*International Civil Aviation Organization*
South American Regional Office
**Twenty Seventh Workshop/Meeting of the SAM Implementation Group SAM (SAM/IG/27) – Regional Project RLA/06/901**
(Lima, Peru, 31 May to 3 June 2022)

SAM/IG/27-WP/4.1
03/06/2022

**Agenda Item 4:** **SAM/IG conclusions and next actions – Plenary**

**a) Summary of sessions**
**b) Review and approval of conclusions**

# ANALYSIS AND SUMMARY OF THE GESEA GROUP AND FORMULATION OF CONCLUSIONS FOR CONSIDERATION BY THE SAM/IG/27 PLENARY

(Presented by the Secretariat)

**SUMMARY**

This working paper presents a summary of the discussions held by GESEA on the first and second day of session, and an extract of the report on the work of the technical subgroups reflected in the working papers submitted to the Meeting. In this regard, conclusions are formulated for consideration by the SAMIG/27 plenary.

**References:**

- SAM/IG/22 final report (Lima, Peru, 19-23 November 2018);
- SAM/IG/23 final report (Lima, Peru, 20-24 May 2019);
- SAM/IG/24 final report (Lima, Peru, 4-8 November 2019).
- SAM/IG/25 final report (Virtual, 2-4 November 2020).
- SAM/IG/26 final report (Virtual, 20-23 September 2021).

| | |
|---|---|
| ***ICAO strategic objectives:*** | *A – Safety*<br>*B – Air navigation capacity and efficiency* |

## 1. Introduction

1.1 In accordance with the agenda agreed by the SAMIG/27 meeting, two days of meetings of the GESEA technical team were held, together with States, the industry and organisations.

1.2 The coordinators and members of the SG1-Airspace Planning, SG2-PANS OPS and SG3-ATFM, sub-groups presented the progress made in their work, new deliverables and formulated draft conclusions to support their next actions for airspace optimisation and the implementation of improvement elements linked to the GANP operational threads. States also presented proposals for improvements to GESEA processes and reported on their progress.

1.3 Working and information papers were submitted by the GESEA and the subgroups, as well as by the States. This material can be found on the Meeting website at:

https://www.icao.int/SAM/Pages/MeetingsDocumentation.aspx?m=2022-RLA06901-SAMIG27&t=1

1.4 The following tables present a summary of the aforementioned papers:

a) WP/2.1 – *Report of activities of GESEA Subgroup* (presented by the Secretariat)
b) WP/2.2 – *Concept of operations for efficiency and capacity in SAM airspace 2022-2026 (CONOPS)* (presented by the Secretariat)
c) WP/2.3 – *Roadmap 2022 – 2026: Performance-based optimization of SAM airspace* (presented by the Secretariat)
d) WP/2.4 – *Opportunity to improve the SAM Region ATS contingency framework plan (MCATS/SAM)* (presented by the Secretariat)
e) WP/2.5 - *Activities of the SG2 /PANS OPS* (presented by the Secretariat)
f) WP/2.7 – *Runway and ATC sector capacity calculation Manual (draft 2.0)* (presented by the Secretariat)
g) WP/2.8 *Progress made in the implementation of the ATFM system in Peru* (presented by Peru)
h) WP/2.9 *Airspace optimization in Brazil* (presented by Brazil)
i) WP/2.10 – *Update on the implementation process of the EDE concept in Brazilian airspace* (presented by Brazil)
j) WP/2.11 – *SISCEAB five-year demand forecast* (presented by Brazil)
k) WP/2.12 – *Use of radar synthesis data in SISCEAB performance monitoring* (presented by Brazil)
l) NE/5.2 - Estandarización de la metodología de trabajo en el proceso de aprobación IFP - *Spanish only* (Prepared por Uruguay)
m) NI/1.5 - Implantación de rutas preferidas por los usuarios (UPR) en las FIRS de Argentina / *Spanish only*. (Prepared by Argentina).
n) NI/1.6 - ARG Plan de cálculo de capacidad de pista y sector ATC 2022 / *Spanish only* (Prepared by Argentina).
o) P/1 - SG3 ATFM Activities. Regional progress made in the implementation. GADHOC-Improvements for BRISA (presented by the Secretariat)
p) P/2 –Transoft Presentation, Air Top tool aplications.

*Note - The correlative number WP/2.6 was not assigned*

## 2. Discussion

***Activities of SG1 - Airspace planning***

*Implementation of strategic direct routing (EDE)*

2.1 The status of implementation of EDE in the SAM Region is shown in **Appendix A** to this working paper. There was progress in many States, but in others the initiative has been suspended, due to the quick growth of air traffic since the end of 2021, especially on domestic flights. It is important to highlight that the world scenario presents high costs for the price of fuels, and the importance of promoting the initiatives linked to the FRTO module of the GANP was emphasized.

2.2 The feasibility of promoting the User preferred routes - UPR initiative was analyzed without affecting the process of implementation of the EDE, additionally in the case of some States that cannot extend the application EDE throughout the scope of their FIRs. It was stressed that the UPRs can produce early benefits as long as the EDE is not implemented in all South American FIRs.

