



ICAO

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

NACC/WG/RAP/03— WP/14
19/03/25

**Third Meeting of Rapporteurs of the North American, Central American and
Caribbean Working Group (NACC/WG/RAP/03)**
(ICAO NACC Regional Office, from 24 to 27 March 2025)

**Agenda Item 3: Update NAM/CAR regional needs and NACC/WG objectives, its structure and
the review and reporting mechanisms**

Surveillance Group Update Status Report and Work Plan

(Presented by SURV Rapporteur)

EXECUTIVE SUMMARY	
The report provides an update on the existing activities of the Surveillance Working Group along with the work that is planned to be done.	
<i>Strategic Objectives:</i>	<ul style="list-style-type: none">• Safety• Air Navigation Capacity and Efficiency
<i>References:</i>	<ul style="list-style-type: none">• Invitation - Amended dates for the Third Meeting of Rapporteurs of the North, Central America and Caribbean Working Group (NACC/WG/RAP/02) ICAO NACC Regional Office, Mexico City, Mexico, March 24-27, 2025.

1. Introduction

1.1 The Surveillance Task Force (NACC/WG/SURV/TF) has continued to work based on the previously submitted and approved Terms of Reference (ToR). In addition, the SURV/TF has coordinated with the different stakeholders the necessary actions to update its action plan in order to identify effective ways to further harmonize the implementation of surveillance systems, data analysis methods, and ensure continuous improvement in airspace safety throughout the region.

1. Discussion

2.1 In previous meetings, the surveillance rapporteur has provided an update on the status of the activities described as part of the working group plan.

2.2 As part of that update, the rapporteur noted the topics that remain open and the activities that the group will be undertaking as part of its work plan. The table included in Appendix A of this Study Note contains an update of the task force work plan.

2. ADS-B implementation

3.1 The SURV/TF through a joint meeting with different stakeholders, including the International Air Transport Association (IATA), to follow up on Conclusion GREPECAS/21/21. The NACC/WG/SURV/TF coordinated with IATA a joint meeting between the States in the process of operational implementation of ADS-B.

CONCLUSION GREPECAS/21/21		DEVELOPMENT OF AN ACTION PLAN FOR THE ADS-B IMPLEMENTATION	
What: That States/Territories, led by ICAO, a) review the existing Operational Concept for the ADS-B Implementation in the CAR and SAM Regions, including its operational objectives, b) support the development of model regulations for ADS-B; c) integrate all different stakeholders in the process; and d) develop an action plan incorporating activities, accountability, and milestone dates by 15 August 2024.		Expected impact: <input type="checkbox"/> Political / Global <input checked="" type="checkbox"/> Inter-regional <input checked="" type="checkbox"/> Economic <input type="checkbox"/> Environmental <input checked="" type="checkbox"/> Operational/Technical	
Why: ADS-B is an enabler to several of the operational improvements foreseen in the GANP ASBUs, current many States have implemented ADS-B infrastructure as a surveillance mean. To obtain the benefits of ADS-B implementation regional agreements and priorities for the CAR and SAM States			
When: 15 August 2024		Status: <input checked="" type="checkbox"/> Valid / <input type="checkbox"/> Superseded / <input type="checkbox"/> Completed	
Who: <input checked="" type="checkbox"/> States <input checked="" type="checkbox"/> OACI <input checked="" type="checkbox"/> Others: IATA			

3.2 As a result of this meeting:

1. As part of the regional analysis, it was concluded that the CAR and SAM Regions will not be able to achieve maximum operational efficiency at this time because the level of implementation of ADS-B is different in each region, but it was indicated that as implementation proceeds in the different States, the benefits of ADS-B will be integrated in both regions.

