



ICAO

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

Sixth North American, Central American and Caribbean Working Group Meeting (NACC/WG/6)

Final Report

On-line, 25 to 27 August 2021

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HISTORICAL

ii.1 Place and Date of the Meeting

The Sixth North American, Central American and Caribbean Working Group Meeting (NACC/WG/6) was held on-line, from 25 to 27 August 2021.

ii.2 Opening Ceremony

Mr. Melvin Cintron, Regional Director of the North American, Central American and Caribbean (NACC) Regional Office of the International Civil Aviation Organization (ICAO) provided opening remarks.

Mr. Cintron indicated the importance of the NACC/WG Meeting, that integrates all air navigation services, which are the most important part in the process of aviation recovery amid the critical times that the world is facing. He also informed about the development process of the different volumes of the electronic air navigation plan and the need for States to be involved in this process and in the development of the CAR/SAM Planning and Implementation Regional Group (GREPECAS) projects.

Finally, Mr. Cintron thanked all the participants in the meeting and remarked the need to identify solutions in all air navigation areas and to make decisions to obtain regional benefits and officially opened the meeting.

Mr. Roger Perez of the Central American Agency for Air Navigation, part of the Central American Corporation for Air Navigation Services (COCESNA), would act as Chairperson of the meeting.

Mr. Perez thanked for the opportunity to act as Chairperson of the Meeting on behalf of COCESNA and stressed the importance of the NACC/WG, as it is the forum where the very important implementation processes in all the areas of air navigation are discussed and analyzed. He emphasized the need to work hard to overcome the difficult situation that has caused the COVID-19 pandemic in all areas, health, economy, and especially in the aviation industry. He invited to enrich the meeting with recommendations and decisions for the efficiency and capabilities related to supporting safety of aviation.

ii.3 Officers of the Meeting

The NACC/WG/06 Meeting was held with the participation of the Chairperson, Mr. Roger Pérez from COCESNA, who chaired the meeting plenary. Mrs. Mayda Ávila, Communications, Navigation and Surveillance Regional Officer, served as Secretary of the Meeting, supported by Mr. Raul Martínez, Air Information Management Regional Officer.

The Meeting was supported by all ICAO NACC Air Navigation Officers, Messrs. Eddian Mendez, Air Traffic Management Regional Officer, Luis Sanchez, Meteorology Regional Officer and Mr. Jaime Calderon, Aerodromes and Ground Aids, as well as Safety Implementation Regional Officers Mrs. Sereya Schotborgh, Mr. Marcelo Orellana and Mr. Rubén Martínez, Accident investigation Regional Officer.

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 09:00 to 1:00 hours daily with adequate breaks.

ii.6 Agenda

Agenda Item 1: Review and approval of the Agenda, Working Method and Schedule of the Meeting

- 1.1 Election of the Chairperson and Vice Chairperson of the Meeting
- 1.2 Introduction of the Rapporteurs of the Task Forces of the NAM/CAR Air Navigation Implementation Group (ANI/WG)
- 1.3 Adoption of the Agenda, work method and Schedule of the Meeting

Agenda Item 2: Follow-up on Valid Conclusions and Previous Agreements of the NACC/WG, GREPECAS, NACC/DCA and Other Related Meetings

- 2.1 Review of the valid conclusions/decisions of the NACC/WG, the ANI/WG, the NACC/DCA and the GREPECAS (PPRC) Meetings
- 2.2 Progress in Air Navigation (AN) issues by the NACC Systemic Assistance Programme (SAP)
- 2.3 Follow-up to GREPECAS improvements and AN Projects (AIM, ATM, AGA, CNS, MET and SAR).

Agenda Item 3: Status of the Region Concerning the COVID-19 Pandemic

- 3.1 Special Aviation Recovery Team (CART)
- 3.2 Follow-up to NACC Regional Actions to Recover from COVID 19
- 3.3 COVID-19 Response and Recovery Implementation Centre (CRRIC)

Agenda Item 4: Implementation of Air Navigation Issues

- 4.1 New version 6 of the Global Air Navigation Plan (GANP)
- 4.2 Safety initiatives to be supported by the implementation of ANS
- 4.3 Progress status of the Air Navigation Plans (ANP) Vol. I and Vol. II
- 4.4 Development of the Air Navigation Plan (ANP) Volume III
- 4.5 Air Navigation Indicators/metrics (Dashboard) initiative
- 4.6 Regional Contingency Plans
- 4.7 Integration of the ANI/WG Meeting to the NACC/WG Meeting
- 4.8 Emerging technologies and new regional challenges

Agenda Item 5: Other Business

ii.7 Attendance

The Meeting was attended by 16 States/Territories from the NAM/CAR, 6 International Organizations, and one company from the industry, totalling 106 delegates as indicated in the list of participants.

ii.8 Conclusions and Decisions

ii.8.1 The Meeting recorded its activities as Draft Conclusions and Decisions as follows:

DRAFT

CONCLUSIONS: Activities requiring endorsement by the Directors of Civil Aviation of North America, Central America and Caribbean (NACC/DCA).

DECISIONS: Internal activities of the NACC Working Group (NACC/WG).

An executive summary of these conclusions/decisions is presented in **Appendix A** to this report.

ii.8.2 List of Conclusions and Decisions

Number	Title	Page
NACC/WG/6/01	<i>REVIEW DECISION AND CONCLUSION OF PREVIOUS MEETINGS</i>	2-1
NACC/WG/06/02	<i>ELIMINATION OF AIR NAVIGATION DEFICIENCIES IN THE ANS FIELDS</i>	2-2
NACC/WG/6/03	<i>AMENDMENT OF THE PBN TASK FORCE NAME AND TERMS OF REFERENCE</i>	2-4
NACC/WG/6/04	<i>COORDINATION FOR THE EXPANSION OF CANSO CADENA INTERREGIONAL ROUTES OPTIMIZATION TESTS</i>	2-6
NACC/WG/06/05	<i>DATA ON THE STATES AIM IMPLEMENTATION STATUS</i>	2-7
NACC/WG/06/06	<i>IMPLEMENTATION OF THE DIGITAL DATA SETS (DDS), OF THE e-AIP DATA AND AERONAUTICAL INFORMATION EXCHANGE MODEL (PANS AIM)</i>	2-8

NACC/WG/06/07	NAM/CAR OPERATIONS CONCEPT DOCUMENT (CONOPS) FOR ADS-B IMPLEMENTATION	2-12
NACC/WG/6/08	ICAO ANNEX 3 SARPS IMPLEMENTATION	2-12
NACC/WG/6/09	OPERATIONAL NEEDS TO IMPROVE COMMUNICATION NETWORK FOR FUTURE SERVICE IMPLEMENTATION AND BACKUP COMMUNICATION	4-1
NACC/WG/06/10	SUPPORT FOR THE DEVELOPMENT OF THE CAR/SAM ANP VOL III: OPERATIONAL IMPROVEMENTS	4-2
NACC/WG/6/11	REPLACEMENT OF ANI/WG BY THE NACC/WG	4-7
NACC/WG/06/12	IMPLEMENTATION OF THE MITIGATION MEASURES TO ADDRESS CO2 EMISSIONS FROM INTERNATIONAL AVIATION	5-2
NACC/WG/06/13	NEW RAPPORTEUR OF THE SURVEILLANCE TASKS FORCE	5-3

ii.9 List of Working and Information Papers and Presentations

Refer to the Meeting web page:

<https://www.icao.int/NACC/Pages/meetings-2021-naccwg6.aspx>

WORKING PAPERS				
Number	Agenda Item	Title	Date	Prepared and Presented by
WP/01	--	Provisional agenda and schedule	18/08/21	Secretariat
WP/02	4.8	Unmanned aircraft systems (UAS)	23/08/21	Secretariat
WP/03	3.3	COVID-19 Response and Recovery Implementation Centre	25/08/21	Secretariat
WP/04	2.3	Preliminary progress report by the PBN Task Force	19/08/21	PBN Task Force Rapporteur
WP/05	2.3	Preliminary progress report by Air Traffic Flow Management Task Force (ATFM/TF)	13/08/21	AFTM Task Force Rapporteur
WP/6	2.3	Status of AIM Task Force Action Plan	23/08/21	Secretariat
WP/07	2.3	Status of Search and Rescue (SAR) activities	18/08/21	SAR Task Force Rapporteur
WP/08	2.3	Report on ASBU Task Force	18/08/21	ASBU Task Force Rapporteur
WP/09	2.3	AIDC Task Force activity report, 2020-2021	18/08/21	AIDC Task Force rapporteur
WP/10	2.3	Progress Report on the Work of the Surveillance Task Force (SURV/TF)	11/08/21	SURV Rapporteur

WORKING PAPERS				
Number	Agenda Item	Title	Date	Prepared and Presented by
WP/11	2.3	Status of MET activities	23/08/21	Secretariat
WP/12	2.3	Status of activities at aerodromes and ground aids	18/08/21	Secretariat
WP/13	3.1	Work carried-out by the Council Aviation Recovery Taskforce (CART)	18/08/21	Secretariat
WP/14	4.1	Impact of the new GANP version in the regional planning	25/08/21	Secretariat
WP/15	4.2	Air navigation operational improvement safety strategy	24/08/21	Secretariat
WP/16	4.3 – 4.4	Updates to Volumes I, II and III of the CAR / SAM Air Navigation Plan	18/08/21	Secretariat
WP/17	4.5	Initiative for the development of the NAM/CAR region performance dashboard (NACC Dashboard)	16/08/21	Secretariat
WP/18	4.6	Regional contingency plans	13/08/21	Secretariat
WP/19	4.7	Integration of the ANI/WG to the NACC/WG	17/08/21	Secretariat
WP/20	4.8	Cybersecurity in air navigation activities	23/08/21	Secretariat
WP/21	5	States' Action Plans (SAP) on CO2 emissions reduction activities	23/08/21	Secretariat
WP/22	5	Election of new Rapporteur for the NAM/CAR Surveillance Group	12/08/21	Cuba
WP/23	4.8	CANSO – AIRBUS Air Traffic Management Cybersecurity Policy Template Introduction	20/08/21	CANSO
WP/24		CANSO ATFM Data Exchange Network for the Americas (CADENA) Project Advancements	20/08/21	CANSO
WP/25	2.3	ADS-B operational concept (CONOPS)	25/08/21	Secretariat

INFORMATION PAPERS				
Number	Agenda Item	Title	Date	Prepared and Presented by
IP/01	--	Lista de notas de estudio, notas de información y presentaciones		Secretariat
IP/02	5	NOTAM global improvement	23/08/21	Secretariat
IP/03	2	Review of the valid conclusions/decisions of NACC/WG, ANI/WG, NACC/DCA and GREPECAS (CRPP) meetings	24/08/21	Secretariat
IP/04	4.9	Review of the status of air navigation deficiencies reported in the GREPECAS Air Navigation Deficiencies Database (GANDD)	18/08/21	Secretariat
IP/05	2.3	Update on the PIARCO FIR Airspace Concept - CDM process with E/CAR States	20/08/21	Trinidad and Tobago
IP/06	5	Acknowledgement	25/08/21	Secretariat

PRESENTATIONS			
Number	Agenda Item	Title	Presented by
P/01	2.2	ICAO NACC Regional Office Systemic Assistance Programme (SAP)	Secretariat
P/02	3.3	Effects of the new coronavirus (COVID-19) on civil aviation and the COVID-19 Response and Recovery Implementation Centre (CRRIC).	Secretariat
P/03	5	State of Aireon and Space-based ADS-B	AIREON

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NACC/WG/06
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iv – 9

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Agenda Item 1 Review and approval of the Agenda, Working Method and Schedule of the Meeting

1.2 The Secretariat presented and reviewed the WP/01 inviting the Meeting to approve the provisional agenda, working method and schedule, and referred to IP/01 with the list of associated documentation and presentations. The Meeting approved the agenda, working method and schedule as presented in the Historical section of this report.

Agenda Item 2 Follow-up on Valid Conclusions and Previous Agreements of the NACC/WG, GREPECAS, NACC/DCA and Other Related Meetings

2.1 Review of the valid conclusions/decisions of the NACC/WG, the ANI/WG, the NACC/DCA and the GREPECAS (PPRC) Meetings

2.1.1 Under IP/03, the Secretariat presented a review of the list of valid conclusions/decisions, included in **Appendix B** to this report, derived from previous meetings of the NAM/CAR Air Navigation Implementation Working Group (ANI/WG), the NACC/WG and the CAR/SAM Planning and Implementation Regional Group (GREPECAS). Based on these conclusions the Meeting adopted the following decision:

DECISION	
NACC/WG/6/01	REVIEW DECISION AND CONCLUSION OF PREVIOUS MEETINGS
<p>What:</p> <p>That, integration activities and actions under the decision of conclusion of previous meetings be updated according with the level of implementation. In that sense:</p> <p>a) all the Task Forces will coordinate with their Members and update the status of decisions and conclusions according with the actual level of implementation. Information is under Appendix B of this report.</p> <p>b) Decisions and conclusion still valid will be integrated under the Task Forces according with their area of responsibilities by December 2021.</p>	<p>Expected impact:</p> <p><input type="checkbox"/> Political / Global</p> <p><input type="checkbox"/> Inter-regional</p> <p><input type="checkbox"/> Economic</p> <p><input type="checkbox"/> Environmental</p> <p><input checked="" type="checkbox"/> Operational/Technical</p>
<p>Why:</p> <p>It is necessary to update the status of implementation of the activities agreed upon in previous meetings, identify challenges and promote future actions.</p>	
<p>When: December 2021</p>	<p>Status: <input checked="" type="checkbox"/> Valid / <input type="checkbox"/> Superseded / <input type="checkbox"/> Completed</p>
<p>Who: <input type="checkbox"/> States <input type="checkbox"/> ICAO <input checked="" type="checkbox"/> Other:</p>	<p>NACC/ANI WG Task Forces</p>

2.1.2 Under WP/15 the meeting was informed about the ICAO NACC Regional Office approach, and on safety implementation in the air navigation services.

2.1.3 ICAO strategic objective on safety established five comprehensive strategic objectives, which are revised on a triennial basis. ICAO has a strategic objective dedicated to enhance global civil aviation safety. This strategic objective is focused primarily on the State's regulatory oversight capabilities. The objective is set in the context of growing passenger and cargo movements and the need to address efficiency and environmental changes. In line with the strategic objective on safety, the ICAO Global Aviation Safety Plan (GASP) outlines the key activities for the triennium. More information on the Strategic Objectives can be found on the ICAO website at: www.icao.int/about-icao/Pages/StrategicObjectives.aspx.

2.1.4 The role of the GREPECAS and of its contributory bodies was also reminded:

- a) Implement safety-related initiatives involving air navigation matters.
- b) The Group's objectives are to ensure continuous and coherent development of the CAR/SAM Regional Air Navigation Plan and other relevant documentation in a harmonized manner with adjacent regions, to facilitate the implementation of air navigation systems and services as identified in the CAR/SAM Regional Air Navigation Plan, and to identify and address specific deficiencies in the air navigation field.
- c) Safety matters are to be coordinated with the Regional Aviation Safety Group–Pan America (RASG-PA)

2.1.5 The Meeting and different Task Forces were invited to incorporate under their action plan safety measures.

2.2 Progress in Air Navigation (AN) issues by the NACC Systemic Assistance Programme (SAP)

2.2.1 Under P/01, the NACC Systemic Assistance Programme (SAP) was recalled by the Secretariat. The SAP is a strategy specifically tailored for the NAM/CAR Regions and focuses its activities in increasing the Effective Implementation (EI) of ICAO SARPs and the solution of Significant Safety and Security Concerns (SSCs and SSeCs). This comprehensive approach applies a monitoring methodology which addresses all areas of the civil aviation system (e.g. air navigation, safety, security, environment). NACC Regional Office Experts from the NACC Regional Office support States in completing their SAP action plan (who, when and how).

2.2.2 ICAO discussed and agreed on the priorities of the SAP and State Action Plans. The Plan becomes a management tool for CEOs and leaders to track, at any time, the progress of their States and report to their governments, if necessary, on current and future needs/actions. Once there is political will and commitment, the Plan has been successful in each State where it has been implemented through close monitoring by staff and leaders.

2.2.3 The SAP has proven effectiveness, according to the graphs in the presentation, in the States that have received such assistance.

2.2.4 The SAP includes the contingency and Emergency Planning and Response, which focuses on updating regional contingency and emergency planning. Also, it encourages the regional cooperation between the CAR Region Emergency and Contingency Response Coordination Teams.

2.2.5 Under the SAP, ICAO looks to maintain contact with Non-governmental organization/government/industry funding entities, for supporting States for equipment/infrastructure needs, implementation and other assistance activities.

2.3 Follow-up to GREPECAS improvements and AN Projects (AIM, ATM, AGA, CNS, MET and SAR).

2.3.1 Under IP/04, the Secretariat presented information on the air navigation deficiencies, with their priorities “A”, “B” and “U”, for the States/Territories of the Caribbean, and the Meeting took note and considered taking some actions to resolve the Air Navigation Services (ANS) deficiencies of GREPECAS, registered in the GREPECAS Air Navigation Deficiencies Database (GANDD).

2.3.2 It was recalled that ICAO recommended that the methodology must comply with the Safety management system (SMS) requirements of Annex 19. The ICAO NACC Regional Office maintains continuous assistance to States for the implementation of the State Safety Programme (SSP) and SMS, for which the States must provide data and analysis to establish the correct criterion on the risk assessment including deficiencies.

2.3.3 The Meeting was asked to coordinate with its PoCs and review the current U, A and B deficiencies, with the help of ICAO for any update or clarification, presenting applicable evidence to the ICAO NACC Regional Office via email.

DECISION NACC WG/06/02		ELIMINATION OF AIR NAVIGATION DEFICIENCIES IN THE ANS FIELDS	
What: That, in order to facilitate the updating of the GREPECAS Air Navigation Deficiencies Database (GANDD) by the States and the Regional Offices, and foster elimination of deficiencies in the CAR/SAM Regions:		Expected impact:	
<p>a) States and International Organizations (including IATA, IFALPA and IFATCA) actively contribute towards updating the deficiency database, by providing to the Regional Offices, information on the implementation status of valid deficiencies by 31 December 2021and;</p> <p>b) States provide copies of action plans developed for these ANS deficiencies pursuant to the Recommendation from the ICAO Council methodology concerning GREPECAS.</p>		<input type="checkbox"/> Political / Global <input checked="" type="checkbox"/> Inter-regional <input type="checkbox"/> Economic <input type="checkbox"/> Environmental <input checked="" type="checkbox"/> Operational/Technical	
Why: To improve the ANS fields on safety for implementation.			
When: 31 December 2021		Status: <input checked="" type="checkbox"/> Valid / <input type="checkbox"/> Superseded / <input type="checkbox"/> Completed	
Who: <input checked="" type="checkbox"/> States <input type="checkbox"/> ICAO <input type="checkbox"/> Other:		International Organizations	

ATM PBN Activities

2.3.4 The ANI/WG Performance-based navigation (PBN) Task Force Rapporteur presented the WP/04 describing the progress achieved by this Task Force after the ANI/WG/5 meeting. The activities of the PBN Task Force continue to be adversely impacted by the effects of the COVID 19 pandemic; however, the region has been able to continue working to advance initiatives to enhance airspace usage. The WP highlighted the following:

- a) During the recently concluded ANI/WG PBN/TF/02 meeting, the following agreements were reached:
 - Schedule the third PBN Task Force Meeting (ANI/WG/PBN/TF/03) for March 2022.
 - Amend the current Air traffic services (ATS) routes optimization initiatives agreement and publication process to allow a minimum of 8 months for implementation after the final agreement is reached.
 - Target date for final agreements is August 31, 2022
 - Target dates for publication/implementation are 23 February 2023-20 April 2023 (these dates were forwarded to the SAM Regional Office for their information).
- b) Regarding the implementation of airspace optimization initiatives, it was emphasized that internal coordination among all stakeholders must take place within each State/Organization in all relevant proposals for that State/International Organization, before the date of the final agreement. Furthermore, once an agreement is reached, States/Organizations must do everything possible to comply with it.
- c) In order to support activities related to the preparation of Vol. III of the CAR/SAM Regions Air Navigation Plan, the Task Force decided that some of the tasks of the current work program should be temporarily postponed until the completion of this exercise. Furthermore, once the performance objectives for the region are clearly outlined in Volume III of the CAR/SAM ANP, the Working Group can amend its work program accordingly.
- d) The Task Force presented a proposal to amend its terms of reference and to be renamed Airspace Optimization Task Force. While the implementation of PBN remains a high priority, the Task Force will also pay attention to additional airspace considerations that contribute to the development of ASBU concepts such as improved operations through enhanced en-route trajectories (FRTO).

2.3.5 The Meeting agreed with the proposal and the following decision was taken:

DECISION	
NACC/WG/6/03	AMENDMENT OF THE PBN TASK FORCE NAME AND TERMS OF REFERENCE
<p>What:</p> <p>That, in order to enhance the scope of the Task Force work programme and to incorporate other elements of airspace optimization into its portfolio</p> <p>a) The PBN Task Force will be renamed the Airspace Optimization Task Force;</p> <p>b) the amendment to the Terms of Reference as shown in the Appendix C is approved.</p>	<p>Expected impact:</p> <p><input type="checkbox"/> Political / Global</p> <p><input type="checkbox"/> Inter-regional</p> <p><input type="checkbox"/> Economic</p> <p><input type="checkbox"/> Environmental</p> <p><input checked="" type="checkbox"/> Operational/Technical</p>
<p>Why:</p> <p>To continue the efforts to ensure harmonized PBN implementation while incorporating additional airspace optimization considerations that contribute to the development of Aviation System Block Upgrade (ASBU) concepts such as improved operations through enhanced FRT0 in the NAM/CAR Regions.</p>	
<p>When: By the end of the NACC/WG/6</p>	<p>Status: <input checked="" type="checkbox"/> Valid / <input type="checkbox"/> Superseded / <input type="checkbox"/> Completed</p>
<p>Who: <input type="checkbox"/> States <input type="checkbox"/> ICAO <input checked="" type="checkbox"/> Other:</p>	<p>ANI/WG</p>

2.3.6 Costa Rica, Dominican Republic and Trinidad and Tobago commended the Task Force for taking the decision to enhance its scope to include all facets of airspace optimization into its work programme.

2.3.7 United States thanked the PBN Task Force for extending the timeframe for approval and implementation for proposals for amendment of the ATS routes network of the CAR Region and supported the recommendation for the CAR and SAM Regions to have one publication and implementation date for new Proposal for Amendments (PFAs).

ATM ATFM Activities

2.3.8 The Meeting discussed the CANSO project through the CANSO Air Traffic Flow Management Data Exchange Network for the Americas (CADENA) platform for interregional routes optimization. Initial tests have shown great benefits in terms of fuel savings and gas emissions. The Task Force supported the initiative of CANSO and was willing to coordinate the expansion of these tests across the regions.

2.3.9 Under WP/05, the Rapporteur of the ATFM/Task Force presented the progress achieved by the Task Force (TF) since its previous report. The WP included the results of the previously identified deliverables and recommendations to improve the role and coordination of the Task Force. The WP highlighted that:

- a) the ATFM Task Force holds monthly meetings via the web. The meetings have included information on the response to the global pandemic, impacts on flight operations and forecasts for future operations. These meetings include briefings from the members and discussions on the benefits of sharing traffic data for the region. From January 2021 to March 2021, the Task Force held joint monthly meetings with the PBN Task Force.
- b) The Task Force held its annual meeting (online) from May 17-19, 2021. The meeting included a detailed explanation of several key performance metrics or indicators that could be implemented for the region. The Task Force decided to focus on arrival and departure delay, controlled time of departure compliance or slot adherence and filed flight plan versus flown flight plan metrics. Two conclusions were agreed to at the annual meeting; Implementation of the Regional ATM Performance Framework and ATFM Contingency Procedures. In July 2021, the TF submitted a request to the States to start developing a database of operations for key airports and airspace in the region to help establish a baseline of operational data to measure success.
- c) the current reference for the Task Force work programme is the CAR Regional Performance-Based Air Navigation Implementation Plan (RPBANIP). The RPBANIP will be superseded by the CAR/SAM Electronic Air Navigation Plan Vol. III. The development of Vol. III will not only require the adjustment of the current work programme of the Task Force to ensure alignment of regional implementation initiatives and projects related to GREPECAS, but will also require a significant contribution from the Task Force to develop the Regional Performance Framework. Consequently, the Task Force decided to prioritize the activities related to Vol. III of the CAR/SAM ANP, Doc 8733, collaborating with its development and publication.
- d) CANSO thanked the Task Force for the integration to the regional initiatives carried out by this Organization, and United States for the training provided in benefit of the Region.

2.3.10 En atención a esta discusión, la reunión acordó adoptar la siguiente decisión:

DECISION	
NACC/WG/06/04	COORDINATION FOR THE EXPANSION OF CANSO CADENA INTERREGIONAL ROUTES OPTIMIZATION TESTS
<p>What:</p> <p>That, considering the great benefits shown by the CANSO Project through the CADENA platform for interregional routes optimization</p> <ul style="list-style-type: none"> a) CANSO will present to the next ATFM Task Force Meeting its interregional routes optimization initiative; and b) The ATFM Task Force will evaluate the inclusion in its work programme the coordination for the expansion of these tests across the NAM/CAR Regions. 	<p>Expected impact:</p> <ul style="list-style-type: none"> <input type="checkbox"/> Political / Global <input type="checkbox"/> Inter-regional <input checked="" type="checkbox"/> Economic <input type="checkbox"/> Environmental <input checked="" type="checkbox"/> Operational/Technical
Why:	

To enhance regional airspace optimization initiatives	
When: By ATFM/TF/3 Meeting	Status: <input checked="" type="checkbox"/> Valid / <input type="checkbox"/> Superseded / <input type="checkbox"/> Completed
Who: <input type="checkbox"/> States <input type="checkbox"/> ICAO <input checked="" type="checkbox"/> Other:	CANSO, ATFM TF

2.3.11 CANSO presented WP/24 to provide information regarding the advancements of the CANSO ATFM Data Exchange Network for the Americas (CADENA):

- a. CANSO is supporting the harmonized implementation of ATFM/CDM at a global level.
- b. CANSO’s CADENA initiative offers a regional, cross-border ATM communications protocol and a seamless operational atmosphere that incorporates operational procedures and practices. Implementing regional, networked ATFM requires the establishment of CDM practices among participating air navigation service providers (ANSPs) and regional and international stakeholders. These practices are inclusive and transparent and allow exchanging operational information to facilitate a shared situational awareness and promote sound strategic, pre-tactical, and tactical planning in a CDM environment of multilateral decision-making.
- c. CADENA promotes universal situational awareness through timely communication, collaboration, and coordination of operational data and information to ANSPs, airspace users, and other stakeholders. Implementing a harmonized, regional, networked ATFM has required the establishment of robust CDM practices among participating ANSPs and stakeholders.
- d. CADENA’s processes, procedures, best practices, and regional experience have become the foundation for the establishment of a new global initiative called CANSO Air Traffic Flow Management (ATFM) Data Exchange Network for Cooperative Excellence, CADENCE. Recognizing that each region is unique, CANSO will consult with ANSPs in each region to support regional action teams on implementing globally harmonized ATFM/CDM. The creation of CADENCE is an acknowledgement of the Latin-American region’s dedication, collaboration, and cooperation.
- e. Accomplishments by CADENA participants include the development and use of the CADENA Procedures Manual, CADENA ANSP Contingency Forms (14 forms and procedures addressing natural disaster situations to policy and technology issues), and the Letter of Agreement from Flow Management Unit (FMU) to FMU, Space Launch and Recovery Protocols, Limited Obstacle Area (LoA), the PASA routes, Quarterly Operational Contingency Training Exercises, to mention a few.
- f. The Working Paper presented additional examples where CADENA participants took advantage of this collaborative platform, with key benefits in terms of savings and enhanced safety.

AIM Activities

2.3.12 Under WP/06, the AIM TF Rapporteur informed on the status of the Action Plan of the Task Force presenting the activities in the area of Aeronautical Information Management (AIM), indicating that it is considered the initial objective to complete the implementation of the Roadmap for the transition from Aeronautical information service (AIS) to AIM (since 2009), as well as, the application of Amendment 41 to the ICAO Annex 15 (SARPS) and Doc. 10066 - PANS-AIM, which provides the methodology and procedures to AIM. The WP highlighted:

- a) The new version of Doc 8126 - *AIS Manual*, in four Sections, reinforces the AIM processes and procedures, aligned with the 6th Edition of the Global Air Navigation Plan (GANP), for which, the

majority of the NACC States have provided data and information on the progress in the 21 steps of the three Phases of the ICAO Roadmap, which have been contemplated in the AIM Collaborative Plan for the CAR Region.

- b) The Rapporteur of the AIM TF prepared an Excel file of the States, which have sent the update of their information on the status of the transition from AIS to AIM (**Appendix D**). The Secretariat emphasized that the States of the Region must present the required updated information in a timely and accurate manner to the TF Rapporteur and the ICAO Secretariat, regarding the three transition phases. It was also clarified that for some reason some States have not correctly reflected their status, and therefore it was requested that they send their information again as soon as possible.
- c) It was reported that 50% of the information is registered from the States, as follows:

Estados
Antigua and Barbuda
Bahamas
Barbados
Canadá
Costa Rica
Cuba
República Dominicana
Jamaica
México
Trinidad and Tobago
United States

- d) The following States were requested to send their information and data again to the AIM Rapporteur TF Natasha Leonora-Belefanti (nleonora-belefanti@icaonacc.org) and the ICAO Secretary, Raúl A. Martínez (rmartinez@icao.int): Belize, Dominica, El Salvador, Grenada, Guatemala, Haiti, Honduras, Nicaragua, Saint Kitts and Nevis, Saint Lucia and Saint Vincent and the Grenadines.

CONCLUSION NACC/WG/6/05	DATA ON THE STATES AIM IMPLEMENTATION STATUS
<p>What: That, CAR States provide to the AIM Task force and the ICAO NACC Regional Office:}</p> <ul style="list-style-type: none"> a) All the information and data about the 21 steps for the transition from AIS to AIM on continuous basis by December 2021; and b) The AIM Task Force request AIM status information to all States periodically in order to complete the regional records. 	<p>Expected impact:</p> <ul style="list-style-type: none"> <input type="checkbox"/> Political / Global <input type="checkbox"/> Inter-regional <input type="checkbox"/> Economic <input type="checkbox"/> Environmental <input checked="" type="checkbox"/> Operational/Technical

Why: The AIM status of implementation will be included and presented on the AIM Tracking website.	
When: December 2021	Status: <input checked="" type="checkbox"/> Valid / <input type="checkbox"/> Superseded / <input type="checkbox"/> Completed
Who: <input checked="" type="checkbox"/> States <input type="checkbox"/> ICAO X <input type="checkbox"/> Other:	The AIM Task Force

2.3.13 It was mentioned to the Meeting that since 2010 ICAO has pending to publish important guidance documents that complement the most important steps for the Transition to AIM, of the three Transition Phases.

2.3.14 The CAR AIM Tracking Website, Beta version, shall be presented to the GREPECAS/19 Meeting at the end of October. Once the AIM monitoring website has been activated, States are expected to actively participate and upload the information through the dashboard, and advance in the implementation process of AIM, since the delay in the implementation of the phase 2 of the Roadmap from AIS to AIM will affect the implementation of System wide information management (SWIM), for this reason the Meeting considered the following Conclusion:

CONCLUSION	
NACC/WG/06/06	IMPLEMENTATION OF THE DIGITAL DATA SETS (DDS), OF THE e-AIP DATA AND AERONAUTICAL INFORMATION EXCHANGE MODEL (PANS AIM)
<p>That:</p> <p>That, the States accelerate the implementation of the Digital Data Sets, the Data Catalog (PANS AIM), and the standard Information Exchange Models (AIXM-Metadata), in all their domains by 31 December 2025, in order to make possible the management of the information in a SWIM environment, taking into account that in the AIM field, the main ASBU blocks, included in Doc 9750 which are relevant, are as follows:</p> <ul style="list-style-type: none"> • B0-DAIM Service Improvement through Digital Aeronautical Information Management (AIM); • B1-DAIM Service Improvement through Integration of all Digital AIM Information (2019-2025) 	<p>Expected impact:</p> <p><input type="checkbox"/> Political / Global <input type="checkbox"/> Inter-regional <input type="checkbox"/> Economic <input checked="" type="checkbox"/> Environmental <input checked="" type="checkbox"/> Technical / Operational</p>
<p>Why:</p> <p>To comply with the requirements of ICAO Annex 15, PANS AIM and Doc. 8126, and develop the basis for SWIM.</p>	
<p>When: Complete the implementation of the AIM Transition as soon as possible and by 31 December 2025</p>	<p>Status: <input checked="" type="checkbox"/> Válida / <input type="checkbox"/> Invalidada / <input type="checkbox"/> Finalizada</p>
<p>Who: <input checked="" type="checkbox"/> States <input type="checkbox"/> ICAO <input type="checkbox"/> Others:</p>	States

SAR Activities

2.3.15 Under WP/07, the Rapporteur of the SAR Task Force presented a summary of the activities related to the implementation and provision of SAR services during 2020 and part of 2021. The WP highlighted the following:

- a) Representatives of the CAR Region participated as invited observers in the SAR coordination exercise, carried out between the SAR coordinating centres of Argentina and Uruguay, which included the simulation of a response to a crisis. All levels of the SAR service intervened in it, but without its deployment.
- b) As is done every year, the meeting of the Central American Search and Rescue Committee (COBUSA) was held, which was attended by representatives of the Central American States, Ecuador, Panama and the ICAO NACC Regional Office. Important points were addressed at this meeting, which should be followed up on a timely basis and try to assess the progress made to date.
- c) The signing of the SAR collaboration agreements is one of the pending points between some States and international organizations in the region. Complications derived from interactions with different government entities and a lack of understanding of the scope of SAR operations are the main difficulties identified. During 2020, the conversations between Colombia and COCESNA were reactivated to review their SAR letter of agreement. This was concluded positively in 2021. Other conversations that have been taking place involve Cuba and Haiti, Cuba and COCESNA, which have advanced satisfactorily but have not yet been able to be finalized.
- d) One of the factors that have most affected SAR activities during this pandemic is the reduction by States of qualified personnel in SAR functions (due to layoffs, deaths due to COVID-19), therefore there is a lack of knowledge in terms of attention to compliance with procedures, which has led to the reduction of response capacities in a reasonable time, therefore it is recommended to do a risk analysis focused on this specific case.
- e) Another important aspect to highlight is the absence of proper training of personnel in biosecurity measures, which affects the adequate response to emergency situations. Likewise, due to the prevention measures for contagion of COVID-19, SAR training is being carried out virtually. However, these trainings are not as effective as the face-to-face ones, since they limit the attention of each participant by a large percentage, resulting in many doubts at the end.
- f) By 2023, the Task Force intends to execute SAREX between States and Territories of the NAM/CAR Regions. To achieve the high degree of competence, all SAR facilities must periodically engage in coordinated operations. Exercises allow you to test and improve operational plans and communications, increase experience, and improve liaison and coordination skills.
- g) COCESNA thanked the support received in order to complete the signing of the SAR operational letters of agreement. Trinidad and Tobago supported the initiatives aimed at improving the regional SAR systems implementation and encouraged States to maintain their commitment to such important services, recommending maintaining a strategic vision to have a better response to contingencies. CANSO highlighted CADENA's contribution to the regional response to contingencies.

