ICAO International Civil Aviation Organization
North American, Central American and Caribbean Office

CAR/SAM Planning and Implementation Regional Group (GREPECAS) Twentieth Scrutiny Working Group Meeting

GTE/20

Final Report

Online, 9 – 11 November 2020

Prepared by the Secretariat

January 2021

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HISTORICAL

ii.1 Place and Date of the Meeting

The CAR/SAM Planning and Implementation Regional Group (GREPECAS) Twentieth Scrutiny Working Group Meeting (GTE/20) was held online, from 9 to 11 November 2020.

ii.2 Opening Ceremony

Mr. Fabio Rabbani, Regional Director of the South American (SAM) Regional Office of the International Civil Aviation Organization (ICAO), provided opening remarks, emphasizing the importance of regional cooperation to enhance air navigation provision in the CAR and SAM Regions.

Mr. Melvin Cintron, Regional Director of the ICAO North American, Central American and Caribbean (NACC) Regional Office, addressed the Meeting, encouraging the work of the GREPECAS Scrutiny Group, asking to follow up on the initiatives to share safety data, as a tool for continuous improvement of safety and efficiency in air operations. Mr. Cintron officially opened the meeting.

ii.3 Officers of the Meeting

The GTE/20 Meeting was held with the participation of Mr. Manolo Abreu, Dominican Republic, GTE Rapporteur, who chaired the meeting plenary. Mr. Eddian Méndez, Regional Officer 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 Officer, Air Navigation Services and Safety of the 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 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 13:00 to 17:00 hours UTC 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: Review of the Previous CARSAMMA and Scrutiny Working Group Meetings Conclusions and Recommendations

1.1 Provisional Agenda and Schedule Approval
1.2 Review of previous conclusions and recommendations

Agenda Item 2: Review of the Results of Large Height Deviation (LHD)

2.1 Indicator data on points of greatest occurrence of LHD events
2.2 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
2.3 Results of the assessment project for safety in RVSM airspace for the CAR and SAM Regions
2.4 Identification of trends
2.5 Lessons learned by CAR/SAM States to reduce the number of LHDs
2.6 GTE's recommendations
2.7 Report on the progress made by States on LHD management

Agenda Item 3: Activities and Tasks to be Reported to GREPECAS

Review of tasks to be reported to GREPECAS 2021

Agenda Item 4: Other business

ii.7 Attendance

The Meeting was attended by 22 States/Territories from the CAR/SAM Regions, and 5 International Organizations, totalling 66 delegates as indicated in the list of participants.

ii.8 Conclusions and Decisions

The Meeting recorded its activities as Conclusion and Decision as follows:

CONCLUSION: Activities requiring endorsement by the CAR/SAM Regional Planning and Implementation Group Meeting (GREPECAS).

DECISION: Deal with matters of concern only to the GREPECAS and its Contributory Bodies organization.

An executive summary of this conclusion/decision is presented in the **Appendix** to this report.

Number	Conclusion	Page
GTE/20/1	***EXPANSION OF THE APPROVAL STATUS AUDIT FOR THE CAR/SAM REGIONS***	2-2

Number	Decision	Page
GTE/20/2	***DATA EXCHANGE BETWEEN PA-RAST AND GTE FOR AIRSPACE SAFETY IMPROVEMENT***	4-2

ii.9 List of Working and Information Papers and Presentations

Refer to the Meeting web page:
https://www.icao.int/NACC/Pages/meetings-2020-gte20.aspx

WORKING PAPERS

Number	Agenda Item	Title	Date	Prepared and Presented by
WP/01 REV	1	Review and Approval of Provisional Agenda and Schedule	09/11/20	Secretariat
WP/02	1	Review of the Previous CARSAMMA and Scrutiny Working Group Meeting Conclusions and Recommendations	14/10/20	Secretariat
WP/03	3	2019 Vertical Collision Risk (CRM) in the CAR/SAM Regions	09/10/20	CARSAMMA
WP/04	2.3	Operational Safety Assessment in the RVSM Airspace of the CAR/SAM FIRs	09/10/20	CARSAMMA
WP/05	2.4	Identification of Trends	09/10/20	CARSAMMA
WP/06	4	Data Exchange Beetween GTE/GREPECAS and PA RAST/RASG-PA	06/11/20	Secretariat
WP/07	4	Inclusion of Unknown Aircraft Flying Maiquetia RVSM FIR Airspace in the Large High Deviations (LHD) Monitoring Process	10/11/20	Venezuela

INFORMATION PAPERS

Number	Agenda Item	Title	Date	Prepared and Presented by
IP/01 REV2	--	List of Working and Information Papers	11/11/20	Secretariat
IP/02	2.2	Audit of the Status of RVSM Approval of Aircraft Operating in Relevant RVSM Airspace	03/11/20	CARSAMMA
IP/03	2.3	Mexico Airspace Vertical Safety Monitoring Report – 2019	03/11/20	United States
IP/04	2.3	Miami Oceanic, New York West, and San Juan Airspace Vertical Safety Monitoring Report – 2019	03/11/20	United States
IP/05	2.3	New York West Airspace Horizontal Safety Monitoring Report – 2019	03/11/20	United States

PRESENTATIONS

Number	Agenda Item	Title	Presented by
1	2.3	Análisis de los reportes LHD (available only in Spanish)	CARSAMMA
2	2.3	2019 Airspace Safety Assessment Caribbean/South America	NAARMO
3	2.1	Puntos/Fijos más citados en los reportes LHD desde 2015 (available only in Spanish)	CARSAMMA
4	2.3	2019 Airspace Safety Assessment Caribbean/South America	NAARMO

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Agenda Item 1 Review of the Previous CARSAMMA and Scrutiny Working Group Meetings Conclusions and Recommendations

1.1 Provisional agenda and schedule Approval

1.1.1 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.

