International Civil Aviation Organization

CAR/SAM Planning and Implementation Regional Group (GREPECAS)
Twenty-First Scrutiny Working Group Meeting

GTE/21

Final Report

Zoom Meeting, 23 to 26 August 2021

List of Contents

Contents **Page**

HISTORICAL

ii.1 Place and Date of the Meeting

The CAR/SAM Planning and Implementation Regional Group (GREPECAS) Twenty First Scrutiny Working Group Meeting (GTE/21) was held via Zoom, from 23 to 26 August 2021.

ii.2 Opening Ceremony

Mr. Fabio Rabbani Regional Director of the South American (SAM) Office of ICAO thanked the participants for attending the Meeting and highlighted the agenda items wishing success to the event.

The secretariat welcomed the gathered participants from States and international organizations.

ii.3 Organization of the Meeting

Mr. Roberto Sosa acted as Secretary of the Meeting, assisted by Mr. Eddian Méndez, Regional Officer Air Traffic Management (ATM) and Search and Rescue (SAR) of the ICAO North American, Central American and Caribbean Regional Office (NACC) Mr. Manolo Abreu acted as GTE Rapporteur.

ii.4 Working Languages

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

ii.5 Schedule and Working Arrangements

It was agreed that the working hours for the sessions of the meeting would be from 08:00 to 12:30 hours daily with adequate breaks.

ii.6 Agenda

Agenda Item 1: Review of the previous CARSAMMA and Scrutiny Group Meetings Conclusions and Recommendations

c) Review of previous conclusions.
d) Review of previous recommendations.

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

g) Indicator data on points of greatest occurrence of LHD events.
h) Actions taken for the enhancement of LHD event data capture and for the improvement of RVSM status capture by Registration States or Operator.
i) Results of the assessment project for safety in Reduced Vertical Separation Minimum (RVSM) airspace for the CAR and SAM Regions.
j) Identify trends.
k) Lessons learned by CAR/SAM States to reduce the number of LHDs.
l) Report on the progress made by States on LHD management.

Agenda Item 3: Activities and tasks to be reported to GREPECAS

c) Review of tasks to be reported to GREPECAS
d) GTE/PA-RAST cooperation.

Agenda Item 4: Other business

Report on the Flight plan audit.

ii.7 Attendance

The Meeting was attended by 20 States/Territories from the CAR and SAM Regions and 3 International Organizations, totalling 87 delegates as indicated in the list of participants.

ii.8 List of Working and Information Papers and Presentations

The whole documentation of the Meeting is available at the following link:

https://www.icao.int/SAM/Pages/ES/MeetingsDocumentation_ES.aspx?m=2021-GTE21&t=1

Number	Agenda Item	WORKING PAPERS Title	Prepared and Presented by
WP/01	1	Agenda, schedule and working methods	Secretariat
WP/02	1	Review of previous CARSAMMA and scrutiny group meeting conclusions and recommendations	Secretariat
WP/03	2	2020 vertical collision risk (CRM) in the CAR/SAM regions	CARSAMMA
WP/04	2	Safety assessment in RVSM airspace of the CAR/SAM FIRs	CARSAMMA
WP/05	2	Identification of trends	CARSAMMA
WP/06	4	Follow-up to incursions of aircraft into RVSM airspace, without communication or prior coordination, and the risk assessment approach	Venezuela
WP/07	3	GTE/PA-RAST Cooperation	GTE/PA-RAST
WP/08	2	Vertical safety monitoring report for Miami Oceanic, New York West, and San Juan airspace – 2020	NAARM0
WP/09	2	Mexico airspace vertical safety monitoring report – 2020	NAARMO

Number	Agenda Item	INFORMATION PAPERS Title	Prepared and Presented by
IP/01	4	Estimating RVSM certification long-term monitoring burden	CARSAMMA
NI/02	4	Digitization of form f4 of large height deviation (LHD) reports	CARSAMMA
IP/03	4	Audit of approval status of aircraft operating in the relevant RVSM airspace	CARSAMMA
NI/04	4	New York west airspace horizontal safety monitoring report - 2020	CARSAMMA
NI/05	4	coordination related to state aircraft operations	Secretariat
NI/06	4	NAARMO RVSM traffic compliance monitoring and long term height monitoring burden	NAARMO

LISTA DE PARTICIPANTES

	Estado/Organización State/Organization	Participante/Participant	Correo electrónico / e-mail
1	ARG ANAC	Leandro Bauzá	lbauza@anac.gob.ar
2	ARG ANAC	Marcos Campos	mcampos@anac.gob.ar
3	ARG ANAC	Miguel Díaz	mdiaz.2910@gmail.com
4	ARG EANA	Hernán Burguener	hburguener@eana.com.ar
5	ARG EANA	Noelia Fernández	nfernandez@eana.com.ar
6	ARG EANA	Pamela Vergara	pvergara@eana.com.ar
7	ARG EANA	Luis Demierre	ldemierre@eana.com.ar
8	ARG EANA	Rocío Carneiro	rcarneiro@eana.com.ar
9	ARG EANA	Roberto Da Silva Cardozo	jrdasilva@eana.com.ar
10	ARG EANA	Carla Grispi	cgrispi@eana.com.ar
11	BOL DGAC	Reynaldo Cusi	rcusi@dgac.gob.bo
12	BOL AASANA	Franklin Rosas	frosas@lp.aasana.gob.bo
13	BRA CARSAMMA	Alexandre Salviano	salvianoacps@cgna.gov.br
14	BRA CARSAMMA	Hévelin Borges	hevelinhab@cgna.decea.mil.br
15	BRA CARSAMMA	Luís Barreto	barretolhbmc@cgna.decea.mil.br
16	BRA CARSAMMA	Renata Gonçalves	renatarasg@cgna.decea.mil.br
17	BRA CARSAMMA	Ricardo Rocha	ricardordr@cgna.decea.mil.br
18	BRA CARSAMMA	Reinaldo Taveira	taveirarbt@cgna.decea.mil.br
19	BRA CARSAMMA	Raphael Barbosa	chefe.carsamma@cgna.decea.mil.br
20	BRA CARSAMMA	Sérgio Fonseca	fonsecasrof@cgna.decea.mil.br
21	BRA CARSAMMA	Rafael Borges	rafaelrptb@cgna.decea.mil.br
22	BRA ANAC	Daniel Soares	danielvs@gmail.com
23	CHI DGAC	Juan Álvarez J.	juan.alvarez@dgac.gob.cl
24	COCESNA	Henry Reyes	hreyes_21@yahoo.com
25	COL UAEAC	Douglas Villamarín	douvigo@yahoo.com
26	COL UAEAC	Edwin Holman Sierra Cortes	edwin.sierra@aerocivil.gov.co
27	COL UAEAC	Jarvy Ochoa	willington.ochoa@aerocivil.gov.co
28	COL UAEAC	Myyey Cruz	myyey.cruz@gmail.com
29	COL UAEAC	Paulino Rodríguez Palomino	paulinirodriguez@gmail.com
30	COL UAEAC	Diana Luque	diana.luque@aerocivil.gov.co
31	COL UAEAC	Joaquin Penagos	penagos.joaquin@gmail.com
32	COL UAEAC	Germán Vélez	germanvelezg@gmail.com
33	CRI DGAC	Fernando Naranjo	fnaranjo@dgac.go.cr
34	CRI DGAC	Fernando Zeledon	fzeledon@dgac.go.cr
35	CUB ECNA	Ricardo Martínez González	ricardo.martinez@aeronav.avianet.cu
36	CUB ECNA	Dora Consuelo Ricardo Valdés	dora.ricardo@aeronav.avianet.cu
37	CUB ECNA	Alberto Ramos	alberto.ramos@aeronav.avianet.cu
38	CUB IACC	Jorge Centella Artola	jorge.centella@iacc.avianet.cu
39	CURAZAO	Robert Bonifacio	gasm@dc-ansp.org
40	DOM IDAC	Bolívar León	brosa@idac.gov.do
41	DOM IDAC	Luis Emilio Cabral Rivera	luisemiliocabralrivera@gmail.com

	Estado/Organización State/Organization	Participante/Participant	Correo electrónico / e-mail
42	DOM IDAC	Manolo Alberto Abreu Fajardo	manolo.abreu@idac.gov.do
43	ECU DGAC	Luis León Franco	luis.leonf@aviacioncivil.gob.ec
44	ECU DGAC	María Palacios	maria.palacios@aviacioncivil.gob.ec
45	ECU DGAC	Diego Fuertes	diego.fuertes@aviacioncivil.gob.ec
46	ECU DGAC	John Espinoza	john.espinoza@aviacioncivil.gob.ec
47	ECU DGAC	Luis Tarira	luis.tarira@aviacioncivil.gob.ec
48	ECU DGAC	Marcelo Valencia	marcelo_valencia@aviacioncivil.gob.ec
49	ECU DGAC	Jaime Calderón	jaime.calderon@aviacioncivil.gob.ec
50	ECU DGAC	Jorge Romero	atc38rjromero@gmail.com
51	HTI OFNAC	Gabart Jean-Louis	dgenio19@gmail.com
52	HTI OFNAC	Philippe Riche	riche.philippe@ofnac.gouv.ht
53	HTI OFNAC	Marie Delourdes Gelin	delourdegelin@yahoo.com
54	IATA	Floyd Abang	abangf@iata.org
55	IATA	J. Fernando Rojas Ocampo	rojasf@iata.org
56	IFALPA	Guillermo Masnata	willymasnata@gmail.com
57	IFALPA	Diana Martínez	capidiana@hotmail.com
58	MEX AFAC	Álvaro Pérez Galindo	aperegal@sct.gob.mx
59	MEX AFAC	Juan Carlos Sánchez Rivero	jsanchri@sct.gob.mx
60	MEX ITAHSA	Joaquin Edmundo Ramírez	joaquinr@itahsa.com
61	MEX SENEAM	Jorge Caballero	jecfebles@hotmail.com
62	MEX SENEAM	Sofia Manzo	sptisha@hotmail.com
63	PAN - AAC	Ivan De León	ivan.deleon@aeronautica.gob.pa
64	PAN - AAC	Arsenio Bethancourt	aglycm17@gmail.com
65	PAN - AAC	Edwin Gfeller	arsenio.bethancourt@aeronautica.gob.pa
66	PAN - AAC	Ivan De León	ivan.deleon@aeronautica.gob.pa
67	PAR - DINAC	Delia Giménez	evaluaciongnna@gmail.com
68	PER - CORPAC	Norma Nava Hernández	nnava@corpac.gob.pe
69	PER - CORPAC	Renzo Gallegos	rgallegos@corpac.gob.pe
70	SUR - CASAS	Maira Rozenblad	madamroos@gmail.com
71	SUR - CASAS	Marylane Tsen You	mtsenyou@casas.sr
72	T&T CAA	Ann Marie Plaza-Hosein	aphosein@caa.gov.tt
73	T&T CAA	Ian Gómez	igomez@ caa.gov.tt
74	T&T CAA	Meera Ragoo	mragoo@caa.gov.tt
75	T&T CAA	Krishna Ingraham	kingraham@caa.gov.tt
76	T&T CAA	Paula Mark	pmark@caa.gov.tt
77	URU - DINACIA	Gabriel Fernández	gabriel.fernandez@dinacia.gub.uy
78	URU - DINACIA	Laura Díaz	laura.diaz@dinacia.gub.uy
79	USA FAA	Jose Pérez	jose.perez@faa.gov
80	USA FAA	Kimberly Fowler	kimberly.fowler@ faa.gov
81	USA FAA	Manny González	manuel.gonzalez@faa.gov
82	USA FAA	Danielle Crudden	Danielle.f.crudden@ faa.gov
83	USA FAA NAARMO	Marie Gale	marie.CTR.gale@faa.gov
84	USA FAA NAARMO	Christine Falk	christine.falk@faa.gov

	Estado/Organización State/Organization	Participante/Participant	Correo electrónico / e-mail
85	VEN - INAC	Jean Lozano	j.lozano@inac.gob.ve
86	VEN - INAC	Sonia Berroteran	smberroteran@gmail.com
87	ICAO HQ	Ernest Snyder	esnyder@icao.int
	ICAO NACC	Eddian Mendez	emendez@icao.int
	ICAO NACC	Gabriel Meneses	gmeneses@icao.int
	ICAO SAM	Roberto Sosa	rsosa@icao.int

Agenda Item 1: Review of the previous CARSAMMA and Scrutiny Group meetings conclusions and recommendations

a) Review of previous conclusions
b) Review of previous recommendations

1.1 The Meeting began with the review of WP/01, presented by the Secretariat, containing the draft agenda and the items to be addressed. The Secretariat highlighted that the GTE/21 agenda contained all the items that had been previously addressed by face-to-face meetings of the Scrutiny Group, and that the respective working and information papers had been submitted to cover all the topics of interest.