Air navigation plans activities

2.3.16 Under WP/08 was informed that the ASBU Task Force work programme covers the basis for the preparation and maintenance of National Air Navigation Plans (NANPs) by ICAO member states in the region. To prepare and maintain the States' National Air Navigation Plans (NANPs), States need to understand GANP/ASBU in addition to their States' needs in current and future aviation technologies. The ASBU TF highlighted the following:

- a) Global Level Activities: The sixth edition of the Global Air Navigation Plan (GANP, Doc 9750) has been made available in an interactive format via the GANP Portal (<https://www4.icao.int/ganpportal>) following its endorsement by the 40th Session of the ICAO Assembly in fall of 2019. The sixth edition of GANP made Block 1 Elements ready for implementation and brought significant changes to the previous edition.
- b) Global Level Activities: To develop and maintain future editions of the GANP, ICAO formed a group of experts, the GANP Study Group (GSG), in response to Recommendations 1.1/1, 1.2/1 and 4.3/1 from the 13th Air Navigation Conference (AN-Conf/13, refer to Doc 10115, AN-Conf/13 Report). Two technical groups, the ASBU Panel Project Team (PPT) and GANP Performance Expert Group (PEG), support the GSG. The future GANP/ASBU edition 6a and edition 7 will be published in assembly years 2022 and 2025, respectively.
- c) Regional Level Activities: GREPECAS has, as part of its mandate, the preparation and maintenance of the ANP of the CAR and SAM regions. Three volumes comprise the regional ANP and the Volume III is associated with GANP/ASBU. The project plan to develop GREPECAS Volume III is under development. This effort will integrate two separate regional ANPs, the CAR component of the NAM/CAR Regional Performance-Based Air Navigation Implementation Plan (NAM/CAR RPBANIP) and Air Navigation System Performance based Implementation Plan for SAM Region (SAM PBIP), into one. Refer to WP/16 for more information.
- d) National Level Activities: the ICAO NACC Regional Office organized three NANP Development Workshops thus far. The ICAO NACC RO determined that 22 states/territories/organizations in the CAR region need to have NAPNs and all 17 states/territories/organizations who participated in NANP Workshops had successfully developed their draft NANPs with excellent quality.
- e) National Level Activities: The ICAO NACC Regional Office is planning to move forward with updating NANPs to be aligned with the 6th edition of GANP/ASBU. Some States have already expressed the needs of such support to update their ANPs. The 6th edition NANP workshop materials, including the NANP template and ASBU Handbook and Air Navigation Reporting Forms for Blocks 1 and 2, were prepared.

2.3.17 Finally, the meeting expressed the option to postpone the NANP updates until GREPECAS the Electronic Air Navigation Plan (eANP) Vol. III is published. There are several options to support NANP update activities in terms of timing and method (e.g., self-driven, virtual or in-person). The ICAO NACC Regional Office will consider these options and will determine the appropriate next steps.

CNS AIDC Activities

2.3.18 Under WP/09, the activities carried out by the AIDC Task Force during the 2020 – 2021 were summarized. In 2020, the situation brought by COVID-19 considerably reduced human activity in general, including aviation and in particular those of the task force. After several months of the beginning of the lockdown and curfew processes at the global level, some activities were able to be done as the conditions at the time allowed, highlighting the following:

- a) Some of the activities were developed according with the availability of the States. During the time of reduced activity caused by the COVID-19 situation, States performed activities directed towards AIDC implementation and also for the mitigation of flight plan errors. There are a number of tasks that need to be completed to continue complying with the work programme, as well as getting ahead of the new challenges that Flight and flow - information for a collaborative environment (FF-ICE) and cybersecurity present to the Task Force.

- b) The Meeting recommended to ensure success in the activities of the AIDC Task Force to:
- i. Make efforts for the implementations of Air Traffic Services Inter-facility Data Communication (AIDC) interfaces with neighbouring flight information regions (FIRs), for those States that have still not done so.
 - ii. Assign ideal personnel for the meetings and activities of the AIDC Task Force and Flight planning (FPL) monitoring group, and support their participation.

CNS Surveillance Activities

2.3.19 Under WP/10 the progress made by the ANI/WG Surveillance Task Force (SURV/TF) was presented. Due to the COVID-19 pandemic, the planned face-to-face meetings have not been possible and only two online activities have been carried out in the last two years, without progress reports been received from States, due, mainly, to the low levels of activities that aviation has presented, as a result of the pandemic and its impact on the economy and on the planned development plans. It was highlighted the following:

- a) Some activities were development in Cuba, Mexico, Panama, United States and COCESNA but to date, there is not 100% surveillance coverage in all the FIRs in the region, therefore, with the recovery of operations, this priority task of the group should be resumed.
- b) The region began the operational implementation of the Automatic dependent surveillance – broadcast (ADS-B) as part of their surveillance system as of January 2020, which constitutes an important improvement to situational awareness, both on board the aircraft and in the air traffic control centre (ATCC)s, for which it is necessary that all the States of the region plan its use, as well as the pertinent national regulations. There are potential data exchange possibilities that should be exploited, for which the neighbouring Area control centres (ACCs) that have not yet done so, should analyse starting short-term coordination for their implementation.

CNS AD-B Activities

2.3.20 Under WP/25 the ADS-B Operational Concept (CONOPS) document was presented by the SURV/TF, updated since August 2019 for the NAM, CAR States (**Appendix E**) and recommended as basic guidance for ADS-B implementation by States:

- a) This concept of operations considers the use of ADS-B data from aircraft to expand surveillance coverage into remote and oceanic areas, to augment current cooperative surveillance coverage, or to replace existing cooperative surveillance assets. Currently, some Air Traffic Service (ATS) providers depend upon ground based infrastructure to receive ADS-B data from aircraft. Others are using low orbiting satellites to receive and relay ADS-B data from aircraft.
- b) The purpose of this document is to facilitate coordination between stakeholders who will be involved in, or affected by, the implementation of services using ADS-B. This concept of operations was developed to assist the CAR region States for the use of ADS-B as part of an ATS Surveillance System as defined in ICAO's Procedures for Air Navigation Services - Air Traffic Management

(PANS-ATM, Doc 4444). Individual CAR region States may develop complementary implementation documents as needed to reflect their unique operating environments.

2.3.21 The Meeting adopted the following conclusion for using the CONOPS on ADS-B use for the benefit of the States:

CONCLUSION	
NACC/WG/06/07	NAM/CAR OPERATIONS CONCEPT DOCUMENT (CONOPS) FOR ADS-B IMPLEMENTATION
What: That, to facilitate the implementation of ADS-B in their ATS Surveillance system for the States, the States use the NAM/CAR OPERATIONS CONCEPT DOCUMENT (CONOPS) FOR ADS-B IMPLEMENTATION (Appendix E) as regional guidance for the implementation of ground-based and satellite – based ADS-B.	Expected impact: <input type="checkbox"/> Political / Global <input checked="" type="checkbox"/> Inter-regional <input type="checkbox"/> Economic <input type="checkbox"/> Environmental <input checked="" type="checkbox"/> Operational/Technical
Why: Because the implementation of any facility must meet operational and technical objectives that must be analyzed by the States prior to any implementation, this guide will help meet this objective.	
When: Immediately	Status: <input checked="" type="checkbox"/> Valid / <input type="checkbox"/> Superseded / <input type="checkbox"/> Completed
Who: <input checked="" type="checkbox"/> States <input type="checkbox"/> ICAO <input type="checkbox"/> Other:	NAM/CAR States

MET Activities

2.3.22 Under WP/11, the Secretariat presented the most relevant activities for the implementation of the Meteorological (MET) Service for International Air Navigation provisions, emphasizing the activities and meetings held by the ICAO Meteorology Panel (METP), the most recent amendments to the ICAO Annex 3 including its content, and the Basic Building Blocks (BBBs) reference framework introduced by the GANP Sixth Edition. The WP also described the Systemic Assistance Program (SAP) of the ICAO NACC Regional Office and mentioned its successful results to solve MET assistance needs in the CAR Region States. In addition, the paper indicated that the Regional Office would continue implementing the SAP to meet the priority needs of Contracting States and to provide assistance for the effective implementation of the ICAO Annex 3 SARPs. The following conclusion was adopted by the Meeting:

CONCLUSION	
NACC/WG/6/08	ICAO ANNEX 3 SARPS IMPLEMENTATION
What: That States, a) consider the necessary mechanisms to verify the effective implementation of the BBBs associated to the Meteorological Service for International Air Navigation and	Expected impact: <input type="checkbox"/> Political / Global <input type="checkbox"/> Inter-regional <input type="checkbox"/> Economic <input type="checkbox"/> Environmental

<p>notify its implementation to the NACC MET/RO by 30 September 2021; and</p> <p>b) requiring assistance for the implementation of the ICAO Annex 3 provisions, continue asking for it through the NACC SAP.</p>	<p><input checked="" type="checkbox"/> Operational/Technical</p>
<p>Why:</p> <p>Contracting States are required to ensure an adequate organization of the ANS, particularly the Meteorological Service for International Air Navigation and to properly implement the SARPs of ICAO Annex 3.</p>	
<p>When: 30 September 2021</p>	<p>Status: <input checked="" type="checkbox"/> Valid / <input type="checkbox"/> Superseded / <input type="checkbox"/> Completed</p>
<p>Who: <input checked="" type="checkbox"/> States <input type="checkbox"/> ICAO <input type="checkbox"/> Other:</p>	

AGA Activities

2.3.23 Under WP/12, the Meeting was presented with the status of the projects under the GREPECAS Aerodromes F programme:

- a) Regarding Project F1- Aerodrome Certification and Operational Safety, the meeting was informed that in the CAR Region there was a slight increase in 2021 in the number of certified aerodromes, due to two factors: the certification of 1 airport in Mexico and the removal of 8 of 10 international aerodromes at the request of the Bahamas, which reduced the total number of aerodromes to 146, representing 62%.
- b) Regarding the implementation of the RST, to date 73 aerodromes have implemented the RST and assistance continues to be provided to states/aerodromes that are in the process of implementation, with the terms of reference, checklist, among others.
- c) Regarding Project F2: Aerodrome Planning, the NACC Regional Office is coordinating with the CAR states that have requested it, providing them with orientation and guidance in relation to the preparation of these plans with the objective of supporting the states in the establishment of master plans, mainly those that need to be incorporated into their current concession contracts.
- d) Regarding Project F3: Implementation of A-CDM, the Secretariat worked jointly and with the support of some experts from States and Industry to update the guide to adapt it to the CARSAM context and introduce some improvements that would facilitate its implementation, under the leadership of SAM. The final result of this analysis is presented as the first version of the "Airport Collaborative Decision Making (A-CDM) Implementation Guide for CARSAM Regions".

2.3.24 Implementation Plan for the New Global Runway Surface Status Reporting Format (GRF). In preparation for the upcoming applicability date, ICAO required States to have a GRF Implementation Plan. In this regard, the NACC Regional Office requested States to submit their implementation plan in the format sent to them by February 26, 2021 (E.OSG - NACC848884 of February 2021). To date, this NACC Regional Office has received a response from only 5 States, so the States are urged to send their plans as soon as possible and notify headquarters of their progress, otherwise their status will appear on the GRF site of headquarters as not implemented.

2.3.25 The States that have not yet done so were invited to send the respective GRF implementation plans to the NACC Regional Office; and to support the GREPECAS Projects by assigning focal points for the execution of various project activities.

2.3.26 Under IP/05 Trinidad and Tobago provided an update on the Collaborative Decision Making (CDM) process between Trinidad and Tobago and the Eastern Caribbean Region (E/CAR) States required for the implementation of the Piarco FIR airspace concept:

- a. The Paper described the collaborative decision-making (CDM) process undertaken with the E/CAR subregion and States under Piarco FIR in particular, providing details regarding meeting, training and implementation initiatives. The Paper also address the challenges faced by the project and collaboration with Eastern Caribbean Civil Aviation Authority and ICAO.
- b. E/CAR teams expressed their interest in receiving various levels of PBN training/briefings. The Piarco Airspace Design Team is in the agreement that this would be beneficial as it would assist the E/CAR teams in developing a better understanding of the PBN airspace optimization concepts and facilitate the CDM processes.
- c. Trinidad and Tobago reiterated its commitment to provide technical assistance and training to those States that were facing challenges and urged States to take advantage of the support being provided. It was suggested to the meeting that the example of the CDM process could be followed by other FIRs that may have similar airspace complexities and challenges.

Agenda Item 3 Status of the Region Concerning the COVID-19 Pandemic

3.1 Special Aviation Recovery Team (CART)

3.1.1 Under WP/13 information on the work conducted by the Aviation Recovery Task Team (CART), recommendations and implementation in the NAM/CAR Regions was presented.

3.1.2 Considering the guidance in the updated *Take Off* Guidance Document (TOGD) and the *Handbook on Transboundary Risk Management Measures and Diagnostic Testing*, States were encouraged to collaborate with each other regarding the implementation of Public Health Corridors (PHCs). A PHC is formed when two or more States agree to recognize the sanitary mitigation measures that each has implemented on one or more routes between their States. To enable such mutual recognition, States must actively share information with other States and engage in bilateral or multilateral discussions with each other to implement PHCs in a harmonized manner.

3.1.3 In addition, the third phase the CART measures introduced a new and updated guidebook. As a "living document," CART guidance can only be transitory in nature. Following the emergence of virus variants, progress in vaccine launches and new tools to combat COVID-19, CART's work has focused on specific issues related to passenger testing and vaccination as part of a State's multi-layered risk management strategy. CART also took into account the World Health Organization (WHO) position that "national authorities and transport operators should not introduce COVID-19 vaccination testing requirements for international travel as a condition for departure or entry."

3.1.4 The Meeting was invited to evaluate the information and its applicability in NAM/CAR States; and to provide feedback to the ICAO NACC Regional Office on the CART recommendations and documentation.

3.2 Follow-up to NACC Regional Actions to Recover from COVID 19

3.2.1 Under P/02 the effects of the new COVID-19 on civil aviation and the COVID-19 Recovery Response and Implementation Center (CRRIC) were presented.

3.2.2 CART Phase III provides recommendations and guidance to States to support their efforts in the resumption and recovery of the aviation industry and to help them cope with the significant aftermath caused by the prolonged duration of the crisis. It is also important to note the positive developments brought about by the growing medical and scientific evidence on vaccination and technological advances.

3.2.3 According to the information provided in the presentation, the most adopted measures in the world are the following: physical distancing, signage and barriers, public education, face cover and mask and routine sanitation.

3.2.4 The least adopted measures in the world, according to the information provided are: biometric and contactless technology, baggage delivery services, self-boarding technologies, transfer and advanced technology.

3.3 COVID-19 Response and Recovery Implementation Centre (CRRIC)

3.3.1 The Secretariat presented to the Meeting the WP/03 with the CRRIC topic, related to the activities developed by the NACC Regional Office in support of the States, such as He developed workshops and seminars in all areas of aviation during the pandemic in the 2020-2021 period of aviation recovery.

3.3.2 The Meeting was informed that the NACC Regional Office provided training to the States on the implementation of the different Phases I, II and III and CART recommendations, as well as the use of documents in the use of the digital platform (with limited access) of the CRRIC.

3.3.3 The importance of identifying the 4 groups of users of the CRRIC is pointed out:

- **Administrators:** limited number of ICAO users with full editing rights responsible for administering the site
- **State Focal Points (SFP):** Users designated by the state authorities through the CAR and SAM Offices. SFPs will be able to edit data related to their State.
- **State Users (SU):** Users approved by the SFPs to modify data related to their State.
- **Visitors:** Users with read-only rights and use some tools if available. By default, all CRRIC users will be considered visitors.

3.3.4 Additionally, the Meeting was informed of the gap analysis tool which allows member States to self-assess their status with respect to the measures in the CART report and define their action plans. This gap analysis will feed the dashboard application.

3.3.5 Likewise way, the Health Risk Mitigation Measures tool contains measures from the CART document "Takeoff" applicable to States, airport operators, airlines and others in the air transport industry, to help users already mentioned to monitor the public health measures adopted when implementing the CART recommendations.

3.3.6 The Meeting was invited to review this information (chart) and mark the measures that they decided to implement and if other measures were implemented, add them in the table of personalized measures.

3.3.7 Finally, the PHC were discussed; it is beneficial to share with ICAO and the Member States information on the PHC agreements that States have implemented. Likewise, the States have established State tests and travel quarantine protocols that will gradually become PCH. ICAO published the *Manual on Testing and Cross-border Risk Management Measures*. Therefore, the Meeting was asked to evaluate the CRRIC and work closely with the Points of Contact (PoC) designated by their State.

Agenda Item 4 Implementation of Air Navigation Issues

4.1. New version 6 of the Global Air Navigation Plan (GANP)

4.1.1. Under WP/14, the Secretariat addressed the Sixth Edition of the GANP and its relationship with the current and future air navigation implementation, ANS project planning, coordination between different States and the improvement of the National Air Navigation Plan (NANP)

4.1.2. The Secretariat emphasized the GANP as the most important planning tool to establish global and regional priorities directed to the evolution of the air navigation systems and ensure an integrated, harmonic and interoperable vision. The Secretariat also explained the multilayer structure of four levels: two global levels, a regional level and a national one, as well as the fundamental concepts (Threads, Modules, Enablers, and Elements – including their maturity levels) and referred to the GANP reference frameworks.

4.1.3. The Secretariat mentioned the communication networks as an important technology to support any operational implementation and addressed the case of the MEVA Network as the provider for the voice and data channel between CAR States, to inform to the Improvements to the ATS Voice Link Technical Management Group (MEVA/TMG) the decision to extend the current contract with FREQUENTIS company for another three-year period to cover from April 2022 to March 2025. The Meeting was requested to get involved in the evaluation of technical improvements, providing information on current and future operational needs to enable the MEVA network to support new services implementations. Based on this, the following decision was formulated.

<p>DECISION NACC/WG/06/09</p>		<p>OPERATIONAL NEEDS TO IMPROVE COMMUNICATION NETWORK FOR FUTURE SERVICE IMPLEMENTATION AND BACKUP COMMUNICATION</p>	
<p>What: That, as the MEVA/TMG is working on the document of Request for Proposal (RFP) on the new regional communication network, that will support the actual services and operational implementation by the future,</p> <p>a) All ANI/WG Task Forces provide operational communications need for future implementation;</p> <p>b) All ANI/WG Task Forces Provide information about need of backup communications requirements; and</p> <p>c) the MEVA/TMG incorporate the communication needs under the technical improvements for the MEVA network.</p>		<p>Expected impact:</p> <p><input type="checkbox"/> Political / Global</p> <p><input checked="" type="checkbox"/> Inter-regional</p> <p><input type="checkbox"/> Economic</p> <p><input type="checkbox"/> Environmental</p> <p><input checked="" type="checkbox"/> Technical / Operational</p>	

Why: Communication network support all operational services, the region must integrate all requirements to ensure that new phase of MEVA will support all service implementations and backup needs.	
When: March 2022	Status: <input checked="" type="checkbox"/> Valid / <input type="checkbox"/> Invalidate / <input type="checkbox"/> Finalized
Who <input type="checkbox"/> States <input type="checkbox"/> ICAO <input checked="" type="checkbox"/> Others:	Task Forces of the ANI/WG

4.1.4. Finally, the Secretariat reported on the current joint efforts between NACC and SAM Regional Offices to update the CAR SAM eANP and the development of its Volume III, emphasizing the need for validating the BBBs implementation at national levels. It was recommended to evaluate all ASBU elements implementation, especially those classified as ready for implementation, to support the development of Volume III and to analyse the “enablers” especially technologies, that must have to be ready before to implement any ASBU element. The Meeting made the following decision:

DECISION NACC/WG/06/10		SUPPORT FOR THE DEVELOPMENT OF THE CAR/SAM ANP VOL III: OPERATIONAL IMPROVEMENTS	
What:		Expected impact:	
<ul style="list-style-type: none"> a) That, in order to support the development of Vol III of the CAR/SAM ANP, each NACC/WG Task Force: b) evaluate the ASBU elements "ready to be implemented"; c) provide information on the technologies that should be available for operational implementation of the ASBU elements; d) incorporate the information and actions that apply to their action plans; And e) provide information to incorporate in the development of the regional objectives, part of the e-ANP Volume III by March 2022. 		<ul style="list-style-type: none"> <input type="checkbox"/> Political / Global <input checked="" type="checkbox"/> Inter-regional <input type="checkbox"/> Economic <input type="checkbox"/> Environmental <input checked="" type="checkbox"/> Technical / Operational 	
Why: It is essential to have the appropriate information to support decision-making.			
When: March 2022		Status: <input checked="" type="checkbox"/> Valid / <input type="checkbox"/> Invalidate / <input type="checkbox"/> Finalized	
Who <input type="checkbox"/> States <input type="checkbox"/> ICAO <input checked="" type="checkbox"/> Others:		Task Forces	

4.2. Safety initiatives to be supported by the implementation of ANS

No documentation was presented under this Agenda Item.

4.3. Progress status of the Air Navigation Plans (ANP) Vol. I and Vol. II

4.3.1 Under WP/16 the Secretariat presented the updates to the CARSAM Air Navigation Plan and the procedures for the amendment of this plan.

4.3.2 In response to the mandate of the ICAO Council to update and guide the CAR/SAM ANP to the 6th edition of the GANP, within GREPECAS Conclusion CRPP/05/10 was agreed upon, which replaced the GREPECAS/18 conclusions 4 and 7. In October 2020, during the GREPECAS ePRRC/2 Meeting, the implementation of Conclusion PPRC/05/10 was followed-up, highlighting that an interregional Working Group was formed to introduce changes to the standardized template of Volume III of the Regional Air Navigation Plans (RNAP), in accordance with GANP 6th Ed. The proposed template is still a draft version.

4.3.3 To date, the NACC and SAM Regional Offices have been reviewing and updating Volumes I, II and III, in order to facilitate the planning and implementation of air navigation systems within specific technical areas, in accordance with the agreed global and regional planning framework. Likewise, the revision and update proposal will satisfy the needs of the specific areas not covered in the global provisions. ICAO PIRGs are responsible for the development and maintenance of ANPs with the assistance of the ICAO Secretariat.

4.3.4 In preparation to support the tasks related to the development of the air navigation performance framework that would feed the indicators required by Vol. III of the eANP, the PBN and ATFM Task Forces of the ANI/WG decided stop the activities of their respective work programmes. Additionally, the ATFM implementation support Task Force developed a survey to gather information to identify the aerodromes and air traffic control areas where the implementation and operation of air traffic flow management will be considered as a basic level service for air navigation (**Appendix F**).

4.4. Development of the Air Navigation Plan (ANP) Volume III

4.4.1 Due to what is stated in WP/16, the Meeting was requested and I reiterate that the States support the development of Volume III, as well as the revision of Vol. I and II, observing and aligning the key performance indicator (KPI) catalog contained in the GANP cited above.

4.5. Air Navigation Indicators/metrics (Dashboard) initiative

4.5.1 Under WP/17, the Secretariat emphasized the importance of a measurement strategy on the main KPI to monitor and report through a Performance Control Panel (Dashboard) at the regional level with various applications that allow determining progress in planning the implementation of ICAO Global and Regional Plans. Therefore, due to the need to represent information and data objectively and graphically, a tool has been sought that allows decision-making within the reach of States, ICAO and interested parties in the NAM/CAR Regions.

4.5.2 The Meeting was informed that since the 38th session of the ICAO Assembly (2016), the Dashboards were approved, which aim to provide an overview of the strategic objectives of air navigation capacity and efficiency and of safety, using for this purpose a set of indicators (KPI) and metrics based on the regional implementation of the GANP and the GASP, for which it should be considered that these Dashboards continued their development during the 40th session of the Assembly of ICAO (2019).

4.5.3 Likewise, as a precedent for developing the Dashboards, the ICAO Council mandated the need to display and concentrate relevant information, easy to read and available to all interested parties. This to make a better decision-making and thus allowing an optimization of measurement strategies, as part of the approach based on performance/performance agreed by the aviation

4.5.4 The Regional Performance Control Board (NACC Dashboard) will provide a view of the implementation status in various areas including air navigation, its efficiency and benefits to the environment. This will help to ensure that the information is used in a fair and consistent manner, for which six important Initial Objectives in the development of this activity were included in the Appendix to WP/17.

4.5.5 It was concluded that a measurement strategy is essential for the success of a performance-based approach in the NAM/CAR RegionS and that it comprises various stages such as: collection, processing, storage, as well as graphical reporting on indicators / metrics available to States.

4.6. Regional Contingency Plans

4.6.1 Under WP/18, the Secretariat presented a summary of the most recent regional activities related to Air Traffic Management (ATM) contingency planning and response for the CAR Region and related future work.

4.6.2 The regional contingency planning strategy has been addressed by GREPECAS with the establishment of an action plan for the development of ATM contingency plans in the CAR and SAM Regions. This plan consists of the following phases:

- Phase I - Development of ATM contingency plans;
- Phase II: Harmonization of ATM contingency plans with the Neighbouring States/Territories/International Organizations; and
- Phase III - Submission of ATM contingency plans to the ICAO Regional Offices.

4.6.3 Several events that occurred during 2017 made evident the weakness of the CAR Region to organize a strategic, harmonized and well-coordinated response to contingency situations that affected the provision of air traffic services. In order to address the identified challenges and support the implementation of an enhanced CAR Regional Contingency Planning and Response Strategy, the States and Territories members of the Air Navigation Implementation Working Group for the NAM / CAR regions, approved the CAR REGION AIR TRAFFIC MANAGEMENT CONTINGENCY PLAN (Version 1.3 July 2020). The purpose of the Plan is to provide guidance and promote a harmonized regional response to contingencies, and provide guidelines for the development of contingency planning based on the conclusions and decisions of GREPECAS and the ANI/WG. In addition, the Plan brings the CAR Contingency and Emergency Response Coordination Team (CAR CERT) as a more active coordination platform for Regional contingency response.

4.6.4 The 2020 Atlantic hurricane season was one of the most active with a total of 29 tropical storms and 14 hurricanes. Some States of the CAR Region were severely affected, after suffering successive hurricanes that impacted their territory.

4.6.5 Regional coordination has improved significantly thanks to the leadership and support of key actors in each subregion.

4.6.6 Most of the 2020 contingency planning and response activities were dedicated to supporting the regional response to the COVID-19 pandemic. The ICAO NACC Regional Office compiled and published guidance material to support the provision of ATS in a COVID-19 context. In addition, several webinars were provided to participants from the NAM/CAR Regions and other Regions, to develop specific strategies and share lessons learned from this experience, the importance of communication, networking and building relationships between ATS units and other relevant stakeholders was highlighted in order to share best practices and up-to-date information.

4.6.7 La Soufrière volcano erupted on 9 April 2021. The eruption caused devastation in areas within Saint Vincent and the Grenadines (SVG) due to lava flows and large ash deposits. As a result, all SVG airports and the neighbouring islands of Barbados and Saint Lucia were closed. The regional response to this event was timely and very effective, with an enhanced coordination and information exchange strategy led by Trinidad and Tobago with the support of Eastern Caribbean States and key stakeholders.

4.6.8 The periodic review and update of ATM contingency plans continues to be a priority for the ICAO NACC Office. In 2020, teleconferences were planned and held to review the ATM contingency plans with each of the States of the CAR Region. Unfortunately, some States and Territories have not developed or published their ATM contingency plans, as regionally agreed.

4.6.9 In 2021, subregional teleconferences were held to review each of the contingency plans and carry out tabletop exercises. The purpose of the tabletop exercises is to test the communication channels and rehearse contingency scenarios to verify the effectiveness of the procedures detailed in the published contingency plans and to identify opportunities for improvement.

4.6.10 On June 23, 2021, a teleconference was held with the States / Territories and ANSPs of the Eastern Caribbean. ATM contingency plans were reviewed and communication channels tested. Collaboration with the Eastern Caribbean States has improved significantly, which is very important since coordination with this subregion alerts the rest of the Caribbean region to the possible trajectory of hurricanes and similar phenomena.

4.6.11 From August 3 to 5, 2021, teleconferences were held with the six Central American States and COCESNA to review and update the ATM contingency plans of Central America and evaluate the contingency procedures in force. During these teleconferences, a tabletop exercise was conducted and failures in Central American ATM systems were simulated. This exercise provided a very good opportunity to identify opportunities to improve the resilience of the Central American ATM system. Similar activities are planned annually.

4.6.12 For the first quarter of 2022, the Second Regional Meeting for Planning and Response for Contingencies and Emergencies (NAM / CAR / CONT / 2) will be held at the ICAO NACC Regional Office in Mexico City. This Meeting will evaluate the impact and response of the contingency situations faced in 2021 and will make the necessary arrangements to prepare for the 2022 hurricane season by conducting a tabletop exercise to simulate various contingency scenarios in the CAR Region.

4.6.13 COCESNA thanked ICAO for the work carried out regarding the planning and response to ATM contingencies in Central America. COCESNA recognizes that progress has been made for contingency agreements, given the particularity of the Central America air navigation system, where synergy and collaboration is required to support the possible failure of one of its components. Additionally, COCESNA reiterated its commitment to continue working in a collaborative approach to support these activities.

4.6.14 States were encouraged to stimulate the verification of the BBBs, particularly those related to the procedures for the International Airways Volcano Watch (IAVW) and the procedures for the provision of advisory information on tropical cyclones and SIGMET information. The Meeting was invited to ensure that Contracting States continue to encourage and support the participation of meteorological authorities and/or meteorological service providers in the Annual Hurricane Committee of the World Meteorological Organization.

4.6.15 Similarly, the Secretariat highlighted the importance of Aeronautical Information Management (AIM), for the management and response to contingencies. The importance, for example, of the timely issuance of NOTAMs, the sharing of flight plan information, among others, was highlighted.

4.6.16 The Secretariat also indicated the need to implement a Regional Contingency Plan AIM and NOTAM, to ensure the continuity of ATM services, mainly maintaining a high level of operational safety, according to the state of implementation of the Contingency Plans in the region. In addition, States are encouraged to sign Letters of Agreement (LoAs) approved between States, Territories and International Organizations related to such Contingency Plans.

4.6.17 Trinidad and Tobago reiterated the important link between contingency planning and the provision of SAR services. The Region is in dire need to emphasize and promote these activities, making adequate use of resources and combining tasks where possible.

4.7 Replacement of the ANI/WG to the NACC/WG

4.7.1 **Under WP/19, the Secretariat** presented to the Meeting the initiative to include and merge the ANI/WG into the NACC/WG due to the importance of keeping all air navigation areas together, taking into consideration the interaction and interdependence between them, avoiding duplication of activities and Meetings for better efficiency with a minimum adjustment to the Terms of Reference (ToR) and NACC/WG Work Programme.

4.7.2 It was mentioned that during the ANI/WG/4 Meeting held in Miami, United States, in August 2018, an initial proposal was presented to include the AGA, MET and SAR Areas, as part of the ANI/WG, for the importance of keeping all air navigation areas united by their interaction and interdependence, especially in consideration of SWIM with Conclusion: ANI/WG/4/02 "GREATER SUPPORT FROM STATES AND AIRPORT OPERATORS FOR AGA/AOP, MET AND SAR TASK GROUPS."

4.7.3 It was recalled that the ANI/WG/05 Meeting of May 2019, presented the proposal to include AGA and MET in the ANI/WG, for the same reason stated in the previous paragraph and in accordance with the guidelines of the GANP and the ASBU.

4.7.4 The Secretariat emphasized that both GREPECAS and the NACC/WG need the support and participation of all areas of ANS, in that sense it is necessary to integrate the ANI/WG into the NACC/WG, being more efficient in air navigation activities that must work in an integrated and not isolated manner, avoiding duplication of activities, reducing time and costs for States/Territories, International Organizations and the ICAO Secretariat.

4.7.5 Finally, although the Meeting recalled the reasons why the ANI/WG was limited to only AIM, ATM and CNS matters, the Meeting also recognized that the current work plan and situation of States participation may have changed, and so the proposal to have the NACC/WG operating instead of the ANI/WG was a feasible option. The NACC/WG Meeting has in a single set all the ANS areas, with a focus on GREPECAS, which includes States and aviation partners to face current challenges and risks, with a coordinated multidisciplinary response among the integrated ANS. In this regard the Meeting adopted the following Draft Conclusion for approval by the States, this Conclusion will replace Decision NACC/DCA 9/17 item b:

CONCLUSION	
NACC/WG/06/11	REPLACEMENT OF ANI/WG BY THE NACC/WG
<p>What: That, in order to make a more efficient and integrated ANS work among the States in the NAM/CAR Regions, and to merge the ongoing works from States for ANS implementation:</p> <p>a) the ANI/WG be dismantled and to be replaced by the NACC/WG as the technical coordinating regional body:</p> <p>b) all the existing task forces of the ANI/WG be incorporated to the NACC/WG workframe; and</p> <p>c) The Secretariat and the Task Forces will update the Tors and work programme to reflect these changes by the NACC/DCA/10.</p>	<p>Expected Impact</p> <p><input type="checkbox"/> Political/Global</p> <p><input type="checkbox"/> Inter-regional</p> <p><input type="checkbox"/> Economic</p> <p><input type="checkbox"/> Environmental</p> <p><input checked="" type="checkbox"/> Operational/Technical</p>
Why: For a more efficient integration of the ANS implementation in the NAM/CAR Regions	
When: NACC/DCA/10	Status: <input checked="" type="checkbox"/> Valid/ <input type="checkbox"/> Superseded/ <input type="checkbox"/> Completed
Who: <input checked="" type="checkbox"/> Coordinators <input checked="" type="checkbox"/> States <input checked="" type="checkbox"/> ICAO Secretariat <input type="checkbox"/> ICAO HQ	

4.8 Emerging technologies and new regional challenges

4.8.1 **Under WP/20**, the information of one relevant and emergent challenge that must be considered as an integral part of air navigation activities, cybersecurity in the ANSs was discussed.

4.8.2 Technology and cyber-systems have become essential for the modern society; we depend even more on technology, because it provides greater efficiency to all activities that are carried out day by day. Together with the benefit of cyber technologies, insecurities arise that affect all systems and infrastructures. Cyber-threat and cyber-attack have a transnational component and effect, as global systems are interconnected. Furthermore, the complexity of the action has implications for various actors at the national, regional and international levels.

4.8.3 Operational personnel, flight crews, air traffic controllers, Communication, Navigation, and Surveillance (CNS) infrastructures will depend more each day on the management and technical capacity to face threats in terms of cyber-attacks in order to guarantee operational security.

4.8.4 It was emphasized that aviation includes airspace users, air navigation providers, airport operators, civil aviation authorities and equipment manufacturers, among others. In this sense, it is necessary to carry out an analysis of the aviation system integrating all stakeholders that are part of the system and Cybersecurity requires a holistic approach.

4.8.5 It was concluded that Cybersecurity challenges require joint work by all areas of the civil aviation system, integrating both internal areas and parts of the system, as well as civil aviation operations external stakeholders.

4.8.6 Under WP/23, CANSO indicated that Cyber-attacks are a growing threat through out the world because of the increase of digitization and the interconnectivity of the systems. Civil aviation is particularly sensitive to this emerging threat due to its widely interconnected systems. Any disruption of systems caused by a cyber-attack can seriously affect safety and security of flights and the reputation of civil aviation in the public eye. As such, ICAO addressed this emerging threat to civil aviation through ICAO resolution A40-10 Addressing Cybersecurity in Civil Aviation.