1.2 Review of previous conclusions and recommendations

1.2.1 Under this Agenda Item, the Secretariat presented WP/02 with an updated list of conclusions of the GTE. The status and follow-up comments for each conclusion is the result of a review made by the Secretariat, based in the available information before the Meeting.

Agenda Item 2 Review of the Results of Large Height Deviation (LHD)

2.1 Indicator data on points of greatest occurrence of LHD events

2.1.1 No Working/Information Papers were presented under this Agenda Item.

2.2 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

2.2.1 Under this Agenda Item, CARSAMMA presented IP/02, *Audit of the Status of RVSM approval of aircraft operating in relevant RVSM airspace*. This paper provides information related to the routine audit performed by CARSAMMA, in order to verify the RVSM operations approval status for aircraft that enter RVSM airspace in the CAR/SAM Regions based on the flight plan information.

2.2.2 Currently, this audit only takes into account the data of operations carried out in the Brazilian airspace. Thanks to the direct relationship between CARSAMMA and the Brazilian air navigation service provider, this flight plan data is readily available for the Monitoring Agency.

2.2.3 The Meeting recognized that this audit could be more effective if data from all relevant airspaces could be available to CARSAMMA. CARSAMMA expressed being able and willing to carry out this analysis.

2.2.4 The Meeting agreed the following conclusion:

CONCLUSION **GTE/20/01**	**EXPANSION OF THE APPROVAL STATUS AUDIT FOR THE CAR/SAM REGIONS**
What: That, recognizing the benefits to the process of ensuring the acceptable level of safety in RVSM airspace that the periodic audit carried out by CARSAMMA on the approval status of aircraft that make use of RVSM airspace, and that this analysis currently only takes into consideration the flight plan data from the Brazilian airspace, a) States, Territories providing air traffic services in the RVSM airspace of the CAR/SAM Regions submit CARSAMMA flight plan information of aircraft using RVSM airspace under their jurisdiction; b) CARSAMMA provide information to States, Territories and International Organizations regarding the data and flight plan fields required to carry out the approval status audits for the CAR/SAM Regions; and c) CARSAMMA use the data submitted by States/Territories to expand the scope of its approval status audit.	**Expected impact:** ☐ Political / Global ☐ Inter-regional ☐ Economic ☐ Environmental ☒ Operational/Technical
Why: To enhance the effectiveness of the approval status audit carried out by CARSAMMA	
When: By January 2021	**Status:** ☒ Valid / ☐ Superseded / ☐ Completed
Who: ☒ States ☐ ICAO ☒ Other:	Territories

2.2.5 Regarding the exchange of flight plans data between Air Traffic Services (ATS) providers, the focal points from Bolivia, Colombia, and Venezuela informed the Meeting about a situation related to the exchange of the Flight Plans (FPL) between the ATS from their States and the Brazilian ATS.

2.2.6 The focal points informed a constant situation where the Brazilian ATS provider has not received the FPL prior to the transfer, thus affecting the coordination process between air traffic services, and increasing the ATS workload.

2.2.7 The Secretariat will coordinate the action to address the aforementioned situation with the interested parties.

2.3 Results of the assessment project for safety in RVSM airspace for the CAR and SAM Regions

2.3.1 Under this Agenda Item, United States presented three Information papers.

2.3.2 IP/03, *Mexico Airspace Vertical Safety Monitoring Report – 2019*, provided the vertical safety monitoring report for the continued-safe use of the RVSM in Mexico airspace. There were 28 reported Large Height Deviations (LHD) in calendar year 2019 for Mexico airspace. This report also contains an estimate of the vertical collision risk. The vertical collision risk estimate for Mexico airspace meets the Target Level of Safety (TLS) value of 5.0×10^{-9} fatal accidents per flight hour.

2.3.3 IP/04, *Miami Oceanic, New York West, And San Juan Airspace Vertical Safety Monitoring Report – 2019*, provided the vertical safety monitoring report for the continued safe use of the RVSM in Miami Oceanic, New York West, and San Juan airspace. There were 26 reported events accounting for 45.5 minutes spent at an unexpected/incorrect Flight Level (FL) during calendar year 2019. This report also contains an estimate of the vertical collision risk. The vertical collision risk estimate for the airspace exceeded the TLS value of 5.0×10^{-9} fatal accidents per flight hour.

