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HISTORICAL

ii.1 Place and Date of the Meeting

The CAR/SAM Planning and Implementation Regional Group (GREPECAS) Twenty Fourth Scrutiny Working Group Meeting (GTE/24) was held at the ICAO North America, Central America and Caribbean (NACC) Regional Office in Mexico City, Mexico, from 5 to 9 August 2024.

ii.2 Opening Ceremony

Mr. Julio Siu, Deputy Regional Director of the North American, Central American and Caribbean (NACC) Office of the International Civil Aviation Organization (ICAO) provided opening remarks, welcomed the participants and officially opened the meeting.

ii.3 Officers of the Meeting

The GTE/24 Meeting was held with the participation of the Scrutiny Work Group Rapporteur Mrs. Diana Luque. Mrs. Luque chaired the meeting plenary. Mr. Eddian Méndez, Regional Office, Air Traffic Management and Search and Rescue of the ICAO NACC Regional Office served as Secretary of the Meeting, assisted by Mr. Roberto Sosa, Regional Office, Air Traffic Management and Search and Rescue from the ICAO South American (SAM) Regional Office.

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 09:00 to 15:30 hours daily with adequate breaks. Ad hoc Groups were created during the Meeting to do further work on specific items of the Agenda.

ii.6 Agenda

Agenda Item 1: Adoption of the Provisional Agenda and Work Schedule

Agenda Item 2: Review of the Previous CARSAMMA and Scrutiny Group Meetings Conclusions and Recommendations

2.1 Review of previous conclusions
2.2 Review of previous recommendations

Agenda Item 3: Review of the Results of Large Height Deviation (LHD) and the Collision Risk Model (CRM) Analysis

3.1 Indicator data on points of greatest occurrence of LHD events.
3.2 Actions taken for the enhancement of LHD event data capture and for the improvement of Reduced Vertical Separation Minimum (RVSM) status capture by Registration States or Operator
3.3 Results of the assessment project for safety in RVSM airspace for the CAR and SAM Regions
3.4 Identification of trends
3.5 Lessons learned by CAR/SAM States to reduce the number of LHDs.
3.6 Report on the progress made by States on LHD management.
3.7 Report on the Flight plan audit
3.8 Presentation of the CRM 2023 and an analysis of the contributing causes of this risk in Flight Information Regions (FIRs) that presented a value above the Target Level of Safety (TLS) Collision Risk Assessment (CRA).

Agenda Item 4: Activities and Tasks to be Reported to GREPECAS

4.1 Update of the GTE Terms of Reference (ToRs)
4.2 Review of tasks to be reported to GREPECAS
4.3 GTE/Pan America Regional Aviation Safety Team (PA-RAST) cooperation.
4.4 CARSAMMA/GTE and the North American Approvals Registry and Monitoring Organization (NAARMO) cooperation

Agenda Item 5: Other Business

ii.7 Attendance

The Meeting was attended by 13 States/Territories from the NAM/CAR/SAM Regions and 3 International Organizations, totalling 46 delegates as indicated in the list of participants.

ii.8 Conclusions and Decisions

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.

Number	Title	Page
*/1	***The list of conclusions/decisions will be included in the final version of the Report***	*-1
*/2		*-1
*/3		*-1

ii.9 List of Working and Information Papers and Presentations

Refer to the Meeting web page:
https://www.icao.int/NACC/Pages/meetings-2024-gte24.aspx
The final list of documentation will be included in the final version of the Report.

LIST OF PARTICIPANTS

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1. Clovis Fernándes Junior

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2. Juan Álvarez

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3. Atul Kumar (V)
4. Kevin Banh (V)

COLOMBIA

5. Diana Luque

CUBA

6. Roxana Bernal
7. Dora Ricardo

CURAÇAO/CURAZAO

8. Michael Celestijn
9. Inberto Vos

DOMINICAN REPUBLIC/
REPÚBLICA DOMINICANA

10. Luis Cabral
11. Francis Vásquez

GUYANA

12. Symertha Bridgewater-Moore

JAMAICA

13. Yannick Francis

MEXICO/MÉXICO

14. Martín Reza Castillo
15. Jorge Alberto Ferrer
16. Christian Ramírez
17. Álvaro Pérez (V)
18. Jorge Caballero (V)
19. Benjamín Estrella
20. Sofía Manzo
21. Andrés Román
22. Antonio Barrientos

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23. Aníbal González

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TRINIDAD Y TABAGO

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25. Anton Ramdass

UNITED STATES/
ESTADOS UNIDOS

26. Angel Luna
27. Philip McKinney
28. Jennifer Kileo
29. Theresa Brewer (V)
30. Susan Oberhofer (V)
31. Marie Gale (V)
32. Neal Suchy (V)
33. Monicarol Nickelson (V)
34. Douglas DiFrancesco (V)
35. Steve Smoot (V)
36. José Pérez
37. Christine Falk
38. Julian Babel
39. Tracy Sivley
40. Jennifer Leblanc (V)

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42. Renata Gonçalves
43. Virginia Mignoni

COCESNA

44. Henry Reyes
45. René Martínez

IATA

46. Floyd Abang

ICAO/OACI

47. Eddian Méndez
48. Roberto Sosa
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Agenda Item 1 Adoption of the Provisional Agenda and Work Schedule

1.1 The Secretariat presented WP/01 and invited the Meeting to approve the Provisional Agenda and Schedule. The Meeting approved the Agenda and Schedule as presented.