4.8.7 The increase of sharing information and common situational awareness across the aviation industry means greater potential exposure to cyber-attacks. The threat is genuine and serious, and civil aviation must develop and execute security strategies and plans to ensure continued mission operations regardless of the threat. Cyber threats are continually evolving and becoming increasingly sophisticated. As civil aviation moves towards open standards and systems, it needs to become more proactive and prepared to mitigate the threat.

4.8.8 The aviation community must recognize, act, control, recover, and learn for future occurrences and find solutions to protect the aviation system and at the same time it has to be prepared and minimize the possibility of a cyber-attack.

4.8.9 CANSO invited civil aviation authorities to actively cooperate with all stakeholders to establish national and international mechanisms to systematically share cyber threats, incidents, trends, and mitigation efforts. To integrate cybersecurity as part of a risk management process, combining risk identification and analysis, the action, and measure to avoid cyberattacks.

4.8.10 In order to assist the aviation community, ICAO, CANSO, and Airbus developed the first Air Traffic Management Cybersecurity Policy Template. The policy helps to ensure the resilience of the aviation system by outlining steps to create a custom fit solution for individual organizations seeking to establish cybersecurity policies as part of their standard procedures and integrate them into every aspect of their business.

4.8.11 The different activities developed under the ICAO-CANSO-AIRBUS initiative will allow States to set forth the bases to develop cyber-protection measures, business continuity, and maturity during the implementation process to increase State and Regional security.

4.8.12 CANSO encouraged States and Air Navigation Services Providers (ANSPs) to develop their cybersecurity and strategic plan to ensure continued mission operations, regardless of the cyber threat and participate in the cybersecurity assessment and evaluation.

4.8.13 Also on emerging issues, the Secretariat presented WP/02 on Unmanned Aircraft Systems (UAS), their operation and the impact on air traffic control operations, which are increasingly used in the world. In support of emergency and rescue missions, fires, floods, earthquakes, etc. As well as, UAS operations help firefighters, police, paramedics/doctors and during the COVID-19 pandemic with applications, from socialization, sanitation, shipment of supplies and medicines, etc.

4.8.14 ICAO has developed documentation to support States in the process of developing their regulations, procedures, among others, Circular 328 AN/190 that provides information on UAS unmanned aircraft systems, for the integration of operations in the airspace. This documentation seeks to harmonize the development and establishment of security for the integration of unmanned aircraft operations and to integrate the requirements and regulations for their operations.

4.8.15 It was reported that ICAO establishes the following categorization and documentation for the operation of unmanned aircraft:

- a. Open category and specific categories: ICAO Model for the regulation of UAS Part-1 and Part-2, which is an example for ICAO Member States for the establishment of a regulation for unmanned aircraft operations. Document under the following link: <https://bit.ly/3ycjWDV>
- b. Certified category: All ICAO Annexes apply.
- c. Approval of Aviation Organization (AAO): For unmanned aircraft operators, example for regulation development: ICAO Model for UAS Part-149 regulation: <https://bit.ly/3Da5Zu5>
- d. Additionally, information and guides that ICAO has developed to support States to deal with the operation of unmanned aircraft due to the diversity of applications.

4.8.16 It was indicated that ICAO recommends to States the analysis of UAS operations in their airspace, regulate their operations and train the personnel who perform surveillance functions. In

addition, to establish regulatory mechanisms to establish the safe operation of UAS and the incorporation in the airspace, as well as to establish training profiles for personnel to facilitate monitoring and surveillance activities of operations of this type, adapt procedures to these new emerging technologies, The following links were indicated for more information on related events:

- <https://www.icao.int/NACC/Pages/meetings-2020-uas.aspx>
- <https://www.icao.int/meetings/DRONEENABLE4/Pages/default.aspx>
- <https://www.icao.tv/>

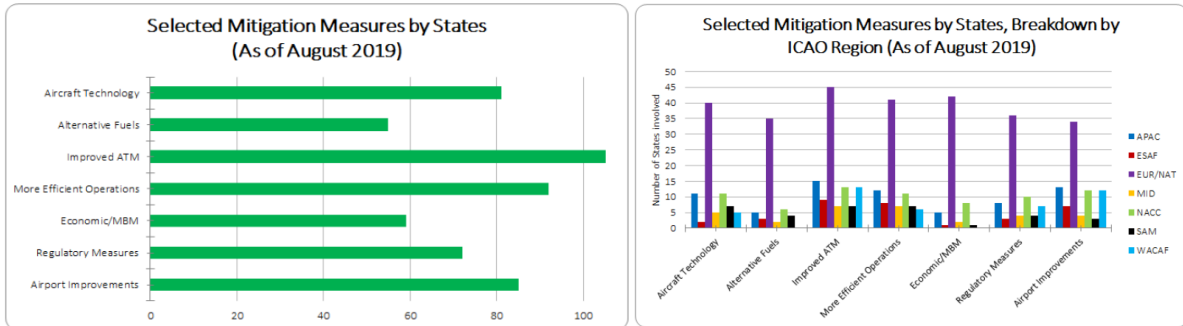
Agenda Item 5 Other Business

5.1 Under WP/21, the Secretariat presented the implementation status of the States’ Action plans on CO2 emissions reduction activities for international aviation in the CAR Region. The Secretariat referred to the basket of measures to limit or reduce CO2 emissions, particularly the operational improvements and requested the Meeting to encourage Contracting States to include both, national actions and activities implemented regionally in the preparation and/or update of the States’ Action Plans. It was highlighted that this would enable ICAO to compile global progress towards meeting the two global aspirational goals for the international aviation sector: 2% annual fuel efficiency improvement through 2050, and carbon neutral growth from 2020 onwards, as established at the 37th Session of the ICAO Assembly in 2010 and reiterated by the ICAO Assembly at its 40th Session in 2019.

5.2 In accordance with WP/21, in the NAM/CAR Regions, 14 from the 22 States have developed and submitted an Action Plan on CO2 emissions reduction to ICAO. Out of the 14 States, 8 have submitted an updated plan. Out of the 22 States, 15 have nominated a focal point for the SAP related activities.

5.3 The Secretariat informed the Meeting that the ICAO Assembly (A-40) had requested the Council to continue to ensure all efforts be taken by Contracting States to make further progress on aircraft technologies, operational improvements, and sustainable alternative fuels, and be reflected in their action plans to address CO2 emissions from international aviation, and to monitor and report the progress on implementation of action plans.

5.4 The ICAO Environment website (see the [website here](#)) presents the mitigation measures selected by Contracting States and the same selected measures broken-down by ICAO Regions, as of June 2021:



5.5 In accordance with the discussions, the following conclusion was adopted:

CONCLUSION		IMPLEMENTATION OF THE MITIGATION MEASURES TO ADDRESS CO2 EMISSIONS FROM INTERNATIONAL AVIATION	
NACC/WG/6/12			
What:		Expected impact:	
<p>That,</p> <p>a) States continue to include environmental protection in the planning and implementation activities related to the improvement of the civil aviation system;</p> <p>b) those States that have not yet developed or updated their State Action Plan on CO2 emissions reduction with quantified data, develop or update them as soon as possible; and</p> <p>c) States report the implemented mitigation measures by the States' Action Plans and consider the relevance of a coordinated regional approach by 30 September 2021.</p>		<p><input type="checkbox"/> Political / Global</p> <p><input type="checkbox"/> Inter-regional</p> <p><input type="checkbox"/> Economic</p> <p><input checked="" type="checkbox"/> Environmental</p> <p><input checked="" type="checkbox"/> Operational/Technical</p>	
Why:			
To ensure that States are reflecting all mitigation measures that are being implemented in their action plans for emissions reduction, to enable ICAO to compile global progress towards meeting the two global aspirational goals for the international aviation sector.			
When:	30 September 2021	Status:	<input checked="" type="checkbox"/> Valid / <input type="checkbox"/> Superseded / <input type="checkbox"/> Completed
Who:	<input checked="" type="checkbox"/> States <input type="checkbox"/> ICAO <input type="checkbox"/> Other:	States	

5.6 Under WP/22, Cuba reported that because Mr. Carlos Jiménez, Rapporteur of the Surveillance Task Force (SUR/TF), reached retirement age and 40 years of service in Cuban civil aviation, it requested to release him from the role of Rapporteur. As part of the responsibility of this Group, the experience and capacity of possible candidates in the region who could replace Mr. Jiménez as rapporteur of the Group was evaluated. As a result of this analysis, Cuba proposed United States representative, Mr. Alejandro Rodríguez, to be the new TF Rapporteur due to his extensive knowledge and skills on surveillance matters, his experience and an intense and important activity in the tasks that the group has developed, highlighting his participate on in the development of the Concept of operations (CONOPS) for the Implementation of ADS-B in the region. The Meeting welcomed Mr. Rodriguez and wished him all the success for leading this TF.

5.7 Following the approval of the States participating in the meeting, the Meeting adopted the following decision:

DECISION	
NACC/WG/06/13	NEW RAPPORTEUR OF THE SURVEILLANCE TASKS FORCE
What: <p>That, due to the retirement of Mr. Carlos Jimenez, representative of Cuba and Rapporteur of the Surveillance Task Force, a member of the ANI/WG, the States approve Mr. Alejandro Rodriguez of United States as the new Rapporteur of the Task Force, due to his experience and knowledge in the area of surveillance.</p>	Expected impact: <input type="checkbox"/> Political / Global <input checked="" type="checkbox"/> Inter-regional <input type="checkbox"/> Economic <input type="checkbox"/> Environmental <input checked="" type="checkbox"/> Operational/Technical
Why: <p>To continue the leadership and work of the Surveillance Task Force, the new Rapporteur will support these goals following the region's operational objectives.</p>	
When: Immediately	Status: <input type="checkbox"/> Valid / <input type="checkbox"/> Superseded / <input checked="" type="checkbox"/> Completed
Who: <input checked="" type="checkbox"/> States <input type="checkbox"/> ICAO <input type="checkbox"/> Other:	NAM/CAR States

5.8 Under IP/06, the Secretariat thanked the support and work done by Mr. Carlos Jimenez of Cuba for his work of over 40 years in civil aviation and for his leadership as Rapporteur of the Surveillance (SURV) Task Force, part of the ANI/WG. ICAO congratulated him and wished him much success in his new retirement stage.



Oficina para Norteamérica, Centroamérica y Caribe (NACC)
North American, Central American and Caribbean Office (NACC)

En reconocimiento a / In recognition of

Carlos Miguel Jiménez Guerra

por 40 años de liderazgo, dedicación y contribución
al desarrollo de los servicios de comunicaciones,
navegación y vigilancia en la Región CAR.

for 40 years of leadership, dedication and contribution to
communications, navigation and surveillance
services in the CAR Region.

Agosto de 2021 / August 2021

Melvin Cintron
Regional Director / Director Regional
ICAO North American, Central American
and Caribbean Office (NACC)
Oficina para Norteamérica, Centroamérica
y Caribe (NACC) de la OACI

5.9 Under NI/02 the ICAO Global NOTAM Improvement was presented, through the Global NOTAM2021 Campaign, launched on 8 April 2021, with the objective of the significant reduction and/or elimination of the number of NOTAMs worldwide old (more than three months old), which are still in circulation:

- a) The first presentations and recordings of the World NOTAM Campaign Webinar are available at: <https://www.icao.int/Meetings/NOTAM2021/Pages/default.aspx>
- b) The Secretariat referred to the issuance of the State Letter Ref.: NT-N1-6.4 - E.OSG - NACC86055, dated 10 June 2021, which informed the start of Phase 1 of the Campaign on old NOTAM, and inviting States to participate in events on this topic. It was emphasized that there are still tasks to be done in the 2021 NOTAM Global Campaign, it was said that it is important to consider by the Meeting the registration links of the follow-up webinars, as well as the tool called NOTAMeter, which is provided on the NOTAM website. ICAO: <https://www.icao.int/airnavigation/information-management/Pages/GlobalNOTAMcampaign.aspx>
- c) States, Territories and International Organizations were urged to participate in the 2021 Global NOTAM Campaign, and the Secretariat requested that the Civil Aviation Administrations of the States carry out the necessary tasks so that the originators of NOTAM data are responsible for ensuring that the information of NOTAM, is relevant and the NOFs responsible for reviewing the NOTAM publication requests, as well as advising for the issuance of safe, timely and concise NOTAMs.

5.10 Under P/03, Aireon provided an overview of its evolution over time, explaining its services using iridium satellites. On January 2019; they completed the implementation of low orbit satellites that can capture aircraft positioning signals anywhere in the world:

- a) AIREON also received from EASA in June 2019 the certification as service provider (ANSP) something unique in history because we Aireon does not have any space under their responsibility but was given this certification to provide surveillance data.
- b) Aireon indicated that the certified separations using ADS-B are 14 nautical miles and 17 nautical miles according to the type of operation and to standards, that were established in the respective analysis group.
- c) Aireon informed that Curacao, India, Singapore and COCESNA had recently implemented satellite ADS-B data.

**APPENDIX A
EXECUTIVE LIST OF CONCLUSIONS/DECISIONS**

Number	Conclusion/Decision	Responsible for action	Deadline
Decision NACC/WG/6/01	REVIEW DECISION AND CONCLUSION OF PREVIOUS MEETINGS		
	<p>That, activities and actions integration under the decision of conclusion of previous meetings need to be update according with the level of implementation. In that sense:</p> <p>a) All Task Force will coordinate with their States Members and update the status of decision and conclusion according with the actual level of implementation. Information is under Appendix B and C of this report.</p> <p>b) Decisions and conclusion still valid will be integrate under the Task Forces according with their area of responsibilities.</p>	NACC/ANI WG	December 2021
Decision NACC/WG/06/02	ELIMINATION OF AIR NAVIGATION DEFICIENCIES IN THE ANS FIELDS		
	<p>That, in order to facilitate the updating of the GREPECAS Air Navigation Deficiencies Database (GANDD) by the States and the Regional Offices, and foster elimination of deficiencies in the CAR/SAM Regions:</p> <p>a) States and International Organizations (including IATA, IFALPA and IFATCA) actively contribute towards updating the deficiency database, by providing to the Regional Offices, information on the implementation status of valid deficiencies by 31 December 2021and;</p> <p>b) States provide copies of action plans developed for these ANS deficiencies pursuant to the Recommendation from the ICAO Council methodology concerning GREPECAS</p>	International Organizations	31 December 2021
Decision NACC/WG/6/03	AMENDMENT OF THE PBN TASK FORCE NAME AND TERMS OF REFERENCE		

Number	Conclusion/Decision	Responsible for action	Deadline
	<p>That, in order to enhance the scope of the Task Force work programme and to incorporate other elements of airspace optimization into its portfolio</p> <ul style="list-style-type: none"> a) The PBN Task Force will be renamed the Airspace Optimization Task Force; b) the amendment to the Terms of Reference as shown in the Appendix C is approved. 	ANI/WG	By the end of the NACC/WG/6
Decision NACC/WG/6/04	COORDINATION FOR THE EXPANSION OF CANSO CADENA INTERREGIONAL ROUTES OPTIMIZATION TESTS		
	<p>That, considering the great benefits shown by the CANSO Project through the CADENA platform for interregional routes optimization</p> <ul style="list-style-type: none"> a) CANSO will present to the next ATFM Task Force Meeting its interregional routes optimization initiative; and b) The ATFM Task Force will evaluate the inclusion in its work programme the coordination for the expansion of these tests across the NAM/CAR Regions. 	CANSO, ATFM TF	By ATFM/TF/3 Meeting
Conclusion NACC/WG/06/05	DATA ON THE STATES AIM IMPLEMENTATION STATUS		
	<p>That, CAR States provide to the AIM Task force and the ICAO NACC Regional Office:}</p> <ul style="list-style-type: none"> a) All the information and data about the 21 steps for the transition from AIS to AIM on continuous basis by December 2021; and b) The AIM Task Force request AIM status information to all States periodically in order to complete the regional records. 	The AIM Task Force	December 2021

Number	Conclusion/Decision	Responsible for action	Deadline
Conclusion NACC/WG/06/06	<p>IMPLEMENTATION OF THE DIGITAL DATA SETS (DDS), OF THE e-AIP DATA AND AERONAUTICAL INFORMATION EXCHANGE MODEL (PANS AIM)</p> <p>That, the States accelerate the implementation of the Digital Data Sets, the Data Catalog (PANS AIM), and the standard Information Exchange Models (AIXM-Metadata), in all their domains by 31 December 2025, in order to make possible the management of the information in a SWIM environment, taking into account that in the AIM field, the main ASBU blocks, included in Doc 9750 which are relevant, are as follows:</p> <ul style="list-style-type: none"> • B0-DAIM Service Improvement through Digital Aeronautical Information Management (AIM); • B1-DAIM Service Improvement through Integration of all Digital AIM Information (2019-2025) 	States	Complete the implementation of the AIM Transition as soon as possible and no later than Dec 30, 2025
Conclusion NACC/WG/06/07	<p>NAM/CAR OPERATIONS CONCEPT DOCUMENT (CONOPS) FOR ADS-B IMPLEMENTATION</p> <p>That, to facilitate the implementation of ADS-B in their ATS Surveillance system for the States, the States use the NAM/CAR OPERATIONS CONCEPT DOCUMENT (Appendix E) as regional guidance for the implementation of ground-based and satellite – based ADS-B.</p>	NAM/CAR States	Immediately

Number	Conclusion/Decision	Responsible for action	Deadline
Conclusion NACC/WG/6/08	<p>ICAO ANNEX 3 SARPS IMPLEMENTATION</p> <p>That States,</p> <p>a) consider the necessary mechanisms to verify the effective implementation of the BBBs associated to the Meteorological Service for International Air Navigation and notify its implementation to the NACC MET/RO by 30 September 2021; and</p> <p>b) requiring assistance for the implementation of the ICAO Annex 3 provisions, continue asking for it through the NACC SAP.</p>	States	30 September 2021
Decision NACC/WG/06/09	<p>OPERATIONAL NEEDS TO IMPROVE COMMUNICATION NETWORK FOR FUTURE SERVICE IMPLEMENTATION AND BACKUP COMMUNICATION</p> <p>That, as the MEVA/TMG is working on the document of Request for Proposal (RFP) on the new regional communication network, that will support the actual services and operational implementation by the future,</p> <p>a) All ANI/WG Task Forces provide operational communications need for future implementation;</p> <p>b) All ANI/WG Task Forces Provide information about need of backup communications requirements; and</p> <p>c) the MEVA/TMG incorporate the communication needs under the technical improvements for the MEVA network.</p>	Task Forces part of the ANI/WG	March 2022
Decision NACC/WG/06/10	SUPPORT FOR THE DEVELOPMENT OF THE CAR/SAM ANP VOL III: OPERATIONAL IMPROVEMENTS		

Number	Conclusion/Decision	Responsible for action	Deadline
	<p>That, in order to support the development of Vol III of the CAR/SAM ANP, each NACC/WG Task Force:</p> <p>a) evaluate the ASBU elements "ready to be implemented";</p> <p>b) provide information on the technologies that should be available for operational implementation of the ASBU elements;</p> <p>c) incorporate the information and actions that apply to their action plans; And</p> <p>e) provide information to incorporate in the development of the regional objectives, part of the e-ANP Volume III by March 2022.</p>	Task Forces	March 2022
Conclusion NACC/WG/06/11	REPLACEMENT OF ANI/WG BY THE NACC/WG		
	<p>That, in order to make a more efficient and integrated ANS work among the States in the NAM/CAR Regions, and to merge the ongoing works from States for ANS implementation:</p> <p>a) the ANI/WG be dismantled and to be replaced by the NACC/WG as the technical coordinating regional body;</p> <p>b) all the existing task forces of the ANI/WG be incorporated to the NACC/WG workframe; and</p> <p>c) The Secretariat and the Task Forces will update the Tors and work programme to reflect these changes by the NACC/DCA/10.</p>	Coordinators, Sates, ICAO	NACC/DCA/10
Conclusion NACC/WG/06/12	IMPLEMENTATION OF THE MITIGATION MEASURES TO ADDRESS CO2 EMISSIONS FROM INTERNATIONAL AVIATION		

Number	Conclusion/Decision	Responsible for action	Deadline
	<p>That,</p> <p>a) States continue to include environmental protection in the planning and implementation activities related to the improvement of the civil aviation system;</p> <p>b) those States that have not yet developed or updated their State Action Plan on CO2 emissions reduction with quantified data, develop or update them as soon as possible; and</p> <p>c) States report the implemented mitigation measures by the States' Action Plans and consider the relevance of a coordinated regional approach by 30 September 2021.</p>	States	30 September 2021
Decision NACC/WG/06/13	<p>NEW RAPPORTEUR OF THE SURVEILLANCE TASKS FORCE</p> <p>That, due to the retirement of Mr. Carlos Jimenez, representative of Cuba and Rapporteur of the Surveillance Task Force, a member of the ANI/WG, the States approve Mr. Alejandro Rodriguez of United States as the new Rapporteur of the Task Force, due to his experience and knowledge in the area of surveillance.</p>	NAM/CAR States	Immediately

APPENDIX B

Fifth NAM/CAR Air Navigation Implementation Working Group Meeting (ANI/WG/5)
Mexico City, Mexico, 27 – 31 May 2019

Number	Conclusion/Decision	Responsible for action	Deadline
1	MET IMPLEMENTATION PROJECT		
	That, for the MET implementation program updating, NACC States and Territories inform the Secretariat of the implementation mechanisms they have been using, the challenges they face and their assistance needs by 30 June 2019.	States	30 June 2019
2	SUPPORT PBN IMPLEMENTATION INITIATIVES IN THE NAM/CAR REGIONS		
	That, in order to support the current PBN initiatives in the NAM/CAR Regions and to overcome ineffective initiatives utilized on past PBN projects;		
	a) Encourage States, Territories, and International Organizations to participate in the ICAO CAR Region PBN Survey and provide accurate, updated information which would then allow the PBN/TF to provide a proper analysis on their PBN implementation status by 31 December 2019;	States, ICAO NACC, PBN/TF	31 December 2019
	b) Encourage States, Territories and International Organizations to participate in a regional project to harmonize both the upper and lower level airspace routes within the NAM/CAR/SAM Regions by 31 December 2019; and		
c) Request States, Territories and International Organizations represented in the PBN/TF to provide sufficient support to their personnel in order to comply with agreed activities by 31 December 2019.			
3	AMENDMENT OF THE IMPLEMENTATION OF PBN NAM/CAR		
	That, In order to maintain up to date the regional planning and initiatives to support the implementation of PBN in the NAM/CAR Regions		
	a) the proposed update to the PBN RPO presented by the PBN/TF is approved	States, ICAO NACC, ANI/WG	31 May 2019
b) the PBN/TF Work Programme for 2019-2023 is endorsed; and			

	<p>c) the PBN/TF to submit annual progress reports to the ANI/WG.</p>		
	<p>Conclusion/Decision</p>		
4	<p>AMENDMENT OF THE IMPLEMENTATION OF FLEXIBLE USE AIRSPACE (FUA) AND IMPROVE DEMAND AND CAPACITY BALANCING (DCB) NAM/CAR REGIONAL PERFORMANCE OBJECTIVES</p>		
	<p>That, In order to maintain up to date the regional planning and initiatives to support the implementation of Flexible Use Airspace (FUA) and Improve Demand and Capacity Balancing (DCB) in the NAM/CAR Regions</p>		
	<p>a) is approved the proposed update to the FUA and DCB RPOs presented by the ATFM Task Force;</p>	<p>States, ICAO NACC, ANI/WG</p>	<p>31 May 2019</p>
	<p>b) the ATFM Task Force Work Programme for 2019-2020 is endorsed; and Task Force Work Programme for 2019-2020; and</p>		
	<p>c) the ATFM Task Force to submit annual progress reports to the ANI/WG..</p>		
5	<p>APPROVAL OF THE CAR REGIONAL SAR PLAN AND THE ANI/WG SAR TASK FORCE</p>		
	<p>That, in order to support the current SAR initiatives in the NAM/CAR Regions and to achieve the regionally agreed objectives;</p>		
	<p>a) Approve the CAR Regional SAR Plan, as a regional SAR implementation planning tool, to translate the requirements of Annex 12 - Search and Rescue to the regional context of the Caribbean by 31 December 2019;</p>		
	<p>b) Establish the ANI/WG SAR Task Force, as part of the ANI/WG structure, in order to support SAR implementation in the CAR Region and to lead with activities to support compliance of the RPBANIP Regional performance objectives by 31 December 2019; and</p>		

	<p>c) The ICAO NACC Regional Office take the necessary measures to ensure the adequate establishment of the ANI/WG SAR Task Force, and convene its first meeting with the SAR activities proposed by the ICAO NACC Regional Office by 31 December 2019.</p>	<p>States, ICAO NACC, ANI/WG</p>	<p>31 December 2019</p>
	<p>Conclusion/Decision</p>		
<p>6</p>	<p>PROCESS OF IMPLEMENTING THE ADS-B</p>		
	<p>That, States which are in the process of implementing the ADS-B according to the regional goal of 1 January 2020.</p>		
	<p>a) Publish its regulation by 30 October 2019; and</p>	<p>States, ICAO, ANI/WG</p>	<p>31 December 2019</p>
	<p>b) States that have not yet done so conduct an analysis on how their operations may be affected by the implementation of the ADS-B in the adjacent States and that they take the necessary measures to carry out actions that may be required by 31 December 2019.</p>		
<p>7</p>	<p>REVIEW THE PACKAGE OF MEASURES TO LIMIT OR REDUCE EMISIONS FROM INTERNATIONAL CIVIL AVIATION</p>		

	That, the ANI/WG Tasks Forces review ICAO Doc 9988 and analyse possible synergies between its work plans and the examples of measures to limit or reduce CO2 emissions from international aviation, in order to ensure possible contributions resulting of its work be included as part of the States' action plans on CO2 emissions reduction activities	States, ANI/WG Task Forces	30 August 2019
8	ENDORSEMENT OF THE CAR REGION ATM CONTINGENCY PLAN		
	That, in order to enhance the regional contingency readiness and the continuity of air transport operations in contingency scenarios; a) States to endorse the first draft of the CAR Region ATM Contingency plan, and request ICAO NACC Regional Office to continue working on this plan to ensure that its related required contingency plans are included, such as those related to NOTAM, MET and ATFM offices by 15 June 2019;	States, ICAO	15 June 2019

Number	Conclusion/Decision	Responsible for action	Deadline
	b) Encourage the States that have not yet done so, to develop their ATM contingency plans, following the guidelines established by GREPECAS, and submit them to the ICAO NACC Regional Office by 15 June 2019; and c) The ICAO NACC Regional Office establish a procedure for the systematic request, publication and annual review of the ATS contingency plans, for those States, Territories and International Organizations which provide Air Traffic Services in the CAR Region by 15 June 2019.		

9	PROJECT EVALUATION COMMISSION (RLA/09/801 PEC)		
	That, The Project Member States are encouraged to send the information of their necessities to the Secretariat by 14 June 2019, for it to be forwarded to the Project Evaluation Commission (RLA/09/801 PEC).	MCAAP State Members	14 June 2019
10	UPDATING OF THE ANI/WG TASK FORCES REGIONAL PLANS		
	That, the new structure under Figure 3.1 is approved and ANI/WG Task Forces analyse the global and regional requirements and update their working plans to ensure:	ANI/WG	30 September 2019
	a) the development of tasks with the purpose of reaching the regional objectives that were proposed by the ICAO NACC Regional Office.		
	b) identifying common activities to be developed by each Task Force; and		
c) that the plans are submitted to the ICAO NACC Regional Office for its integration by 30 September 2019.			

Number	Conclusion/Decision	Responsible for action	Deadline
11	ASSESSMENT OF THE REQUIREMENTS FOR THE FREE ROUTE AIRSPACE (FRA)IMPLEMENTATION		
	That, for the assessment of the necessary requirements to allow the free route airspace implementation the different ANI/WG Tasks Forces:		
	a) integrate, in their working plans, activities to assess the possibility and requirements for the FRA implementation in the NAM/CAR region; and b) report to the next ANI/WG meeting the results of this analysis and recommend additional activities for this implementation	ANI/WG Task Forces	ANI/WG/06
12	XML TESTS ON THE AMHS SYSTEMS PLATFORM		

<p>That, in order to test the XML capacity of the regional networks CAR, Cuba, the United States, the Dominican Republic, Trinidad and Tobago and COCESNA coordinate XML tests. For this purpose, the following activities are carried out: About AMHS reporting its progress by 30 December 2019.</p>	<p>States Ad-Hoc Group</p>	<p>30 December 2019</p>
<p>a) An Ad-hoc Group composed of the States and Organizations mentioned above is created and is led by Cuba by 30 December 2019.</p>		
<p>b) That the Ad-Hoc Group be part of MEVA/TMG by 30 December 2019</p>		
<p>c) That the results of the tests be reported to the States by 30 December 2019.</p>		

**OBSERVATIONS AND PROPOSALS OF THE
ANI/WG PRESIDENT AND THE DOMINICAN
REPUBLIC**

Number	
1	The AIDC/TF will request examples from IATA on traffic handoff facilities by other means than AIDC, and will consider its applicability and convenience in the region
2	Regarding the proposal to consider 100% implementation of AIDC under the NAM/ICD when Class III is completed, it will be sent to the AIDC/TF for analysis.
3	That the States review compliance with the BBB, and work on those aspects where they do not comply.
4	In the implementation of strategies to implement direct routes, and in general for any other measure, take into account the dependencies between the different ASBU areas and modules. Prepare checklists of requirements and preconditions
5	The creation of task groups for AGA, MET and SAR is supported.

6	SWIM implementation needs to consider to keep in sight its global nature, and therefore from the beginning to consider interoperability at a regional and global level.
7	It is proposed to modify the table of the Operation Plan of the SNA 2019, presenting the expected benefits on the first column, then the activities and finally the areas and Tasks Groups involved, since the same objective often involves more than one Working Group or Area.

Number	
8	<p>The proposal that national plans integrate global and regional plans is supported. It is understood in this aspect that:</p> <ol style="list-style-type: none"> 1. The regional plans reflect and are aligned with the global plan, and therefore integrating the national plans are indirectly integrated into the global. 2. The integration of the regional plan to the national ones should occur when the changes indicated during the ANI/WG/05 meeting are reviewed and accepted to the Regional Plan
9	The proposal to establish a defined deadline for States to report their national priorities is supported, understanding that these priorities do not conflict with, and consider the contribution to, the regional objectives. In this way, this proposal does not contradict proposal 2 of the presentation.
10	The proposal that the Task Forces analyze the global and regional plans to update their work programs is accepted. It is recommended that the task groups do not do this analysis in isolation, that at some stage it is done together, either face-to-face or virtual.
11	The proposal to integrate other members of the ATM community is supported. It is proposed to establish contact points for each Member State or International Organization and formalize their participation

12	It is also proposed to send a letter to the States with the list of Points of Contact (PoC) of the ANI/WG, as well as the TF , so that they either ratify them or update it.
13	The elaboration of an airspace operation concept is supported. The change of name of the PBN/TF is also supported to reflect the change in scope.

Number	
14	It is recommended that the proposal to give high priority to the concept of airspace operation be determined by the analysis of the regional objectives of the Task Force Groups.
15	The consolidation of the current and proposed documents of radar exchange agreement is supported, in order to have a single version with the benefits of both documents
16	The motion to carry out the analysis of the impact of the United States mandate on the use of the ADS-B is accepted, and to submit the applicable relative regulation by 30 October 2019
17	The ICAO NACC Regional Office is requested to motivate and support the importance of the SAR/TF and the other proposed AGA and MET groups to the Civil Aviation Authority Directors(NACC/DCA) Meeting.
18	It is proposed to take into account the requirements for the implementation of the AMHS extended services as a next step to the implementation of the basic service, especially the need for the directory service

SECOND GREPECAS PROGRAMMES AND PROJECTS REVIEW COMMITTEE (PPRC) VIRTUAL MEETING
(ePPRC/02)
ICAO NACC REGIONAL OFFICE
30 October 2020

DECISION ePPRC/02/01		PRESENTATION OF REVISED GREPECAS PROJECTS	
What: That, considering all the comments and guidelines provided by the PPRC to the GREPECAS Programme and Project Coordinators, the alignment of the Projects with the GANP, the prioritization of Projects according to the current CAR/SAM regional aviation context and financial resources prevailing as a result of COVID-19, Project/Programme Coordinators submit their revised and valid version to the PPRC by 8 February 2021.		Expected Impact <input type="checkbox"/> Political / Global <input checked="" type="checkbox"/> Inter-regional <input type="checkbox"/> Economic <input type="checkbox"/> Environmental <input checked="" type="checkbox"/> Operational/Technical	
Why: Approval of the revised and valid versions of GREPECAS Projects/Programmes			
When: 8 February 2021		Status: <input checked="" type="checkbox"/> Valid / <input type="checkbox"/> Superseded / <input type="checkbox"/> Completed	
Who: <input checked="" type="checkbox"/> Coordinators <input type="checkbox"/> States <input type="checkbox"/> ICAO Secretariat <input type="checkbox"/> ICAO HQ			

DECISION ePPRC/02/02		CAR/SAM REGIONS ATFM DOCUMENTATION UPDATE	
What: That, considering the publication of ICAO Doc 9971 and its different updates, as well as the development of the Guide for the implementation of the ATFM service and a runway capacity and Air Traffic Control (ATC) sector calculation manual in the SAM Region in 2019, a) the elimination of the CAR/SAM ATFM Manual is approved, considering that ICAO Doc 9971 provides the necessary reference to support the implementation of the ATFM; and b) the amendment proposal for the CAR/SAM ATFM CONOPS contained in the Appendix of WP/02 of this meeting is approved.		Expected Impact <input type="checkbox"/> Political / Global <input checked="" type="checkbox"/> Inter-regional <input checked="" type="checkbox"/> Economic <input checked="" type="checkbox"/> Environmental <input checked="" type="checkbox"/> Operational/Technical	
Why: To provide updated support for ATFM implementation in the CAR/SAM Regions			
When:		Status: <input type="checkbox"/> Valid / <input type="checkbox"/> Superseded / <input checked="" type="checkbox"/> Completed	
Who: <input checked="" type="checkbox"/> States <input type="checkbox"/> ICAO <input type="checkbox"/> Others		GREPECAS	

SAR service in the CAR/SAM Regions
The activities for harmonized SAR implementation harmonized with Annex 12 are promoted by the NACC and SAM Regional Offices amongst States. In the medium term, there could be a GREPECAS project for the implementation of the elements of the Global Aeronautical Distress and Safety System, in block 2 module (GADSS–B2/2) that directly concern the SAR service.

Project F1: Certification and Operational Safety of Aerodromes
Aerodrome certification reached 58%, out of a total of 152 aerodromes.
As a result of COVID-19, some States postponed the Certification plan to 2021. It should be noted that, in the last 6 months, airports did cabinet work with the aviation authorities and the NACC Regional Office.
It is expected that by 2025 90% of certified aerodromes will be reached in the CAR Region.
Regarding the Runway Safety Programme, there is good progress with a total of 73 aerodromes with Runway Safety Team (RSTs) implemented.

Project F2: Aerodrome

Planning
The NACC Regional Office is preparing a survey for the CAR States to determine which aerodromes do not have master plans and to provide them with further assistance and guidance in the preparation of said plans.

