisiones en colaboración a nivel aeropuerto (A-CDM) en el Aeropuerto Internacional de São Paulo/Guarulhos	25/10/22	Brazil
WP/36	2.3	Progress, challenges and advantages of Automatic Dependent Surveillance – Broadcast (ADS-B) implementation in the SAM region	25/10/22	Colombia
NE/37 Rev.	2.3	Optimización del espacio aéreo en Brasil	25/10/22	Brazil
WP/38 Rev.	2.3	Airport efficiency program	28/10/22	IATA
WP/39 Rev.	2.3	Air traffic flow management (ATFM) in CAR/SAM Regions	28/10/22	IATA
WP/40 Rev.	2.3	Direct Routing (DCT) Strategy for CAR/SAM regions	28/10/22	IATA
WP/41	2.3	Progress report by the Air Traffic Flow Management (ATFM) Task Force	27/10/22	Secretariat
NE/42	2.3	Desarrollo de la Gestión de afluencia del tránsito aéreo (ATFM) en Brasil	28/10/22	Brazil
WP/43	3.1	Update of the CAR/SAM Regional Guidance Material on Air Traffic Services Quality Assurance Programmes	25/10/22	Secretariat
WP/44	2.5	Promote initiatives in support of gender equality in civil aviation	25/10/22	Uruguay
NE/45	2.4	Traducción del Plan de navegación aérea	25/10/22	Uruguay
NE/46	3.2	Notificación de deficiencias	25/10/22	Uruguay
NE/47	3.3	Necesaria interacción en la Región entre el Plan Mundial de Navegación Aérea (GANP) y el Plan Global para la seguridad operacional de la aviación (GASP)	25/10/22	Uruguay
WP/48	2.3	Seguimiento a la Guía de entrenamiento y capacitación para el personal AIS/AIM de la Región SAM	30/10/22	Secretariat
WP/49	2.5	ICAO programme for gender equality	8/11/22	Secretariat

WORKING PAPERS

Number	Agenda Item	Title	Date	Prepared and Presented by
WP/50	3.2	The United States Federal Aviation Administration Space Activity Coordination	09/11/22	United States
NE/51 Rev.	3.2	Interferencias por implementación 5G en Centroamérica	10/11/22	COCESNA
NE/52 Rev.	2.4	Actualización de los Planes Nacionales de Navegación Aérea (NANP) de Centroamérica y COCESNA	10/11/22	COCESNA
NE/53 Rev.	2.3	Regulación ADS-B en la FIR de Centro América	10/11/22	COCESNA

INFORMATION PAPERS

Number	Agenda Item	Title	Date	Prepared and Presented by
IP/01 Rev3.	--	List of Working and Information Papers	8/11/22	Secretariat
IP/02 Rev.	2.5	High-level review of the ICAO 41ST Assembly	12/10/22	Secretariat
IP/03 Rev.	2.5	Follow-up of the Conclusions and Decisions of GREPECAS	8/11/22	Secretariat
IP/04	3.2	Cybersecurity in civil aviation	27/10/22	Secretariat
NI/05	4	Actividades de la Asociación Latinoamericana y Caribeña de Pavimentos Aeroportuarios - ALACPA	07/10/22	ALACPA
NI/06	4	Sello de buen servicio en gestión de fauna en la aviación	12/10/22	CARSAMPAF
NI/07	4	Apoyo del Comité Regional CARSAMPAF a los Estados en la implementación y realización de los comités o foros nacionales de gestión de la fauna	12/10/22	CARSAMPAF
NI/08	4	Lista de verificación Doc 9137 -Parte 3, Quinta Edición	12/10/22	CARSAMPAF
NI/09	4	Programa de alerta temprana de migración de aves para la aviación	12/10/22	CARSAMPAF
NI/10	4	Primera edición de la revista CARSAMPAF	12/10/22	CARSAMPAF
IP/11	Cancelled			
IP/12 Rev.	2.3	CIMAER and weather services	25/10/22	Brazil
IP/13	3.2	The United States Federal Aviation Administration Advanced Air Mobility Activities	27/10/22	United States

INFORMATION PAPERS

Number	Agenda Item	Title	Date	Prepared and Presented by
IP/14	2.3	Terms of Reference, RA IV Expert Team on Services for Aviation (RA IV ET-AVI)	27/10/22	United States
IP/15 Rev.	2.3	Overview on exchange models	27/10/22	United States
IP/16	7	Innovative technology use in the extraction of flight constraints recorded in Letters of Agreement (LOA)	27/10/22	United States
IP/17	3.2	United States Unmanned Aircraft System Traffic Management	27/10/22	United States
IP/18	2.3	ICAO Meteorological Information Exchange Model (IWXXM) status for the United States	27/10/22	United States
IP/19	2.3	World Area Forecast System (WAFS) upgrades	27/10/22	United States
NI/20 Rev.	2.3	Información de Concentración de ceniza volcánica – Quantitative Volcanic Ash (QVA) information	06/11/22	Argentina
IP/21	2.5	Managing changes to spectrum use for safe coexistence	09/11/22	United States
NI/22	2.3	Red ATN-BR (Red de tránsito aéreo – Brasil)	14/11/22	Brasil
IP/23	2.3	ADS-B Implementation in the Santos Oil Basin	14/11/22	Brazil
NI/24	4	Encuesta regional de peligro aviario y fauna dirigida a los Estados CAR y SAM	14/11/22	CARSAMPAF
IP/25	2.3	Report of the MET program for the CAR region	14/11/22	Secretariat

PRESENTATIONS

Number	Agenda Item	Title	Presented by
1	5.1	GREPECAS Dashboard	Secretariat
2	2.3	Evolution of ATFM in Brazil	Brazil

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Agenda Item 1 Adoption of the Provisional Agenda and Schedule

1.1 Under WP/01, the GREPECAS Chairperson submitted for consideration of the Meeting the Provisional Agenda and schedule, which had no objection to their approval. Under IP/01REV, details on the documentation for this Meeting were presented.

1.2 Administrative aspects and logistical support were taken into account, and it was suggested that the Meeting carry out its work in plenary sessions and adopt the modality and working hours that were presented.

1.3 The GREPECAS Chairperson finally emphasized the importance of reviewing and updating GREPECAS Projects and implementation actions in support of the States of the CAR/SAM Regions.

Agenda Item 2 Global and Regional Developments

2.1 Review of Actions Taken by the ICAO Air Navigation Commission (ANC) on GREPECAS and Regional Aviation Safety Group–Pan America (RASG-PA) Reports

2.1.1 Under WP/22, the Meeting was informed of the outcome of the Air Navigation Commission (ANC) and the Council review of the Nineteenth Meeting of The Caribbean and South American (CAR/SAM) Regional Planning and Implementation Group (GREPECAS/19) and of the Eleventh Meeting of the Regional Aviation Safety Group Pan America (RASG-PA/11) that took place on 28 October 2021 and 4 November 2021 (AN WP/9536).

2.1.2 The Meeting was informed that the Commission noted with satisfaction the quality and usefulness of the GREPECAS/19 and RASG-PA/11 reports, which reflect very good progress in the regions. The Meeting noted that Commission agreed that, as in other regions, an increase in the number of participants in the GREPECAS Meeting since the introduction of virtual Meetings. The Commission was informed that several regional guidance and assistance documentation were developed as preventive measures for Air Traffic Services (ATS) and Air Navigation Services (ANS) personnel to mitigate the COVID-19 pandemic impact. With regard to the updating of the CAR/SAM Regional Air Navigation Plan (RANP), the Commission was informed of the work thereon undertaken by the GREPECAS, specifically the development of Volume III, but also the updates needed on Volumes I and II.

2.1.3 With regard to implementation performance, the Commission was informed that the CAR/SAM States have reached an agreement on an initial list of Key Performance Indicators (KPIs) to be used for performance monitoring together with the implementation of a Prototype GREPECAS Dashboard for presenting the status of ANS implementation in the CAR/SAM Regions. The Commission was informed that the GREPECAS implementation mechanism had been enhanced through the strengthening of regional entities such as the CAR/SAM Regional Bird/Wildlife Hazard Prevention Committee (CARSAMPAF), the Latin American and Caribbean Association of Airfield Pavements, (ALACPA), and the Scrutiny Working Group (GTE), and that more involvement of industry partners such as ACI was encouraged.

2.1.4 The Meeting was informed that the Commission noted that many States of the CAR/SAM Regions had benefitted from webinars to assist them in addressing the corrective action plans developed, following the global campaign for Notice for airmen (NOTAM) improvement. Similarly, as part of the achievements of the GREPECAS, the Commission noted that several regional documents were approved for SNOWTAM Emission and the Guide for the GREPECAS Airport Collaborative Decision Making (A-CDM) implementation.

2.1.5 The Commission was informed that operations in the Reduced Vertical Separation Minimum (RVSM) airspace have been maintained within the acceptable level of safety and that the region continued to work to improve its performance. The Commission noted that the coordination errors between Air Traffic Control (ATC) units were identified as the main causes of Large Height Deviations (LHDs) observed in the CAR/SAM Regions. This is addressed through the implementation of ATS Inter-facility Data Communications (AIDC), ATS Message Handling System (AMHS), Automatic Dependent Surveillance—Broadcast (ADS-B), as well as the surveillance data exchange.

2.1.6 The Commission was informed that additional initiatives to improve the RVSM performance in the region includes the harmonization of the Manual for Point of Contacts (PoCs) accredited to the CAR/SAM Monitoring Agency (CARSAMMA) with the guidelines of CARSAMMA in order to improve functional duties of the PoCs and optimize the quality of data provided by the States to CARSAMMA. The Commission noted with satisfaction that, overall, there was a significant reduction in the number of identified Air Navigation Services (ANS) deficiencies in the GREPECAS member States.

2.1.7 The Commission noted GREPECAS/19's request to consider the need to update and harmonize the procedure for the collection of data on ANS deficiencies and the concerns raised that some States in the region do not provide the requested data or do not submit them properly, making it difficult for GREPECAS to have sufficient and complete data to properly assess progress. The Commission agreed with the need to establish a reliable data source to develop harmonized ANS indicators for common acceptance and reporting of ANS implementation.

2.1.8 The Meeting was informed of the concern raised by the RASG-PA/11 regarding the mismatch between the frequency of the Universal Safety Oversight Audit Programme (USOAP) audit cycle and the frequency for Regional Aviation Safety Group (RASGs) to report the level of progress of regional implementation of the ICAO Global Aviation Safety Plan (GASP). It was noted that there is an incompatibility between the references to achieve the GASP targets that depend on the increase in Effective Implementation (EI), and the frequency of the USOAP audit cycle (which currently constitutes the only recognized mechanism for measuring such progress), and the frequency with which RASGs are required to report the level of progress of regional implementation.

2.1.9 The Commission was informed that a regional initiative was implemented which allows to measure some indicators without the need to wait for the next USOAP audit cycle and enables the Regional Office to prioritize and plan assistance missions. The Commission welcomed the opportunity offered to address this concern with the on-going work of the GASP Study Group (GASP-SG) in relation to the RASG-PA suggestion to consider allowing regional groups to report GASP implementation using EI or alternative means.

2.1.10 The Commission requested the Secretariat to further consider the suggestion from RASG-PA to the GASP-SG to allow regional groups to report GASP implementation progress using EI or alternative means.

2.1.11 Under IP/02, the Meeting was presented with an overview of the outcome of the 41st ICAO Assembly (27 Sept 2022 to 7 October 2022, Montreal, Canada). It was noted that 2,573 Ministers and high-ranking government officials from 184 States gathered in-person and virtually. The Meeting noted with satisfaction that the 41st Assembly elected its first ever female President, the Director General of Civil Aviation of South Africa, Ms. Poppy Khoza.

2.1.12 The Meeting noted that the ICAO Council President, Mr Salvatore Sciacchitano, recognized nine States' significant progress in improving safety and security oversight systems by awarding them with Council President Certificates.

2.1.13 The Meeting was informed that other topics for States' consideration centred around the integration of unmanned aircraft systems into traditional aviation airspace, the re-opening of air tourism markets and overcoming protectionist constraints to enable air operators to swiftly recover from COVID-19, digital travel documents and the deployment of interoperable health certificates using ICAO verification, and many other issues surrounding future sectoral resilience and passenger security and convenience.

2.1.14 With regard to the election of the 36 countries to serve on the ICAO Council, the Meeting noted with satisfaction that Argentina, Brazil, Bolivia, Chile, El Salvador, Mexico, and Venezuela, were elected. The Meeting expressed its gratitude to all the States that supported the CAR/SAM States during the election.

2.1.15 Concerning the environment, it was noted that the ICAO member States adopted a collective Long-Term Global Aspirational Goal (LTAG) of net-zero carbon emissions by 2050. It was noted that the 41st Session of the ICAO Assembly included the completion of the first periodic review of the Carbon Offsetting and Reduction Scheme for International Aviation (CORSIA). Countries agreed on a new CORSIA baseline from 2024 onwards.

2.1.16 Regarding Aviation Safety and Air Navigation Capacity and Efficiency, States endorsed the latest editions of ICAO's Global Aviation Safety Plan (GASP) and GANP. These important strategic plans guide States cooperation and actions on the basis of global aviation targets and technology roadmaps, enabling aligned worldwide progress on key priorities and challenges.

2.1.17 The endorsement of the latest editions of ICAO's GASP and GANP will bring the aviation community together around common targets and pathways to achieve an agile, safe, secure, sustainable, high-performing and interoperable global air transport system. Cyber resilience of safety critical systems is a key priority in the next edition of the GANP. The Assembly fully endorsed the Safety Stream recommendations from ICAO's High Level Conference on COVID-19.

2.1.18 The Assembly also endorsed the new ICAO Implementation Support Policy, which will enhance efforts to assist States to implement the international standards contained in the nineteen Annexes to the Convention on International Civil Aviation.

2.1.19 Concerning implementation, the Meeting noted with satisfaction that the Assembly also endorsed the new ICAO Implementation Support Policy, which will enhance efforts to assist States to implement the international standards contained in the nineteen Annexes to the Convention on International Civil Aviation. The Meeting was informed that the 41st ICAO Assembly also agreed that regional aviation safety organizations and accident investigation bodies should be better supported through more sustainable funding and legal frameworks.

2.2 Global Updates Related to COVID-19 Actions Including Outcomes from High-Level Conference on COVID-19 (HLCC 2021)

2.2.1 Under WP/02, the Secretariat presented a summary of the activities and agreements reached by the NACC and South America States for the recovery of aviation as part of COVID-19, including the declaration reached at the ICAO High-Level Conference for COVID-19 (HLCC-19).

2.2.2 During the presentation, it was emphasized that the strategies implemented by each region (NACC and South America) obeyed the State's needs based on the COVID-19 impact; however, they complied with the ICAO requirements and included a fluid communication between the ICAO Regional Offices.

2.2.3 The Secretariat emphasized the importance that States and ANS service providers continued monitoring the performance of the air navigation system; likewise, to capitalize on the lessons learned from the pandemic, including the importance of updating ATS contingency plans, and the improvement of the efficiency of NOTAM publication, among other important lessons.

2.2.4 Considering the above, the States requested the Secretariat to implement a repository of lessons learned during COVID-19 that can be used as a reference for States and service providers.

2.2.5 For the aforementioned, the ICAO Regional Offices will coordinate with the States on the implementation of the repository and will report during GREPECAS 21 the task outcome.

2.3 Programmes and Projects Progress Report

ATS Programme

2.3.1 Under WP/04, it was informed that the SAM Region maintains the progress of Performance-Based Navigation (PBN) implementation in the en-route, departures/arrivals and approach segments. An average of 90.6% of PBN (APV-BARO VNAV) implementation was reached in 2022. The productivity of flight procedure and airspace design services have been affected by sanitary measures. The need for refresher courses for staff was mentioned, as well as the renewal of specialized equipment/software and updating work plans. Horizontal cooperation between States and also with industry, to promote PBN implementation was emphasized.

2.3.2 The SATDIS tool was delivered to the member States of Project RLA/06/901 in the third quarter of 2022. Users and operators in the SAM Region can have RAIM availability prediction for their PBN operations

2.3.3 The same working paper informed that the SAM Region is implementing its Air traffic flow management (ATFM) Operations Plan (OPSAM) with the aim of structuring actions that allow adjusting ATC and airport capacity to the gradual increase in demand and contributing to the recovery and sustainability of the air transport system. Among the deliverables of this Plan are the weekly and monthly BRISA teleconferences, and the availability of the ATFM Demand Dashboard of nine SAM states, which can be found in the link:

https://app.powerbi.com/view?r=eyJrIjoiMDZiNjU0MzktOGQ1Yy00ZWJkLTgwMGUtZTQ0NTU2MzVjOGQ0IiwidCI6IjI2MjI4ZGNhLTcwZDMtNDkxNy04MjMzLTA4M2FjMzY1NWE5MSJ9

2.3.4 Studies on ATFM *crossborder* were initiated based on current collaborative practices between services in Argentina, Brazil, Chile and Uruguay.

2.3.5 Under WP/19, the progress achieved by the Airspace Optimization Task Force (AO/TF) was presented. The paper informed that the PBN Task Force changed to the Airspace Optimization Task Force in August 2021 to reflect the priority of optimizing the regions' airspace. It absorbed the Airspace Optimization Team in 2022. The Airspace Optimization Team developed through collaboration of CANSO, IATA and ICAO, a coordination process started by the CANSO Air Traffic Flow Management Data Exchange Network for the Americas (CADENA). This team is known as CANSO IATA ICAO Free Route Airspace (CIIFRA).

2.3.6 The AO/TF informed that CIIFRA chose a "two-pronged" approach to complete its mission: Track A and B. These two-pronged tracks took an immediate advantage of "low hanging fruit" as well as a systematic move towards Free Route Airspace.

2.3.7 Track A was described as follows: Optimization of point-to-point routes via request by airlines then approval process by States. States were asked to consider requests and if unable to comply to do the best they can. The new route was implemented in phased trials eventually going to 1 year. Once in 1 year trial period, the route will be put forth to be published and become a permanent option. There will be a 20-route limit on a trial basis so the publishing of routes is vital in order to keep moving new routes into optimization. Savings on the first 6 routes are substantial as shown below.

Results Track A

Estimated 1-year savings of the 6 completed PASA Optimized Routes

KATL↔SPJC
KATL↔SBGR
TTPP↔KMIA
KIAH↔MMPR
SAEZ ↔KATL
KATL ↔SAEZ

Savings	
Flight min:	13,126
Fuel (lb):	2,583,088
CO2 (kg):	3,702,477
Cost ($):	2,107,410

2.3.8 Regarding Track B (UPR to FRA), it was informed that a trial User Preferred Route is ongoing between Atlanta and Lima. The airline is able to file the route that is most efficient on a daily basis without pre-coordination. The savings on the UPR route vs baseline is shown below.

	Baseline vs UPR	
Savings	12 Day	1 Year
Flight min:	116	3,528
Fuel (lb):	12,479	379,570
CO2 (kg):	17,887	544,057
Cost ($):	15,325	466,138

Estimation of 1-year savings based on 12 days

2.3.9 The CIIFRA Team has also worked with Mexico in testing Strategic Direct Routings (SDRs) in its airspace. The initial trials include three airlines and are limited to operations at or above Flight Level (FL) 290 between the hours of 0000 and 0500 local. Flights are required to file fixes that are no greater than 400 miles apart, but otherwise the participating airlines are free to file and fly as desired. These trials began in early October and have been successful. The plan is to slowly expand the parameters (Airlines,

Time and Altitude), as able. The following table provided by United Airlines illustrates their savings in the initiative.

Mexico's SDR Trial – UAL Benefits (½ month)

Duration: 03 OCT-16 OCT; Northbound only between 05Z-11Z

		Saved				Per Flight			
City Pairs	No.	Time (min)	Fuel (lb)	CO2 (kg)	Cost ($)	Time (min)	Fuel (lb)	CO2 (kg)	Cost ($)
SBGR-KIAH	7	14.0	4,942	15,320	2,548	2.0	706	2,189	364
SAEZ-KIAH	9	11.0	4,865	15,082	2,310	1.2	541	1,676	257
SBGL-KIAH	6	12.0	2,584	8,010	2,088	2.0	431	1,335	348
SPJC-KIAH	3	3.0	795	2,465	522	1.0	265	822	174
SCEL-KIAH	10	11.0	2,792	8,655	1,914	1.1	279	866	191
SKBO-KIAH	1	1.0	126	97	391	1.0	126	97	391
SEQM-KIAH	3	7.0	905	2,806	679	2.3	302	935	226
MGGT-KIAH	1	3.0	320	992	600	3.0	320	992	600
Total	**40**	**62.0**	**17,329**	**53,426**	**11,052**				

To calculate cost benefits, equipment types were taken into the consideration.

2.3.10 The Task force held a hybrid Meeting (in person and virtual) in Miami, United States, from 2 to 4 August 2022. The development of a draft CAR Airspace Optimization Concept document was started through an ICAO NACC Sub-project (26-29 July 2022) involving Airspace Design Subject Matter Experts (SMEs) from the region. The draft concept was discussed at the TF meeting and it was recognized that input was required from additional SMEs in the areas of CNS and AIM.

2.3.11 The following six action items were decided during this Meeting.

a) **Action Item 1:** The Secretariat to issue a letter requesting nominations for the core members of the AO/TF by 19 August 2022. It was agreed to remove "airline operator" from the list of core members as that function will be supported by IATA-Completed.

b) **Action Item 2:** The AO/TF to analyze IATA's recommendation on harmonization in the phraseology for DCT and UPR usage and report back by the February 2023 meeting.-To be completed.

c) **Action Item 3:** A subsequent Meeting to be held with the AO/TF core members to work on finalizing the AO/TF Work Programme to be presented by October, 2022.-to be completed.

d) **Action Item 4:** An Ad hoc Group comprising relevant stakeholders from the Air navigation services provider (ANSP), Airline Operators, Airport Operators and SMEs to be developed to follow up on IATA's recommendation to add the Airport Efficiency Programme to the AO/TF work programme to continue the optimization efforts of the upper airspace and terminal area to the airport level as airport constraints affect terminal airspace optimization by November 2022 and to meet as needed in order to provide a briefing at the February 2023 meeting. The meeting was held on 23 August 2022 discussing the development of this group. The membership was decided on and work will resume.

e) **Action Item 5:** The Airport Efficiency Programme to be included under the work programme of the AO/TF, as part of a holistic Airspace Concept Implementation Model at the next gathering of the AO/TF.-in process.

f) **Action Item 6:** An Ad hoc Group to be created to work on "Terminal Airspace Concepts" to consolidate different concepts for arrivals/departures so that States may have ideas on which concept may benefit that state better by November 2022 and meet as needed in order to provide a briefing at the February 2023 Meeting. A Meeting was held on 23 August 2022 to discuss the development of this group. The membership was decided on and work will presume

2.3.12 Under WP/42, Brazil presented the progress made by the Air Navigation Management Center (CGNA), which has been responsible for managing air traffic flow in all Brazilian airspace since 2007. The technical tools that support the service were described, including SIGMA, TATIC Flow and TATIC Airport Collaborative Decision Making (A-CDM), which allow the development of planning and monitoring in real time, as well as obtaining crucial data for conducting post-operations analysis, which serve as a reference for various task groups dedicated to improving efficiency in the Brazilian Airspace Control System (SISCEAB). The support of the ATFM and the SISCEAB Operations Plan has been essential for the post-pandemic recovery of demand. Through the activities carried out within the implementation groups of the SAM Region. Brazil promotes the achievement of the strategic objectives set out in ICAO's GANP.

2.3.13 Under WP/41, the Meeting was informed that in the CAR Region, the NACC ATFM Task Force holds monthly on-line conference Meetings. The meetings have included information on the response to the global pandemic, impacts to flight operations and forecasts for future operations. These web conference Meetings include briefings by the Task Force members and discussions on benefits of sharing traffic data for the region.

2.3.14 The Rapporteur of the Task Force (TF) underwent a change in the first quarter of this year. The new ATFM TF Rapporteur is Mr. Vern Payne (United States).

2.3.15 The ATFM TF developed a proposal to include minimum ATFM Requirements for the CAR Region in the CAR/SAM Air Navigation Plan. This proposal includes:

- requirements for the establishment of Flow Management Units (FMU) in the CAR Region;
- ATFM service basic strategic and tactical functions;
- regional actions to Mitigate the Impact of ATFM Measures; and
- State's responsibility regarding ATFM provision and oversight.

2.3.16 The ATFM TF requested the Secretariat more direct support and practical guidance on data collection and analysis mechanisms, recognizing the different capacities among service providers.

2.3.17 Additionally, the ATFM TF requested actions to make available to the States, Territories and ANSPs of the CAR Region, guidance material on the process for determining the capacity of the ATC sectors, as well as to organize training activities taking into consideration the different ATC capacity calculation methodologies available and used in the region.

2.3.18 In response to this regional need, CANSO will coordinate with the ATFM TF to support and provide capacity calculation methodology training via CADENA. In addition, CANSO will offer the CADENA Procedural Manual to the ATFM TF, including roles and responsibilities for ATFM staff and FMUs.

2.3.19 The ATFM TF decided to approve the use of CADENA as a mechanism to facilitate data sharing, and promote a common situational awareness that is vital to the safe, efficient, and harmonized flow of air traffic.

2.3.20 The ATFM TF revised its current work programme to update those activities that were completed and those that needed to be reviewed to remain valid.

2.3.21 In collaboration with CANSO, the ATFM TF is working with United States in order to make a web based version of the Federal Aviation Administration's (FAA) Traffic Flow Management System (TFMS) available to the region. This will provide the region with a cost effective tool to manage airspace in real time resulting in greater safety and efficiency in our goal to optimize the region's airspace.

2.3.22 Under WP/38 IATA proposed an Airport Efficiency Programme with the objective to optimize the use of the airport infrastructure installed in the CAR/SAM States, as well as to enhance the benefits of the implementation of improvements in the en-route airspace and Terminal Control Area (TMA). Different concepts were presented that allow to reduce the occupancy time of the runway [High-Intensity Runway Operations (HIRO), Reduced Runway Separation Minima (RRSM), Preferential Runway Concept, etc.] facilitating, in turn, the reduction of the separation of aircraft in arrival/departure. As a result, waiting on the ground and in the air is avoided, leading to the optimization of airport operations.

2.3.23 The Meeting supported the development of the Airport Efficiency Programme in an integrated manner with the airspace optimization activities, and even with the implementation of Air Traffic Flow Management (ATFM). The CAR Region Airspace Optimization Task Force (AO TF) and the SAM Airspace Study and Implementation Group (SAMIG/GESEA) are already incorporating this programme into their work plan, together with IATA. The Secretariat will coordinate the integration of the Programme in the work programme of the CAR Region ATFM TF and in the GESEA/SG3 from the SAM Region respectively.

2.3.24 Under WP/40, IATA explained that the Strategic Direct Routing (EDE) initiative was implemented in parts of selected airspaces in 6 South American States, applying procedures published via Aeronautical information Publication (AIP) or Aeronautical information circular (AIC) amendment. It was stressed that the EDE, as the basis of the Direct routing (DCT) concept, is the most appropriate way to move towards the Free Route Airspace (FRA) according to the provisions of the GANP, document that addresses the functional description, dependencies and relationships with other elements, detail of the enablers and the measurement of KPI 04. IATA's participation in the CIIFRA joint group was highlighted, where the implementation of routes requested by airlines (UPR) is promoted, which optimize the trajectory between a couple of cities without necessarily applying ATS routes published in the AIPs. CIIFRA allows early benefits to be obtained in States that are not in a position to implement DTS. Activities in both regions are progressing and harmonization between them should start as soon as possible, therefore IATA proposed an implementation strategy based on the development of a common Technical Guidance Material on Direct Routing and User-Preferred Routes (UPRs) for the regions.