2.3 Argentina presented information on its studies on the implementation of UPR. Brazil presented the improvements of EDE application in large areas of its airspace, generating efficiency benefits to users.

2.4 Thus, it was decided to promote a second stage of studies by the GT EDE to formulate a Regional Guide Manual on the aspects of the FRTO (EDE, UPR, etc.), as well as to facilitate tests and feasibility analysis.

*Operational Concept for the SAM Airspace (EC/SAM CONOPS)*

2.5 The Operational Concept for the Efficiency and Capacity of SAM Airspace (hereinafter EC/SAM CONOPS) was presented to the SAM/IG/26 Meeting (Virtual, 20-23 September 2021), which agreed that the document should be circulated to States for additional feedback. After this process, comments were received from Chile (contributions for editing and writing) and Argentina.

2.6 These comments were analyzed at the GESEA/SG2/3 Meeting (Virtual, 6-8 April 2022), where ANAC Argentina specialists widened the comments on the aforementioned document. The concern that CONOPS generates divergent or overlapping lines of analysis with the Vol III development activities of the ANP CAR SAM was discussed in detail, and the lack of clarity in the scope of CONOPS and its use by States or users was noted.

2.7 As a result of the amendments, the revised version (available in English and Spanish) was presented in **Appendix to WP/2.2**. It was acknowledged that GREPECAS is the competent body to promote regional priorities, as well as to develop and maintain the ANP CAR/SAM Regional Plan in its three volumes.

2.8 In this sense, the CONOPS EC/SAM has the purpose of supporting the studies of the ATM specialists of SAM/IG and GESEA involved in the formulation of Volume III of the aforementioned Plan, facilitating the understanding of the methodology of Doc. 9883 assumed in the GANP.

2.9 For the above, the following proposal for a Conclusion is formulated:

| **CONCLUSION SAM/IG/27-xx Adoption of the SAM Airspace Operational Concept 2022-2026 (EC/SAM CONOPS)** | |
|---|---|
| **That:**<br><br>The States adopt the document SAM Airspace Operational Concept 2022-2026 (EC/SAM CONOPS), prepared with the purpose of supporting the studies of the specialists and ATM planners involved in the formulation of Volume III of the aforementioned Plan, facilitating the understanding of the methodology of Doc. 9883 assumed in the GANP. | **Expected impact:**<br><br>☐ Political / Global<br><br>☐ Inter-regional<br><br>☒ Economic |

| | |
|---|---|
| | ☒ Environmental<br>☒ Technical/Operational |
| **Why**: To harmonize the efforts of SAM States in the implementation of GANP modules and elements. Additionally to support the formulation of Volume III of the CAR/SAM Regional ANP. | |
| **When:** Immediately | **Status:** Adopted by SAM/IG/27 |
| **Who**: ☐ Coordinators ☒ States ☒ ICAO Secretariat ☐ ICAO HQ ☐ Other: Users/industry | |

*Roadmap 2022–2026: Performance-based optimisation of SAM airspace*

2.10 The GESEA/SG1/2 meeting (27-29 April 2021) received the draft developed by the designated working group for its comments to the EC/SAM CONOPS. Based on the comments received, the development of a Roadmap 2022-2026: Performance-based optimisation of SAM airspace, derived from the studies for the aforementioned CONOPS, was discussed.

2.11 The Roadmap was presented during the SAM/IG/26 Meeting (Virtual, 20-23 September 2022) which agreed that the document should be circulated among States for additional feedback.

2.12 After this process, contributions were received from Chile regarding improvements in the drafting, and from Brazil, which observed the tables used to show the progress in the implementation of the PBN in the States, based on data from the ICAO iSTARS platform. These comments were discussed at the GESEA/SG2/3 Meeting (Virtual, 6-8 April 2022) and changes were incorporated into the version (available in English and Spanish) presented in **Appendix to WP/2.3.**

2.13 The abovementioned Roadmap replaces the PBN CONOPS, originally developed in 2016. The Meeting agreed on the implementation dates for the PBN components presented in the document, as well as the supporting metrics to monitor such implementation.

2.14 In view of the above, the following draft conclusion is formulated:

| **CONCLUSION SAM/IG/27-xx Adoption of the Roadmap 2022–2026: Performance-based optimisation of SAM airspace** | |
|---|---|
| **That:**<br><br>The States adopt the Roadmap 2022–2026: Performance-based optimisation of SAM airspace, and taking into account the metrics and deadlines stipulated in the document, review their national plan and further PBN implementation activities. | **Expected impact:**<br>☐ Political / Global<br>☐ Inter-regional<br>☒ Economic<br>☒ Environmental<br>☒ Technical/Operational |

| | |
|---|---|
| **Why**: To continue and harmonize the efforts made by the SAM Region to optimize SAM airspace based on PBN and other optimization elements of airspace. | |
| **When:** Immediately | **Status:** Adopted by SAM/IG/27 |
| **Who**: ☐ Coordinators ☒ States ☒ ICAO Secretariat ☐ ICAO HQ ☐ Other: Users/industry | |

*ATS contingency plans*

2.15 The need to resume the alignment activities of the MCATS with respect to the national Contingency Plans was highlighted and the dates of the events organized for the harmonization between Adjacent States/FIR, that is, SOUTH SAM (September 5 to 9) and NORTH SAM (October 24 to 28, 2022) was highlighted.