Project F3: Implementation of A-CDM

The airports participating in the September 2019 event, which have a medium to high traffic density, are monitored. The implementation of the A-CDM is made more effective in aerodromes with high traffic. Support was given to the proposed A-CDM Implementation Plan for the SAM Region to adapt it to the CAR Region as appropriate.
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DRAFT CONCLUSION	
ePPRC/02/03	REVIEW OF THE A-CDM IMPLEMENTATION PLAN PROPOSAL
What:	Expected Impact
<p>That, considering the new CAR/SAM Project F3 on Airport Collaborative Decision Making (A-CDM) under the Aerodrome Program, the States:</p> <p>a) endorse the first version of the A-CDM Implementation Plan proposal included in the Appendix of WP/05,</p> <p>b) send their comments to the A-CDM Implementation Plan proposal by 8 February 2021.</p>	<p><input type="checkbox"/> Political / Global</p> <p><input type="checkbox"/> Inter-regional</p> <p><input type="checkbox"/> Economic</p> <p><input type="checkbox"/> Environmental</p> <p><input checked="" type="checkbox"/> Operational/Technical</p>
Why:	
So that a first step can be taken to guarantee a harmonized and scalable implementation of the A-CDM concept, and its incorporation into Vol. III of the Regional Air Navigation Plan.	
When: 8 February 2021	Status <input checked="" type="checkbox"/> Valid / <input type="checkbox"/> Superseded / <input type="checkbox"/> Completed

Who: <input type="checkbox"/> Coordinators <input checked="" type="checkbox"/> States <input type="checkbox"/> ICAO Secretariat <input type="checkbox"/> ICAO HQ	
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DECISION		COORDINATION FOR THE IMPLEMENTATION AND ASSISTANCE TO	
ePPRC/02/04		THE STATES IN UAS/RPAS AND CYBERSECURITY	
What: That, considering the subject of UAS/RPAS as cybersecurity, as non-exclusive multidisciplinary topics to be dealt with in GREPECAS, the GREPECAS Secretariat coordinate the definition of activities and responsibilities to support the implementation of these issues with the regional implementation groups in Aviation Security, the Regional Group on Aviation Security and Facilitation (AVSEC/FAL) CAR/SAM, as well as the Regional Aviation Safety Group–Pan America (RASG-PA) by ePPRC/03..		Expected Impact <input type="checkbox"/> Political / Global <input checked="" type="checkbox"/> Inter-regional <input type="checkbox"/> Economic <input type="checkbox"/> Environmental <input checked="" type="checkbox"/> Operational/Technical	
Why: Ensure a harmonized and coordinated implementation amongst the different regional groups in the region to avoid duplication of tasks and optimize efforts.			
When: ePPRC/03		Status <input checked="" type="checkbox"/> Valid / <input type="checkbox"/> Superseded / <input type="checkbox"/> Completed	
Who: <input type="checkbox"/> Coordinators <input type="checkbox"/> States <input checked="" type="checkbox"/> ICAO Secretariat <input type="checkbox"/> ICAO HQ			

Follow-up of pending Conclusions/Decisions of GREPECAS

Decision/ Conclusion	Title	Date of completion	Responsible	Comments
GREPECAS 18/1	ACTIONS FOR ATFM IMPLEMENTATION IN THE CAR REGION	Undetermined in the recoding of GREPECAS 18 Conclusions and background	a) States and Territories in the CAR Region b) ICAO NACC Regional Office	Still valid
GREPECAS 18/3	REVISION OF THE MET PROGRAMME AND ITS TASKS	Undetermined in the recoding of GREPECAS 18 Conclusions	States	States continue to be encouraged to submit their ISO certifications.
Decision/ Conclusion	Title	Date of completion	Responsible	Comments
				The ePPRC/02 was recommended to analyse the implementation of the QMS in light of the most

GREPECAS 18/4	DEVELOPMENT OF AIR NAVIGATION PLANS ALIGNED WITH THE GANP AND THE REGIONAL PERFORMANCE-BASED AIR NAVIGATION PLANS	Superseded given the entry into force of the GANP 6th Edition. Superseded by the new Draft Conclusion PPRC/05/10		
GREPECAS 18/6	RESOLUTION OF AERONAUTICAL METEOROLOGY DEFICIENCIES	December 2016	States	CAR States have received assistance for the implementation of the qualification, competencies and training requirements of the Aeronautical Meteorology Program (PMA).
GREPECAS 18/7	POSTPONEMENT OF THE APPROVAL OF VOL. III OF CAR/SAM eANP	Superseded given the entry into force of the GANP 6th Edition. Superseded by the new Draft Conclusion PPRC/05/10		
GREPECAS 18/13	SAFETY MANAGEMENT IMPLEMENTATION	Implementation development in progress	States	Valid Pending comment for recent updates in activities and the change in Flight Safety position. However, the implementation process of Operational Safety Management is in progress
Decision/ Conclusion	Title	Date of completion	Responsible	Comments

GREPECAS 18/14	ENHANCEMENT OF SOUTH ATLANTIC (SAT) GROUP STRUCTURE	June 2020	ICAO HQ SAT Group	Complete d Spon sore d by ICAO HQ, two Atlan
GREPECAS 18/15	INTERFACE CONTROL DOCUMENTS FOR AIDC IMPLEMENTATION	April 2018	CAR and SAM States	Complete d The AIDC /ASIA PAC versi on 3.0
GREPECAS 18/16	SHORT-TERM IMPLEMENTATION BY THE STATES OF AIDC FUNCTIONALITY	May 2019	CAR and SAM States	Complete d The SAM Regio n Impl
Decision/ Conclusion	Title	Date completion	of Responsible	Com ment s

GREPECAS 18/21	SUPPORT TO GTE AND CARSAMMA ACTIVITIES TO IMPROVE THE ANALYSIS OF INFORMATION ON DEVIATIONS IN RVSM AIRSPACE	PPRC/05	a) States / International Organizations and CARSAMMA b) CARSAMMA and GTE c) States / International	Still valid due to vario us pend ing activi ties.
PPRC/05/10	DEVELOPMENT OF VOLUME III OF THE CAR/SAM eANP IN PREPARATION OF NATIONAL AIR NAVIGATION PLANS	Before 2021	Stakeholders	Valid Guid ed by NAC C and SAM DRDs , as indic
PPRC/05/13	INCLUSION OF THE AERONAUTICAL REQUIREMENT OF TROPICAL CYCLONE ADVISORY INFORMATION FOR THE WESTERN SOUTH ATLANTIC	GREPECAS/19	SAM RO/MET	SAM RO/ MET advan ces with the proc edur es
PPRC/05/08	REVIEW OF MET PROGRAMME AND ITS PROJECTS	30 November 2019	Programme H Project Coordinators	In refor mula tion accor ding to ePPR C/01 /03

ePPRC/01/01	STATUS OF IMPLEMENTATION OF THE AUTOMATED MANAGEMENT SYSTEM OF GREPECAS	26 June 2020	GREPECAS Chairperson	The new GREPECAS Chairpersonship confirms
Decision/Conclusion	Title	Date of completion	Responsible	Comments
ePPRC/01/03	REVIEW OF THE CURRENT PPRC PROGRAMMES AND PROJECTS	30 November 2020	States and ICAO	The Secretariat proposes to hold one or more

DRAFT CONCLUSION	
ePPRC/02/05	RASG-PA/GREPECAS COORDINATION
<p>What:</p> <p>That, in order to achieve the timely participation and preparation of the States, and in coordinated work between RASG-PA and GREPECAS, it is approved to hold an annual coordination meeting between the RASG-PA and GREPECAS work teams, at the beginning of every year (calendar), urging that the GREPECAS Working Groups support this effective coordination.</p>	<p>Expected Impact</p> <p><input type="checkbox"/> Political / Global <input checked="" type="checkbox"/> Inter-regional <input type="checkbox"/> Economic <input type="checkbox"/> Environmental <input checked="" type="checkbox"/> Operational/Technical</p>
<p>Why:</p> <p>Optimize the coordination and harmonized work between RASG-PA and GREPECAS</p>	
<p>When: Immediate</p>	<p>Status: <input checked="" type="checkbox"/> Valid / <input type="checkbox"/> Superseded / <input type="checkbox"/> Completed</p>

Who: <input checked="" type="checkbox"/> Coordinators <input checked="" type="checkbox"/> States <input checked="" type="checkbox"/> ICAO Secretariat <input type="checkbox"/> ICAO HQ	
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DRAFT CONCLUSION	
ePPRC/02/06	GREPECAS 2021 MEETINGS PROGRAMME
What: That, in order to achieve the timely participation and preparation of States in the air navigation planning and implementation activities for the CAR/SAM regions, the States approve the planning of GREPECAS 2021 events/meetings as proposed in P/01.	Expected Impact <input type="checkbox"/> Political / Global <input checked="" type="checkbox"/> Inter-regional <input type="checkbox"/> Economic <input type="checkbox"/> Environmental <input checked="" type="checkbox"/> Operational/Technical
Why: For the adequate planning and participation of States in GREPECAS meetings.	
When: Immediate	Status <input checked="" type="checkbox"/> Valid / <input type="checkbox"/> Superseded / <input type="checkbox"/> Completed
Who: <input type="checkbox"/> Coordinators <input checked="" type="checkbox"/> States <input type="checkbox"/> ICAO Secretariat <input type="checkbox"/> ICAO HQ	

CAR/SAM Volume III
CAR Region:
Workshop on the fundamentals and tools of the GANP 6th Edition to support the formulation of the ANS implementation strategy of the CAR Region; Mexico City, Mexico, from January 27 to 31, 2020;
ICAO Workshop on the New Version of the Global Air Navigation Plan (GANP); Mexico City, Mexico, February 17-21, 2020;

Gradual review of the work plans of the ANI/WG task forces to align them with the GANP 6th Edition and consider the modifications to the e-ANP.

APPENDIX C

AIRSPACE OPTIMIZATION TASK FORCE

1. *Background*

During the first ANI/WG meeting, a PBN Implementation Task Force was formed in order to streamline related air navigation implementation activities. This Task Force will carry out specific studies to support Performance-Based Navigation (PBN) implementation in the NAM/CAR Regions in accordance with the NAM/CAR RPBANIP, as well as update and report progress to the ANI/WG based on the action plan for these tasks. During the Fourth ANI/WG meeting, a decision was taken to amend the Terms of Reference with the objective of increasing the effectiveness of the PBN Task Force.

Subsequently, and following discussions held at the ANI/WG/5 meeting, Task Force Members considered that the scope of the activities undertaken should be expanded to cover the broader concept of airspace optimization. While the implementation of PBN remains a high priority, the Task Force will also pay attention to additional airspace considerations that contribute to the development of ASBU concepts such as Improved operations through enhanced en-route trajectories Free Route Operations (FRTO).

2. *Responsibilities*

2.1 The Task Force is responsible for:

- a) Developing and implementing a Work Programme to support the airspace optimization and PBN implementation in the NAM/CAR Regions according with the the CAR/SAM eANP.
- b) Continued refinement and ongoing review of the NAM/CAR PBN Implementation Plan and monitoring and reporting on its application in the Regions.
- c) Comply with and provide regional support for the completion of the GREPECAS Projects and related tasks.
- d) Propose the ANI/WG updates to the CAR/SAM eANP and GREPECAS related projects as required.
- e) Assisting States with the development of their airspace optimization plans, based on the PBN airspace concept and other related ASBU Modules periodically monitor their progress and report to the ANI/WG.
- f) Carrying out specific studies, developing guidance material and organizing workshops and seminars to assist States with Area Navigation/Required Navigation Performance (RNAV/RNP) implementation in the en-route, terminal, and approach flight phases, taking into account the PBN concept according to the ICAO Strategic Objectives and Global Plan Initiatives (GPIs).
- g) Identifying deficiencies and constraints regarding airspace utilization and PBN implementation, and propose solutions that would facilitate resolution of such problems.

2.2 The Task Force Rapporteur would be appointed through coordination between ICAO NACC Regional Office and Member States.

2.2 Responsibilities of the members:

- a) Attend the Task Force meetings and Teleconferences.
- b) Collaborate with the development and implementation of the Task Force work programme.
- c) Comply with the agreed tasks and activities as assigned.

2.3 Responsibilities of the Rapporteur

- a) Lead the development and implementation of the Task Force work programme and activities.
- b) up on the compliance with the CAR/SAM eANP.
- c) Report to the ANI/WG the compliance with the Task Force Work Programme and CAR/SAM eANP related tasks.

2.4 Responsibilities of the Secretariat

- a) The ICAO NACC ATM/SAR Regional Officer will serve as the Secretary of the Task Force.
- b) He/she is responsible to support the Task Force activities, providing guidance to the connection for the Task Force work programme and the CAR/SAM eANP;
- c) In coordination with the Rapporteur, develop and present to the members the annual programme of activities;
- d) In coordination with the Rapporteur, convene the Task Force activities, teleconferences and meetings; and
- e) Maintain up to date the Task Force documentation, work programme and membership in the ANI/WG website information.

2.5 Responsibilities of the States

- a) Ensure commitment and active participation of its members, according to the role and responsibilities assigned.
- b) Provide resources (e.g. time/finances to attend meetings) to ensure that their representatives are able to contribute to the activities of the taskforce.
- c) Request accountability for the development and implementation of the Airspace Optimization Work Programme in the NAM/CAR Regions.
- d) Provide Points of Contact (PoCs) to the Airspace Optimization Task Force. The Taskforce will liaise with the PoCs of each State regarding the activities of the Work Programme and it is expected that the PoCs will then coordinate internally with the relevant persons within their organization.

3. Membership.

3.1 The Airspace Optimization Task Force shall be comprised of a Rapporteur and up to nine (9) members, nominated by ICAO States, Territories and International Organizations members of the ANI/WG. All members of the Task Force should have completed some form of PBN/Airspace Design training and or have experience in PBN/Airspace Design implementation.

3.2 The membership of the PBN Taskforce shall include:

i At least one (1) representative from the following:

- a) The NAM Region
- b) Central American Sub-region
- c) Central Caribbean Sub-region
- d) Eastern Caribbean Sub-region
- e) IATA
- f) CANSO

ii One (1) Procedure Designer

iii One (1) Airspace Designer

3.3 The Task Force may temporarily include other persons as required for specific tasks.

4. Working Methods

The Task Force will:

- a) Present its work programme containing activities in terms of objectives, responsibilities, deliverables and timelines.
- b) The Task Force Rapporteur and the Secretariat will coordinate an annual programme of activities to comply with the requirements of the approved work programme.
- c) Avoid duplicating work within the ANI/WG and maintain close coordination among the existing entities to optimize use of available resources and experience.
- d) Designate, as necessary, Ad hoc Groups to work on specific topics and activities and organize clearly defined tasks and activities.
- e) Coordinate tasks to maximize efficiency and reduce costs via electronic means including emails, telephone and teleconference calls, and convene meetings as necessary.
- f) Report on and coordinate the progress of assigned tasks to the ANI/WG.

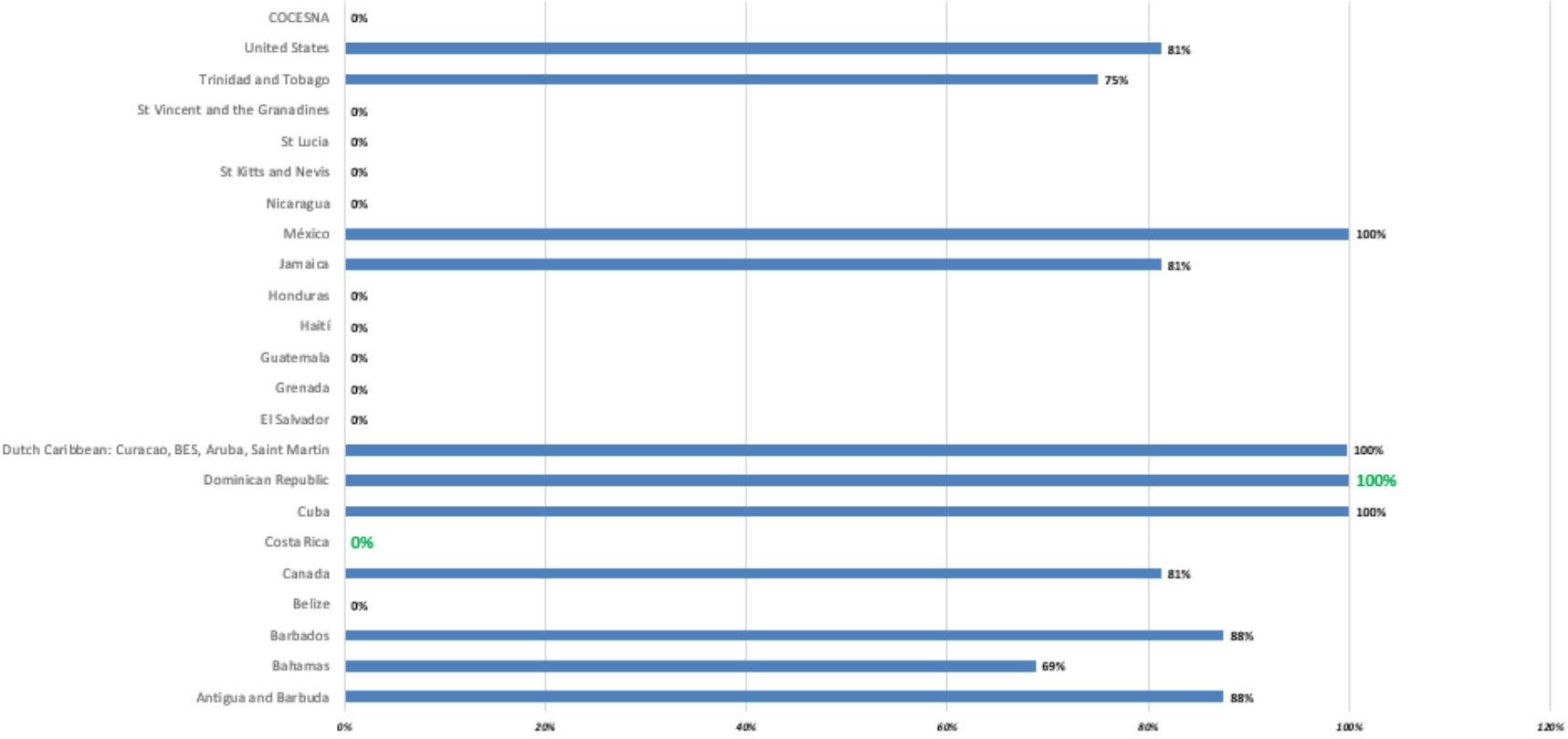
AIM TRANSITION STATUS / ESTADO DE TRANSICIÓN DE AIM

Phases ↓	States →	Antigua and Barbuda	Bahamas	Barbados	Belize	Canada	Costa Rica	Cuba	Dominican Republic	Dutch Caribbean: Curacao, BES, Aruba, Saint Martin	El Salvador	Grenada	Guatemala	Haiti	Honduras	Jamaica	México	Nicaragua	St Kitts and Nevis	St Lucia	St Vincent and the Grenadines	Trinidad and Tobago	United States	COCESNA	
Unique identifiers		NO INPUT	50%	0%		25%	99%	100%	NO INPUT	100%						50%	100%					100%	25%		
Aeronautical information conceptual model		NO INPUT	0%	0%		99%	100%	100%	NO INPUT	100%						75%	100%					25%	100%		
eAIP		NO INPUT	0%	75%		75%	99%	99%	NO INPUT	100%						50%	75%					75%	50%		
Terrain A-1		0%	50%	50%		100%	100%	100%	NO INPUT	100%						99%	0%					100%	100%		
Obstacle A-1		0%	50%	50%		100%	99%	100%	NO INPUT	100%						99%	0%					50%	100%		
Terrain A-4		0%	50%	50%		100%	N/A	NO INPUT	NO INPUT	100%						N/A	0%					NO INPUT	100%		
Obstacle A-4		0%	50%	50%		100%	N/A	NO INPUT	NO INPUT	100%						N/A	0%					NO INPUT	50%		
Terrain A-2[1]		0%	50%	50%		75%	100%	100%	NO INPUT	100%						99%	0%					100%	100%		
Obstacle A-2[2]		0%	50%	50%		75%	50%	100%	NO INPUT	100%						99%	0%					50%	50%		
Terrain A-3		0%	50%	50%		75%	99%	100%	NO INPUT	100%						99%	0%					100%	100%		
Obstacle A-3		0%	50%	50%		75%	50%	100%	NO INPUT	100%						99%	0%					50%	50%		
Aerodrome Mapping		0%	0%	25%		0%	25%	25%	NO INPUT	75%						99%	50%					25%	100%		
TOTAL Status		13%	37%	38%	0%	78%	75%	82%	13%	98%	0%	0%	0%	0%	0%	68%	37%	0%	0%	0%	0%	63%	82%	0%	
		INITIAL	DEVL	DEVL	NO START	FINAL	ADV	FINAL	INITIAL	FINAL	NO START	NO START	NO START	NO START	NO START	ADV	DEVL	NO START	NO START	NO START	NO START	ADV	FINAL	NO START	
Phase 3																									
Aeronautical data exchange		NO INPUT	0%	0%		50%	100%	25%	100%	75%						99%	50%					50%	100%		
Communication networks		NO INPUT	50%	0%		50%	SCHED	75%	100%	100%						99%	0%					99%	100%		
Aeronautical information briefing		NO INPUT	50%	50%		100%	SCHED	100%	100%	99%						50%	0%					NO INPUT	100%		
Training		75%	25%	75%		50%	SCHED	100%	100%	100%						99%	50%					25%	100%		
Agreement with data originators		50%	50%	50%		50%	SCHED	100%	100%	100%						50%	0%					50%	100%		
Interoperability with meteorological products		NO INPUT	0%	25%		0%	N/A	0%	100%	99%						50%	0%					0%	25%		
Electronic aeronautical charts		0%	0%	25%		0%	0%	0%	25%	75%						99%	0%					50%	100%		
Digital NOTAM		NO INPUT	0%	0%		0%	0%	0%	25%	75%						0%	0%					25%	100%		
TOTAL Status		15%	22%	28%	0%	38%	13%	50%	81%	90%	0%	0%	0%	0%	0%	68%	19%	0%	0%	0%	0%	37%	91%	0%	
		INITIAL	INITIAL	DEVL	NO START	DEVL	INITIAL	DEVL	FINAL	FINAL	NO START	NO START	NO START	NO START	NO START	ADV	INITIAL	NO START	NO START	NO START	NO START	DEVL	FINAL	NO START	
TOTAL Status Complete Transition per State.		39%	42%	51%	0%	66%	29%	77%	65%	96%	0%	0%	0%	0%	0%	72%	50%	0%	0%	0%	0%	59%	85%	0%	
<i>There are a total of 22 member States!</i>		DEVL	DEVL	ADV	NO START/NO INFO PROVIDED	ADV	DEVL	FINAL	ADV	FINAL	NO START/NO INFO PROVIDED	NO START/NO INFO PROVIDED	NO START/NO INFO PROVIDED	NO START/NO INFO PROVIDED	NO START/NO INFO PROVIDED	ADV	DEVL	NO START/NO INFO PROVIDED	NO START/NO INFO PROVIDED	NO START/NO INFO PROVIDED	NO START/NO INFO PROVIDED	ADV	FINAL	NO START/NO INFO PROVIDED	

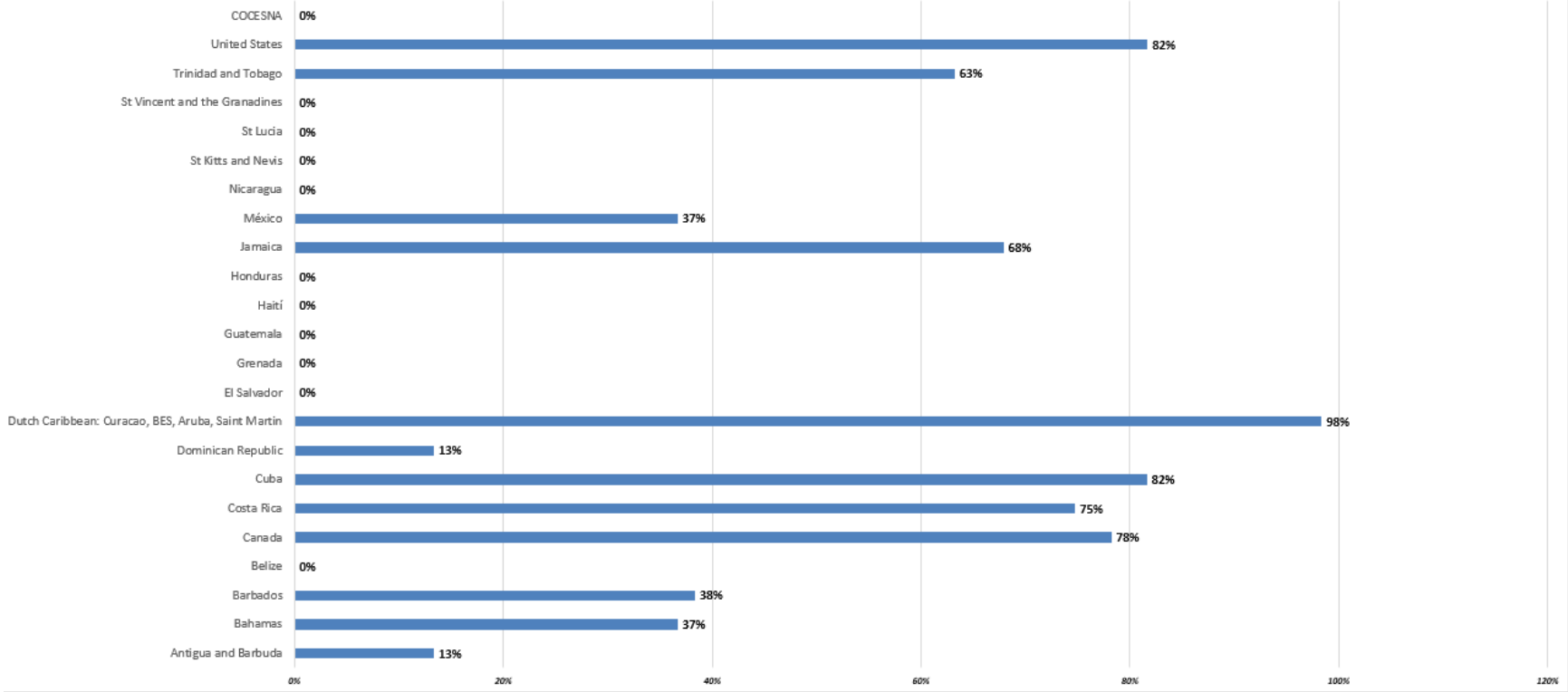
Updated:
11MAY2021

1	Not Started (leave empty)	0%
2	Initial Stage	1 - 25 %
3	Developing Stage	26 - 50 %
4	Advanced Stage	51 - 75 %
5	Finalizing Stage	76 - 99 %
6	Fully implemented	100%
7	Implemented through a third party	100%
8	Scheduled to be completed and/or fully implemented by this date / period	Provide more information
9	Will not implement this step (Fill all years grey)	Provide reason

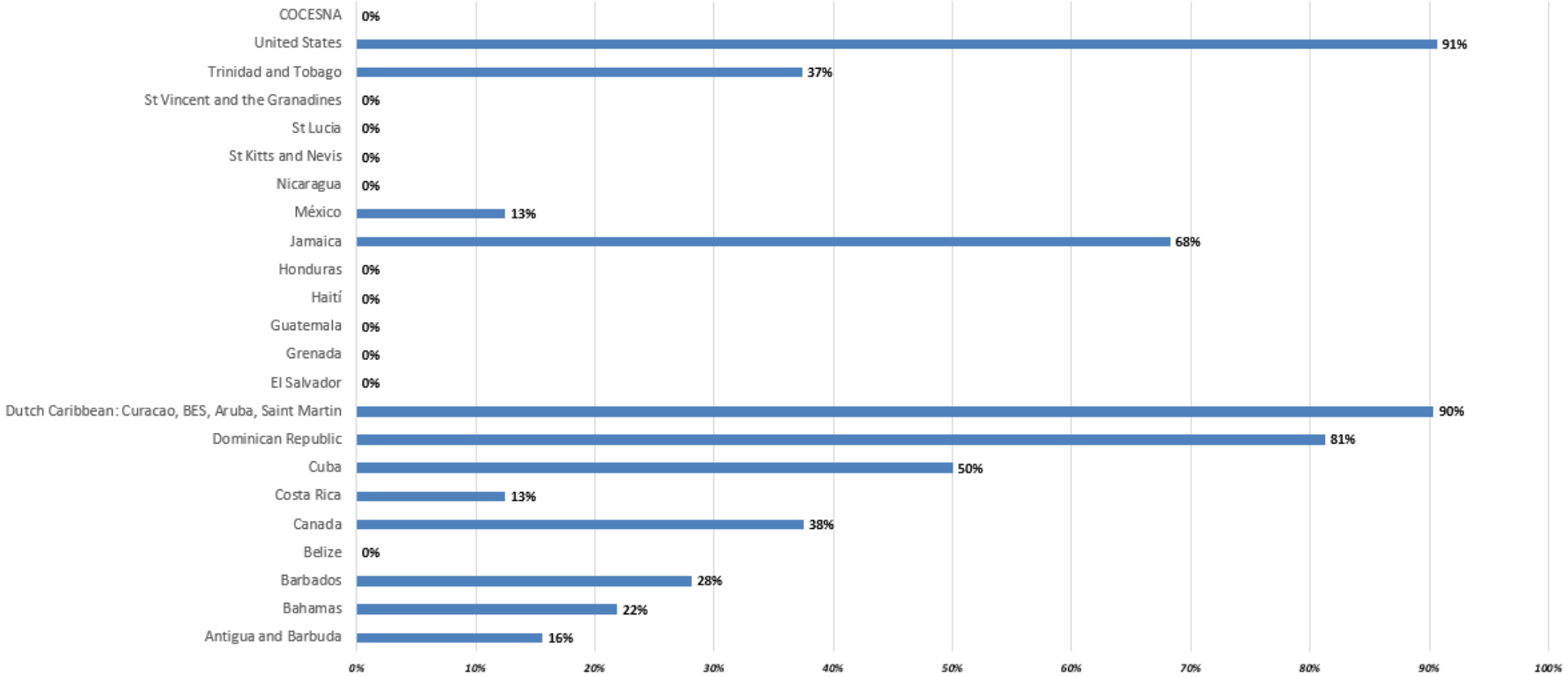
Phase 1 TOTAL Status

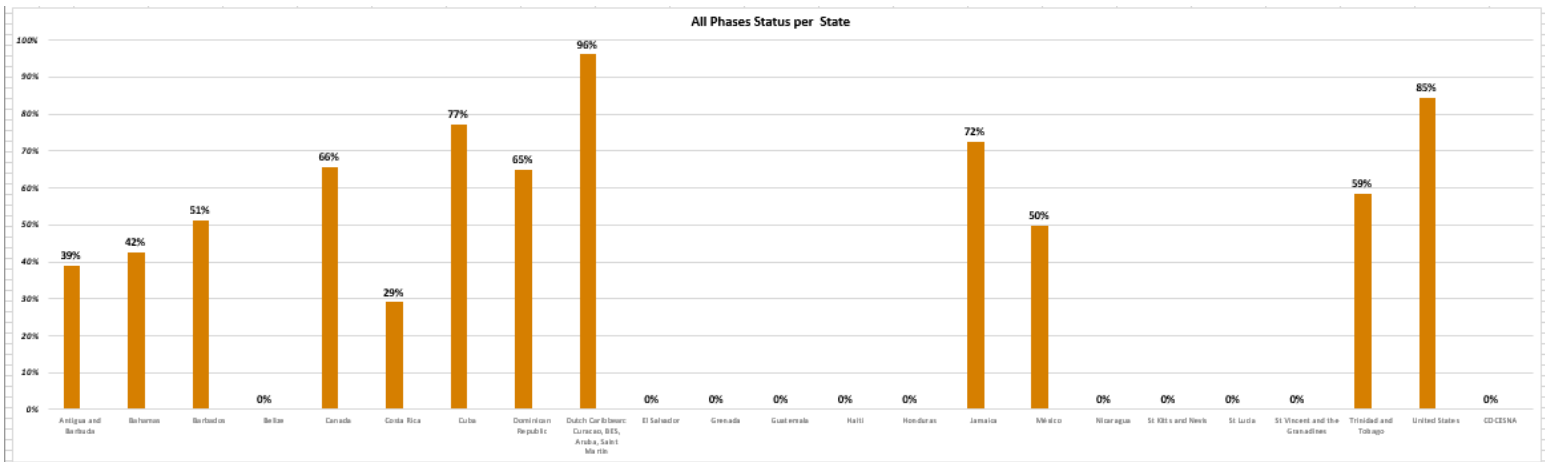


Phase 2 TOTAL Status



Phase 3 TOTAL Status





Conclusion:
 7 out of the 22 (31.8%) member States provided this year updated information transition of AIS to AIM. This is 16% less (or 4 less States), compared to last years information provision, which was at 47.8%. Of current provided information, it can be concluded that:
 10 of 22 (45.5%) have not Started or Provided any information.
 4 of 22 (18.2%) are in a development stage.
 5 of 22 (22.7%) are in Advanced stage.
 And 3 of 22 (13.6%) are in Final stage of completing the whole transition, within the NAM/CAR Region

All Phases	Antigua and Barbuda	Bahamas	Barbados	Belize	Canada	Costa Rica	Cuba	Dominican Republic	Dutch Caribbean: Curacao, BES, Aruba, Saint Martin	El Salvador	Grenada	Guatemala	Haiti	Honduras	Jamaica	Mexico	Nicaragua	St Kitts and Nevis	St Lucia	St Vincent and the Grenadines	Trinidad and Tobago	United States	COCESNA
TOTAL Status Complete Transition per State	39%	42%	51%	0%	66%	48%	69%	79%	78%	0%	0%	0%	0%	0%	52%	49%	0%	0%	0%	0%	64%	85%	0%
	DEVLP	DEVLP	ADV	NO START/NO INFO PROVIDED	ADV	DEVLP	ADV	FINAL	FINAL	NO START/NO INFO PROVIDED	NO START/NO INFO PROVIDED	NO START/NO INFO PROVIDED	NO START/NO INFO PROVIDED	NO START/NO INFO PROVIDED	ADV	DEVLP	NO START/NO INFO PROVIDED	NO START/NO INFO PROVIDED	NO START/NO INFO PROVIDED	NO START/NO INFO PROVIDED	ADV	FINAL	NO START/NO INFO PROVIDED

1	Not Started (leave empty)	0%
2	Initial Stage	1 - 25 %
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6	Fully Implemented	100%
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9	Will not implement this step (Fill all years grey)	Provide reason



ICAO

UNITING AVIATION

A UNITED NATIONS SPECIALIZED AGENCY



North American, Central American and Caribbean (NACC) Office

THE AUTOMATIC DEPENDENT SURVEILLANCE – BROADCAST (ADS-B) SEMINAR, OPERATIONAL CONCEPT

Development by Surveillance ICAO Task Force

Mexico City, 28 April 2015

Revised on July 2019

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1. – INTRODUCTION

Installing and maintaining ground-based aviation infrastructure in remote areas can be challenging and costly. This concept of operations considers the use of Automatic Dependent Surveillance - Broadcast (ADS-B) data from aircraft to expand surveillance coverage into remote areas, to augment current cooperative surveillance coverage, or to replace existing cooperative surveillance assets. Currently, some Air Traffic Service (ATS) providers depend upon ground-based infrastructure to receive ADS-B data from aircraft. This concept of operations also considers the possible use of orbiting satellites to receive and relay ADS-B data from aircraft.