1.2 The participants adopted the draft agenda presented by the Secretariat.

1.3 The Secretariat presented WP/02 for the review of previous GTE conclusions and recommendations. The Secretariat reminded the Meeting that the nineteenth meeting of GREPECAS was scheduled for 2022, thus the need for a detailed and comprehensive review of previous conclusions and recommendations, in order to be able to report on the progress made by the Scrutiny Group to the PIRG.

1.4 The participants went on to review each of the conclusions and recommendations. The results of the review were as follows:

- Conclusion GTE/19/2 was considered *Completed*.
- Conclusion GTE/18/4 was considered *No longer valid*.

1.5 With regard to Conclusion GTE/16/2, the Meeting considered that it should remain valid until the release of the Handbook on Certification and Operation of State Aircraft in CAR/SAM airspace. To this end, the ICAO Offices would send a letter reminding States of both Regions about the use of this guidance document, and the handbook would be posted on the GTE website.

1.6 Regarding Conclusion GTE/16/4, the Meeting considered that it should remain valid, as some flight plan processing issues were still being identified in some CAR/SAM FIRs, mainly flight plans related to direct routes. The Secretariat requested the FIRs involved to coordinate directly with the ICAO Offices to work on possible solutions.

1.7 With regard to Conclusion GTE/18/4, following a review by the Secretariat and the Meeting, it was decided that it would no longer be valid, since it had been superseded by Conclusion GTE/20/2.

1.8 The remaining conclusions remained valid. The updated list of conclusions of the GREPECAS Scrutiny Group is presented in the **Appendix** to this part of the report.

1.9 During the review of the conclusions and recommendations, the Secretariat again reminded the participants that the conclusions and recommendations, even if finalised, represented tasks and commitments that were part of the work of the GTE and thus the importance of their follow-up.

1.10 The status and follow-up comments on each conclusion are based on the review carried out by the Secretariat and the representatives of States and international organisations.

APPENDIX

REVIEW OF PREVIOUSCARSAMMA AND SCRUTINY GROUP MEETING CONCLUSIONS AND RECOMMENDATIONS

Conclusion	Title	Text	Responsable of action	Completion date	Deliverable	Status (valid, completed or superseded)
Conclusion GTE/14-2	**ORIENTATION HANDBOOK FOR CARSAMMA ACCREDITED POINTS OF CONTACT**	That, CAR/SAM Regions States use the Orientation Handbook for CARSAMMA Accredited Points of Contact attached in Appendix B to this part of the Report, with a view to train their Points of Contact (PoC), as well as to improve the submission of the needed data, so that CARSAMMA can perform its responsibilities.	CAR/SAM Regions States			**COMPLETED**
Conclusion GTE/14-3	**METIGATION MEASURES FOR REDUCTION OF OPERATIONAL RISKS CAUSED BY LHD**	That, considering that the CAR/SAM Regions are significantly above the maximum acceptable operational risk values caused by LHD, the following measures to be taken: requesting the correspondent mitigation actions, considering the urgency that risk caused by LHD requires:				**COMPLETED**
		a) that the CAR/SAM States adopt mitigation measures to reduce operational risk caused by LHD as soon as possible, considering the best practices attached as Appendix A to this part of the report.	CAR/SAM States			**COMPETED**

Conclusion	Title	Text	Responsable of action	Completion date	Deliverable	Status (valid, completed or superseded)
		b) that the CAR/SAM States present Operational Risk caused by LHD Mitigation National Plans, as well as adopted mitigation measures to the GTE/15 meeting.	CAR/SAM States			**COMPETED**
		c) that the ICAO NACC and SAM Offices send an individual letter to each CAR/SAM State and ANSP informing the situation of LHD that affect operational safety in their airspace, based on detailed data obtained from CARSAMMA, and	States and ANSP			**COMPLETED**
		d) the States and ANSP present a report on mitigation measures implementation progress, based in SMS to ICAO NACC and SAM Regional Offices.	States and ANSP			**COMPLETED**
Conclusion GTE/14-4	**IMPLEMENTATION OF REGIONAL MONITORING AGENCY (RMA) FOR THE CAR REGION**	That, considering infrastructure and qualified personnel, Dominican Republic in coordination with CAR States, develops a project for the implementation of a Regional Monitoring Agency (RMA) venued in Dominican Republic for the CAR Region in accordance with ICAO requirements and provides this project to GREPECAS by 31 December 2015.			31 December 2015	**COMPLETED**

Conclusion	Title	Text	Responsable of action	Completion date	Deliverable	Status (valid, completed or superseded)
Conclusion GTE/16-1	**USE OF CARSAMMA PROCESS HANDBOOK IN CAR/SAM AREA CONTROL CENTRE (ACCs)**	That, States and International Organizations of the CAR/SAM Regions use the CARSAMMA Process Handbook, attached in Appendix B to GTE/16 report, to train ATCOs of ACCs to improve the submission of LHDs data to CARSAMMA.	States and ANSP			**COMPLETED**
Conclusion GTE/16-2	**USE OF HANDBOOK CERTIFICATION AND OPERATION OF STATE AIRCRAFT IN THE CAR/SAM RVSM AIRSPACE**	That, States and International Organizations of the CAR/SAM Regions use the Handbook Certification and Operation of State Aircraft in the CAR/SAM RVSM Airspace attached in Appendix D to GTE/16 report, for certification and approval of height-keeping performance requirement for State aircrafts.	States and ANSP			**VALID**

Conclusion	Title	Text	Responsable of action	Completion date	Deliverable	Status (valid, completed or superseded)
Conclusion GTE/16-3	**MITIGATION MEASURES TO IMPROVE TARGET LEVEL OF SAFETY IN THE RVSM AIRSPACE**	That, a) States and International Organizations of the CAR/SAM Regions adopt the reactive, proactive and predictive actions related to the implementation of SMS in the RVSM airspace; and b) The ICAO NACC and SAM Regional Offices, in coordination with States and International Organizations, encourage bilateral meetings to analyse and implement measures to reduce LHD events that affect safety in their airspace; the impact of these measures shall be presented in the GTE/17 meeting.	States, ANSP and Regional Offices			**COMPLETED**
Conclusion GTE/16-4	**URGENT ACTIONS TO IMPROVE FLIGHT PLAN PROCESSING AND COORDINATION IN THE CAR/SAM REGIONS**	That, States and International Organizations of the CAR/SAM Regions take urgent measures to require operators the correct use of established standards for timely processing and coordination of flight plans based on ICAO provisions.	States and ANSP			**COMPLETED**
Conclusion GTE/16-5	**AGREEMENT BETWEEN MEXICO AND THE NORTH**	That, Mexico and the NAARMO exchange data information regarding aircraft movement,	Mexico and NAARMO			**COMPLETED**

Conclusion	Title	Text	Responsable of action	Completion date	Deliverable	Status (valid, completed or superseded)
	AMERICAN APPROVALS REGISTRY AND MONITORING ORGANIZATION (NAARMO) FOR DATA EXCHANGE REGARDING SAFETY ASSESSMENT IN THE RVSM AIRSPACE	Large Height Deviations (LHD) reports in the RVSM airspace, as well as register of aircraft with RVSM approval, according to the information of Appendix F to GTE/16 report, and present this activities progress to the next GTE/17 meeting.				
Conclusion GTE/17-1	**COLLECTION OF AIRCRAFT MOVEMENT AND LHD DATA**	Taking into account that aircraft movement and LHD data is indispensable for measuring RVSM airspace performance in the CAR/SAM Regions, the States and international organisations must ensure the timely and regular delivery of this data in the form established by CARSAMMA and the GTE. Accordingly, the ICAO Regional Offices will follow up on the timely and proper delivery of data by the States and international organisations.	Secretariat, States and ANSP			**COMPLETED**
Conclusion GTE/17-2	**REVISION OF CARSAMMA AND GTE TERMS OF REFERENCE**	That, having agreed on the importance of continued monitoring of horizontal deviations, the Secretariat request GREPECAS to revise the terms of reference (TORs) of the				**COMPLETED**

Conclusion	Title	Text	Responsable of action	Completion date	Deliverable	Status (valid, completed or superseded)
		Regional Monitoring Agency (CARSAMMA) to include such monitoring as part of the functions of the Agency, leading to the exchange of such information with ICAO, the States and international organisations through the appropriate channels. Accordingly, that GREPECAS be requested to revise the terms of reference of the GTE to account for the expanded functions of CARSAMMA.				
Conclusion GTE/17-3	**TRAINING FOR FOCAL POINTS**	That, taking into account the need to schedule training activities through CARSAMMA for LHD focal points of the CAR/SAM Regions, the Secretariat request the support of GREPECAS for the conduction of these activities in 2018.				**COMPLETED**
Conclusion GTE/17-4	**OPERATION OF STATE AIRCRAFT IN CAR/SAM RVSM AIRSPACE**	That the ICAO Regional Offices coordinate with the States under their responsibility to ensure that State aircraft operating in RVSM airspace have the required approval to operate in such airspace, or complete the flight plan as established in the Manual on Certification and Operation of				**COMPLETED**

Conclusion	Title	Text	Responsable of action	Completion date	Deliverable	Status (valid, completed or superseded)
		State aircraft in CAR/SAM RVSM airspace. CARSAMMA will keep the Regional Offices informed, on a monthly basis, of occurrences involving State aircraft operating without certification in RVSM airspace.				
Conclusion GTE/17-5	**OPERATION OF NON-CERTIFIED AIRCRAFT IN CAR/SAM RVSM AIRSPACE**	That CARSAMMA inform the ICAO Regional Offices, on a monthly basis, of any occurrence involving the operation in RVSM airspace of a non-RVSM aircraft with registry of a CAR/SAM State, so that the corresponding ICAO Regional Offices may contact the State in order for it to take the necessary measures to ensure that this type of operations are not carried out.				**COMPLETED**
Conclusion GTE/18-1	**REVISION OF CARSAMMA TERMS OF REFERENCE**	Based in the GREPECAS Conclusion 18/22, that approved the amendment of the CARSAMMA Terms of Reference and the fact that there was not enough time to present a project by CARSAMMA at GTE/18 in order to include the safety assessment for lateral and longitudinal deviations:				**VALID**