2.3.4 IP/05, *New York West Airspace Horizontal Safety Monitoring Report – 2019,* provided the horizontal safety monitoring report for the continued-safe use of the reduced lateral and longitudinal separation minima in New York West airspace. There were twenty-seven (27) reported events for New York West airspace during calendar year 2019. Twenty-two of these events were determined to be risk-bearing LLDs. This report contains a high-level summary of the reported events and evaluates the application of reduced horizontal separation minima. The lateral risk estimate for the airspace meets the TLS value of 5×10^{-9} fatal accidents per flight hour.

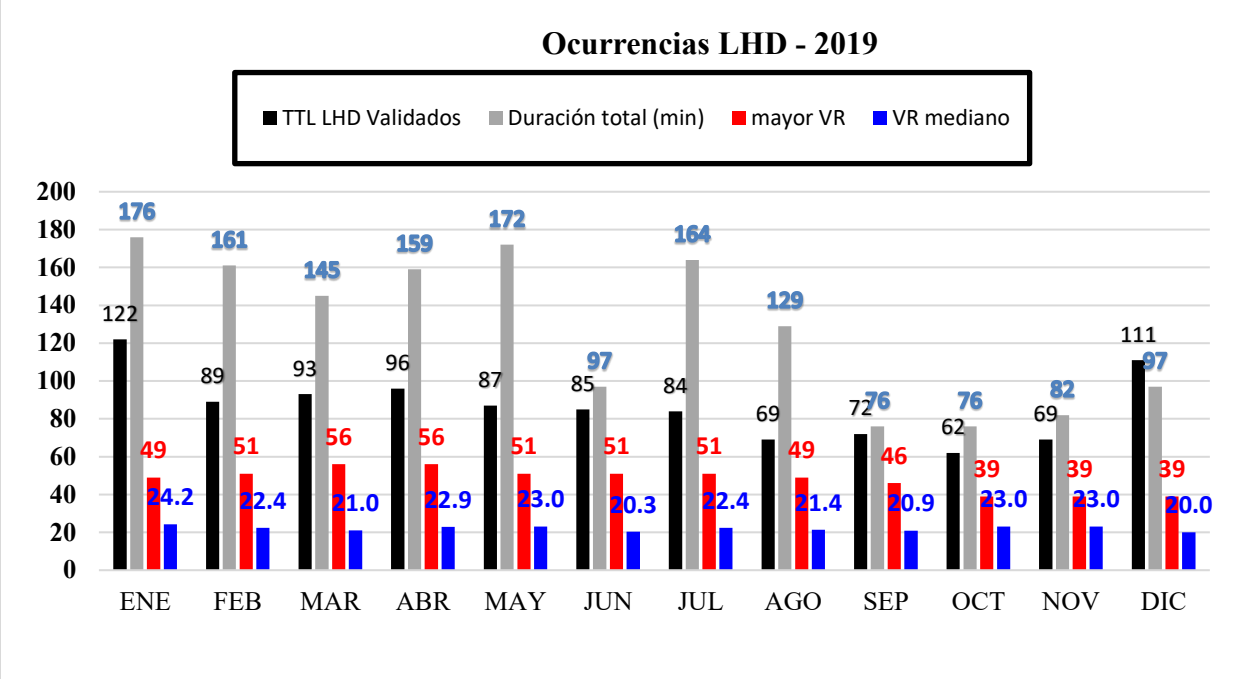
2.3.5 The Meeting thanked NAARMO for presenting these information papers, recognizing the organization's constant support to the CAR/SAM Regions regarding the RVSM monitoring process.

2.3.6 CARSAMMA presented WP/04*, Safety Assessment in the RVSM Airspace of the CAR/SAM Flight Information Regions (FIR*s), with a summary of the reports of LHD received by CARSAMMA. The Working Paper also includes the analysis, using the Safety management system (SMS) methodology.

2.3.7 LHD reports from a 12-month period were used in this safety assessment, between January and December 2019. Table 1 and Graph 1 show the summary of the validated LHD occurrences and duration (in minutes) associated with the LHDs per month received by CARSAMMA.

MONTH	LHD QUANTITY	DURATION Total (min.)	DURATION Average (min.)	RISK Average	Higher RISK
JANUARY	122	176	1,44	24,2	49
FEBRUARY	89	161	1,81	22,4	51
MARCH	93	145	1,56	21,0	56
APRIL	96	159	1,66	22,9	56
MAY	87	172	1,98	23,0	51
JUNE	85	97	1,14	20,3	51
JULY	84	164	1,95	22,4	51
AUGUST	69	129	1,87	21,4	49
SEPTEMBER	72	76	1,06	20,9	46
OCTOBER	62	76	1,23	23,0	39
NOVEMBER	69	82	1,19	23,0	39
DECEMBER	111	97	0,87	20,0	39
TOTAL	**1.039**	**1.534**	**1,48**	**22,0**	

Table 1



Graph 1

2.3.8 As in previous years, LHD reports with Code “E” (coordination error between ATC units) were the most frequent in 2019 with 1,015 events, followed by Codes “B” (5), “A” (4), "D", "I" and "M" (3), “C” and “L” (1).