2.16 An ad-hoc group has been formed to provide support to this part of the implementation to SAM States, through a sequence of 3 meetings with the teams that allow to observe the progress, identify difficulties or delays in the deliveries and provide support if necessary. The meetings referred to will be via TEAMS at 13 30 UTC on the following dates;

- 5 June 2022
- 9 June 2022
- 25 July 2022

2.17 On the other hand, following the consensus of SAM/IG/26, the ad-hoc group presented the results of its work, aimed at optimizing the ATS - MCATS Contingency Framework Plan, as follows:

a) review the Terms of Reference for the Coordination and Support Team (ECA), after identifying the need to proceed with the actions concerning the notification of a contingency situation of a SAM State and, consequently, those related to the roles to be adopted by each intervening party of said Team, which led to the updating of Appendix E of the MCATS/SAM (see in Annex A of WP/2.4 - *only Spanish*); and

b) develop standardized mechanisms to support actions related to the preparation, coordination and updating of contingency measures to be included in the ATS LEVEL 2 Contingency Plans, which led to the introduction of a new Appendix to the MCATS/SAM: Appendix I (see **Annex B** of WP/2.4 - *only Spanish*).

2.18 The Meeting agreed that the proposal for improvement to MCATS enable the following:

a) Mechanisms for change management in ANS and CNS/ATM systems, that impact on the contingency measures included in the ATS Level 2 Contingency Plans;

b) Mechanisms for amending and/or updating International Letters of Agreement that include contingency measures, also providing for the procedure for approving them; and

c) Criteria on the aspects or contents of contingency measures agreed between two (2) or more adjacent States to be published in the corresponding IPAs.

2.19 Recognizing the work of the ad-hoc group, it was requested to continue the task of integrating the appendices into Amendment No. 1 of the MCATS, as well as the editorial adjustment required elsewhere in the Plan. The Secretariat was then instructed to provide the amended text to SAM States, **no later than July 11, 2022.**

2.20 In view of the above, the following draft conclusion is formulated which supersedes **Conclusion SAM/IG/25-02:**

<table>
<tr><td colspan="2">CONCLUSION SAM/IG/27-xx Adoption of amendment 1 of the Framework Plan for Contingencies ATS of the SAM Region (MCATS / SAM) and alignment of National Plans.</td></tr>
<tr><td>That:<br><br>States adopt the guidelines of the ATS Contingency Framework Plan of the SAM Region, incorporating Amendment 1 covering Appendix E and Appendix I, and complete and publish their national ATS Contingency Plans, in order to having such documentation for the regional events on optimization of ATS coordination and Contingency Plans (SOUTH SAM and NORTH SAM), scheduled for the second half of 2022.</td><td>Expected impact:<br><br>☐ Political / Global<br><br>☒ Inter-regional<br><br>☒ Economic<br><br>☒ Environmental<br><br>☒ Technical/Operational</td></tr>
<tr><td colspan="2">Why: To obtain a harmonized implementation of national ATS Contingency Plans duly agreed with neighboring States. This increases the resilience of ATS services and SAM airspace..</td></tr>
<tr><td>When: No later than 31 July 2022</td><td>Status: Adopted by SAM/IG/27</td></tr>
<tr><td colspan="2">Who: ☒ Coordinators ☒ States ☒ ICAO Secretariat ☐ ICAO HQ ☒ Other: Users/industry</td></tr>
</table>

2.21 Venezuela stressed the importance of also promoting the harmonization of ATS Contingency Plans with the States of the CAR Region. At the same time, the update of the LOA ATS. The Secretariat was commissioned for coordinating, in the short term, interregional activities with the ICAO Office in Mexico.

2.22 It was highlighted that the MCTAS contains in one of its Appendixes the SAM Contingency Plan for volcanic ash, recommending that the States emphasize the attention of response issues in cases of volcanic events.

2.23 IATA stressed that the Contingency Plans take into account the least impact on international area navigation, and apply the maximum flexibility criteria for operations. The harmonization work being carried out in SAM was also supported.

*2022-2023 Regional route optimisation. Implementation of RNAV-5*

2.24 After activities carried out in 2021 by Argentina, Brazil, Chile, Paraguay and Uruguay, in direct coordination via teleconference, as well as the participation of Brazil in the respective AIP publication, the airspace routes of the FIR Resistencia, FIR Asunción, TMA FOZ, and other sectors on the south side of Chile and Argentina have been optimized. To date, there are only 23 conventional Upper Space Regional routes (from the SAM catalog).

2.25 It seemed appropriate to commission this year a set of tasks of implementation RNAV 5 or optimization of routes to GESEA/SG2 - PANS OPS, given that SG1 will have a lot of load of activities. In the FIR Maiquetia is already in progress a joint optimization with FIR Piarco.