The CAR Region is working on the commissioning of ground-based ADS-B stations in its Flight Information Region (FIR). The supporting safety analyses, testing and monitoring for these implementations provides the foundation for expansion of ATS surveillance services based on ADS-B.

The reduction of longitudinal separation between aircraft is an operational benefit that can be realized by implementing an appropriate surveillance and communication infrastructure.

Document Overview

The purpose of this document is to facilitate coordination between stakeholders who will be involved in, or affected by, the implementation of services using ADS-B. This concept of operations was developed to assist ICAO CAR region States considering the use of ADS-B as part of an ATS Surveillance System as defined in ICAO's Procedures for Air Navigation Services - Air Traffic Management (PANS-ATM, Doc 4444). Individual CAR region States may develop complementary implementation documents as needed to reflect their unique operating environments.

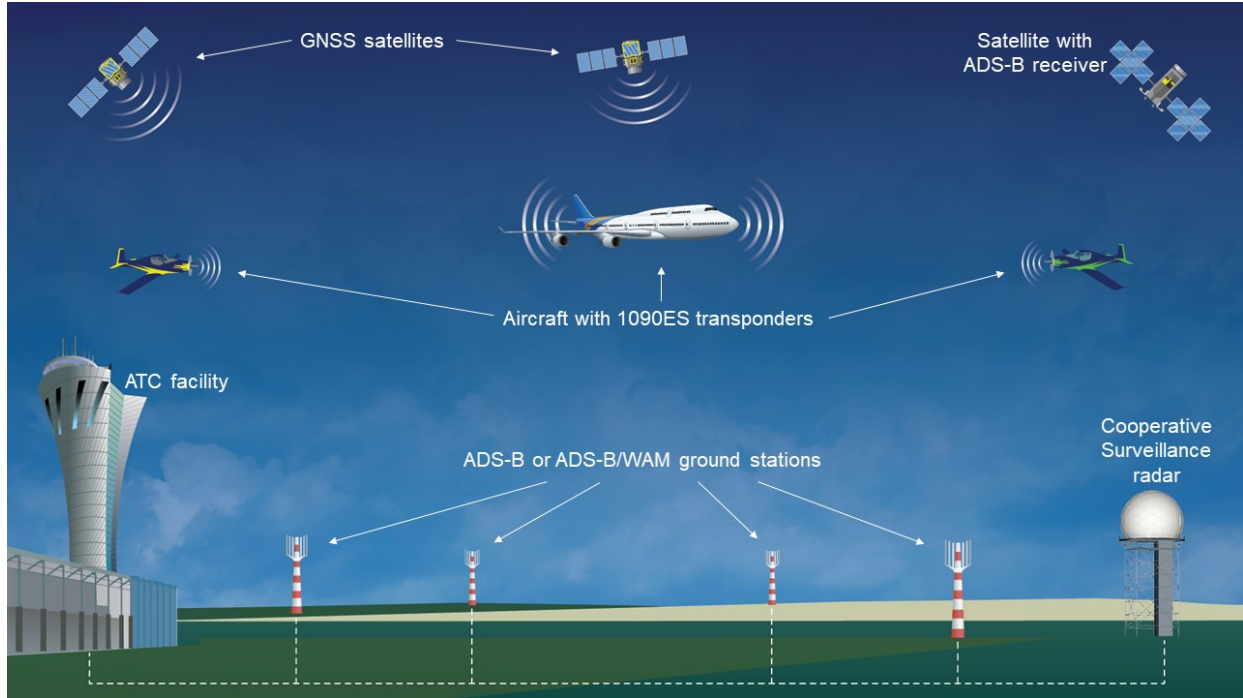
As developments occur, this Concept of Operations may need to be updated.

Operational use

The operational use of ADS-B can be realized in five areas:

- a. Enroute
- b. Terminal
- c. Search and Rescue
- d. Oceanic Areas
- e. Aircraft Tracking

1.1 – System Overview



References:

- [1] APANPIRG ADS-B Study, Manual on Airspace Planning Methodology for the Determination of Separation Minima (Doc 9689), Second Edition, 2017
- [2] Space Based ADS-B Surveillance in Oceanic Airspace Concept of Operations Draft 0.2 dated February 1, 2012.
- [3] ICAO Document 9854 “Global Air Traffic Management Operational Concept:” First Edition 2005
- [4] DOC 4444, “Procedures for Air Navigation Services, Air Traffic Management”, ICAO, Tenth six edition 2016
- [5] Annex 2 to the Convention on International Civil Aviation, “Rules of the Air”, ICAO, July 2005
- [6] Annex 4 to the Convention on International Civil Aviation, “Aeronautical Charts”, ICAO, July 2009.
- [7] Annex 11 to the Convention on International Civil Aviation, “Air traffic Services”, ICAO, Fourteenth Edition, July 2016.
- [8] Annex 15 to the Convention on International Civil Aviation, “Aeronautical Information Services”, ICAO, Fifteenth Edition, July 2016

[9] ICAO Cir 326, "Assessment of ADS-B and Multilateration Surveillance to Support Air traffic Services and Guidelines for implementation", ICAO, 2012

2. OPERATIONAL NEED:

The use of ADS-B technology is needed to help ensure the optimization of airspace through improved surveillance capability, reliability and accuracy, which should result in reduced separation minima while reducing the cost of providing surveillance services. In addition, the reduction of separation minima provides an improvement to CO2 emissions.

2.1. Current Environment

A variety of surveillance equipment is used within the region (e.g. PSR, SSR, MLAT). Both Procedural Separation Standards and Cooperative Surveillance Radar standards are used within the region.

3. SYSTEM JUSTIFICATION

3.1. Description of Desired Change

To use ADS-B surveillance information (airborne and airport surface) for air traffic control operations (including improved automation system safety functions and traffic flow management), or for other services including situational awareness or search and rescue.

Other authorized facilities (ramp control, airline operations center, etc.) may use ADS-B surveillance information to track flight activities and optimize operations. ADS-B provides more information at a faster update rate and with improved accuracy as compared with existing SSR systems. This enables service providers and users to achieve improvements in safety, capacity, and efficiency. Additionally, ADS-B data is inherently easier to share among adjoining States as the data broadcast from the aircraft is in the longitude and latitude coordinate system.

3.2. Potential Benefit of new or Modified System

The following ADS-B surveillance capabilities will contribute to improved safety, capacity and efficiency:

Safety

- Provides aircraft-to-aircraft traffic surveillance capability
- Provides ATC and pilots (in the cockpit) with airport surface traffic surveillance

-
- Provides surveillance in areas currently not served by ground-based surveillance systems
 - Improves or supplements existing ground-based surveillance information
 - Improves ATC automation performance and safety features (e.g., target accuracy, alerting functions)

Capacity

- Enables the use of radar-like separation procedures in remote or non-radar areas
- Supports a common separation standard in select domains and airspace classifications
- Supports a potential reduction in existing separation standards in all domains and airspace classifications
- Supports increased airspace capacity through select user-executed airborne spacing and operations

Efficiency

- Provides a lifecycle cost reduction relative to cooperative surveillance radars
- Provides new information, allowing for enhanced sector & airport-derived predictions
- Provides improved information for traffic flow management, collaborative decision making, fleet management, and management by trajectory functions
- Provides a rapidly deployable, mobile surveillance sensor for contingency operations
- Provides precision surveillance and flight parameter information for unique operating areas

4. OPERATIONAL DESCRIPTION:

ADS-B is a surveillance tool in which, like radar, aircraft transmit identity and altitude information to the ATIS unit. The position (and quality of this position), as determined by the aircraft sensors, is also broadcast, along with track vector information. Like a Mode S transponder, certain alert conditions are broadcast when selected by the flight crew. ADS-B messages are transmitted at regular intervals and any receiver may receive and process the data.

Some of the information transmitted by the aircraft can also be derived from radar data (speed, position and vertical rate) however, since ADS-B relies on high quality reports, under nominal conditions, it is more accurate than radar.

ADS-B is implemented in a Mode S transponder and uses the aeronautical protected frequency of 1090 MHz.

4.1 Surveillance

ATC will use ADS-B surveillance information in the same manner as current cooperative surveillance system information is used, for example, to assist aircraft with navigation, to separate aircraft, and to issue safety alerts and traffic advisories. ADS-B surveillance may be used to replace radar-based surveillance or to enhance the quality of existing radar-based surveillance information for ATC automation system functions, for example, aircraft tracking, Minimum Safe Altitude Warnings (MSAW), Conflict Alert, and Mode-C Intruder Alert. The possible implementation areas include surface, terminal, en route, offshore, and oceanic domains. ADS-B surveillance will allow ATC to provide separation services between ADS-B-to-ADS-B, ADS-B-to-radar and fused (ADS-B/radar) targets. ADS-B can support a reduction in separation minima in current non-radar environments.

4.2 ADS-B Applications

4.2.1 Surface movements

The primary ADS-B surface application is airport surface traffic situation awareness in support of surface movement guidance and control. Any increase in ground surveillance can serve to reduce the incidence of runway incursions.

4.2.2 Terminal airspace

The airspace immediately surrounding an aerodrome is considered the Terminal Management Area (TMA). This is where aircraft on approach (instrument and visual), aircraft departing and those operating in the vicinity of aerodromes are in close proximity to terrain. Since this is the area of initial climb and final descent, aircraft would be crossing the levels of other aircraft.

In TMAs where the terrain restricts Secondary Surveillance Radar (SSR), ADS-B can be used to provide surveillance. The deployment of several ADS-B antennae would be a cost effective way to provide surveillance where it would not be possible via single SSR. The cost difference between radar and ADS-B installation makes it feasible to install several ADS-B antennae to provide overlapping coverage.

In terminal airspace, when ADS-B equals or exceeds the accuracy of SSR (see ICAO Circular 326), the minimum established radar separation in PANS-ATM (Doc 4444) sections 6.7.3.2.4; 6.7.3.2.5; 6.7.3.4.2, 6.7.3.5.1, as well as Chapter 8 may be applied without any further safety assessment requirement.

ADS-B increases situational awareness in the cockpit and at the controller work position. Aircraft equipped with ADS-B IN will receive information about other ADS-B equipped aircraft in the vicinity based on their transmitted positions. Minor adjustments in speed and heading could be used to adjust spacing in the TMA where there is a high concentration of aircraft. For controllers, having an accurate picture of traffic in the TMA would result in heightened situational awareness and improvements in safety.

ADS-B surveillance can be used to reduce separation and an increase in terminal airspace capacity. An increase in airspace capacity can then allow for increases in flight schedule flexibility, increases in flight path efficiency and reductions in delays or flight disruptions.

ADS-B integration supports safety nets such as MSAW for aircraft flying close to terrain and reduce the occurrence of Controlled Flight Into Terrain (CFIT). In radar airspace, ADS-B would provide redundant surveillance to enhance safety.

4.2.3 Enroute airspace

The rapid update of information received from aircraft through ADS-B would increase the situational awareness of the controller since it would allow for a more accurate depiction of the aircraft's current track on the controller work position. This would improve the prediction of trajectories, increasing the effectiveness of ATM system conflict detection.

The coverage range of an ADS-B receiver is line-of-sight and can be two hundred and fifty (250) nautical miles at high altitude. If sufficient ADS-B receiving stations are used, complete coverage can be achieved despite the presence of mountainous terrain or tall structures.

The data obtained from adjacent FIRs could be shared across borders as long as there are compatible data formats. Compatibility considerations for ADS-B data sharing include: availability of different data fields if different ADS-B version(s) are supported; interoperability of different ASTERIX CAT021 editions; and handling of ADS-B data received from different ground stations in regions where coverage overlaps.

In a procedural environment, it is difficult for a controller to know if an aircraft is in an abnormal situation. In many cases, this only becomes clear after position reports have been omitted or an emergency (or urgency) report was sent by the pilot. In a surveillance area however, emergency reports are received instantaneously. This allows controllers and emergency professionals to see the aircraft's flight path and accurately locate its last position. A situation that significantly increases the likelihood of a favorable outcome.

ADS-B can provide redundant coverage for areas already served by SSR.

In non-radar airspace, cockpit workload could also be reduced through the implementation of ADS-B. Accurate position reporting in non-radar airspace can create a significant amount of workload for a pilot. A pilot's priorities during flight is to aviate, navigate and communicate. If less time is required to communicate position reports then there would be more time for aviating and navigating.

4.2.3.1 Upper airspace

The characteristics of an aircraft in the Upper Airspace (at or above Flight Level 180) would be level flying or change of cruising level by only one or a few thousand feet (Flight Levels). Lateral changes to a flight path would be due to weather deviations or to avoid separation violations where aircraft tracks cross each other.

In procedural (non-surveillance) upper airspace, ADS-B could provide surveillance coverage and reduce the required separation therein, to that defined by ICAO PANS-ATM (Doc 4444) 8.7.3 provided:

- Identification of ADS-B equipped aircraft is established and maintained;
- The accuracy and integrity measures of ADS-B messages are adequate to support the separation minima;
- There is no requirement for detection of aircraft not transmitting ADS-B; and
- There is no requirement for determination of aircraft position independent of the aircraft navigation system.

The surveillance provided by ADS-B can improve efficiency by facilitating more direct flight paths in the en-route phase of flight. More direct flight paths have a positive impact on fuel and greenhouse gas emissions.

4.2.3.2 Lower en-route airspace

The lower airspace (below Flight Level 180) is characterized by a mix of aircraft types with varying performance characteristics. There are significant changes in altitude (several thousand feet) for some aircraft while others would be operating at their cruise levels. There is also a high concentration of aircraft arriving and departing airports.

The speed, rate of climb and descent and general maneuverability vary widely for aircraft in the lower airspace. Commercial aircraft, general aviation and military operators all share the lower airspace. Different classes of aircraft have different performance characteristics and ADS-B can increase situational awareness for controllers. This leads to safer operations, especially in areas of high traffic density.

For aircraft with ADS-B IN, improved situational awareness would also be extended to the cockpit.

In areas of low traffic density, where the volume of traffic does not justify the installation of a radar, ADS-B offers a cheaper way to monitor a variety of aircraft.

4.2.4 Oceanic and Remote airspace

The objective of using ADS-B on aircraft operating in oceanic and remote airspace is to enable more frequent approval of flight level change requests through the use of a reduced separation standard. Such an application would improve flight efficiency and safety. Flight crews request flight level changes to improve flight efficiency and safety by optimizing fuel burn, accessing better wind conditions and by avoiding turbulence. In procedural oceanic and remote airspace, only ADS-B-IN equipped aircraft can use In-Trail-Procedures (ITP) to execute flight level change maneuvers. ITP allows ATC to approve these flight level change requests between properly equipped aircraft using reduced separation minima during the maneuver.

4.3 Proposed environment

In the short term, ADS-B will continue to support conventional ATC surveillance systems. Due to its high update rate and the accuracy of its position reports, ADS-B is as reliable as SSR systems, and through its use, the same separation minima could be applied for a particular airspace as if it were monitored with a conventional SSR system. By using both SSR and ADS-B together, the accuracy of composite tracks is improved. For aircraft with ADS-B IN, pilots have increased situational awareness.

Radars will continue to be surveillance sources until the existing systems reach the end of their life cycle, at which time they could be replaced by ADS-B. ADS-B systems could be installed in anticipation of certain radars becoming obsolete to give sufficient lead-time for their acceptance as radar replacement. The cost-to-benefit ratio and small footprint of ADS-B infrastructure is an enabling factor for early deployment.

Terrestrial ADS-B coverage can vary depending on altitude and terrain. A range of two hundred and fifty (250) Nautical Miles is possible at high altitudes. This range is reduced at lower altitudes and in mountainous terrain. Existing modeling tools can determine the expected coverage based on these factors and should be considered when deciding where to place a ground-based antennae. The availability of additional infrastructure such as power, communications and security should also be considered when choosing a site. As space-based ADS-B develops and is proven to be as effective as terrestrial installations, these factors may be less restrictive.

5. SYSTEM DESCRIPTION:

5.1. Surveillance Services System

The Surveillance Services system's functions (Aircraft/Vehicle, Data Link Processor, Broadcast Server, ATC Automation, and Traffic Flow Management Automation) provide the ADS-B services that support ADS-B applications. The ADS-B surveillance service is supported by Aircraft/Vehicle, Data Link Processor, and ATC Automation functions.

5.2 Functional Description

The purpose of each function of the Surveillance Services System, how they interoperate with each other, and how the Surveillance Services System fits into the Region are described below.

5.2.1 Aircraft/Vehicle

The Aircraft/Vehicle is the source of ADS-B information. The Aircraft/Vehicle gathers information including position data from a GNSS or other navigation source, crew input, barometric altitude, vertical speed and aircraft identification data. The Aircraft/Vehicle processes the gathered information and determines the associated integrity and accuracy indicators. The Aircraft/Vehicle encodes and broadcasts all the information in an ADS-B message. The ADS-B system will monitor information broadcast by the aircraft avionics package. The quality of the data will be evaluated to ensure aircraft compliance with the mandated performance measurements and standards. If equipped with ADS-B IN, the Aircraft/Vehicle receives and decodes ADS-B messages transmitted by other Aircraft/Vehicles. The Aircraft/Vehicle may display ADS-B on a Cockpit Display of Traffic Information (CDTI).

5.2.2 Data Link Processor

The Data Link Processor receives ADS-B Messages broadcast by Aircraft/Vehicles over the 1090Extended Squitter (1090ES) data link, formats them into ADS-B reports, and sends the reports to an ATC automation system. The Data Link Processor generates status reports, containing information on alarms and events in the Data link Processor subsystems and sends them to the ATC automation system. The Data Link Processor will also generate internal test target messages and send the resulting ADS-B reports to the ATC automation system.

5.2.3 ATC Automation

ATC automation (systems) receives ADS-B reports and status reports from the Data Link Processor. ATC automation receives ADS-B reports in both an ADS-B-only environment as well as mixed surveillance (e.g., radar, ADS-B, and Wide Area Multilateration, WAM) environments. ATC automation performs MSAW and CA processing using the ADS-B data (and radar/WAM data if in a mixed surveillance environment). In mixed surveillance environments, radar/WAM data may be used to “validate” ADS-B data to mitigate ADS-B “spoofing” risk. ATC automation may be able to improve tracking and safety feature functions using the high accuracy and greater update rate of ADS-B reports. ADS-B reports may also feed targeted surface surveillance systems and support their alerting functions. ATC automation tracks and displays targets by using the information provided in the ADS-B reports.

5.2.4 Traffic Flow Management (TFM) Automation

TFM automation receives ADS-B reports as part of the surveillance data passed from an en route and/or terminal ATC Automation system. As the coverage areas increase, TFM decision support tools will incorporate the data to produce more accurate demand projections, operational response strategies, (such as Traffic Management Initiatives (TMIs)) for periods of excess demand relative to capacity and weather. Additionally, the resultant aggregate demand data provided to the ATM community will reflect the increased accuracy and support better informed collaborative decision-making through traffic management.

5.3 Modes of Operation

The Surveillance Services system is a system of systems, making the definition of modes of operation more complicated than those of a single system providing a single function. Applications are enabled by specific Surveillance Services. Under normal operating conditions, all functions are available and operational, thus all services and applications are supported. Degradation or loss of a system function leads to degradation or loss of the services supported by that function, and ultimately of the applications enabled by the service.

5.3.1 Normal Operations (All Services Available).

5.3.2 Aircraft/Vehicle Degradation or Loss

The Aircraft/Vehicle is required for all services and applications. The Aircraft/Vehicle could degrade such that transmit only, receive only, or both are lost. Additionally, this function can degrade or be lost on a per aircraft basis and also regionally. Each of these outages has a different impact.

5.3.2.1 Loss of Reception Capability (ADS-B air-to-ground available, ADS-B air-to air lost)

Degradation or failure of the reception functionality on the aircraft would result in loss of ADS-B traffic information in the cockpit applications on a given aircraft.

5.3.2.2 Loss of Transmit Capability (ADS-B ground-to-air lost)

Degradation or failure of the Aircraft/Vehicle transmit function would result in the loss of ADS-B information to the Data Link Processor and to other aircraft. ADS-B IN-equipped aircraft in the vicinity cannot perform cockpit-based applications involving the failed aircraft, however applications involving other full-functioning aircraft would continue.

5.3.2.3 Loss of ADS-B Surveillance Source

Due to the criticality of aircraft surveillance data, a backup plan must be in place. In areas covered by other surveillance sources, including radar and WAM systems, data from the other system would be used as backup surveillance in the ATC/TFM Automation system when this occurs. In non-radar areas, controllers would revert to procedural separation. The loss of the ADS-B surveillance source, GNSS, could result in regional loss of ADS-B services. This would result in the loss of the Aircraft/Vehicle's ability to transmit ADS-B state vector information.

The Aircraft/Vehicle receive functionality would not be impacted. ATC controllers would lose all ADS-B surveillance data on all aircraft. Pilots would lose surveillance information on other ADS-B equipped aircraft in the vicinity.

5.3.2.4 Loss of ADS-B Reception Capability (ADS-B air-to-ground lost)

Degradation or loss of the Data Link Processor reception would result in the loss of ADS-B, supporting core surveillance applications.

5.3.3 ATC Automation

Each ATC Automation system should have system-specific backup strategies that will apply regardless of the source of surveillance data.

6. ASSUMPTIONS, CONSTRAINTS, AND DEPENDENCIES

6.1 Organizational Impacts

6.1.1 Staffing

The introduction of ADS-B applications may require adjustments to current ATC facility staffing schemes to optimize facility operations. Technical support personnel adjustments may need to be made to support and maintain local and remotely deployed ADS-B equipment, in addition to the maintenance responsibilities for existing infrastructure equipment. An adequate number of field support facilities and personnel will be required to install, maintain, and certify ADS-B equipment (both ATC equipment and avionics).

6.1.2 Acquisition Management System (AMS)

Surveillance Services ground infrastructure will require certification by Technical support personnel. Organizations with acquisition and implementation responsibilities should complete necessary System management training requirements.

6.1.3 Safety Management System (SMS)

The Surveillance Services system should conform to ICAO SMS processes. See Appendix B for representative hazards and commensurate risk assessments.

6.1.4 Regulation and Policy

Rules may be required and procedures will be necessary to support ADS-B enabled spacing and separation operations. States may need to develop policy and performance standards for aircraft and operators to support the ADS-B technology. Any changes to flight rules may require public comment and resolution.

Other actions, such as airspace redesigns, may be necessary to realize full operational benefits. Initial ADS-B IN applications are informational, providing pilots with an improved situational awareness to enhance safety, and probably do not require rule or procedural changes. The strategy initially depends on users voluntarily equipping with ADS-B IN capabilities. However, it is expected that over time more users will equip to gain the operational benefits. In line with the industry agreed policy of “Best-equipped, Best-served”, States may consider airspace rules or may designate areas to provide preferred service for users who are capable and equipped for ADS-B operations

6.1.5 Publication/Notices

Changes to current publications will be required to reflect operational and compliance changes. Development of new operational, procedural, and training documentation is required. Notices announcing changes to operational, procedural, and compliance requirements will need to be developed and distributed. Examples of documentation that may or may not be affected include, but are not limited to:

- International Agreements
- Advisory Circulars (AC)
- Technical Standard Orders (TSO)
- Facility Operations and Administration
- Aeronautical Information Publication (AIP)
- Terminal Instrument Approach Procedures
- Instrument Approach Procedure Charts (IAP)
- Standard Terminal Arrival Routes (STAR)
- Departure Procedures (DP)
- High/Low/Sectional Navigation Charts
- Letters of Agreement (LOA)

6.2 Operational Impacts

6.2.1 ATC Automation

For ATC surveillance application, Data Link Processors will provide ADS-B reports and status reports to ATC automation systems. ADS-B reports received by automation will include not only aircraft position/altitude and Mode 3A codes, but also additional surveillance related parameters such as, but not limited to, velocity, aircraft flight identification, and accuracy/integrity measures of ADS-B position reports. When ADS-B accuracy/integrity measures are inadequate for the service being provided, then either the corresponding ADS-B data should not be displayed to the controller, or the controller should be notified that the displayed data cannot be used. ADS-B ground stations will provide surveillance reports to automation at a higher update rate than radar. ADS-B reports will also be used by automation to improve aircraft tracking accuracy and safety functions such as CA and MSAW.

Because of the additional surveillance provided by ADS-B, ATS providers may desire to implement the use of fusion on ATC automation platforms. This capability fuses any available surveillance source (e.g., ADS-B, Radar, WAM) and displays a single tracked target to ATC. This allows automation to provide ATC with a faster synchronous display update and, when ADS-B surveillance is part of the fused target, a more accurate target position will be displayed to the controller.

6.2.2 TFM Automation

For TFM automation, ADS-B reports will be incorporated as elements of the already established provision of surveillance from en route and terminal ATC Automation systems. There are no anticipated significant operational impacts. The resolution of any asynchronous reporting/timing issues should be resolved within the ATC Automation systems prior to exchange with TFM. The use of the improved surveillance by TFM systems, processes and personnel will be as described above.

6.2.3 Radar-based Surveillance Systems

A communication interface method with existing primary and secondary radars or WAM systems and existing surface systems will be required to provide sensor measurements.

6.2.4 Service Provider and User Procedures

The introduction of ADS-B may require ATC procedural changes in order to optimize potential operational efficiency gains. New procedures should be designed to minimally impact current procedures. The goal is to minimize increases to cognitive workloads due to the implementation of ADS-B surveillance applications. New cockpit and ground automation capabilities provided by ADS-B give users the ability to achieve spacing and separation without fundamentally changing the overall responsibilities between pilots and controllers. Users may request or accept an ADS-B enabled operation, while service providers retain the authority to approve or apply a procedure depending on factors such as duty priorities and the operational situation at the time. However, procedures to clearly define the roles, responsibilities, and methods between users and service providers for initiating, executing, or terminating an ADS-B application will be required. Human factors analysis may be required to examine aircrew and controller workloads. Analysis may be required to develop rules and procedures defining all factors associated with the application or operations. Examples include, but are not limited to:

- ADS-B specific phraseology for application/operations;
- Modification of the symbology on ATC screens for the different sensors;
- Rules and procedures between pilot and controller for new operations;
- Designated areas, conditions, and types of ADS-B operations authorized;
- Service provider procedures for mixed operations (ADS-B participants versus non-participants) environments;

- Rules governing airborne spacing and separation operations;
- Backup, contingency, and transition procedures when ADS-B surveillance is lost.

6.2.5 ADS-B Separation Standards

Analysis may be required to determine separation standards between mixed equipage targets received from different surveillance systems including the transition boundaries between these surveillance areas. Once a service provider shows that ADS-B positioning accuracy and integrity is equivalent to or better than cooperative surveillance radar, then ICAO radar separation minima (PANS-ATM, Chapter 8) can be utilized. Where service providers wish to use ADS-B in En Route airspace to support separation of less than 5NM, additional analysis is required. The goal is a common, standardized separation minimum for service providers.

6.3 Service Provider and User Impacts

The equipage decision will vary for different users and consideration must be given on the effect ADS-B implementation and operations will have on those that do or do not equip. Each state will define and enforce avionics and navigation equipment standards through Technical Standard Orders (TSO), Advisory Circulars, Airworthiness Inspections, etc. but must be within the minimum standards specified by ICAO.

Each state will issue TSO's that prescribe minimum performance standards for navigation equipment used by the civil aviation community. ICAO issues standards and recommended practices for international civil aviation. The development of minimum performance standards for military users is the responsibility of the separate department services. These military standards must conform to civil airspace required navigation performance requirements, prevent violation of civil air traffic clearances, and ensure safe separation of military and civil air traffic.

6.3.1 User and Service Provider Training

Users and service providers will require training to understand the new technology's capabilities, characteristics, and limitations. Users and service providers must have an understanding about one another's use of ADS-B. Both service providers and users will require training on the operation of ADS-B equipment and knowledge of ADS-B-specific terms, phraseologies, and display symbology. Users and service providers will require training and certification/qualification on the use of ADS-B applications and operations. This will include, but not be limited to:

- Rules governing areas and conditions allowing an ADS-B application.
- Rules governing certified equipment levels and personnel qualifications.
- Rules and procedures for spacing and separation applications.

APPENDIX A – Definitions and Glossary

ACAS	(ICAO) Airborne Collision Avoidance System
ACC	Area Control Centre
ADS-B	Automatic Dependent Surveillance - Broadcast
ADS-C	Automatic Dependent Surveillance - Contract
ANS	Air Navigation Services
ANSP	Air Navigation Services Provider
ATC	Air Traffic Control
ATCO	Air Traffic Controller
ATM	Air Traffic Management
ATS	Air Traffic Service
CPDLC	Controller Pilot Data Link Communications
CRM	Collision Risk Model
CSP	Communication Service Provider
CTA	Control Area
DCPC	Direct Controller Pilot Communication
Doc 4444	(ICAO) Procedures for Air Navigation Services - Air Traffic Management (PANS-ATM)
FIR FL (number)	Flight Information Region Flight Level

GNSS	Global Navigation Satellite System
HF	High Frequency
IATA	International Air Transport Association
ICAO	International Civil Aviation Organization
IGA	International General Aviation
MNPS	Minimum Navigation Performance Specifications
MTCD	Medium Term Conflict Detection
NAT	(ICAO) North Atlantic (Region)
NM	Nautical Miles
OCA	Oceanic Control Area
PBN	Performance Based Navigation
RCP	Required Communication Performance
RNPC	Required Navigation Performance Capability
RVSM	Reduced Vertical Separation Minima
SAR	Search and Rescue
SATCOM	Satellite Communications
SATVOICE	Satellite Voice Communications
SMS	Safety Management System
TCAS	Traffic Collision Avoidance System
VHF	Very High Frequency

APPENDIX B: Hazard and Risk Evaluation of ADS-B Application:

Table Att-1. Severity table (basic)

<i>Level</i>	<i>Descriptor</i>	<i>Severity description (customize according to the nature of the product or the service provider's operations)</i>
1	Insignificant	No significance to aircraft-related operational safety
2	Minor	Degrades or affects normal aircraft operational procedures or performance
3	Moderate	Partial loss of significant/major aircraft systems or results in abnormal application of flight operations procedures
4	Major	Complete failure of significant/major aircraft systems or results in emergency application of flight operations procedures
5	Catastrophic	Loss of aircraft or lives

Table Att-3. Likelihood table

<i>Level</i>	<i>Descriptor</i>	<i>Likelihood description</i>
A	Certain/frequent	Is expected to occur in most circumstances
B	Likely/occasional	Will probably occur at some time
C	Possible/remote	Might occur at some time
D	Unlikely/improbable	Could occur at some time
E	Exceptional	May occur only in exceptional circumstances

Table Att-4. Risk index matrix (severity × likelihood)

<i>Likelihood</i>	<i>Severity</i>				
	<i>1. Insignificant</i>	<i>2. Minor</i>	<i>3. Moderate</i>	<i>4. Major</i>	<i>5. Catastrophic</i>
A. Certain/frequent	Moderate (1A)	Moderate (2A)	High (3A)	Extreme (4A)	Extreme (5A)
B. Likely/occasional	Low (1B)	Moderate (2B)	Moderate (3B)	High (4B)	Extreme (5B)
C. Possible/remote	Low (1C)	Low (2C)	Moderate (3C)	Moderate (4C)	High (5C)
D. Unlikely/improbable	Negligible (1D)	Low (2D)	Low (3D)	Moderate (4D)	Moderate (5D)
E. Exceptional	Negligible (1E)	Negligible (2E)	Low (3E)	Low (4E)	Moderate (5E)

Operational Activity	Identified Hazards and Risks	Description of Risk	Initial Risk Assessment			Further Mitigation factors	Revised Risk Assessment		
			Likelihood	Consequence	Risk Level		Likelihood	Consequence	Risk Level
ADS-B Operational Trial	Failure of Ground Station	Loss of ADS-B positional data to the controller. Increase in workload due to transitioning to procedural control and reassess traffic.	unlikely	Insignificant	3D	Revert to procedural control and apply appropriate separation standard for affected aircraft. A site monitoring system shall provide a degree of on-line integrity monitoring. Warnings would be provided to ATC if site monitoring is not received.	unlikely	insignificant	3D

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<p>Incorrect Data broadcast by an aircraft due to data corruption</p>	<p>Incorrect data due to data corruption broadcast by the aircraft ADS-B transponder. The GNSS on the aircraft still operating correctly.</p>	<p>Significant error in the displayed position of the aircraft that could lead to a breakdown in separation without the controller being aware.</p>	<p>remote</p>	<p>moderate</p>	<p>3D</p>	<p>controller observation of history trail and look for track jump</p>	<p>remote</p>	<p>minor</p>	<p>2D</p>
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<p>Corruption of Data by the ground station</p>	<p>Incorrect data displayed to the controller due to data corruption at the ADS-B ground station</p>	<p>Error in the reported position of the aircraft therefore could lead to a breakdown in separation without the controller being aware. This may affect all data.</p>	<p>Improbable</p>		<p>3D</p> <p>Controller observation of history trail and look for track jump. Ensure only tested and proven ADS-B ground station are used in the operational trials. Ensure Route adherence monitoring is implemented for ADS-B tracks.</p>			
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Appendix E to the Report

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<p>Loss of position accuracy of reported position</p>	<p>The accuracy performance of the navigational equipment in the aircraft has deteriorated to the level that it is not acceptable to support the specified separation standard</p>	<p>Loss of ADS-B positional data to the controller. Increase in workload due to transitioning back to procedural control and reassess traffic</p>	<p>remote</p>	<p>moderate</p>	<p>3D</p>	<p>Ensure the ATM system will detect degradation in accuracy performance below a specified threshold and provide appropriate visual notification to the Unit concerned (NUC value). Revert to procedural control for the affected aircraft. Site monitoring is used to validate that it is only one aircraft affected.</p>	<p>remote</p>	<p>minor</p>	<p>2D</p>
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<p>Incorrect processing of ADS-B Data by the ATM system</p>	<p>Data reaching the ATM system processed in such a way as to give a false indication of position, altitude or trajectory</p>	<p>Possible error in the displayed position of the aircraft therefore could lead to a breakdown in separation</p>	<p>remote</p>	<p>moderate</p>	<p>3C</p>	<p>Conduct comprehensive testing of the ADS-B processing and displaying functionality of the ATM. Test should include the conduct flight tests and compare results to commissioned radar information.</p>	<p>improbable</p>	<p>moderate</p>	<p>3D</p>
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<p>Failure of GNSS satellites</p>	<p>Loss of ADS-B tracks at the ATS unit</p>	<p>Loss of ADS-B data and Nuc drops causes an increase in workload and procedural control in re-established</p>	<p>unlikely</p>	<p>moderate</p>	<p>site monitoring installed to provide a degree of on-line monitoring and warning to ATC if site monitoring</p>			
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<p>Inadequate ATS Training</p>	<p>Introduction of ADS-B function to an ATS unit without adequate training introduces a new hazard.</p>	<p>Insufficient training in MHI, new procedures and transition from ADS-B control to procedural control and may increase the probability of breakdown in separation.</p>	<p>possible</p>	<p>moderate</p>	<p>3C</p>	<p>provide comprehensive training that covers all operational aspects including contingencies</p>	<p>unlikely</p>	<p>moderate</p>	<p>3D</p>
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Appendix E to the Report