Agenda Item 2: Review of the Previous CARSAMMA and Scrutiny Group Meetings Conclusions and Recommendations

2.1
The Secretariat presented WP/02 for the review of previous GTE Conclusions/Decisions and recommend ations.

2.2 The Meeting reviewed each of the Conclusions. The results of the review were as follows:

- Conclusion GTE/16-4 was updated.
- Conclusion GTE/18-2 was updated to specify responsibilities.
- Conclusion GTE/18-3 was terminated, the GTE considered that at this time a performance measurement cannot be carried out.
- Conclusion GTE/18-4 was updated to specify responsibilities, clarify actions, and requested to be included in the report to the GREPECAS.
- Conclusion GTE/19-02 was updated, to specify the CARSAMMA, States and the Secretariat as responsible. The Meeting requested the CARSAMMA, with the support of the Secretariat, to organize a PBCS briefing.
- Conclusion GTE/22/02 was completed.
- Conclusion GTE/22/03 was updated to specify responsibilities, clarify actions.
- Conclusion GTE/22/04 was completed.

2.3 Brazil presented IP/05 (in Spanish only) to report the measures adopted to comply with the Conclusions GTE/16-4 and GTE/18-2 still valid in the final report of the GTE/23 Meeting.

2.4 In the Appendix to Agenda Item 2 the status and follow-up comments for each Conclusion are shown, based on the review carried out by the Secretariat and representatives of States and International Organizations.

2.5 Following the review of this Agenda Item, the following decision was adopted:

DRAFT CONCLUSION **GTE/24/01** **PBCS Briefing for CAR/SAM CAAs**	
What: To promote and support understanding of aircraft and operator requirements and certification for PBCS: a) The CARSAMMA, with the support of the Secretariat, organize and deliver a PBCS briefing for CAR/SAM States and International Organizations. b) The secretariat will contact CAR/SAM CAAs to promote the PBCS briefing c) The secretariat will contact other interested parties to promote the PBCS briefing	**Expected impact:** ☐ Political / Global ☒ Inter-regional ☐ Economic ☐ Environmental ☒ Operational/Technical
Why:	

To support compliance with PBCS requirements		
When:	Before GTE/25	**Status:** ☒ Valid / ☐ Superseded / ☐ Completed
Who:	☒ States ☒ ICAO ☒ Other:	CARSAMMA

REVIEW OF PREVIOUS CARSAMMA AND SCRUTINY GROUP MEETING CONCLUSIONS AND RECOMMENDATIONS

Conclusion	Title	Text	Responsible of action	Completion date	Deliverable	Status (valid, completed or superseded)
Conclusion GTE/16-4	**URGENT ACTIONS TO IMPROVE FLIGHT PLAN PROCESSING AND COORDINATION IN THE CAR/SAM REGIONS**	That, States and International Organizations within the CAR/SAM Regions urgently implement measures to ensure the proper application of established standards for the expeditious processing and coordination of flight plans, in accordance with ICAO provisions.	States and ANSP			**VALID (Updated in GTE/24)**
Conclusion GTE/18-2	**REDUCTION OF CODE E LHD EVENTS**	That considering that in the classification of LHD events, the trend in code E events represents 95.03 % of the total events; and that this behaviour has been maintained during the last three years, identifying several points in the CAR/SAM Regions where the reduction in the number of events has been low. Include in the GTE work programme the following actions: a) the States of the CAR/SAM Regions develop the necessary strategies for the reduction of Code E events based on the information provided by CARSAMMA and NAARMO, including the necessary training for air traffic controllers, the improvement of	a) States; b) ICAO; and c) States			**VALID (Updated GTE/24)**

Conclusion	Title	Text	Responsible of action	Completion date	Deliverable	Status (valid, completed or superseded)
		the Communications, Navigation and Surveillance (CNS) infrastructure, including the exchange of radar data and the improvement of ATS communications among the involved FIRs among other activities; b) ICAO promotes bilateral and multilateral meetings to address specific issues between involved FIRs, especially at the border of the CAR and SAM Regions; and c) CAR/SAM States notify in the GTE meetings the results of these actions for the reduction of Code E events.				
Conclusion GTE/18-3	**AIR TRAFFIC SERVICES REGIONAL PERFORMANCE MEASUREMENT**	That considering that the collection of safety information, developed for the functioning of CARSAMMA can contribute to improving the regional safety performance measurement in the provision of ATS in the CAR/SAM Regions: the GTE Rapporteur and the Secretariat carry out an analysis on the extension of the GTE TORs, to consider the evaluation of regional safety performance for the provision				**terminated**

Conclusion	Title	Text	Responsible of action	Completion date	Deliverable	Status (valid, completed or superseded)
		of ATS in the upper airspace in the CAR/SAM Regions, focusing on events related to the nature of the GTE work; the results of this analysis shall be presented in the GTE/19 for the consideration of the GTE.				
Conclusion GTE/18-4	**IMPLEMENTATION OF A STRATEGY TO REVIEW RISK ASSOCIATED WITH MID-AIR-COLLISION BETWEEN THE GTE AND RASG- PA**	That, considering the benefits on the synergy between the GTE and the PA-RAST groups on safety hotspots in the identification of risk to ensure duplication of efforts does not exist, and that recommendations for improvements are aligned are of utmost importance: a) the GTE promote the information exchange of the LHD events, especially TCAS-RA events with the PA-RAST MAC Group, to improve the identification of contributing factors to Mid-air collision; b) the GTE establish an analysis mechanism between the GTE and PA-RAST to provide CAR/SAM States with safety intelligence for the decision-making process to help reduce LHDs events and improve the safety	a) GTE; b) GTE; and c) Secretariat.			**VALID (updated in GTE/24)**