2. Regarding the measurements made by Mexico and Central America of the avionics capacity of the aircraft that have operations in their respective FIRs, the following table shows this capacity:

Operaciones		México	Centroamérica
Espacio aéreo inferior		Porcentaje de cumplimiento con la norma NOM-91/2-SCT3-2022 de las aeronaves detectadas con sensores ADS-B.1	
		Versión	99.30%
		NIC	99.10%
		NACp	99.00%
		NACv	99.60%
		SIL	98.60%
Espacio aéreo superior		Porcentaje de cumplimiento con la norma NOM-91/2-SCT3-2022 de las aeronaves detectadas con sensores ADS-B.1	
		Versión	99.30%
		NIC	99.10%
		NACp	99.00%
		NACv	99.70%
		SIL	99.20%

3. Initially, the benefit of the implementation of ADS-B is operational security, since it will be covering areas in the Caribbean where current radars do not provide coverage in the areas of Mexico and COCESNA (Central America). In addition, the region is in the process of implementing this functionality:

- Haiti: 2 ADS-B stations
- Barbados: 2 ADS-B stations
- Aruba: Has ADS-B
- Curacao: satellite ADS-B

3.3 ADS-B supports the provision of air traffic services and operational applications with reduced cost and increased surveillance coverage. ADS-B provides accurate position/speed information throughout the airspace (accuracy is not range dependent as with radar). It also provides aircraft call sign and accurate position/velocity information to nearby aircraft with Automatic Dependent Surveillance - Receive (ADS-B-in) receivers.

3.4 In this sense, it is indicated that the region has the necessary radar and ADS-B coverage in the upper airspace to support the implementation of regional operational and safety improvement functionalities, the implementation of the NAM/ICD and AIDC automated protocols being a clear example.

3. Airborne Collision Avoidance System (ACAS)

4.1 On February 14, 2023, the ICAO NACC office sent Letter to States with reference NT-NE57-1-E.OSG-NACC96041 requesting information on existing regulations and system implementations. The following are the items that specifically affect NACC/WG/SURV

- Airborne Collision Avoidance System (ACAS) implementation status and a copy of its regulations, if available.
- Air Traffic Control (ATC) systems with their capabilities.

4.2 Based on the information received from this solicitation and based on the new applicability date for ACAS X, the surveillance group in collaboration with ICAO NACC has analyzed the existing regulations regarding the implementation of ACAS. Although not all states have responded, the NACC/WG/SURV rapporteur and the ICAO NACC Office Communications, Navigation and Surveillance Specialist representative will work together to determine which states need to make changes to meet this new requirement.

NOTE: The effective date of this requirement will be November 2026.

4.3 In addition, the oversight group will review the ADS-B CONOPS and make necessary changes to ensure that the document remains relevant based on the new technology that has been operationally implemented.

4. Other important activities

3.1 The surveillance group is monitoring the development of the “ICAO Required Surveillance Manual” being developed through the ICAO Surveillance Panel Performance Based Surveillance Subgroup (PBSSG). The PBSSG initiated inter-panel coordination to obtain feedback on the information contained in the manual.

32 The comment period for the panels will end at the end of March 2025. The next PBSSG meeting is planned for April 2025 in Thailand. During that meeting the comments will be discussed and determine what changes will be needed to finalize the document. Once finalized, the document will be presented during the Panel Aeronautical Surveillance Working Group (ASWG) meeting in November 2025 in Kenya.

3.2 The surveillance group will work with the ICAO NACC to determine how to proceed with the development of a regional tool for monitoring surveillance parameters. Additionally, the surveillance group will continue to monitor changes to the NAPG ASBU's and modify the group's activities as needed.

5. Recommendations

6.1 The ADS-B as an ASBU element of the Technology thread is an essential enabler to support the implementation of the ASBU elements of the operational thread. In that sense it is important that the Operational Task Forces (AO, ATFM, AGA) clearly define the operational objectives in order to take advantage of the surveillance infrastructure currently implemented in the region.

6.2 In conjunction with the SURV/TF operational groups can identify coverage needs that support airspace optimization tasks.

6.3 The region shares 70% of the surveillance infrastructure, and there is an agreement between the CAR States to share surveillance data. This tool can continue to be used in the CAR region and supported by the States to have areas of coverage by more than two surveillance facilities to allow for operational improvement.

6.4 It is recommended to work together with the Surveillance Task Force to define more precisely the areas of coverage of a single surveillance facility or more than two, as well as the radar data sharing arrangements to drive the necessary mechanisms required for the implementation of direct routes and airspace optimization.

6.5 Appendix B of this study note presents the areas of coverage and surveillance in the CAR region to support regional implementation.