*Airspace Planning: Regional Documentation and Training*

2.26 The Meeting informed on the revised dates for the activities that will have the support of the RLA/06/901. The participation of specialists from Brazil and a member of the ICAO PANS OSP Panel, for the elaboration of regional guidance material on airspace planning regulations, was confirmed in a Mission in Lima, in the second week of August 2022. The JOB CARD related to this activity is attached as Appendix C to WP/2.1 (in Spanish only).

2.27 With the material prepared and approved in SAM/IG/28, the Workshop for Airspace Planners will be held in **Lima, from November 7 to 11, 2022**.

***Activities of SG2- PANS OPS***

2.28 It was reported that the GESEA/SG2/3 – PANS PAHO Meeting was held in virtual mode, from April 6 to 8, 2022. The Summary of that Meeting is displayed on the website. The analysis of the PANS OPS matters follows.

*Follow-up to PBN implementation in the SAM Region (Resolution A-37/11) and optimization of TMA spaces. RNAV routes*

2.29 The Meeting agreed that, in the operational context, there are different criteria for the implementation of procedures, noting that, in the Region, the standardized departure routes are complemented by specific operational options of the PANS OPS document, such as omnidirectional exits, PBN arrival sections, as well as merge-point procedures.

2.30 It was highlighted that the conditions of the orography, in States in the Andean area, leads to the implementation of PBN procedures for domestic airports, which are not included in the percentages of the ICAO iSTARS application.

2.31 Consensus was reached to resume Table XLS that was used until 2018 in the SAM/IG to monitor the implementation, with some improvements to simplify its use, in which the summary of the implementation for SAM international airports is presented. It was stressed that the above Table will be for internal use of SAMIG/GESEA bodies, and that it is not intended to replace iSTARS.

2.32 It was agreed that this Table would be prepared to follow up on the Region's PBN Roadmap that has been developed in the SG1 working groups, as explained in paragraph 2.10 above. This XLS Table can be customized as required by each State, for which you can download from the GESEA TEAMS channel, in the link.

https://oaci.sharepoint.com/:x:/r/sites/SAM-CAR-ANS-GESEA/Shared%20Documents/GESEA/SG2%20PANS%20OPS/SEGUIMIENTO%20implant.%20PBN/GESEA%20SG2%20PBN%20progress.xlsx?d=w910ce628a6874dc49e52ae9f47cd4673&csf=1&web=1&e=N89mEn

*Redesign of selected TMA Airspaces based on PBN Planning*

2.33 Included in **Appendix B** of this working paper, Table 2 *"Redesign of TMA Airspaces Selected based on PBN Planning"* of the "Roadmap 2022-2024; Performance-based optimization of SAM airspace", as presented by working paper WP/2.3.

*Implementation of PBN procedures to visual flight runways. Studies on Visual RNAV procedures – RVFP. Analysis of VPT RNAV initiative*

2.34 Updated the PBN Procedures to Visual runways Planning Table, originally developed in SAM/IG/26, which is presented in **Appendix C** to this working paper.

2.35 The Rapporteur of SG2, Diego Gamboa, presented the activities on the proposal of a Circular (in draft) of the ICAO to guide the implementation of procedures with Visual Manouver with prescribed track (VPT), which according to the proposed criteria is an application similar to the PBN procedures to visual runways developed by SG2.

2.36 The work of the FLTOPSP panel was analyzed and the objectives of the aforementioned Circular were indicated, as follows;

- Possibility to standardize criteria in the construction of Visual RNAVs
- Publication of Visual RNAVs for;

  i. Create a new trajectory for efficiency, noise or environmental issues
  ii. To increase utilization of a prescribed path or replace a PPP

2.37 SG2 has organized a list of volunteer specialists to support and feed back the studies on the aforementioned Circular, within a single GT PBN to visual runway, as well as monitor the implementation in our Region. In addition to the States, delegates from IATA, LATAM, AVIANCA, SATENA, and the consultancy FLYGHT7 joined the WG.

2.38 This WG should act as an advisor to States and ANSPs that have consultations on specific cases of implementation, and at the same time monitor the preparation and issuance of the ICAO Circular.

2.39 Thus, it is appropriate to deactivate the task force - GT that was in charge of studying guides for the flight procedures RNAV Visual - RVFP (FAA concept) and, therefore, to cancel the conclusion SAMIG/25-05 that in November 2020 organized said GT.

*Optimization of flight procedures with application of RF segments.*

2.40 The Meeting stressed the importance of the application of RF segments to RNP APCH procedures. Brazil reported that it has ongoing projects to improve the procedures of Fortaleza (SBFZ), Zumbi (SBMO) and Vitoria (SBVT).

*Implementation of SATDIS tool Version 2*

2.41 A second version of the 'SATDIS – SAM RAIM prediction availability service' tool has been purchased through RLA/06/901. It was stressed that SG2 PANS PAHO should collaborate with activities for the dissemination of the use of the web tool in their States. The tool will be delivered in June 2022 to RLA/06/901 and Member States after the testing phase (SAT) and adjustments to the user manual.