Conclusion	Title	Text	Responsible of action	Completion date	Deliverable	Status (valid, completed or superseded)
		performance in the RVSM airspace of the CAR/SAM Regions. This analysis should include the possibility of performing a strategic review of safety hotspots in the upper airspace for mid-air collision risk with the PA-RAST MAC team; and c) the Secretariat will report in the GTE meetings, the results obtained from this cooperation mechanism.				
GTE/19-02	**AIRWORTHINESS/RVSM/PBCS APPROVAL REGISTRY**	Taking into account that States are responsible for ensuring that all aircraft under their registry, and for which a PBCS approval request has been submitted, meet all the required criteria; and also considering that it is essential to establish an aircraft PBCS registry in the CAR/SAM Regions for the global monitoring system of these capabilities, the following has been agreed upon: a) CARSAMMA establish the appropriate mechanisms for the creation of the PBCS data base; and, b) The ICAO Regional Offices inform CAR/SAM States of the PBCS reporting	CARSAMMA States Secretariat			**VALID (updated in GTE/24)**

Conclusion	Title	Text	Responsible of action	Completion date	Deliverable	Status (valid, completed or superseded)
		mechanism for aircraft registered in their respective States. c) CARSAMMA, with the support of the Secretariat, will organize a PBCS briefing to promote and support the understanding of aircraft and operator requirements and certification for PBCS.				
GTE/22/02	**IMPROVED COORDINATION BETWEEN STATES´S AND INTERNATIONAL ORGANIZATIONS POINTS OF CONTACT AND CARSAMMA**	That, taking into consideration the need to improve the analysis of data related to LHD events that are reported to the CARSAMMA: The GTE amend its terms of reference and the manual of contact points accredited to the CARSAMMA to specify the validation period with the adjacent control centres for the LHDs received before being sent to CARSAMMA by the GTE/23 Meeting.	States CARSAMMA	To report during GTE/23	Coordination among States Amendment to the term of reference	**COMPLETED**
GTE/22/03	**VALIDATION AND SHARING OF LHD DATA FOR AIRSPACES OF THE CAR REGION CONTIGUOUS TO THE UNITED STATES**	That, in order to ensure validation and adequate coordination for LHD events in the CAR Region occurred in the TCPs with United States: a) The Points of Contact that receive notification of possible LHD events, which occurred in the TCPs with the ATS facilities of United	a) States; b) States; and c) GTE.	To report during GTE/23	Coordination among States Amendment to the term of reference	**VALID (updated GTE/24)**

Conclusion	Title	Text	Responsible of action	Completion date	Deliverable	Status (valid, completed or superseded)
		States, take actions to validate such events by sending the notification to the facilities ATS points of contact and to NAARMO; b) After the validation actions have been carried out, the LHD information shall be sent to NAARMO and CARSAMMA. Then, the RMAs will coordinate the LHDs among themselves; and c) The GTE amend its terms of reference and the manual of contact points accredited to the CARSAMMA to include guidelines for validation of LHD events occurred in the TCPs with United States by the GTE/23 meeting.				
GTE/22/04	**SUPPORT FOR GREPECAS/RASG-PA COLLABORATION**	That, In order to strengthen the collaboration between GREPECAS and RASG-PA, promoting the exchange of information that supports the mitigation of safety events identified in the CAR/SAM Regions a) GTE endorse the adoption of the Terms of Reference for the collaboration between the GREPECAS and the RASGPA as presented in	Secretariat Rapporteur	To report during GTE/23 To report during GREPECAS/ 20	Amendment of term of reference	**COMPLETED**

Conclusion	Title	Text	Responsible of action	Completion date	Deliverable	Status (valid, completed or superseded)
		the Appendix of GTE/22 — WP/10; and b) The rapporteur of the GTE inform GREPECAS/20 meeting of the favourable opinion on the aforementioned terms of reference.				

— END —

Agenda Item 3: Review of the Results of Large Height Deviation (LHD) and the Collision Risk Model (CRM) Analysis

3.1 With IP/02, supported by P/08, CARSAMMA presented a summary of the calculation of vertical collision risk in the CAR/SAM Regions in 2023 using the CRM methodology. The IP included an analysis of the CAR/SAM FIRs that exceeded the target level of safety (TLS).

3.2 The CAR/SAM FIRs that exceeded the TLS are listed below, with a brief description of the main factors that increase the risk of vertical collision:

- Port au Prince
  - Attention should be paid to the number of "NON RVSM APPROVED" aircraft flying over this FIR.
  - The transfer of air traffic control in a limited geographic and temporal airspace space requires timely and more precise coordination.
  - More care should be taken when completing the F0 form, avoiding excessive data loss during data cleaning.
- La Paz
  - Attention should be paid to the number of "NON RVSM APPROVED" aircraft flying over this FIR.
  - This FIR has a long LHD duration, which increases the risk of collision.
  - Since this FIR covers a section of the Andes Mountains and may be subject to the effects of orographic flow, mora attention should be paid when accepting air traffic from adjacent FIRs (flight level may change).
- Guayaquil
  - Attention should be paid to the number of "NON RVSM APPROVED" aircraft flying over this FIR.
  - Increased caution is recommended when accepting the transfer of air traffic from adjacent FIRs, along with the possibility of changes in the authorized level without prior notice by the crew due to the instantaneous effects of orographic flows on their geographic location.
- Curacao FIR
  - Attention should be paid to the number of "NON RVSM APPROVED" aircraft flying over this FIR.
  - CARSAMMA recommended to pay more attention when accepting/transferring air traffic control, to return the risk to an acceptable level.
- Panamá
  - Regarding the air movement received by CARSAMMA, it was noted that the FIR RVSM movement data file was separated into 30 daily spreadsheets, different from those requested.
  - Attention should be paid to the number of "NON RVSM APPROVED" aircraft flying over this FIR.
  - Due to the high volume of air traffic and the absence of losses during the clearance of air movements, it caused a "dilution" of LHD occurrences, which kept the risk above and close to the TLS.

- CARSAMMA recommended to pay more attention when accepting/transferring air traffic control, to return the risk to an acceptable level.