4. Conclusion

4.1 The meeting is invited to:

- a) Review the information provided in this study note
- b) NACC/WG member area groups to indicate needs and improvements in aeronautical surveillance services and systems that can be met in a safe and interoperable manner, to update the work plan:
- c) Work together to integrate a work plan to identify actions that the surveillance area needs to develop to support regional implementation.
- d) That the States support the work and provide the necessary information to support the implementation of the ACAS by November 2026
- e) That the operational area identifies the work plan for the operational implementation of the ACAS and the implementation objectives
- f) Integrate airspace users (airlines) into the work plan in order to plan the integration of the avionics necessary for its implementation
- g) To support the completion of the actions that GREPECAS has requested; and
- h) Any other matter it deems convenient.

APPENDIX A

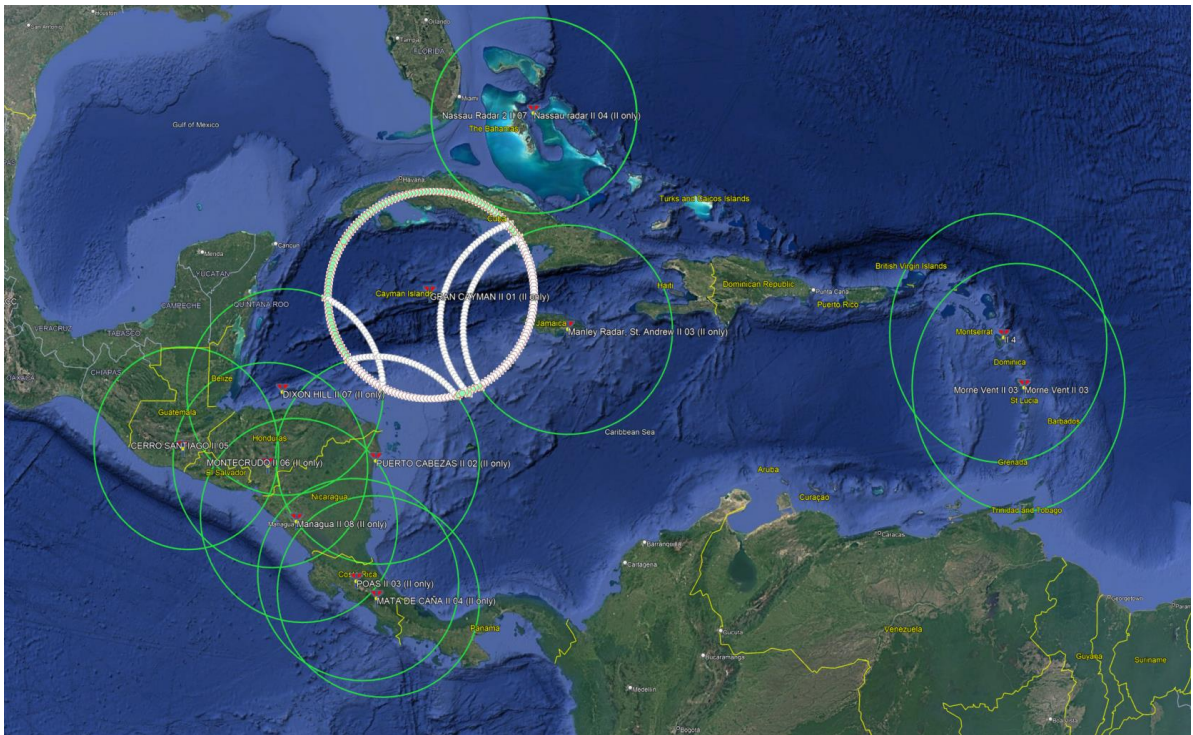
SURV/TF PLAN OF ACTION

Activity	Description	Deliverable	Start date	Proposed completion date	Responsible party
NACC/WG/SURV Task Force activities	The definition of the Group's terms of reference and the execution of the work plan in accordance with the regional objectives.	Group terms of reference and work plan	01/2022	01/2026	Members NACC/WG/SURV
Review and update of the work plan	Ensure continuous reassessment of the working group's priorities.	Update the TF Work Plan	01/2022	01/2026	NACC/WG/SURV Rapporteur