2.3.25 The Meeting agreed that the initiatives of the CAR and SAM Regions that have been advancing together with the industry (see section 2.3 the progress report on Programs and Projects), should be grouped under a sole GREPECAS Programme, to develop in a harmonized and interoperable manner the concepts for the optimization of airspace that include, in addition to the implementation PBN, several modules/operational elements of the GANP. In this regard, the following decision was made:

<table>
<tr><td colspan="3">DECISION
GREPECAS/20/01</td><td colspan="2">AMENDMENT TO PROJECTS A1 OF THE CAR AND SAM REGIONS ON THE IMPLEMENTATION OF PBN, WITH THE PURPOSE OF DEVELOPING CONCEPTS FOR THE OPTIMIZATION OF THE AIRSPACE</td></tr>
<tr><td colspan="3">What:
That, the Secretariat,

a) review and amend the A1 Projects of the CAR and SAM Regions, originally defined in GREPECAS for PBN implementation, with the purpose of including in their scope the development of concepts for airspace optimization, based on the GANP operational modules for Enhanced Operations Arrival/Departure (APTA) and Enhanced Operations Through Optimized Route Trajectories (FRTO), as well as other Regional initiatives; and

b) include in these revised projects the participation and contribution of organizations, users and interested parties by GREPECAS/21.</td><td colspan="2">Expected impact:
☐ Political / Global
☒ Inter-regional
☐ Economic
☒ Environmental
☒ Technical/Operational</td></tr>
<tr><td colspan="5">Why:
To address the need to optimize Regional and Trans-regional airspace in terms of efficiency, capacity, operational safety and environmental protection, and include performance measurement in implementations according to the GANP KPIs.</td></tr>
<tr><td>When:</td><td colspan="2">By GREPECAS/21</td><td>Status:</td><td>☒ Valid / ☐ Invalid / ☐ Concluded</td></tr>
<tr><td>Who:</td><td colspan="2">☐ States ☒ ICAO ☐ Others:</td><td colspan="2">NACC/SAM Secretariat</td></tr>
</table>

2.3.26 Under WP/39, IATA explained the need to implement for the CAR/SAM Regions, an ATFM tactical coordination mechanism for responses (H24) in situations of contingencies or unforeseen events in one or more Flight Information Region (FIR), which cause significant impacts to ANPS and/or airspace users. That initiative is aimed at evaluating alternatives that can reduce or eliminate such impacts, based on alternative routes, exclusion of certain flights from restrictive measures, relaxation of restrictive measures, etc. A process is suggested that allows its activation by States, ANSP and/or users of airspace, basing coordination and agreements on ATFM measures on videoconferences.

2.3.27 It was noted that an ATS Contingency Plan promulgated by a State is activated in response to foreseeable or scheduled situations of degradation of services, under the mechanisms stipulated in

ICAO Annex 11. However, it was recognized that some operational measures and alternatives, when these plans are activated, could be derived to ATFM tactical coordination. The Meeting took note of this matter so that the Secretariat, in collaboration with IATA and CANSO, to study and formulate a CAR/SAM initiative for the development of an ATFM Tactical Coordination Mechanism. The result of this activity should be presented at the next GREPECAS Meeting.

SAR Programme

2.3.28 Under WP/08, the Secretariat presented a proposal on a project to support Search and Rescue (SAR) implementation in the CAR/SAM Regions, as an initiative for collaboration and inter-regional work for the implementation of SAR services in the CAR/SAM Regions. Conclusion GREPECAS/19/04 instructed ICAO's NACC and SAM Regional Offices to assess current challenges regarding the provision of SAR services in CAR/SAM Regions, also identify opportunities for improvement in order to promote the joint work of the SAR between the CAR/SAM Regions. The SAR project proposals are included in **Appendix A** to the Report.

2.3.29 The CAR and SAM Regions have their implementation mechanisms for air navigation, which serve the implementation of SAR services, separately. GREPECAS would be the ideal means of promoting the harmonisation of RAC/SAM Regions in the field of SAR.

2.3.30 The Meeting agreed that the approval of a SAR program in GREPECAS will enable greater visibility and support for related activities, communicating to the ICAO Council more objectively the progress of SAR implementation in the CAR/SAM Regions. In the same vein, higher-level support will be promoted to address the signing of SAR agreements.

2.3.31 In view of the above, the following Decision was formulated:

<table>
<tr><td colspan="2">DECISION
GREPECAS/20/02</td><td>APPROVAL OF THE PROJECTS ON THE IMPLEMENTATION OF THE SEARCH AND RESCUE SERVICE (SAR) FOR THE CAR AND SAM REGIONS</td></tr>
<tr><td colspan="2">What:
GREPECASapproves the Projects on Implementation of the Search and Rescue Service (SAR) for the CAR and SAM Regions formulated by the Secretariat, which are presented in Appendix A of the Meeting Report.</td><td>Expected impact:
☐ Political / Global
☒ Inter-regional
☐ Economic
☒ Environmental
☒ Technical/Operational</td></tr>
<tr><td colspan="3">Why:
The approval of a SAR project by GREPECAS will enable greater visibility and support for related activities, communicating to the ICAO Council more objectively the progress of SAR implementation in the CAR/SAM Regions.</td></tr>
<tr><td>When: Immediately</td><td colspan="2">Status: ☒ Valid / ☐ Invalid / ☐ Concluded</td></tr>
</table>

Who:	☐ States ☒ ICAO ☒ Others: GREPECAS	

CNS Programme

2.3.32 Under WP/06, a summary of the activities of Projects C (Automation and Situational Awareness) and D (Ground-Ground and Ground-Air Communications Infrastructure) was presented, related to the work carried out by the North American, Central American and Caribbean Working Group (NACC/WG) and the Interoperability Task Force (INTEROP TF) within the framework of the SAM Region Implementation Group (SAM/IG).

2.3.33 The implementation of the IP network infrastructure (ATN/IPS) and the applications of the CNS/ATM concept (ADS-B, AIDC, AMHS, etc.) were highlighted; as well as activities with a view to better management and protection of aeronautical frequencies.

2.3.34 The Meeting was invited to consider the adoption of regional approaches for the implementation of new systems, support the updating of the tables of Part III (CNS) of Volume II of the CAR/SAM Regional Air Navigation Plan and collaborate in the preparation of Volume III of the CAR/SAM ANP.

2.3.35 With WP/28, the document "Parameters to monitor the performance of ADS-B Systems" was presented, developed in collaboration with members of the Surveillance Task Force (NACC/WG/SURV) during a Meeting held in Mexico City, Mexico, from 13 to 15 July 2022 and approved by the North American, Central American and Caribbean Working Group (NACC/WG) in September 2022.

2.3.36 The purpose of this document is to help States with a guide of elements to consider when developing a tool to monitor the performance of the ADS-B system in their respective airspaces. The document identifies the general parameters that must be included to adequately evaluate the performance of Automatic Dependent Surveillance – Broadcast (ADS-B OUT) and perform statistical analysis of the ADS-B information received by a monitoring system.

2.3.37 The Meeting agreed that ADS-B is a surveillance system that has advantages over secondary radars and other methods such as multilateration (MLAT) and Wide Area Multilateration System (WAM), due to its high precision and low infrastructure costs. Many States are already migrating towards this technology and collaboration with other States is recommended to have an integrated regional system.

2.3.38 The Meeting was urged to promote the work carried out by the NACC/WG/SURV and by the CNS/SUR Subgroup of the INTEROP GT, with the purpose of developing an initiative that seeks to share information and data on surveillance between the States that make up the CAR and SAM Regions, including ADS-B data, whether it is information from terrestrial or satellite stations and in accordance with the system implemented by each ANSP and by the authorities in each State.

2.3.39 With WP/53, the Meeting was informed about the actions carried out by COCESNA and the States of Central America and Belize with the purpose of improving air traffic services in the different

airspaces of the Central American FIR, through the implementation of ADS-B and the establishment of a mandate to ensure the equipment of aircraft with the required features.

2.3.40 As part of the initiatives, a performance assurance system was implemented that allows monitoring the general performance of Radar and ADS-B sensors on a regular basis, in addition to developing software that allows ADS-B data to monitor the ADS-B capabilities of the avionics and performing statistical analysis of the figures of merit reported by aircraft in ADS-B messages.

2.3.41 WP/36 presented the status of the implementation of ADS-B in the SAM Region, the progress of some Member States and the difficulties presented, as well as the operation in the centres and control towers, the compliance process by the industry and the updating of the aeronautical standards for their implementation, in the improvement of safety and air navigation.

2.3.42 Due to de aforementioned, the Meeting agreed the following Decision and Conclusion:

<table>
<tr><td colspan="3">CONCLUSION
GREPECAS/20/03</td><td colspan="2">STUDY ON OPERATIONAL PRIORITIES FOR THE IMPLEMENTATION OF ADS-B AND ASPECTS OF THE USE OF ADS-B IN ATC UNITS.</td></tr>
<tr><td colspan="3">What:
That, the Secretariat, in coordination with the industry, executes a study on the operational priorities for the implementation of ADS-B and on aspects of the use of ADS-B in ATC units, based on the technical guidance documentation available for the CAR/SAM Regions by GREPECAS/21.</td><td colspan="2">Expected impact:
☐ Political / Global
☒ Inter-regional
☐ Economic
☐ Environmental
☒ Operational/Technical</td></tr>
<tr><td colspan="5">Why:
To promote the coherent and harmonized implementation of ADS-B in the CAR/SAM Regions, within the framework of the Alternative Surveillance (ASUR) module of the GANP, recognizing the priorities of airspace optimization and the provision of ATS services in the region.</td></tr>
<tr><td colspan="2">When: By GREPECAS/21</td><td colspan="3">Status: ☒ Valid / ☐ Superseded / ☐ Completed</td></tr>
<tr><td colspan="2">Who: ☐ States ☒ ICAO ☐ Other:</td><td colspan="3">NACC/SAM Secretariat</td></tr>
</table>

DECISION **GREPECAS/20/04**	**APPROVAL OF THE GUIDE "PARAMETERS TO MONITOR THE PERFORMANCE OF ADS-B SYSTEMS"**
What: That,the CAR/SAM States adopt the document PARAMETERS TO MONITOR THE PERFORMANCE OF ADS-B SYSTEMS as a regional guide to evaluate the performance and quality of the data coming from the ADS-B stations according to pre-existing technical parameters.	**Expected impact:** ☐ Political / Global ☒ Inter-regional ☐ Economic ☐ Environmental ☒ Operational/Technical
Why: To facilitate the implementation of ADS-B in ATS Surveillance systems, ensuring the correct supply of data, guaranteeing the quality of information for Air Traffic Control activities.	
When: Immediately	**Status:** ☒ Valid / ☐ Superseded / ☐ Completed
Who: ☒ States ☒ ICAO ☐ Other:	CAR and SAM States, ICAO

2.3.43 United States presented IP/21 highlighting that the radio frequency spectrum is a natural resource with finite capacity and constantly increasing demands. Internationally, the aviation industry depends on the use of spectrum for a variety of technologies that ensure safe, efficient and profitable air travel. Similarly, innovation in the telecommunications industry is critical to economic and social advancement around the world, requiring spectrum decision-making states to balance these needs.

2.3.44 As the FAA continues its work with the aviation and wireless communities to mitigate any potential impact of the 5G C-band between 3.7-3.98 GHz in United States, it is also planning for the continued evolution of wireless technologies. While this evolution is still years away, there is a clear desire to ensure that any technological advance is widely understood ahead of time. The lessons learned from 5G C-band will facilitate any future work on next-generation aviation and wireless technologies. The FAA recognizes the role that ICAO and other United Nations bodies play in this regard and welcomes the opportunity for continued dialogue and planning.

2.3.45 After this analyses, related with frequency management, the Meeting issued the following conclusion:

DECISION **GREPECAS/20/05**	**CREATION OF AN AD HOC GROUP FOR THE DEVELOPMENT OF A REGIONAL PROJECT FOR THE MANAGEMENT OF AERONAUTICAL FREQUENCIES**
What: That,taking into account the new service assignments in the use of frequencies in recent years have caused interference in the provision of air navigation services and with it a negative impact on operational safety, the Meeting approves the creation of an Ad hoc Group for the NAM/CAR and SAM Regions to develop a project aimed at the regional management of aeronautical frequencies, establishing its terms of reference for the project by 28 February 2023. Note: the activities to be developed within the project do not replicate the activities developed by the ICAO Frequency Spectrum Management Panel (FMSP).	**Expected impact:** ☐ Political / Global ☒ Inter-regional ☐ Economic ☐ Environmental ☒ Operational/Technical
Why: The radio electromagnetic spectrum is a limited natural resource in which different actors compete for the allocation of different bandwidths to provide different services. Promote an integrated regional approach of all CAR and SAM States to protect the frequencies that are necessary for current and future aviation air navigation services before the ITU World Conferences.	
When: 28 February 2023.	**Status:** ☒ Valid / ☐ Superseded / ☐ Completed
Who: ☒ States ☒ ICAO ☐ Other:	CAR and SAM States, ICAO

2.3.46 Under NI/22, the deployment of a Software Defined Network (SDN), called ATN-Br, based on the IP suite and dedicated exclusively to the ATS, was presented.

2.3.47 The Meeting noted that the implementation of a new aeronautical communications network concept turned out to be a great challenge and, as expected, there were initial obstacles. However, the ATN-Br network has been presented as a robust infrastructure, capable of supporting the performance requirements demanded by aeronautical applications.

2.3.48 NI/23 presented by Brazil, had the purpose of disclosing the project to implement air navigation services in the Santos oil basin, as well as Brazil's efforts to expand the use of ADS-B in oceanic airspaces remote from the country.

2.3.49 The adoption of ADS-B 1090 Extended Squitter surveillance in the Santos Basin is part of Brazil's strategy to use this solution on a larger scale in the near future, also in continental airspace.

2.3.50 The use of ADS-B in the airspace of the Santos basin will satisfy a clearly identified operational demand, will support the implementation of ATV in the region, while harmonizing with ICAO recommendations for the evolution of the global ATM, especially with regard to the strategic objectives of Safety, Accessibility, Capacity, Efficiency and Environment.

AGA Programme

2.3.51 Under WP/05, the Secretariat presented an update on the progress of the Aerodrome F programme projects in the CAR/SAM Regions.

2.3.52 Regarding "Project F1: Certification and Safety of Aerodromes" the CAR Region shows a slight increase in the number of certified aerodromes, with 96 aerodromes, which represents the 65%. In the SAM Region, the aerodrome certification status shows in the same way an increase in comparison to 2021, reaching 55 aerodromes, resulting in 52.88%, and have a target of more than 90% of certified aerodromes by the end of 2025.

2.3.53 Regarding "Project F2": Aerodrome Planning: with the entry into force of Amendment 15 to Annex 14, Volume I, for the CAR Region, the Secretariat proposed to prepare a questionnaire to States and Territories to define together the next actions. On the other hand, the SAM Region planned an activity for September 2022, but with the delay in the publication of the updated version of the new Doc 9184, Part I, by Headquarters, the Secretariat proposed to postpone such activity for the second quarter of 2023, in order the new manual is available.

2.3.54 For "Project F3": Implementation of Aerodrome Airport Collaborative Decision Making (A-CDM), despite there is an A-CDM Implementation Guide, States have not defined a criterion to determine which aerodromes require such implementation. Thus, the project coordination requested the Secretariat to send a new survey to States on A-CDM for the CAR/SAM Regions.

2.3.55 Regarding RST implementation, the Secretariat informed on the *RST Implementation Support Project for CAR and SAM Regions* (RASG-PA ESC/37/C3), recently approved, will drive the efforts to implement RST at selected international aerodromes.

2.3.56 Through WP/05, IATA reinforced the importance of harmonization in the implementation of A-CDM at aerodromes. The Secretariat strengthened the importance of aerodrome certification in both regions. Finally, the Meeting took note of the information provided in WP/05 and its Annexes A and B.

AIM Programme

2.3.57 Under WP/03 the activities of the Aeronautical Information Management Area (AIM), for the CAR/SAM Regions) were presented, likewise it was reported that the NOTAM Global Campaign was followed up, and that it has delivered or foresees the delivery of courses and workshops to generate and strengthen capacities in the Aeronautical Information Service (AIS)/AIM area The Meeting was requested to observe Appendices A, B, C, D and E of WP/03.

2.3.58 The Meeting took note that ICAO Headquarters, through the Global Aviation Training (GAT) program, has developed important courses:

- a) Aeronautical Information Quality Management (AIQM): https://igat.icao.int/ated/TrainingCatalogue/Course/5639 or 5582
- b) Data-Centric Aeronautical Information System Operations (AIS OPS): https://igat.icao.int/ated/TrainingCatalogue/Course/5640 or 5605

- c) AIM – OPS NOTAM WORKSHOP: Creating a high quality NOTAM

Activities of the AIS/AIM Program of the CAR/SAM Regions	
CAR	**SAM**
Aligned with AIM processes and procedures, with the GANP in its latest edition	The NAM/CAR/SAM NOTAM Workshop was held, in a hybrid format, from September 7 to 9, with the participation of 21 face-to-face Delegates, and 100 virtual delegates
The NACC States provided information on the progress of the 3 Phases of the Roadmap, of the 21 steps, and updated the status for the transition to AIM, in Excel for registration and analysis and evaluation.	Follow-up teleconference of the Recommendations of the SAM/AIM/14 Meeting was held
The AIM Collaborative Plan for the CAR Region (Ver. 1.6) was updated and revised, with the collaboration of Costa Rica	The AIM Collaborative Plan for the CAR Region (Ver. 1.6) was updated and revised, with the online collaboration in support of the Transition from AIS to AIM, the following courses are planned: a) Course on Standard Model of aeronautical information exchange, b) Course on electronic AIP y c) Coordination of ATS/AIS/MET Services: Coordination and Contingency Plans
Next activation of the AIM Tracking CAR website	Support for the development of training as a pillar to implement the steps of the Transition Roadmap from AIS to AIM and for System-wide information management (SWIM)
Realization of the Workshop on Data Sets and Electronic Aeronautical Charts, from November 24 to 25, 2021 virtual	Follow-up to: a) Implementation of SNOWTAM, b) Implementation of QMS/AIS-AIM, c) Planning of the implementation of Phase 2 of the Transition Roadmap from AIS to AIM (Elements of Module B1-DAIM), and d) Follow-up to the Global NOTAM Campaign in the SAM Region
AIS/AIM Activities	
Updating of documentation in support of the transition from AIS to AIM	
Follow-up to the NOTAM Global Campaign, and to Conclusion 19/3 of GREPECAS 19	
Delivery of courses and workshops to strengthen capacities in AIS/AIM	
Proposal of the 7th. Ed. of the GANP with a modification of the Basic Building Blocks (BBBs) related to AIM	
In the process of reviewing and updating the AIM documents, in support of the Transition from AIS to AIM: Doc 8126 (4 Sections), Doc 9839 and Doc 9991	
AIM enablers are prepared for SWIM	

2.3.59 Under WP/48, the Meeting recalled that the PPRCPPRC/04 adopted Conclusion e-PPRC/04/02 through which it approved the SAM Region Training Manual as presented in Appendix E of the WP/04[1] of said meeting.

2.3.60 Additionally, it was called to the attention of the Meeting that item b of the same conclusion invited the Secretariat to integrate into a single Instruction Manual, for the CAR/SAM Regions, the Instruction Manuals available in the CAR Regions /SAM and industry.

2.3.61 The Secretariat informed the Meeting that, following up on the recommendation, it reviewed, with the support of AIS personnel from the States, three Instruction Manuals cited below:

a) The Guide approved by e-PPRC/04 for the SAM Region
b) Training guidelines for AIS personnel of the CAR Region
c) Training guide for AIS (CANSO)

[1] https://www.icao.int/NACC/Documents/Meetings/2022/PPRC04/eCRPP04-NE04.pdf

2.3.62 The joint work of the Secretariat with the States considered that the Training and Training Guide for AIS/AIM personnel of the SAM Region included the guidelines of the CAR Region documents and the Material prepared by CANSO, in the moment of the elaboration of the mentioned guide.

2.3.63 The Secretariat recommends adopting the Training and Training Guide for AIS/AIM personnel of the SAM Region for the CAR/SAM Regions.

2.3.64 GREPECAS/20 approved the proposal of the Secretariat and invited the States of the CAR and SAM Regions to use the Guide for planning Training Courses and training for AIS personnel, through the following conclusion:

<table>
<tr><td colspan="3">DECISION
GREPECAS/20/06</td><td colspan="2">APPROVAL OF THE TRAINING AND TRAINING GUIDE FOR AIS/AIM PERSONNEL OF THE CAR/SAM REGIONS</td></tr>
<tr><td colspan="3">What:
a) That, considering the review carried out by the Secretariat, following up on Conclusion e-PPRC/04/02, which approved the Training Guide for AIS/AIM personnel in the SAM Region, and at the same time recommended a correspondence analysis with other documents available in the CAR Region and the industry, for this purpose, GREPECAS approves the Reference Guide as a Guide for the CAR/SAM Regions by the first quarter of 2023; it invites the Secretariat to translate it into English and i the States of the CAR/SAM Regions to use this Guide for training planning and training of AIS/AIM personnel.</td><td colspan="2">Expected impact:
☐ Political / Global
☒ Inter-regional
☐ Economic
☐ Environmental
☒ Operational/Technical</td></tr>
<tr><td colspan="5">Why:
The Training Guide for AIS/AIM personnel has contemplated all the contents included in the Guides prepared by the CAR Region and by the industry.</td></tr>
<tr><td colspan="2">When: First quarter of 2023.</td><td colspan="3">Status: ☒ Valid / ☐ Superseded / ☐ Completed</td></tr>
<tr><td colspan="2">Who: ☒ States ☒ ICAO ☐ Other:</td><td colspan="3"></td></tr>
</table>

2.3.65 Under IP/15, the United States informed the Meeting of the use of information exchange models. The paper covered the history of aviation data exchange and provided information on information models. The document detailed the domains of aeronautical, flight and meteorological information, as well as aeronautical, flight and meteorological information, in addition to the lessons that the Federal Aviation Administration (FAA) has collected in the process of carrying out demonstrations and exercises of validation.

2.3.66 The Meeting noted that the aviation industry has made great progress in the standardization and harmonization of information Exchange Models (XM), such as the Aeronautical Information Exchange Model (AIXM), the Meteorological Information Exchange Model (IWXXM), and the Flight Information Exchange Model (FIXM), in order to share vital information necessary for their operations, promoting a standards-based approach to the SWIM for the benefit of the aviation community.

2.3.67 United States also reported that the FAA has conducted many demonstrations and validation activities around Flight and flow - information for a collaborative environment (FF ICE), Trajectory-Based Operations (TBO), and the use of SWIM for information exchange. These activities include the multi-regional TBO demonstration, the 4DT live flight demonstration, and the international interoperability harmonization and validation project.

2.3.68 The activities resulted in a number of lessons learned both in future concepts and in the technical aspects of the demonstrations. In particular, all activities contributed to providing experience in the use of information exchange models that facilitated message exchanges.

2.3.69 The activities found that the exchange models improved the exchange of information facilitating its adoption compared to previous standards improving interoperability and providing a common way of exchanging information.

2.3.70 The Meeting invited States, industry and organizations to implement the XM. The more users use these models, the greater the benefits each implementer and the aviation community at large will experience.

MET Programme

2.3.71 Under WP/07 and IP/25, the Meeting was informed of the monitoring of the MET Programme. In this regard, it was reported that the Projects presented to e-PPRC/4 by the SAM Region, related to the ICAO Meteorological Information Exchange Model (IWXXM) and information related to en-route meteorological phenomena that may affect the safety of aircraft operations (SIGMET), will be extended to the CAR Region.

2.3.72 Additionally, the Meeting took note of the activities carried out in the CAR and SAM Regions in order to follow up on the implementations of the MET area.

2.3.73 The Secretariat, in the CAR Region, has been supporting the efforts of the Experts Team on Services for Aviation (ET-AVI) of Region IV of the World Meteorological Organization (WMO) in order to increase the capacities of States in the implementation of MET requirements to support international air navigation. Additionally, the Secretariat is organizing a webinar on Quality Management for MET services, with the support of Cuba. In the SAM Region, follow-up activities have been carried out including:

a) delivery of the ISO 9001:2015 Lead Auditor Course
b) ATS/AIS/MET Coordination Meeting
c) Update of the information of the Focal Points for the IAVW (ICAO Doc 9766)
d) Carrying out exercises on volcanic ash, with the support of the Volcanic Ash Advisory Centres (VAAC) of Buenos Aires

e) Planning to carry out a Workshop on SIGMET, AIRMET, GAMET, Aerodrome Warnings, Wind Shear Warnings

2.3.74 Likewise, the Secretariat has supported the tests of exchanges of operations-related Meteorological Information Messages (OPMET) in IWXXM format, between the International OPMET Bank of Brasilia with States of the SAM and CAR Regions. In follow-up to the implementation of the IWXXM, efforts have also been coordinated for the requirements for the web-service.

2.3.75 The Meeting noted the teleconferences between the OPMET Data Banks of Brasilia, Washington and London, in order to establish contacts and establish technical requirements for the exchange of OPMET messages, in IWXXM format, between the aforementioned Data Banks.

2.3.76 Finally, GREPECAS/20 urged States to train MET personnel in order to comply with the Basic Instruction Package contained in Publication 1083 of the WMO.

2.3.77 Under IP/12, Brazil informed GREPECAS about the creation of the Integrated Aeronautical Meteorology Centre (CIMAER) in the context of the provision of Aeronautical Meteorology services in Brazil. The emergence of this military organization is part of the restructuring of the Brazilian Air Force, guided by the Air Force Command Directive (DCA 11-45), which establishes the Strategic Concept "Air Force 100" and contains the Concept Strategic and contains the guidelines that prepare the Brazilian Air Force for the future.

2.3.78 In this context, CIMAER emerged with the objective of optimizing the application of human and material resources, as well as increasing efficiency in the provision of the aeronautical meteorology service, through the integration of surveillance and meteorological services, now centralized in a single forecasting centre: the Integrated Aeronautical Meteorology Centre.

2.3.79 Given the advancement of technology, and in the guidelines of the Air Force Command that guide the actions of preparation of the Brazilian Air Force for the future, the Integrated Aeronautical Meteorology Centre was activated on 12 April 2019. Subordinated to the Airspace Control Department (DECEA), based in Rio de Janeiro, its main objective is to optimize resources and increase efficiency in the provision of meteorological services through the integration of the extinct Meteorological Centres, which were located in different parts of the country, namely, the National Aeronautical Meteorology Center (CNMA) and the Meteorological Surveillance Centres (CMV), as well as the absorption of some services carried out by the Aerodrome Meteorological Centres (CMA) and the Military Meteorological (CMM).

2.3.80 Brazil informed that with the creation of CIMAER, the integration of the different meteorological bodies has been achieved, which made it possible for the aeronautical meteorology service to be provided in a more efficient and standardized manner: efforts were joined and redundancies were eliminated, harmonizing the meteorological surveillance messages and the different types of meteorological forecast, at a national level, all prepared and issued, now, by the Integrated Meteorological Centre (CMI), CIMAER's operating body.

2.3.81 Under IP/18, United States informed the Meeting that, through the FAA, they are creating a prototype of an ATS message management gateway to the System wide information management (SWIM) to be implemented as an enhancement to the FAA's operational Aeronautical Message Handling System (AMHS). This AMHS SWIM Gateway (ASG) will support the international exchange of messages in XML format (Extensible Mark-up Language) encoded using the Aeronautical Information Exchange Model (AIXM), the Flight Information Exchange Model (FIXM), and the Information Exchange Model (FIXM) or the ICAO Meteorological Information Exchange Model (IWXXM).

2.3.82 The AMHS SWIM Gateway prototype will be integrated with the existing FAA ISODE AMHS software. The AMHS SWIM Gateway will send and receive IWXXM formatted Operational Meteorology (OPMET) data using AMHS File Transfer Body Part (FTBP) attachments. This method of exchange integrates with existing AMHS X.400 messaging software, whose method of sending attachments is FTBP.