- Santo Domingo
  - Regarding the air traffic movement received, 301 routes are direct, i.e. without airways included in the AIP.
  - The LHD time on a two-way and counter-directional airway was 33 min (high).
  - Attention should be paid to the number of "NON RVSM APPROVED" aircraft flying over this FIR.
  - This FIR is located between routes with a high volume of traffic, and its geographic extent is relatively small, leaving little time to receive messages and make decisions.
  - CARSAMMA recommended to pay more attention when accepting/transferring air traffic control, to return the risk to an acceptable level.

3.3 CARSAMMA presented IP/03 with of the Large Height Deviation (LHD) reports received by CARSAMMA, and the analysis with the SMS methodology proposed by ICAO and reaffirmed during the GREPECAS meeting as a recommendation for its application by CARSAMMA in the CAR/SAM Regions.

3.4 LHDs with Code "E" (error/failure/no coordination between ATC organizations) were the most frequent in 2023, with 561 incidents, followed by Code "L" (non-RVSM approved aircraft), with 94 incidents. The high number of "E" Codes demonstrates the need to improve coordination between adjacent air traffic agencies, which could be achieved through raising awareness and coordination training for air traffic controllers. Despite the use of a tool for automatic transfers (AIDC or AMHS), this system still depends on human interaction and failures may exist.

3.5 The identification of trends was presented by CARSAMMA with IP/04, supported by P/07. Following the information presented by CARSAMMA and recognizing that many SAM States with a significant number of LHD events did not attend the GTE, the ICAO SAM office will contact the focal points of these States to request the development and implementation of an action plan to reduce the number of LHDs, with quarterly follow-up meetings.

3.6 Colombia presented WP/11, to propose to the GTE an update in the methodology for analyzing and assessing E2 events. These events increase their risk value due to the delay in crew communication when entering a new FIR. The Meeting analyzed the proposal from Colombia and provided additional comments to evaluate the possible implications of this change. CARSAMMA presented the formulas to compare the revised risk evaluation with the current procedures.

3.7 The Meeting considered that a more detailed analysis was necessary and decided to create an adhoc group, with representatives from Bogota, Brazil, Chile, Cuba, Jamaica, COCESNA, IATA and CARSAMMA, to evaluate the impact of the proposed changes and report to the GTE/25.

<table>
<tr><td colspan="3">DRAFT CONCLUSION
GTE/24/02 SHARED RISK ANALYSIS BETWEEN ACC AND PILOTS IN E2 EVENTS</td></tr>
<tr><td colspan="2">What:
To review the methodology for analyzing and assessing E2 events that present delays in communication between crews and ATS, the GTE proposed:
a) To establish an ADHOC group that will analyze, in coordination with CARSAMMA, the methodology for the classification of these type of events;

b) The ADHOC group and CARSAMMA, will evaluate the current methodology for the analysis and classification of these types of events, coordinated by the GTE Rapporteur; and

c) CARSAMMA will include an item in their report to detail the events with communication delays during the GTE meetings to share this information with other interested stakeholders who participate in the discussions.</td><td>Expected impact:
☐ Political / Global
☒ Inter-regional
☐ Economic
☐ Environmental
☒ Operational/Technical</td></tr>
<tr><td colspan="3">Why:
To enhance mitigation measures to reduce the occurrence of LHD events</td></tr>
<tr><td>When: Before GTE/25</td><td colspan="2">Status: ☒ Valid / ☐ Superseded / ☐ Completed</td></tr>
<tr><td>Who: ☒ States ☒ ICAO ☒ Other:</td><td colspan="2">IATA, CARSAMMA, GTE Rapporteur</td></tr>
</table>

3.8 Guyana presented IP/11 to inform their challenges and mitigation actions to address LHDs in the Georgetown FIR.

3.9 IP/12 provided NAARMO's experience with the receipt of LHD Coordination Reports and highlighted the harmonization of reporting occurrences for the US Air Route Traffic Control Centers (ARTCCs) and Mexico Area Control Centers (ACCs).

3.10 During the period of January 2023 through June 2024, NAARMO received coordination error reports via email from Miami and San Juan ARTCCs. The emails contained coordination reports between San Juan and Santo Domingo, the recipients of these emails included CARSAMMA, NAARMO, and the adjacent ATC unit. The other emails from Miami and San Juan ARTCCs to NAARMO did not include the adjacent facility as recipients.

3.11 United States ARTCCs do not routinely notify adjacent facilities when a coordination error occurs. Most ATC units will call the adjacent facility at the time of the occurrence, but this call does not always generate the necessary investigation to determine underlying causes. It is recommended that ATC facilities communicate these reports with the adjacent ATC unit to ensure data retention has not expired.

3.12 NAARMO presented IP/09, supported by P/04, to provide the vertical safety monitoring report for the Miami, New York West, and San Juan FIRs. There were 64 reported occurrences accounting for 59.5 minutes spent at an incorrect FL during calendar year 2023. The largest contribution towards the vertical collision risk estimate were from Category D LHD reports. Most of this contribution is attributed to one long duration occurrence. In this event, a data entry error during coordination for a flight caused the aircraft to fly an unexpected route.

3.13 The vertical collision risk estimate for this airspace is 15.74 × 10-9 fapfh, a value that is larger than the overall safety goal of 5.0 × 10-9 fapfh. This risk estimate is a decrease from that estimated for calendar year 2022. The decrease in the vertical risk estimate is directly related to the decrease in the time spent at unexpected flight levels in 2023.

3.14 With WP/05, supported by P/05, NAARMO provided the vertical safety monitoring report for Mexico Airspace. There were 56 reported LHDs in calendar year 2023. The vertical collision risk estimate for Mexico area airspace exceeds the TLS value of 5.0 × 10-9 fatal accidents per flight hour.