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<p>Inadequate Operational Procedures</p>	<p>Introduction of new ADS-B function is new to ATS and adequate operational procedures will introduce a hazard to the system</p>	<p>inadequate operational procedures for managing and controlling ADS-B areas increases the probability of a breakdown</p>	<p>remote</p>	<p>minor</p>	<p>3C</p>	<p>Maximize the reuse of proven operational procedures to handle ADS-B control areas. Ensure sufficient procedures are developed and tested for the transition between ADS-B and Procedural control</p>	<p>unlikely</p>	<p>minor</p>	<p>2D</p>
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RF Jamming	Radio Frequency Jamming of ADS-B due to deliberate or non-deliberate actions	Loss of ADS-B positional data to the ATS unit result in an increase in workload due to transitioning to procedural control.	improbable		3D	Increase in the level of security and security response at ground installations			
incorrect altitude data transmitted by aircraft	Aircraft transmitting wrong altitude because of faulty barometer or wrong geometric levels on display	Could lead to a loss of separation between aircraft or CFIT	unlikely	major	4D	obtain verbal verification of altitude when ADS-B target is observed	improbable	major	4D

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<p>Incorrect 24 bit code</p>	<p>incorrect 24 bit code filed on the flight plan leading to mismatch or no match ADS-B target to filed FPL</p>	<p>wrong call sign affixed to aircraft track leading to increase work load for controller to rationalize the proper callsign</p>	<p>remote</p>	<p>minor</p>	<p>2C</p>	<p>work by flight plan monitoring group to identify how often this occurs and put measures to reduce the incidents with operator</p>	<p>improbable</p>	<p>minor</p>	<p>2D</p>
<p>Failure of communication link between the ground station and ATS unit</p>	<p>loss of ADS-B position at the ATS unit due to the loss of data from ground station</p>	<p>increase in controller workload transitioning to procedural control and possible loss of separation between aircraft</p>	<p>unlikely</p>	<p>moderate</p>	<p>3D</p>	<p>ensure redundancy of communication lines and power and reliability of technical support for the ground installation</p>	<p>unlikely</p>	<p>moderate</p>	<p>3D</p>

<p>failure of site monitor</p>	<p>site monitor relays information on the suitability of data received from ADS-B returns</p>	<p>erroneous data could be reaching the ATM system and be undetected by the controller leading to loss of separation</p>	<p>remote</p>	<p>moderate</p>	<p>3C</p>	<p>scheduled checks on site monitoring equipment done at frequent intervals and data collection and analysis</p>	<p>remote</p>	<p>moderate</p>	<p>3C</p>
<p>Mixed operating environment</p>	<p>controller having different tracks to work with ADS-B, Flight Plan and SSR tracks</p>	<p>increase in controller workload transitioning different separation standards and possible loss of separation between aircraft</p>	<p>possible</p>	<p>moderate</p>	<p>3C</p>	<p>adequate initial training in procedures and regular refresher training to ensure controller competence</p>	<p>unlikely</p>	<p>moderate</p>	<p>3D</p>



ICAO

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

North American, Central American and Caribbean Regional Aviation Safety Plan

NACC RASP

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ABBREVIATIONS AND ACRONYMS

AGA	Aerodrome and Ground Aids
AIG	Accident and Incident Investigation
ACSA	Central American Aeronautical Safety Agency
ANS	Air Navigation Services
ANSP	Air Navigation Service Provider
ARCs	Additional Risk Categories
ATM	Air Traffic Management
ATS	Air Traffic Services
CAA	Civil Aviation Authority
CARSAMMA	Caribbean and South American Regional Monitoring Agency
CAST	Commercial Aviation Safety Team
CAT	Combined Action Team
CFIT	Controlled Flight Into Terrain
CMA	Continuous Monitoring Approach
CAST	Commercial Aviation Safety Team
DIPs	Detailed Implementation Plans
DG	General Director (State)
DRD	Deputy Regional Director
EI	Effective Implementation
GANP	Global Air Navigation Plan
GASP	Global Aviation Safety Plan
GRIAA	Central American Regional Aviation Accident Investigation Group
GREPECAS	CAR/SAM Regional Planning and Implementation Group
GTE	GREPECAS Scrutiny Working Group
HRC	High Risk Categories of Occurrences
HS	Hot Spots
IATA	International Air Transport Association
ICAO	International Civil Aviation Organization
LOC-I	Loss of Control - In flight
I STARS	Integrated Safety Trend Reporting and Analysis System
MAC	AIRPROX/TCAS alert/loss of separation/near miss collisions/mid-air collisions
MET	Aeronautical Meteorology
MTOW	Maximum Take-Off Weight
NASP	National Aviation Safety Plan
NACC	North American, Central American and Caribbean
NACC RASP	North American, Central American and Caribbean Regional Aviation Safety Plan
NACC RO	North American, Central American and Caribbean Regional Office
NACC SAP	North American, Central American and Caribbean Systemic Assistance Programme
NCLB	No Country Left Behind
OLF	USOAP On-line Framework
OPS	Aircraft Operations (USOAP Audit Area)
OPS	Operational (Safety)
ORG	Civil Aviation Organization (USOAP Audit Area)

PA-RAST	Pan American – Regional Aviation Safety Team
PQ	Protocol Question
RASG	Regional Aviation Safety Groups
RASG-PA	Regional Aviation Safety Group – Pan America
RASP	Regional Aviation Safety Plan
RAST	Regional Aviation Safety Team
RC	Runway Collision
RE	Runway Excursion
RI	Runway Incursion
RSA	Runway Safety Advisory
RSOO	Regional Safety Oversight Organization
RST	Runway Safety Team
RVSM	Reduced Vertical Separation Minima or Minimum
SARPs	Standards and Recommended Practices
SDCPS	Safety Data Collection and Processing System
SEI	Safety Enhancement Initiatives
SeMS	Security Management Systems
SMS	Safety Management System(s)
SPI	Safety Performance Indicator
SSC	Significant Safety Concern
SSO	State Safety Oversight
SSP	State Safety Programme
TCAS	Traffic Collision and Avoidance System
UNK	Unknown or Undetermined
USOAP	Universal Safety Oversight Audit Programme
WG	Working Group

1. INTRODUCTION

1.1 OVERVIEW OF THE NACC RASP

1.1.1 The North American, Central American and Caribbean Regional Office (NACC RO) of the International Civil Aviation Organization (ICAO) is committed to enhance aviation safety, to the resourcing of supporting activities and to increasing collaboration at the regional level. The purpose of this ICAO **NACC RASP** is to continually reduce fatalities, and the risk of fatalities, through the development and implementation of a regional aviation safety strategy. This plan represents this strategy. A safe aviation system contributes to the economic development of the North American and Caribbean (NAM/CAR) Regions, the States which comprise them, and their industries. The **NACC RASP** promotes the effective implementation of safety oversight systems of States in NAM/CAR Regions, a risk-based approach to managing safety at the regional level, as well as a coordinated approach to collaboration between States in the region, Regional Safety Oversight Organizations (RSOOs), AIG regional collaborative arrangements, Regional Aviation Accident Investigation Group (GRIAA) and Regional Accident Investigation Organization (RAIOs), international organizations and industry. All stakeholders are encouraged to support and implement this RASP as the regional strategy for the continuous improvement of aviation safety. Regional Aviation Accident Investigation Group

1.1.2 The **NACC RASP** has been created by the ICAO NACC Regional Office in conjunction with the region stakeholders in coordination with the RASG-PA to promote the effective implementation and sustainability of safety oversight systems of States in the NAM/CAR Regions, following the No Country Left Behind (NCLB) approach and based on the Systemic Assistance Programme (SAP).

1.1.3 The NACC RASP is aligned with the ICAO *Global Aviation Safety Plan (GASP, Doc 10004)*. The NAM/CAR States shall endeavour to have their national aviation safety plans aligned with the ICAO NACC RASP to the extent applicable.

1.1.4 The present version of **NACC RASP** and its future revisions are approved by the Civil Aviation Authorities (CAAs) of the NAM/CAR Regions. The NACC Regional Office on behalf of the States and International Organizations involved will publish the revised versions of the plan as necessary.

1.2 STRUCTURE OF THE NACC RASP

1.2.1 This **NACC RASP** presents the regional strategy for enhancing aviation safety for a period of 3 years. It is comprised of six sections. In addition to the introduction, sections include: the purpose of the **NACC RASP**, the ICAO NACC Regional Office strategic approach to managing aviation safety at the regional level, the regional operational safety risks identified for the 2020-2022, other regional safety issues addressed in the **NACC RASP**, and a description of how the implementation of the safety enhancement initiatives (SEIs) listed in the **NACC RASP** will be monitored.

1.2.2 The basic components of the NACC Regional Safety Strategy are summarized as follows:

- A. NACC Systemic Assistance Programme (NACC SAP): Universal Safety Oversight Audit Programme (USOAP) goals and priorities. It is the five phase programme to technically support each one of the NACC States
- B. Regional NACC State Safety Programme (SSP) Strategy
- C. Air Navigation Sustainable Development
- D. Aircraft Accident and Incident Investigation (AIG) Strategy
- E. Enhancement of Runway Safety
- F. Establishment of data gathering system within the region and its corresponding analysis
- G. Enhancement of RASG-PA-GREPECAS coordination
- H. Promotion/fostering State Data automation and usage

1.3 RESPONSIBILITY FOR THE RASP DEVELOPMENT, IMPLEMENTATION AND MONITORING

1.3.1 The ICAO NACC Regional Office is responsible for the development, implementation and monitoring of the **NACC RASP**, in collaboration with the region's States, the RSOOs (ACSA and CASSOS) and with the aviation industry and in close coordination with RASG-PA. The **NACC RASP** was developed in consultation with States, operators and other stakeholders in the region, and in alignment with the 2019 revision of the GASP.

1.3.2 The monitoring process is done by the Regional Officer Safety Implementation (RO/SAF) in coordination with the officers of ICAO NACC Regional Office, through the SAP system and other mechanisms under the supervision of the Deputy Regional Director (DRD).

1.4 REGIONAL SAFETY ISSUES, GOALS AND TARGETS

1.4.1 The **NACC RASP** addresses the following regional safety issues:

ORGANIZATIONAL ROAD MAP

1. Lack of sustainable safety oversight system in a number of States of the region (concentrated to support the least compliant member States in the region)
2. Lack of separation related to the functions between the regulator and the service providers in the ANS area which results in a deficient or null surveillance over the ANS service providers
3. Poor progress on the implementation of the SSP in the CAR Region
4. Poor development of the AIG structure on the majority of the States in the region
5. Slow progress in the process of airport certification

OPERATIONAL ROADMAP

1. Loss of Control In-flight (LOC-I)
2. Runway Excursion (RE)
3. Controlled Flight Into Terrain (CFIT)
4. Mid-Air Collision (MAC)

1.4.2 In order to address the issues listed above and enhance safety at the regional level, the Triennial **NACC RASP** contains the following dedicated goals and targets:

- SAFETY OVERSIGHT IMPROVEMENT GOALS AND TARGETS
- SSP GOALS AND TARGETS
- AIG GOALS AND TARGETS
- ANS GOALS AND TARGETS

Area	Goal	Targets
FS	Assist States in the implementation of policies and provisions to address critical safety issues concerning safety management	<ul style="list-style-type: none"> ● That at least 3 States in Tier 1 to achieve 10% progress from their SSP action Plan ● That at least 2 States in Tier 2 to achieve at least 10% progress from their SSP action plan ● Increase 30% of SSP Gap Analysis completed by States as shown in iSTARS ● To assist at least 3 States for overseeing and implementing SMS in their industry.
	Monitor member States through USOAP-CMA and assist States in developing tailored plans of action to address risk	<ul style="list-style-type: none"> ● State CAPs assessed 33% ● Defined risk-based criteria for NACC SAP ● Continuous assessment of State USOAP EI for an improved regional EI average of at least 3%; ● For those States who have more than 6 years from a full USOAP Audit, assist at least 2 States in completing their full self-assessment
	Enhancement of safety oversight performance in the NAM/CAR Regions	<ul style="list-style-type: none"> ● Initiate Safety Oversight System (SOS) Project training and activities ● Enhanced by 10% Central American Operational Event Analysis Programme (PASOC) data safety exchange among Central American States ● Initial version of safety/Experts
AIG	Improvements on AIG matters: enhance GRIAA and initial development of Caribbean Regional Accident and Incident Investigation Organization (RAIOC)	<ul style="list-style-type: none"> ● Draft for 20% of procedure related PQs ● Draft proposal for Safety Data Collection and Processing Systems (SDCPS) on the portion related to AIG ● Implementation model for the RAIOC/Cooperation Mechanism
ANS	Review of runway safety team performance and implementation of aerodrome safety activities	<ul style="list-style-type: none"> ● Number of aerodrome certifications ● Implementation of new RSTs ● Conduction of onsite assistance with RST Go-Team ● Follow-up and effectiveness review of RST process implemented ● For high-density traffic airports and complex airport layouts, the A-CDM awareness/implementation may increase aerodrome safety.

Area	Goal	Targets
	Ensure the availability of the appropriate air navigation service and aerodrome infrastructure to support safe operations	<ul style="list-style-type: none">• Exchange of air navigation and safety data analysis<ul style="list-style-type: none">• Enhancement of RASG-PA/GREPECAS coordination on identification and resolution of safety concerns• Number of States that have implemented the basic air navigation and airport infrastructure• Implementation the GTE and CARSAMMA improvement/changes<ul style="list-style-type: none">• Implementation/agreement for CARSAMMA and North American Approvals Registry and Monitoring Organization (NAARMO) synergies• Ensure comply of the Target Level of Safety of the RVSM airspace in the CAR Region• Address resolution of identified safety related hotspots in the airspace in the CAR Region

1.5 OPERATIONAL CONTEXT

1.5.1 The NAM/CAR Regions are diverse with 22 States, 19 Territories, 26 CAAs and an operating environment of 44 Flight Information Regions (FIRs). For the list of NAM/CAR Contracting States and Territories, refer to <https://www.icao.int/NACC/Pages/nacc-responsibilities.aspx>

1.5.2 The aviation safety regulatory landscape varies significantly in terms of capacity and civil aviation development, with USOAP (EI) scores ranging from 5% to over 90%. As at October 2019, Eight (8) out twenty (22) NAM/CAR States had an average EI score below the GASP target of 60%, and the regional average EI score was 63.82%. By August 2019 and based on the analysis of the USOAP activities the critical areas regarding Lack of effective implementation (LEI) are first ANS followed by AGA and AIG, on the other hand the most affected Critical Elements (CE) are CE-6 followed by CE-7 and CE-5.

1.5.3 In 2018, the NAM/CAR Regions had a regional accident rate of 1.6 accidents per million departures based on scheduled commercial operations involving fixed-wing aircraft with a maximum certificated take off mass greater than 5,700 kg.

1.5.4 There is also significant intrinsic diversity among NAM/CAR States/Administrations and industry in terms of operational context, governance/sovereignty, geography and terrain, culture, language, level of development and expertise.

1.5.5 Limited resources – reduced number of staff, budgetary constraints. Natural phenomena frequent threat: Hurricanes, volcanic ash, earthquakes, etc.

1.5.6 Additional operational information

- a) “Aviation is a vital industry in the Latin America-Caribbean region, supporting 7.2 million jobs and providing \$156 billion in economic value.
- b) Growth by 6.6 percent growth in Latin America/Caribbean and North America is in the range of 4.2 percent
- c) Latin America and Caribbean airlines carried 249.6 million passengers in 2017, up 5.1% – or 12.1 million more passengers – from the previous year. Revenue-passenger kilometres (RPK) grew 8% and capacity Available seat-kilometre (ASK) increased 6%, bringing up the load factor to 82.6%.

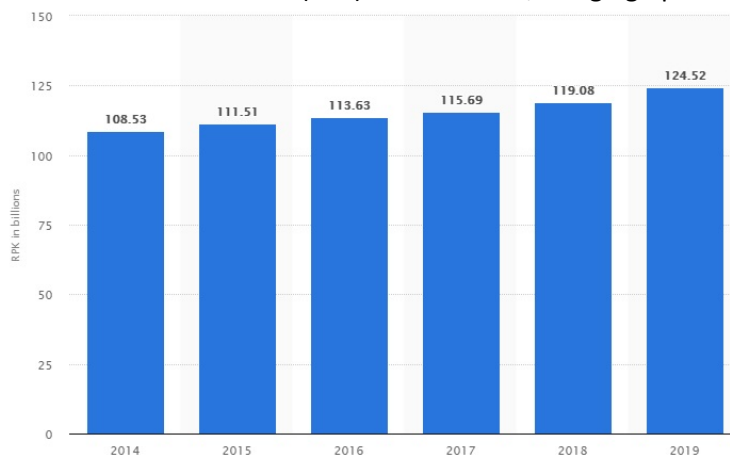
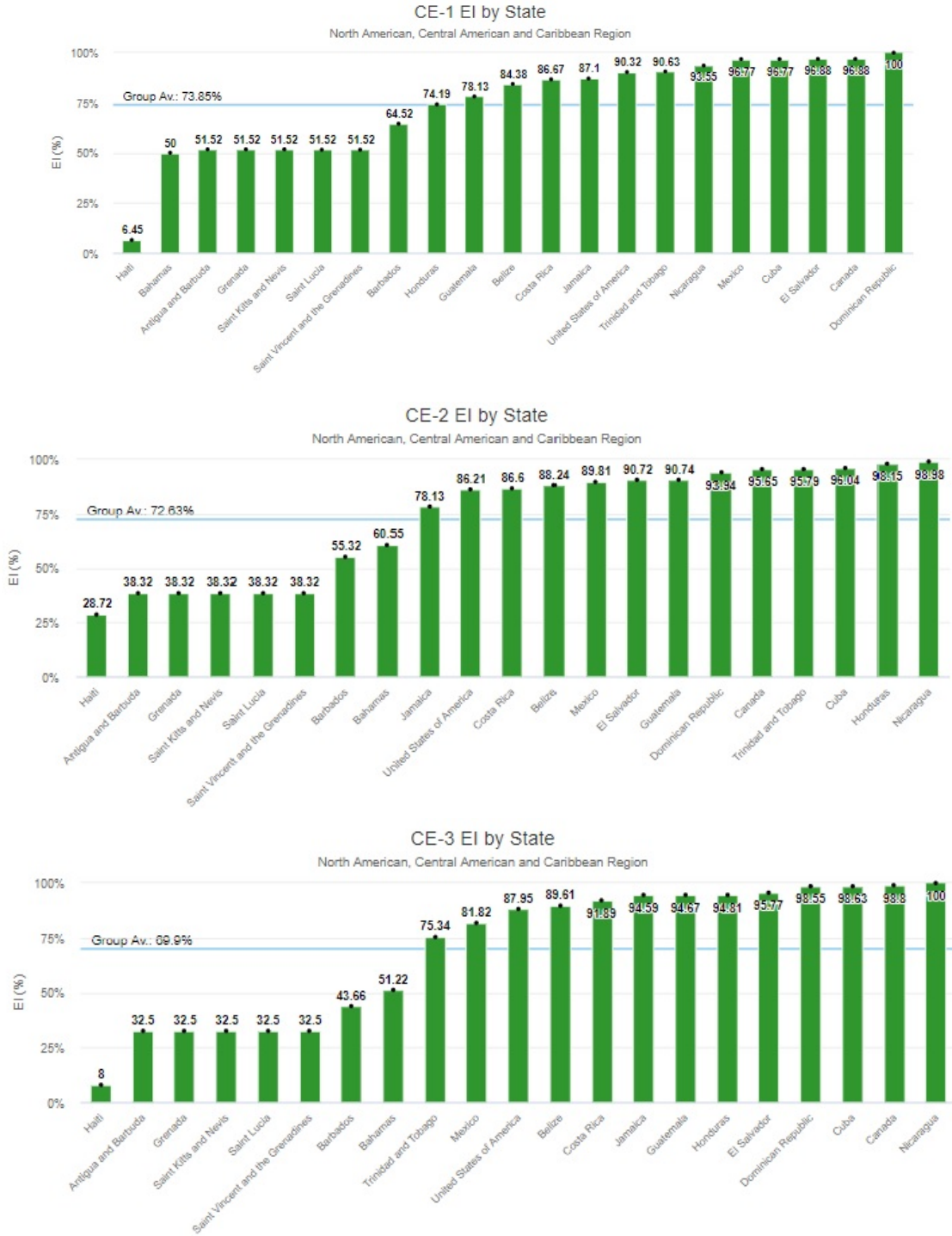
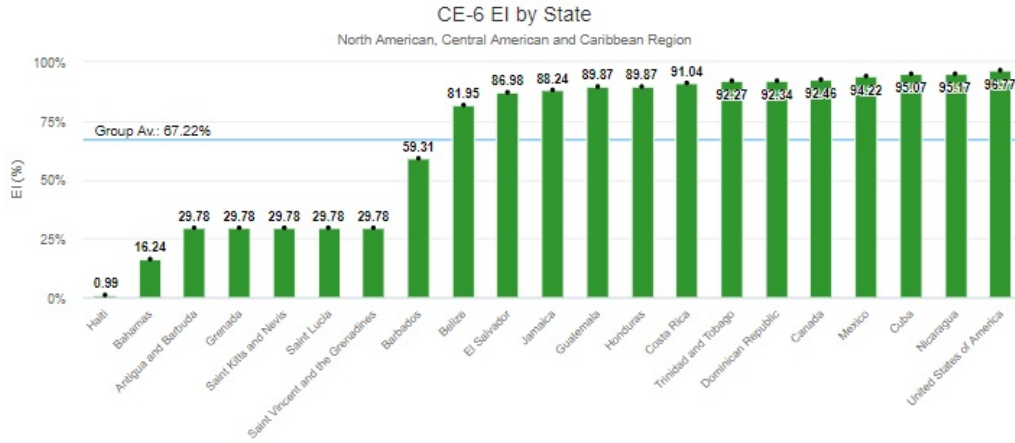
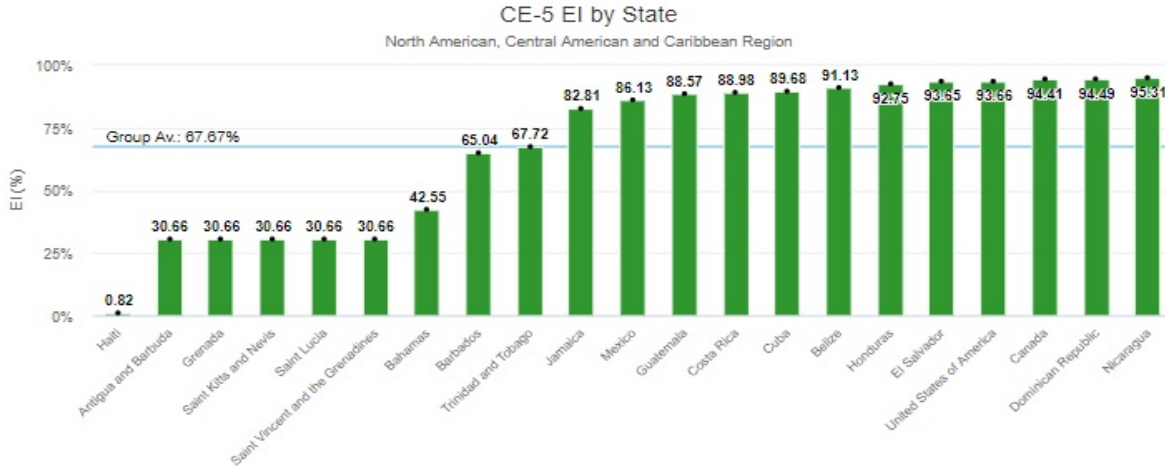
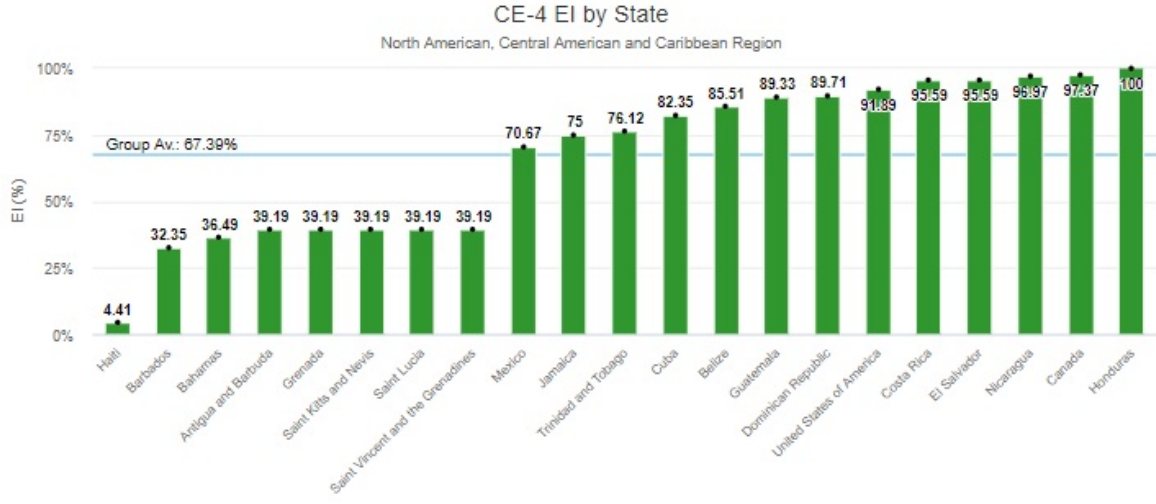
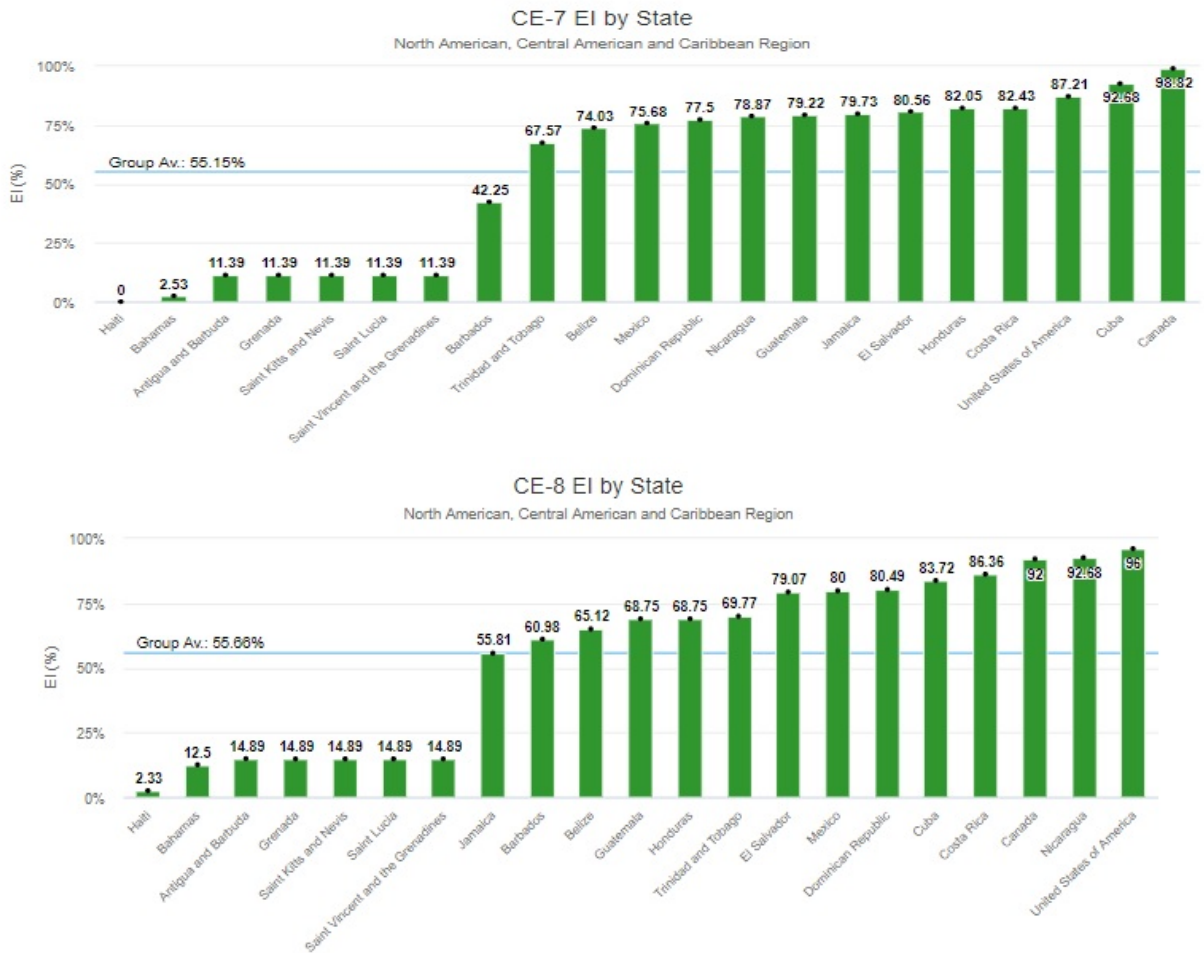


Figure 1: Revenue Passenger-Kilometres (RPK)

Figures 2 to 9: NAM/CAR EI by CE
(Graphics from I STARS USOAP Report application as per April 2021)







2. PURPOSE OF THE ICAO NACC REGIONAL AVIATION SAFETY PLAN

2.1 The **NACC RASP** is the master planning document containing the strategic direction of ICAO NACC Regional Office for the management of aviation safety for a period of 3 years, 2020 to 2022 in accordance to the GASP. This plan lists regional safety issues, sets regional aviation safety goals and targets, and presents a series of Safety Enhancement Initiatives (SEIs) to address identified safety deficiencies and achieve the regional safety goals and targets.

2.2 The **NACC RASP** addresses safety management from a regional perspective and includes several SEIs to address specific safety risks and recommended SEIs for individual States in the region. It is expected that States in the region adopt these SEIs and include them in their respective national aviation safety plans.

2.3 The **NACC RASP** has been developed using international safety goals and targets and HRCs from the ICAO GASP (www.icao.int/gasp). These are highlighted in the text, where applicable. The SEIs listed in

the **NACC RASP** support the improvement of safety at the individual State level, for States in the region, and contribute to the enhancement of safety at the wider international level.

2.4 The **NACC RASP** is created by the NACC Regional Office in conjunction with the region stakeholders in coordination with the RASG-PA to promote the EI and sustainability of safety oversight systems of States in the NAM/CAR Regions, following the NCLB approach and based on the NACC Programme SAP. The **NACC RASP** provides alignment to the provisions of the GASP philosophy, the regional safety objectives and the National Safety Plan of the states of the region.

2.5 As part of the **NACC RASP**, all stakeholders are committed to support and implement the Programme as the regional strategy for the continuous improvement of aviation safety.

2.6 In this first Edition, the **NACC RASP** encourages the States to implement a risk based approach and describes the regional strategy and roadmap of actions for enhancing aviation safety in the NAM/CAR Regions for the next triennium.

2.7 The ICAO NACC Regional Office is responsible for the overall development, implementation and monitoring of the **NACC RASP**, together with NAM/CAR States, industry partners, International Organisations, RSOOs (ACSA and CASSOS). The **NACC RASP** is to be supported by NASPs developed by States in the NAM/CAR Regions as well as work plans of other stakeholders, such as regional and non-governmental organisations. The Custodians are the lead entities for the general aspects concerning the implementation of the **NACC RASP** and its actions, and are responsible for:

CUSTODIANS	ROLES AND RESPONSIBILITIES
ICAO NACC Regional Office	<ul style="list-style-type: none"> ● developing and implementing a regional aviation safety plan consistent with the GASP and coordinating its implementation at the regional level supporting and monitoring progress towards the achievement of the GASP goals at the regional level, encouraging States to initiate action using the roadmap; ● update and keeping up to date the NACC RASP ● identifying safety risks and issues of priority ● providing technical assistance to States ● Serving as the focal point to coordinate regional efforts and programmes related to the GASP aimed at mitigating operational safety risks.
NAM/CAR States	<ul style="list-style-type: none"> ● developing and implementing a national aviation safety plan, taking into account the ICAO NACC RASP and the GASP ● To establish their SEI's and SPI, identifying safety risks and issues of priority and provide information regarding their Safety risk based on their SSP System. ● providing technical assistance to other States, where practicable ● participating actively in the activities of the RASG-PA and NACC RASP

CUSTODIANS	ROLES AND RESPONSIBILITIES
	<ul style="list-style-type: none"> ● sharing safety information with the RASG-PA and ICAO NACC Regional Office (including the status of national SEIs) ● allocating resources to actively and continuously participate in the regional groups ● providing oversight and approval of the NACC RASP
RSOO	<ul style="list-style-type: none"> ● Provide guidance to the member States of the NAM/CAR Regions, provide regional safety risks as identified in their region, provide data analysis service as applicable ● providing technical assistance to Member States ● identifying safety risks and issues of priority ● Supporting the establishment and operation of safety oversight systems and analysing safety information at the regional level.
Industry	<ul style="list-style-type: none"> ● Provide safety information and analysis based on their SMS system, support the NAM/CAR States and the NACC Regional Office ● Engage in SMS implementation to continually identify hazards and address operational safety risks, as well as work collaboratively with ICAO <p>Industry stakeholders should review the roadmap to identify SEIs and actions that support national and regional aviation safety plans</p>
RAIO	<ul style="list-style-type: none"> ● The main objective of the RAIO is to assist member States in meeting their accident and incident investigation obligations and responsibilities under the Chicago Convention, its Annexes and other safety-related procedures and practices ● Strengthening the regional institutional framework for aviation safety and assisting in the development of a harmonized regulatory framework for the region ● Promoting a comprehensive systems approach to the conduct of accident and incident investigation activities, focusing on the effective implementation of relevant SARPs ● Developing an information system to facilitate access to safety-related and safety-critical information within the region, taking into account the provisions contained in Appendix 3 to Annex 19 and the guidance in Chapter 7 of the Safety Management Manual (SMM) on protection of safety data, safety information and related sources

CUSTODIANS	ROLES AND RESPONSIBILITIES
	<ul style="list-style-type: none"> ● Serving as a depository of accident and incident investigation data; and ● Processing and monitoring safety recommendations both issued and received
GREPECAS and its subsidiary bodies	<ul style="list-style-type: none"> ● Implement safety-related initiatives involving air navigation matters ● The Group’s objectives are to ensure continuous and coherent development of the CAR/SAM Regional Air Navigation Plan and other relevant documentation in a harmonised manner with adjacent regions, to facilitate the implementation of air navigation systems and services as identified in the CAR/SAM Regional Air Navigation Plan, and to identify and address specific deficiencies in the air navigation field. Safety matters are to be coordinated with the RASG-PA.
RASG-PA and its subsidiary bodies	<ul style="list-style-type: none"> ● Develop an integrated, data-driven strategy and implement a work programme that supports a regional performance framework for the management of safety risk, to reduce the commercial aviation fatality risk in the Pan American Region, and promote States and industry safety initiatives; ● Support, monitor and report implementation by States of the GASP considering the RASPs, and by fostering cooperation between all States and stakeholders. ● The Pan America – Regional Aviation Safety Team (PA- RAST) under RASG-PA will develop SEIs and Detailed Implementation Plans (DIPs) to reduce fatality risk. The RASG-PA Executive Steering Committee will approve the SEIs and DIPs. PA-RAST will monitor SEI/DIP implementation.

3. NACC’s STRATEGIC APPROACH TO MANAGING AVIATION SAFETY

3.1 The **NACC RASP** has been created by the ICAO NACC Regional Office in conjunction with the NAM/CAR States, with the collaboration of the Regional Safety Oversight Organizations and in coordination with the RASG-PA. The Programme is approved by the general directors of the CAAs of the region, ensuring the validity of the identified issues and the adequacy of the proposed SEI to mitigate the associated risks.