2.3.83 The Meeting noted that the AMHS SWIM gateway prototype will connect to the FAA SWIM bi-directionally. The operation of the gateway indicates that the OPMET messages, in IWXXM format, will be originated by the United States National Weather Service (NWS) and published to the FAA through SWIM. The AMHS SWIM gateway will consume this data, generate an AMHS-compliant message including the IWXXM data as an FTBP attachment, and distribute the message via the AMHS to international users.

2.3.84 The AMHS SWIM Portal will also receive the incoming MTA data, extract the IWXXM portion of the FTBP, and publish the data to SWIM. They will be available to SWIM consumers, including the NWS.

2.3.85 United States indicated that the ASG is being deployed as a prototype in the FAA operational network, which will allow the exchange of some IWXXM data with other ANSPs in a controlled manner. However, they clarified that all OPMET messages will continue to be exchanged through Non-Traditional Alphanumeric Code (TAC) data, so the IWXXM data exchange can continue or end at any time. The transmission and reception of data can be agreed with the associated ANSPs and can be activated and deactivated as required. It should be noted that although the ASG can currently send and receive data, the NWS can only transmit IWXXM data through the ASG; the ability to receive IWXXM data will be implemented by the NWS in 2023.

2.3.86 Under IP/19, United States reported on the process of updating the World Area Forecast System (WAFS). In this context, the Meeting noted that the upcoming changes to the WAFS, service provision by the Washington and London World Area Forecast Centres (WAFCs) have been formulated and agreed through the Meteorological Panel (METP) and its Working Group on Weather Operations (WG-MOG) for the WAFS.

2.3.87 WAFS updates make references to:

- Wind, temperature, relative humidity and geopotential height fields in 0.25-degree resolution
- 1000-foot intervals
- Time intervals of 1 hour from 6 hours to 24 hours, intervals of 3 hours from 27 hours to 48 hours, and wind and temperature data at intervals of 6 hours up to 120 hours.

2.3.88 Significant Weather Forecast Charts will have coverage of Flight Level (FL) 100 to FL600 and will include:

- Tropopause heights will be replaced by tropopause contours
- Icing area forecasts will be available to everyone
- Only Occasional (OCNL) and Frequent (FRQ) cumulonimbus clouds will be shown (Embedded clouds [EMBD] cannot be included)
- Area turbulence forecasts will include clear air and orographic turbulence. There will be no separate turbulence field in the cloud.

2.3.89 Forecasts will be prepared in IWXXM format. The BUFR format will be discontinued in two years. The new system is planned to be a cloud-hosted service, offering key benefits such as the ability to scale dynamically based on demand.

2.3.90 The new system will allow users to download only the data they are interested in (eg a given area or a selection of vertical levels) and will be interoperable with other SWIM)systems.

2.3.91 Under IP/14, United States presented an overview, purpose and function of the Regional Association IV (RA IV) Expert Team on Services for Aviation (ET-AVI). ET-AVI is composed of two co-chairs and 12 experts from North America, Central America and the Caribbean. Focus areas include developing guidance, instructional material, and other educational/learning activities; promote efficient and effective governance of aeronautical meteorological service provision; and work, in close collaboration with SERCOM and other partners and, in line with the implementation of the Strategic Plan of the WMO, to promote international standardization of meteorological services for international air navigation. An aviation newsletter is planned in early 2023, which will include success stories from all aviation weather activities in the region.

2.3.92 Under NI/20 Argentina, as a member of the ICAO MET Panel, informed the Meeting about the background on the future provision of information, to be provided by the VAAs, on "concentration of quantitative volcanic ash" (hereinafter called QVA) developed by the Meteorological Expert Group (METP) of the International Civil Aviation Organization (ICAO).

2.3.93 In various panels of the WMO and ICAO, within the framework of the IAVW, for decades, the industry has been requested for aircraft manufacturers to and engines provide information on the susceptibility of aircraft and their engines to volcanic ash. The requirement focused on identifying concentration thresholds that do not pose a safety problem and that could improve the efficiency of en-route operations. This requirement leads to the development of the Quantitative Volcanic Ash (QVA) information that the Volcanic Ash Advisory Centres (VAAC) are expected to provide within the framework of the ICAO IAVW.

2.3.94 Currently, the characteristics of the information, the distribution format, the thresholds and its resolution are still under discussion.

2.3.95 The Meeting is warned that there are still challenges related to the use of Information and its initial operational capabilities and final operational capabilities.

2.3.96 The QVA information will offer operators the possibility to advance on the traditional criteria of visible/discernible ash and use the certified susceptibility of the engine for flight planning and replanning.

2.3.97 The proposal for amendment 81 to Annex 3 defines the QVA information for VAACs to provide ash concentration forecasts for “significant eruptions”. In the initial stage, the supply of current products such as Volcanic Ash Advisories (VAA) and Volcanic Ash Advisories in Graphical Form (VAG) will not be discontinued. This proposal, which will be considered shortly by the ANC, contains the various characteristics of the distribution format, quantitative concentration and its thresholds, the latter coordinated with the aircraft industry and sector stakeholders in the context of the METP.

2.4 CAR/SAM Regional Air Navigation Plan Vol. III Work Update and Regional Progress

2.4.1 Under WP/09, the Secretariat informed the Meeting about the formulation process of Vol. III of the CAR/SAM Regional Air Navigation Plan (RANP).

2.4.2 The Secretariat reminded the Meeting that ICAO formed an interregional Working Group for the application of a standardized Template for Volume III of the RANPs, with a performance-based approach. As a result of this Working Group, a pilot project was established in the CAR/SAM Regions, in order to facilitate the implementation of this document in all ICAO Regions.

2.4.3 The GREPECAS Secretariat in 2019-2022 has carried out activities with the States/Territories and Organizations to disseminate the Template proposed by ICAO and reinforce the concepts of performance-based planning, with the purpose of building Volume III of the CAR/SAM Regional Air Navigation Plan (e-ANP CAR/SAM). In these activities, the Secretariat had observed the need to strengthen, firstly, Vol. I and II of the RANP to later work on the formulation of Vol. III of the CAR/SAM RANP.

2.4.4 The Secretariat, once the process of reviewing and updating Vols. I and II have been completed, has worked on the formulation of Vol. III of the RANP, with a Performance-Based Approach (PBA), working with a Template formulated by ICAO, complying with Recommendation 4.5/1 - d). In this process, through workshops and teleconferences, improvement opportunities have been identified for the text of the template and for the Planning Tables, including proposals for new columns and explanatory texts, so that they can be associated with the concepts of the GANP, as well as facilitate the interaction of planners with the tools (tutorials, catalogues, dashboards, AN-SPA, etc.), provided on the GANP website. Likewise, it is important to mention that, in the SAM Region, the need to have the GANP and the CAR/SAM ANP in Spanish has been emphasized and reiterated.

2.4.5 The Meeting observed that the Secretariat together with the States, after three years of work, formulated version "0" of Vol. III of the e-ANP CAR/SAM.The Meeting, after reviewing the content of the version included in **Appendix B**, decided to approve it as Vol. III of the e-ANP CAR/SAM through the following Conclusion:

<table>
<tr><td colspan="2">CONCLUSION
GREPECAS/20/07</td><td colspan="2">APPROVAL OF THE INITIAL VERSION (VERSION 0) OF VOLUME III OF THE CAR/SAM ANP, AND FOLLOWING ACTIONS FOR THE MANAGEMENT AND DEVELOPMENT OF PERFORMANCE-BASED PLANNING</td></tr>
<tr><td colspan="3">What:
That,

;

a) GREPECAS approve the initial version (version 0) of Volume III of the CAR/SAM ANP (Appendix B of the report), formulated based on the ICAO Council Template, and aligned with Recommendation 4.3/1, d), of the AN-Conf 13;

b) GREPECAS approve the Programme for the management of Volume III of the CAR/SAM ANP (Appendix B of the report), which allows the sustainable implementation of performance-based planning; and

the States implement work teams to develop data collection activities and management of GANP KPIs as a basis for populating the data of the Planning Tables of Vol. III, with the assistance of the Secretariat to report in GREPECAS/21.</td><td>Expected impact:
☐ Political / Global
☒ Inter-regional
☐ Economic
☐ Environmental
☒ Operational/Technical</td></tr>
<tr><td colspan="4">Why:
To implement the six-step method for performance-based planning in the CAR/SAM Regions and complete the data population process of the States/Territories and, therefore, Volume III Management.</td></tr>
<tr><td colspan="2">When:
a) immediately
b) report for PPRC/05
c)</td><td colspan="2">Status: ☒ Valid / ☐ Superseded / ☐ Completed</td></tr>
<tr><td colspan="2">Who: ☒ States ☒ ICAO ☐ Other:</td><td colspan="2"></td></tr>
</table>

2.4.6 The Meeting considered it important to warn the States that Parts "0" and "1" of the approved Vol. III must be reviewed by the ANC, by all ICAO Regional Offices and by the ICAO Council in order to consider its approval and align all Volumes III of all ICAO Regional Offices, therefore they are subject to possible changes.

2.4.7 Under WP/10, the Meeting observed that, if Vol. III of the e-ANP CAR/SAM, formulated in WP/09, is approved, the formulation of the Amendment Procedure for said Vol. III must be also considered. This must be taken into account in order to comply with paragraph 7.5, Part C - AIR NAVIGATION PLANS, VOLUME III, of Appendix A, which indicates that the mechanism for the amendment of Part II of Volume III of the regional plan, and which states that this procedure must be developed and agreed by the relevant PIRG in addition to reflecting it in the corresponding PIRG Handbook.

2.4.8 The Secretariat presented the proposal for Amendment Procedure to Vol. III, in **Appendix C** to the report. Additionally, it recommended that the Procedure be introduced in the GREPECAS Manual, in item 1.2 including itemh) and rename the following paragraphs, as indicated in **Appendix D** to the report, in order to give a sequence to the document. The Meeting approved both proposals from the Secretariat.

2.4.9 Uruguay presented WP/45 on behalf of the SAM Implementation Group (SAM/IG) States, highlighting the importance of having the Spanish version at the Technical Level of the GANP. The request is based on the transversality of the technical level and its impact on the planning and implementation of air navigation solutions.

2.4.10 The Meeting supported Uruguay's request, considering the importance of the elements contained in the GANP, the correct, uniform, and unequivocal interpretation of its terminology, for which it is mandatory to have an official translation of the KPIs, ASBU elements and modules, among others.

2.4.11 The Secretariat recalled what ICAO expressed at the 41 Assembly when it analyzed this request in the Order of the Day 19 – Multilingualism (Making the Technical Level available in the six official ICAO languages would imply Information Technologies (IT) and maintenance resources that are not currently available).

2.4.12 The Secretariat mentioned that the problem is common in all ICAO regions and that an evaluation of the impact on the implementation of the GANP Vision is being worked on, which will be submitted to ICAO's Secretary General, and, if it were necessary, to the ICAO Council for consideration.

2.4.13 In this regard, the Meeting agreed the following conclusion:

CONCLUSION GREPECAS/20/08	**LACK OF AVAILABILITY IN SPANISH OF THE ICAO GLOBAL AIR NAVIGATION PLAN (GANP)**
What: That,considering that the Global Air Navigation Plan (GANP) is not available in Spanish, nor other languages than English, the effective understanding and successful implementation of the GANP requirements is greatly affected, and many States do not have access due to language impairment; GREPECAS request the ANC to consider this situation as a worldwide concern and challenge, and requests an urgent solution.	**Expected impact:** ☒ Political / Global ☒ Inter-regional ☐ Economic ☐ Environmental ☒ Operational/Technical

Why: The ICAO GANP plays a critical role in air navigation planning and implementation, so its availability in Spanish is urgently required for its understanding and implementation.		
When:	Report to ANC/GREPECAS/21	**Status:** ☐ Valid / ☐ Superseded / ☐ Completed
Who:	☐ States ☐ ICAO ☐ Other:	XX

2.5 ICAO Assembly 41st. Session Results and Relevant Outcomes

2.5.1 Under WP/11, the Secretariat presented a summary of the results of the 41st ICAO Assembly and which have a direct impact on the development activities of ANS, taking into account that during the Assembly the full work Programme of ICAO in the technical, economic, legal and technical cooperation fields was examined in detail. The results of the Assembly communicated to the other ICAO bodies and its Member States to guide their continued and future work, as provided for in Article 49 of the Convention on International Civil Aviation.

2.5.2 Among the Agenda Items, the 41st Session of the ICAO Assembly addressed issues of great interest to air navigation, including:

a) Resolution A41-6: ICAO global planning for safety and air navigation
b) Resolution A41-7: Support for ICAO policy on radio frequency spectrum matters
c) Resolution A41-8: Consolidated statement of continuing ICAO policies and practices related to a global air traffic management (ATM) system and communications, navigation and surveillance/air traffic management (CNS/ATM) systems
d) Resolution A41-9: New entrants
e) Resolution A41-10: Consolidated statement of continuing ICAO policies and associated practices related specifically to air navigation
f) Resolution A41-11: Declaration on air transport facilitation affirming global commitment to enable the safe and efficient recovery of aviation from the COVID-19 pandemic, and to make aviation more resilient in the future

2.5.3 With WP/27, the States were invited to take a regional position to analyze in more detail the allocation of frequencies by the International Telecommunication Union (ITU) and the World Radiocommunication Conferences (WRC), with the objective of ensuring the protection of frequencies for aeronautical use and guaranteeing their availability for current and future aeronautical services.

2.5.4 Under WP/49, the Secretariat provided information on the ICAO Gender Equality Programme which promotes the participation of women in the global aviation sector and invites States to take into account the information presented and to develop and implement policies for the inclusion of women in the aviation environment to enable a more creative and innovative environment for the benefit of aviation.

2.5.5 ICAO as a part of the United Nations (UN) supports and promotes the strategic objectives of the UN with the aim of creating a more dignified and equal world for human beings. ICAO through Resolution A39-30 established the ICAO Gender Equality Programme in 2019 and through its monitoring has identified that the expected benefits have not been achieved.

2.5.6 There are other programmes indicated by United States, IATA, IFALPA, CANSO, among others that promote this objective. The Meeting discussed at length the issue, the benefits of gender equality; the advantages generated at the socio-economic level for the States, and therefore supported the ICAO request:

a) establish a real commitment to this objective;
b) develop policies within organizations that promote gender equality;
c) identify real goals that promote gender equality within aviation;
d) develop action plans to ensure implementation;
e) establish mechanisms to measure the achievement of goals and continuous improvement; and
f) share lessons learned and benefits gained from their implementation for the benefit of other States and Organizations.

2.5.7 Under WP/44, Uruguay presented an overview of gender equality and ongoing initiatives to improve gender equality and promote gender mainstreaming and women's empowerment in civil aviation.

2.5.8 WP/44 informed that reality confronts us daily and shows us the different faces of inequality, being recognized that women are underrepresented in the upper ranks of aviation in general, a male field since its beginning, showing cultural patterns that condition and frame behaviours. Thus, it shows the need to achieve equal opportunities with respect to female representation as established in Objective 5 of Sustainable Development of UN, Achieving gender equality and empowering all women and girls. Therefore, to promote the participation of women in the regional civil aviation sector, an objective that can only become a reality if together we plan and commit ourselves to policies that correct inequality in opportunities.

2.5.9 The Committee in the A 41 considered insufficient progress towards gender equality in aviation and recalled the importance of greater commitment, ambitious policies, including human resources policies, and the establishment of measurable goals and targets to minimize the gender gap and improve the representation of women in aviation.

2.5.10 Uruguay congratulated the initiative of 25by2025 from IATA, and said that it is a project for inclusion that encompasses the entire sector and seeks to increase the number of women in senior management positions, either by 25% compared to the figures currently known, or to a minimum representation of 25% by 2025.

2.5.11 Considerando lo indicado por Uruguay, la Reunión se emitió la siguiente conclusión:

<table>
<tr><td colspan="3">CONCLUSION
GREPECAS/20/09</td><td colspan="2">SUPPORTING GENDER EQUALITY – PROMOTING THE PARTICIPATION OF WOMEN IN THE GLOBAL AVIATION SECTOR</td></tr>
<tr><td colspan="3">What:
i. That, an Ad hoc Group be established to carry out a systematized and harmonized work, on a solid basis, to developa Project proposal that includes a Plan, goals and indicators to develop opportunities for the career of women in civil aviation and the aviation industry, identifying the obstacles and biases that hinder the career to report at the PPRC/05; and
establish a Guide to support the empowerment of women in regional aviation to report to GREPECAS/21.</td><td colspan="2">Expected impact:
☒ Political / Global
☒ Inter-regional
☐ Economic
☐ Environmental
☒ Operational/Technical</td></tr>
<tr><td colspan="5">Why:
To recognize the contribution of Women in aviation and establish regional strategies for their empowerment, in response to the United Nations Sustainable Development Goal 5, ICAO Council Resolution A41-26 and IATA Program 25.</td></tr>
<tr><td colspan="2">When:
a) immediately
b) report for PPRC/05
c) report in GREPECAS/21</td><td colspan="3">Status: ☒ Valid / ☐ Superseded / ☐ Completed</td></tr>
<tr><td colspan="2">Who: ☒ States ☒ ICAO ☒ Other:</td><td colspan="3">IATA</td></tr>
</table>

2.6 CAR/SAM Regions Aviation Statistics and Forecasts

2.6.1 Under WP/12, an updated analysis of air traffic through statistics and forecasts of civil aviation in the CAR/SAM Regions was presented, detailing important challenges such as the slowdown in economic growth impacted by: inflation as a result of the effects of the COVID-19 pandemic, the war in Ukraine and an increase in interest rates faced by international air transport. The WP concluded that the CAR/SAM Regions continue to have a consistent and sustainable recovery in terms of passengers and seat capacity, even with some countries exceeding 2019 levels. The forecast for 2022 and 2023 is that air transport in the region will exceed the pre-pandemic numbers, and also that the recovery be more homogeneous among the States, especially in terms of passengers and international capacity.

Agenda Item 3 Second GREPECAS-RASG-PA Joint Meeting

3.1 Follow-up on the GREPECAS and RASG-PA Conclusions and Decisions

3.1.1 The Secretariat presented WP/43 related to updating the CAR/SAM regional guidance document for the implementation of quality assurance programmes in Air Traffic Services (ATS). In the presentation, it was recalled that the Quality Assurance (QA) programmes represented one of the most important ATS management programmes to ensure the quality of services, focused on reducing ATS incidents through the six essential processes included as part of the QA programme.

3.1.2 WP/43 highlighted the need to review and update the guidance manual, considering that it was promulgated more than twenty years ago, during this period the standards and recommended practices related to ATS have undergone significant changes including the publication of the requirements for security management in Annex 11 and Annex 19, the update of Doc 4444, and the publication of Doc. 9859. Considering the aforementioned, the following conclusion was formulated:

CONCLUSION GREPECAS/20/10	**UPDATING OF THE CAR/SAM REGIONAL GUIDANCE MATERIAL FOR AIR TRAFFIC SERVICES QUALITY ASSURANCE PROGRAMME**
What: That, as the Air Traffic Services (ATS) quality assurance programme can contribute to improving ATS safety in support of Safety Management System (SMS), but the CAR/SAM regional guidance material for the implementation of quality assurance programmes in ATS needs to be reviewed and updated so that it is in accordance with the respective SARPs: a) an Ad hoc Group be createt made up of States or international organizations of the CAR/SAM Regions, which will be in charge of reviewing and updating the CAR/SAM regional guidance material for the implementation of quality assurance programmes in air traffic services and inform GREPECAS/21 about the results of this task; and b) States and international organizations continue with the implementation of the ATS quality assurance programme, or those processes that can be integrated with the SMS to improve the safety of services. .	**Expected impact:** ☐ Political / Global ☐ Inter-regional ☐ Economic ☐ Environmental ☒ Operational/Technical
Why: Considering the importance that States and service providers continue or resume the quality assurance program or those processes thereof that can be integrated into the SMS process in	

	support of safety, mainly the verification of competence, notification, investigation, and teams of Air Traffic Incident Investigations, Air Traffic Incident Prevention programme and the Quality Services Improvement program.	
When:	GREPECAS 21	**Status:** ☒ Valid / ☐ Superseded / ☐ Completed
Who:	☒ States ☒ ICAO ☐ Other:	

3.1.3 The Ad hoc Group is made up of the following States and international organizations:

- Chile
- Colombia
- Cuba
- Dominican Republic
- Panama
- Venezuela
- COCESNA

3.1.4 Under the IP/03, the Secretariat presented to the Meeting an executive summary and an Appendix that includes the Conclusions and Decisions of the GREPECAS/19 and the GREPECAS Programmes and Projects Committee (PPRC) Fourth Virtual Meeting (ePPRC/04), considering that 6 of the 14 Conclusions are completed and 8 are still valid and/or in progress (see the Appendix to IP/03).

3.2 CAR/SAM Regions Air Navigation Priorities, Targets and Emerging Risks

3.2.1 Through WP/14, the Meeting was informed of the activities carried out in the CAR and SAM Regions in the implementation of mitigating measures for the protection of air operations at airports due to the start-up of 5G technology.

3.2.2 The Meeting took note that the ICAO NACC and SAM Regional Offices have been working with States, holding workshops and sharing lessons learned from States that have already implemented mitigation mechanisms, since this experience is of enormous benefit to States that are still working on it.

3.2.3 The States were invited to continue following up on the actions implemented to date with constant monitoring, carry out the corresponding risk analysis at their international airports and take the corresponding actions, if they have not yet been carried out.

3.2.4 WP/51 presented information on the actions to be taken by the Central American States and COCESNA to mitigate the possibility of interference in aeronautical operations due to the implementation of 5G technology in the Central American region.

3.2.5 Under WP/15, the issue of the importance of having an objective information method in the progress of CAR States in the different levels of implementation of the three phases of the Roadmap for the transition to AIM was presented, and the lack of information exchange that exists between States. It was also reported that the NACC/WG AIM TF agreed to support the ICAO Secretariat to develop the AIM transition monitoring website, obtaining progress data on the 21 steps of the AIM Transition. The States

will announce their Point of Contact (PoC) to provide the information required for coordination with the AIM TF Rapporteur on the different topics and agreements of the Group.

3.2.6 The Meeting was informed that the ICAO Technical Cooperation Office (TCB) approved the funds for the Project and is in the process of application and implementation. Some details were provided to TCB, in order to select and assign a provider in accordance with ICAO Protocols, presenting the technical characteristics that the CAR AIM Tracking Web Site will have, as follows:

• The software will be developed with Open Source technology.	• Aligned to development standards with SOLID principles that help in future integrations and scalability of the final product.
• It must be available on a WEB platform.	• Centralized on a server and that allows user connectivity through a WEB interface.
• In the design part, prototypes (Layout) will be developed with online tools.	• Previous authorization of the designs by the ICAO project coordinators

3.2.7 On the other hand, the general structure of the site was presented:

Background	Information	Detailed introduction and implementation information.
Implementation Table	Dashboard	Dynamic dashboard, with filters for precise searches.
21 ICAO steps for the AIS-AIM transition	Roadmap	It will statically display the steps from the lowest to the highest level; at the same time, it will be possible to access the details of the information through this section.
AIM Domain News	News	See detail of the note, with the possibility of attaching images that illustrate the news.
ICAO Materials	Repository	Provide users with the consultation and download of help and support files, administrators must allow them to upload and manage the documents to share.
	Videos	Watch and download videos, keep them categorized by forums, events, webinars, etc.
Contacts	Directory	Contact directory, managed by users with an administrator profile.

3.2.8 The Secretariat, through IP/04, provided information on the resolutions taken at ICAO Assembly 41 regarding the updating of cybersecurity issues, which must be addressed by the States of the regions.

3.2.9 During ICAO Assembly 41, discussions were held on emerging issues for aviation; Resolution A41-19 was agreed: *Addressing cybersecurity in civil aviation*. The global aviation system is a highly complex and integrated system comprising systems that are critical to the safety and security of civil aviation operations that is increasingly dependent on the reliability, integrity and availability of systems, data and information.

3.2.10 Resolution A41-19: *Addressing cybersecurity in civil aviation* urged States to implement actions that encompass the establishment of joint cybersecurity policies for aviation protection.

3.2.11 Under IP/13, United States presented information about the FAA Advanced Air Mobility (AAM) integration activities. The advent of new and emerging technologies such as electric Vertical take-off and landing (eVTOL) aircraft and automation has evolved into broader concepts for AAM. Innovation is a strategic priority for the FAA and the U.S. Department of Transportation (DOT), and the FAA's

continuing mission to provide the safest, most efficient aerospace system in the world supports this priority. The global aviation community must take incremental steps to best enable these advanced concepts. All stakeholders must work closely together to safely and efficiently integrate these new aviation technologies into the existing system, and thereby turn new and innovative concepts into long-lasting benefits.

3.2.12 According to the information provided, United States indicated that it has a long, successful history of safely and efficiently bringing new and emerging technologies into aviation. The FAA is committed to safely integrating these highly automated, and what many envision to be autonomous, aircraft into our system in accordance with FAA safety standards. We look forward to continued collaboration with regulators and the AAM community around the globe. There is much work to do to move toward AAM integration and we will need a broad collection of voices at the table, including those of our global partners.

3.2.13 Under the IP/17, United States presented information on the FAA Unmanned Aircraft System (UAS) Traffic Management (UTM) initiatives and implementation strategy. The FAA's UTM development will ultimately identify services, roles and responsibilities, information architecture, data exchange protocols, software functions, infrastructure, and performance requirements for enabling the management of low-altitude drone operations. The FAA's near-term focus is on enabling a repeatable path to UTM service approval and maturing its own cloud services that will interact with the future UAS Service Supplier (USS) network.

3.2.14 UTM is the manner in which the FAA will support operations for UAS in low-altitude airspace. It is a community-based, cooperative traffic management system, where the operators and entities providing operational support services are responsible for the coordination, execution, and management of operations.

3.2.15 According to the information presented the FAA conclude that continued maturation and deployment of the UTM ecosystem is essential to enabling drone operations to meet their full potential. The FAA is committed to further collaboration with industry to standardize interoperability and performance within the ecosystem and to build out a regulatory framework for UTM and a competitive UTM service market will lead to higher quality services, greater variety, and more innovation. The FAA is planning a regulatory framework that will embrace competition and ensure interoperability while not prescribing service usage.

3.3 Air Navigation Subjects of Interest to RASG-PA and Safety Subjects of Interest to GREPECAS

3.3.1 United States presented IP/21 highlighting that the radio frequency spectrum is a natural resource with finite capacity and constantly increasing demands. Internationally, the aviation industry depends on the use of spectrum for a variety of technologies that ensure safe, efficient and profitable air travel. Similarly, innovation in the telecommunications industry is critical to economic and social advancement around the world, requiring spectrum decision-making states to balance these needs.

Coordinated activities between RASG-PA and GREPECAS

3.3.2 Through WP/10 of the RASG-PA/12 Meeting, the RASG-PA and GREPECAS Secretariats presented a summary of the following activities that have been developed in a coordinated manner between both groups during this year:

a) Collaboration between the GREPECAS Scrutiny Working Group (GTE) and the RASG-PA Mid-Air Collision (MAC) Working Group.
b) CAR and SAM Runway Safety Teams (RST) Implementation Project
c) Implementation of Performance-Based Navigation (PBN) procedures in a Visual Runway – SAM
d) Implementation of Performance-Based Navigation (PBN) procedures in a Visual Runway – NACC
e) Project for Linguistic Competence in Air Traffic Services (ATS) in the CAR and SAM Regions
f) IATA/ICAO project for the mitigation of Controlled Flight Into Terrain (CFIT)-type accidents
g) General considerations on possible interference caused by the 5G network
h) Activities related to UAS/RPAS
i) AIS personnel competency assessment
j) Activities related to the prevention of accidents related to turbulence
k) Analysis of the 7th Edition of the GANP

3.3.3 Details of each activity are attached to WP/10 on the meeting site: Microsoft Word - RASGPA12_WP10 RASG-GREPECAS activities.docx (icao.int)

3.3.4 The Meeting recognized the efforts of both Groups, and highlighted their ability to conduct tasks in a coordinated manner, highlighting the importance of seeking efficiencies and minimizing duplication of efforts.