3.15 There were several Category E1 LHD reports, errors in the ATC transfer of control responsibility between adjacent FIRs. Many of the category E reports occurred at the NOTEN fix, a boundary fix between two ACCs. As a result of these occurrences, the adjacent ACCs amended their letter of agreement (LOA) and it was signed on 15 September 2023. There have been zero repeat occurrences at NOTEM since the modified LOA was signed.

3.16 The vertical collision risk estimate for Mexico RVSM airspace is 5.14 × 10-9 fapfh. This value exceeds the overall safety target of 5.0 × 10-9 fapfh for Mexico RVSM airspace.

3.17 IP/10 presented by Mexico, supported by P/01, informed the GTE of the progress and achievements that SENEAM-MEXICO has had in the monitoring and mitigation of Large Altitude Deviations (LHD), as well as the annual analyses that are carried out and the technical mitigations that have been implemented, to increase Operational Safety.

3.18 The Mexican Air Navigation Service Provider, SENEAM, continues to make arrangements with the Civil Aviation Authority of Mexico to obtain authorization for the use of ADS-B in air traffic control units, and particularly in Area Control Centers, to make full use of the tool and mitigate operational safety events, as well as separation reductions in the airspace of the Gulf of Mexico. Likewise, this will allow the implementation of the RADAR Handoff with the Houston Control Center, guaranteeing coordination and significantly reducing class E codes (E1 and E2).

3.19 The meeting also addressed the procedure that SENEAM has had to implement to handle flight plans for general aviation aircraft that are presented without the “W” in field 10, which then try to update the flight plan using the control frequency to request RVSM airspace claiming that they are RVSM certified. SENEAM has implemented the procedure to confirm with the air traffic services reporting office if the flight plan was filled out with the “W” in field 10 and if it was not submitted with the RVSM approval confirmation, access to this airspace is not permitted.

3.20 CARSAMMA presented WP/06 to address the errors related to completing and validating of the Air Traffic Movement spreadsheet received in 2023 within the RVSM airspace monitoring programme.

3.21 CARSAMMA requested States, and International Organizations, accredited to the CARSAMMA to implement mitigation actions to provide CARSAMMA with RVSM movement data forms, in a timely manner, completed with fewer errors optimizing the utilization of the entire sample, as outlined in items 2.2.1 and 2.2.2 of the CARSAMMA Contact Points Manual.

3.22 CARSAMMA presented WP/04, supported by P/06, to provide an assessment of non-State-approved operators using the RVSM (Reduced Vertical Separation Minimum) airspace monitored by CARSAMMA in the Caribbean and South America, based on traffic samples from December 2023 and January 2024. RVSM approval records up to June 2024 were used for the assessment.

3.23 The main problems identified in the verification process are the following:

- failure to communicate or delay by the Civil Aviation Authorities.
- failure to communicate or delay by the State Aviation Authorities.
- lack of registration numbers in the traffic sample.
- delay in updating the RMA approval database.
- typographical errors in the original traffic data.

3.24 Regarding the authorities of the CAR/SAM Regions, the main problem is the lack of response from the State Points of Contact. The results underline the importance of States notifying CARSAMMA in good time of the approval status of aircraft. It is important to note that CARSAMMA's LHD and CRM/ASE processes use the RMA's Logs and Auditing database to carry out their operational safety analyses of the RVSM airspace. Therefore, it is important for states' certification and airworthiness Points of Contact to have transparent communication with CARSAMMA and to be aware of the implications of their work with the RMA.

3.25 Appendix 1 to Agenda Item 3 includes the summary of these results.

3.26 IP/07 was presented by NAARMO. To comply with ICAO Annex 6 (Operation of Aircraft), Long Term Height Monitoring (LTHM) requirements, NAARMO manages a database that tracks RVSM (Reduced Vertical Separation Minimum) approvals and monitoring history for aircraft in Canada, Mexico, and the United States.

3.27 As of June 17, 2024, NAARMO’s data reveals that there are 23,306 RVSM-approved aircraft across these regions. Of these, 14,935 are the airframes that needed to be monitored, once classifying the airframes according to the Minimum Monitoring Requirements table (MMR). The final step was to verify how many of those airframes had not been monitored within the last two years. The total of non-monitored airframes is 461.

3.28 The monitoring burden varies by country: Canada has 71 aircraft without recent monitoring in the last two years, Mexico has 11, and the United States has 379. The distribution of these unmonitored aircraft underscores the importance of addressing specific airframes that might remain unmonitored due to longer intervals between monitoring, particularly for aircraft that accumulate flight hours slowly.

3.29 The implementation of Automatic Dependent Surveillance-Broadcast (ADS-B) has markedly improved monitoring efficiency, particularly for aircraft operating within ADS-B airspace. This advancement has significantly reduced the number of unmonitored aircraft in the United States. Continued investment in ADS-B and other monitoring technologies for all States is essential to further mitigate the monitoring burden and ensure comprehensive compliance with RVSM requirements.

3.30 IP/08 was presented by the North American Approvals Registry and Monitoring Organization (NAARMO). NAARMO, operating under the U.S. Federal Aviation Administration's William J. Hughes Technical Center since 2003, plays a critical role as the Regional Monitoring Agency (RMA) for the airspace of the United States, Canada, and Mexico. As mandated by ICAO Doc 9937, NAARMO conducts regular compliance checks to ensure that operators meet State approval requirements in the North American airspace and within New York West portions of the NAARMO-delegated oceanic airspace. These assessments are vital for maintaining safety by identifying non-approved operators and aircraft.

3.31 This paper outlines the systematic process NAARMO employs to identify airframes operating in Reduced Vertical Separation Minimum (RVSM) airspace, specifically between flight levels 290 and 410, where RVSM approval status could not be verified.