3.2 One of the objectives of the ICAO NACC Regional Office is to strengthen the CAAs institutional capacity to ensure sustainability and compliance with the SARPs through the implementation of this plan.

3.3 The **NACC RASP** presents the SEIs that were developed based on the ICAO GASP’s organizational challenges (ORG) roadmap and Operational safety risks (OPS) roadmap as well as region-specific issues identified by the evaluation of the results of audits conducted within the NAM/CAR Regions, the SOS evaluation results and the evaluation of the safety data provided by the States, in close coordination with the RASG-PA. This plan is developed and maintained by ICAO NACC Regional Office, in coordination with all stakeholders and is updated at least every year.

3.4 The **NACC RASP** includes the following regional safety goals and targets, for the management of aviation safety, as well as a series of indicators to monitor the progress made towards their achievement. They are tied to the goals, targets and indicators listed in the GASP and may include additional regional safety goals, targets and indicators.

NACC RASP GOALS AND TARGETS			
GOAL	TARGETS		INDICATORS
<p>Goal 1: Achieve a continuous reduction of operational safety risks</p>	1.1	Maintain a decreasing trend of global accident rate	<ul style="list-style-type: none"> • Number of accidents • Number of fatal accidents • Fatality rates (overall accident data) • Number of accident/rates per HRC – Controlled flight into terrain (CFIT), Loss of control-inflight (LOC-I), Runway excursion (RE), AIRPROX/TCAS alert/loss of separation/near miss collisions/mid-air collisions (MAC) • Number of serious incident/rates (per HRC – CFIT, LOC-I, RE, MAC) • Reduced Vertical Separation Minima or Minimum (RVSM) events/rates built between the RASG-PA with the CARSAMMA

NACC RASP GOALS AND TARGETS			
GOAL	TARGETS		INDICATORS
Goal 2: Strengthen States’ safety oversight capabilities	2.1	All States to improve their score for the EI of the CEs of the State’s safety oversight system (with focus on priority PQs) as follows: by 2022 – 75 per cent by 2026 – 85 per cent by 2030 – 95 per cent	<ul style="list-style-type: none"> • Number of States that met the EI score as per the timelines • Percentage of required Corrective Action Plans (CAPs) submitted by States, using the On-line Framework of USOAP (OLF) • Percentage of completed CAPs per State (using OLF) • Overall regional EI score • Overall regional CE4, CE6, CE7, CE8 EI score • Overall regional AIG EI score • Regional average finding per area vs critical element • Percentage of States maintaining a safety oversight index greater than 1 in all categories
	2.2	By 2022, all States to reach a safety oversight index greater than 1, in all categories	<ul style="list-style-type: none"> • Number of States maintaining a safety oversight index greater than 1 in all categories
Goal 3: Implement effective State safety programmes (SSPs)	3.1	By 2022, all States to implement the foundation of an SSP	<ul style="list-style-type: none"> • Percentage of satisfactory SSP foundational Protocol Questions (PQs) • Percentage of required CAPs related to the SSP foundational PQs submitted by States (using OLF) • Percentage of States having established an SSP • Percentage of States fully integrating AIG data into the States SMS
	3.2	By 2025, all States to implement an effective SSP, as appropriate to their aviation system complexity	<ul style="list-style-type: none"> • Number of States having implemented an effective SSP • Number of States that have implemented a national aviation safety plan

NACC RASP GOALS AND TARGETS			
GOAL	TARGETS		INDICATORS
Goal 4: Increase collaboration at the regional level	4.1	By 2022, States that do not expect to meet GASP Goals 2 and 3, to use a regional safety oversight mechanism, another State or other safety oversight organization's ICAO recognized functions in seeking assistance to strengthen their safety oversight capabilities	<ul style="list-style-type: none"> • Number of States requiring assistance/support • Number of States offering assistance • Number of States that have a National Aviation Safety Plan
	4.2	By 2023, all States to contribute information on safety risks, including SSP safety performance indicators (SPIs), to their respective RASGs	<ul style="list-style-type: none"> • Number of States that are sharing their SSP SPIs with RASGs • Number of States forwarding information on safety matters to States, RASGs or other stakeholders
	4.3	By the end of 2022, all States with effective safety oversight capabilities and an effective SSP, to actively lead RASGs' safety risk management activities	<ul style="list-style-type: none"> • Number of States with effective safety oversight capabilities and an effective SSP, leading RASGs' safety risk management activities
Goal 5: Expand the use of industry programmes	5.1	By 2022, all service providers to use globally harmonized SPIs as part of their SMS	<ul style="list-style-type: none"> • Number of service providers using globally harmonized metrics for their SPIs
	5.2	By 2022, increase the number of service providers participating in the corresponding ICAO-recognized industry assessment programmes	<ul style="list-style-type: none"> • Number of service providers participating in the corresponding ICAO-recognized industry assessment programmes
Goal 6: Ensure the appropriate infrastructure is available to support safe operations	6.1	By 2022, all States to implement the air navigation and airport core infrastructure	<ul style="list-style-type: none"> • Number of States having implemented the air navigation and airport core infrastructure elements • Overall regional % of certified aerodromes

NACC RASP GOALS AND TARGETS			
GOAL	TARGETS		INDICATORS
			<ul style="list-style-type: none"> Overall regional % RST implementation

3.5 The SEIs in this plan are implemented through the working arrangements with the RASG-PA, activities conducted the NACC Regional Office in coordination with this Regional Group and all the stakeholders (States, International Organizations and the aviation industry) in the NAM/CAR Regions, as well as the existing safety oversight capabilities and service providers’ Safety Management Systems (SMS) at the individual States’ level. SEIs derived from the ICAO global aviation safety roadmap were identified to achieve the regional safety goals are presented in the **NACC RASP**. Some of the regional SEIs could be linked to overarching SEIs at the international level and help to enhance safety at a regional and global level. The full list of the SEIs is presented in **Appendix A** to the RASP.

3.6 The **NACC RASP** also addresses emerging issues. Emerging issues include concepts of operations, technologies, public policies, business models or ideas that might impact safety in the future, for which insufficient data exists to complete typical data-driven analysis. It is important that the RASG-PA remain vigilant on emerging issues to identify potential safety risks, collect relevant data and proactively develop mitigations to address them. The **NACC RASP** addresses the following emerging issues, which were identified by RASG-PA/PA-RAST for further analysis

- 1) Number of hot-spots being directly assessed by Collaborative Safety Teams (CSTs) and their impact on regional data (trends, averages, etc.)
- 2) New RASG-PA Safety Advisories:
 - CFIT: Obstacle Chart Updates
 - LOC-I: Updated Awareness Guidance material
 - Other Runway Safety Advisory (RSA) topics can arise from CSTs collaboration
- 3) Integration between PA-RAST and Scrutiny Working Group (GTE) from the CAR/SAM Regional Planning and Implementation Group (GREPECAS).
 - MAC Hot-Spots validation
 - Formal Safety information exchange
- 4) Continued promotion for CST formal establishment in the NAM/CAR Regions

A. NACC SYSTEMIC ASSISTANCE PROGRAMME (SAP)

A.1 The ICAO NACC Regional Office strategy, which encompasses main working areas in order to ensure desirable results and SARPs compliance within the NAM/CAR Regions.

A.2 The SAP of the NACC Regional Office seeks to solve the systemic problems of air transport in the region, and its effectiveness must be measured through audits to the States that confirm an improvement in the EI of the SARPs, since this is the main indicator that demonstrates the progressive resolution of systemic problems. It is clear that a high level of compliance (high EI) does not necessarily guarantee the institutional strength of the CAA, but unquestionably having a system that complies with SARPs is essential to achieve this institutional strengthening.

A.3 The strategy outlined in the SAP aims to provide concrete solutions to the problems of the States to develop a sustainable air transport system with all the adequate elements for its correct operation (e.g. regulations, procedures, human resources qualified, infrastructure). However, for its execution to be successful, commitment is a required policy of each State.

A.4 The first stage of this process therefore seeks the political commitment of the States of the NAM/CAR regions, as an essential element to determine which States require (or not) assistance from the ICAO and have (or not) the necessary resources, and thus be able to prioritize assistance. Fortunately, once the SAP was presented and thanks to the support of the President of the Council and the Secretary ICAO General, all States, regardless of their resources, showed their support for the highest political level by understanding the importance and value of having a proper air transport system to international standards.

A.5 Notwithstanding the triennial approach of the plan and understanding the limitations of the auditing sections the desired concept and goal to be reached by the region as agreed by the Director Generals during the Virtual Meeting of Directors Generals of North America of Civil Aviation of Central American and Caribbean (NACC) and South America (SAM) (22 July 2020).

The SAP comprises 5 phases:

1. Political commitment (completed/Ongoing)

- Establish strategy to implement NCLB initiative
- High level government outreach (ministerial level)
- Paradigm shift in assistance methodology (more hand-holding), direct engagement at the technical level
- Root cause approach

2. Data Gathering and Analysis to a 100% of the States

- Analyse all available ICAO data on deficiencies of each NAM/CAR State
- Notify the State of its deficiencies and compliance status
- Mutual communication for agreement (technical teleconferences)

3. Joint State/ICAO Action Plan Development

- Multidisciplinary or high level visits some States did not need a visit
- Develop joint action implementation plan
 - ✓ Who?
 - ✓ What?

 - ✓ When?
- Agreement of State Action Plan priorities at General and Regional Director level

4. Implementation and Monitoring to Monthly teleconference NACC & CAA Technical Teams

- Quarterly Videoconference Brief to Regional Director & Director General (DG)/Minister
- Annual implementation progress review
- Continuous adjustment of action plan based on audit results
- ICAO seeks engagement of financial institutions

5. Follow up and Sustainability

- Continuity of Phase IV
- Prioritization of SSP, SMS and SeMS in Action Plans
- Tracking of Aviation Authorities (AAs) institutional strength
- Greater emphasis in political will and commitment
- Set air transport in the political agenda of the States
- ICAO involvement in high level regional meetings

ICAO NACC REGIONAL OFFICE REQUEST TO ESTABLISH A 6 YEARS CYCLE OF SELF ASSESSMENT BY THE STATE WITH NACC ASSISTANCE.

A.6 Based on the experience gained from working with the States on providing technical assistance for the development of their safety oversight system, as envisaged in the GASP, and seeking to ensure that we have an active continuous monitoring of their performance and compliance as part of the USOAP CMA workframe, and noting that;

1. States often go more than 10 years between full USOAP audits that looks at all areas of the States aviation system
2. Most states have various changes of governments and its aviation leadership and authorities within a ten-year time span
3. Within a ten-year time frame ICAO updates SARPS and Annex requirements regularly however compliance and implementation can remain unaddressed for extended period of time between audits
4. While ICVM Audits are somewhat more timely they normally only look at those items that were identified as non-compliant during the audit
5. A large majority of States effective levels of implementations normally go down when a full audit is conducted, in part due to the issues noted above

A.7 The following is proposed for NAM/CAR States, to be accomplished with the continued commitment of the ICAO NACC Regional Office to assist the States as part of the NACC SAP. The request seeks to support ICAO's audit and assistance efforts in a more systemic manner in benefit of the States and the continuous improving of safety in the regions. The request is based on a 6-year cycle of States conducting a full self-assessment, with the help of the NACC Regional Office as needed, at least every six years.

A.8 This would verify or validate the effectiveness of the continuous monitoring approach, put the State in a position to readily and confidently face any ICAO audit, when such an audit is scheduled, be it a full USOAP Audit or an ICVM Audit. The objective is that all States have a system in continuous compliance and improvement that has been internally evaluated by themselves.

A.9 In this regard, ICAO NACC Regional Office will endeavour, wherever possible to monitor and assist States as follows:

1. The NACC Regional office will support States in conducting Full Self-assessment in intervals not to exceed 6 years.
2. After a full USOAP audit, the Regional Office would work with the State in development and implementation of a Systemic action plan for resolution of all findings represented in the audit.
3. Two years after the ICVM, the ICAO Regional Office initiates a focused assistance with the State of a full self-assessment and review of its CAP as needed to ensure sustainability and organizational strength achieved and maintained by the State. This would also provide the State the ability to have the effectiveness and sustainability of their systems compliance regardless of whether it has a full audit in six years or in 15 years.

A.10 Experience with the implementation of the NACC SAP in the region has shown that within 2-3 years maximum, the State will have successfully addressed 80% of the audit findings. This ensures that the State is prepared for any follow up ICVM audit that would validate the resolution of previous findings. Note that this ensures continued political will and commitment by the States by allowing them to demonstrate their continued progress.

A.11 This request would help build a more timely and accurately representation of sustainability and institutional strength beyond just a numerical level of EI of all the CAAs since their audits. Additionally, it would be a stronger validation that the EI is actually an accurate and valuable representation of a State's CAA's organizational strength and continued compliance with ICAO SARPs.

SAFETY OVERSIGHT INDEX

A.12 The NACC SAP uses the i-STARS safety oversight index application information of each State, as part of the analysis to identify and prioritize States for the deployment of support missions in the region. This index is an indicator of its safety oversight capabilities. Every audited State has a safety oversight index. It is a number greater than zero where the number one represents a level at which the safety oversight capabilities of a State would indicate the minimum expected capabilities considering the number of departures, as a proxy to the size of that State’s aviation system

A.13 The safety oversight index is broken down into three functional categories, as follows:

- a) operations – this category groups EI scores for USOAP audit areas related to Personnel licensing and training (PEL), Aircraft operations (OPS) and Airworthiness of aircraft (AIR);
- b) air navigation – this category groups EI scores for USOAP audit areas related to aerodromes and ground aids (AGA) and air navigation services (ANS); and
- c) support functions – this category groups EI scores for USOAP audit areas related to primary aviation Legislation and civil aviation regulations (LEG), Civil aviation organization (ORG) and Aircraft accident and incident investigation (AIG).

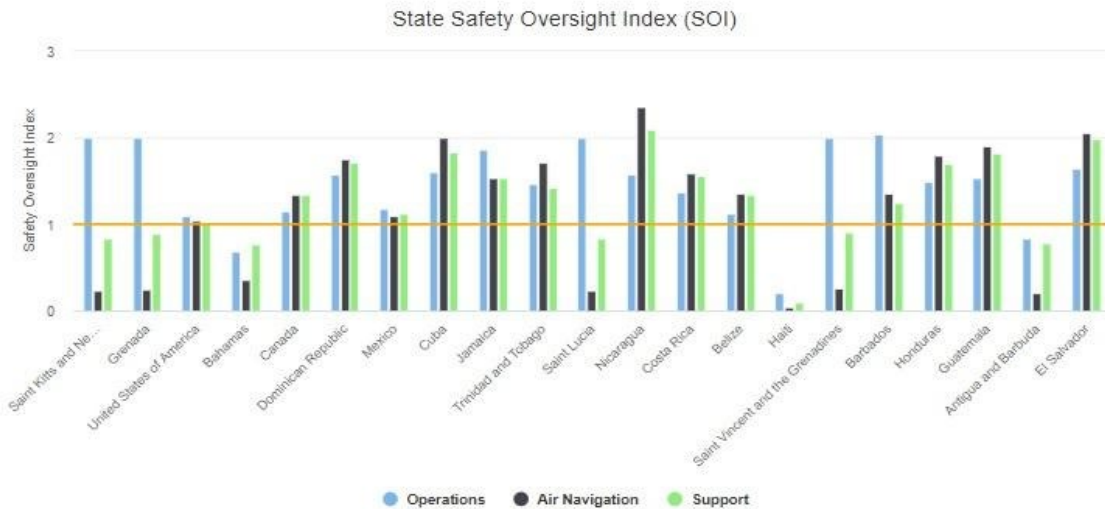


Figure 10: State Safety Oversight Index (SOI) as per April 2021

NACC SAP SUPPORTING PROJECTS

A.14 The NACC SAP is also supported by other means of implementation as the case of Regional Projects. The following Projects are envisioned for the NACC SAP implementation:

SAFETY OVERSIGHT SYSTEM IMPROVEMENT PROJECT (SOS)

A.15 The proposal of the ICAO NACC Regional Office through this project is to develop and improve the capacity of our States, in the EI of ICAO SARPs, in a sustainable and repeatable manner. This will be done by measuring the EI of ICAO SARPs on site, in those States that have not received USOAP audits in the past 7 years, establishing the current status of the authorities. To achieve this, Groups of Experts headed by the ICAO NACC Regional Office Safety Implementation Officers will be created.

A.16 Specialists from the Central American Aeronautical Safety Agency (ACSA) and experts from the States (that comply with the established profile) and specialists from the “Champion States” will compose the groups of Experts.

A.17 The Groups of Experts will receive training in the auditing methodologies of IASA FAA, IATA, USOAP and EASA, in order to offer the States a very high level of evaluation, after which a work programme and assistance to the States will be structured and periodically monitored by the ICAO NACC Regional Office. The support tasks will be carried out jointly with ACSA personnel assisting the States during the agreed period in the programme to ensure the establishment of a robust and sustainable safety surveillance system.

A.18 Once the on-site evaluation is completed, the preparation of the work programme will be coordinated with the State, establishing the personnel responsible for correcting possible non-conformities as a counterpart to the assistance group that will accompany the process. The monitoring of the process may be carried out on a bimonthly/quarterly basis as agreed between the parties; the monitoring is the responsibility of the ICAO NACC Regional Office Safety Implementation Officers, in close communication with the assistance group. The results of the monitoring will be submitted to the Director General of the assessed authority and to the Regional Director of the ICAO NACC Regional Office, at the end of the work programme, verification on site of the compliance achieved will be carried out.

A.19 As an additional advantage of the project, the use of experts provided by the States of the NAM/CAR Regions themselves will constitute a seedbed for technical personnel to gain experience and a high level of knowledge in ICAO provisions, which will allow raising the technical level in the NAM/CAR Regions and at the same time expand the States capacity to be able to self-evaluate and cooperate with each other.

EXPECTED OUTCOME

A.20 Through the implementation of this strategy the ICAO NACC Regional Office expects States to:

1. have an updated/real perspective of their own EI status;
2. gain the knowledge and skills to establish a sustainable safety oversight system; and
3. have the capacity to share that knowledge with other states within the region in order to standardize the sustainability of the Safety Oversight Systems.

DESCRIPTION OF THE GROUP OF EXPERTS

A.21 The group of experts will be led by the ICAO NACC Regional Office Flight Safety officers and made up of experts from ACSA and the States. More than one group of experts may be established depending on the number of staff that states can provide and their compliance with established experience and knowledge requirements. Once the group is formed, it will have to carry out on-site evaluations on compliance with the ICAO provisions of the NAM/CAR States. Subsequently, they will follow up and advise on the solution of the nonconformities found according to a Work Plan, which must be agreed between the NACC Regional Office and the State after the evaluation.

REGULATORY HARMONIZATION PROJECT

A.22 The ICAO NACC Regional Office intends to establish a regional project to support a phased harmonization of the main regulations used in the aviation safety oversight by States of the Caribbean, Central America and Mexico. This effort aims to establish mechanisms to support the legitimate adoption of harmonized regulations by interested States as applicable, and its acceptance, as a base for the development of their own customized versions. The project also intends to emphasize the necessary and timely amendments to such regulations, to keep them up-to-date.

A.23 The implementation of this harmonization project will lead to the development of a mechanism for updating legislation and regulations, and may lead to the creation of a system to recognize and delegate authority to inspectors to assist other States in implementing their safety oversight obligations.

A.24 An additional benefit brought about by the harmonization of regulations is the potential to facilitate relationships between states and the use of harmonized regulations by the industry which will facilitate the international operations, based on the recognition that the regulations adopted or customized would be in conformity with international requirements and will be extremely similar in the NAM/CAR Regions.

A.25 The project is supported “Champion States”, international organizations (ALTA, EASA, CASSOS, COCESNA, etc.) and industry (Airbus, Boeing, etc.), and fully funded by donors.

B. NAM/CAR REGIONAL SSP IMPLEMENTATION STRATEGY

B.1 During the Eighth Meeting of the North American, Central American and Caribbean Directors of Civil Aviation (NACC/DCA/8), the Secretariat presented the ICAO NAM/CAR Regional SSP Implementation Strategy for 2018-2023, following CONCLUSION NACC/DCA/07/6 NACC SSP IMPLEMENTATION STRATEGY.

B.2 The objective of the Strategy is to assist member States to comply with the requirements for the implementation of SSPs by States and SMS by service providers as established in the GASP.

B.3 The main benefits are:

- a) Enhancement of the effectiveness of safety oversight by member States
- b) Increase NAM/CAR Regions level of implementation on the Annex 19 SARPs
- c) Prepare States for the USOAP CMA SSP assessments
- d) Increase level of implementation of SSP and SMS in member States
- e) Reduce fatality risk in the CAR Region

B.4 The metrics used to verify the progress on the implementation are the SSP foundation and the SSP GAP analysis.



Figure 11: SSP Foundation as per April 2021



Figure 12: SSP Implementation Progress (Gap Analysis) as per April 2021

B.5 The ICAO NACC Regional Office proposes the following grouping scheme of States for the SSP implementation:

Tier 1: States that currently have a SSP Foundation Index above 95% agree with the ICAO NACC Regional Office on a SSP Implementation Plan, and receive technical assistance as required to implement SSP by 2022;

Tier 2: States that have a SSP Foundation Index above 85% agree with the ICAO NACC Regional Office on a SSP Implementation Plan, and receive technical assistance as required to implement SSP by 2023;

Tier 3: States that have a SSP Foundation Index above 75% agree with the ICAO NACC Regional Office on a SSP Implementation Plan, and receive technical assistance as required to implement SSP by 2024; and

Tier 4: States that have a SSP Foundation Index above 60% agree with the ICAO NACC Regional Office on a SSP Implementation Plan, and receive technical assistance as required to implement SSP by 2024;

B.6 Note: It is expected that no State has an EI below 60% by 2022.

B.7 The ICAO NACC Regional Office will monitor the progress of the CAR Region SSP Implementation Programme using the following indicators:

- progress in SSP implementation
- percentage of completed PQs from the SSP Foundation PQs from ISTARs
- maturity assessment protocol

B.8 Based on the systematic evaluation of the State's Gap Analysis and its implementation in order to establish a coordinated work programme in conjunction with the "Champion State" and monitored by the ICAO NACC Regional office, through its 4 steps:

Step 1: verification of the state's Gap Analysis prioritizing those who have more than 90% compliance in accordance with the SSP Foundation Tool.

Step 2: identification of Strengths and possible weaknesses.

Step 3: ICAO NACC Regional Office coordinates with the champion State the technical support to solve the weaknesses found during the evaluation.

Step 4: ICAO NACC Regional Office coordinate the establishment of an ad-hoc work plan for the affected States and its subsequent follow up.

C. AIR NAVIGATION OPERATIONAL IMPROVEMENT STRATEGY

C.1 The ICAO NACC Regional Office in support to the aviation development in the 22 States and 19 Territories (belonging to France, Netherlands and United Kingdom) has developed the ICAO NACC Strategic Plan for the Regional Air Navigation Development.

C.2 Within the regional coverage area in which the ICAO NACC Regional Office is responsible, there are sub regions with different implementation levels and with different air navigation development levels. These differences in the implementation levels are noticeable in North America, Central America and the Caribbean (Central and Eastern Caribbean).

C.3 In this regard, important challenges are faced to reach automation goals, homogeneity and development in the region focused on common goals for the States' development and their aviation systems.

C.4 The ICAO NACC Regional Office identifies as a strategy the involvement of all the stakeholders in the regional development of the States, defining commons goals, aligned with the activities of ICAO and of the International Organizations, and other States, inviting them to have common work agendas and involving the aviation industry to reach goals faster.

C.5 According with the Global Air Navigation Plan (GANP), 6th Edition, the ICAO NACC Regional Office summarizes the development of air navigation strategy taking into account four planning levels and the regional objectives that have been formulated:

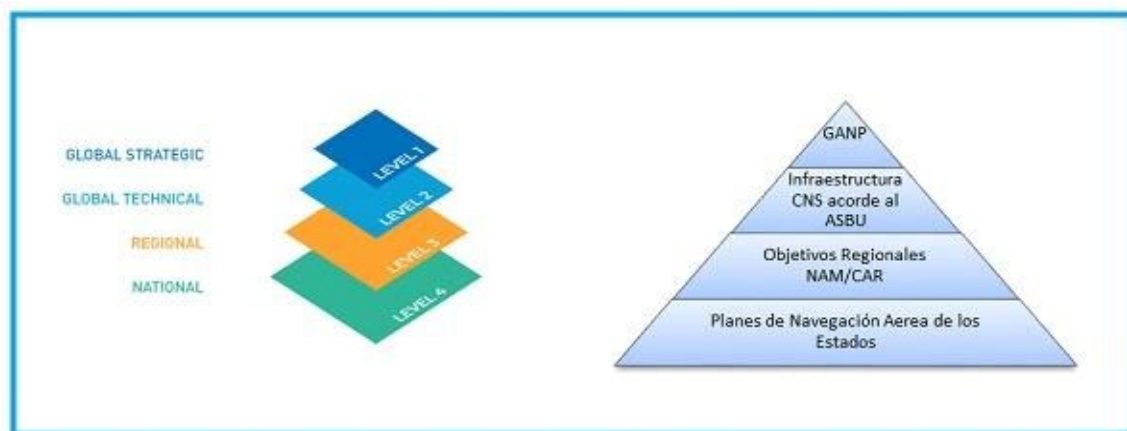


Figure 13: NAM/CAR Regional Planning Process

C.6 The ICAO NACC Regional Office shall implement the air navigation (GANP), safety (GASP) and security (Global Aviation Security Plan (GASeP)) goals and operational improvements and the interaction between them.

C.7 In this regard, the Regional Office will support the States in the establishment of the aforementioned operational improvements in their national air navigation plans, with reference to the Regional requirements and the respective monitoring mechanisms, assuring that the regional aviation system complies with the necessary interoperability, integrated in a regional level and with the other ICAO regions and with a common goal towards the future.

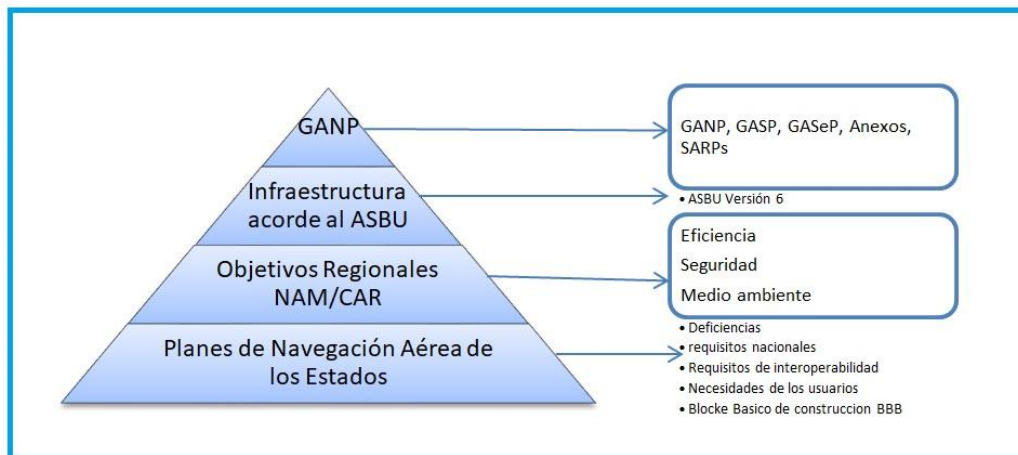


Figure 14: ANS implementation structure and ICAO Requirements correlation.

D. IMPLEMENTATION OF RUNWAY SAFETY TEAMS (RSTs)

D.1 Runway safety is a key priority for aerodrome operators, aircraft operators, and Air Traffic Services (ATS). The prevention of both Runway Incursions (RIs) and Runway Excursions (REs) should be an important part of their programmes and activities for improving runway safety. Improving runway safety on an aerodrome is a collaborative process, with the primary objective being to develop a Runway Safety Action Plan that identifies and addresses safety issues through effective hazard identification and risk mitigation.

D.2 Gathering, monitoring and analysing data on runway safety performance greatly contributes to understanding and proactively managing the risks related to the operations of a runway. The RST shall identify runway related hazards, including aerodrome design, markings, signs and lights, as well as relevant aerodrome operations and procedures.

D.3 Within the context of the runway safety team, measures shall be taken to mitigate any hazards identified in accordance with the above paragraph and, as appropriate, reduce the safety risk of issues related to runway safety, including but not limited to the following:

- a) runway incursion;
- b) runway excursion;
- c) runway confusion; and
- d) suspension or closure of runway operations

D.4 The RST shall identify hazards and develop mitigation strategies and procedures to maintain runway safety during abnormal operations, including the suspension of runway operations. These strategies and procedures shall be implemented under the responsibility of the aerodrome operator.

D.5 Procedures to collect, monitor, analyse and protect safety data and safety information shall be established to understand and improve runway safety performance. Information that could enhance runway safety, including identified hot spots and specific local procedures shall be communicated to the relevant users.

D.6 The latest edition of the ICAO Global Aviation Safety Plan highlights top 5 high risk categories in terms of aviation safety: Runway Excursions, Runway Incursions, Controlled Flight Into Terrain (C-FIT), Loss of Control In-flight (LOC-I), Mid-Air Collision (MAC).

D.7 Runway excursions and runway incursions are two of the five high-risk areas. If grouped together, these two categories would be considered the region's most significant safety concern. 2.Cite basis or source data for statistics such as for "72 out of 135 accidents in 2019 for commercial operations including scheduled and non-scheduled involving aircraft with MTOW over 5700kg.

D.8 Accidents related to RS remain the highest percentage of all accidents for commercial operations including scheduled and non-scheduled in 2019.

D.9 RS related events accounted for 53% of all accidents, 43% of fatal accidents, 21% of fatalities and 72% of accidents with aircraft substantially damaged or destroyed.

D.10 In this regard, the NAM/CAR Regions is targeting their assistance to States for their implementation of RST and review of RST, performance and implementation of Aerodrome safety activities, with specific targets such as:

- a) Implementation of new RSTs
- b) Conduction of onsite assistance with RST Go-Team
- c) Follow-up and effectiveness review of RST process implemented
- d) For high-density traffic airports and complex airport layouts, the Airport Collaborative Decision Making (A-CDM) awareness/implementation may increase aerodrome safety.
- e) The ICAO Global Runway Safety Action Plan highlights additional actions stakeholders can take to improve runway safety

E. STATE AIG ENHANCEMENT AND AIG REGIONAL COLLABORATION

E.1 The strategy has been designed in a two phases approach:

- Phase 1 –** Building national capacity. Consists in the provision of tailored assistance to individual States in order to improve and maintain a minimum level of efficiency in the activities related to accident and incident investigation. The assistance provided here will support the NACC SAP for the States considered.
- Phase 2 –** Building regional cooperation. The strategy will assist States in the establishment of mechanisms of cooperation in the AIG domain.

E.2 The low level of implementation in AIG reflects a complex scenario, especially in the Caribbean, thus the strategy proposed may require several years to be effectively carried out, probably surpassing the period established in this Plan. In addition, the strategy is aimed at volunteer States and requires, as a minimum point of start:

- Continuous commitment from the State
- At least 1 permanent full time investigator as a counterpart

Note: The assignment of 1 full time investigator refers to the counterpart required by the State to plan and implement the strategy in coordination with the NACC RO, and does not preclude the State to have other staff (including other investigators) to fulfil its obligations in the field of AIG.

E.3 **Phase 1** is structured as follows:

Step 1: Off-site familiarization and gap analysis

- Identification of the State's civil aviation system size and complexity
- Identification of legal framework
- Preliminary assessment of relevant documentation (e.g. regulations, procedures, policies, etc.)
- Identification of areas to improve/develop

Step 2: On-site assistance mission

- Identification of available infrastructure and resources
- Establishment of priorities
- Initial assistance in the correction of main issues
- Guidance on the development of a Corrective Action Plan (CAP)

Step 3: Development of the CAP

- State to develop CAP according to priorities agreed on STEP 2
- Use of Teleconference to support/guide State on the development
- States approval of the CAP

Step 4: Implementation of the corrective actions

- Use of Teleconference to support implementation
- Mid-term follow up on site mission (depending on the complexity of CAP)

Step 5: On site verification

- On site final verification mission (to support validation mission request)
- Amendment of CAP if necessary, with subsequent follow up and new verification

E.4 **Phase 2** is structured as follows:

Step 1: Studying the concepts of Mechanisms of Cooperation (MoC) and Regional Accident Investigation Organization (RAIO)

- Presentation and discussions on the concept of MoC
- Presentation and discussions on the concept and models of RAIO
- The regional scenario (GRIAA and Caribbean) and the potential benefits of the MoC
- Identification of potential members for Caribbean MoC

Step 2: Building the Terms of Reference

- Establishing the main elements of the cooperation for Caribbean MoC
- Drafting the Terms of Reference for Caribbean MoC
- Revision of the Terms of Reference for GRIAA (if deemed necessary by GRIAA)
- Submission to States

Step 3: Development of work plans

- Work plan for consolidation/improvement of GRIAA
- Work plan for establishment of the Caribbean MoC

Step 4: Implementation of the work plans

- Use of teleconferences to support implementation
- Assistance/follow up on site missions (as necessary)

F. SAFETY DATA GATHERING, EXCHANGE AND ANALYSIS (UNDER DEVELOPMENT)

F.1 As per Annex 19, Chapter 5, States are required to establish SDCPS in order to capture, store, aggregate and enable the analysis of safety data and safety information to support safety performance management activities. The Safety Management Manual (SMM) Chapter 5 contains SDCPS guidance for States and service providers.

F.2 Mandatory and voluntary reporting systems as part of the SDCPS, should be established by the State, as well other reactive and proactive methods of safety data and safety information collection to ensure availability and effective use of data for analysis.

F.3 Safety data is fundamental for data-driven decision-making. Therefore, collaboration with aviation stakeholders including regional aviation safety groups, service providers who as per Annex shall implement an SMS, regulatory bodies, is essential to support the efforts to improve safety at various levels.

F.4 Interaction between the SSP and the service providers' SMS, as well as the sharing and exchange of safety data and safety information are highly integrated and, therefore, require a significant level of coordination and cooperation among all stakeholders.

F.5 Additional safety data and safety information sources that States could consult during the planning and implementation of their safety plans include: ICAO iSTARS-3 and SIMS, RASG-PA data sources, IATA data sources, AIG Regional Cooperation Mechanism (ARCM) data sources, and their own data sources (SDCPS safety and accident/incident data reporting system (ADREP)/European Coordination Centre for Accident and Incident Reporting Systems (ECCAIRS) platforms).

F.6 The RASG-PA will facilitate the exchange of best practices, cooperation, and collaboration by applying a top-down approach to supplement the bottom-up planning and implementation approach of the NAM/CAR States and Regions.

SAFETY-RELATED INFORMATION

F.7 The ICAO NACC Regional Office fosters the establishment of a Regional framework for data gathering and analysis, for the CAR region with the collaboration of "Champion States" like Canada and United States, RSOOs, the industry and international organizations.

F.8 One of the GASP targets calls for all States to contribute information on safety risks, including SSP SPIs, to their respective RASGs. The intent behind this target is to expand the RASGs' safety risk management capabilities by promoting the sharing of safety-related information.

CENTRAL AMERICAN OPERATIONAL EVENT ANALYSIS PROGRAMME (PASOC BY ITS INITIALS IN SPANISH)

F.9 ACSA has created the PASOC, which is fully aligned with the provisions of ICAO Annex 19.