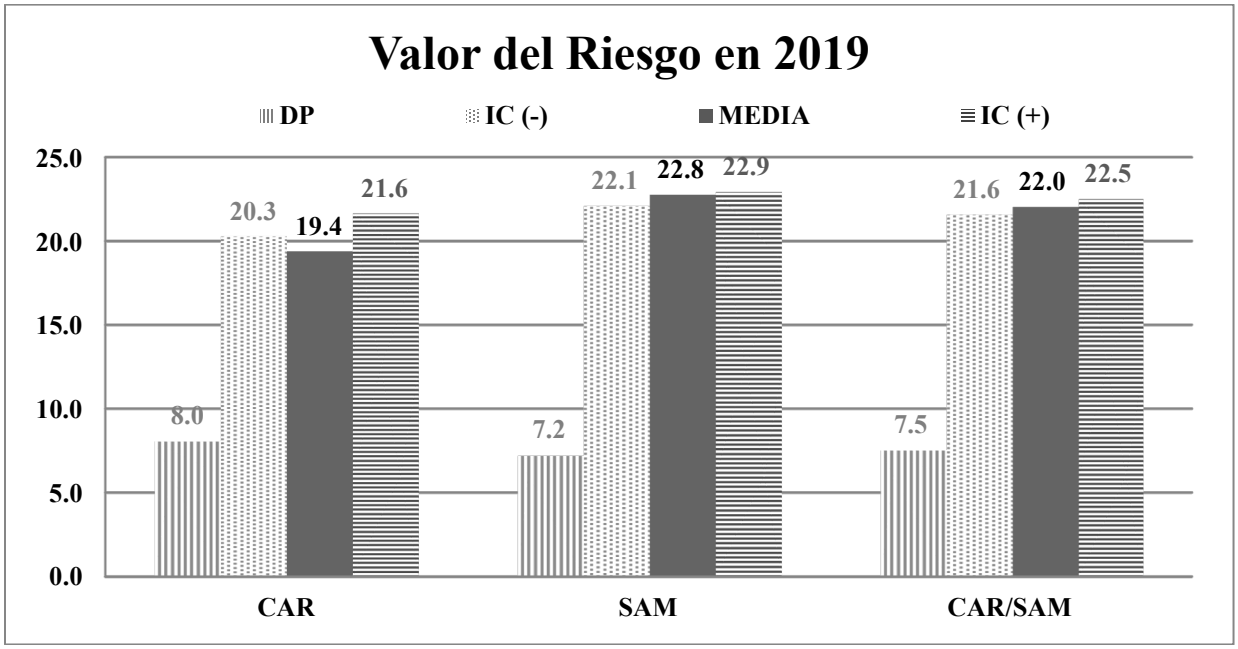
2.3.9 The high number of reports with Code “E” demonstrates the need for better coordination between adjacent ATC units. It is important to mention that in 2019 the “F” Codes are not presented as

in 2018. Following the 2020 teleconferences with the Points of Contact (PoCs) it was agreed that the problem was not the equipment, but the ATC personnel, and all 2019 reports were changed to "E1" and "E2".

2.3.10 Safety Assessment - Results of the RVSM airspace safety assessment of the CAR/SAM FIRs are detailed in Table 5 and Graph 5 of the Working Paper.

	LoS	SB AO	SE FG	SA CU	MT EG	AS RU	SK ED	MH TG	SL LF	SC FZ	SG FA	SP IM	SV ZM	SA VU	MP ZL	TN CF
JAN	20		39	39				39	49		46	39	46	39		
FEB	20				41					46		51		39		
MAR	20							39					39		56	
APR	20						46	49		46		39		46		56
MAY	20					41		41		46	46	46	51			
JUN	20											51	39	39		
JUL	20	39							39			39		51		
AUG	20								49		46					
SEP	20															46
OCT	20			39			39		39			39		39		
NOV	20			39			39					39		39		
DEC	20														39	

Table 5



Graph 5

2.4 Identification of trends

2.4.1 CARSAMMA presented WP/05, *Identification of Trends*, with a summary of the trends of some of the LHD received by CARSAMMA, such as:

- Aircraft passing the Transfer Control Point (TCP) is still ascending or descending;
- Aircraft calls at a point other than the coordinated one;
- ATS service does not check the level, point or time of transfer and the transferring ATS does not perceive the error;
- Lack of re-coordination due to change in the estimate; and
- Coordination done a few minutes before TCP (less than 5 minutes).

2.4.2 The Meeting took note of the information presented that included, among other information, nine tables with the LHD trends in the CAR/SAM Regions:

- Table 1: LHD reports which transfers were made in a certain level and call ascending or descending.
- Table 2: LHD reports that included transfers made at one point and call in a different one.
- Table 3: LHD reports which transfers were made, but with misunderstandings.
- Table 4: LHD reports of traffic that called at a different flight level due to equipment failure.

NOTE: In reality, these errors were not produced by the equipment, but by the operators who still do not know how to operate them fully.