3.32 NAARMO's methodology includes analyzing traffic movement data sourced from the FAA's Traffic Flow Management System (TFMS) and cross-referencing it with the Combined Approvals snapshot available on the ICAO RMA Knowledge Sharing Network (KSN). The analysis focuses on the results from December 2023 and early January 2024, covering RVSM operations across Mexico, Canada, the contiguous United States (CONUS), and New York West airspace. This analysis also includes aircrafts that were observed in multiple ICAO regions.

3.33 The findings from the traffic scrutiny are summarized in five key tables:

- Table 1 - presents the results of the RVSM compliance survey for CONUS airspace, highlighting 129 civilian aircraft with non-approved operations from ten states based on December 2023 data. The count of operations within the CONUS airspace FL290-FL410 inclusive is 1,036,295.
- Table 2 - outlines the results for New York West airspace, which reported 29,230 operations and identified three civilian aircraft with non-approved status.
- Table 3 - details the Canadian airspace results, revealing 118,406 operations and 20 civilian aircraft with non-approved operations from five states.
- Table 4 - summarizes the findings for Mexico, with data from three Area Control Centers (ACCs) showing 49,152 operations and 180 civilian aircraft that lacked RVSM approval.
- Table 5 - lists aircraft observed in multiple ICAO regions, including those repeated in the EUR Bulletin of non-approved aircraft.

3.34 These assessments underscore the importance of timely communication regarding operator approval statuses from States to RMAs, as delays in notification have been identified as a primary reason for discrepancies in compliance. NAARMO has proactively notified relevant RMAs and State authorities about the identified non-approved airframes, reinforcing the ongoing commitment to aviation safety in North American airspace.

<table>
<tr><td colspan="3">DRAFT CONCLUSION
GTE/24/03 NOTIFICATIONS TO CAR/SAM CAAs OF NON-APPROVED AIRCRAFT IN RVSM AISPACE</td></tr>
<tr><td colspan="2">What:
Considering that the operation of a non-approved aircraft in RVSM airspace represents a safety high risk and that it is essential to raise awareness among CAR/SAM States regarding this situation, the GTE proposed:

a) The secretariat will inform every year the CAR/SAM CAAs of the non-approved aircraft flying in RVSM airspace, based on the annual flight plan audit performed by NARMO and CARSAMMA;

b) The secretariat will inform the PIRG of the non-approved aircraft flying in RVSM airspace based on the annual flight plan audit performed by NARMO and CARSAMMA;

d) The secretariat will promote the communication between CAAs and CARSAMMA to improve the update of the RVSM Aircraft database.</td><td>Expected impact:
☐ Political / Global
☒ Inter-regional
☐ Economic
☐ Environmental
☒ Operational/Technical</td></tr>
<tr><td colspan="3">Why:
To enhance safety in the RVSM airspace</td></tr>
<tr><td>When: Before GTE/25</td><td colspan="2">Status: ☒ Valid / ☐ Superseded / ☐ Completed</td></tr>
<tr><td>Who: ☒ States ☒ ICAO ☒ Other:</td><td colspan="2">CARSAMMA and NAARMO</td></tr>
</table>

3.35 The Dominican Republic presented WP/07 on the classification, analysis and mitigation of human error. The objective of this Paper is to break down in a focused manner the different aspects that influence LHDs of category E1 and E2 with the aim of mitigating these events by addressing the root causes.

3.36 The Paper presented details for the most common operational errors leading to LHDs, proposing an analysis based on the operational context for each ATC unit. Accordingly, each State should carry out a survey on the different scenarios in which these events occur. For each cause identified, there is a suggested mitigation measure.

3.37 The Meeting thanked the Dominican Republic for this proposal, considering that working to address the causal factors for LHDs is the best way to reduce E2 events. CARSAMMA made a proposal to enhance the F4 form, to include additional information related to each E2 event. Create an adhoc group Curacao, Cuba, Dominican Republic, Chile, Trinidad and Tobago. Led by the Dominican Republic.

3.38 Following the discussion of this WP, the following decision was taken:

<table>
<tr><td colspan="3">DRAFT CONCLUSION
GTE/24/04 ANALYSIS AND MITIGATION OF HUMAN ERROR AS ROOT CAUSE OF LHD</td></tr>
<tr><td colspan="2">What:
Considering the large percentage of LHD events category E1 and E2 and the risk that this represents to operational safety, as well as the absence of a tool that objectively collaborates in the mitigation of human error:

a) Implement an ADHOC group with the objective of identifying and analyzing the main factors that influence this type of error;
b) Propose mitigation measures associated with the identified factors;
c) Prepare a Guide/Manual, which includes the causal factors, as well as mitigation measures;
d) Present its results to the GTE/25, in order to be discussed at the meeting and subsequently approved.</td><td>Expected impact:
☐ Political / Global
☒ Inter-regional
☐ Economic
☐ Environmental
☒ Operational/Technical</td></tr>
<tr><td colspan="3">Why:
To enhance mitigation measures to reduce the occurrence of LHD events</td></tr>
<tr><td>When: Before GTE/25</td><td colspan="2">Status: ☒ Valid / ☐ Superseded / ☐ Completed</td></tr>
<tr><td>Who: ☒ States ☒ ICAO ☒ Other:</td><td colspan="2">Curacao, Cuba, Dominican Republic, Chile, Trinidad and Tobago</td></tr>
</table>

3.39 Cuba presented WP/08 with the strategy implemented by the ANSP of Cuba regarding the collection of Operational Safety data and the use of the ECCAIRS tool (European Coordination Centre for Accident and Incident Notification Systems) as an option for improvement in the collection, processing and dissemination of air traffic incidents in a standardized and safe manner, to learn from these events and reduce the number not only of LHDs, but of all incidents linked to the Air Traffic Service and their assessment to generalize this practice.