*Other PANS-OPS matters*

2.42 Brazil presented the progress made on airspace optimization and design of flight procedures. 100% progress was observed in the implementation of the NBP. The efforts to improve the productivity of the IFPD units affected in the pandemic period were highlighted.

2.43 At the proposal of Uruguay, the Meeting emphasized the need for the bodies of SAM/IG and SRVSOP – LAR to act jointly to improve the guidelines and regulations on the operational safety surveillance of the IFPD units, in addition to promoting the quality requirements within these units. It was identified that, in the last triennium, there may have been a lack of human and material resources in the IFPDs of the Region. The Secretariat was commissioned for coordinating these matters and reporting to States.

***Activities of SG3- ATFM***

2.44 The GESEA/SG3/4 Meeting was held virtually from 25 to 27 April 2022. The summary of this event can be found on the meeting's website. Here's the analysis of the ATFM topics:

*Manual for calculating Runway Capacity and ATC Sector*

2.45 The draft of the Manual for calculating Runway Capacity and SECTOR ATC was developed between August 19 and August 29, 2019, at the SAM Regional Office and was presented to the States, in SAM/IG/24.

2.46 Based on the comments and recommendation to re-circulate the text to obtain opinions, and given the importance of clearly presenting the methodology and the objective of arranging the capacity values, WG 2 - Doc. ATFM SAM was commissioned to review and update the manual.

2.47 The objective was to maintain the robust mathematical model and, at the same time, that the users of the document not only had mathematical aspects, but also explain concepts of capacity and guidelines for the improvement of capacity, both of the runways, and for the efficiency in the provision of ATCs in the work sectors.

2.48 Consequently, version 2.0 of the draft of the Manual was obtained, including:

- General Capacity Considerations
- Capacity Measurement and Calculation Process Preparation Activities
- Runway Capacity Calculation Methodology
- Guidelines for runway Capacity Improvements
- Methodology for Calculating ATC Sectors
    - Workload Fatigue
    - Management in the ATC
    - Definitions for the calculation of ATC Sector Capacity
    - Factors for the determination of Sector Capacity

- Mathematical model for the Calculation of Sector Capacity
- Steps for the collection and calculation of ATC sector capacity
- Optimization of the capacity of the ATC sectors
- Estimated capacity of the ATC sectors Measurement
- Parameters for CTR or ATZ

- Guidelines for improvements in sector capacity
- Improvement through the use of data for analysis and indicators
- A new Appendix F was included, in response to the proposal of several States, which indicates criteria for classifying demand levels.

2.49 The Meeting agreed that the Manual for the Calculation of Runway Capacity and ATC Sector is a key document for the States of the SAM Region to implement a common methodology for the calculation of runway capacity and ATC sectors.

2.50 In view of the above, the following draft conclusion was formulated:

<table>
<tr><td colspan="2">CONCLUSION SAM/IG/27-xx Manual for the Calculation of Runway Capacity and ATC Sector (OPSAM)</td></tr>
<tr><td>That:<br><br>States adopt the Manual for the Calculation of Runway Capacity and ATC Sector, and carry out calculation activities in their airport headquarters and ATS units, recognizing that it is essential to have updated data to provide the ATFM service efficiently</td><td>Expected impact:<br><br>☐ Political / Global<br><br>☐ Inter-regional<br><br>☒ Economic<br><br>☒ Environmental<br><br>☒ Technical/Operational</td></tr>
<tr><td colspan="2">Why: For SAM States to implement a common methodology for the calculation of runway capacity and ATC sectors. To raise the quality of demand/capacity balance information that is analyzed and shared in the OPSAM regional dashboard and/or national dashboards</td></tr>
<tr><td>When: Immediately</td><td>Status: Adopted by SAM/IG/2</td></tr>
<tr><td colspan="2">Who: ☐ Coordinators ☒ States ☒ ICAO Secretariat ☐ ICAO HQ ☐ Other: Users/industry</td></tr>
</table>

2.51 Argentina presented its national plan for the calculation of runway capacity and atc sector for the current year, in charge of the supplier EANA. To date, there is a 35% advance in the calculation tasks for the programmed runways.

*Improvements to the BRISA sessions for OPSAM*

2.52 BRISA sessions are deliverables included in the ATFM Operations Plan (OPSAM). The progress made by the GADHOC – ATFM briefing, with the Office of the Rapporteur of Chile, was presented, aimed at identifying improvements for the BRISA, as commissioned by SG3. Options are being analyzed to obtain the following Benefits;

- Uniformity in the delivery of information.
- facilitates the host State to properly organize pre-tactical and strategic/post-operational teleconference.
- facilitates traceability and availability of the data delivered/reported.
- ensures the transmission of data in the event of Internet failures.
- resource that can be printed by the states or ATFM teams of the states that consider it pertinent.
- reduces teleconferencing times and makes the exposure of information more efficient.
- facilitates industry participation in these teleconferences.

2.53 The implementation of these improvements is important to strengthen the CDM, expand the quality of the BRISA sessions, extend the participation of airlines and users, and disseminate pre-tactical, strategic and post-operations information.