- Table 5: Shows the most reported points and the FIRs involved.
- Table 6: LHD reports regarding transfers that passed before the coordinated time.
- Table 7: LHD reports regarding delayed coordination, close to the TCP (less than 5 minutes).
- Table 8: LHD reports related to the non-compliance by the pilot of the ATC instructions.
- Table 9: CAR/SAM Region points with the highest number of re-coordination among FIRs

2.4.3 For aircraft passing the TCP still ascending or descending, the FIRs that reported the most failures in 2019 were: Santo Domingo (12 times), Bogotá (11 times), and Barranquilla (4 times). The most-reported FIRs were Curaçao (15 times), Guayaquil (9 times), and Bogotá (3 times). The points with the most occurrences were VESKA (5 times), AMBAS (4 times), and BOKAN (3 times). VESKA, AMBAS, and BOKAN deserve special attention because they are presented as points already reported in 2018. It can also be observed that the pair Santo Domingo/Curaçao FIRs appear 10 times, the pair Bogotá/Guayaquil FIRs appear 10 times, and Barranquilla/Curaçao FIRs appear 4 times, maintaining coordination failures both in 2018 and in 2019.

2.4.4 For aircraft calling at a point other than the coordinated, FIRs reporting the most in 2019 were: Santo Domingo (6 times), FIR Guayaquil and Lima (8 times each), FIR Bogotá (6 times), FIR Curaçao (5 times) y FIR Amazonica (4 times). The most reported FIRs are: La Paz (10 times), FIR Bogotá (9 times), FIR Port-au-Prince (8 times), FIR Guayaquil (5 times), FIR Amazonica and FIR Barranquilla (4 times each). The coordinated points with most changes were: BOKAN, LIXAS y PIGBI (4 times each), ETBOD, LET, ONPAD, OROSA, RAXUN and RCO (2 times each). It can also be observed that the pairs of FIRs that incurred in this failure the most were: Bogotá and Guayaquil (10 times), Santo Domingo and Port-au-Prince (8 times), Lima and La Paz (5 times), Amazonica and Bogotá (4 times), Curaçao and Barranquilla, and Curaçao and Santo Domingo (3 times each) and these coordination failures occurred already in 2018.

2.4.5 In the cases where the ATS service does not check the level, point or time of transfer and the transferring ATS does not perceive the error, FIRs that report the most this type of failure are: Guayaquil (134 times), Lima (27 times), and Bogotá (13 times). The most-reported FIRs were: Bogotá (103 times), Guayaquil (38 times), and Lima (27 times).

2.4.6 Regarding the occurrences for change in the estimate, the five FIRs that reported the most this type of failure in 2019 were: Santo Domingo (24 times), Resistencia (10 times), Lima (9 times), Curaçao (8 times) and Bogotá (7 times). The six most reported FIRs were: Curaçao (12 times), La Paz and Port-au-Prince (9 times each), Ezeiza and Barranquilla (7 times each), Amazonica (6 times). The positions/points where the re-estimated failure occurred the most were: KORTA (6 times), ETBOD, DCR and VESKA (5 times each), AMBAS, DOBNI and IREMI (4 times each), and PIGBI (3 times). The pairs of FIRs that had most failures of this type were: Santo Domingo and Port-au-Prince (14 times), Santo Domingo and Curaçao (9 times), Curaçao and Barranquilla (8 times), Resistencia and Ezeiza (7 times each), and Lima and La Paz (6 times).

2.4.7 The Meeting thanked CARSAMMA for the analysis and information of WP/05 that would help identify the areas where the CAR/SAM ANS providers shall carry out additional datamining to determine the need for additional strategies to reduce the number of LHD events, mainly those related to code E.

2.5 Lessons learned by CAR/SAM States to reduce the number of LHDs

2.5.1 No Working/Information Papers were presented under this Agenda Item.

2.6 GTE's recommendations

2.6.1 No Working/Information Papers were presented under this Agenda Item.

2.7 Report on the progress made by States on LHD management

2.7.1 No Working/Information Papers were presented under this Agenda Item.

Agenda Item 3 Activities and Tasks to be Reported to GREPECAS

3.1 Under this Agenda Item CARSAMMA presented WP/03, *2019 Collision Risk Model (CRM) in the CAR/SAM Regions*, to show that the safety criteria defined in ICAO Doc 9574 – *Manual on a 300 m (1 000 ft) Vertical Separation Minimum Between FL 290 and FL 410 Inclusive* and Doc 9937 – *Operating Procedures and Practices for Regional Monitoring Agencies in Relation to the Use of a 300 m (1 000 ft) Vertical Separation Minimum Between FL 290 and FL 410 Inclusive* continue to be met in the CAR/SAM RVSM airspace.

3.2 This document reported on the analysis of vertical collision risk in RVSM airspace in 2019 in the Caribbean and South America FIRs. The CRM calculation methodology was used for this analysis, as recommended by ICAO for RVSM airspace.

3.3 The CRM calculation process involves two inputs: RVSM Air Movement files of the studied FIRs, and LHD occurrences in these FIRs. CARSAMMA and the FIRs involved carry out the validation of LHD throughout the year, bringing a better distribution of the analysis work.

3.4 Note that three packages of FIRs Air Traffic Movements (SAEF, SOOO and MKJK) were not considered, as a substantial amount of information is missing from them.