3.40 The Paper was supported by a presentation from the South American Regional Safety Oversight Cooperation System (SRVSOP), that provided support to Cuba for the implementation of the ECCAIRS. The presentation included detailed explanation of the benefits to use the tool, enhancing the data analysis as part of the State Safety Programme.

APPENDIX

AUDITED AIRCRAFT THAT STILL DO NOT HAVE RVSM APPROVAL IN THE CARSAMMA DATABASE

Estado	Registro	Operador	OACI Tipo	Notificación enviada	Respuesta em 30 días	status actual RVSM
ARGENTINA	LVKEF	FBO	B738	SI	NO	NO APROBADA
ARGENTINA	LVKJE	FBO	B738	SI	NO	NO APROBADA
ARGENTINA	LVKHU	ARG	A332	SI	NO	NO APROBADA
ARGENTINA	LVKHO	FBO	B738	SI	NO	NO APROBADA
ARGENTINA	LVKHT	ARG	A332	SI	NO	NO APROBADA
ARGENTINA	LVKJF	FBO	B738	SI	NO	NO APROBADA
ARGENTINA	LVKJA	JES	A320	SI	NO	NO APROBADA
ARGENTINA	LVKKE	ARG	B38M	SI	NO	NO APROBADA
ARGENTINA	LVKJD	FB LINEAS AEREAS	B738	SI	NO	NO APROBADA
ARGENTINA	LVFUT	SOMA SRL	LJ60	SI	NO	NO APROBADA
ARGENTINA	LVGQK	SOMA SRL	F900	SI	NO	NO APROBADA
ARGENTINA	LVKFW	ANDES LINEAS AEREAS	B738	SI	NO	NO APROBADA
ARGENTINA	FBZ3813	FBO - FLYBONDI	A320	SI	NO	NO APROBADA
ARGENTINA	FBZ5903	FBO - FLYBONDI	A330	SI	NO	NO APROBADA
ARGENTINA	LVBMS	LA GLORIOSA S.A.	BE20	SI	NO	NO APROBADA
ARGENTINA	LVFVY	INTER JET S.A.	C510	SI	NO	NO APROBADA
ARGENTINA	LVHEF	FB LINEAS AEREAS	B738	SI	NO	NO APROBADA
ARGENTINA	LVHKS	FB LINEAS AEREAS	B738	SI	NO	NO APROBADA
ARGENTINA	LVKEB	NUEVO BANCO DE SANTA FE	F900	SI	NO	NO APROBADA
ARGENTINA	LVKFQ	SEA S.A.	CL60	SI	NO	NO APROBADA
ARGENTINA	LVKKD	ARG	B38M	SI	NO	NO APROBADA
ARGENTINA	LVKLE	CHEYENNE S.A.	GL5T	SI	NO	NO APROBADA
ARGENTINA (MILITAR)	T99	FUERZA AEREA ARGENTINA	B737	SI	NO	NO APROBADA
BRASIL	PSAES	AZUL	E295	SI	NO	NO APROBADA
BRASIL	PSTOT	ANIVIA	B733	SI	NO	NO APROBADA
BRASIL	PRYYC	AZUL	A20N	SI	NO	NO APROBADA
BRASIL	PRXBO	TAM	A20N	SI	NO	NO APROBADA
BRASIL	PRMXA	TAM	A321	SI	NO	NO APROBADA
BRASIL	PRGPK	GOL	B738	SI	NO	NO APROBADA
BRASIL	PRAQT	AZUL	A20N	SI	NO	NO APROBADA
BRASIL	PTAUF	AZUL	E195	SI	NO	NO APROBADA
BRASIL	PSGTE	GOL	B38M	SI	NO	NO APROBADA
BRASIL	PSGPS	GOL	B38M	SI	NO	NO APROBADA
BRASIL	PPMTE	HELISTAR TAXI AEREO	C680	SI	NO	NO APROBADA
BRASIL	PPNOB	NOBRE EMPREENDIMENTOS E PARTICIPACOES	FA50	SI	NO	NO APROBADA
BRASIL	PRAKL	AZUL	E195	SI	NO	NO APROBADA