*Other ATFM matters*

2.54 Peru presented the status of the ATFM service; and progress in data and indicator management. To date, eight KPIs included within the GANP concepts are being managed. Likewise, the provider CORPAC has implemented a dashboard on air traffic demands and operations management.

2.55 Brazil presented its progress in the studies on five-year demand forecasts, in charge of its SISCEAB unit. The first forecast results, even in periods of pandemic, have been satisfactory, which represents an important element of planning for the State. Initiatives were presented to use synthetic radar data for the development of GANP KPIs 08 and 05.

***Work Plan 2022 supported by RLA/06/901***

2.56 The Work Plan approved in SAM/IG/26 was reviewed, and the dates of these events were confirmed, according to the review of the GESEA Plenary in coordination with RLA/06/901. The reactivation of face-to-face activities in the Regional Office from July 2022 is taken into account. See **Appendix D**.

2.57 The support of the RLA/06/901 project was confirmed to have two facilitators in the ATFM Workshop/Meetings this year. It was indicated that the face-to-face events will have a virtual interface (hybrid), however, the importance of the presence in the Regional Office of the participants was stressed given the technical nature of the subjects, and the use of aids and classroom work in the Workshops.

## 3. Suggested action

3.1 The Meeting is invited to:

a) Take note of the activities and deliverables provided by the GESEA subgroups; and

b) in case a consensus is reached, approve the conclusions formulated in this paper.

**APPENDIX A**

**EDE implementation in the SAM Region**

- **Argentina. -** The EDE has not yet been implemented. The TMA Baires is in the process of being implemented, which is expected to affect the airspace of several FIRs neighboring Ezeiza, therefore, the issue of EDE implementation has not yet been defined.

- **Bolivia. -** The EDE has not yet been implemented. Progress in the implementation of the ATS surveillance service in the FIR La Paz was reviewed, and it is hoped that the coverage of pilot-controller VHF communications will also be extended, and it is foreseen that with the fulfillment of these technical conditions the EDE can be implemented.

- **Brazil. -** The EDE is implemented in all the FIRs of Recife and Amazonia and in most of the RIS Brazilia and Curitiba, as published in the AIP Brazil (ENR 1.9 AIR TRAFFIC FLOW MANAGEMENT AND AIRSPACE MANAGEMENT).

- **Chile. –** EDE implemented in a portion of the ocean space, according to AIC NR 19 - 28 OCT 2020.

- **Colombia. –** The EDE is not implemented. Sup AIP A64/C86, 04 NOV 2020, has been cancelled, taking into account the increase in the volume of air traffic in the Barranquilla and Bogotá FIR.

- **Ecuador.** – EDE implemented in the entirety of the Guayaquil FIR, as published in AIP as part of ENR 1.10.

- **Panama. –** The EDE has not yet been implemented. However, it was indicated that there is a tactical application for direct flight for a long time. The applicable conditions have been published in AIP ENR 1.8-1.

- **Peru. –** EDE implemented in the upper oceanic airspace of the FIR Lima, through Supplement AIP 01/21, as of June 1, 2021 In a first stage, the entry and / or exit to / from the EDE space of the FIR Lima must be done through travel points published in the AIP Peru.

- **Uruguay. -** The EDE is not implemented. It was stated that all SID/STAR procedures and ATS routes within FIR Montevideo have a direct and very efficient configuration. The option of publishing specific information in AIP was analyzed, in a way that facilitates the knowledge of the airlines for the presentation of flight plans with origin in Montevideo, which could access the application of EDE in the neighboring FIR spaces. In addition, there will possibly be more information that will be subject to the implementation process of the Baires TMA, which is expected to affect the airspace of the MONTEVIDEO FIR.

- **Venezuela. –**The EDE was implemented in most of the Maiquetia FIR through sup AIP C03-A03/21 on the AIRAC date of May 2021.

**APPENDIX B**

| **Redesign of selected TMA Airspaces based on PBN Planning**<br>*Updated during GESEA SG2/3 April 2022 | | | |
|---|---|---|---|
| **State** | | | **Implementation** |
| *Argentina | 1. Comodoro Rivadavia | | Implemented |
| | 2. Bahía Blanca | | |
| | 3. Mendoza | | |
| | 4. Tucumán | | |
| | 5. Rosario | | |
| | 6. Bariloche | | |
| | 7. Resistencia Corrientes | | |
| | 8. Jujuy | | |
| | 9. Esquel | | |
| | 10. Córdoba | | August 2022 |
| | 11. La Rioja | | November 2022 |
| | 12. Termas de Río Hondo | | November 2022 |
| | 13. Chapelco | | November 2022 |
| | 14. Paraná Sauce Viejo | | November 2022 |
| | 15. Posadas | | November 2022 – To be coordinated |
| | 16. Ushuaia/Rio Grande | | November 2022 – To be coordinated |
| | 17. BAIRES FUTURO | | 2023 |
| *Bolivia | 18. Cochabamba | | Review of design Phase |
| | 19. La Paz | | Implemented March 2022 |
| | 20. Santa Cruz | | Design Phase |
| *Brazil | 21. Brazilia | | Implemented |
| | 22. Belo Horizonte | | |
| | 23. São Paulo (partial changes) | | |
| | 24. Salvador | | |
| | 25. Manaus | | |
| | (PBN SUL) | 26. Curitiba | Implemented |
| | | 27. Florianópolis | |
| | | 28. Joinville | |
| | | 29. Navegantes | |
| | | 30. Porto Alegre | |