Gather information on each State's current surveillance implementation.	Determine level of system implementation and airspace coverage. Identify areas of opportunity for modernization or improvement. In addition, use the information to identify degree of ADS-B implementation and regulation.	Questionnaire	01/2022	08/2026	Members NACC/WG/SURV
Collecting and sharing ADS-B performance statistics	Identify the level of ADS-B equipment in the region. Help determine the level of compliance with existing ADS-B regulations or as a basis for the development of a regulation.	ADS-B statistics	01/2022	09/2026	Members NACC/WG/SURV
ADS-B parameters for airspace performance monitoring	Assist States in the development of a tool to monitor ADS-B performance in airspace.	ADS-B Parameter List	01/2022	08/2026	Cuba, Mexico, US, and COCESNA
Provide the Regional ConOps to OACI SAM	Ensure harmonization in the approach and implementation of ADS-B	ConOps Regional	03/2022	COMPLETADO	NACC/WG/SURV Rapporteur
Work on the basic criteria for a standardized regional implementation for the use of ACAS.	Support the implementation areas of airspace optimization and efficiency, as well as operational safety.	Regional recommendations for implementation	08/2022	07/2026	Members NACC/WG/SURV

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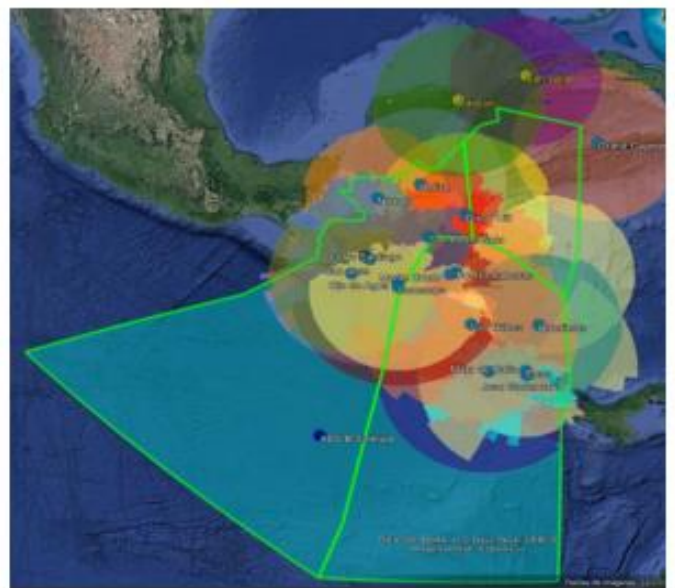
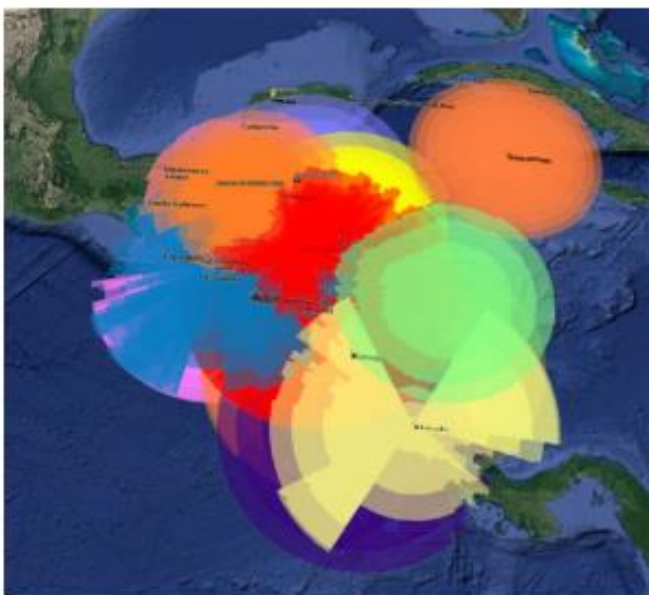
APPENDIX B REGIONAL COVERAGE MAP