F.10 The programme collects, processes, analyses and attends to voluntary reports related to operational safety that are sent by the Central American States, in order to reduce the rate of accidents and incidents in regional aviation.

F.11 The data is used to:

- Identify deficiencies and events in order for them to be addressed through the competent authorities.

- Strengthen operational trends exposing the possible causes, and/or consequences that may affect the operational safety of the NAM/CAR Regions and proposing recommendations or mitigation measures.
- Strengthen the human factors area so that the human-machine interaction is not weakened

G. RASG-PA/GREPECAS

G.1 As stated in the RASG-PA Strategic Plan 2018-2020, the RASG-PA is aligned with the GASP and promotes actions towards the goals set forth by the NACC NCLB Nassau Declaration and Declaration to Promote Connectivity through the Development and Sustainability of Air Transport in the Pan-American Region - Vision 2020-2035 (Fortaleza, Brazil), and GASP targets, highlighting:

- Declaration of intent for the International Civil Aviation Organization (ICAO) Regional Office for the North America, Central America and Caribbean (NACC) Regional No Country Left Behind (NCLB) Strategy between the Civil Aviation Authorities of North America (NAM) Central America and Caribbean (CAR) and the ICAO NACC Regional Office, signed in Nassau, Bahamas, May 2016
- Cooperation in the promotion and development of civil aviation, in support to the ICAO NACC Regional NCLB Strategy in order to assist States increasing their EI of ICAO SARPs.

G.2 In this regard, RASG-PA will facilitate the exchange of best practices, cooperation, and collaboration by applying a top-down approach to supplement the bottom-up planning and implementation approach of the NAM/CAR Regions. It is expected that the RASG-PA activities will ensure that the ICAO NACC Regional Office safety priorities are taken in consideration. Likewise, RASG-PA should be aligned with the NACC Strategic Plan compliance to facilitate the drafting and publication of the safety reports of the NAM/CAR Regions.

COORDINATION BETWEEN GREPECAS AND RASG-PA

G.3 For the successful implementation and monitoring of the NACC RASP, the effective participation and involvement of all the States, territories, industry partners, RASG-PA, RSOOs (ACSA, CASSOS), AIG Collaboration mechanism (GRIAA, Caribbean) and Regional Groups like GREPECAS and its contributory bodies., AN implementation Groups NAM/CAR Air Navigation Implementation Working Group (ANI/WG) , North American, Central American and Caribbean Working Group (NACC/WG), Eastern Caribbean Civil Aviation Technical Group (E/CAR/CATG), etc. are essential.

G.4 Under this participation, the effective coordination with GREPECAS and RASG-PA matters is key for the regional collaboration and assurance of States/industry participation. GREPECAS comprises all States in the CAR/SAM Regions, who are service providers in the CAR/SAM Regions, appropriate International Organizations, the industry, in particular airspace users, professional associations and organizations (such as Airports Council International, Civil Air Navigation Services Organisation, International Federation of Air Line Pilots' Associations, International Federation of Air Traffic Controllers' Associations, International Air Transport Association, etc.) and other Partners, who could provide support to enhance air navigation services in the CAR/SAM Regions. GREPECAS' objectives are to ensure continuous and coherent development of the CAR/SAM Regional Air Navigation Plan (ANP) and other relevant documentation in a harmonised manner with adjacent regions, to facilitate the implementation

of air navigation systems and services as identified in the CAR/SAM Regional ANP. Similar coordination with United States and Canada is considered to include the North America portion of this RASP plan.

G.5 Under this implementation, GREPECAS is to facilitate the implementation of air navigation systems and services as identified in the CAR/SAM ANP, giving due priority to air safety; and coordinate safety issues with Regional Air Safety Groups (RASGs). GREPECAS will build on the work already done by States, ICAO Regional Offices and existing regional and sub-regional organizations to support the development, maintenance and implementation of an air navigation plan for the CAR/SAM Regions.

G.6 For the implementation of the RASP activities and outcomes, the effective collaboration with GREPECAS through coordinated processes to sustain the collection and sharing of regional Air Traffic Management (ATM) data and the sharing and resolution of safety issues. This, in turn, will support the implementation of Aviation System Block Upgrade (ASBUs) and ensure that their implementation accounts for and properly manages existing and emerging risks, e.g. Approaches with Vertical Guidance (APV) to mitigate risks associated with CFIT and REs.

G.7 Prior to the endorsement of the **NACC RASP** by all States and RASG-PA, adequate consultation of the proposed contents and amendments took place, including especially where ATM issues are involved, other non-safety-centric regional entities such as GREPECAS and its Subgroups. All this process was done through the ICAO NACC Regional Office in this respect.

4. REGIONAL OPERATIONAL SAFETY RISKS

4.1 The **NACC RASP** includes SEIs that address regional operational safety risks, derived from lessons learned from operational occurrences and from a data-driven approach. These SEIs include actions such as: policy development, targeted safety activities, safety data analysis, safety risk assessments, and safety promotion.

4.2 RASG-PA publishes an Annual Safety Report, which includes the summary of accidents and serious incidents that occurred in the NAM/CAR Regions and those for aircraft registered in States located in the NAM/CAR Regions involved in commercial air transport and aircraft involved in general aviation, available on the RASG-PA website <https://www.icao.int/RASGPA/Pages/ASR.aspx>.

4.3 The following four High Risk Categories (HRCs) of occurrences in the NAM/CAR Regions context were considered of the utmost priority because of the number of fatalities and risk of fatalities associated with such events. They were identified based on analysis from mandatory and voluntary reporting systems, accident and incident investigation reports, safety oversight activities conducted by States in the region over the past 10 years as well as on the basis of regional analysis conducted by RASG-PA and the

RSOOs within our Regions and on the operational safety risks described in the GASP. These HRCs are in line with those listed in the 2020-2022 edition of the GASP:

1. Loss of Control In-flight (LOC-I)
2. Runway Excursion (RE)
3. Controlled Flight Into Terrain (CFIT)
4. Mid-Air Collision (MAC)

4.4 In addition to the regional operational safety risks listed above, the following additional categories of Additional safety Risks (ARCS) have been identified and will be monitored by the RASG-PA:

1. Post Go-Around Outcomes (LOC-I)
2. Aircraft Misconfigurations (LOC-I, RE)
3. Surface Misalignments (NAV, RI)

4.5 The aviation occurrence categories from the CAST/ICAO Common Taxonomy Team (CICTT) were used to assess risk categories in the process of determining national operational safety risks. The CICTT Taxonomy can be found on the ICAO website at: <https://www.icao.int/safety/airnavigation/AIG/Pages/Taxonomy.aspx>

4.6 In order to address the regional operational safety risks listed above, the RASG-PA identified the contributing factors leading to HRCs, the ICAO NACC Regional Office will follow up the information provided by the RASG PA and any other information critical to safety decisions, in order to take appropriate actions. The information related to contributing factors can be found on the Annual Safety Report de RASG-PA.

5. OTHER REGIONAL SAFETY ISSUES

5.1 In addition to the regional operational safety risks listed in the **NACC RASP**, the ICAO NACC Regional Office has identified other regional safety issues and initiatives selected for the RASP. These are prioritized in the **NACC RASP** since they are aimed at enhancing and strengthening the management of aviation safety at the regional level.

5.2 The eight Critical Elements (CEs) of a safety oversight system are defined by ICAO. The ICAO NACC Regional Office is committed to the effective implementation of these eight CEs among all States in the region, as part of its overall safety oversight responsibilities, which emphasize the NAM/CAR Regions commitment to safety in respect of its aviation activities. The eight CEs are presented in Figure 15.



Figure 15. Critical elements of a State's safety oversight system

5.3 Certain deficiencies in a specific CE of a safety oversight system are common to the majority of States in the region and considered a top concern. These deficiencies are addressed as a safety issue in the RASP because of their impact on the ability of States to fulfil their safety oversight responsibilities, which impacts the region as a whole.

5.4 The latest ICAO activities, which aim to measure the effective implementation of the eight CEs of States' individual safety oversight system, as part of the ICAO USOAP, have resulted in the following scores, compiled as an average for the NAM/CAR Regions as a whole:

Overall Effective Implementation (EI) score for NACC
66.20%

EI score by Critical Element (CE) for NACC							
CE-1	CE-2	CE-3	CE-4	CE-5	CE-6	CE-7	CE-8
74.04%	72.62%	69.89%	67.36%	67.66%	67.22%	55.14%	55.65%
EI score by audit area for NACC							
LEG	ORG	PEL	OPS	AIR	AIG	ANS	AGA
76.22%	77.04%	80.02%	78.78%	80.02%	63.34%	55.05%	59.14%

5.5 The Safety Oversight Index (SOI) of a State is an ICAO indicator of its safety oversight capabilities. Every State audited by ICAO has a safety oversight index. It is a number greater than zero where the number one represents a level at which the safety oversight capabilities of a State would indicate the minimum expected capabilities considering the number of departures as an indication of the size of that State’s aviation system. The calculations conducted by ICAO of each State’s individual SOI have resulted in the following scores, compiled for the NAM/CAR Regions as a whole:

Overall SOI score for	Score in the area of Operations	Score in the area of Air Navigation	Score in the area of Support Functions
1.27	1.52	1.11	1.17

5.6 **Appendix B** will include information on other safety issues in the NAM/CAR context which were identified based on analysis from USOAP data, accident and incident investigation reports, safety oversight activities over the past 5 years from States in the region and their SSP, as well as on the basis of regional analysis conducted by RASG-PA, RSOOs and the results of international audits.

6. MONITORING IMPLEMENTATION

6.1 The ICAO NACC Regional Office will continuously monitor the implementation of the SEIs listed in the **NACC RASP** and measure safety performance of the regional civil aviation system, to ensure the intended results are achieved, using the mechanisms presented in the appendix to this plan. The implementation monitoring will be conducted through the different systems already established by the NACC Regional Office, i.e: SAP, SSP strategy, RST, etc.

6.2 In addition to the above, the Management and the Regional Officer, safety implementation will review the **NACC RASP** every 2 years or earlier, if required, to keep the identified operational safety risks, safety issues and selected SEIs updated and relevant. The ICAO NACC Regional Office will periodically review the safety performance of the initiatives listed in the **NACC RASP** to ensure the achievement of

regional safety goals and targets. If required, The ICAO NACC Regional Office will seek the support of the RSOOs to ensure the timely implementation of SEIs to address safety deficiencies and mitigate risks. Through close monitoring of the SEIs, the ICAO NACC Regional Office will make adjustments to the RASP and its initiatives, if needed, and update the RASP accordingly.

6.3 In addition, the ICAO NACC Regional Office in cooperation with RASG-PA will use the indicators listed in Section 3 of this plan to measure safety performance of the civil aviation system and monitor each regional safety target. A periodic annual safety report will be published to provide stakeholders with relevant up-to-date information on the progress made in achieving the regional safety goals and targets, as well as the implementation status of the SEIs.

6.4 In the event that the regional safety goals and targets are not met, the causes will be addressed and presented to stakeholders. If The ICAO NACC Regional Office identifies critical safety risks, reasonable measures will be taken to mitigate them as soon as practicable, possibly leading to an earlier revision of the **NACC RASP**.

6.5 The ICAO NACC Regional Office adopted a standardized approach to facilitate reporting of information from individual States and other stakeholders at the regional level, and improving the provision of information to the RASG-PA. This allows the region to receive information and assess safety risks using common methodologies. Please note that the Regional Office is working with the States.

6.6 Any questions regarding the **NACC RASP** and its initiatives, and further requests for information may be addressed to the following:

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ICAO NACC REGIONAL OFFICE
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OPERATIONAL ROAD MAP

Regional Goal I: Reduction in Operational Risks Targets							
T1*: Maintain a decreasing trend of fatal accidents per million departures [from 2018 to 2021]							
GASP SEI	Action	Action Custodian	Timeline	Stakeholders	Metrics	Source/ Fulfils	Monitoring Activity
Loss of Control In-flight (LOC-I)	Implement the following LOC-I safety actions: a) Promote upset prevention and recovery training in all full flight simulator type conversion and recurrent training programmes b) Promote more time devoted to training for the pilot monitoring role 2. Validate the effectiveness of the SEIs in the region using data provided by States and industry (apply safety management methodologies) 3. Identify additional contributing factors, for example: a) Distraction b) Adverse weather c) Complacency d) Inadequate SOPs for effective flight management e) Insufficient height above terrain for recovery f) Lack of awareness of or competence in procedures for recovery from unusual aircraft attitudes g) Inappropriate flight control inputs in response to a sudden awareness of an abnormal bank angle 4. Develop and promote further SEIs to mitigate the risk of the identified contributing factors, if any, for LOC-I, for example: a) Organize safety seminars or workshops b) Facilitate regional technical assistance projects 5. Conduct continuous evaluations of the performance of the SEIs	RASG-PA/ NACC RO	2022	STATES, RSOO, INDUSTRY	SAP CE 2, 6 AND 7	GASP	RASG-PA/NACC RO

Regional Goal I: Reduction in Operational Risks Targets							
T1*: Maintain a decreasing trend of fatal accidents per million departures [from 2018 to 2021]							
GASP SEI	Action	Action Custodian	Timeline	Stakeholders	Metrics	Source/ Fulfils	Monitoring Activity
Runway Excursion (RE)	<p>1. Implement the following RE safety actions:</p> <ul style="list-style-type: none"> a) Promote the establishment and implementation of a State runway safety programme and runway safety teams b) Promote the establishment of policy and training on rejected landings, go arounds, crosswind and tailwind landings (up to the maximum manufacturer demonstrated winds) c) Promote equipage of runway overrun awareness and alerting systems on aircraft d) Promote effective and timely reporting of meteorological and aerodrome conditions (e.g. runway surface condition in accordance to the ICAO global reporting format in Annex 14, Volume I, braking action and revised declared distances) e) Promote the certification of aerodromes in accordance with ICAO Annex 14, Volume I as well as Doc 9981, PANS-Aerodrome f) Promote the installation of arresting systems if RESA requirements cannot be met g) Promote the establishment of procedures to systematically reduce the rate of unstabilized approaches to runways <p>2. Validate the effectiveness of the SEIs in the region using data provided by States and industry (apply safety management methodologies)</p> <p>3. Identify additional contributing factors, for example:</p> <ul style="list-style-type: none"> a) Ineffective SOPs b) Failure to adhere to the appropriate SOPs c) Long/floated/bounced/firm/off-centre/crabbed landing d) Inadequate approach procedures design e) Inadequate regulatory oversight <p>4. Develop and implement further SEIs to mitigate the risk of the identified contributing factors, if</p>	RASG-PA/ NACC RO	2022	STATES, RSOO, INDUSTRY	SAP CE 2, 6 AND 7	GASP	RASG-PA/NACC RO

Regional Goal I: Reduction in Operational Risks Targets							
T1*: Maintain a decreasing trend of fatal accidents per million departures [from 2018 to 2021]							
GASP SEI	Action	Action Custodian	Timeline	Stakeholders	Metrics	Source/ Fulfil	Monitoring Activity
	any, for RE 5. Conduct continuous evaluation of the performance of the SEIs						

Regional Goal I: Reduction in Operational Risks Targets							
T1*: Maintain a decreasing trend of fatal accidents per million departures [from 2018 to 2021]							
GASP SEI	Action	Action Custodian	Timeline	Stakeholders	Metrics	Source/ Fulfills	Monitoring Activity
Controlled Flight Into Terrain (CFIT)	1. Implement the following CFIT safety actions: a) Support the adoption of TAWS in accordance with Annex 6 b) Promote the wider use of TAWS beyond the requirements of Annex 6 c) Promote the adherence to TAWS warning procedures d) Promote greater awareness of approach risks e) Promote the implementation of CDFA f) Promote the implementation of MSAW systems g) Promote the timeliness of updates and accuracy of eTOD h) Promote the use of global positioning system (GPS)-derived position data to update TAWS 2. Validate the effectiveness of the SEIs presented in this roadmap in the region using data provided by States and industry (apply safety management methodologies) 3. Identify additional contributing factors, for example: a) Flight in adverse environmental conditions b) Approach design and documentation c) Phraseology used (standard vs non-standard) d) Pilot fatigue and disorientation 4. Develop and implement further SEIs to mitigate the risk of the identified contributing factors, if any, for CFIT 5. Conduct continuous evaluation of the performance of the SEIs	RASG-PA/ NACC RO	2022	STATES, RSOO, INDUSTRY	SAP CE 6 AND 7	GASP	RASG-PA/NACC RO

Regional Goal I: Reduction in Operational Risks Targets							
T1*: Maintain a decreasing trend of fatal accidents per million departures [from 2018 to 2021]							
GASP SEI	Action	Action Custodian	Timeline	Stakeholders	Metrics	Source/ Fulfils	Monitoring Activity
Mid-Air Collision (MAC)	<p>1. Implement the following MAC safety actions:</p> <p>a) Promote guidance and regulations to ensure aircraft are equipped with ACAS, in accordance with Annex 6</p> <p>b) Promote adherence to ACAS warning procedures</p> <p>c) Promote the improvement of ATC systems, procedures and tools to enhance conflict management.</p> <p>d) Promote the improvement of communications systems and procedures, such as controller-pilot datalink.</p> <p>2. Validate the effectiveness of the SEIs in the region using data provided by States and industry (apply safety management methodologies)</p> <p>3. Identify additional regional contributing factors, for example:</p> <p>a) Traffic conditions - traffic density, complexity, mixture of aircraft types and capabilities, etc.</p> <p>b) ATC performance related to workload, competence, teamwork, procedures, commitment, etc., as well as the influence of ANSPs' safety management.</p> <p>c) Flight crew training and corporate culture related to workload, competence, teamwork, procedures, commitment etc., and the influence of aircraft operator's safety management</p> <p>d) ATC systems - flight data processing, communication, STCA, etc., as well as the interaction related to the human operator and the aircraft systems, and the procurement policy of the ANSP</p> <p>e) Aircraft equipment - autopilots, transponders and ACAS, but also aircraft performance (e.g. rate-of-climb) and their physical size</p> <p>f) Navigation infrastructure - both coverage and quality</p>	RASG-PA/ NACC RO	2022	STATES, RSOO, INDUSTRY	SAP CE 2, 6 AND 7	GASP	RASG-PA/NACC RO

Regional Goal I: Reduction in Operational Risks Targets							
T1*: Maintain a decreasing trend of fatal accidents per million departures [from 2018 to 2021]							
GASP SEI	Action	Action Custodian	Timeline	Stakeholders	Metrics	Source/ Fulfils	Monitoring Activity
	g) Surveillance -both coverage and quality h) Flight plan processing - efficiency and reliability of flight plan submission, approval and distribution i) Airspace - complexity of airspace design, route layout, extent of controlled or uncontrolled airspace, proximity of military operational or training areas, etc. j) Flight in adverse environmental conditions that may influence conflict management and collision avoidance 4. Develop and implement further SEIs to mitigate the risk of the identified contributing factors, if any, for MAC 5. Conduct continuous evaluation of the performance of SEIs						

Regional Goal I: Reduction in Operational Risks Targets							
T1*: Maintain a decreasing trend of fatal accidents per million departures [from 2018 to 2021]							
GASP SEI	Action	Action Custodian	Timeline	Stakeholders	Metrics	Source/ Fulfils	Monitoring Activity
Mitigate contributing factors to RI accidents and incidents	<p>1. Implement the following RI safety actions:</p> <p>a) Promote the establishment and implementation of a State runway safety programme and runway safety teams</p> <p>b) Promote the establishment of policy, procedures and training that supports situational awareness for controllers, pilots and airside vehicle drivers</p> <p>c) Promote the effective use of suitable technologies to assist the improvement of situational awareness, such as improved resolution AMM, EFB, EVS and HUD, A-SMGCS, stop bars and ARIWS</p> <p>d) Promote the certification of aerodromes in accordance with ICAO Annex 14, Volume I as well as Doc 9981, PANS-Aerodrome</p> <p>e) Promote the use of standard phraseologies in accordance with applicable State regulations and ICAO provisions (e.g. Doc 9432, Manual of Radiotelephony)</p> <p>f) Promote the identification and publication in the AIP of hot spots at aerodromes</p> <p>g) Promote suitable strategies to remove hazards or mitigate risks associated with identified hot spots</p> <p>2. Validate the effectiveness of the SEIs in the region using data provided by States and industry (apply safety management methodologies)</p> <p>3. Identify additional contributing factors, for example:</p> <p>a) Operations in low visibility conditions</p> <p>b) Complex or inadequate aerodrome design</p> <p>c) Complexity of traffic (multiple simultaneous line-ups)</p> <p>d) Conditional clearances</p> <p>e) Simultaneous use of intersecting runways</p> <p>f) Late issue of or late changes to departure</p>	RASG-PA/ NACC RO	2022	STATES, RSOO, INDUSTRY	SAP CE 2, 6 AND 7	GASP	RASG-PA/NACC RO

Regional Goal I: Reduction in Operational Risks Targets							
T1*: Maintain a decreasing trend of fatal accidents per million departures [from 2018 to 2021]							
GASP SEI	Action	Action Custodian	Timeline	Stakeholders	Metrics	Source/ Fulfils	Monitoring Activity
	clearances g) Phraseology use (e.g. non-standard vs. standard, call-sign confusion) h. Concurrent use of more than one language for ATC communications i) English language competence despite the introduction by ICAO of a system of validating competence in aviation English j) Inadequate manoeuvring area driver training and assessment programme 4. Develop and implement further SEIs to mitigate the risk of the identified contributing factors, if any, for RI 5. Conduct continuous evaluations of the performance of the SEIs						

<p style="text-align: center;">Regional Goal I: Reduction in Operational Risks Targets 2.1 Component 1 — State safety oversight system 2.1.1 Phase 1 — Establishment of a safety oversight framework (CE-1 to CE-5)</p>							
GASP SEI	Action	Action Custodian	Timeline	Stakeholders	Metrics	Source/ Fulfills	Monitoring Activity
SEI-1 — Consistent implementation of ICAO SARPs at the regional level	1A — Work together with States at the regional level to assist States with low EI and/or significant safety concerns: – Coordinate assistance to States that have taken temporary measures to address potential SSCs. 1B — Increase the level of compliance with ICAO SARPs and the EI of CEs within the region (CE-1 to CE-5). 1C — Develop harmonized regulations, technical guidance, and tools for promulgation by States, and develop a process for the provision of safety-critical information in the region, consistent with ICAO SARPs (CE-2 and CE-5) 1E — Work regionally through RASG, RSOO and ICAO Regional Office to enhance safety in a sustainable manner	RO/SAF	2022	NACC SAP/FS WG/NCMC WG/	NACC SAP/SOS PROJECT/	GASP	NACC SAP
SEI-2— Establishment of an independent regional accident and incident investigation process, consistent with Annex 13— Aircraft Accident and Incident Invest.	2A — Establish a RAIO, if necessary (see SEI-1B) (CE-3) 2B — Identify champion States, via the RASGs, to assist in building the accident and incident investigation capabilities of States which require assistance (CE-3 to CE-4) 2C — Provide resources for accident and incident investigation (including, but not limited to, personnel and technical support) to perform those functions which cannot be performed by the State acting on its own (see SEI-1A) (CE-3 and CE-4)	NACC/AIG	2022	NACC/AIG, RAIO, RSOO	NACC SAP	GASP	NACC/AIG

Regional Goal I: Reduction in Operational Risks Targets 2.1 Component 1 — State safety oversight system 2.1.1 Phase 1 — Establishment of a safety oversight framework (CE-1 to CE-5)							
GASP SEI	Action	Action Custodian	Timeline	Stakeholders	Metrics	Source/ Fulfils	Monitoring Activity
SEI-4 — Strategic collaboration with key aviation stakeholders to enhance safety in a coordinated manner	4C — Provide assistance via States, regions and industry to States for the development of national regulations (CE-2) 4D — Establish a process via RSOO for a mentoring/collaboration system, including providing State/industry assistance as well as sharing of best practices and internal follow-up actions (CE-3) 4G — While working to improve safety oversight, work with RASG and/or RSOO to address high-risk categories of occurrences (see OPS roadmap)	RO/SAF	2022	NACC RO/SAF WG/NCMC WG/	SAP/SOS PROJECT/	GASP	NACC RO/SAF WG
SEI-5 — Provision of the regional safety information to ICAO by asking States to complete, submit and update all relevant documents and records	5A — Assess if States in the region have provided the information in 5B to 5E to ICAO 5B — Solicit States in the region to complete and submit their USOAP corrective action plan 5C — Solicit States in the region to complete and submit their self-assessment checklist based on USOAP CMA PQs 5D — Solicit States in the region to complete and submit their SAAQ 5E — Solicit States in the region to complete and submit their CCs on the EFOD system 5F — Make use of the RASGs, regional organizations or other regional fora to collect and share safety information, in order to assess the level of implementation of ICAO SARPs at the regional level	RO/SAF	2022	NACC RO/SAF WG/NCMC WG/	NACC SAP/SOS PROJECT/	GASP	NACC RO

Regional Goal I: Reduction in Operational Risks Targets 2.1 Component 1 — State safety oversight system 2.1.2 Phase 2 — Implementation of a safety oversight system (CE-6 to CE-8)							
GASP SEI	Action	Action Custodian	Timeline	Stakeholders	Metrics	Source/ Fulfils	Monitoring Activity
SEI-6 — Continued implementation of and compliance with ICAO SARPs at the regional level	6A — Work together with States in the region to assist States with low EI and/or significant safety concerns: – Provide support toward shortfalls in roadmap safety enhancement initiatives found in multiple States to increase cost effectiveness 6B — Increase the level of compliance with ICAO SARPs and the EI of CEs within the region (CE-6 to CE-8) 6C — Work with States’ competent authorities and their enforcement oversight processes, to address safety concerns regarding foreign operators, in a timely manner (CE-6 to CE-8) 6D — Work with stakeholders to resolve safety concerns identified via accident and incident investigations, safety reports and other means (CE-8) 6E — Continue work on the high-risk categories of occurrences (see OPS roadmap)	RO/SAF	2022	NACC RO/NACC SAP/NCMC WG/SOS	SAP/SOS PROJECT/	GASP	NACC RO/RASG-PA
SEI-7 — Regional safety enhancement initiatives to support consistent coordination of regional programmes in implementing adequate safety oversight capabilities	7A — Identify resources that are available to support roadmap safety enhancement initiatives for States in the region (all CEs, emphasis on CE-6 to CE-8) 7B — Use the roadmap and regional analysis of relevant safety-critical information to determine regional priorities and resources that can be used to assist States. Due to the scarce human and financial resources, any planned actions should be targeted at those safety risks which can be sustainably addressed and have the highest impact in terms of improving safety (all CEs, emphasis on CE-6 to CE-8) 7C — Facilitate the provision of financial and technical assistance among regional resourced entities (RASG, RSOO, ICAO Regional Office, champion States, development banks and other	RO/SAF	2022	NACC/SAP/AIG	SAP	GASP	NACC/RASG-PA

Regional Goal I: Reduction in Operational Risks Targets 2.1 Component 1 — State safety oversight system 2.1.2 Phase 2 — Implementation of a safety oversight system (CE-6 to CE-8)							
GASP SEI	Action	Action Custodian	Timeline	Stakeholders	Metrics	Source/ Fulfils	Monitoring Activity
	regional aid programmes) and give priority to States requiring assistance, in alignment with SEI-10 (all CEs, emphasis on CE-6 to CE-8) 7D — Strengthen existing RSOO, if necessary (CE-6 to CE-8)						
SEI-8 — Strategic collaboration with key aviation stakeholders to enhance safety in a coordinated manner	8A — Based on the identified safety deficiencies, establish a mechanism to identify collaborators and develop an action plan for the resolution of those deficiencies (CE-6 to CE-8) 8B — Provide assistance via RASG and/or RSOO to States for the conduct of surveillance activities (CE-7) 8C — Use technical guidance, tools and safety-critical information, developed in collaboration with States, RSOO, ICAO and/or other stakeholders, to assist in safety oversight functions (CE-6 to CE-8) 8D — Resolve safety concerns identified via accident and incident investigations, safety reports and other means (CE-8) 8E — While working to improve safety oversight, continue to work with RASG and/or RSOO to address high-risk categories of occurrences (see OPS roadmap)	NACC RO	2022	NACC RO	SAP	GASP	NACC RO/RASG-PA
SEI-9 — Continued provision of the primary source of regional safety information to ICAO by asking States to update all relevant documents and records as progress is made	9A — Assess if States in the region have updated their primary source of safety information to ICAO 9B — Solicit States in the region to complete and submit their USOAP corrective action plan 9C — Solicit States in the region to update and submit their self-assessment checklist based on USOAP CMA PQs 9D — Solicit States in the region to update and submit their SAAQ 9E — Solicit States in the region to update and submit their CCs on the EFOD system	RO/SAF	2022	NACC RO/NACC SAP/NCMC WG/SOS	SAP	GASP	NACC RO/RASG-PA

Regional Goal I: Reduction in Operational Risks Targets 2.1 Component 1 — State safety oversight system 2.1.2 Phase 2 — Implementation of a safety oversight system (CE-6 to CE-8)							
GASP SEI	Action	Action Custodian	Timeline	Stakeholders	Metrics	Source/ Fulfils	Monitoring Activity
	9F — Continue to encourage States in the region to update documents and records, as required, in a timely manner 9G — Continue to make use of the RASGs, regional organizations or other regional fora to collect and share safety information, in order to assess the level of implementation of ICAO SARPs at the regional level						

Regional Goal I: Reduction in Operational Risks Targets							
2.2 Component 2 — State safety programme							
GASP SEI	Action	Action Custodian	Timeline	Stakeholders	Metrics	Source/ Fulfils	Monitoring Activity
SEI-10 — Start of promotion of SSP implementation at the regional level	10A — Identify an entity in the region who will guide and support SSP implementation at the regional level (RASG, RSOO, ICAO Regional Office, etc.) 10B — Guide and support SSP implementation by States: – Assess EI scores and verify completion of Component 1 of the roadmap – Collect SSP gap analyses and implementation plans of States – Identify common deficiencies – Develop regional strategies, including collaboration and resources, to assist States with implementation – Identify and promote safety management best practices in coordination with States and/or other regions – Follow-up on progress and attain updated gap analysis and implementation plans – Use the roadmap to align priorities of the RASG 10C — Engage States at the regional level and focus activities in line with the roadmap 10D — Continue work on the high-risk categories of occurrences (see OPS roadmap)	RO/SAF	2022	NACC/SAP/SSP/WG	SAP	GASP	RO/SAF
SEI-11 — Regional safety enhancement initiatives to support consistent coordination of regional programmes for SSP implementation	11A — Identify resources that are available to support SSP implementation by States in the region 11B — Use updates provided by States on the status of their SSP implementation to determine regional priorities and resources that can be used to assist individual States in the region 11C — Work with the ICAO Regional Office to facilitate the provision of technical assistance needed for SSP implementation 11D — Monitor the progress of SSP implementation (via iSTARS) and adjust regional resource priorities continuously	RO/SAF	2022	NACC/SAP/SSP/WG	SAP	GASP	RO/SAF

<p>SEI-12 — Strategic collaboration with key aviation stakeholders to support SSP implementation</p>	<p>12A — Identify areas where collaboration/support is needed as part of States' SSP implementation plans (see SEI-14) 12B — Identify relevant collaborators from the key aviation stakeholders, including States implementing or having implemented an SSP 12C — Develop and implement a consistent and harmonized strategy to address the common elements identified as missing or deficient during the SSP gap analysis of States in the region 12D — Establish and implement a process via RASG and/or RSOO for a mentoring system, including providing assistance to States/industry, as well as sharing of best practices to support SSP implementation 12E — Develop and implement a process to provide training on SSP to relevant staff, in collaboration with RSOO and/or other States (e.g. initial, recurrent and advanced) 12F — Establish and implement a process for sharing technical guidance, tools and safety-critical information related to SSP (e.g. advisory circulars, staff instructions, safety performance indicators), in collaboration with States, RASG, RSOO, ICAO and/or other stakeholders 12G — Work with States in the region to ensure that all elements of their SSPs are present, suitable, operational and effective, and promote continual improvement</p>	<p>RO/SAF</p>	<p>2022</p>	<p>NACC/SAP/SSP WG</p>	<p>SAP</p>	<p>GASP</p>	<p>RO/SAF</p>
<p>SEI-13 — Establishment of safety risk management at the regional level</p>	<p>13A — Encourage States to actively update their SSP implementation status (via iSTARS) and to provide safety information, to enable the identification of hazards and management of safety risks in the region 13B — Develop and adopt harmonized safety reporting systems, as part of service providers' SMS within the region (e.g. voluntary reporting systems) 13C — Encourage States and industry within the region to share safety information and contribute to regional reporting and monitoring mechanisms</p>	<p>RO/SAF</p>	<p>2022</p>	<p>NACC/SAP/SSP WG</p>	<p>SAP</p>	<p>GASP</p>	<p>RO/SAF</p>

	<p>13D — Use regional safety performance measurement methodologies (including harmonized safety metrics) for the RASG to conduct safety risk analysis in coordination with RSOO or RAIO</p> <p>13E — Encourage all States to contribute information on safety risks, including SSP safety performance indicators, to the RASG</p> <p>13F — Encourage all States with effective safety oversight capabilities, and an effective SSP, to actively engage in RASG's safety risk management activities</p> <p>13G — Use harmonized metrics for the development and monitoring of safety performance indicators at the regional level (within the RASG)</p> <p>13H — Establish a regional safety risk registry</p>						
<p>SEI-14 — Regional allocation of resources to support continued development of the proactive use of risk modelling capabilities</p>	<p>14A — Work with States and organizations to leverage available technologies</p> <p>14B — Identify and pool qualified USOAP auditor candidates from within the region with experience in safety oversight of service providers that have deployed advanced SMS</p> <p>14C — Work with the ICAO Regional Office(s) and donor organizations to make use of available means (e.g. Technical Cooperation Bureau) to provide assistance in developing risk modelling capabilities</p>	<p>RO/SAF</p>	<p>TBD</p>	<p>NACC/SAP/SSP/WG</p>	<p>SAP</p>	<p>GASP</p>	<p>RO/SAF</p>
<p>SEI-15 — Regional collaboration with key aviation stakeholders to support the proactive use of risk modelling</p>	<p>15A — Support States in understanding and implementing safety culture concepts by sharing best practices and facilitating mentoring programmes to support safety culture development and the proactive use of risk modelling</p> <p>15B — Promote the sharing and exchange of safety information and best practices within a confidential and non-punitive environment among States and stakeholders</p> <p>15C — Encourage and support State public-private partnerships similar to the commercial/general aviation safety teams'</p>	<p>RO/SAF</p>	<p>TBD</p>	<p>NACC/SAP/SSP/WG</p>	<p>SAP</p>	<p>GASP</p>	<p>RO/SAF</p>

	concept to identify and implement system safety enhancements 15D — Encourage and support States' efforts to establish mechanisms for the regular sharing and exchange of safety information, analyses, safety risk discoveries/lessons learned and best practices within a confidential and non-punitive environment						
SEI-16 — Advancement of safety risk management at the regional level	16A — Establish data sharing connectivity and integration among States and stakeholders to enable high-level regional monitoring and analysis activities 16B — Identify requirements for establishing inter-regional and global data sharing	RO/SAF	TBD	NACC/SAP/SSP WG	SAP	GASP	RO/SAF

APPENDIX B

OTHER SAFETY ISSUES IN THE NAM/CAR CONTEXT

To be developed

— END —