3.3.5 After the exchange of criteria and opinions on the listed activities, it was agreed that the RASG-PA Secretariat sends the described deliverables and best practices to the Safety Management Panel (SMP).

3.3.6 Additionally, the ICAO NACC and SAM Regional Offices described the "Safety Awareness Week" and agreed that both Regional Offices would send the corresponding letters to the States so that they can participate in this initiative. Details about the initiative can be found at: https://www.icao.int/NACC/Pages/regional-group-sssdown.aspx

3.3.7 During the exchanges, the participants commented on the need to review the structure, method and content of joint meetings, to ensure the most efficient use of resources by States, the industry representatives and International Organizations and the ICAO Regional Offices.

3.3.8 Finally, after analyzing the content of the Working Paper and making the corresponding interventions by the members of the group, the GREPECAS/RASG-PA Joint Meeting approved the following Conclusions:

DECISION GREPECAS/20/11	**APPROVAL OF THE GTE/MAC TERMS OF REFERENCE**	
What: That RASG-PA/12/GREPECAS/20 approve the Terms of Reference presented in **Appendix E** to this report.		**Expected impact:** ☐ Political / Global ☐ Inter-regional ☐ Economic ☐ Environmental ☒ Operational/Technical
Why: To formalize the structure and way of working of the GTE/MAC Collaborative Group.		
When: Immediately	**Status:** ☒ Valid / ☐ Superseded / ☐ Completed	
Who: ☐ States ☒ ICAO ☐ Other:	Regional Director	

CONCLUSION GREPECAS/20/12	**NAM/CAR/SAM WORKSHOP FOR THE IMPLEMENTATION OF MITIGATION MEASURES TO AVOID INTERFERENCE IN THE OPERATION OF RADIO ALTIMETERS DUE TO THE COMMISSIONING OF 5G TECHNOLOGY.**
What: That, given the importance of continuing with the activities to implement mitigating measures due to the implementation of 5G technology in international airports using the frequency bands close to those in which radio altimeters operate, and with the necessary actions to ensure that the mitigating measures implemented will avoid interference problems, in this regard the meeting agrees to: a) ICAO jointly coordinate with the BOEING company a workshop for the States of the CAR and SAM regions with the objective of sharing lessons learned and knowledge that will help promote mitigating measures to avoid interference in radio altimeters by 5G technology; b) ICAO continue supporting States on these activities; and c) CAR and SAM States inform the ICAO NACC and SAM Regional Offices of the monitoring systems implemented in each of their States by 3 February 2023.	**Expected impact:** ☐ Political / Global ☐ Inter-regional ☐ Economic ☐ Environmental ☒ Operational/Technical

Why: Interference in the operations of radio altimeters due to the operation of 5G technology is an operational safety problem that affects Aeronautical operations and constitutes a high risk for it if adequate mitigating measures are not implemented and if monitoring is not carried out. of its proper functioning.			
When:	3 February 2023	**Status:**	☒ Valid / ☐ Superseded / ☐ Completed
Who:	☒ States ☒ ICAO ☐ Other:		CAR and SAM States, BOEING and ICAO

CONCLUSION GREPECAS/20/13	**DISSEMINATION OF PART I OF DOC 8126 – AIS MANUAL**
What: That, considering the issuance of the Seventh Edition of Doc 8126 – AIS Manual, which includes new elements related to safety monitoring, a) the States establish competency assessment procedures for AIS personnel, in accordance with Appendix A of Doc 8126 - AIS Manual; and b) the Secretariat prepare seminars and workshops to disseminate the new requirements introduced in Part I of Doc 8126 - AIS Manual by the end of 2025.	**Expected impact:** ☐ Political / Global ☐ Inter-regional ☐ Economic ☐ Environmental ☒ Operational/Technical
Why: So that all the parties involved become aware of the requirements introduced in Part I of Doc. 8126 - AIS Manual and establish a Regulatory Framework for the Evaluation of the Competence of AIS Personnel, both of the Authority and of the Service Provider.	
When: End of 2025	**Status:** ☒ Valid / ☐ Superseded / ☐ Completed
Who: ☒ States ☒ ICAO ☐ Other:	

CONCLUSION GREPECAS/20/14	**COORDINATED ACTIVITIES BETWEEN RASG-PA AND GREPECAS**
What: That the RASG-PA and GREPECAS Plenary Meetings approve the list of current joint activities, as well as those potential joint activities that could be carried out in the future.	**Expected impact:** ☐ Political / Global ☐ Inter-regional ☐ Economic ☐ Environmental ☐ Operational/Technical
Why: To report to ICAO as part of the annual report of the Regional Groups.	

When:	Immediately	**Status:**	☒ Valid / ☐ Superseded / ☐ Completed
Who:	☐ States ☒ ICAO ☐ Other:		

3.3.9 Under WP/50, United States submitted information on the proposed process for the timely coordination of launch and re-entry activities in South America, Central America, North America and Caribbean Regions.

3.3.10 The uncoordinated integration of launch and re-entry operations poses a danger to airspace users. Decades ago, the infrequency of space launches and the infrequent volume of aviation made these events less disruptive. The recent increase in space operations highlights the need for streamlined coordination between States and airspace users to ensure continuity of safe and efficient operations for space and aviation activities. In addition, it presented the example and challenges of United States in this regard.

3.3.11 The Working Paper invited to take note of the lessons learned from United States and to use the Aeronautical Message Handling System (AMHS) means and infrastructure to promulgate information regarding launches into airspace.

3.3.12 The Meeting, considering the information provided by United States, issued the following conclusion:

CONCLUSION GREPECAS/20/15	**ANC NOTAM FOR AEROSPACE OPERATIONS**
What: That, considering the increase in space activity and the need for closer coordination between Aerospace Agencies and Navigation Service Providers to establish safe operating windows for aviation during a launch or re-entry of space vehicles into the atmosphere of the Land; and the existence of opportunities for improvements in the dissemination of launch or re-entry information through aeronautical fixed systems; the Secretariat a) urge the ANC to study the establishment of closer coordination between Aerospace Agencies and ANSPs for Rocket Launch and Earth Re-entry; b) urge the ANC to explore the possibility of formulating a specific type of NOTAM for rocket launches and re-entry to Earth (paragraph m of 6.3.2 of Annex 15 includes rocket launches as NOTAM grounds but could be complemented with a standardized procedure); c) promote the creation of Contact Lists of Organizations coordinating space activities; and	**Expected impact:** ☒ Political / Global ☐ Inter-regional ☒ Economic ☐ Environmental ☒ Operational/Technical

d) urge to include the distribution of information on aerospace activity via email as a back-up to the distribution systems via AMHS by the first quarter of 2023.	
Why: It is important to establish backup procedures and further dissemination of information on rocket launch and re-entry activities to minimize the impact on safety and continuity of operations. Additionally, a standardized procedure will increase situational awareness.	
When: First quarter of 2023	**Status:** ☒ Valid / ☐ Superseded / ☐ Completed
Who: ☐ States ☒ ICAO ☐ Other:	

3.4 GANP-GASP interaction

3.4.1 The Meeting took note that the Seventh Edition of the GANP includes areas and sub-areas related to the safety Key Performance Area (KPA). Additionally, it has been highlighted that this edition includes three (3) Key Performance Indicators (KPI) related to safety.

3.4.2 Uruguay, through WP/47, warned the Meeting that, since the Sixth Edition of the GANP, there had been a greater interaction between the Global Air Navigation Plans and the Operational Safety Plan (GANP and GASP), which has been more strongly evidenced in this new edition of the GANP, with the inclusion of these areas and sub-areas of focus, and the KPIs related to safety.

3.4.3 Uruguay, observing this interaction, proposed considering the opportunities for improvements in the relationship between both plans, optimizing communication and coordination between them, highlighting the importance of having a solid air navigation system to achieve the expected levels of safety operational and resilience.

3.4.4 Considering the aforementioned, Uruguay, in WP/47, urged the GANP and GASP Working Groups to prepare common indicators for both ICAO Global Plans, which would lead to strengthening the links so that the Regional Groups work jointly on cross-cutting issues to GANP and GASP.

3.4.5 Additionally, the need to work jointly to resolve air navigation deficiencies in the CAR/SAM Regions has been mentioned.

3.4.6 The Meeting, based on the proposal from Uruguay, the Seventh Edition of the GANP, and the discussions on air navigation deficiencies, resolved to issue the following conclusions:

CONCLUSION GREPECAS/20/16	**GASP - GAND AD HOC GROUP**
What: a) That, considering the inclusion of 3 Key Performance Indicators (KPIs) for the Safety Key Performance Area (KPA) in the Seventh Edition of the Global Air Navigation Plan (GANP); and the formulation of Vol. III of the Regional Navigation Plan (RANP) and the State Security Programmes (SSP), the Secretariat, with the States, proceed to create an Ad hoc Group, with focal points for air navigation and safety, to analyze transversally these 3 KPIs in the RANP and in the SSP and establish coordinated work programmes to evaluate the implementation of the 3 KPIs and report the developments to GREPECAS/21.	**Expected impact:** ☐ Political / Global ☐ Inter-regional ☐ Economic ☐ Environmental ☒ Operational/Technical
Why: The coordinated work between the Regional Air Navigation Groups (GREPECAS) and Operational Safety (RASG-PA) when analyzing the implementation of the 3 KPIs of the Operational Safety KPA is imperative to establish transversal tasks, in order not to duplicate effort and optimize resources.	
When: Report the developments in GREPECAS/21	**Status:** ☒ Valid / ☐ Superseded / ☐ Completed
Who: ☒ States ☒ ICAO ☒ Other:	Industry

CONCLUSION GREPECAS/20/17	**MANAGEMENT OF SAFETY KPIs IN THE GREPECAS/RASG-PA JOINT WORK FRAMEWORK**
What: That the Secretariat, together with the States and the industry, plan and develop activities for the management of the KPIs of safety key areas stipulated in the seventh edition of the GANP and in the joint GREPECAS/RASG-PA framework by the First quarter of 2024.	**Expected impact:** ☐ Political / Global ☒ Inter-regional ☐ Economic ☐ Environmental ☒ Operational/Technical
Why: In order to strengthen the integrated approach of the GANP and GASP global plans, and considering the transversal aspect of the management of Vol. III of the Regional Navigation Plan (RANP) and the State Security Programs (SSP).	
When: First quarter of 2024	**Status:** ☒ Valid / ☐ Superseded / ☐ Completed
Who: ☒ States ☒ ICAO ☒ Other:	NACC and SEM Secretariat, Industry

<table>
<tr><td colspan="3">CONCLUSION
GREPECAS/20/18 REVIEW OF AIR NAVIGATION DEFICIENCY ASSESSMENT PROCESSES</td></tr>
<tr><td colspan="2">What:
That, considering the advanced work of ICAO on the Air Navigation Deficiency Assessment Programme, and the inclusion of a Mapping between the Universal Safety Oversight Audit Programme (USOAP) Protocol Questions (PQs) and the Basic Building Blocks (BBBs), in the Seventh Edition of the GANP, the Secretariat urge:

a) the ANC to complete the review of the Deficiency Assessment Process; and

b) the international aviation organizations (IATA, IFALPA) to consider continuing to support the evaluation of the deficiencies and report them to the NACC and SAM Regional Offices for follow-up and joint work with the States, for their resolution by the end of 2023.</td><td>Expected impact:
☐ Political / Global
☐ Inter-regional
☐ Economic
☐ Environmental
☐ Operational/Technical</td></tr>
<tr><td colspan="3">Why:
It is necessary to complete the comprehensive review process of the uniform methodology for the identification, evaluation and notification of deficiencies in air navigation, in order to apply the opportunities for improvement identified, both in the database and in the process itself, with in order to generate a more efficient and effective process, and with greater user participation.</td></tr>
<tr><td>When: End of 2023</td><td colspan="2">Status: ☐ Valid / ☐ Superseded / ☐ Completed</td></tr>
<tr><td>Who: ☐ States ☒ ICAO ☐ Other:</td><td colspan="2"></td></tr>
</table>

3.5 Dates and Venue of the Next GREPECAS/21 & RASG-PA/13 Joint Meeting

3.5.1 The Meeting welcomed the offer of Dominican Republic to host the RASG-PA/13 and GREPECAS/21 meetings, and the GREPECAS-RASG-PA/3 joint meeting.

3.5.2 According to the dates defined in the e-CRPP/3, the meetings will take place between 13 and 17 November 2023.

Agenda Item 4 **Reports of the GREPECAS Contributory Bodies: Scrutiny Working Group (GTE), Latin American and Caribbean Association of Airfield Pavements (ALACPA), CAR/SAM Regional Bird/Wildlife Hazard Prevention Committee (CARSAMPAF) and Data Analysis Working Group (DAWG)**

Scrutiny Working Group (GTE)

4.1 WP/16 presented a summary of the activities carried out by the GTE in 2021-2022 and the result of the Reduced Vertical Separation Minimum (RVSM) airspace safety performance analysis for 2021. WP/16 informed that from 26 to 30 September 2022, the twenty-second meeting of the GTE was held in Mexico City, Mexico; during the meeting, Mrs. Diana Luque Salcedo, from Colombia, was elected as Rapporteur of the GTE.

4.2 The WP informed the Meeting that the vertical collision risk assessments - CRM (Collision Risk Model) in the 2017-2021 period show that operations in the RVSM airspace have remained within the acceptable safety level of 5 x 10−9 fatal accidents per flight or due to loss of standard vertical separation of 1,000 ft.

4.3 WP/16 highlightes that, during 2021, of the 520 reports received and validated by CARSAMMA, 206 events correspond to Bogotá FIR, 59 events to Barranquilla FIR, 28 events to Lima FIR, 26 events to Guayaquil FIR, 23 events to Curacao FIR, and 22 events to Central American FIR, representing a total of 74.0% of Large height deviationLHD events. It is recommended that immediate corrective actions be implemented, including action plans that identify and address the root causes of the events. It is recommended to include Bilateral and multilateral meetings between the Points of Contact (POCs) with the support of the ICAO NACC and SAM Regional Offices.

4.4 WP/16 emphasized the importance of the permanence of the PoC accredited to CARSAMMA since it has been identified that their rotation affects the airspace monitoring process.

Latin American and Caribbean Association of Airfield Pavements (ALACPA)

4.5 Under NI/05, the Latin American and Caribbean Association of Airfield Pavements (ALACPA), presented a summary of its activities, which highlighted the activities of assistance to States/Airports, the creation of working groups and promotion of research, agreements ,and agreements with organizations such as ACI-LAC and the FAA, as well as a summary of their activities in the short and mid-term, including the forecast of a face-to-face event for 2023.

4.6 The Meeting noted the information provided by ALACPA.

CAR/SAM Regional Bird/Wildlife Hazard Prevention Committee (CARSAMPAF)

4.7 The CARSAMPAF, as part of the contributory bodies of GREPECAS, presented eight information notes related to different activities carried out for the benefit of the States and airports of the CAR and SAM Regions.

4.8 IP/06 presented the initiative of the "Good Service Seal in Aviation Fauna Management", which objective seeks to promote good practices among companies that provide wildlife management services in the CAR/SAM Regions. With this work, it is intended to establish the necessary standards so that these service providers can optimize their processes and offer a quality service to aerodromes. As a final benefit, the initiative seeks to generate greater confidence in companies or States that find themselves in need of contracting the services of this type of company.

4.9 IP/07 presented to the Meeting an assistance service to States and airports for the implementation of national and local wildlife management committees, based on best practices from CARSAMPAF specialists. The note makes this service available to the States.

4.10 CARSAMPAF presented, through IP/08, a *Checklist – ICAO Doc 9137 Part 3- Management of the Hazard Represented by Wild Fauna, Fifth Edition-2020,* as a free tool at the service of the entire Aeronautical Community to facilitate the review of the compliance requirements of the document and as support in the self-assessment or audit processes of States and Aerodromes. It is only available in Spanish and can be downloaded from the address https://www.comitecarsampaf.com/lista-de-verificacion-del-documento-oaci-9137-parte-3-gestion-del-peligro-que- represents-wildlife-fifth-edition-2020/

4.11 NI/09 presented to the Meeting information about the Bird Migration Early Warning Program for Aviation (PATMA), whose objective is to be an important tool that contributes to improving Operational Safety throughout the American continent, by generating of valuable and truthful information, which allows generating early alerts, which in turn encourage informed decision-making and action.

4.12 This Program has three fundamental stages or phases: the first one is the formation of the network, the second consists of the development of computer tools that allow network connectivity, and the third stage is the collection and consolidation of information, in such a way that allows its dissemination as soon and accurately as possible to be able to draw up strategies, take measures and generate alerts.

4.13 In order to facilitate the computer tool that allows consolidating records of migratory bird sightings, and serving as a platform for consultation and information exchange, CARSAMPAF developed an application for mobile phones and tablets, named after the same program, PATMA, which is available for Android-based devices since October 2021 and its version for IOS is under development.

4.14 The NI/10 presented to the Meeting the first version of the CARSAMPAF Magazine, which has three types of articles: Original writings, investigations, case studies, essays, and experience reports (free articles), which must meet certain criteria, form and quality, that will be evaluated by the Editorial Committee and that are published in the Editorial Policy available on the website, accessing the link: https://www.comitecarsampaf.com/category/publicaciones/revista-carsampaf/

4.15 Finally, NI/24 provided information on a survey to update the Regional Overview of Bird and Fauna Hazards in the CAR/SAM Region and to know the current status of implementation of wildlife strike notification systems, the implementation of the National Committees and the inclusion of Fauna Management in the Operational Safety Surveillance Programmes. Said survey was provided to the States with the support of the ICAO Regional Offices.

Data Analysis Working Group

4.16 Under WP/18, the progress of the Data Analysis Working Group (DAWG) was presented, in accordance with its second meeting, led by the Argentine Air Navigation Company (EANA), which will support GREPECAS for the decision-making based on data analysis, and that it has a team of NACC and SAM experts with computational and statistical skills.

4.17 GREPECAS will coordinate with the ICAO NACC and SAM Regional Offices, States, International Organizations and industry to ensure that the required support is provided to the DAWG. The DAWG 03 meeting is expected to be held in May 2023.

4.18 As a purpose the DAWG seeks the following aspects as part of its Terms of Reference and objectives are related in context with:

• Definition of the problem or task
• Data Collection
• Homogenize the Data in terms of format
• Data analysis

4.19 The Secretariat emphasized to the participants that data is the centre for decision-making and the raw material for accountability. Without high-quality data that provides the right information at the right time; just as designing, monitoring and evaluating effective policies is difficult. Likewise, the Meeting was informed about the advances made by the DAWG Group, such as :

Avances del DAWG
Revisión de los avances realizados del DAWG: Memorando de Acuerdo (MoU);
Indicadores Clave de Rendimiento (KPI) orientados al Vol. III del Plan de Navegación Aérea (ANP) CAR SAM;
Procedimiento y Políticas del Control de Acceso a los Datos e Información (versión 1.0 borrador);
Asignación de tareas al DAWG;
Identification of Data Sources and Points of Contact (PoCs) in CAR/SAM States and International Organizations Review; Y
DAWG Work Program Update
Challenges of the GREPECAS Secretariat
Methodologies and definitions of the official statistics of the States
Perception differences
capacity building
Cooperation
DAWG Initial Results and Deliverables
Graphs and tables to the ANS regional Dashboards
Conclusions and Recommendations of the DAWG to GREPECAS or the PPRC regarding them analyzes
Develop an annual report to monitor the status of the Key Performance Indicators (KPI) of the GANP to GREPECAS and associated to Vol. III of the ANP
Document and inform the PPRC of the data analysis in the form of a roadmap on how it was organized and analyzed and what results were obtained

Agenda Item 5 GREPECAS Work Programme

5.1 Global Air Navigation Plan developments (GREPECAS Dashboard)

5.1.1 The Secretariat informed with P/01 of the development of the GREPECAS Dashboard that seeks to serve the States and the Regional Implementation Groups in support of monitoring the progress of implementation and the Annual Regional Safety Reports and Air Navigation and others.

5.1.2 In these terms, the Meeting was informed that the involvement of the States is required to establish the progress of their implementations, based on the measurement indicators in a homogeneous manner, as would happen with a Dashboard, where GREPECAS, RASG-PA and the Regional Working Groups use the same tool with the information from the regional indicators.

5.1.3 The Dashboard will allow the implementation of a measurement system for the State to visualize the current degree of implementation, and the expectations and/or implementation goals, to:

a) be able to support tasks that require continuous data collection and measurements to establish a data report that is representative;
b) the implementation status be shown through dynamic and interactive graphics that are available in the Dashboard;
c) generate ad-hoc reports that will illustrate the data collected in the Dashboard; and
d) make available for each State access to the secure portal of the GREPECAS Dashboard for its use and reporting.

5.2 Reviewed Edition of the GREPECAS Procedural Handbook

5.2.1 The Manual has been modified in order to include the Amendment Procedure of Vol. III of the e-ANP CAR/SAM, under paragraph 1.2, including an item h), and renaming further paragraphs as indicated in Appendix B to WP/10.

5.3 GREPECAS Work Programme

5.3.1 The Secretariat presented WP/21 in which the future work of GREPECAS was described as a group for the planning and implementation of air navigation services and infrastructures, where the groups of air navigation experts continuously review the Annexes and Documents of such as the Global Air Navigation Plan with the intention of harmonizing with the other ICAO Global Plans and updating the Aviation System Block Upgrades (ASBU) and BBBs modules.

5.3.2 The initial orientation of the work for the period 2022 to 2025 is the CAR/SAM Regional Air Navigation Plan Project, Volumes I and II of the Plan and the new Vol. III. At the same time, the development of capacities in the States will be sought, regarding planning based on performance and management of the KPIs and the respective KPAs, so it is important to refer to the Appendix to WP/21 that shows the respective planning for each air navigation area.

5.3.3 The Secretariat informed the Meeting of the fact that ICAO is still developing the electronic version of the Regional Air Navigation Plan, with a focus on its management at the end of 2023 or the beginning of 2024.

5.3.4 Moreover, the Meeting was asked to consider that during Assembly 41, in Item 14, the States reaffirmed the need to have the Aviation Cybersecurity Plan.

5.3.5 The Secretariat considered that GREPECAS should plan the management of the RANP and follow up on the implementation planned for the next five years, additionally, follow up on the Planning of the implementation of the Vision of the GANP, in its seventh edition, which includes safety KPIs, and, therefore, it should be included in the Work Programme as follows:

GREPECAS Future Work Programme
Strengthening of the DAWG
Follow-up programme of the valid Resolutions of the ICAO Assembly, referring to ATM
GANP Vision Implementation Planning and Review Programme
Programme to review and update the Regional Navigation Plan aligned with the vision of the GANP
Monitoring programme of the National Air Navigation Plans aligned with the Regional Air Navigation Plan and the GANP
Air navigation implementation monitoring programme including the latest requirements of the amendments to the Annexes and Documents related to each topic
Strengthen the joint work with the RASG-PA considering what the seventh edition of the GANP includes, in relation to the area of safety, design actions that lead to analyse and promote the preparation and measurement of the new KPIs of the area of safety included in the seventh edition of the GANP

Agenda Item 6 Election of the Chairperson and Vice-Chairperson of the GREPECAS

6.1 The Secretariat presented WP/23 to proceed with the election of the new President and Vice-President of GREPECAS, in consideration of what is expressed in the GREPECAS Procedural Handbook, Seventh Ed. 2020 (refer to para. 2.1), that in its Section 3 “GREPECAS membership and organization” indicates that the Group must designate a President and a Vice-President. In paragraph 3.6, it is also mentioned that “The Group shall appoint a Chairperson and a Vice-Chairperson. The Chairperson, in close coordination with the Regional Directors of the ICAO NACC and SAM Regional Offices, should make the necessary arrangements for the work of the Group to be efficient.”

6.2 Additionally, also in 3.7 " In order to ensure the necessary continuity in the work of GREPECAS, and unless special circumstances determine otherwise, the Chairperson and the Vice Chairperson of GREPECAS should assume their functions at the end of the meeting at which they are elected, normally for a period of three years. They may also be re-elected only once if the group deems it appropriate to do so. The Chair shall:

a) attend, to the extent possible, all meetings of GREPECAS under his/her chairpersonship;
b) participate with the Secretariat in the development of GREPECAS meeting reports; and
c) present the GREPECAS meeting reports under his/her chairpersonship.”

6.3 Considering the importance of covering the board of directors of GREPECAS previously composed of Mr. Hector Porcella as Chairperson and Mr. Ary Bertolino as Vice-Chairperson, the Secretariat invited all delegates to propose their candidates for the positions of Chairperson and Vice-Chairperson of GREPECAS. Therefore, the participants proposed Mr. Alessander de Andrade Santoro from Brazil for that position and Mr. Orlando Nevot from Cuba for Vice-Chairperson, with the support of the Meeting for their nomination.

Agenda Item 7 Other Business

7.1 With WP/32, Brazil presented information on the SIRIUS Program that implements the National Air Navigation Plan established by the Brazilian State and conducted by the Aeronautical Command (COMAER), through the Airspace Control Department (DECEA), to promote the evolution of the air navigation and defense structures of the Brazilian airspace, in response to the growth in demand and the diversity of air traffic expected for the coming decades and to technological evolutions in the field of aviation.

7.2 The SIRIUS Program, through the National ATM Implementation Plan, developed in harmony with the GANP and ICAO planning documents, presents a performance-based action plan that will enable flights in a rich digital environment and with high connectivity, focused on meeting the needs of users of the Brazilian airspace.

7.3 The Meeting analyzed the Brazilian experience in the development of the National Air Navigation Plan and its governance mechanisms, for the benefit of improving the Regional Air Navigation Plan of the CAR/SAM Region and its national planning.

7.4 Under WP/37, Brazil presented 100% progress in the implementation of PBN and Continuous Climb Operations (CCO)/Continuous Descent Operations (CDO), reaching 1,428 procedures [Instrument Approach Chart (IAC), Standard Instrument Departure (SID), Standard Instrument Arrival (STAR)] for 141 airports. The Instrument Flight Procedure Design (IFPD) services deployed measures in the pandemic period to facilitate the virtual work of their specialists, while providing training to increase their productivity. Work has been developed for the review and updating of IACs over w5 years old.

7.5 Under WP/24, The Meeting was informed of the monitoring of the Management of Five-letter name code (5LNC) codes in the International codes and routes designators (ICARD). The Meeting recalled that the GREPECAS Conclusion 19/12 urged the CAR/SAM States to observe the Recommendation of the AN Conf/13 referred to the 5LNC codes and carry out measures to manage to communicate the total population of the 5LNC used by the States and enter them into the ICARD.

7.6 Additionally, it was recalled that States have been urged to implement actions in order to eliminate duplicate, triplicate codes, etc. Regarding this point, the Secretariat reported that it is following up on this recommendation, the results of which are as follows:

a) In the SAM Region, several States have worked on the resolution of duplicate codes, highlighting that Bolivia and Brazil have resolved 90% of duplicate codes. Likewise, other States have been working to eliminate these duplicate codes.
b) In the CAR Region there is a large amount of 5LNCs pending that were published for a long time, even before the establishment of the ICARD system, and that the States have not taken the actions to purge their published 5LNCs, manage their assignment in the ICARD or its replacement.
c) It was also recalled that the purification of the published codes and the verification that they are duly entered in ICARD is the responsibility of the States, and not of the Secretariat.