1. Mode-S radar coverage

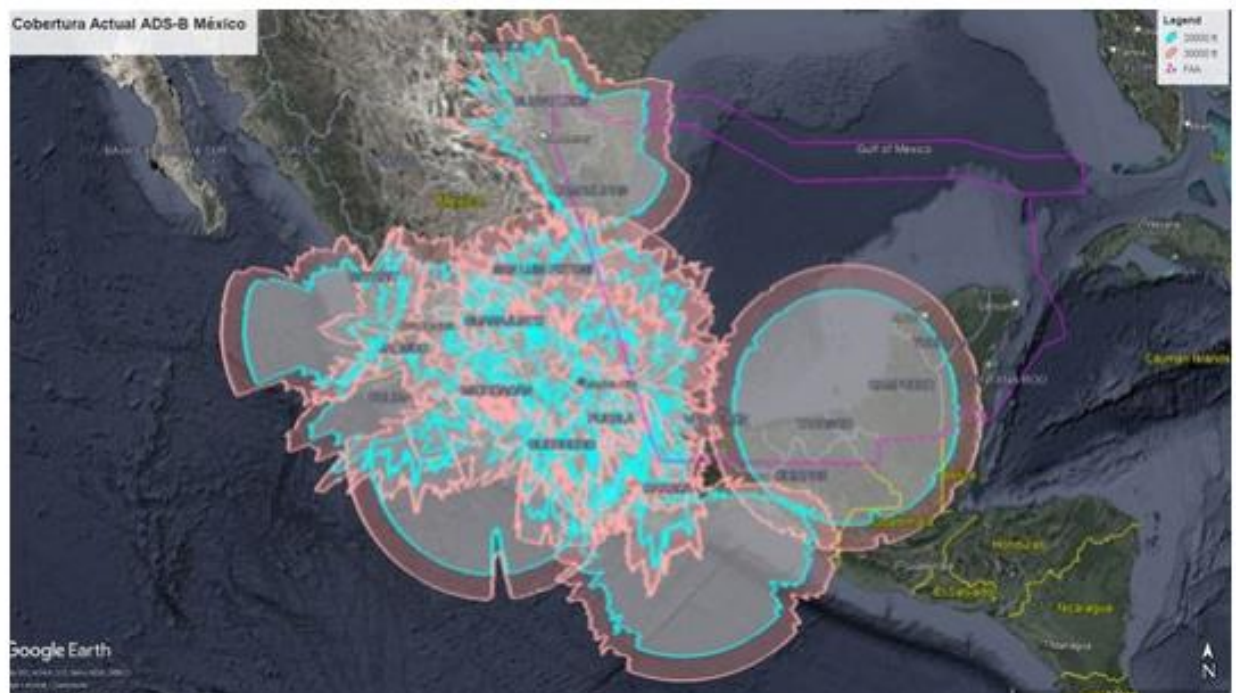


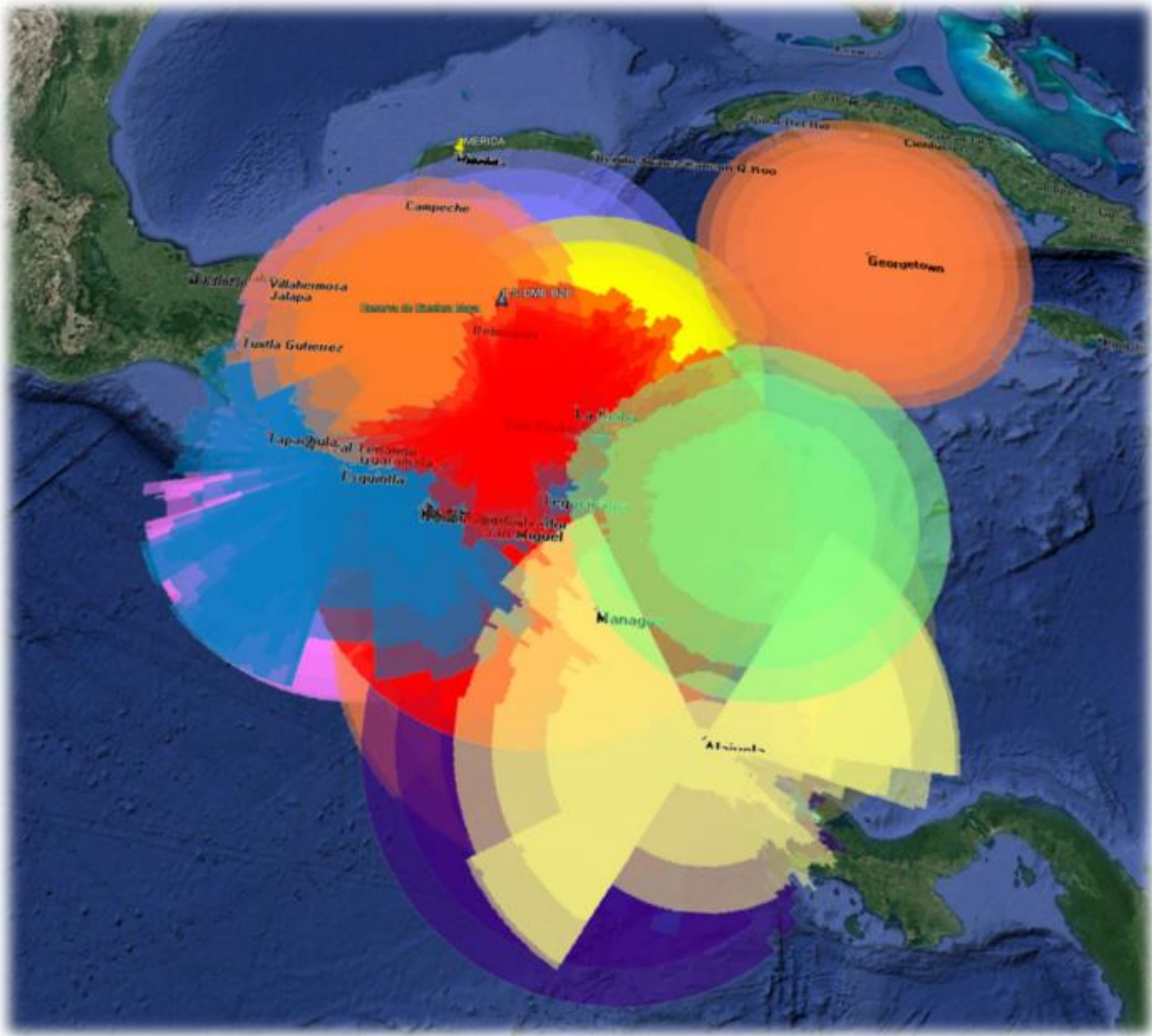
2. Surveillance radar coverage of Central America