BRASIL	PRGPD	GOL	B38M	SI	NO	NO APROBADA
BRASIL	PRGPG	GOL	B738	SI	NO	NO APROBADA
BRASIL	PRGRB	GOL	B38M	SI	NO	NO APROBADA
BRASIL	PSGEI	GOL	B38M	SI	NO	NO APROBADA
BRASIL	PSPGE	GOL	B38M	SI	NO	NO APROBADA
BRASIL	PSPGL	GOL	B38M	SI	NO	NO APROBADA
BRASIL	PRMBHQ	TAM	A320	SI	NO	NO APROBADA
BRASIL	PRTXBK	TAM	A320	SI	NO	NO APROBADA
BRASIL	PRXBO	TAM	A20N	SI	NO	NO APROBADA
BRASIL	PTMPA	TAM	A321	SI	NO	NO APROBADA
BRASIL	PPXOM	EMBRAER	E50P	SI	NO	NO APROBADA
BRASIL	PPYBF	MODERN LOGISTICS	B738	SI	NO	NO APROBADA
BRASIL	PRSLH	SIDERAL LINHAS AEREAS	B738	SI	NO	NO APROBADA
BRASIL	PSRDR	MUNDIVOX COMUNICACOES	CL60	SI	NO	NO APROBADA
BRASIL	PRDAD	--	GLF4	SI	NO	NO APROBADA
BRASIL	PPJFZ	LIDER TAXI AEREO S.A.	H25B	SI	NO	NO APROBADA
BRASIL	PSGRM	GOL	B38M	SI	NO	NO APROBADA
BRASIL	PSAXK	AZUL	E295	SI	NO	NO APROBADA
BRASIL	PRAKN	AZUL	E195	SI	NO	NO APROBADA
BRASIL (MILITAR)	BRS2854	FUERZA AEREA BRASILEÑA	KC39	SI	NO	NO APROBADA
BOLIVIA	CP3199	BOA	B738	SI	NO	NO APROBADA
COLOMBIA	N519VJ	--	SF50	SI	SI	NO APROBADA
PARAGUAY	ZPCRR	AZP	CRJ2	SI	SI	NO APROBADA
PARAGUAY	ZPCRS	AZP	CRJ2	SI	SI	NO APROBADA
PARAGUAY	ZPCRT	AZP	CRJ2	SI	SI	NO APROBADA
PERU	CCCPJ	LAN	A319	SI	NO	NO APROBADA
PERU	CCCPL	LPE	A319	SI	NO	NO APROBADA
PERU	CCCPM	LPE	A319	SI	NO	NO APROBADA
PERU	CCCQK	LPE	A320	SI	NO	NO APROBADA
PERU	CCDDE	SKYAIRLINE	A21N	SI	NO	NO APROBADA
PERU	CCCPO	LAN PERU	A319	SI	NO	NO APROBADA
PERU	CCCQL	LAN PERU	A319	SI	NO	NO APROBADA
VENEZUELA	YV3250	SERVICIOS AEREOS AYH C.A.	LJ50	SI	NO	NO APROBADA

Table 1 - audited aircraft that still do not have RVSM approval in the CARSAMMA database

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Agenda Item 4: Activities and Tasks to be Reported to GREPECAS

4.1 The GTE Rapporteur presented WP/03, supported by P/02, with the proposal developed by an ADHOC group, to update the Guidance Manual for Points of Contact (PoCs) Accredited to CARSAMMA.

4.2 The Meeting had working sessions to review the proposal presented by the GTE Rapporteur and thanked the ADHOC group for their hard work.

<table>
<tr><td colspan="3">DRAFT CONCLUSION
GTE/24/05 UPDATE OF THE GUIDANCE MANUAL FOR THE POINTS OF CONTACT (POC) ACCREDITED TO CARSAMMA</td></tr>
<tr><td colspan="2">What:
Considering that Updating the Guidance Manual for the Points of Contact (PoCs) Accredited to CARSAMMA is essential for maintaining safety, efficiency, and effectiveness in the monitoring of the RVSM airspace.

a) Approved the changes to the Guidance Manual for the Points of Contact (PoCs) Accredited to CARSAMMA presented in the Appendix to this Agenda Item; and

b) Report to GREPECAS for updating the GREPECAS Procedures Manual.</td><td>Expected impact:
☐ Political / Global
☒ Inter-regional
☐ Economic
☐ Environmental
☒ Operational/Technical</td></tr>
<tr><td colspan="3">Why:
To improve communication and coordination between the POC and the RMAs.</td></tr>
<tr><td>When: Immediately</td><td colspan="2">Status: ☒ Valid / ☐ Superseded / ☐ Completed</td></tr>
<tr><td>Who: ☒ States ☒ ICAO ☐ Other:</td><td colspan="2"></td></tr>
</table>

4.3 As part of the collaboration between the GTE/PA-RAST Joint Coordination Group activities, IATA and the FAA presented TCAS-RA hotspot information as part of the exchange of information from the Global Aviation Data Management (GADM)/Flight Data eXchange program and the Aviation Safety Information Analysis and Sharing (ASIAS) system, which showed TCAS-RA events captured in the upper airspace for the periods under review.

4.5 ICAO highlighted some of the continued LHD waypoint hotspots also and the need for safety assessment and action plans to be provided by the FIR's involved.

4.6 The following recommendations were made to ensure both LHD's and TCAS- RA events generated in the hotspot location are assigned the appropriate risk values and actions taken to further

analyse and develop mitigation on prioritized hotspots (Mexico, Colombia and Brazil) for the CAR/SAM regions.

4.7 The following were recommended next steps as for the collaborative work:

- Integration/evaluation of analysis from validated LHD events in joint group work
- Prioritize CAR/SAM region LHD's/TCAS –RA: Ad-hoc group formation for the identified FIR's
- Seek approval in the GREPECAS plenary and publish the Caribbean and South America Upper-Airspace Safety Bulletin (CAR/SAM UASB)
- Continued engagement and participation in GTE/PA-RAST regularly scheduled in-person meetings
- PA-RAST to evaluate the feasibility of continued monitoring of the SPI to measure GANP - 23 varied 3
- GTE/PA-RAST to evaluate the feasibility of a work program to address delayed communications by crews when crossing into a New FIR

4.8 As part of the ongoing work efforts to provide awareness on TCAS-RA adherence, the Joint Coordination Group, arranged for a presentation to be provided to the GTE on Airborne Collision Avoidance System II (ACAS II)/TCAS II.

Agenda Item 5: Other Business

5.1 Under this Agenda item CARSAMMA presented IP/06 with the results of the monitoring of the EMBRAER E135-145 aircraft group, revealing that the E35L model did not meet RVSM requirements. EMBRAER's analysis resulted in the reclassification of its aircraft into four distinct groups (E135-145, E45X, E135BJ1 and E135BJ2) in the most up-to-date version of the MMR document.

5.2 Under this Agenda Item the United States presented P/03, to provide a short tutorial briefing regarding the Traffic Alert and Collision Avoidance System II (TCAS II).

5.3 The Secretariat and CARSAMMA informed that the next GTE meeting will be held in Salvador de Bahía, Brazil, from 18 to 22 August 2025.

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