7.7 The Meeting was also informed that the EUR/NAT Region held a Workshop on 5LNC, in September 2022, event in which code anomalies not entered in ICARD were identified, but currently in use by States, among other situations related to ICARD. Another situation observed is the non-release of 5LNC codes when they are no longer used, by including the codes in the reserved blocks.

7.8 The Meeting urged the States to complete the Population List of 5LNC codes used in ICARD to comply with Recommendation 3.5/1 item a of AN Conf/13. In addition, the Meeting invited, once again, the States to continue cross-checking between the 5LNC codes included in their AIPs and those entered in ICARD in order to purify the ICARD Database, using the guidelines established in the attached to State letter Ref. AN 11/45.5-17/101.

7.9 Brazil presented WP/29 and WP/33 sharing with the Meeting its experience of actions for AIM, where DECEA, through the Institute of Aeronautical Cartography (ICA), responsible for AIM in Brazil, considers the focus on data and not on products, in the AIM implementation, for which the ACI changed its structure, and defined new competencies. In addition, the Quality Management System (QMS) was implemented throughout the Data Chain, in process mapping and Risk Management, through collaborative communication between all entities:

Required quality	For the implementation of AIM in Brazil, a Quality Management System (QMS) has been established, implemented and maintained, covering the AIS function throughout the Aeronautical Information and Data Chain.
Processes and requirements	All entities in the aeronautical data and information chain should identify and establish processes that enable the timely collection, processing, storage, integration, exchange and distribution of quality-assured aeronautical data and information
Controlled indicators	In the implementation of AIM in Brazil, measurable results are obtained with indicators used to control the productivity and efficiency of products and processes, in the Data and Information Chain, established by the Directive of the Aeronautics Command (DCA) 11-17 " Performance Indicators for DECEA and Subordinate Organizations", available at: https://publicacoes.decea.mil.br/publicacao/dca-11-17
Identified risks	El riesgo es la posibilidad de que se produzca un acontecimiento que cause pérdidas o daños, en caso de que se produzca realmente. Los riesgos identificados pueden afectar a la seguridad de los cajeros automáticos, debido a errores o retrasos en su divulgación
Collaborative communication	El objetivo de este punto es identificar la importancia y las formas de mejorar la comunicación, la coordinación y la interacción entre todas las entidades que componen la Cadena de Información y Datos Aeronáuticos

7.10 The first step, for the implementation of AIM, was the review and restructuring of the ICA organizational chart as well as the definition of new competencies. The new organizational structure of ICA and the DECEA Regional Organizations allowed greater interaction between all areas of the information chain, ensuring the exchange of information processed in the different processes, without forgetting the required quality.

7.11 As a second point, it was considered the implementation of a quality management system that would cover the AIS function throughout the Aeronautical Information and Data Chain in order to provide users with the necessary guarantee and confidence that the aeronautical information and Distributed aeronautical data meet the aeronautical data quality requirements. In this context, the ICA has implemented the "Aeronautical Publications" process, certified since 2006 according to the ISO (International Organization for Standardization) 9001, version 2000 at the time. In 2010, ISO 9001 was implemented from of the 2008 version, and currently the implemented version of ISO 9001 is 2015, which

also brought the modification of the name of the process to "Aeronautical Information Management", due to the transition from AIS (Air Traffic Service) to AIM.

7.12 In the context of the established Quality Management System, the competencies and the related knowledge, abilities and skills required for each function have been identified, and the personnel assigned to perform them as well as the work have been adequately trained.

7.13 It is important to highlight that the ICA has a Doctrine Section (SDO) that standardizes the processes and, together with the technical team, establishes their flow, in order to guarantee the quality and integrity of the data. The flows are recorded in work instructions that are available to the technical team on the institutional website. The flowchart is designed in a software called Bizagi.

7.14 Additionally, the ICA, responsible for the implementation of AIM, identified processes and requirements for a successful implementation of AIM. In addition, risks in the process were identified, for which a risk management system was implemented that allowed creating strategies to maximize the effectiveness of their actions, including the ability to deal with uncertainty, transparency, and the efficient use of resources. means.

7.15 The ICA, hand in hand with the quality management system, have established indicators to evaluate the effectiveness of its system. To develop these indicators, it has been observed that one of the objectives established in the QMS implemented at the ICA is to deliver quality products, including the AIP (Aeronautical Information Publication), the AIP Supplement and the NOTAM (Notice to Aviators), as well as the other AIS Products. The indicators established to evaluate the achievement of this objective, an "Indicator" of 95% compliance is used for each product, which are evaluated as follows:

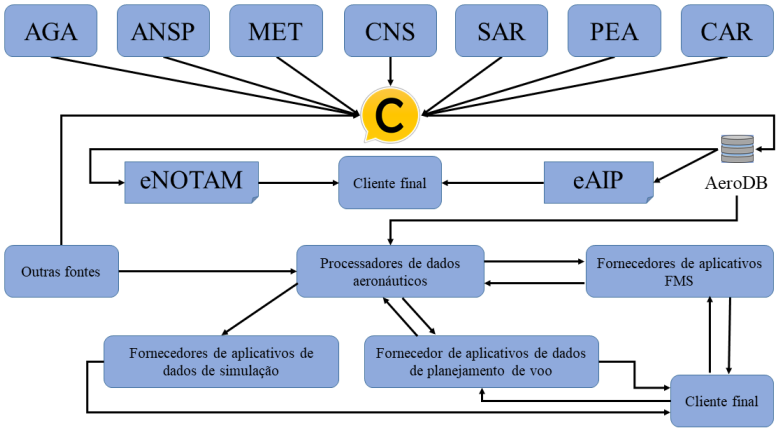
a) For NOTAMs, two performance indicators are generated, one for national NOTAMs and one for international NOTAMs. Its analysis must be carried out monthly and the percentage of compliance of the NOTAM must be measured at least 95%.
b) The AIP Performance Indicators and the AIP Supplement are obtained in each Amendment from the analysis of the quality of these Products during the "Aeronautical Information Management" process, which aims to control the degree of conformity of the AIC's products and services, that is, the relationship between the total number of errors found and the total number of products worked.
c) Three Performance Indicators are generated for the charts, depending on the purpose (Land; Procedure; and Routes or Area), and the Indicators are calculated by counting the fields outside the standard established for each chart. If a graph presents more than one error in the same field, only one non-compliance will be counted.

7.16 For each Indicator that does not reach the goal stipulated by Senior Management, the Quality Management System (QMS) Section fills out an Indicator Analysis (AI) form, as established in the Indicator Management Procedure, so that those responsible for the processes can draw up corrective actions to eliminate the causes of non-conformities.

7.17 In managing AIM in Brazil, all parties involved in creating, organizing, providing and managing services require a clear understanding of their roles and responsibilities, as well as security oversight.

7.18 It was indicated that it is important to bring together all the interested parties to solve the problems and decide collaboratively, allowing to achieve the defined common objectives, being all the entities involved, aware of the situation in relation to the actions and the deadlines established in advance.

7.19 The Aeronautical Data and Information Chain is shown in the following graph:



7.20 In conclusion, Brazil indicated that, for the sedimentation of aviation information management in Brazil, all parties involved in the creation, organization, provision and management of services need to have a clear understanding of their respective roles and responsibilities, as well as carry out security supervision. In addition, a quality management system must be implemented, with process mapping and risk control, throughout the information chain.

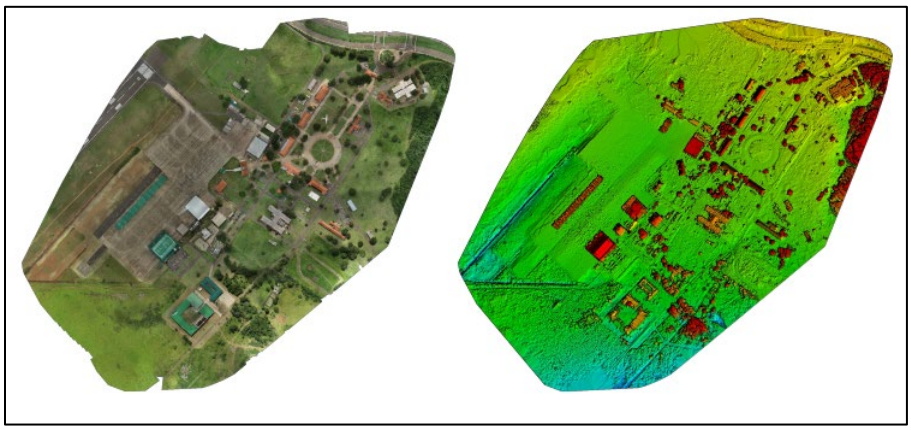
7.21 The Meeting invited the States to capture the good practices of Brazil for the implementation of AIM, as well as the processes of the quality management system in order to accelerate the implementation process of Aeronautical Information Management.

7.22 Under WP/30, Brazil referred to the use of drones in obtaining georeferenced images that allow the construction of digital terrain and elevation models, ortho-images, point clouds, and obtaining precise coordinates for preparation and updating. of the Aerodrome Chart (ADC) and the Aircraft Parking Chart (PDC) of Brazilian military aerodromes, for the development of georeferenced cartographic bases for updating aeronautical charts and building three-dimensional models.

7.23 Initially, the flight planning was carried out by DECEA's Remotely Piloted Aircraft Access Request System (SARPAS), to determine the flight plan, flight altitude and remote pilot information. The system and documentation can be accessed at the following address:

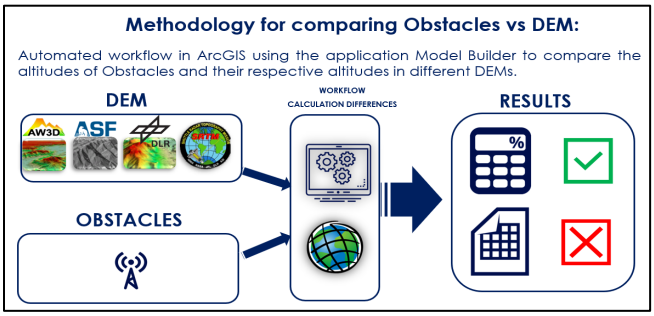
https://servicos.decea.mil.br/sarpas/

7.24 It was reported that the use of drones for aerodrome mapping information has advantages for building accurate mapping models and updating Aeronautical Charts. The restitution of precise cartographic information, with ortho-image, to prepare charts with essential aeronautical information for the crew in aircraft maneuvering activities on the ground. Example of Ortho-images and the corresponding digital surface model (Digital Surface Model - DSM).



7.25 Under WP/31, Brazil informed the Meeting that obstacles (masts, towers, buildings, poles, antennas, etc.) with heights can affect the operation of an aerodrome, the air navigation procedure or aid to air navigation. It was observed that a considerable number of obstacle altimetric inconsistencies are received, which increases the risk of errors in cartographic products.

7.26 A methodology was developed to automatically identify the altimetric anomalies of objects received by the Brazilian Air Force with geo-processing techniques with Digital Elevation Models (DEM). Data from across the country was used, and all digital elevation models are freely available. Graphic that describes the Altimetric Obstacle Verification Methodology:



7.27 The Meeting was informed that the aeronautical mapping specialists perform the altimetry check through an automated routine using the Model Builder of the ArcGIS software. ArcGIS with tools to extract, visualize, edit, manage, analyze, and share spatial data.

7.28 The system allows comparing altitudes of obstacles with elevations of different types of Digital Elevation Models (DEMs), at a national level. The MDEs used in the workflow are as follows:

a)	Satélite avanzado de observación terrestre (ALOS) Radar de apertura sintética de banda L tipo Matriz en fase - ALOS PALSAR (Instalación satelital de Alaska - ASF, resolución espacial: 12,5 metros). Disponible en https://search.asf.alaska.edu/
b)	ALOS World 3D - AW3D 30 (Japan Aerospace Exploration Agency – JAXA, spatial resolution: 30 meters), Available in: https://www.eorc.jaxa.jp/ALOS/en/dataset/aw3d30/aw3d30_e.htm
c)	c) Shuttle Radar Topography Mission - SRTM (National Aeronautics and Space Administration - NASA, spatial resolution: 30 meters). Available in: http://earthexplorer.usgs.gov/

d)	d) TerraSAR-X Complement for digital elevation measurement - TanDEM-X (Earth Observation Center – EOC – German spatial resolution: 90 meters). Available in: https://download.geoservice.dlr.de/TDM90/

7.29 Finally, Brazil informed about the obstacles that are doubtful, they can be identified through the automated workflow, increasing the reliability of cartographic products and, consequently, operational safety. The routine reduces the possibility of human errors and increases the speed of validation of obstacles with a reduction of the cost of labour hours.

7.30 Under WP/26 CANSO provided a summary on the available information on cybersecurity in air navigation services. CANSO indicated that air navigation services have evolved in the last decade, implementing highly digital and automated technologies that require the implementation of other security mechanisms than those we have known to date.

7.31 The cyber-threat and cyber-attack have a transnational component and effect, since global systems are interconnected. In addition, the complexity of the action has implications for various actors at the national, regional and international levels.

7.32 Recognizing the urgency and importance of protecting critical civil aviation infrastructure, information and communication technology systems and data against cyber threats, ICAO is committed to developing a robust cybersecurity framework. The 40 Session of the ICAO Assembly adopted Resolution A40-10 - Addressing cybersecurity in civil aviation. CANSO, ICAO NACC Regional Office and AIRBUS prepared the Air Traffic Management Cybersecurity Policy Template to help states implement cybersecurity mechanisms and culture across entire ATM systems and security operations.

7.33 The document in English and Spanish can be downloaded in the following link:
https://canso.org/publication/air-traffic-management-cybersecurity-policy-template

7.34 The manual is prepared following the recommendations of resolution A40-10 - Addressing cybersecurity in civil aviation, and under the ICAO Cybersecurity strategy, based on pillar number 4 "Cybersecurity Policy".

7.35 Under WP/51, COCESNA presented information on the actions to be taken by the Central American States and COCESNA to mitigate the possibility of interference in aeronautical operations due to the implementation of 5G technology in the Central American subregion.

7.36 Central American Member States with the support of COCESNA are working to implement mitigation measures to reduce the risk that 5G telecommunications systems could cause harmful interference in the operation of some aircraft radio altimeters, with the aim that operations and operational safety, in particular, could be compromised.

7.37 Under WP/52, COCESNA shared the actions developed by that Organization to update the air navigation plans of the Central American States and its own, taking into account that the NANP are planning tools to be used by States taking into account the ICAO Global Air Navigation Plan (GANP) now in its seventh edition.

7.38 COCESNA indicated that the following activities have been planned jointly with the ICAO NACC Regional Office:

1. Evaluation of the Basic Building Blocks (BBB) of all Central American States.
2. Assessment of the level of implementation of all elements of the Aviation System Block Based Upgrades (ASBU).
3. The final update of the NANPs using the Multi-Regional Civil Aviation Project (MCAAP) tool.

7.39 The Secretary indicated that the ICAO NACC Office through MCAAP would support 10 CAR States in this process and share lessons learned for the benefit of the region.

7.40 COCESNA through WP/53 reported on the actions taken by COCESNA and the States of Central America and Belize to improve air traffic services in the different airspaces of the Central American FIR, through the implementation of ADS-B and the establishment of a mandate to ensure that aircraft are equipped with the required features.

7.41 Currently, ADS-B data provides an additional layer of surveillance over and above that provided by radars on the continental and oceanic part where coverage exists and satellite ADS-B is available for the South Pacific.

7.42 COCESNA and its Member States have established a working group made up of specialists from COCESNA and each of its Member States, with the purpose of carrying out an analysis and establishing a road map to establish a mandate for the use of ADS-B in the Central American region, and that they are requesting the support of ICAO to promote the work and make ADS-B operational in the Central American region.

7.43 The Secretariat informed that the development of a regional NAM/CAR/SAM workshop was approved for 2023 to support the States that already have ADS-B to develop their regulations.

7.44 Under IP/16, United States informed that Foundational to ICAO's vision of an integrated, harmonized and globally interoperable Air Traffic Management (ATM) System, as described in the Global Air Traffic Management Operational Concept (Doc 9854), is the availability of ATM System information supporting collaboration and automation. Operational constraints are a subset of ATM information of particular importance to Airspace Users (AU) due to the impact to their planning and responses to unforeseen circumstances. The advancement of Machine Learning and Data Analytics techniques have led the United States Federal Aviation Administration (FAA) to begin exploring the uses of these techniques to extract constrained information. This paper details the different Natural Language Understanding (NLU) techniques and relevant tools the FAA has used to extract the constraint information from the text in Letters of Agreement (LoA) documents.

7.45 Through WP/34, Brazil presented information on Flight Restriction Zones (ZRV) for UA operations around aerodromes in Brazil.

7.46 The exponential increase in the demand of UA to access airspace in several areas, such as: military, logistics, architecture, agriculture, among others, brings increasing challenges to the current air traffic management structure. One of them is to allow access to this new aeronautical segment without interfering with the volume of airspace used by manned aircraft, especially around aerodromes, during approach and take-off procedures. The lack of regulations that prohibit or limit small UAS operation

around aerodromes has led several countries to adopt different parameters to protect the operations of manned aircraft, maintaining safety and efficiency of air operations. In the case of Brazil, a study was carried out for the creation of an FRZ for the UAS, considering the Instrument flight rules (IFR) protection surfaces provided for in Doc 8168, in addition to other factors.

7.47 The Secretariat informed that there is currently an amendment to Annex 14, Vol I, Chap. 4, that modifies the aerodrome protection surfaces, but which is pending to be reviewe by the ANC at the beginning of 2023, and which does not seem to include aspects with drones. Finally, the meeting took note of the Brazilian proposal for analysis.

7.48 Brazil presented through WP/35, a case on the implementation of A-CDM carried out in the International Airport of Sao Paulo/Guarulhos by initiative of *Departamento de Control del Espacio Aéreo* (DECEA) from Brazil.

7.49 According to DECEA, the A-CDM tool allows, through the insertion of the scheduled departure time by the aircraft operator, or Target Off-Block Time (TOBT), there is greater reliability for the execution of an adequate tactical planning of departures by the control tower and the airport Coordination Center, enabling to establish an activation order based on the type of aircraft, position in the field, runway capacity and ground control information. Thus, each implementation of the A-CDM concept in a new airport establishes a new communication bridge, providing more predictability in air operations, from the planning of a flight to its arrival at destination.

7.50 Thus, when comparing a similar interval of 12 months, before and after the implementation of A-CDM, DECEA observed a decrease in the cumulative departure taxi time of about 272 hours, considering all airport parking positions, and also that A-CDM greatly influenced the economy of approximately R$ 8,477,549.67, at the current rate, in the period analyzed.

7.51 The Meeting took note of the information provided by Brazil.

APPENDIX A
SAR IMPLEMENTATION PROJECTS FOR CAR AND SAM REGIONS/
PROYECTOS DE IMPLEMENTACIÓN SAR PARA LAS REGIONES CAR Y SAM

CAR Region / Región CAR	**PROJECT DESCRIPTION / DESCRIPCION DEL PROYECTO (DP)**	**DP N° XX**	
Programme / Programa	**Title of the Project / Título del Proyecto**	**Start / Fecha inicio**	**End / Fecha término**
SAR Implementation/ Implementación SAR (Programme Coordinator / Coordinador del Programa: Eddian Méndez)	*SAR Implementation/ Implementación SAR* Project Coordinator / Coordinador del Proyecto: Calvin Zúniga (COCESNA	2023	*2026*
Objective / Objetivo	Support the SAR implementation based on the requirements of Annex 12 and the CAR/SAM Regional Air Navigation Plan/ Apoyar la implementación SAR con base en los requisitos del Anexo 12 y el Plan Regional de Navegación Aérea CAR/SAM.		
Scope / Alcance	Implementation of the elements of the search and rescue system that allow to ensure an effective response when the activation of these services is required, promoting continuous improvement towards an efficient use of available resources./ Implementación de los elementos del Sistema de búsqueda y salvamento que permitan asegurar una respuesta eficaz cuando la activación de estos servicios sea requerida, promoviendo la mejora continua hacia un uso eficiente de los recursos disponibles.		
Metrics / Métricas	• % of States that have arranged for the establishment and provision of SAR services within its territory and the areas where the State has accepted responsibility to provide SAR on a 24-hour basis in accordance with Annex 12 provisions/ % de Estados que han hecho arreglos para el establecimiento y suministro de servicios SAR dentro de su territorio y las áreas donde el Estado ha aceptado la responsabilidad de proporcionar SAR las 24 horas del día de conformidad con las disposiciones del Anexo 12. • % of States with established RCC or, as applicable, an RSC in each search and rescue region (SRR)/ % de Estados con RCC establecido o, según corresponda, un RSC en cada región de búsqueda y salvamento (SRR). • % of States that have prepared detailed plans of operation for the conduct of SAR operations/% de Estados que han preparado planes de operación detallados para la realización de operaciones SAR. • % of States with operational coordination SAR agreements between their SAR Organization and their neighboring States SAR Organizations/% de Estados con acuerdos SAR de coordinación operativa entre su Organización SAR y las Organizaciones SAR de sus Estados vecinos.		

Strategy / Estrategia	The implementation activities will be coordinated between Project members, the Project Coordinator and the Programme Coordinator. The Programme Coordinator will coordinate with the Project Coordinator requirements of other projects and NAM/CAR implementation working groups. Experts nominated by States, Territories and International Organizations will be incorporated, as required. / La ejecución de las actividades será coordinada entre miembros del Proyecto, el Coordinador del Proyecto y el Coordinador del Programa. El coordinador del Programa coordinará con el Coordinador del Proyecto los requerimientos de otros proyectos y Grupos de Trabajo de Implementación NAM/CAR. Se incorporarán expertos nominados por los Estados, Territorios y Organizaciones Internacional, según sea requerido.
Targets / Metas	80 % of States that have arranged for the establishment and provision of SAR services within its territory and the areas where the State has accepted responsibility to provide SAR on a 24-hour basis in accordance with Annex 12 provisions/ 80 % de Estados que han hecho arreglos para el establecimiento y suministro de servicios SAR dentro de su territorio y las áreas donde el Estado ha aceptado la responsabilidad de proporcionar SAR las 24 horas del día de conformidad con las disposiciones del Anexo 12. 80 % of States with established RCC or, as applicable, an RSC in each search and rescue region (SRR)/ 80 % de Estados con RCC establecido o, según corresponda, un RSC en cada región de búsqueda y salvamento (SRR). 80 % of States that have prepared detailed plans of operation for the conduct of SAR operations/ 80 % de Estados que han preparado planes de operación detallados para la realización de operaciones SAR. 60 % of States with operational coordination SAR agreements between their SAR Organization and their neighboring States SAR Organizations/60 % de Estados con acuerdos SAR de coordinación operativa entre su Organización SAR y las Organizaciones SAR de sus Estados vecinos.
Justification / Justificación	The CAR/SAM ANP includes the agreed regional requirements considered to be the minimum necessary for effective planning and implementation of search and rescue (SAR) facilities and services in the Caribbean and South American regions and the assignment of responsibilities to States for the provision of SAR facilities and services within the ICAO CAR and SAM Regions in accordance with Article 28 of the Convention on International Civil Aviation (Doc 7300). As such, GREPECAS must provide adequate monitoring and regional support. El ANP CAR/SAM incluye los requisitos regionales acordados que se consideran los mínimos necesarios para la planificación e implementación efectiva de las instalaciones y servicios de búsqueda y salvamento (SAR) en las regiones del Caribe y Sudamérica y la asignación de responsabilidades a los Estados para la provisión de instalaciones y servicios SAR dentro de las regiones CAR/SAM de la OACI de conformidad con el Artículo 28 del Convenio sobre Aviación Civil Internacional (Doc 7300). Como tal, GREPECAS debe brindar un adecuado seguimiento y apoyo regional.
Related Projects / Proyectos relacionados	No related Project is currently identified. *Actualmente no se identifica proyectos relacionados.*

Project Deliverable Results / Resultados Entregables del Proyecto	Relationship to the Global Air Navigation Plan / Relación con el Plan Mundial de navegación aérea	Responsible / Responsable	Implementation Status / Estado de Implantación*	Delivery date / Fecha entrega	Comments / Comentarios
Action plan to strengthen the H24 operation of SAR services as well as other matters considered as Basic Building Blocks (BBB). / Plan de acción para fortalecer la operación H24 de los servicios SAR así como otras materias consideradas en los Bloques básicos constitutivos (BBB)	GADS-B1 GADS-B2				
Activities to update and strengthen SAR Operation Plans of States / Actividades para actualizar y fortalecer los Planes de operación SAR de los Estados	GADS-B1 GADS-B2				
Activities to update and/or sign operational coordination agreements/procedures between adjacent SAR organizations. / Actividades para actualizar y /o suscribir cuerdos/procedimientos de coordinación operativa entre organizaciones SAR adyacentes.	GADS-B1 GADS-B2				

SAM Region / Región SAM	**PROJECT DESCRIPTION /** ***DESCRIPCION DEL PROYECTO (DP)***	**DP N° XX**	
Programme / Programa	**Title of the Project /** ***Título del Proyecto***	**Start /** ***Fecha inicio***	**End /** ***Fecha término***
SAR Implementation/ *Implementación SAR* (Programme Coordinators / *Coordinadores del Programa:* Fernando Hermoza & Roberto Sosa)	SAR Implementation/ *Implementación SAR* Project Coordinator / *Coordinador del Proyecto:* ***SAM region's Delegate (TBD)***	2023	*2026*
Objective / ***Objetivo***	Support the SAR implementation based on the requirements of Annex 12 and the CAR/SAM Regional Air Navigation Plan *Apoyar la implementación SAR con base en los requisitos del Anexo 12 y el Plan Regional de Navegación Aérea CAR/SAM.*		
Scope / ***Alcance***	Implementation of the elements of the search and rescue system that allow ensuring an effective response when the activation of these services is required, promoting continuous improvement towards an efficient use of available resources. *Implementación de los elementos del Sistema de búsqueda y salvamento que permitan asegurar una respuesta eficaz cuando la activación de estos servicios sea requerida, promoviendo la mejora continua hacia un uso eficiente de los recursos disponibles.*		
Metrics / ***Métricas***	• % of States that have arranged for the establishment and provision of SAR services within its territory and the areas where the State has accepted responsibility to provide SAR on a 24-hour basis in accordance with Annex 12 provisions • % of States with established RCC or, as applicable, an RSC in each search and rescue region (SRR) • % of States that have prepared detailed plans of operation for the conduct of SAR operations • % of States with operational coordination LOA/MOU between their SAR Organization and their neighboring States SAR Organizations. • *% de Estados que han hecho arreglos para el establecimiento y suministro de servicios SAR dentro de su territorio y las áreas donde el Estado ha aceptado la responsabilidad de proporcionar SAR las 24 horas del día de conformidad con las disposiciones del Anexo 12.* • *% de Estados con RCC establecido o, según corresponda, un RSC en cada región de búsqueda y salvamento (SRR).* • *% de Estados que han preparado planes de operación detallados para la realización de operaciones SAR.* • *% de Estados con LOA/MOU de coordinación operativa entre su Organización SAR y las Organizaciones SAR de sus Estados vecinos.*		

Strategy / ***Estrategia***	The implementation activities will be coordinated between Project members, the Project Coordinator and the Programme Coordinator. The Programme Coordinator will coordinate with the Project Coordinator requirements of other projects and NAM/CAR implementation working groups. Experts nominated by States, Territories and International Organizations will be incorporated, as required. *La ejecución de las actividades será coordinada entre miembros del Proyecto, el Coordinador del Proyecto y el Coordinador del Programa. El coordinador del Programa coordinará con el Coordinador del Proyecto los requerimientos de otros proyectos y Grupos de Trabajo de Implementación NAM/CAR. Se incorporarán expertos nominados por los Estados, Territorios y Organizaciones Internacional, según sea requerido.*
Targets / ***Metas***	85% of States that have arranged for the establishment and provision of SAR services within its territory and the areas where the State has accepted responsibility to provide SAR on a 24-hour basis in accordance with Annex 12 provisions. 85 % of States with established RCC or, as applicable, an RSC in each search and rescue region (SRR) 85 % of States that have prepared detailed plans of operation for the conduct of SAR operations 70 % of States with operational coordination SAR agreements between their SAR Organization and their neighboring States SAR Organizations. 85 *% de Estados que han hecho arreglos para el establecimiento y suministro de servicios SAR dentro de su territorio y las áreas donde el Estado ha aceptado la responsabilidad de proporcionar SAR las 24 horas del día de conformidad con las disposiciones del Anexo 12.* 85 *% de Estados con RCC establecido o, según corresponda, un RSC en cada región de búsqueda y salvamento (SRR).* 85 *% de Estados que han preparado planes de operación detallados para la realización de operaciones SAR.* 70 *% de Estados con acuerdos SAR de coordinación operativa entre su Organización SAR y las Organizaciones SAR de sus Estados vecinos.*
Justification / ***Justificación***	The CAR/SAM ANP includes the agreed regional requirements considered to be the minimum necessary for effective planning and implementation of search and rescue (SAR) facilities and services in the Caribbean and South American regions and the assignment of responsibilities to States for the provision of SAR facilities and services within the ICAO CAR and SAM Regions in accordance with Article 28 of the Convention on International Civil Aviation (Doc 7300). As such, GREPECAS must provide adequate monitoring and regional support. *El ANP CAR/SAM incluye los requisitos regionales acordados que se consideran los mínimos necesarios para la planificación e implementación efectiva de las instalaciones y servicios de búsqueda y salvamento (SAR) en las regiones del Caribe y Sudamérica y la asignación de responsabilidades a los Estados para la provisión de instalaciones y servicios SAR dentro de las regiones CAR/SAM de la OACI de conformidad con el Artículo 28 del Convenio sobre Aviación Civil Internacional (Doc 7300). Como tal, GREPECAS debe brindar un adecuado seguimiento y apoyo regional.*
Related Projects / ***Proyectos relacionados***	No related Project is currently identified. *Actualmente no se identifica proyectos relacionados.*

Entregables del Proyecto	Relación con el Plan Mundial de navegación aérea	Responsable	Estado de Implantación*	Fecha entrega	Comentarios
Plan de acción para fortalecer la operación H24 de los servicios SAR así como otras materias consideradas en los Bloques básicos constitutivos (BBB) Action plan to strengthen the H24 operation of SAR services as well as other matters considered as Basic Building Blocks (BBB).	GADS-B1 GADS-B2				
Actividades para actualizar y fortalecer los Planes de operación SAR de los Estados Activities to update and strengthen SAR Operation Plans of States	GADS-B1 GADS-B2				
Actividades para actualizar y /o suscribir acuerdos/procedimientos de coordinación operativa entre organizaciones SAR adyacentes. Activities to update and/or sign operational coordination agreements/procedures between adjacent SAR organizations.	GADS-B1 GADS-B2				

APPENDIX B

TEMPLATE APPROVED BY THE COUNCIL
on 18 June 2014

CAR/SAM AIR NAVIGATION PLAN

VOLUME III

INITIAL VERSION (VERSION 0)

CAR/SAM AIR NAVIGATION PLAN

VOLUME III

TABLE OF CONTENTS

CAR/SAM ANP, VOLUME III

PART 0 – INTRODUCTION

1. INTRODUCTION

1.1 The background to the publication of ANPs in three volumes is explained in the Introduction in Volume I. The procedure for amendment of Volume III is also described in Volume I. Volume III contains dynamic/flexible plan elements related to the application of a performance-based approach for a cost-effective and benefit-driven modernization of the air navigation system in line with the Global Air Navigation Plan (GANP).