Central America and COCESNA share surveillance data with Cuba, Cayman Islands, Ecuador, Jamaica, Mexico and Panama.



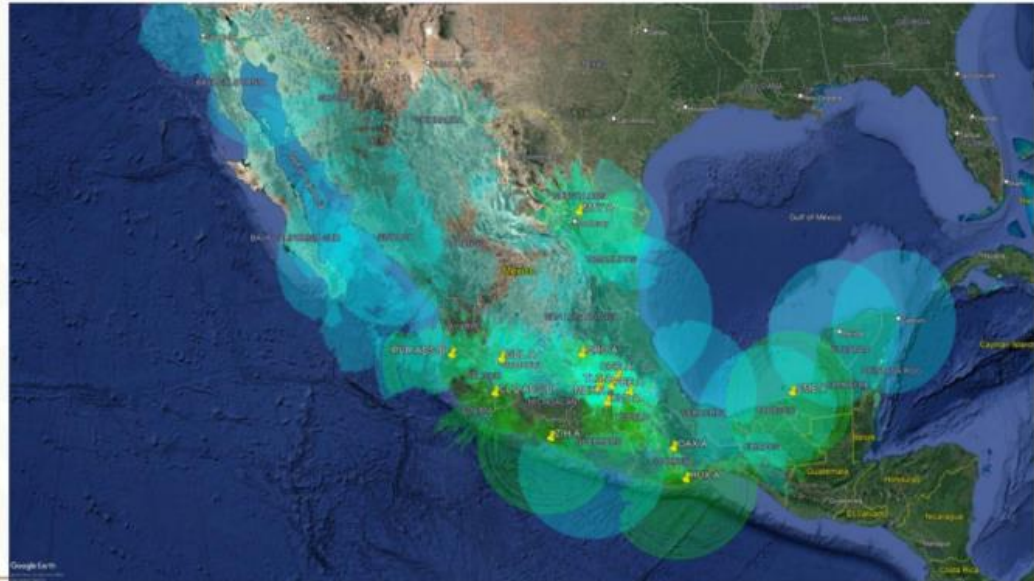
The following chart shows the coverage areas that have been improved with the implementation of ADS-B antennas installed to date