3.5 The sample used to assess the pass frequency and physical and dynamic parameters of typical aircraft to determine the collision risk was collected from 1 to 31 December 2019 in the 31 CAR/SAM FIRs. In the sample collected, 347,537 lines of flight records were received from the CAR/SAM FIRs. After the initial review, 303,760 lines of flight records were validated in the process. As in previous years, a large portion of the data received from some States were not used in the CRM for various reasons, including errors in the entry and exit times of RVSM airspace (less or equal to flight entry time), lack of complete information to identify and locate fixed routes and reports, or even data sent beyond the deadline.

3.6 Regarding the occurrence of vertical deviations (LHDs) in the CAR/SAM Regions, CARSAMMA received 1039 LHD reports in 2019. After analysis and validation based on the CRM parameters, 965 of these LHDs were valid in the CAR/SAM Regions.

3.7 Tables 2 and 3 of the WP present number of LHDs and duration per FIR:

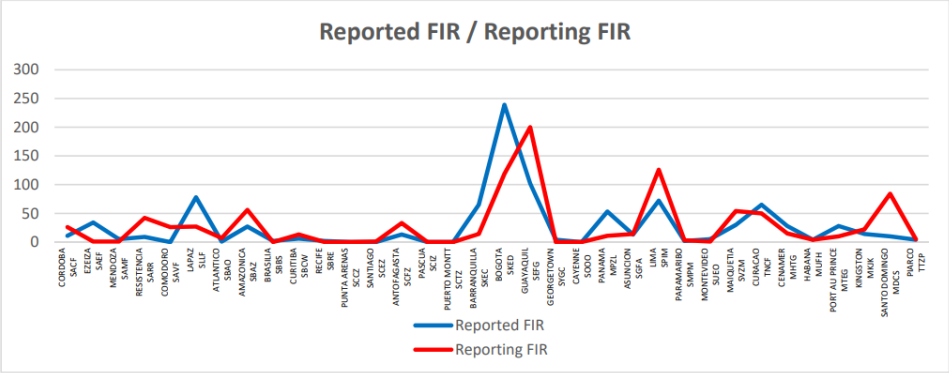


Table 2

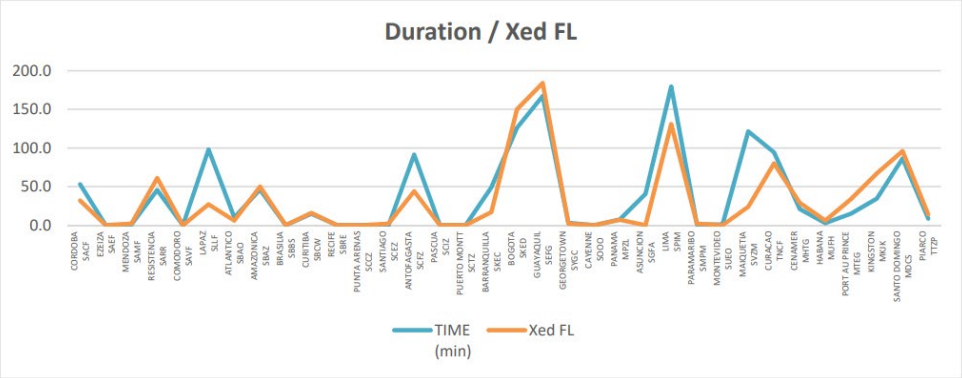


Table 3

3.8 The risk was estimated based on the FIR values presented in Table 10 of the WP, which were obtained after processing all data received, compiled, and processed in the specific CRM software.

STATE	FIR	Reporting FIR	Reported FIR	TIME (min)	Xed FL	Vertical Risk
ARGENTINA	CORDOBA - SACF	26	11	53,0	32	2,357E-09
	EZEIZA - SAEF	1	34	0,0	0	0,000E+00
	MENDOZA - SAMF	1	5	1,0	2	1,954E-10
	RESISTENCIA - SARR	42	9	45,5	61	2,770E-09
	COMODORO - SAVF	26	0	0,0	0	2,583E-11
BOLÍVIA	LAPAZ - SLLF	27	78	98,0	27	6,641E-09
BRASIL	ATLANTICO - SBAO	7	1	10,2	6	8,672E-11
	AMAZONICA - SBAZ	56	27	46,0	50	3,873E-10
	BRASILIA - SBBS	0	2	0,0	0	1,489E-11
	CURITIBA - SBCW	13	6	14,8	16	1,717E-10
	RECIFE - SBRE	0	2	0,0	0	1,931E-11
CHILE	PUNTA ARENAS - SCCZ	0	0	0,0	0	3,578E-11
	SANTIAGO - SCEZ	1	0	0,0	2	5,699E-11
	ANTOFAGASTA - SCFZ	33	13	91,3	44	4,950E-09
	PASCUA - SCIZ	0	0	0,0	0	1,248E-11
	PUERTO MONTT - SCTZ	0	0	0,0	0	6,036E-11
COLOMBIA	BARRANQUILLA - SKEC	14	65	49,0	17	9,279E-10
	BOGOTA - SKED	119	239	126,0	150	5,887E-09
ECUADOR	GUAYAQUIL - SEFG	200	102	167,3	184	6,762E-09
GUYANA	GEORGETOWN - SYGC	0	4	3,0	2	1,364E-10
FRENCH GUYANA	CAYENNE - SOOO	0	0	0,0	0	0,000E+00
PANAMA	PANAMA - MPZL	11	53	7,4	7	2,751E-10
PARAGUAY	ASUNCION - SGFA	14	13	40,5	0	7,051E-09
PERU	LIMA - SPIM	126	72	179,5	131	2,223E-09
SURINAM	PARAMARIBO - SMPM	3	2	1,0	2	1,405E-10
URUGUAY	MONTEVIDEO - SUEO	1	5	1,0	0	3,106E-11
VENEZUELA	MAIQUETIA - SVZM	54	30	121,5	24	1,097E-08
NETHERLANDS ANTILLES	CURACAO - TNCF	50	65	94,3	80	1,150E-08
CENTRAL AMERICA	CENAMER - MHTG	15	28	21,0	29	6,689E-10
CUBA	HABANA - MUFH	4	4	2,8	6	1,498E-10
HAITI	PORT AU PRINCE - MTEG	10	28	15,0	34	2,825E-10
JAMAICA	KINGSTON - MKJK	22	14	34,5	67	0,000E+00
DOMINICAN REPUBLIC	SANTO DOMINGO - MDCS	84	10	86,5	96	4,961E-09
TRINIDAD & TOBAGO	PIARCO - TTZP	5	4	8,5	14	1,003E-09
TOTAL CAR/SAM		965	926	1318,63	1083	1,540E-09
MOUNT PLEASANT	EGYP	0	15			
TOTAL		965	941	1318,63	1083	1,540E-09