1.2 Collaborative decision-making is key for a cost-effective modernization of the air navigation system and ensures that all concerned aviation stakeholders are involved and given the opportunity to influence decisions in order to reach defined performance objectives. Volume III guides the aviation community in the application of performance management process and identification of relevant and timely operational improvements to a given region's air navigation system including some within the Aviation System Block Upgrade (ASBU) framework.

1.3 The information contained in Volume III is, therefore, related to:

- Planning: objectives, priorities, targets and needs planned at regional or sub-regional levels;
- Monitoring and reporting: performance and implementation monitoring of the agreed targets. This information should be used as the basis for reporting purposes (i.e.: global and regional air navigation reports and performance dashboards); and/or
- Guidance: providing regional guidance material for the implementation of specific system/procedures in a harmonized manner.

1.4 GREPECAS is responsible for managing and updating Volume III on a regular basis.

CAR/SAM ANP, VOLUME III

PART I - GENERAL PLANNING ASPECTS (GEN)

1. PLANNING METHOD

1.1 A performance-based approach is results-oriented, helping decision makers set priorities and determine appropriate trade-offs that support optimum resource allocation while maintaining an acceptable level of safety performance and promoting transparency and accountability among stakeholders.

1.2 The Thirteenth Air Navigation Conference recommended the ICAO encourage the planning and implementation regional groups (PIRGs) to embrace a performance-based approach for implementation and adopt the six-step performance management process, as described in the Manual on Global Performance of the Air Navigation System (Doc 9883), by reflecting the process in Volume III of all regional air navigation plans. Recommendation 4.3/1 — Improving the performance of the air navigation system refers.

1.3 Although there are several ways to apply a performance-based approach, ICAO advocates for a globally harmonized performance management process based on six well-defined steps. The goal of this cyclic six-steps method is to identify optimum solutions based on operational requirements and performance needs so that the expectations of the aviation community can be met by enhancing the performance of the air navigation system and optimizing allocation and use of the available resources.

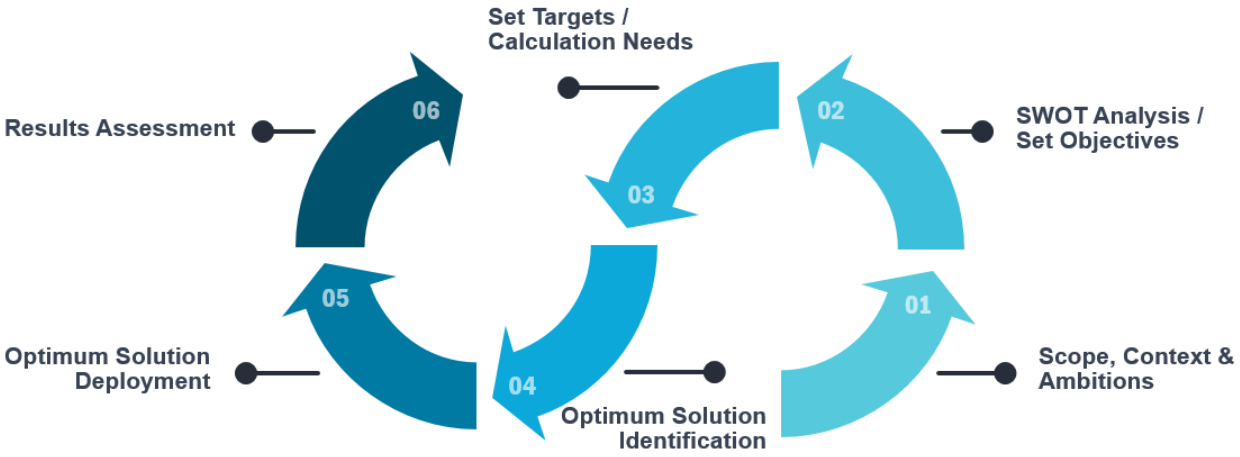


Figure 1 Six-step performance management process

1.4 Steps 1 and 2 serve to know your system, its strengths, weakness, opportunities and threats as well as how it is performing in order to set objectives. The catalogue of performance objectives that is part of the GANP global performance framework facilitates the definition of objectives.

1.5 Based on these objectives, targets can be set in step 3. An analysis of this data leads to the identification of potential solutions, in step 4, to achieve the targets by addressing the weakness and threats of the system. Once a set of potential solutions have been identified, a cost-benefits analysis, environmental impact assessment, safety assessment and human factor assessment should be performed to identify the optimum solution. In the GANP performance framework, a

list of KPIs, linked to the relevant objectives in the performance objectives catalogue, is provided to set targets though the quantification of objectives (See list below). A list of potential solutions to be consider as part of step 4 is the ASBU framework with its functional description of the operational improvements and their associated performance benefits.

KPI01	Departure punctuality	KPI11	Airport throughput efficiency
KPI02	Taxi-out additional time	KPI12	Airport/Terminal ATFM delay
KPI03	ATFM Slot adherence	KPI13	Taxi-in additional time
KPI04	Filed flight plan en-route extension	KPI14	Arrival punctuality
KPI05	Actual en-route extension	KPI15	Flight time variability
KPI06	En-route airspace capacity	KPI16	Additional fuel burn
KPI07	En-route ATFM delay	KPI17	Level-off during climb
KPI08	Additional time in terminal airspace	KPI18	Level capping during cruise
KPI09	Airport peak capacity	KPI19	Level-off during descent
KPI10	Airport peak throughput		

1.6 Step 5 manages a coordinated deployment of the agreed solution by all stakeholders based on the previous steps. Regional plans might need to be developed for the deployment of solutions by drawing on supporting technology requirements.

1.7 Finally, step 6 consists of monitoring and reporting the performance of the system after the full deployment of the solution.

1.8 This is an iterative planning process, which may require repeating several steps until a final plan with specific regional targets is in place. This planning method requires full involvement of States, service providers, airspace users and other stakeholders, thus ensuring commitment by all for implementation.

Review and evaluation of air navigation planning

2.1. The progress and effectiveness against the priorities set out in the regional air navigation plans should be annually reported, using a consistent reporting format, to ICAO.

2.2. Performance monitoring requires a measurement strategy. Data collection, processing, storage and reporting activities supporting the identified global/regional performance metrics are fundamental to the success of performance-based approaches.

2.3. The air navigation planning and implementation performance framework prescribes reporting, monitoring, analysis and review activities being conducted on a cyclical, annual basis.

Reporting and monitoring results

2.4. Reporting and monitoring results will be analyzed by the PIRGs, States and ICAO Secretariat to steer the air navigation improvements, take corrective actions and review the allocated objectives, priorities and targets if needed. The results will also be used by ICAO and aviation partner stakeholders to develop the annual Global Air Navigation Report. The report results will provide an opportunity for the international civil aviation community to compare progress across different ICAO regions in the establishment of air navigation infrastructure and performance-based procedures.

2.5. The reports will also provide the ICAO Council with detailed annual results on the quality of service provided worldwide as well as the performance areas which require more attention. This will serve as input for the triennial policy adjustments to the GANP and its priorities.

CAR/SAM ANP, VOLUME III

PART II – PERFORMANCE MANAGEMENT PLANNING AND ANS IMPLEMENTATION (PMP)

1. STEP 1: DEFINE SCOPE, CONTEXT AND SET AMBITIONS

General

1.1 The purpose of Step 1 is to reach a common agreement on the scope and (assumed) context of the regional air navigation system on which the performance management process will be applied, as well as a common view on the general nature of the expected performance improvements.

Geographical scope

1.2 The geographical scope is defined in Volume I and in particular in the following tables:

- Table GEN I-1 — List of Flight Information Regions (FIR)/Upper Information Regions (UIR) in the Region
- Table ATM I-1 — Flight Information Regions (FIR)/Upper Flight Information Regions (UIR) of the Region
- Table SAR I-1 — Search and Rescue Regions (SRR) of the Region
- Table AOP I-1 — International aerodromes required in the Region (main City Pairs?)
- Table PMP III CAR/SAM - 1 – List of CTA/TMA in the Region
  (Optional. Please note that, if it is decided that this level of granularity is required in the Region, the rest of the performance management process will be applied at this level of granularity for consistency purposes. If this table is not developed, the PMP will be applied at an FIR level)

Homogeneous areas and/or major traffic flows

1.3 The homogeneous ATM areas and major traffic flows/routing areas identified are given in:

- Table GEN II-1 — Homogeneous areas and major traffic flows identified in the Region

Time Horizon

1.4 Volume III of the CAR/SAM ANP provides short term **(5 *years*)** and medium term **(10 *years*)** implementation planning.

Traffic forecast

1.5 A uniform strategy has been adopted by ICAO for the purpose of preparing traffic forecasts and other planning parameters in support of the regional planning process.

- ***(include traffic forecast for the Region from ATB)***

1.6 In the CAR/SAM Region, in addition to the ICAO forecast, the following forecast from ***(source)*** is used for planning purposes. ***(if applicable)***

Political (high level) ambitions

1.7 The expectations of the global aviation community are defined in 11 Key Performance Areas (KPAs). The GANP considers all these areas through the performance ambitions. Although all

these areas are equally important, as they are interrelated and cannot be considered in isolation, some areas are more visible to society than others.

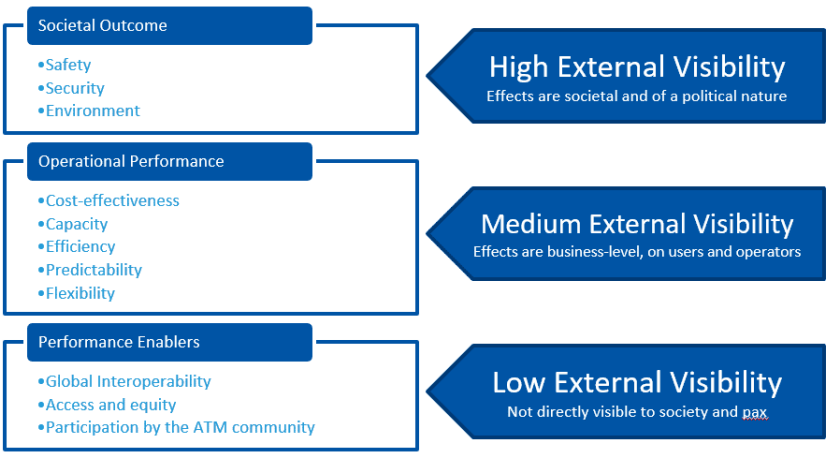


Figure 2 The 11 KPAs of the GANP

1.8 The regional air navigation plan public's perception of safe air travel is key to the prosperity of the aviation sector, which is why, safety is critical when planning the implementation of air navigation operational improvements. To determine if these improvements can be implemented in a safe manner, a safety risk assessment provides information to identify hazards that may arise from, for example:

a) any planned modifications in airspace usage;
b) the introduction of new technologies or procedures; or
c) the decommissioning of older navigational aids.

1.9 A safety risk assessment also enables the assessment of potential consequences. Based on the results of a safety risk assessment, mitigation strategies may be implemented to ensure that an acceptable level of safety performance is maintained. Any operational improvement should be implemented only on the basis of a documented safety risk assessment.

1.10 Fatalities resulting from acts of unlawful interference also affect the public's perception of aviation safety. The cumulative improvements to aviation security globally enhance the safety, facilitation and operational aspects of the international civil aviation system.

1.11 Some safety and environment considerations can be found in Volume I.

1.12 After political consultation the following set of performance ambitions have been prioritized within the **(*NAME*)** Region, **(*DECLARATION*)** refers.

- ***(include the set of ambitions in a set of KPAs)***

2. STEP 2: KNOW YOUR SYSTEM – SWOT ANALYSIS AND REGIONAL OBJECTIVES

General

2.1 The purpose of Step 2 is to develop a detailed understanding of the performance behaviour of the system (this includes producing a list of opportunities and issues), and to decide which specific performance aspects are essential for meeting the general expectations. The essential performance aspects are those which need to be actively managed (and perhaps improved) by setting performance objectives.

SWOT analysis

2.2 A SWOT analysis allows the development of an inventory of present and future opportunities and issues (weaknesses, threats) that may require performance management attention.

2.3 A SWOT analysis, requires the identification of:

- Strengths: internal attributes of a system or an organization that can help in the realization of ambitions or in meeting expectations.
- Weaknesses: internal attributes of a system or an organization that are a detriment to realizing ambitions or meeting expectations.
- Opportunities: are external conditions that help in the realization of ambitions or in meeting expectations.
- Threats: external conditions that are a detriment or harmful to realizing ambitions or meeting expectations.

2.4 Once the strengths, weakness, opportunities and threats are identified, action can be taken to target and exploit or remove these factors. The SWOTs in the CAR/SAM Regions can be found in **Table PMP III-1**.

Regional objectives

2.5 The performance framework of the GANP includes a catalogue of performance objectives to facilitate the definition of objectives. Considering the objectives defined in the catalogue and based on the SWOT analysis, the CAR/SAM Regions defines, within in the key performance areas prioritize in step 1, the objectives within **Table PMP III-2** to be pursued by the States within the Region.

3. STEP 3: QUANTIFY OBJECTIVES, SET TARGETS AND CALCULATE NEEDS

General

3.1 The purpose of Step 3 is to ensure that objectives are specific, measurable, achievable, relevant and time-bound (SMART) so that targets can be set and needs calculated.

List of regional indicators

3.2 The way to ensure that objectives are specific and measurable is by defining indicators. Indicators are the means to quantitatively express performance as well as actual progress in achieving performance objectives. Indicators need to be defined carefully:

- Since indicators support objectives, they should not be defined without having a specific performance objective in mind.
- Indicators are not often directly measures. They are calculated from supporting metrics according to clearly defined formulas. This leads to a requirement for cost data collection and flight data collection. If there is a problem with data availability to calculate these supporting metrics:
    - Set up the appropriate data reporting flows and/ or modelling activities, to ensure all supporting metrics are populated with data as required to calculate the indicator(s) associated with the objective; or
    - If this is not possible, aim for a different kind of performance improvement, by choosing a different performance objective, as constrained by data availability.

3.3 In order to facilitate this task, ICAO has defined a series of KPIs link to the catalogue of performance objectives within the 11KPAs. The ICAO KPIs associated to the performance objectives in the CAR/SAM Regions are in **Table PMP III- 3**.

Performance baseline in the CAR/SAM Regions

3.4 The only way of knowing an operational environment and identifying the existence of a problem is by collecting, processing and analysing data. The value of these indicators would be your performance baseline. The performance baseline for the CAR/SAM Regions can be found in **Table PMP III-4**.

Regional targets and calculation of needs

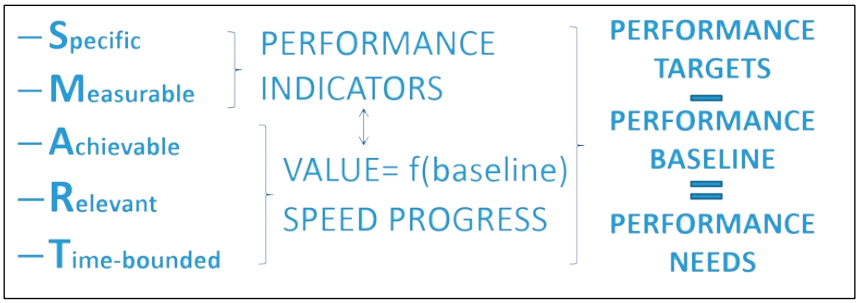
3.5 Performance targets are closely associated with performance indicators, they represent the values of performance indicators that need to be reached or exceeded to consider a performance objective as being fully achieved.

3.6 To understand how challenging it is to reach your target, you should know your performance baseline. The difference between the baseline and the target is called the needs/performance gap.

3.7 The time available to achieve performance objectives is always limited. Therefore, targets should always be time-bounded.

3.8 The target and the time available to reach the target determine the required speed of progress for the performance objective. Care should be taken to set target so that the required speed of progress is realistic.

3.9 Based on the information submitted and after consideration by all stakeholders, the targets and needs in **Table PMP III-5** have been agreed for the CAR/SAM Regions.



4. STEP 4: SELECT SOLUTIONS

General

4.1 The purpose of this step is to combine the knowledge of baseline performance, opportunities and issues with the performance objectives and targets, in order to make decisions in terms of priorities, trade-offs, selection of solutions and resource allocation. The aim is to optimize the decisions to maximize the achievement of the desired/required (performance) results.

Select solutions

4.2 Based on the agreed targets, States should perform a SWOT analysis at each operational environment to develop an inventory of present and future opportunities and issues that may require attention. The list then needs to be analyzed in a performance oriented way, to assess/ quantify the impact of drivers, constraints, impediments, etc. on the objectives under consideration. To what extent, when and under which conditions do these contribute to or prevent the required performance improvements.

4.3 States should consider the operational improvements (ASBU elements) within the ASBU framework as potential solutions to improve the selected objectives/KPIs in the operational environment under analysis. In order to help States with this task, ICAO has develop the Air Navigation System Performance Analysis (AN-SPA) tool, available for free at: https://www4.icao.int/ganpportal/ANSPA/Reports

4.4 Please note that the ASBUs are a list of potential solutions and therefore it might happen that the optimum solution for the operational environment under analysis is not within this list.

4.5 Once a list of potential solutions has been developed, it is important to do a safety assessment and an environmental impact assessment to analyze the feasibility of implementing that specific solution in the operational environment under analysis. ICAO has developed the following guidance to assist States to perform a safety assessment and an environmental impact assessment:

4.5.1 Safety assessment:

4.5.1.1 The 4th edition of the Safety Management Manual (SMM), was updated and published in October 2018 to provide supporting guidance for Amendment 1 to Annex 19 – Safety Management, including:

- Upgraded provisions for the protection of safety data, safety information and related sources;
- Integration of the 8 critical elements into the State Safety Programme (SSP) components; and
- Enhanced provisions for Safety Management System (SMS).

4.5.1.2 It also provides expanded guidance on the scope of Annex 19 its applicability, including discretionary SMS applicability, as well as the development of safety intelligence. In addition, to address the needs of the diverse aviation community implementing safety management and following a recommendation stemming from the 2nd High-level Safety Conference (HLSC/2015), the Safety Management Implementation (SMI) public website (www.icao.int/SMI) has been launched to complement the SMM. The SMI website serves as a repository for the sharing of practical examples, tools and educational material, which are being collected, validated and posted on an ongoing basis to support the effective implementation of SSP and SMS. An e-book version of the SMM in all ICAO languages is also available on the website.

4.5.2 Environmental impact assessment guidance:

4.5.2.1 This guidance identifies high-level principles that facilitate the robust definition and application of specific assessment approaches, methodologies and their respective metrics. The focus of these principles is on changes that relate to aircraft and ATM operational initiatives and may involve all phases of flight (e.g. Gate-to-Gate). The general principles of this guidance can be applicable to air navigation aspects arising from infrastructure proposals and major changes to airspace capacity

or throughput, as well as operational changes. While the boundaries of an air navigation services environmental analysis are based on the needs of the study, for the purposes of this guidance material "air navigation services environmental assessment" is to be interpreted in the broadest possible sense and refers to impacts arising from changes to where, when, and how aircraft are operated.

https://store.icao.int/catalogsearch/result/?category_id=2&q=10031

4.5.2.2 Once the feasibility study has been done, we will still need to do a cost-benefit analysis to identify the optimum solution/s. ICAO has developed some guidance and a tool to assist you on this task:

4.5.3 Cost-benefit analysis:

https://data.icao.int/cba

4.5.3.1 Once the optimum solution(s) has(ve) been identified, States should report them to ICAO and they are reflected in **Table PMP III-6**.

5. STEP 5: IMPLEMENT SOLUTIONS

General

5.1 Step 5 is the execution phase of the performance management process. This is where the changes and improvements that were decided upon during the previous step are organized into detailed plans, implemented, and begin delivering benefits.

Select solutions

5.2 Once the optimum solution/s has/have been identified, it is the moment to start the execution phase of the performance management process. This is where the changes and improvements that you decided were the optimum solution for your problem during the previous steps are organized into plans, implemented and begin delivering services to achieve the expected performance. During this execution phase, it is important to keep track of the project deployments (time, budget, …).

5.3 Depending on the mature and magnitude of the change, this could mean:

- In the case of small-scale changes or day-to day management:
  - Assigning management responsibility for the implementation to an individual;
  - Assigning responsibility and accountability for reaching a performance target to an individual or organization
- In the case of major or multi-year changes:
  - Refining the roadmap of selected solutions into a detailed implementation plan, followed by the launching of implementation projects
  - Ensure that each individual implementation project is operated in accordance with the performance-based approach. This means launching and executing the performance management process at the level of individual projects. Each project derives its scope, context and expectations (see Step 1 of the process) from the overall implementation plan.

5.4 This can imply to overcome high-level political challenges, find funding and resources or look for external technical support.

5.5 In this step, States are expected to report on the status on the implementation by updating **Table PMP III-7**.

6. STEP 6: ASSESS ACHIEVEMENTS

General

6.1 The purpose of Step 6 is to continuously keep track of performance and monitor whether performance gaps are being closed as planned and expected.

Assess achievements

6.2 Once the project is implemented, it is time to assess the benefits from the implementation. This means measuring the performance of the operational environment under analysis once the solution/s has/have been deployed.

6.3 The purpose of this step is to continuously keep track of performance and monitor whether performance gaps are being closed as planned and expected.

6.4 First and foremost, this implies data collection to populate the supporting metrics with the data needed to calculate the performance indicators. The indicators are then compared with the targets defined during Step 3 to draw conclusions on the speed of progress in achieving the objectives.

6.5 This step also includes monitoring progress of the implementation projects, particularly in those cases where the implementation of solutions takes several years, as well as checking periodically whether all assumptions are still valid and the planned performance of the solutions is still meeting the (perhaps changed) requirements.

6.6 With regard to the review of actually achieved performance, the output of this step is simply an updated list of performance gaps and their causes. In practice, the scope of the activity is often interpreted as being much wider and includes recommendations to mitigate the gaps.

6.7 This is then called performance monitoring and review, which in addition to this step, includes step 1, 2 and 3.

6.8 For the purpose of organizing performance monitoring and review, the task can be broken down into five separate activities:

- Data collection
- Data publication
- Data analysis
- Formulation of conclusions; and
- Formulation of recommendations.

6.9 States should report on the benefits accrued from the implementation of the solutions in **Table PMP III-8.** This would constitute the baseline for the next iteration of the performance management process.