Conclusion	Title	Text	Responsable of action	Completion date	Deliverable	Status (valid, completed or superseded)
		- An Ad hoc group comprised by Chile, Colombia, Cuba, CARSAMMA, and the GTE Rapporteur, supported by NAARMO and IATA is approved. The ICAO NACC and SAM Regional Offices will serve as the Secretariat, to present a project to include the safety assessment for lateral and longitudinal deviations, with methodology of analysis, the Collision Risk Model to be used, the establishment of a Target Level of Safety and the guidance material to be used by the Points of Contacts (POC) by 31 January 2019.				
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 behavior 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:				**VALID**

Conclusion	Title	Text	Responsable of action	Completion date	Deliverable	Status (valid, completed or superseded)
		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 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;				**VALID**
		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	Title	Text	Responsable of action	Completion date	Deliverable	Status (valid, completed or superseded)
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: a) 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 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; and b) States/Territories/International Organizations responsible for the provision of ATS services in the CAR/SAM Regions, connect to SIMS of ICAO, for the continuous monitoring of their safety performance and share with ICAO the data provided to CARSAMMA.				**VALID**

Conclusion	Title	Text	Responsable of action	Completion date	Deliverable	Status (valid, completed or superseded)
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 exchange of the LHD events, especially TCAS events data with the PA-RAST MAC Group, including lateral and longitudinal deviations (navigation errors) errors in RVSM airspace and outside of the RVSM airspace for the CAR and SAM Regions 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 data for the decision-making process to help reduce LHDs events and improve the safety performance in the RVSM airspace of the CAR/SAM Regions. This analysis should				~~**VALID**~~ SUPERSEDED

Conclusion	Title	Text	Responsable of action	Completion date	Deliverable	Status (valid, completed or superseded)
		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/19/1	**REVIEW OF THE GUIDE FOR POINTS OF CONTACT (POC) ACCREDITED TO CARSAMMA**	Taking into account that the GTE and LHD points of contact are one of the main elements of the mechanism for the monitoring, analysis and improvement of CAR/SAM RVSM airspace performance, and that the Guide for points of contact (PoC) accredited to CARSAMMA must be updated in order to clarify and reinforce the responsibilities of the GTE, points of contact and the rapporteur: a) The amendment to the Guide for points of contact (PoC) accredited to CARSAMMA, as presented in the Appendix to GTE/19-WP/03 and NI/03 forms F2/F3, is approved. a) The amended Guide is to be submitted by the rapporteur to				**VALID**

Conclusion	Title	Text	Responsable of action	Completion date	Deliverable	Status (valid, completed or superseded)
		the approval of the GREPECAS/19 meeting. b) The Secretariat will take the necessary measures to ensure that the Guide and all relevant GTE documentation are available to all GTE members. c) The States and international organisations will fulfil the responsibilities defined in the				
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 mechanism for				**~~VALID~~ COMPLETED**

Conclusion	Title	Text	Responsable of action	Completion date	Deliverable	Status (valid, completed or superseded)
		aircraft registered in their respective States.				
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 b) RVSM airspace of the CAR/SAM Region submit to CARSAMMA flight plan information of aircraft using RVSM airspace under their jurisdiction; and 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 c) CARSAMMA use the data submitted by States, Territories and International Organizations to expand the				**VALID**

Conclusion	Title	Text	Responsable of action	Completion date	Deliverable	Status (valid, completed or superseded)
		scope of their approval status audit.				
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 or 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.				**VALID**

— END —

Agenda Item 2: Review of the results of large height deviation (LHD) analysis

a) Indicator data on points of greatest occurrence of LHD events
b) Actions taken to improve the capture of LHD and RVSM status data by the State of Registry or the State of the Operator
c) Results of the CAR/SAM RVSM safety assessment project
d) Trend identification
e) Lessons learned by CAR/SAM States for the reduction of LHDs
f) Report on the progress made by States on LHD management

2.1 Under this agenda item, the Meeting reviewed working papers WP/03, WP/04 and WP/05 presented by CARSAMMA, and working papers WP/08 and WP/09 presented by NAARMO.

2.2 The Meeting took note of the information presented by CARSAMMA in WP/03 on the 2020 Vertical Collision Risk in the CAR/SAM Regions, recalling that this process required two main inputs: data on aircraft movements in RVSM airspace, and LHD occurrences. Due to the COVID-19 pandemic, which caused a significant reduction in air transport activities, it was requested at the GTE20 virtual meeting to use the average of movements occurring from January to December, which was accepted and implemented through to the delivery of this data by the FIRs of our Regions.

2.3 The Meeting noted that of the requested movement data, only the SMPM FIR data had not been received. Likewise, a considerable time had been required to debug the SKED and SKEC FIR data due to the absence of several elements such as entry/exit fixes, airways, and time of passage. When comparing the 2020 RVSM movements with those of 2019, it was noted that scheduled traffic had dropped by 46.25%.

2.4 Regarding the occurrence of vertical deviations (LHDs) in the CAR/SAM Regions, CARSAMMA had received a total of 433 LHD reports in 2020. Following an analysis and validation based on CRM parameters, 356 of those events had been considered valid in the CAR/SAM Regions for CRM analysis.

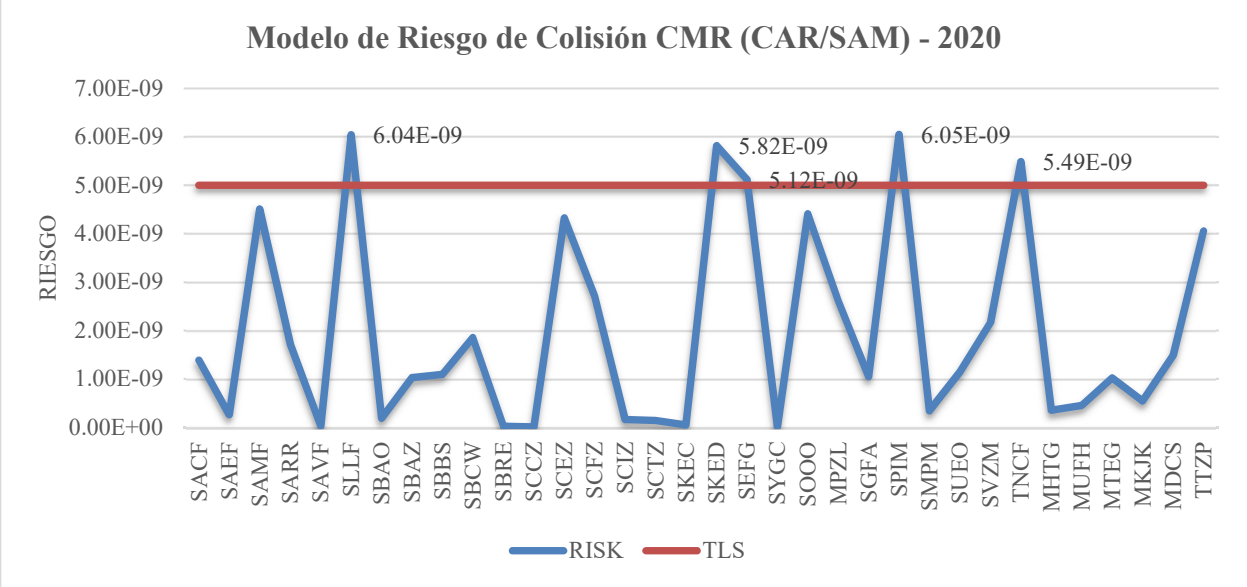
2.5 Regarding the analysis of movement data, CARSAMMA filtered and processed the data, identifying the types of aircraft that flew in the CAR/SAM FIRs, with their dimensions, number and percentage of flights, including a typical aeroplane, used as a dimension of the vertical risk calculation model. Table 1 shows the result obtained from the analysis.

Type of aircraft	Length	Wingspan	Height	# flights	% aircraft
B738	0.021328	0.018521	0.00674	33631	21.42
A320	0.020286	0.018413	0.00635	28009	17.84
A20N	0.020286	0.018413	0,00635	10065	6.41
B763	0.029644	0.025702	0.00755	8453	5.38
A321	0.024033	0.018413	0.00635	8204	5.22
A319	0.018272	0.018413	0.00635	6157	3.92
E195	0.019568	0.015507	0.00570	5380	3.43
B789	0.034017	0.034017	0.00917	4494	2.86

B737	0.018898	0.018521	0.00674	3554	2.26
A332	0.031749	0.032559	0.00939	3503	2.23
B77W	0.034395	0.034989	0,01004	3001	1.91
E190	0.019568	0.015507	0.00570	2905	1.85
B788	0.030778	0.032397	0,00917	2830	1.80
B752	0.025551	0.020788	0,00732	2017	1.28
B772	0.034395	0.032883	0,00998	1992	1.27
Other				32835	20.92
Typical	**0.029081**	**0.027894**	**0.008577**	**157030**	**100.00%**

Table 1 – Aircraft that flew in RVSM airspace in CAR/SAM FIRs

2.6 The Meeting took note of the consolidated collision risk values in the CAR/SAM FIRs for 2020, with the estimated vertical collision risk per FIR. It is important to note that FIRs that submit an LHD report are at higher risk, but it is often due to failures in the FIRs adjacent to their airspace. Graph 1 and Table 2 show the risk value for each of the FIRs in the CAR/SAM Regions.



Graph 1. Collision risk per CAR/SAM FIR

STATE	FIR	Vertical risk
ARGENTINA	CORDOBA - SACF	1.38E-09
	EZEIZA - SAEF	0.26E-09
	MENDOZA - SAMF	4.51E-09
	RESISTENCIA - SARR	1.71E-09
	COMODORO - SAVF	0.24E-09
BOLIVIA	LAPAZ - SLLF	6.04E-09
BRAZIL	ATLANTICO - SBAO	0.19E-09
	AMAZONICA - SBAZ	1.02E-09
	BRASILIA - SBBS	1.10E-09
	CURITIBA - SBCW	1.86E-09
	RECIFE - SBRE	0.20E-09
CHILE	PUNTA ARENAS - SCCZ	0.12E-09
	SANTIAGO - SCEZ	4.33E-09
	ANTOFAGASTA - SCFZ	2.71E-09
	EASTER ISLAND - SCIZ	0.16E-09
	PUERTO MONTT - SCTZ	0.14E-09
COLOMBIA	BARRANQUILLA - SKEC	0.46E-09
	BOGOTA - SKED	5.82E-09
ECUADOR	GUAYAQUIL - SEFG	5.12E-09
GUYANA	GEORGETOWN - SYGC	0.11E-09
FRENCH GUIANA	CAYENNE - SOOO	4.41E-09
PANAMA	PANAMA - MPZL	2.62E-09
PARAGUAY	ASUNCION - SGFA	1.05E-09
PERU	LIMA - SPIM	6.05E-09
SURINAME	PARAMARIBO - SMPM	0.34E-09
URUGUAY	MONTEVIDEO - SUEO	1.14E-09
VENEZUELA	MAIQUETIA - SVZM	2.17E-09
NETHERLANDS ANTILLES	CURACAO - TNCF	5.49E-09
CENTRAL AMERICA	CENAMER - MHTG	0.35E-09
CUBA	HAVANA - MUFH	0.45E-09
HAITI	PORT AU PRINCE - MTEG	1.02E-09
JAMAICA	KINGSTON - MKJK	0.54E-09
DOMINICAN REPUBLIC	SANTO DOMINGO - MDCS	1.49E-09
TRINIDAD AND TOBAGO	PIARCO - TTZP	4.05E-09
CAR/SAM TOTAL		1,78E-09

Table 2 - Risk collision by CAR/SAM FIR

2.7 **The Meeting took note of the total risk value estimated by CARSAMMA for the CAR/SAM FIRs of 1.78 x 10^{-9}, below the TLS (5.0 x 10^{-9}).**

2.8 The Secretariat acknowledged CARSAMMA for the presentation of the WP/03, drawing the attention of the focal points of the FIRs with higher-than-average risk values (see table 2 of this part

of the report), requesting them to adopt immediate measures to help reduce LHD occurrences and the risk to the FIRs under their responsibility.