3.9 The technical risk of the CAR/SAM FIRs meets the TLS value, not exceeding 2.5 x 10^{-9} fatal accidents per flight hour due to loss of the standard vertical separation of 1,000 ft and all other causes. The operational risk does not have a predefined limit, in accordance with ICAO Doc 9574.

3.10 The estimated total risk for the assessed FIRs is 1,540 x 10^{-9} below the TLS (5.0 x 10^{-9}). Following on from the reports presented by the Secretariat during the GTE/19 Meeting, a table with the evolution of data is shown below:

GTE	GTE 14	GTE 15	GTE 16	GTE 17	GTE 18	GTE 19	**GTE 20**
Year of the analysis	2013	2014	2015	2016	2017	2018	**2019**
Anual hours	944,628	967,135	1,044,378	1,392,732	2,555,136	1,038,066	**1,420,564**
Risk value	4,62 E-09	1,85 E-09	1,29 E-09	1,41 E-09	2,32 E-09	2,32 E-09	**1,54 E-09**

Agenda Item 4 Other business

4.1 GTE and the Pan America Regional Aviation Safety Team (PA-RAST) Secretariat presented WP/06, *Data Exchange between GTE/GREPECAS and PA-RAST/Regional Aviation Safety Group–Pan America (RASG-PA),* with the proposal for cooperation in the exchange of data between the GTE and the PA-RAST, specifically the exchange of data related to LHDs and Traffic Collision and Avoidance System-Resolution Advisories (TCAS RAs).

4.2 The GTE data shows that, although the airspace monitoring mechanism has been effective with a reduction in the LHD trend in the CAR/SAM Regions and the regional performance has remained below TLS, the data continues to show a significant number of LHD in certain areas (hotspots).

4.3 Considering the above, the GTE Secretariat, in coordination with the LHD focal points and Rapporteur, developed a hotspots LHD reduction strategy in the CAR/SAM Regions, which includes coordination with the stakeholders for the LHD root cause identification and the establishment of mitigation and corrective measures.

4.4 Recognizing that additional data can help to improve the strategy mentioned above, the GTE has started coordination with the PA-RAST RASGPA Secretariat to develop a cooperation framework for the data exchange specifically related to LHDs and TCAS RAs. The main objectives of this exchange are to improve the decision-making process to identify with better precision the CAR/SAM airspace areas where the safety level could be impacted and to implement with the stakeholders (States, International Organizations, industry) mitigating and corrective measures.

4.5 The data exchange will be carried out under the confidentiality framework that governs each of the groups (GTE, PA-RAST), understanding that the information exchanged will only be used to improve the airspace's operational safety of the CAR/SAM Regions. It is important to recognize that the GTE information processes rely totally on the permanent sharing of data from States and ATS providers of the CAR/SAM Regions to CARSAMMA. The GTE has worked significantly to improve the mechanisms for collecting and submitting data to CARSAMMA, making States and ATS providers aware of the importance of the data they provide, to ensure and enhance safety levels in the airspaces of the CAR/SAM Regions, as well as on the principles of the use of safety-related information.

4.6 The sharing of data between the GTE and the RASG-PA shall be done in a manner that does not compromise the future availability of the data, taking into consideration the need to use data only to identify regional trends, systematically analyse causes, without specifically targeting any airspace, operator or service provider.