| **Redesign of selected TMA Airspaces based on PBN Planning**<br><br>*Updated during GESEA SG2/3 April 2022 | | |
|---|---|---|
| **State** | | **Implementation** |
| | 31. São Paulo<br>32. (partial changes)<br>33. Rede de rota FIR CW | |
| | 34. São Paulo (TMA-SP Neo) | Implemented (May 2021) |
| | 35. Fortaleza, Natal, João Pessoa, Recife | Nov 2022 |
| | 36. Campo Grande | TBD |
| *Chile | 37. Santiago (Sur)<br>38. Route network FIR Santiago | Implemented |
| *Colombia | 39. Bogotá | Implemented |
| | 40. Medellín | Dic 2023 advance 40% |
| | 41. Pereira | Dic 2025 advance 50% |
| | 42. Cali | Dic 2025 |
| | 43. Cúcuta | Dic 2024 |
| | 44. Bucaramanga | Dic 2024 advance 50% |
| | 45. Barranquilla | Estimated Jul 2026 |
| | 46. San Andrés | Estimated Jul 2026 |
| *Ecuador | 47. Guayaquil<br>48. Manta<br>49. Quito<br>50. Galápagos | Implemented |
| Guyana | 51. Georgetown | February 2020 |
| *Panamá | 52. Panamá | *Pending.* |
| *Paraguay | 53. Asunción | Implemented |
| **Perú** | 54. Arequipa | First semester 2019 |
| | 55. Cusco | Implemented |
| | 56. Juliaca | Second semester 2019 |
| | 57. Puerto Maldonado | Second semester 2019 |
| *Suriname | 58. Paramaribo | Implemented |
| **Uruguay** | 59. Carrasco y Laguna del Sauce | Second semester 2020 |
| *Venezuela | 60. Maiquetía | Implemented |
| | 61. Isla Margarita | Implemented |
| | 62. Maracaibo | Second semester 2022 |

**APPENDIX C**

**PBN procedures to visual runways - Projects and implementation**

*Original version SAM/IG/27 September 2021*

| State | Projects | Notes |
|---|---|---|
| Argentina | SAWH- Ushuaia<br>SAZY –San Martin<br>SAVE – Esquel<br><br>Updated om SG2/3 (April 2022):<br>Foreseen for 2022<br>SARP - Posadas | |
| Bolivia | SLTJ – Tarija<br>SLCH- Cochabamba<br>SLLP – La Paz * | *PBN a RWY 28, foreseen to be implemented in March 2022 |
| Brazil | SBIL –Ilheus *<br>SBSV –Salvador*<br>SBAG – Angra dos Reis*<br><br>SBCH – Chapecó<br>SBTE - Teresina<br>SWPI – Parintins<br>SBTV- Terravista<br>SWLC- Rio Verde<br>SBUG- Uruguayana<br>SBUF- Paulo Alfonso<br>SBTG- Tres Lagoas<br>SNBR- Barreiras<br>SWGN – Araguaina<br><br>Updated om SG2/3 (April 2022):<br>Impemented<br>SBJH – Sao Paulo / Catarina<br>SBGP Goiania | *Implemented June 2021<br><br>54 more letters are planned by 2023 |
| Chile | --- | It applies its own regulation to implement CAT A and B aircraft. The application will be studied in SCAR - Arica RWY20 |
| Colombia | SKPV- Providencia<br>SKTL –Tolú<br>SKGP – Guapi* | * In force since 17 June 2021 |
| Ecuador | --- | * Application will be assessed for SEQM – Quito International |

| State | Projects | Notes |
|---|---|---|
| Paraguay | --- | |
| Panama | MPMG – Marcos Gelabert | |
| Peru | Arequipa - RWY 28 VISUAL<br>RNP RWY28 (AR) – LATAM (tailored) | Implemented 2014 |
| | Cajamarca – RWY 34 VISUAL<br>RNP RWY34 (AR) – AIP PERÚ | Implemented 2010 |
| | Chiclayo – RWY19L VISUAL (calle de rodaje empleada como pista) RNP RWY19L (AR) – SUP AIP PERÚ | Implemented 2021 |
| | Jaen – RWY 12 VISUAL<br>RNP RWY34 (AR) – LATAM (tailored) | Implemented 2016 |
| | RNP RWY16 (AR) – LATAM (tailored) | Implemented 2016 |
| | RNP RWY34 (LNAV/VNAV) – VIVA AIR (tailored) | Implemented 2018 |
| | Jauja – RWY31 VISUAL<br>RNP RWY31 (AR) – LATAM (tailored) | Implemented 2017 |
| | Juliaca – RWY 12 VISUAL<br>RNP RWY12 (AR) – LATAM (tailored) | Implemented 2010 |
| | RNP RWY12 (AR) – VIVA AIR (tailored) | Implemented 2019 |
| | RNP RWY12 (AR) – SKY AIRLINES (tailored) | Implemented 2020 |
| | Piura – RWY01 VISUAL<br>RNP RWY01 (LNAV/VNAV) – AIP PERÚ | Implemented 2012 |
| | Pucallpa – RWY20 VISUAL<br>RNP RWY20 (LNAV/VNAV) – LATAM (tailored) | Implemented 2012 |