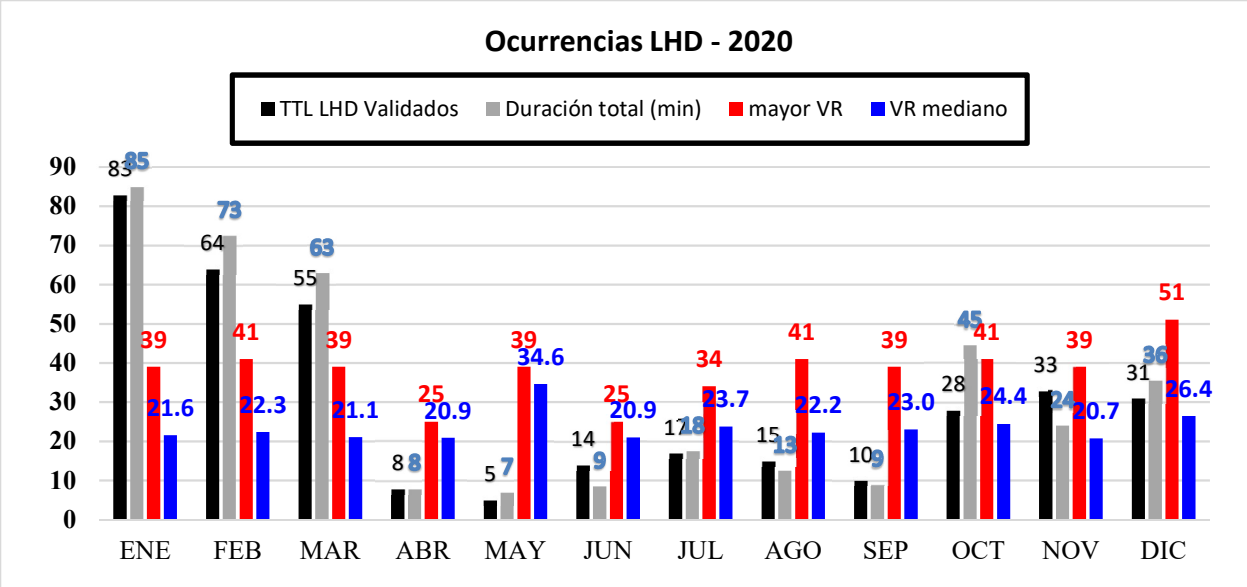
2.9 The focal points agreed to follow up on the information presented in WP/03, coordinating the implementation of mitigation actions to reduce risk in the CAR/SAM FIRs.

2.10 The Meeting took note of the information presented by CARSAMMA in WP/04 on the Safety assessment in CAR/SAM FIR RVSM airspace, where it was reported that the assessment was based on the analysis of 363 LHD events corresponding to 2020. Table 1 shows the events collected per month during the period under analysis.

MONTH	NUMBER OF LHDs	DURATION Total (min.)	DURATION Average (min.)	RISK Average	Highest RISK
JANUARY	83	85	1.02	21.6	39
FEBRUARY	64	73	1.13	22.3	41
MARCH	55	63	1.14	21.1	39
APRIL	8	8	1.00	20.9	25
MAY	5	7	1.40	34.6	39
JUNE	14	9	0.61	20.9	25
JULY	17	18	1.03	23.7	34
AUGUST	15	13	0.83	22.2	41
SEPTEMBER	10	9	0.90	23.0	39
OCTOBER	28	45	1.59	24.4	41
NOVEMBER	33	24	0.73	20.7	39
DECEMBER	31	36	1.15	26.4	**51**
TOTAL	**363**	**387**	**1.07**	**22.5**	

Table 3. LHD occurrences, with the duration, average duration, average risk, and highest risk per month

2.11 WP/04 showed that the month with the highest number of LHD occurrences was January 2020, which had the highest number of minutes related to LHDs; while the month with the highest risk value (RV) was December, mainly due to the contribution of two significant events, one in the TRAPP position in the PIARCO FIR and the other in the UMKAL position in the boundary between the Mendoza and Santiago FIRs. Graph 1 shows the behaviour of LHDs by month during the 2020 period.



Graph 2. LHD occurrences, with the average duration, average risk, and highest risk per month

2.12 As part of the analysis, WP/04 showed the FIRs with the highest number of LHD events, and the TCPs with the largest number of occurrences, noting that some TCPs again accounted for a significant number of events in 2020. Table 2 illustrates this behaviour.

FIR AT RISK	FIR THAT CAUSED THE FAILURE	REPORTS SUBMITTED		FIR AT RISK	FIR THAT CAUSED THE FAILURE
GUAYAQUIL	BOGOTÁ	41	UGUPI	92 of 94	109 of 115
		19	BOKAN		
		13	PULTU		
		12	ENSOL		
	LIMA	7	VAKUD	17 of 21	
		5	ARNEL		
		5	TOSES		
BOGOTÁ	GUAYAQUIL	9	UGUPI	23 of 24	44 of 53
		9	ENSOL		
		5	BOKAN		
	MAIQUETIA	3	KIKAS	6 of 7	
		3	ENPUT		
	PANAMÁ	5	BUXOS	8 pf 14	
		3	DAKMO		
	CENTRAL AMERICA	3	BOLDO	3 of 3	
	AMAZÓNICA	4	ABIDE	4 of 4	
LIMA	GUAYAQUIL	4	VAKUD	8 of 12	23 of 35
		4	PABOB		

	BOGOTÁ	5	ROLUS	5 of 7	
	ANTOFAGASTA	2	ALDAX	2 of 3	
	LA PAZ	2	DOBNI	4 of 8	
		2	ELAKO		
	AMAZÓNICA	4	LET	4 of 4	
AMAZÓNICA	BOGOTÁ	6	ABIDE	12 of 14	24 of 33
		3	ARUXA		
		3	BRACO		
	LA PAZ	2	RCO	2 of 2	
	MAIQUETIA	5	POVLA	10 of 12	
		3	VUMPI		
		2	PAKON		
PANAMÁ	BOGOTÁ	3	BUXOS	8 of 11	9 of 16
		3	DAKMO		
		2	ILTUR		
	BARRANQUILLA	1	AGUJA	1 of 4	
MAIQUETIA	BOGOTÁ	1	ENPUT	1 of 4	2 of 5
	BARRANQUILLA	1	SEMDO	1 of 1	
LA PAZ	AMAZÓNICA	5	RCO	5 of 5	11 of 12
	ASUNCION	2	SIDAK	2 of 2	
	LIMA	2	DOBNI	4 of 4	
		2	ORALO		
CURAZAO	BARRANQUILLA	2	OROSA	2 of 3	6 of 8
	KINGSTON	1	AMBIN	1 of 1	
	PORT AU PRINCE	1	LENOM	1 of 1	
	SANTO DOMINGO	2	BEROX	2 of 3	
SANTO DOMINGO	CURAZAO	3	KARUM	7 of 8	12 of 14
		2	PALAS		
		2	VESKA		
	PORT AU PRINCE	3	DCR	5 of 6	
		2	RETAK		
PORT AU PRINCE	HABANA	2	URLAM	2 of 2	9 of 13
	KINGSTON	3	KEBET	3 of 3	
	MIAMI	3	JOSES	3 of 6	
	SANTO DOMINGO	1	PIGBI	1 of 2	
KINGSTON	BARRANQUILLA	4	OTAMO	7 of 9	8 of 10
		3	KILER		
	HABANA	1	KATAL	1 of 1	

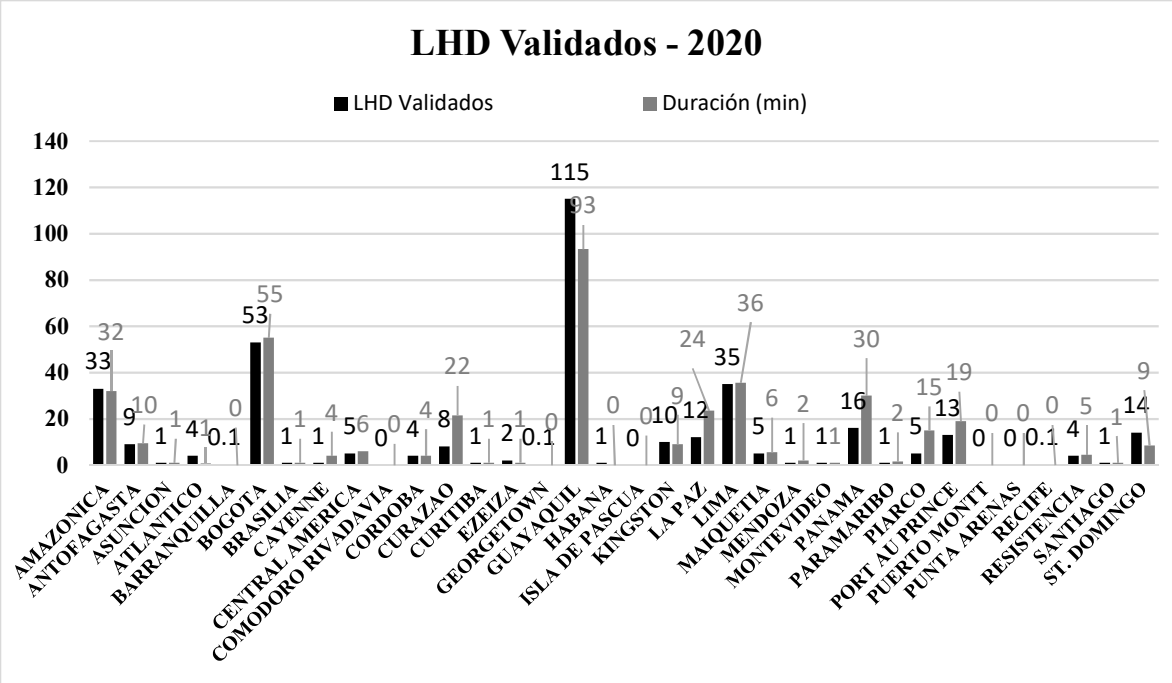
Table 4. Points of LHD occurrences, showing FIRs involved - Most reported points

2.13 The results of the safety analysis showed that E-coded events continued to prevail in the total classification of events analysed, representing 96.6% of the total number of events for the period 2020. Table 3 shows the distribution of LHDs according to their classification.