Table PMP III-CAR/SAM-1 – List of CTA/TMA in the CAR/SAM Region

EXPLANATION OF THE TABLE

Column

1 States in **Table GEN I-1**

2 List of FIRs by State within **Table ATM I-1**.

3 CTAs/TMAs

4 Remarks

Column		
1	STATE	Name of State
2	FIR/UIR	Name of FIR/UIR
3	CTA/TMA	Name of CTA/TMA
4	Remarks	Remarks, notes

STATE	FIR/UIR	UTA/CTA/TMA	Remarks
1	**2**	**3**	**4**
France – French Antilles (St Barthelemy)	San Juan FIR		
France – French Antilles (St Martin)			
Netherlands (Saba)			
Netherlands (Sint Eustatius)			
Sint Maarten (Kingdom of the Netherlands)			
United Kingdom (Anguilla)			
United Kingdom (British Virgin Islands)			
United States (Puerto Rico)			
United States (Virgin Islands)			
Antigua and Barbuda	Piarco FIR		
Barbados			
Dominica			
France – French Antilles (Guadeloupe)			
France – French Antilles (Martinique)			
Grenada			
Saint Kitts and Nevis			
Saint Lucia			
1. Saint Vincent and the Grenadines			
Trinidad and Tobago			
United Kingdom (British Virgin Islands)			

STATE	FIR/UIR	UTA/CTA/TMA	Remarks
1	2	3	4
United Kingdom (Montserrat)			
Argentina	**Comodoro Rivadavia FIR**	Comodoro Rivadavia North CTA	
		Comodoro Rivadavia South CTA	
		Comodoro Rivadavia TMA	
		Rio Gallegos TMA	
		Ushuaia TMA	
	Córdoba FIR	Córdoba North CTA	
		Córdoba South CTA	
		Cordoba TMA	
		Salta TMA	
	Ezeiza FIR	Ezeiza CTA I	
		Ezeiza CTA II	
		Ezeiza CTA III	
		Ezeiza CTA IV	
		Baires TMA	
		Mar del Plata TMA	
		Neuquen TMA	
		Rosario TMA	
		San Carlos de Bariloche TMA	
	Mendoza FIR	Mendoza CTA	
		Mendoza TMA	
	Resistencia FIR	Resistencia CTA	
		Resistencia TMA	
		Foz TMA	Tripartite Argentina-Brazil - Paraguay
Aruba (Kingdom of the Netherlands)	Curaçao FIR		
Curaçao (Kingdom of the Netherlands)			
Netherlands (Bonaire)			
Bahamas	Nassau FIR		
Belize	Central American FIR		
Costa Rica			
El Salvador			
Guatemala			
Honduras			
Nicaragua			

STATE	FIR/UIR	UTA/CTA/TMA	Remarks
1	2	3	4
United Kingdom (Bermuda)	New York Oceanic West FIR		
Bolivia	**La Paz FIR**	La Paz CTA	
		Cochabamba TMA	
		La Paz TMA	
		Santa Cruz TMA	
Brazil	**Amazonica FIR**	Amazonica CTA	
		Amazonica UTA	
		Rio Branco TMA	
		Porto Velho TMA	
		Boa Vista TMA	
		Manaus TMA	
		Belem TMA	
		Macapa TMA	
		Santarem TMA	
		Cuiabá TMA	
		Sao Luis TMA	
		Amazonica TMA	Bipartite Brazil - Colombia
	Atlantico FIR	Atlantico UTA	
	Brasilia FIR	Brasilia CTA	
		Brasilia UTA	
		Brasilia TMA	
		Belo Horizonte TMA	
	Curitiba FIR	Curitiba CTA	
		Curitiba UTA	
		Porto Alegre TMA	
		Foz TMA	Tripartite Argentina- Brazil - Paraguay
		Curitiba TMA	
		Florianópolis TMA	
		Campo Grande TMA	
		Rio de Janeiro TMA	
		Sao Paulo TMA	
	Recife FIR	Recife CTA	
		Recife UTA	
		Fortaleza TMA	
		Natal TMA	
		Recife TMA	
		Maceio TMA	
		Aracaju TMA	
		Salvador TMA	
		Porto Seguro TMA	

STATE	FIR/UIR	UTA/CTA/TMA	Remarks
1	2	3	4
		Vitoria TMA	
Jamaica	Kingston FIR		
United Kingdom (Cayman Islands)			
Chile	Antofagasta FIR	Santiago Oceanic OCA*	*Oceanic ACC delivers ATC in Oceanic Control Area (OCA). see AIP-Chile Vol I
		Iquique UTA	
		Antofagasta TMA	
		Arica TMA	
		Iquique TMA	
		Calama TMA	
		Atacama TMA	
	Isla de Pascua FIR	Santiago Oceanic OCA*	
		Isla de Pascua TMA	
	Puerto Montt FIR	Santiago Oceanic OCA*	
		Puerto Montt UTA	
		Puerto Montt TMA	
		Temuco TMA	
		Balmaceda TMA	
	Punta Arenas FIR	Santiago Oceanic OCA*	
		Punta Arenas UTA	
		Punta Arenas TMA	
		Puerto Williams TMA	
		Isla Rey Jorge TMA	
	Santiago FIR	Santiago Oceanic OCA*	
		Santiago UTA	
		Santiago TMA	
		Concepcion TMA	
		La Serena TMA	
Colombia	**Barranquilla FIR**	Barranquilla UTA	
		Barranquilla CTA	
		Barranquilla TMA sector NORTE Barranquilla TMA sector SUR	
		San Andrés TMA	To be analyzed
	Bogota FIR	Bogota UTA	

STATE	FIR/UIR	UTA/CTA/TMA	Remarks
1	2	3	4
		Bogota TMA sector OESTE Bogota TMA sector NORTE Bogota TMA sector SUR	
		Cali CTA	
		Medellin CTA	
		Amazonica TMA	Bipartite Brazil - Colombia
		Bucaramanga TMA	
		Cali TMA	
		Cucuta TMA sector Sur Cucuta TMA sector Norte	
		Medellin TMA	
		Pereira TMA	
		Villavicencio TMA	
		Andes TMA	
		El Yopal TMA	
Cuba	Habana FIR		
Dominican Republic	Santo Domingo FIR		
Ecuador	**Guayaquil FIR**	Guayaquil UTA	
		Guayaquil CTA	
		Guayaquil TMA	
		Manta TMA	
		Quito TMA	
French Guiana	**Cayenne FIR**	Cayenne CTA	
		Cayenne TMA	
Guyana	**Georgetown FIR/UIR**	Georgetown UTA	
		Georgetown CTA	
		Timehri TMA	
Haiti	Port Au Prince FIR		
Mexico	Mazatlán Oceanic FIR		
	Mexico FIR		
Panama	**Panama FIR**	Panama CTA	
		Panama TMA	

STATE	FIR/UIR	UTA/CTA/TMA	Remarks
1	2	3	4
		San Andres TMA*	*Under Colombia responsibility. TMA is within FIR/CTA Panama. To be analyzed
Paraguay	**Asunción FIR/UIR**	Asuncion TMA	
		Foz TMA	Tripartite Argentina-Brazil - Paraguay
Peru	**Lima FIR**	Lima UTA	
		Lima CTA	
		Arequipa TMA	
		Chiclayo TMA	
		Cusco TMA	
		Iquitos TMA	
		Juliaca TMA	
		Lima TMA	
		Pisco TMA	
		Pucallpa TMA	
		Tacna TMA	
		Trujillo TMA	
Suriname	**Paramaribo FIR**	Paramaribo CTA	
		Pengel TMA	
United Kingdom (Turks and Caicos Islands)	Miami Oceanic FIR		
United States			
Uruguay	**Montevideo FIR**	Montevideo CTA	
		Carrasco TMA	
United States	Houston FIR		
	Houston Oceanic FIR		
	Miami FIR		
Venezuela	**Maiquetia FIR**	Maiquetia CTA	
		Barcelona TMA	
		Maiquetia TMA	
		Maracaibo TMA	
		Margarita TMA	

Table PMP III-1 – Strengths, weakness, opportunities and threads in the CAR/SAM Region

EXPLANATION OF THE TABLE

Item

1 Strengths: internal attributes of a system or an organization that can help in the realization of ambitions or in meeting expectations.

2 Weaknesses: internal attributes of a system or an organization that are a detriment to realizing ambitions or meeting expectations.

3 Opportunities: are external conditions that help in the realization of ambitions or in meeting expectations.

4 Threats: external conditions that are a detriment or harmful to realizing ambitions or meeting expectations.

5 Relationship of the SWOT attributes and conditions with the eleven Key performance area - KPAs.

(1) STRENGHTS	Remarks
• National Plans aligned with global plans and supporting regional implementation • Industry maturity and operating models (airlines, airports) • Potential human resources available • Robust regional infrastructure, implementation experience and harmonized services • Regional Integration and Harmonization with Horizontal Cooperation Mechanisms	
(2) WEAKNESS	**Remarks**
• Gaps in plan implementation (ANS, CNS, Technology, Training, budgets) • Limited human talent management policies (hiring, training and retention of sufficient and competent human resources) • Difficulty in institutional communication, collaboration and alignment between CAR and SAM. • Different levels of maturity in the implementation of ANS and airport management models. • Weak alignment and little communication between global plans (GANP, GASP, GASEP). • Language and cultural barriers between regions. Lack of timely publication of ICAO Documents in all official languages	•
(3) OPPORTUNITIES	**Remarks**
• Greater collaboration in Technology, ICAO Technical Cooperation, innovation-research-development (I+R+D), multilateral financing, training/joint virtual meetings. • Trend towards the automation of processes and services with a focus on innovation, sustainability and harmonization • The low transitory demand allows improving activities, focusing on innovation and better preparation to generate resilience (administration, procedures, ATM, etc.). • Timely availability of ICAO technical documentation in the official languages. New GANP - ASBU four layers and indicators. • Put civil aviation as a development engine on the State and Regional agenda.	•
(4) THREADS	**Remarks**

• Slow industry/airline recovery (> 2024). Reorganization of the aeronautical market, competition for markets. • Changes in passenger behavior • Negative impact on aviation due to political, environmental or economic changes (fuel, etc.) • New disruptions that may negatively affect aviation (natural disasters, climate change, outbreaks, war/conflict, cyber attacks, economic downturn)	•

(5) Relationship of the SWOT attributes and conditions with the eleven Key performance areas

11 Key Performance Areas	STRENGHTS	WEAKNESS	OPPORTUNITIES	THREADS
	○ Robust regional infrastructure, implementation experience and harmonized services ○	○ Gaps in plan implementation (ANS, CNS, Technology, Training, budgets) ○ Limited human talent management policies (hiring, training and retention of sufficient and competent human resources)	○ Greater collaboration in Technology, ICAO Technical Cooperation, innovation-research-development (I+R+D), multilateral financing, training/joint virtual meetings. ○ Trend towards the automation of processes and services with a focus on	○ Negative impact on aviation due to political, environmental or economic changes (fuel, etc.) ○ New disruptions that may negatively affect aviation (natural disasters, climate change, outbreaks, war/conflict, cyber attacks, economic downturn)

11 Key Performance Areas	STRENGHTS	WEAKNESS	OPPORTUNITIES	THREADS
Capacity		○	innovation, sustainability and harmonization ○ The low transitory demand allows improving activities, focusing on innovation and better preparation to generate resilience (administration, procedures, ATM, etc.). ○ Timely availability of ICAO technical documentation in the official languages. New GANP - ASBU four layers and indicators. ○ Put civil aviation as a development engine on the State and Regional agenda.	
Efficiency	○ National Plans aligned with global plans and supporting regional implementation ○ Industry maturity and operating models (airlines, airports) ○ Potential human resources available ○ Robust regional infrastructure, implementation experience and harmonized services	○ Gaps in plan implementation (ANS, CNS, Technology, Training, budgets) ○ Limited human talent management policies (hiring, training and retention of sufficient and competent human resources)	○ Greater collaboration in Technology, ICAO Technical Cooperation, innovation-research-development (I+R+D), multilateral financing, training/joint virtual meetings. ○ Trend towards the automation of processes and services with a focus on	○ Slow industry/airline recovery (> 2024). Reorganization of the aeronautical market, competition for markets. ○ Negative impact on aviation due to political, environmental or economic changes (fuel, etc.) ○ New disruptions that may negatively affect aviation

11 Key Performance Areas	STRENGHTS	WEAKNESS	OPPORTUNITIES	THREADS
	○ Regional Integration and Harmonization with Horizontal Cooperation Mechanisms	○ Difficulty in institutional communication, collaboration and alignment between CAR and SAM. ○ Different levels of maturity in the implementation of ANS and airport management models.	innovation, sustainability and harmonization ○ Timely availability of ICAO technical documentation in the official languages. New GANP - ASBU four layers and indicators. ○ Put civil aviation as a development engine on the State and Regional agenda	(natural disasters, climate change, outbreaks, war/conflict, cyber attacks, economic downturn)
Predictability	○ Industry maturity and operating models (airlines, airports)	○ Gaps in plan implementation (ANS, CNS, Technology, Training, budgets)	○ Greater collaboration in Technology, ICAO Technical Cooperation, innovation-research-development (I+R+D), multilateral financing, training/joint virtual meetings. ○ Timely availability of ICAO technical documentation in the official languages. New GANP - ASBU four layers and indicators. ○ Put civil aviation as a development engine on the State and Regional agenda	○ Negative impact on aviation due to political, environmental or economic changes (fuel, etc.) ○ New disruptions that may negatively affect aviation (natural disasters, climate change, outbreaks, war/conflict, cyber attacks, economic downturn)
	○ National Plans aligned with global plans and supporting regional implementation	○ Gaps in plan implementation (ANS,	○ Greater collaboration in Technology, ICAO Technical Cooperation, innovation-	○ New disruptions that may negatively affect aviation (natural disasters, climate

11 Key Performance Areas	STRENGHTS	WEAKNESS	OPPORTUNITIES	THREADS
Safety	○ Regional Integration and Harmonization with Horizontal Cooperation Mechanisms	CNS, Technology, Training, budgets) ○ Weak alignment and little communication between global plans (GANP, GASP, GASEP). ○	research-development (I+R+D), multilateral financing, training/joint virtual meetings. ○ Timely availability of ICAO technical documentation in the official languages. New GANP - ASBU four layers and indicators. ○ Put civil aviation as a development engine on the State and Regional agenda	change, outbreaks, war/conflict, cyber attacks, economic downturn)
Security	○ National Plans aligned with global plans and supporting regional implementation ○ Regional Integration and Harmonization with Horizontal Cooperation Mechanisms	○ Gaps in plan implementation (ANS, CNS, Technology, Training, budgets) ○ Weak alignment and little communication between global plans (GANP, GASP, GASEP). ○	○ Greater collaboration in Technology, ICAO Technical Cooperation, innovation-research-development (I+R+D), multilateral financing, training/joint virtual meetings. ○ Timely availability of ICAO technical documentation in the official languages. New GANP - ASBU four layers and indicators. ○ Put civil aviation as a development engine on the State and Regional agenda	○ New disruptions that may negatively affect aviation (natural disasters, climate change, outbreaks, war/conflict, cyber attacks, economic downturn)
	○	○	○ Greater collaboration in Technology, ICAO Technical Cooperation, innovation-	○ Negative impact on aviation due to political,

11 Key Performance Areas	STRENGHTS	WEAKNESS	OPPORTUNITIES	THREADS
Enviroment			research-development (I+R+D), multilateral financing, training/joint virtual meetings. ○ Timely availability of ICAO technical documentation in the official languages. New GANP - ASBU four layers and indicators. ○ Put civil aviation as a development engine on the State and Regional agenda	environmental or economic changes (fuel, etc.) ○
Cost effectiveness	○ Industry maturity and operating models (airlines, airports) ○	○	○ Greater collaboration in Technology, ICAO Technical Cooperation, innovation-research-development (I+R+D), multilateral financing, training/joint virtual meetings. ○ Timely availability of ICAO technical documentation in the official languages. New GANP - ASBU four layers and indicators. ○ Put civil aviation as a development engine on the State and Regional agenda	○ Negative impact on aviation due to political, environmental or economic changes (fuel, etc.) ○
	○ National Plans aligned with global plans and supporting regional implementation	○ Gaps in plan implementation (ANS,	○ Greater collaboration in Technology, ICAO Technical Cooperation, innovation-	○ Negative impact on aviation due to political,

11 Key Performance Areas	STRENGHTS	WEAKNESS	OPPORTUNITIES	THREADS
Interoperability	○ Robust regional infrastructure, implementation experience and harmonized services ○ Regional Integration and Harmonization with Horizontal Cooperation Mechanisms	CNS, Technology, Training, budgets) ○ Difficulty in institutional communication, collaboration and alignment between CAR and SAM. ○ Different levels of maturity in the implementation of ANS and airport management models. ○ Weak alignment and little communication between global plans (GANP, GASP, GASEP). ○	research-development (I+R+D), multilateral financing, training/joint virtual meetings. ○ Trend towards the automation of processes and services with a focus on innovation, sustainability and harmonization ○ Timely availability of ICAO technical documentation in the official languages. New GANP - ASBU four layers and indicators. ○ Put civil aviation as a development engine on the State and Regional agenda	environmental or economic changes (fuel, etc.) ○
Access and equity	○	○	○ Timely availability of ICAO technical documentation in the official languages. New GANP - ASBU four layers and indicators. ○ Put civil aviation as a development engine on the State and Regional agenda	○

11 Key Performance Areas	STRENGHTS	WEAKNESS	OPPORTUNITIES	THREADS
Participation by the ATM community	○	○	○ Timely availability of ICAO technical documentation in the official languages. New GANP - ASBU four layers and indicators. ○ Put civil aviation as a development engine on the State and Regional agenda	○
Flexibility	○	○	○ Timely availability of ICAO technical documentation in the official languages. New GANP - ASBU four layers and indicators. ○ Put civil aviation as a development engine on the State and Regional agenda	○

Table PMP III-2 – List of performance objectives by KPA for the CAR/SAM Region

EXPLANATION OF THE TABLE

Column

(1) ICAO defined 11 Key Performance Areas. *Include the list of KPAs and its definition*.

(2) Focus Areas. These focus areas have been selected from the catalogue of performance objectives.

(3) Performance Objectives. These objectives have been selected from the catalogue of performance objectives.

(4) Remarks

(1) KPA s	(2) Focus Areas	(3) Performance Objectives	(4) Remarks
Efficiency	Flight time & distance	Apply en-route speed reduction if traffic is already airborne	
Efficiency	Flight time & distance	Avoid taxi-out additional time resulting from adverse conditions	
Efficiency	Flight time & distance	Avoid taxi-in additional time resulting from adverse conditions	
Efficiency	Flight time & distance	Overcome route selection inefficiencies associated with route network design	
Efficiency	Flight time & distance	Facilitate direct routing of portions of the flight (if this does not cause network problems)	
Capacity	Capacity, throughput & utilization	Improve what's needed to reduce longitudinal separation minima	***PBN implementation in progress. PBCS when required***

(1) KPA s	(2) Focus Areas	(3) Performance Objectives	(4) Remarks
Capacity	Capacity, throughput & utilization	Overcome capacity limitations attributable to route network design	***PBN implementation in progress***
Capacity	Capacity, throughput & utilization	Take advantage of increased navigation precision (airspace with PBN operations) to implement route networks and airspace structures with smaller lateral and vertical safety buffers	***PBN implementation in progress***
Capacity	Capacity, throughput & utilization	Increase airport peak arrival capacity	***ACDM implementation project (to be analyzed)***
Capacity	Capacity, throughput & utilization	Equip additional RWY ends with instrument approaches	***PBN implementation in progress***
Capacity	Capacity, throughput & utilization	Reduce approach minima (ceiling & visibility)	***PBN implementation in progress***
Capacity	Capacity, throughput & utilization	Increase airport arrival rate	***PBN implementation in progress***
Capacity	Capacity, throughput & utilization	Apply merging & synchronisation of arrival flows	***Point merge implemented (Brazil, Colombia)***
Predictability	Punctuality	Increase the number (%) of flights adhering to the planned take-off time	
Predictability	Punctuality	Increase the number (%) of scheduled flights adhering to the scheduled ON-block time	

(1) KPA s	(2) Focus Areas	(3) Performance Objectives	(4) Remarks
Predictability	Variability	Reduce gate-to-gate flight time variability of frequent scheduled flights	
Safety	*To be incorporated*		
Security	*To be incorporated*		
Enviroment	*To be incorporated*		
Cost effectiveness	*To be incorporated*		
Interoperability	*To be incorporated*		
Access and equity	*To be incorporated*		
Participation by the ATM community	*To be incorporated*		
Flexibility	*To be incorporated*		

Table PMP III-3 – List of KPIs by performance objective and KPA for the CAR/SAM Region

EXPLANATION OF THE TABLE

Column

1 KPAs and Focus Areas from **Table PMP III-2**.

2 Performance Objectives from **Table PMP III-2**.

3 KPIs based on the ICAO list of KPIs. ***If there is a KPI you would like to introduce, please submit it for coordination with the global performance expert group***

4 Remarks

(1) KPA & Focus area	(2) Performance objectives	(3) KPI s	(4) Remarks
Efficiency Flight time & distance	Apply en-route speed reduction if traffic is already airborne	KPI08	
Efficiency Flight time & distance	Avoid taxi-out additional time resulting from adverse conditions	KPI02	
Efficiency Flight time & distance	Avoid taxi-in additional time resulting from adverse conditions	KPI13	
Efficiency Flight time & distance	Overcome route selection inefficiencies associated with route network design	KPI04	
Efficiency Flight time & distance	Facilitate direct routing of portions of the flight (if this does not cause network problems)	KPI05	
Capacity Capacity, throughput & utilization	Improve what's needed to reduce longitudinal separation minima	KPI06	

(1) KPA & Focus area	(2) Performance objectives	(3) KPI s	(4) Remarks
Capacity Capacity, throughput & utilization	Overcome capacity limitations attributable to route network design	KPI06	
Capacity Capacity, throughput & utilization	Take advantage of increased navigation precision (airspace with PBN operations) to implement route networks and airspace structures with smaller lateral and vertical safety buffers	KPI06	
Capacity Capacity, throughput & utilization	Increase airport peak arrival capacity	KPI09	ASBU element impact non defined in GANP6
Capacity Capacity, throughput & utilization	Equip additional RWY ends with instrument approaches	KPI10	
Capacity Capacity, throughput & utilization	Reduce approach minima (ceiling & visibility)	KPI10	
Capacity Capacity, throughput & utilization	Increase airport arrival rate	KPI10	
Capacity Capacity, throughput & utilization	Apply merging & synchronisation of arrival flows	KPI10	
Predictability (Punctuality)	Increase the number (%) of flights adhering to the planned take-off time	KPI01	ASBU element impact non defined in GANP6
Predictability (Punctuality)	Increase the number (%) of scheduled flights adhering to the scheduled ON-block time	KPI14	ASBU element impact non defined in GANP6

(1) KPA & Focus area	(2) Performance objectives	(3) KPI s	(4) Remarks
Predictability (Variability)	Reduce gate-to-gate flight time variability of frequent scheduled flights	KPI15	ASBU element impact non defined in GANP6

Table PMP III-4 – Performance baseline within the CAR/SAM Region

EXPLANATION OF THE TABLE

Column

1 States in **Table GEN I-1**

2 List of FIRs/ CTAs/TMAs/Airports by State within **Table ATM I-1** or **Table PMP III-CAR/SAM-1** and **Table AOP I-1**.

3 Value for the list of KPIs in **Table PMP III-3.**

4 Remarks

Legend: -- *KPI calculation is in progress*

++ *KPI is not yet developed*

(1) STATE	(2) FIR/CTA/TMA /AIRPORT	(3) KPIs											(4) Remarks
		KPI01 (Var 2A)	**KPI02**	**KPI04**	**KPI05**	**KPI06**	**KPI08**	**KPI09**	**KPI10**	**KPI13**	**KPI14**	**KPI15 (Var 1)**	
BRAZIL	SBGR	83,8%	3,7					34	26	1,8	54,6%	5,9	**BASELINE 2021 (average all flights > DEP+ARR in SBGR)**
	SBBR	90,5%	3,1					48	26	1,6	65,0%	5,5	**BASELINE 2021 (average all flights > DEP+ARR in SBBR)**
	SBGL	80,0%	3,0					30	6	1,5	64,1%	5,9	**BASELINE 2021**
	TMA SAO PAULO			++	++	--	3,9						**BASELINE 2021 (SBGR, SBKP, SBSP)**
	TMA BRASILIA			++	++	--	3,6						**BASELINE 2021 (SBBR)**

	TMA Rio de JANEIRO			++	++	--	2,9						**BASELINE 2021 (SBRJ, SBGL)**

>>>>

(1) STATE	**(2) FIR/CTA/TMA /AIRPORT**	**(3) KPIs**											**(4) Remarks**
		KPI01 (2A)	**KPI02**	**KPI04**	**KPI05**	**KPI06**	**KPI08**	**KPI09**	**KPI10**	**KPI13**	**KPI14**	**KPI15**	
PERU	SPJC	87%	3.57					35	23	1.68	61%	++	
	SPZO	72.09%	3.78					6	5	0.85	69.65%	++	
	TMA LIMA			++	++	--	++						
	TMA CUSCO			++	++	11 (CHS)	++						CHS= hourly sector capacity
	FIR LIMA			++	++	++							

<<<

(1) STATE	(2) FIR/CTA/TMA /AIRPORT	(3) KPIs											(4) Remarks
		KPI01 (2A)	KPI02	KPI04	KPI05	KPI06	KPI08	KPI09	KPI10	KPI13	KPI14	KPI15	
CHILE	SCEL	31.7%	++					++	++	++	++	++	
	SCIE	32.9%	++					+	++	++	++	++	
	SCFA	31.5%	++					++	++	++	++	++	
	TMA SANTIAGO			++	++	++	++						
	TMA CONCEPCION			++	++	++	++						
	TMA ANTOFAGASTA			++	++	++	++						
	FIR ++			++	++	++							

<

(1) STATE	(2) FIR/CTA/TMA /AIRPORT	(3) KPIs											(4) Remarks
		KPI01	KPI02	KPI04	KPI05	KPI06	KPI08	KPI09	KPI10	KPI13	KPI14	KPI15	
ARGENTINA	SABE	73.7%	2.4					39	14	2.0	92.2%	5.7	2019 BASELINE
	SAEZ	57.9%	3.5					29	10	3.1	81.1%	5.7	2019 BASELINE
	TMA BAIRES			++	++	--	--						
	FIR TODAS			0.6%	0.84%	++						5.4	2019 BASELINE

Table PMP III-5 – Performance targets and needs within CAR/SAM Region

EXPLANATION OF THE TABLE

Column

1 States in **Table GEN I-1**

2 List of FIRs/CTAs/TMAs/Airports by State within **Table ATM I-1** or **Table PMP III-CAR/SAM- 1** and **Table AOP I-1**.

3 Targets for the list of KPIs in **Table PMP III-3.** ***(include the value of the regional targets/needs for the different operational environments identified in step 1)***

4 Remarks

(1) STATE	(2) FIR/CTA/TMA /AIRPORT	(3) KPIs TARGETS											(4) Remarks
		KPI01 (Var 2A)	KPI02	KPI04	KPI05	KPI06	KPI08	KPI09	KPI10	KPI13	KPI14	KPI15 (Var 1)	
BRAZIL	SBGR	≥ 80%	≤3 min					--	--	≤3 min	--	≤ 10 min	
	SBBR	≥ 80%	≤3 min					--	--	≤3 min	--	≤ 10 min	
	SBGL	≥ 80%	≤3 min					--	--	≤3 min	--	≤ 10 min	
	TMA SAO PAULO			++	++	--	≤ 4 min						
	TMA BRASILIA			++	++	--	≤ 4 min						
	TMA Rio de JANEIRO			++	++	--	≤ 4 min						

>>>>

(1) STATE	(2) FIR/CTA/TMA /AIRPORT	(3) KPIs TARGETS											(4) Remarks
		KPI01 (2A)	KPI02	KPI04	KPI05	KPI06	KPI08	KPI09	KPI10	KPI13	KPI14	KPI15	
PERÚ	SPJC	≥ 80%	≤4 min					--	--	≤3 min	≥ 80%	++	
	SPZO	≥ 80%	≤4 min					--	--	≤3 min	≥ 80%	++	
	TMA LIMA			++	++	--	++						
	TMA CUSCO			++	++	--	++						
	FIR LIMA			++	++	++							

(1) STATE	(2) FIR/CTA/TMA /AIRPORT	(3) KPIs TARGETS											(4) Remarks
		KPI01 (2A)	KPI02	KPI04	KPI05	KPI06	KPI08	KPI09	KPI10	KPI13	KPI14	KPI15	
CHILE	SCEL	≥ 32%	++					++	++	++	++	++	
	SCIE	≥ 33%	++					+	++	++	++	++	
	SCFA	≥ 32%	++					++	++	++	++	++	
	TMA SANTIAGO			++	++	++	++						
	TMA CONCEPCION			++	++	++	++						
	TMA ANTOFAGASTA			++	++	++	++						

	FIR ++			++	++	++							

<<<

(1) STATE	(2) FIR/CTA/TMA /AIRPORT	(3) KPIs TARGETS											(4) Remarks
		KPI01	KPI02	KPI04	KPI05	KPI06	KPI08	KPI09	KPI10	KPI13	KPI14	KPI15	
ARGENTINA	SABE												
	SAEZ												
	TMA BAIRES												
	FIR TODAS												

<<<

Table PMP III-6 – Deployment planning: selected ASBU Elements / Operational Improvements for the CAR/SAM Region

EXPLANATION OF THE TABLE

Column

1 States in **Table GEN I-1**

2 List of FIRs/ CTAs/TMAs/Airports by State within **Table ATM I-1** or **Table PMP III-CAR/SAM - 1** and **Table AOP I-1**.