| State | Projects | Notes |
|---|---|---|
| | Tacna – RWY 20 VISUAL<br>RNP RWY20 (AR) – LATAM (tailored)<br><br>Trujillo – RWY20 VISUAL<br>RNP RWY20 (AR) – AIP PERÚ<br><br>Tumbes – RWY 14 VISUAL<br>RNP RWY14 (AR) – LATAM (tailored) | Implemented 2013<br><br>Implemented 2013<br><br>Implemented 2012 |
| Uruguay | --- | |
| Venezuela | SVRS – Los Roques | |

**APPENDIX D**

**Work Plan 2022 – under support of RLA/99/901**

** In italics activities concluded*

| Activities | Objectives / Deliverables | Tentative Dates |
|---|---|---|
| *Plenary Meeting GESEA* | • *Organization of the implementation of concepts according to deliverables of 2021 Subgroups.*<br>• *Review and adjustments of the PTA.*<br>• *Monitoring of activities.* | *Virtual, 9 to 11 March* |
| *GESEA SG1 Meeting Airspace Planning* | • *Continuation of scheduled studies.*<br>• *Monitoring of implementation and optimization activities* | *Virtual, 30 March to 1 April* |
| *GESEA SG2 Meeting PANS OPS* | • *Continuation of scheduled studies.*<br>• *Monitoring of activities for the implementation of operational elements of the APTA module and optimization of TMA.* | *Virtual, 6 to 8 April* |
| *GESEA SG3 Meeting ATFM* | • *Continuation of scheduled studies.*<br>• *Monitoring of implementation and optimization activities of the ATFM service.* | *Virtual, 25 to 27 April* |
| *SAMIG/27*<br>*Air navigation implementation priorities considered in GREPECAS programs, VOL III Regional ANP and Regional initiatives.* | • *Continue with the activities of implementation, execution and optimization under the GESEA studies.*<br>• *Sign the latest LOA ATS and Harmonize contingency plans*<br>• *Action plans derived from the CONOPS South American airspace efficiency - capacity and elements of VOL III of the ANP.* | *Lima, 30 May t0 3 June* |
| Workshop/Meeting on data management and ATFM regional indicators | • Standardization of ATFM data.<br>• Analysis of demand forecasts and indicators.<br>• Power BI application for Regional and national analysis. | Mission 2 facilitators<br><br>Lima, 18 to 22 July |
| Workshop/Meeting on Methodology for ATFM Capactiy Calculation | • Application of the updated Calculation Manual.<br>• Planning activities for measurement (or update) of capacity in the Region. | Mission 2 facilitators<br><br>Lima, 22 to 26 August |

| | | |
|---|---|---|
| 1st Workshop/Meeting on optimization of ATS coordination and SAM/ATS/ATFM Contingency Plans - SAM SUR. | • Regional harmonization based on MCATS<br>• Update operational letters of agreement between States, including ATS Contingency Plans and including ATFM. Subscription of Agreements.<br>• Promote the implementation of the minimum separation of 20 NM in continental space. | Lima, 5 to 9 September |
| Preparation of regional guide material on airspace planning regulations. | • Material on the formulation of projects for airspace implementation/optimization of airspace. | Mision Lima, 8 to 19 August |
| SAM/IG/28<br>Air navigation implementation priorities considered in GREPECAS programs, VOL III Regional ANP and Regional initiatives. | • Follow-up<br>• Continue with the activities of implementation, execution and optimization under the GESEA studies.<br>• Sign the latest LOA ATS and Harmonize contingency plans<br>• Action plans derived from the CONOPS South American airspace efficiency - capacity and elements of VOL III of the ANP. | 3 to 7 October |
| Workshop for Airspace Planners. | • At least one planning specialist per Member State trained in airspace design and organization techniques - ASM | Mission: Lima, 31 October to 4 November<br>Workshop: Lima, 7 to 11 November |
| 2nd Workshop/Meeting on optimization of ATS coordination and SAM/ ATS/ATFM Contingency Plans - SAM NORTH. | • Regional harmonization based on MCATS<br>• Update operational letters of agreement between States, including ATS Contingency Plans and including ATFM. Subscription of Agreements.<br>• Promote the implementation of the minimum separation of 20 NM in continental space. | Lima, 24 to 28 October |
| Workshop/Meeting on Flexible Use of Airspace (FUA) and Civil - Military Cooperation in the ATM. | • Analysis for the implementation of the operational element FRTO-B0/2.<br>• Dissemination and analysis of the new ICAO document 10088. | Lima, 28 November to 2 December |

— END —