LHD Code	LHD code description	No. of LHD occurrences	Duration of LHD (min)	Levels crossed without clearance
A	Failure to climb/descend as cleared.	1	0.0	2
B	Climb/descend without ATC clearance.	0	0.0	0
C	ncorrect operation or interpretation of airborne equipment (e.g., incorrect operation of fully functional FMS, incorrect transcription of ATC clearance or re-clearance, flight plan followed rather than re-clearance, etc.)	1	1.0	0
D	ATC system loop error (e.g., ATC issues incorrect clearance or flight crew misunderstands clearance message)	1	7.0	2
E	Coordination error in ATC-to-ATC transfer of control due to human factor issues (e.g.,late or non-existent coordination; incorrect time estimate/actual time; flight level, ATS route, etc. not in accordance with agreed parameters)	344	365.6	343
F	Coordination errors in ATC-to-ATC transfer of control due to equipment outage or technical issues	5	2.0	0
G	Deviation due to aircraft contingency leading to sudden inability to maintain assigned flight level (e.g., pressurization failure, engine failure)	1	1.0	0
H	Deviation due to airborne equipment failure leading to unintentional or undetected change of flight level	1	1.0	0
I	Deviation due to turbulence or other weather-related cause	1	1.0	1
J	Deviation due to TCAS resolution advisory, flight crew correctly following the TCAS resolution advisory	0	0.0	0
K	Deviation due to TCAS resolution advisory, flight crew incorrectly following the TCAS resolution advisory	0	0.0	0
L	An aircraft being provided with RVSM separation while not being RVSM approved (e.g., flight plan indicates RVSM approval but aircraft not approved, ATC misinterpretation of flight plan)	1	1.0	0
M	Other - this includes situations of flights operating (including climbing/descending) in airspace where flight crews are unable to establish normal air-ground communications with the responsible ATS unit	0	0.0	0
Total	**(Jan 2020 – Dec 2020)**	**356**	**379.6**	**348**

Table 5. Summary of LHD occurrences and duration by LHD code

2.14 The attendees took note of the information regarding the number of events reported for each FIR, as shown in Graph 2, with the total number of events for each of the FIRs included in the analysis.



Graph 3. Total of LHD occurrences by FIR

2.15 As part of the analysis conducted by CARSAMMA, WP/04 showed the results of the safety assessment in CAR/SAM FIRs. It is important to recall that the acceptable level of safety (LoS=20) was agreed at the 21st meeting of the Scrutiny Group (GTE/21). Table 4 shows the FIRs with risk values above the LoS, where the highest risk value recorded during the period was 51 in the month of December 2020.

	LoS	SACU	MTEG	SKED	MHTG	SLLF	SPIM	MPZL	TTZP	TNCF	SAMV	SEFG
JAN	20	31	31	39	31	34	39	34	37			
FEB	20		31				39	41				
MAR	20			39		39						
APR	20											
MAY	20						39					
JUN	20											
JUL	20		34				31					
AUG	20							41				
SEP	20						39					
OCT	20		34	39	39					41		
NOV	20			39								
DEC	20		39						51		31	35

Table 6. LHD risk value estimates per month

2.16 WP/04 showed risk points with a value greater than or equal to 31, identifying 27 points with a total of 40 LHD occurrences. Figure 1 shows this information.

Figure 1. Points with higher risk values

2.17 The Meeting thanked CARSAMMA for the presentation of WP/04 and the information contained therein.

2.18 The Meeting took note of the information presented by CARSAMMA in WP/05 on the identification of trends based on the analysis of 2020 LHD events. Information was provided on the FIRs with the highest number of LHD events caused by a flight level coordination failure, where traffic was coordinated at one level, but the call to the accepting FIR was made while climbing or descending, without prior coordination. Table 5 shows the FIRs with the highest number of events in this group, and the points where these events were identified.

2020 reports	Reporting FIR	FIR generating the failure	Position
09	Santo Domingo	Curacao	VESKA
35	Santo Domingo	Curacao	KARUM
87	Bogota	Guayaquil	UGUPI
93	Panama	Barranquilla	AGUJA
106	Lima	La Paz	ELAKO
148	San Juan	Piarco	ELOPO
193	Bogota	Maiquetía	KIKAS
200	Santo Domingo	Curacao	KARUM
203	Bogota	Guayaquil	ENSOL
258	Piarco	Pilot	60 NM "S" RAKAN
299	Lima	Bogota	PLG (Puerto Leguizamo)
334	Curacao	Santo Domingo	BEROX
363	Guayaquil	Bogota	UGUPI
382	Curacao	Santo Domingo	BEROX
407	Curacao	Barranquilla	08NM "E" SELAN

Table 7 - LHD reports where transfer was made at a given level and the call was made while climbing or descending

2.19 As noted in the presentation of WP/05, the FIRs that most reported this situation were Santo Domingo, Bogota and Curaçao, and the most reported FIRs were Curaçao, Guayaquil, Barranquilla and Bogota. The most reported points were KARUM, UGUPI and BEROX.

2.20 The presentation included the identification of events related to transfer of control point coordination failure, where the aircraft changes airway or deviates from the route without coordinating with the adjacent FIR. Table 6 shows all LHD reports that fall into this group, where traffic is coordinated at one point and calls from another.

2020 reports	Reporting FIR	FIR generating the failure	Coordinated position	Position at which the aircraft calls
01	Guayaquil	Bogota	BOKAN	40NM "E" BOKAN
59	La Paz	Asunción	SIDAK	50NM "W" SIDAK
129	Bogota	Guayaquil	BOKAN	30NM "E" BOKAN
150	La Paz	Lima	ORALO	ELAKO
211	Córdoba	Antofagasta	KONRI	GEKAL
226	La Paz	Asunción	SIDAK	50NM "W" REMEK
252	Lima	Bogota	TERAS	PLG (Puerto Leguizamo)
376	San Juan	Miami	HARBG	10 NM NORTHEAST HARBG

Table 8 -LHD reports where transfer is made at a certain point and call is made from another

2.21 The trend information showed LHD occurrences caused by a flight level, flight number, fix or time coordination error, that is, coordination took place, but readback was incorrect, and the transferring unit was not aware of the error. Table 7 shows all LHD reports related to the above.

2020 reports	Reporting FIR	FIR generating the failure	Coordinated time, fix or level	Time, fix or level entered
222	Port Au Prince	Santo Domingo	FL300	FL360
308	St. Maria	Piarco	23:14	22:51

Table 9 - LHD reports where transfer was made but it was misunderstood

2.22 WP/05 also contained information on LHD events caused by coordination errors due to technical issues of the equipment used for the transfer (**AMHS** = ATS MESSAGE HANDLING SYSTEM or **AIDC** = ATS INTER-FACILITY DATA COMMUNICATION), and which received an "F" code by the reporting FIR or based on the description of the LHD report. Table 8 shows all LHD reports in this group, where traffic is coordinated at one level and calls from another, or was not coordinated.

2020 reports	Reporting FIR	FIR generating the failure	Position
301	Guayaquil	Lima	ARNEL
304	Guayaquil	Lima	VAKUD
306	Guayaquil	Lima	TOSES
375	Panama	Bogota	BUXOS
411	Guayaquil	Bogota	UGUPI

Table 10 - LHD reports where transfer is made at one level and call is made from another due to equipment failure

2.23 WP/05 also contained information on occurrences caused by time coordination errors, where traffic was coordinated at a given time but call was made significantly ahead or behind schedule. Table 9 shows all LHD reports in this group.

2020 reports	Reporting FIR	FIR generating the failure	Position	Coordinated time	Call time	Anticipation — minutes
5	Córdoba	La Paz	PUBUM	11:55	10:55	60
30	Santo Domingo	Port Au Prince	DCR	20:13	20:08	05
38	Santo Domingo	Curazao	VESKA	04:59	04:36	23
55	Resistencia	Ezeiza	OPNIN	01:57	01:35	22
57	Maiquetia	Bogota	CUC	19:28	19:10	18
58	Santo Domingo	Port Au Prince	PIGBI	21:58	21:51	07
67	Santo Domingo	Curacao	VESKA	15:41	15:36	05
83	La Paz	Amazónica	RCO	21:22	21:10	12
102	Lima	Guayaquil	ANPAL	10:25	10:17	08
105	Bogotá	Guayaquil	UGUPI	11:48	11:43	05
130	Santo Domingo	Curacao	PALAS	11:29	11:21	08
132	La Paz	Lima	DOBNI	07:30	07:10	20

135	Santo Domingo	Port Au Prince	DCR	17:36	17:31	05
159	Santo Domingo	Port Au Prince	DCR	16:20	16:14	06
199	Santo Domingo	Port Au Prince	RETAK	18:04	17:58	06
268	Antofagasta	Lima	ESDIN	02:18	02:07	11
369	New York	Piarco	FISST	23:28	23:08	20

Table 11 - LHD reports where transfer is made at a given time and the pilot calls ahead of time

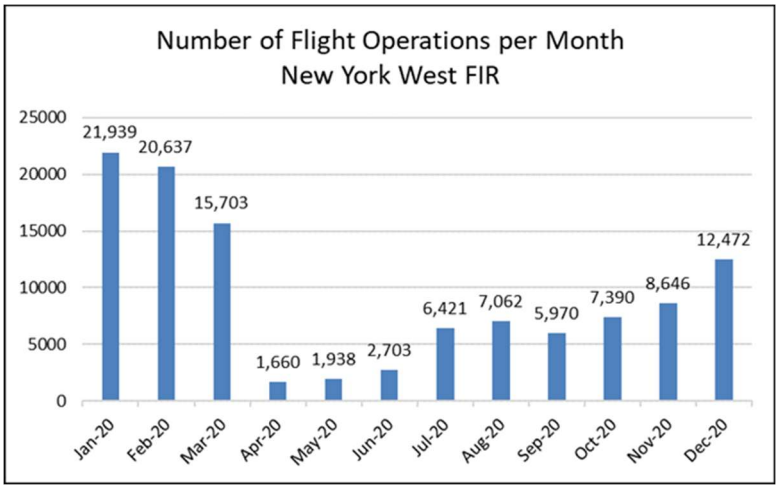
2.24 The Secretariat took note of the information presented in WP/05, highlighting the need for focal points of the FIRs identified in the trends to take corrective or mitigating action to reduce the number of LHD events, mainly in those FIRs where a significant number of LHDs had been identified.

2.25 According to the above, the Secretariat requested the focal points of the Curaçao, Santo Domingo and Haiti FIRs in the CAR Region, and the focal points of the Bogota, Guayaquil and Lima FIRs in the SAM Region, to coordinate bilateral meetings for the analysis, identification and implementation of corrective actions to reduce LHD events.