4.7 The Meeting agreed to continue working to define the scope and procedures for the GTE and the RASG-PA, as indicated in the following decision:

<table>
<tr><td colspan="3">DECISION
GTE/20/2</td><td colspan="2">DATA EXCHANGE BETWEEN PA-RAST AND GTE FOR AIRSPACE SAFETY IMPROVEMENT</td></tr>
<tr><td colspan="3">What
Considering that GREPECAS and RASG-PA are groups that report to the ICAO Council, and the GTE and PA-RAST are technical groups of the GREPECAS and RASG-PA with the data analysis as one of their main tasks, and recognizing that the cooperation between the GTE and PA-RAST can improve safety and efficiency in the CAR/SAM Regions and that data exchange can help to improve the process and outcomes of both groups,:

a) the GTE and PA-RAST will work jointly to develop a framework that includes mechanism and process for the data exchange and analysis between the two groups by the GTE/21 Meeting; and

b) the GTE will identify how the exchanged data can be used to better benefit the CAR/SAM RVSM airspace safety analysis.</td><td colspan="2">Expected impact:
☐ Political / Global
☐ Inter-regional
☐ Economic
☐ Environmental
☒ Operational/Technical</td></tr>
<tr><td colspan="5">Why:
To improve the CAR/SAM RVSM airspace safety analysis</td></tr>
<tr><td colspan="2">When: By the GTE/21 Meeting</td><td colspan="3">Status: ☒ Valid / ☐ Superseded / ☐ Completed</td></tr>
<tr><td colspan="2">Who: ☒ States ☒ ICAO ☒ Other:</td><td colspan="3">GTE and PA-RAST</td></tr>
</table>

4.8 Venezuela presented WP/07, *Inclusion of Unknown Aircraft Flying Maiquetia RVSM FIR Airspace in the LHD monitoring process*, with a proposal for a risk analysis based on the SMS of the aircraft entering into the Maiquetia FIR RVSM airspace without any communications or coordination, proposing that such incursions be considered as LHD.

4.9 Since 2016, Venezuela has noted the irregular recurrent entry of different aircraft into the Maiquetia FIR. These aircraft remain a long period within the RVSM airspace of the Maiquetia FIR, impacting safety, as there is no communication or coordination from adjacent FIRs, to establish an appropriate separation with traffic within Maiquetia FIR. It is important to note that, when asking for information from surrounding FIR, most of the time, the answer is that the aircraft and its intentions are unknown since it entered without coordination to that FIR.

4.10 The number of incursions in the RVSM Maiquetia FIR airspace in 2020 (to October) was six events, and in 2019, eleven.

4.11 Venezuela has done a hard job monitoring these incursions and considers that they shall be subject to risk assessment for the RVSM airspace. In this regard, Doc 9574, Chapter 2 item 2.1.5 indicates that overall risk as "*collision risk due to all possible causes, including technical error and any risk due to operational errors and in-flight contingencies...*" must be considered. Indeed, an aircraft without prior communication or coordination represents it.

4.12 Once incursions have been analysed, the risk matrix places them at the Average Risk Level, indicating that these events should be followed up and mitigation plans implemented as needed.

4.13 The Meeting took note of the information presented by Venezuela; and agreed to continue gathering more data related to the events to determine if a risk assessment approach can be used.

APPENDIX A
EXECUTIVE LIST OF CONCLUSION AND DECISION

Number	Conclusion/Decision	Responsible for action	Deadline
GTE/20/1	**EXPANSION OF THE APPROVAL STATUS AUDIT FOR THE CAR/SAM REGIONS**		
	That, recognizing the benefits to the process of ensuring the acceptable level of safety in RVSM airspace that the periodic audit carried out by CARSAMMA on the approval status of aircraft that make use of RVSM airspace and that this analysis is currently only takes into consideration the flight plan data from the Brazilian airspace		
	a) States, Territories and International Organizations providing air traffic services in the RVSM airspace of the CAR/SAM Region submit to CARSAMMA flight plan information of aircraft using RVSM airspace under their jurisdiction; and	States, Territories and International Organizations	By January 2021
	b) CARSAMMA will provide information to States, Territories and International Organizations regarding the data and flight plan fields required to carry out the approval status audits for the CAR/SAM Region; and	States, Territories and International Organizations	By January 2021
	c) CARSAMMA use the data submitted by States, Territories and International Organizations to expand the scope of their approval status audit.	States, Territories and International Organizations	By January 2021
GTE/20/2	**DATA EXCHANGE BETWEEN PA-RAST AND GTE FOR AIRSPACE SAFETY IMPROVEMENT**		
	Considering that GREPECAS and RASG-PA are groups that report to the ICAO Council, and the GTE and PA-RAST are technical groups of the GREPECAS and RASG-PA with the data analysis as one of their main tasks, and recognizing that the cooperation between the GTE and PA-RAST can improve safety and efficiency in the CAR/SAM Regions and that data exchange can help to improve the process and outcomes of both groups,:		
	a) the GTE and PA-RAST will work jointly to develop a framework that includes mechanism and process for the data exchange and analysis between the two groups by the GTE/21 Meeting; and	GTE and PA-RAST	By the GTE/21 Meeting
	b) the GTE will identify how the exchanged data can be used to better benefit the CAR/SAM RVSM airspace safety analysis.	GTE and PA-RAST	By the GTE/21 Meeting