3 Selected ASBU elements /operational improvements for each operational environment.

Please note that the ASBU elements are a set of operational improvements, however, there could be other improvements outside of the ASBU framework that might address identified issues and opportunities and therefore contribute to achieve the pursued level of performance.

4 Dependencies and relations: see type description for each element in GANP Layer 2

5 Year when implementation of the selected solution is planned to start.

6 Year when implementation of the selected solution is foreseen to be completed.

7 Remarks

(1) STATE	(2) FIR/CTA /TMA/AIRPORT	(3) ASBU Elements / Operational Improvements	(4) Dependencies and relations	(5) Start Year	(6) End Year	(7) Remarks
BRAZIL	SBGR SBBR SBGL	SURF-B0/1	----			KPI02, KPI13
	SBGR SBBR SBGL	APTA-B0/1	AMET-B0/1 AMET-B0/2 NAVS-B0/3			KPI10
	SBGR SBBR SBGL	APTA-B0/2	AMET-B0/1 AMET-B0/2			KPI10
	SBGR SBBR SBGL	*TBD*	*TBD*			KPI09
	SBGR SBBR SBGL	*TBD*	*TBD*			KPI01
	SBGR SBBR SBGL	*TBD*	*TBD*			KPI14
	SBGR SBBR SBGL	*TBD*	*TBD*			KPI15
	TMAs SAO PAULO, BRASILIA, RIO DE JANEIRO	RSEQ-B0/1	AMET-B0/1 AMET-B0/2 ACDM-B0/1 ACDM-B0/2			KPI08
	TMAs SAO PAULO, BRASILIA, RIO DE JANEIRO	FRTO-B1/2	APTA-B0/1 APTA-B1/1 SNET-B0/1			KPI06
	TMA SAO PAULO	RSEQ-B0/3	AMET-B0/1			KPI10
	FIR ATLANTICO	CSEP-B1/3	COMI-B0/3 COMI-B0/4			KPI06

			COMS-B0/1 COMS-B0/2 NAVS-B0/3			

<<<

(1) STATE	(2) FIR/CTA /TMA/AIRPORT	(3) ASBU Elements / Operational Improvements	(4) Dependencies and relations	(5) Start Year	(6) End Year	(7) Remarks
PERÚ	SPJC SPZO	SURF-B0/1	-----			KPI02, KPI13
	SPJC SPZO	TBD	TBD			KPI09
	SPJC SPZO	TBD	TBD			KPI01 KPI14
	TMA LIMA, CUSCO	FRTO-B1/2	APTA-B0/1 APTA-B1/1 SNET-B0/1			KPI06
	FIR LIMA	FRTO-B1/2	APTA-B0/1 APTA-B1/1 SNET-B0/1			KPI06

<<<

STATE	FIR /TMA/AIRPORT	ASBU Elements / Operational Improvements	Dependencies and relations	Start	End	KPI
CHILE	SCEL	RSEQ-B0/2 = Departure Management	AMET-B0/1 AMET-B0/2 ACDM-B0/1 ACDM-B0/2 SURF-B1/4 WAKE-B2/1 WAKE-B2/4 WAKE-B2/8	2022	2025	KPI02 - Taxi-out additional time

STATE	FIR /TMA/AIRPORT	ASBU Elements / Operational Improvements	Dependencies and relations	Start	End	KPI
			SURF-B0/2 APTA-B0/2 NOPS-B0/5			
	SCEL	RSEQ-B0/1 = Arrival Management	AMET-B0/1 AMET-B0/2 WAKE-B2/1 WAKE-B2/4 WAKE-B2/7 SURF-B0/2 SURF-B1/4 ACDM-B0/1 ACDM-B0/2	2022	2025	KPI10: Airport peak throughput
		APTA-B1/1 = PBN Approaches (with advanced capabilities)	APTA-B0/1 AMET-B0/1 AMET-B0/2	2023	2026	KPI10 - Airport peak throughput.
	SCEL	APTA-B1/2 = PBN SID and STAR procedures (with advanced capabilities)	APTA-B0/1 AMET-B0/1 AMET-B0/2	2023	2026	KPI11: Airport throughput efficiency
	SCEL	ACDM-B0/1 = Airport CDM Information Sharing (ACIS)	AMET-B0/1 AMET-B0/2 SURF-B0/2	2025	2027	No specific KPI available in GANP 6° Ed for intended performance
	SANTIAGO	FRTO-B0/1= Direct routing (DCT)	NOPS-B0/1 FRTO-B0/2 FRTO-B0/4 FICE-B0/1	2023	2027	KPI04: Filed flight plan en-route extension
	SANTIAGO	FRTO-B0/2 = Airspace planning and Flexible Use of Airspace (FUA)	FRTO-B0/1 NOPS-B0/1	2024	2027	KPI04: Filed flight plan en-route extension
	SCEL	NOPS-B0/1 = Initial integration of collaborative airspace management with air traffic flow management	AMET-B0/1 FRTO-B0/2	2024	2027	KPI05 - Actual en-route extension
	SCEZ/OCA	CSEP-B1/3 = Performance Based Longitudinal Separation Minima	COMI-B0/3 COMI-B0/4 COMS-B0/1 COMS-B1/1	2023	2026	KPI06: En-route airspace capacity

STATE	FIR /TMA/AIRPORT	ASBU Elements / Operational Improvements	Dependencies and relations	Start	End	KPI
			COMS-B0/2 COMS-B1/2 NAVS-B0/3			
	SCEZ/OCA	CSEP-B1/4 = Performance Based Lateral Separation Minima	COMI-B0/3 COMI-B0/4 COMS-B0/1 COMS-B1/1 COMS-B0/2 COMS-B1/2 NAVS-B0/3	2023	2026	KPI06: En-route airspace capacity
	SCEZ/SANTIAGO/SCEL	TBD	TBD	2023	2025	KPI01: Departure punctuality
CHILE	SCIE	APTA-B1/1 = PBN Approaches (with advanced capabilities)	APTA-B0/1 AMET-B0/1 AMET-B0/2	2023	2026	KPI10 - Airport peak throughput.
	SCIE	APTA-B1/2 = PBN SID and STAR procedures (with advanced capabilities)	APTA-B0/1 AMET-B0/1 AMET-B0/2	2023	2026	KPI11: Airport throughput efficiency
	SCEZ/CONCEPCIÓN	FRTO-B0/1= Direct routing (DCT)	NOPS-B0/1 FRTO-B0/2 FRTO-B0/4 FICE-B0/1	2023	2027	KPI04: Filed flight plan en-route extension
	SCEZ/CONCEPCIÓN	FRTO-B0/2 = Airspace planning and Flexible Use of Airspace (FUA)	FRTO-B0/1 NOPS-B0/1	2024	2027	KPI04: Filed flight plan en-route extension
	SCIE	NOPS-B0/1 = Initial integration of collaborative airspace management with air traffic flow management	AMET-B0/1 FRTO-B0/2	2024	2027	KPI05 - Actual en-route extension
	SCIE	TBD	TBD	2023	2025	KPI01: Departure punctuality
CHILE	SCFA	APTA-B1/1 = PBN Approaches (with advanced capabilities)	APTA-B0/1 AMET-B0/1 AMET-B0/2	2023	2026	KPI10 - Airport peak throughput.

STATE	FIR /TMA/AIRPORT	ASBU Elements / Operational Improvements	Dependencies and relations	Start	End	KPI
	SCFA	APTA-B1/2 = PBN SID and STAR procedures (with advanced capabilities)	APTA-B0/1 AMET-B0/1 AMET-B0/2	2023	2026	KPI11: Airport throughput efficiency
	SCFZ/ANTOFAGASTA	FRTO-B0/1= Direct routing (DCT)	NOPS-B0/1 FRTO-B0/2 FRTO-B0/4 FICE-B0/1	2023	2027	KPI04: Filed flight plan en-route extension
	SCFZ/ANTOFAGASTA	FRTO-B0/2 = Airspace planning and Flexible Use of Airspace (FUA)	FRTO-B0/1 NOPS-B0/1	2024	2027	KPI04: Filed flight plan en-route extension
	SCFA	NOPS-B0/1 = Initial integration of collaborative airspace management with air traffic flow management	AMET-B0/1 FRTO-B0/2	2024	2027	KPI05 - Actual en-route extension
	SCFA	TBD	TBD	2023	2025	KPI01: Departure punctuality

Table PMP III-7 – Implementation progress on the selected operational improvements of the ASBU elements / Operational Improvements for the (NAME) Region

EXPLANATION OF THE TABLE

Column

1 States in **Table GEN I-1**

2 List of FIRs/CTAs/TMAs/Airports by State within **Table ATM I-1** or **Table PMP III-**(NAME Region) **- 1** and **Table AOP I-1**.

3 Selected ASBU elements/operational improvement for each operational environment.

Please note that the ASBU elements are a set of operational improvements, however, there could be other improvements outside of the ASBU framework that might address identified issues and opportunities and therefore contribute to achieve the pursued level of performance.

4 Year when implementation of the selected solution is planned to start **PMP III-6**.

5 Year when implementation of the selected solution is foreseen to be completed **PMP III-6**.

6 Implementation progress:

- Completed (100%): the development or improvement is reportedly fulfilled (it is either in operational use or there is reported on-going compliance)
- Ongoing (1-99%): implementation is reported on-going, however not yet fully completed
- Planned (0%): a planned schedule and proper (approved and committed budgeted) actions are specified within the agreed data for completion but implementation has not yet kicked off
- Late (0-99%): part or all of the actions leading to completion are “planned” to be achieved after the end year date; or the implementation is ongoing but will be achieved later than that data or the end year date is already exceeded.

7 Remarks

STATE	FIR/CTA /TMA /AIRPORT	ASBU Elements / Operational Improvements	Start Year	End Year	Implementation progress	Remarks

Table PMP III-8 – Performance benefits accrued form the implementation of the selected ASBU elements / Operational Improvements for the (NAME) Region

EXPLANATION OF THE TABLE

Column

1 States in **Table GEN I-1**

2 List of FIRs/ CTAs/ TMAs/Airports by State within **Table ATM I-1** or **Table PMP III-**(NAME Region) **- 1** and **Table AOP I-1**.

3 Selected ASBU elements/operational improvements for each operational environment.

Please note that the ASBU elements are a set of operational improvements, however, there could be other improvements outside of the ASBU framework that might address identified issues and opportunities and therefore contribute to achieve the pursued level of performance.

4 Value after implementation for the list of KPIs in **Table PMP III-3.**

5 Remarks

STATE	FIR/CTA /TMA/AIRPORT	ASBU Elements/operational improvements	KPI s						Remarks

– – – – – – – – – – –

APPENDIX C
Amendment procedures for Vol. III of the CAR/SAM Regional Air Navigation Plan

1. If, after a detailed evaluation of a State (or group of States) of one or both Regions (CAR/SAM), requests to make an amendment to the approved Vol. III of the CAR/SAM Regional Air Navigation Plan, it must propose to the GREPECAS Secretariat, through the Regional Office accredited to that State, a proposal for amendment to the plan, adequately documented.

2. The proposal must include the facts that lead the State (or group of States) to the conclusion that the amendment is necessary. Such proposed amendments may include additions, modifications, or deletions. This procedure does not prevent a State from conducting prior consultation with other States before submitting an amendment proposal to the Regional Office. This proposed amendment must be submitted through the web tool and/or by mail to the Regional Office.

3. If the proposal refers to a modification of the provisions (text) of Parts 0 - "Introduction" and Part I - *"General Regional Requirements"*, the GREPECAS Secretariat will coordinate it with ICAO Headquarters in order to disseminate it to all Regional Offices, according to Part C of the procedure for amendments to the regional air navigation plan.

4. If the GREPECAS Secretariat considers that the proposed amendment conflicts with established ICAO policy, or that it raises issues that should be brought to the attention of the Air Navigation Commission, the proposal will be presented, adequately documented, to the Commission. In these cases, the Commission will decide the course that should be given to the proposal.

5. The GREPECAS Secretariat, through the Regional Office, will distribute the proposal, properly documented, with a request for comments to all provider and user States of the region that are considered affected, as well as to user States outside of the region and international organizations that may be invited to attend relevant ICAO meetings and that may be interested in the proposal. Interested States and international organizations must send their comments/agreements/objections through the ANP web platform and/or by mail to the Regional Office. Any comment or objection must be adequately supported by the reasons that justify it.

6. If, in response to the GREPECAS Secretariat's query, no objection to the proposal is presented before a certain date, the proposal must be presented to the GREPECAS Secretary recommending its approval. The approved amendment must be incorporated into Volume III of the CAR/SAM Regional Air Navigation Plan.

7. If, in response to the GREPECAS Secretariat's query, an objection is raised, and if the objection is upheld after further consultation, the matter will be documented for discussion by GREPECAS and, ultimately, for its approval. formal consideration by the Air Navigation Commission, if it remains unresolved. If the Commission concludes that the amendment is acceptable in its original or other form, feedback will be given to GREPECAS.

8. Proposals for amendments to Volume III of the Regional Plan may also be initiated by the GREPECAS Secretariat, through the Regional Office accredited in that State, provided that the State or States whose planning will be affected have expressed their agreement with the proposal.

9. The Amendment Proposal related to the ***SWOT Table*** may be submitted by a State or Group of States with the corresponding analyzes that support the amendment proposal and will be reviewed by the Secretariat with the States before recommending its approval by GREPECAS.

10. The Amendment Proposal related to the Table of Regional Performance Objectives may be submitted by a State or Group of States with the corresponding analyzes that support the amendment proposal. The Secretariat will analyze the proposal with the States before recommending its approval or non-approval by GREPECAS.

11. The Proposal to amend the ***Table of ASBU and non-ASBU Solutions*** may be submitted by a State, with the respective analysis that supports the request for the amendment. This should be communicated to all the States of the CAR/SAM regions to become aware of the modifications made by the State. These proposals should be approved ipso facto by GREPECAS.

12. The Proposal to amend the ***Table of Performance Evaluation*** may be submitted by a State, with the respective analysis that supports the request for the amendment. This should be communicated to all the States of the CAR/SAM Regions to become aware of the modifications made by the State. These proposals should be approved ipso facto by GREPECAS.

13. The proposed amendment to Vol. III, referring to the entire cycle of the six steps, involving a State, may be submitted to the GREPECAS Secretariat, with the corresponding analyzes that support the request for the amendment. This should be communicated to all the States of the CAR/SAM regions to become aware of the modifications made by the State. These proposals should be approved ipso facto by GREPECAS.

14. The proposed amendments may be analyzed, and if warranted, be approved, in plenary meetings of GREPECAS or by the fast-track method.

15. Amendments to Volume III of the CAR/SAM Regional Air Navigation Plan, which have been approved in accordance with the above procedure, will be published on the ANP web platform at convenient intervals.

16. If, after a careful evaluation of a State (or group of States) of one of the CAR/SAM Regions or both regions jointly, it is intended to make an amendment to Vol. III of the CAR/SAM Regional Air Navigation Plan SAM approved, they must propose to the GREPECAS Secretariat, through the Regional Office accredited to that State, an appropriate amendment to the plan, adequately documented; the proposal must include the facts that lead the State (or group of States) to the conclusion that the amendment is necessary. Such amendments may include additions, modifications or deletions. (This procedure does not prevent a State from conducting prior consultation with other States before submitting an amendment proposal to the Regional Office). This proposed amendment must be submitted through the web tool and/or by mail to the Regional Office.

17. If the proposal refers to a modification of the provisions (text) of the "General Regional Requirements", the GREPECAS Secretariat will coordinate it with ICAO Headquarters in order to disseminate it to all the Regional Offices, and coordinate a modification of the all regional plans.

18. If the GREPECAS Secretariat considers that the proposed amendment conflicts with established ICAO policy, or that it raises issues that should be brought to the attention of the Air Navigation Commission, the proposal will be presented, adequately documented, to the Commission. In these cases, the Commission will decide the course that should be given to the proposal.

19. The GREPECAS Secretariat, through the Regional Office, will distribute the proposal, properly documented, with a request for comments to all provider and user States of the region that are considered affected, as well as to user States outside of the region. The region and international organizations that may be invited to attend relevant ICAO meetings and that may be interested in the proposal. Interested States and international organizations must send their comments/agreements/objections through the ANP web platform and/or by mail to the Regional Office. Any comment or objection must be adequately supported by the reasons that justify it.

20. If, in response to the GREPECAS Secretariat's query, no objection to the proposal is filed before a certain date, the proposal must be submitted to the GREPECAS Secretary with a recommendation for approval. The approved amendment must be incorporated into Volume III of the CAR/SAM Regional Air Navigation Plan.

21. If, in response to the GREPECAS Secretariat's query, an objection is raised, and if the objection is upheld after further consultation, the matter will be documented for discussion by GREPECAS and, ultimately, for its formal consideration by the Air Navigation Commission, if it remains unresolved. If the Commission concludes that the amendment is acceptable in its original or another form, feedback will be given to GREPECAS.

22. Proposals for amendments to Volume III of the Regional Plan may also be initiated by the GREPECAS Secretariat, through the Regional Office accredited in that State, provided that the State or States whose planning will be affected have expressed their agreement with the proposal.

23. The Amendment Proposal related to Table … SWOT may be submitted by a State or Group of States with the corresponding analysis that supports the amendment proposal and will be reviewed by the Secretariat with the States before recommending its approval by GREPECAS.

24. The Amendment Proposal related to the Table of Regional Performance Objectives may be submitted by a State or Group of States with the corresponding analysis that supports the amendment proposal. The Secretariat will analyze the proposal with the States before recommending its approval or non-approval by GREPECAS.

25. The Proposal to amend the Table of ASBU and non-ASBU Solutions may be submitted by a State, with the respective analysis that supports the request for the amendment. This should be communicated to all the States of the CAR/SAM regions to become aware of the modifications made by the State. These proposals should be approved ipso facto by GREPECAS.

26. The Proposal to amend the Performance Evaluation Table may be submitted by a State, with the respective analysis that supports the request for the amendment. This should be communicated to all the States of the CAR/SAM regions to become aware of the modifications made by the State. These proposals should be approved ipso facto by GREPECAS.

27. The proposed amendment to Vol. III, referring to the entire cycle of the six steps, involving a State, may be submitted to the GREPECAS Secretariat, with the corresponding analysis that supports the request for the amendment. This should be communicated to all the States of the CAR/SAM regions to become aware of the modifications made by the State. These proposals should be approved ipso facto by GREPECAS.

28. The proposed amendments may be analyzed, and if warranted, be approved, in plenary meetings of GREPECAS or by the fast track method.

29. Amendments to Volume III of the CAR/SAM Regional Air Navigation Plan, which have been approved in accordance with the above procedure, will be published on the ANP web platform at convenient intervals.

APPENDIX D
Amendment to the GREPECAS Procedural Handbook

CAR/SAM REGIONAL PLANNING AND IMPLEMENTATION GROUP (GREPECAS)

1. Terms of Reference (ToR)

1.1 1.1 This Section establishes the Terms of Reference of GREPECAS and its position in ICAO. These guidelines will govern the working arrangements of GREPECAS, including the relationship with States, international organizations, and ICAO specialized Regional Organizations, the Rules of Procedure for holding its meetings and those of its Working Groups and subsidiary bodies;

1.2 Pursuant to ICAO Council Decisions, C-DEC 183/9 dated 18 March 2008, C-DEC 190/4 dated 28 May 2010, and the 217th session, summary record of the sixth meeting of the ICAO Council, 31 May 2019, the terms of reference (ToR) of GREPECAS and the objectives of the Group are as follows:

a) serve as a regional cooperative forum that promotes regional priorities, develops and maintains the Regional Air Navigation Plan (R-ANP CAR/SAM) in its three Volumes, as well as the work program aimed at the adoption of the GANP (Doc 9750) which, at its world technical level, defines the drivers and modules of the Aviation System Block Upgrades (ASBU), as well as its Performance Framework. These activities are aligned with the relevant ICAO provisions;

b) facilitate the development and implementation by States of the air navigation systems and services identified in Doc 8733 - CAR/SAM Regional Air Navigation Plan and Doc 7030 - Regional Supplementary Procedures;

c) monitor and report on the status of implementation by States of air navigation facilities, services, and procedures required in the CAR/SAM Regions, and identify associated difficulties and deficiencies that should be brought to the attention of the Council;

d) facilitate the development and implementation of corrective action plans by States to resolve identified deficiencies, when necessary;

e) identify and report on the regional and emerging air navigation challenges experienced that affect the implementation of ICAO global provisions by States and the measures adopted or recommended to address them effectively;

f) facilitate the development and implementation of regional and national air navigation plans by CAR/SAM States;

g) manage the procedure for amending Volume III of the CAR/SAM Regional Air Navigation Plan as indicated in Appendix H;

h) in accordance with the Global Aviation Safety Plan (GASP), facilitate the performance of any monitoring of the performance of the necessary systems, identify specific deficiencies in the field of air navigation, especially in the context of security, and propose corrective measures, facilitating the development and implementation of action plans by States to resolve identified deficiencies, when necessary; and

i) assist Member States with guidance to implement emerging and complex aviation systems;

j) The ICAO Council, during the review of the Resolutions and Decisions at the 40th session of the ICAO Assembly, decided to align the meeting schedule of the xxx

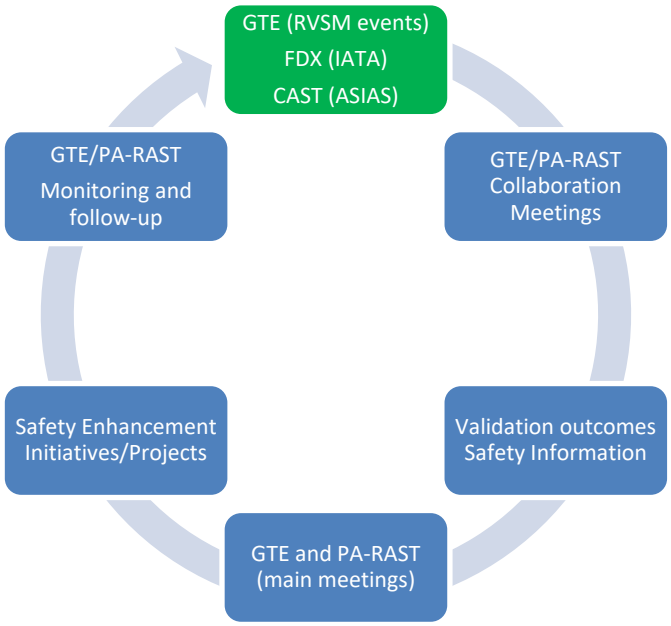
APPENDIX E

1. Introduction

1.1 The cooperation between the Regional Planning and Implementation Groups (PIRGs) and Regional Aviation Safety Groups (RASGs) stems from the ICAO's council resolve for working groups to optimize results and avoid duplication of efforts for States and the secretariat.

1.2 The Joint GREPECAS Scrutiny Group (GTE) and Regional Aviation Safety Team – Pan America (RASG-PA) having been tasked with avoiding duplication of efforts on upper airspace risk mitigation activities between both groups, aims to strengthen the coordination of reported occurrences for the purpose of safety risk mitigation in the North American, Central American and Caribbean (NACC) and South American (SAM) region.

1.3 An overview of the collaboration goal is as seen in the overleaf:



2. Discussion

2.1 In order to formalize the working structure of the group, the PA-RAST was presented with a working paper in its 56th meeting and invited to review Appendix A of this working paper on the Terms of Reference (ToR).

2.2 Furthermore, the PA-RAST was informed that the GTE will also be invited to review the Terms of Reference (ToR) in support of the formalization of the cooperative work.

2.3 Exchange of the LHD events especially TCAS events data with the PA-RAST MAC Group including gross navigation errors in RVSM airspace and outside of the RVSM airspace for the CAR and SAM region are vital in the identification of contributing factors to Mid-air collision.

2.4 Both GTE and PA-RAST meetings had previously agreed on the benefits of sharing information between the PA-RAST and the GTE, and the synergy of both groups positive impact to safety levels in the regions. The meetings agreed that it was necessary for States to consent towards the sharing of State/ANSP data in reference to the event criteria under review.

2.5 To review data from both industry and States, necessary to ensure formalization of the terms of reference to advance the work of the group and work in a protected data-sharing environment.

3. Terms of Reference (ToR)

3.1 The terms of reference of CAR/SAM Planning and Implementation Regional Group (GREPECAS) and Regional Aviation Safety Group – Pan America (RASG-PA) Collaboration Group is aimed at strengthening the coordination of reported occurrences for the purpose of safety risk mitigation in the North American, Central American and Caribbean (NACC) and South American (SAM) region by GREPECAS Scrutiny Group (GTE) and Regional Aviation Safety Team – Pan America (RASG-PA). To this end, the GTE/RAST-PA Joint coordination group will:

a) For the purpose of fostering cooperation, information exchange, sharing of experiences and best practices among States and stakeholders

b) For the purpose of trend analysis, reported occurrences (Large Height Deviation (LHD's), Traffic Collision Avoidance System – Resolution Advisories (TCAS-RA's) within FL245 and above will be review and monitored

c) For the purpose of safety management activities, reviewed and monitored occurrences in the region, will be as directed by the RAST-PA and GTE

d) Identify safety opportunities for improvements and perform a strategic review

e) Review analyzed occurrences in order to proactively monitor trends

f) Work in close co-operation with CARSAMMA, NAARMO, and Industry organizations to compile information necessary for safety analysis in the region

g) Identify and work with aggregate, de-identified information such as the IATA Global Aviation Data Management (GADM) program and FAA Aviation Safety Information Analysis and Sharing (ASIAS) system programs

h) Address other related issues as directed by the RAST-PA and GTE

i) Evaluate the effect of, and provide advice and recommendations to the RAST-PA and GTE

j) Report once per year, outcomes of the joint collaborative work to the RASG-PA and GREPECAS

3.2 Composition

3.2.1 The Joint collaboration group is composed of nominated experts from the RAST-PA and GTE, which will include industry and states.

ICAO NACC and SAM office regional officers on ANS matters will be permanent representatives of the group.

3.2.2 The coordinator of the group will be reviewed and confirmed by group participants every two years

3.2.3 Each group participant shall sign and be subject to the confidentiality agreement in Attachment A.

4. Working Methods and frequency of meetings

4.1 Two in-person meetings conducted in conjunction with a RAST – PA and GTE meetings once per year.

4.2 Meeting will be conducted virtually and in-person to the extent possible.

Attachment A: Confidentiality Agreement

This is not a public meeting, it is by invitation only. Due to the sensitivity of the information presented, by signing below you agree to the following Rules of the Road.

We will hold each participant accountable for the following:

1) The Participant will consider all information to be proprietary property of the presenting organization, since the information being disclosed is highly sensitive.

2) The Participant shall not use any information presented by another participating organization for commercial, competitive, punitive, or litigation purposes.

3) The Participant shall not share or disclose the proprietary information of participants with external parties without the written consent of the owner.

4) The Participant shall not record (audio or video) or take photographs of presentations, discussions or expositions.

5) The Participant shall not discuss or share information from this meeting using social media

6) The Participant agrees to work to implement solutions to safety issues identified during this meeting with the help of the information presented.

7) The Participant shall treat all participants with equality, respecting all viewpoints as worthy of consideration.

8) The Participant agrees that the level and method of information sharing rests with the participants and it is expected that each participant will speak with honesty and candor

9) Anyone not following the Rules of the Road may be asked to leave and may not be allowed to attend any future meetings.

Name of Participant: _____

Signature: _____
Employer or Organization: _____
Title: _____
Address: _____
Phone: _____
Email: _____