2.26 ICAO will follow up on coordination by the focal points mentioned in the previous paragraph.

2.27 The Meeting took note of the information presented by NARMO/FAA in WP/08, Vertical Safety Monitoring Report for Miami Oceanic, New York West and San Juan Airspace, which included a summary of LHD reports received by NAARMO for the year 2020, identifying 16 occurrences accounting for 20 minutes spent at an unexpected/incorrect flight level (FL).

2.28 As part of the presentation of WP/08, information on the number of flight operations per month for the New York West FIR for 2020 included in the analysis was shown (see Figure 3). The scrutiny group's review determined an overall cause for each of the LHD reports at risk in 2020. Table 10 presents the classification of LHD during 2020.



Grafic 4. FIR New York West, number of flight operations per month (year calendar 2020)

LHD Category Code	LHD Category Description	Number of LHD	Duration at Incorrect FL (minutes)	Number of Incorrect FLs Crossed
A	Flight crew failing to climb/descend the aircraft as cleared	2	2	2
B	Flight crew climbing /descending without ATC clearance	3	9	3
C	Incorrect operation of airborne equipment	0	0	0
D	ATC system loop error; (e.g., ATC issues incorrect clearance or flight crew misunderstands clearance message)	3	7	0
E	Coordination errors in the ATC-unit-to-ATC-unit transfer of control responsibility as a result of human factors issues	3	2	0
F	Coordination errors in the ATC-to-ATC transfer of control responsibility as a result of equipment outage or technical issues	0	0	0
G	Aircraft contingency event leading to sudden inability to maintain assigned flight level	1	0	0
H	Airborne equipment failure leading to unintentional or undetected change of flight level	0	0	0
I	Turbulence or other weather related causes	0	0	0
J	TCAS resolution advisory; flight crew correctly following the resolution advisory	2	0	0
K	TCAS resolution advisory; flight crew incorrectly following the resolution advisory	0	0	0
L	An aircraft being provided with RVSM separation is not RVSM approved (e.g. flight plan indicating RVSM approval but aircraft not approved, ATC misinterpretation of flight plan)	2	0	0
M	Other	0	0	0
	TOTAL	**16**	**20**	**5**

Table 12 – LHD by code

2.29 The Meeting took note of the values presented by NAARMO for the estimated technical risk in RVSM airspace of 0.07 × 10-9 fatal accidents per flight hour (fapfh), an estimate significantly below the 2.5×10^{-9} fapfh, which is the portion of the TLS set as the safety goal for technical height-keeping performance.

2.30 The operational vertical risk estimate for RVSM airspace was 5.61 × 10-9 fapfh. The sum of this value and the technical risk estimate for airspace was 5.68 × 10-9 fapfh, slightly larger than the overall safety goal of 5.0 × 10-9 fapfh.

2.31 The Meeting took note of the information presented by NAARMO/FAA in WP/09, Mexico and Gulf of Mexico (GOMEX) Airspace Vertical Safety Monitoring Report, showing a summary of LHD reports received by NAARMO in 2020 for Mexico airspace, with a total of 17 LHDs, of which 6 involved ATC transfer coordination errors (LHD categories E and F). Table 11 shows this classification.

LHD Category Code	LHD Category Description	Number of LHD	Duration at Incorrect FL	Number of FLs Crossed
D	ATC Loop Error	1	0	1
E	Coordination errors in the ATC -to-ATC transfer of control responsibility as a result of human factors issues	6	5	2
F	Coordination errors in the ATC -to-ATC transfer of control responsibility as a result of an outage or technical issues	0	0	0
G	Aircraft contingency event leading to sudden inability to maintain assigned flight level (e.g. pressurization failure, engine failure)	1	0	6
I	Turbulence or other weather-related cause	2	0	0
	TOTALS	**10**	**5**	**9**

Table 13 – LHD by code

2.32 The Meeting took note of the values presented by NAARMO regarding technical risk estimates for Mexico and GOMEX airspace, with a value of 0.05 × 10-9 fatal accidents per flight hour (fapfh), which is below the TLS.

2.33 Regarding the operational risk estimate, the calculated value was 1.46 × 10-9 fapfh. The sum of this value and the technical risk estimate for Mexico airspace was 1.51 × 10-9 fapfh, which is below the overall safety goal of 5.0 × 10-9 fapfh.

2.34 The Meeting welcomed the information provided by NAARMO in the working papers, acknowledging the support and contribution to GTE management.

Agenda Item 3: Activities and tasks to be reported to GREPECAS

a) Review of tasks to be reported to GREPECAS
b) GTE/PA-RAST cooperation

3.1 Under this agenda item, the Meeting reviewed WP/07 - *GTE/PA-RAST cooperation.*

3.2 The GTE and PA-RAST secretariats presented WP/07 to provide an update on data analysis collaboration between the GTE and the PA-RAST, specifically in relation to LHD and TCAS RA data.

3.3 The conclusion of GTE/20 enabled the initiation of preliminary work by GTE and PA-RAST members to advance the data exchange process, with the aim of improving airspace safety, while preserving the mandate of data conservation in accordance with the applicable confidentiality framework. The PA-RAST has also agreed to continue to emphasise the need for this type of collaboration to identify opportunities for improvement in the lower and upper airspace, including border transfer areas where such opportunities exist.

3.4 Work to strengthen the data/information sharing process in the CAR/SAM Regions by GTE and PA-RAST members is currently at the preliminary stage. Although the impact of COVID has limited the participation of team members, several meetings have been held with members of the NACC and SAM Regions, with the objective of working on the development of the strategic framework. The purpose of this framework will be to identify safety opportunities, and develop and implement applicable improvement initiatives.

3.5 Joint work between GREPECAS and RASG-PA will allow for a more in-depth review of applicable data/information for improvement of the decision-making and safety monitoring processes. Improved synergy between the groups on safety hotspots will permit a more efficient use of resources for risk identification to avoid duplication of efforts. Recommendations for improvement are aligned with the main objective of the two working groups of enhancing safety in airspace.

3.6 The preliminary review of trend information for TCAS RA from 2018 to 2020 provides information on the position/points where higher risk values where generally identified by the CARSAMMA analysis. However, the focus is on matching the information and not on the data when comparing the results of the previous year’s risk values identified in the CARSAMMA reports.

3.7 The Meeting took note of the progress made in this collaborative initiative, considering it necessary to continue to support it, requesting GTE members to engage in the proposed activities.

Agenda Item 4: Other business

Report on the flight plan audit

4.1 Under this agenda item, the Meeting discussed WP/06 presented by Venezuela, information papers IP/01, IP/02 and IP/03 of CARSAMMA, information papers IP/04 and IP/06 presented by NAARMO and IP/05 of the Secretariat.

4.2 The Meeting took note of the information presented by Venezuela in WP/06 regarding repeated incursion of aircraft into the Maiquetia flight information region (Maiquetia FIR), where they remained for a significant amount of time in RVSM airspace, compromising safety, since there is no communication or prior coordination from the adjacent FIRs to make an accurate projection of the route to be flown by these aircraft and thus establish an appropriate separation with controlled traffic.

4.3 In WP/06, it was reported that the number of incursions of unknown aircraft in 2019 had been 57, eleven (11) of them in RVSM airspace. Between January and October 2020, a total of 26 incursions had been recorded, seven (7) in RVSM airspace. Since the 20th meeting of the Scrutiny Group (GTE/20) until July 2021, 31 incursions of unknown aircraft had been registered in the Maiquetia FIR, two of these incursions entering RVSM airspace and two others detected at flight level 285, violating the separation minima between RVSM airspace and conventional airspace.

4.4 The Meeting took note of the risk calculation made by Venezuela regarding the incursions, which, although within an acceptable risk value, needed to be monitored and managed.

4.5 The Meeting acknowledged the information presented by Venezuela in WP/06, and offered its support for any coordination that might be required in this regard.

4.6 The Secretariat informed that it had followed up on the working paper presented by Venezuela at the GTE/20 meeting, and that action had been taken with the States, as reflected in IP/05 of this Meeting. It also reaffirmed its interest in addressing any safety issue that might affect civil aviation, and thus requested that the situation related to the incursion of aircraft continue to be monitored and that ICAO Offices be informed as necessary.

4.7 The Meeting took note of the information presented by CARSAMMA in IP/01 on the collection of data for estimating RVSM certification long-term monitoring burden in accordance with Annex 6 requirements. The data had been collected on 23 July 2021 from a review of RVSM approval records in the flight information regions relevant to CARSAMMA. The data revealed that approximately 1,295 aircraft operating in the Caribbean and South American Regions had an approval that was more than two years old, of which 189 were general aviation aircraft and 1,106 were commercial aircraft. The distribution of the monitoring burden for the Caribbean and South American Regions is shown in Table 1 and Table 2.

STATE	# AIRCRAFT
Barbados	2
Colombia	162
Costa Rica	21
Curacao	13
El Salvador	21
Cayman Islands	1
Jamaica	3
Mexico	9
Panama	79
Dominican Republic	2
Suriname	5
Trinidad and Tobago	25
Venezuela	64
TOTAL	**407**

Table 1 - Estimated aircraft monitoring burden by State in the **CARIBBEAN** Region

STATE	# AIRCRAFT
Argentina	104
Bolivia	37
Brazil	473
Chile	192
Ecuador	42
Paraguay	3
Uruguay	1
Peru	36
TOTAL	**888**

Table 2 - Estimated aircraft monitoring burden by State in the **SOUTH AMERICAN** Region

4.8 CARSAMMA informed the Meeting that this was the first step towards the establishment of altitude monitoring as set forth in Annex 6, and that they would continue to work with the support of NAARMO towards the establishment of this function.

4.9 The Meeting took note of the information presented by CARSAMMA in IP/01, and thanked CARSAMMA for it. The Secretariat requested CARSAMMA to coordinate a joint meeting with NAARMO to define the next steps regarding this activity.

4.10 The Meeting took note of the information presented by CARSAMMA in IP/02 regarding the digitalisation of form F4 of LHD reports, noting that, in the last year, CARSAMMA had received 33,000 pieces of data related to LHD reports via e-mail, in standard forms, which had been then validated by

specialised technicians, together with the total number of air movements per year--close to 4.1 million--for the analysis of the vertical collision risk.

4.11 In IP/02, CARSAMMA reported that in June 2021 it had started a process for testing and implementing electronic form F4 (e-LHD), which was available in three languages (Portuguese, Spanish and English). The new form is available at http://carsamma.provisorio.ws/DevTemp/f4.html

4.12 The Meeting welcomed the initiative of CARSAMMA of implementing e-LHD, which would facilitate the work of the focal points in reporting occurrences related to large height deviations. However, the participants deemed it advisable to hold a specific meeting to address all the questions and suggestions related to the implementation of the electronic form. Accordingly, the Secretariat was requested to coordinate a meeting among focal points, CARSAMMA, and the organisations of the industry that participate in the GTE in order to address issues related to the use of the electronic form and to define a timetable for its implementation.

4.13 The Meeting took note of the information presented by CARSAMMA in IP/03 on the results of the audit of the approval status of aircraft operating in the airspace. It was noted that, since January 2021, as a follow-up to item 2.2 of the GTE20 final report, CARSAMMA had expanded the flight plan audit process, and was now receiving data from CAR/SAM States. Although the process had proceeded as established by the GTE20, the number of States submitting flight plans was small. Table 1 shows the States that submitted flight plans this year.

	JAN	FEB	MAR	APR	MAY	JUN
ARG		6.341		6.050	4.773	4.033
BOL	9.195	9.860	11.205	8.260	9.699	9.774
BRA	65.414	54.888	55.520	86.025	96.414	133.193
CHL	8.806		6.774	5.042	6.443	
CUB	17.818					
HTI	1.154	954	1.228	1.263	1.132	
VEN		264	237		270	

Table 1 - States that submitted flight plans in 2021

4.14 IP/03 showed the results of the flight plan audit that had been carried out so far. Although the volume of information was not yet representative, some data on this matter had already been derived. These are shown in Table 2 below.

	JAN	FEB	MAR	APR	MAY
FPLs identified	2.949 **2.88%**	2.053 **2.83%**	1.986 **2.64%**	2.541 **2.38%**	2.739 **2.3%**
Records identified	346	258	234	276	269

Table 2 - Results of the flight plan audit, by month

4.15 During the presentation of IP/03, CARSAMMA explained that it was important to consider that flight plans had to be delivered within the agreed date, that is, on the first seven days of the month, since flight plans received after that date were no longer included in the audit of the month.

4.16 The Meeting acknowledged CARSAMMA for the information provided in IP/03 and for conducting the flight plan audit.

4.17 The representative of Cuba stated that, although they had complied with the monthly delivery of flight plans on the required date, IP/03 did not reflect such compliance, and requested that the reason for this situation be analysed; so that the necessary actions are implemented to avoid it happens again.

4.18 The Secretariat requested the focal points to fulfil this task, which had been agreed by the GTE/20. To this end, it would send a reminder letter requesting those States that had not been included in IP/03 of CARSAMMA to deliver this information.

4.19 The Meeting took note of the information contained in IP/04 presented by NAARMO on the horizontal safety monitoring report for the New York West FIR in the CAR Region. This paper included a summary of the large lateral deviation (LLD) reports, large longitudinal error (LLE) reports, and traffic data for calendar year 2020. There were 12 reported LHDs accounting for 14 minutes spent on an unexpected/incorrect route. The lateral collision risk estimate was 0.14 × 10-9 fatal accidents per flight hour, which met the TLS value.

4.20 The Meeting took note of the information presented by the Secretariat in IP/05 on some of the coordination activities undertaken by ICAO with respect to WP/07 presented at the GTE20 on uncoordinated overflight of aircraft in the Maiquetia FIR airspace. As part of these activities, a State letter had been sent in March 2020 to CAR/SAM States as a reminder of the principles of the Chicago Convention and the relevant Annexes regarding the operation of aircraft on the high seas, the role of ATS services with regard to unidentified aircraft, and the coordination of activities potentially hazardous to civil aviation.

4.21 In IP/05, the Secretariat recalled that one of the objectives of the GTE was to contribute to the maintenance of the highest levels of safety in RVSM airspace. Accordingly, information from States on any situation considered to pose a risk to the normal conduct of airspace operations should continue to be followed up. The Meeting thanked the Secretariat for the information provided in IP/05.

4.22 The Meeting took note of the information provided by NAARMO in IP/06 on the assessment of non-approved operators flying in RVSM airspace of the New York West FIR, showing the assessment process and the results for December 2020. Information was also provided on the monitoring burden associated with long-term height monitoring requirements.

4.23 In IP/06, NAARMO noted that the analysis had shown a total of 22,453 aircraft with RVSM approval, representing a monitoring burden of 14,781, with a total of 774 aircraft not successfully monitored in the last two years (or 1,000 flight hours, whichever interval was longer).

4.24 The Meeting thanked NAARMO for the information provided in IP/06, emphasising that it had helped to clarify this task in the CAR/SAM Regions, and would welcome support to continue with this implementation.

4.25 Under other business, CARSAMMA made a presentation on the collision risk calculation (CRM) process, explaining in detail the analysis process, in response to queries from some FIRs regarding the results of this process presented in WP/03.

4.26 Argentina made a presentation on the management of safety indicators based on RVSM airspace monitoring data from the FIRs in the State, showing the use of the dashboard for making decisions based on LHD information.

4.27 The focal point of Argentina made a presentation on the dates defined for the delivery of LHD, flight plan, and movement data, pointing out that these dates overlapped and generated a significant workload for focal points, mainly during the first week of the month. Accordingly, the request was made to consider unifying these dates on the first fifteen days of the month for the delivery of flight plans and LHD reports. They also requested that the focal point handbook be updated to incorporate the latest changes made, including the submission of flight plans, form e-F4, among other changes that would help to improve management by the focal points.

4.28 The Meeting agreed to update the focal point handbook, to which end an *ad hoc* group would be created to review the handbook. The approval by the GTE and GREPECAS would be done through the *fast-track* methodology. The review would consider the unification of dates for the delivery of data, as agreed by the focal points and CARSAMMA.

4.29 The Secretariat reminded attendees that the report of the present meeting includes an updated list of LHD focal points; however, I emphasize that it is important for States and international organizations to keep in mind that it is necessary to comply with the submission of the form to CARSAMMA for the updating of information on focal points.

PUNTOS FOCALES – DATOS MOVIMIENTOS AERONAVES
FOCAL POINTS - AIRCRAFT MOVEMENT DATA

ESTADO/STATE	ADMINISTRACIÓN/ ADMINISTRATION	NOMBRE/NAME	CARGO/POST	TELÉFONO/ PHONE	E-MAIL
ARGENTINA	Administración Nacional de Aviación Civil (ANAC)- Dirección Nacional de Inspección de Navegación Aérea	Miguel Angel Diaz	Inspector ANS	+5493513066377	amdiaz@anac.gob.ar
		Marcos David Campos	Inspector ANS	+5493517019269	mcampos@anac.gob.ar
	EANA – Navegación Aérea Argentina	Hernán Burguener	Controlador ACC Resistencia	+54 362 466 9610	hburguener@eana.com.ar
BOLIVIA	Dirección General de Aeronáutica Civil - DGAC	Reynaldo Cusi Mita	Jefe Unidad ATM/SAR	+5912 244 4450 +591 67010752 (Cel)	rcusi@dgac.gob.bo
		Jesús Israel Villca Jiménez	Inspector ATM/SAR	+5912 244 4450 +591 72023263 (Cel)	jvillca@dgac.gob.bo
	Administración de Aeropuertos y Servicios Auxiliares a la Navegación Aérea – A.A.S.A.N.A.	Franklin Rosas Carvajal	Controlador de Área ACC La Paz	+591 2 2810203 +591 77203013 (Cel)	frosas@lp.aasana.gob.bo
BRASIL/ BRAZIL	Brasilia	Cap. Branco Cap. Ivan			brancidrb@fab.mil.br ivanirm@fab.mil.br
	Curitiva	Cap. Klatt A.			klattaks@fab.mil.br
	Recife	Ten. Ivanildo Silva Sgt. Elaine			ivanildosilvaics@fab.mil.br elaineeemv@fab.mil.br
	Atlantico	Ten. Alex Borges			alexatb@fab.mil.br
	Amazonica				

ESTADO/STATE	ADMINISTRACIÓN/ ADMINISTRATION	NOMBRE/NAME	CARGO/POST	TELÉFONO/ PHONE	E-MAIL
CAYMAN ISLANDS	Civil Aviation Authority of the Cayman Islands	Cydric Desbarida Lindsay Cadenhead Mark Dixon	Flight Operations Inspector		cydric.desbarida@caacayman.com lindsay.cadenhead@caacayman.com mark.dixon@caacayman.com
COCESNA		Henry Reyes René Martinez	Unidad ATFM	+504 2275-7108 +504 99507515	henry.reyes@cocesna.org rene.martinez@cocesna.org hrreyesa@gmail.com
COLOMBIA	Unidad Administrativa Especial de Aeronáutica Civil – UAEAC	**ACC Bogotá** Edwin Holman Sierra Cortes Willington Jarvy Ochoa Aguilar	Controlador aéreo, Grupo Operativo	+571 296 5630	edwin.sierra@aerocivil.gov.co willington.ochoa@aerocivil.gov.co
		ACC Barranquilla Paulino Rodriguez Palomino Diana María Luque Salcedo	Controlador Tránsito Aéreo Radar. Controlador Tránsito Aéreo Radar	+571 296 4550 +571 296 4583	paulino.rodriguez@aerocivil.gov.co diana.luque@aerocivil.gov.co
CHILE	Dirección General de Aeronáutica Civil - DGAC	Juan C. Álvarez Horacio Forno Bengoa	CTA (Titular) CTA (Suplente)	+562 2 290 4657 +562 2 290 4656	juan.alvarez@dgac.gob.cl hforno@dgac.gob.cl

ESTADO/STATE	ADMINISTRACIÓN/ ADMINISTRATION	NOMBRE/NAME	CARGO/POST	TELÉFONO/ PHONE	E-MAIL
CUBA	Instituto de Aeronáutica Civil de Cuba- IACC Empresa Cubana de Navegación Aérea - ECNA	Jorge Fermín Centella Artola Dora Consuelo Ricardo Valdés	Esp. Aeronaveg. ATM Dir. Aeronaveg. IACC Esp. Aeronaveg. ATM/SMS . Grupo SMS ECNA	+537 838 1121 +537 266 4497 +535 999 2034	jorge.centella@iacc.avianet.cu dan@iacc.avianet.cu dora.ricardo@aeronav.avianet.cu
ECUADOR	Dirección General de Aviación Civil - DGAC	Antonio Arias Hart Miguel Vicente Narváez	Controlador Radar	+593 2 294 7400 Ext. 2212 +593 4 228 9616 +593 4 239 4960	jose.arias@aviacioncivil.gob.ec miguel.narvaez@aviacioncivil.gob.ecvinarvz@hotmail.com
GUYANA	Guyana Civil Aviation Authority – GCAA	Trevor Lloyd Daly Mr. Mark Appiah	SATCO-Ops ATCO III	+592 261-2564 Mobile: 608 3653 +592 261-2245 Mobile 672 4741	tdaly@gcaa-gy.org mappiah@gcaa-gy.org
GUYANA FR.		Guillaume Robert		+596 696 936 072	guillaume.robert@aviation-civile.gouv.fr
HAITI		Mario Eric Legagneur			elegagneur@hotmail.com
JAMAICA		Courtney Malcolm Alternate: Suzilee McLean-Chambers Howard Greaves Noel Elis			courtney.malcolm@jcaa.gov.jm suzilee.McLean-Chambers@jcaa.gov.jm howard.greaves@jcaa.gov.jm noel.Ellis@jcaa.gov.jm
PANAMA		Leydi Sánchez Flor Eneida Silvera Cardales		+507 315 9871 / 0291	ly07cm@gmail.com fsilvera@aeronautica.gob.pa
PARAGUAY	Dirección Nacional de Aeronáutica Civil - DINAC	CTA Delia Cristina Giménez Aranda CTA Margarita Cabrera Ibarrola	Jefa Departamento Evaluación de Sistemas CNS/ATM Jefa Departamento Centro de Control de Área Unificado (ACC-U)	+595 21 205 365 +595 21 7585107	eca@dinac.gov.py evaluaciongnna@gmail.com margacaiba@gmail.com accu.asuncion@gmail.com
PERÚ	CORPAC S. A.	CTA Norma Nava Hernández	Controlador Radar (Punto Focal) Gerencia Operaciones Aeronáuticas	+511 575 0886 +51999627508 +511 230 1093	nnava@corpac.gob.pe norma_navape@hotmail.com rgallegos@corpac.gob.pe

ESTADO/STATE	ADMINISTRACIÓN/ ADMINISTRATION	NOMBRE/NAME	CARGO/POST	TELÉFONO/ PHONE	E-MAIL
		CTA Renzo Gallegos Begazo	Gerencia Gestión de Seguridad Operacional - Jefe Área Seguridad Operacional	+511 912113816	rgbegazo@hotmail.com
REPÚBLICA DOMINICANA	Instituto Dominicano de Aviación Civil (IDAC)	Luis Emilio Cabral Rivera	Controlador radar (Punto Focal)	+829 669 5755	luisemliocabralrivera@gmail.com
		Manolo Alberto Abreu Fajardo	Jefe de Grupo Centro de Control (Punto Focal)	+809 919 4285	manolo.abreu@idac.gov.do manolo.abreu@hotmail.com abreumanolo@gmail.com
		Claudia Beatriz Roa Ochoa	Directora de Navegación Aérea (Punto de contacto)	+ 809 315 9814	claudia.roa@idac.gov.do
		Eduardo M. Tejada Echavarria	Encargado Departamento de Gestión de Tránsito Aéreo (Punto de contacto)	+809 315 5830	eduardo.tejada@idac.gov.do
SURINAME	Civil Aviation Department of Suriname	Baidjoesingh Rajeev Andre Soeknandan			rajeevbaidjoesingh_80389@hotmail.com rbaidjoesingh@cadsur.sr a.soeknandan@cadsur.sr atmcnslvd@yahoo.com
TRINIDAD & TOBAGO		Ian R. Gómez			igomez@caa.gov.tt atcivp_e@caa.gov.tt
URUGUAY	Dirección Nacional de Aviación Civil e Infraestructura Aeronáutica - DINACIA	Alberto Abetti Gabriel Fernández	Controlador de Tránsito Aéreo adjunto al Dpto. Técnico Especialista III Dirección de Seguridad Operacional	+598 2604 0408 Int 2109 Cel 099190150 +598 99924224	alberto.abetti@dinacia.com.uy gabriel.fernandez@dinacia.gub.uy

ESTADO/STATE	ADMINISTRACIÓN/ ADMINISTRATION	NOMBRE/NAME	CARGO/POST	TELÉFONO/ PHONE	E-MAIL
VENEZUELA	Instituto Nacional de Aeronáutica Civil - INAC	Sonia Mayrenis Berroterán Leals	Jefe ACC Maiquetía	+58 212 3034531 +58 4124809712	smberroteran@inac.gob.ve s.berroteran@inac.gob.ve

PUNTOS FOCALES EQUIPAMENTO / FOCAL POINTS - EQUIPMENT

ESTADO/STATE	ADMINISTRACIÓN/ ADMINISTRATION	NOMBRE/NAME	CARGO/POST	TELÉFONO/ PHONE	E-MAIL
ARGENTINA	**Administración Nacional de Aviación Civil (Argentina)**	Cristina Schettino	Inspector Superior de Aeronavegabilidad / cumpliendo funciones en Departamento de Explotadores Aéreos Dirección de Operación de Aeronaves	+54 11 5941-3000 Int. 69953	cschettino@anac.gob.ar
BOLIVIA	Dirección General de Aeronáutica Civil - DGAC	Oscar Santander Botello	Inspector de Aeronavegabilidad	+5912 211 4465 +5912 244 4450 +591 72846597 (Cel)	osantander@dgac.gob.bo
REPÚBLICA DOMINICANA	Instituto Dominicano de Aviación Civil (IDAC)	Bolívar Ezequiel León de la Rosa	Jefe de Grupo Centro de Control (Punto Focal)	+809 854 3085	brosa@idac.gov.do brosa@idacgobdo.onmicrosoft.com
BOLIVIA		Aldo M. Escobar L. Oscar Santander Botello Erick Piérola Miranda			aescobar@dgac.gob.bo osantander@dgac.gob.bo epierola@dgac.gob.bo
BRASIL	Agencia Nacional de Aviação Civil - ANAC	GOAG Savio di Pablo Marcos Vinicius GCTA Antonio Dias Amanda Victor	Gerencia Opr. Avi. Geral Gerente GTPO RJ Gerente GOAG BR Gerencia Cia Transp. Reg Gerente GCTA Inspetora GOAG RJ	+55 61 3314 4840 +55 21 3501 5460 +55 61 3314 4845 +55 11 3636 8661 +55 11 3636 8778 +55 21 3501 5432	goag@anac.gov.br savio.ferreira@anac.gov.br marcus.vinicius@anac.gov.br gcta@anac.gov.br antonio.dias@anac.gov.br amanda.victor@anac.gov.br
CAYMAN ISLANDS		Cydric Desbarida Lindsay Cadenhead			cydric.desbarida@caacayman.com lindsay.cadenhead@caacayman.com
CHILE	Dirección General de Aeronáutica Civil - DGAC	Andrés Prado Grez Jorge Gárate Gómez Horacio Forno Marcela Vasquez	Insp. de Aeronavegabilidad Insp. de Aeronavegabilidad	+562 2 2436 3173 +562 2 2436 3173	aprado@dgac.gob.cl jgarateg@dgac.gob.cl hforno@dgac.gob.cl mvasquezf@dgac.gob.cl

ESTADO/STATE	ADMINISTRACIÓN/ ADMINISTRATION	NOMBRE/NAME	CARGO/POST	TELÉFONO/ PHONE	E-MAIL
COLOMBIA	Unidad Administrativa Especial de Aeronáutica Civil – UAEAC Secretaría de Seguridad Aérea	Luis Alfonso Riveros Rivera German Castiblanco Mojica Jorge Guilhermo Savedra Juan Oswaldo Hernández Rodríguez	Insp. de Seguridad Aérea Insp. de Seguridad Aérea	+571 296 2989 +571 296 2156	luis.riveros@aerocivil.gov.co german.castiblanco@aerocivil.gov.co jorgeparra@aerocivil.gov.co juan.hernandez@aerocivil.gov.co
COSTA RICA	Unidad Supervisión de Navegación Aérea	Rolando Richmond Fernando Zeledón Estrada	Jefatura de Unidad de Supervisión de Navegación Aérea Especialista Inspector ANS		rrichmond@dgac.go.cr fzeledon@dgac.go.cr
CUBA		Jorge Centella Artola Ing. Jorge Villazón Ramirez	Esp. Aeronaveg. ATM Dir. Aeronaveg. IACC Esp. Aeronavegabilidad. Dir. Ingeniería y Aeronavegabilidad. IACC	+537 838 1121 +537 838 1124	jorge.centella@iacc.avianet.cu dan@iacc.avianet.cu jorge.villazon@iacc.avianet.cu
ECUADOR		AVIONICA Geraldo Manuel S. Montenegro Cesar Naranjo Miguel Vicente Narvaez José Antonio Arias Hart Manuel Santamaria			avionica@aviacioncivil.gob.ec cesar.naranjo@dgac.gob.ec Miguel.narvaez@aviacioncivil.gob.ec Jose.arias@aviacioncivil.gob.ec
EL SALVADOR		Cesar Hidalgo Marco Antonio Henriquez			chidalgo@aac.gob.sv mhenriquez@aac.gob.sv
GUATEMALA		Ligia			ligia.illescas@dgac.gob.gt
GUYANA	Guyana Civil Aviation Authority - GCAA	Trevor Daly Roy Sookhoo	SATCO - Ops. Air Navigation Services (GCAA) Manager ATS, Air Navigation Services (GCAA)	+592 261 5277 +592 261 5277	tdaly@gcaa-gy.org rsookhoo@gcaa-gy.org
GUYANA FR.					
PANAMA					
HAITI		Mario Eric Legagneur			marioeric.legagneur@ofnac.ht elegagneur@hotmail.com
HONDURAS		Fredy Osorio Wilfredo Lobo	Inspector de OPS Director Ejecutivo	+5043144003	fredyosoriom@hotmail.com wlobo@ahac.gob.hn

ESTADO/STATE	ADMINISTRACIÓN/ ADMINISTRATION	NOMBRE/NAME	CARGO/POST	TELÉFONO/ PHONE	E-MAIL
		Eny Galindo Heriberto Sierra Pavon	Asistente de Direccion Jefe de Navegacion Aerea		egalindo@ahac.gob.hn hsierra@ahac.gob.hn
JAMAICA		Courtney Malcolm			courtney.malcolm@jcaa.gov.jm
NICARAGUA					dg@inac.gob.ni
PANAMA		Rigo Castillo			rcastillo@aeronautica.gob.pa
PARAGUAY		Guilhermo Bonetto			gbonetto@dinac.gov.py
PERÚ		Luiz Enrique Tavara Garcia Paulo Cesar Vilas Millones			itavara@mtc.gob.pe pvila@mtc.gob.pe
REPUBLICA DOMINICANA		Pedro Torres Alan Eduardo Arias Batle Osiris Hidalgo Gabriel Medina Pedro Manuel Cabrera Otanez Julio Suarez Mejica			ptorres@idac.gov.do aarias@idac.gov.do ohidalgo@idac.gov.do gabriel.medina@idac.gov.do pcabrera@idac.gov.do julio.suarez@idac.gov.do
SURINAME		Andre Soeknandan			a.soeknandan@cadsur.sr cad.atmcns@tct.gov.sr atmcnslvd@yahoo.com
TRINIDAD & TOBAGO		Ian Gomez			igomez@caa.gov.tt ttcaa@tsst.net.tt atcivp_e@caa.gov.tt
URUGUAY	Dirección Nacional de Aviación Civil e Infraestructura Aeronáutica - DINACIA	Alberto García Juan Lovrich Eduardo Ledesma			garalber@gmail.com jlovrich@dinacia.gub.uy eledesma@dinacia.gub.uy
VENEZUELA	Instituto Nacional de Aeronáutica Civil - INAC	Carlos González Yanireth Zarraga Alexis Jesus Carache Jiménez	Inspector aeronáutico Inspector aeronáutico		cgonzalezashby@yahoo.com yanireth.zarraga@inac.gob.ve a.carache@inac.gob.ve caracheitor@gmail.com

CONTACTOS DE CARSAMMA/CARSAMMA CONTACTS

NOMBRE/NAME	E-MAIL	TELÉFONO/PHONE
CARSAMMA	carsamma@cgna.decea.mil.br	
Raphael Barbosa	chefe.carsamma@cgna.decea.mil.br	
Sérgio Fonseca	fonsecasrof@cgna.decea.mil.br	
Alexandre Salviano	salvianoacps@cgna.decea.mil.br	
Luís Barreto	barretolhbmc@cgna.decea.mil.br	
Hévelin Borges	hevelinhab@cgna.decea.mil.br	
Renata Gonçalves	renatarasg@cgna.decea.mil.br	
Ricardo Rocha	ricardordr@cgna.decea.mil.br	
Reinaldo Taveira	taveirarbt@cgna.decea.mil.br	
Rafael Borges	rafaelrptb@cgna.decea.mil.br	

Actualización: 7 de septiembre de 2021
Updated: 7 September 2021