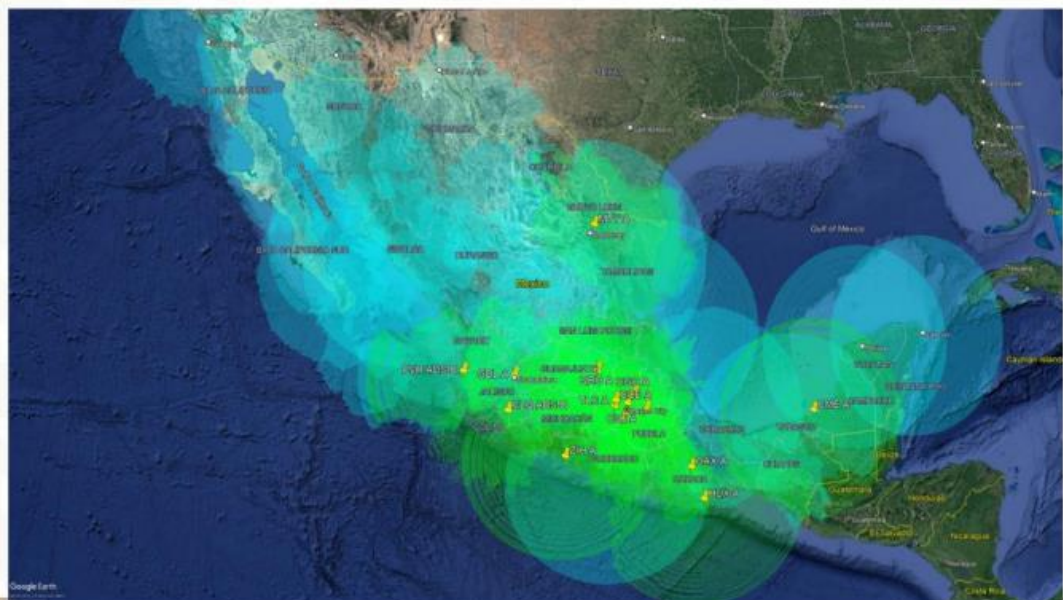


SENEAM COVERAGE
MEXICO

Coberturas teóricas de los sistemas radar y ADS-B (FL150)

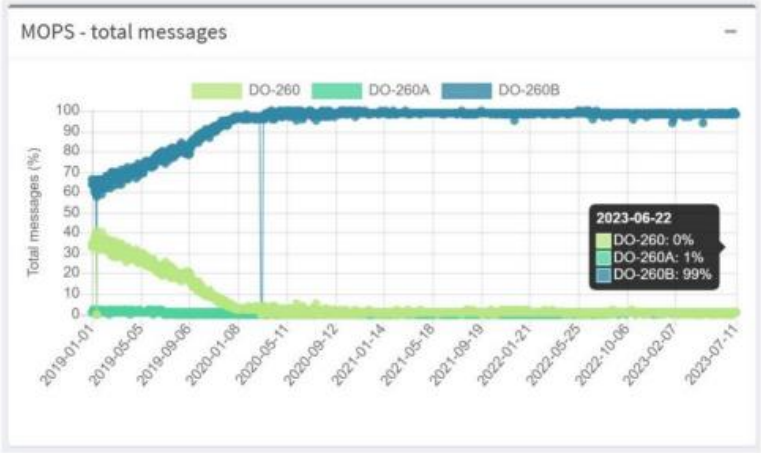
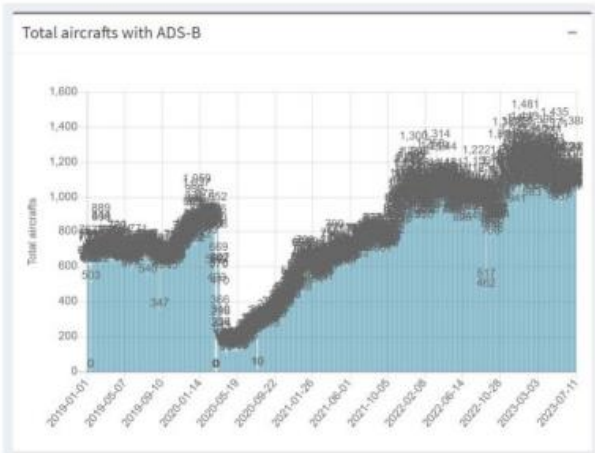


Coberturas teóricas de los sistemas radar y ADS-B (FL300)

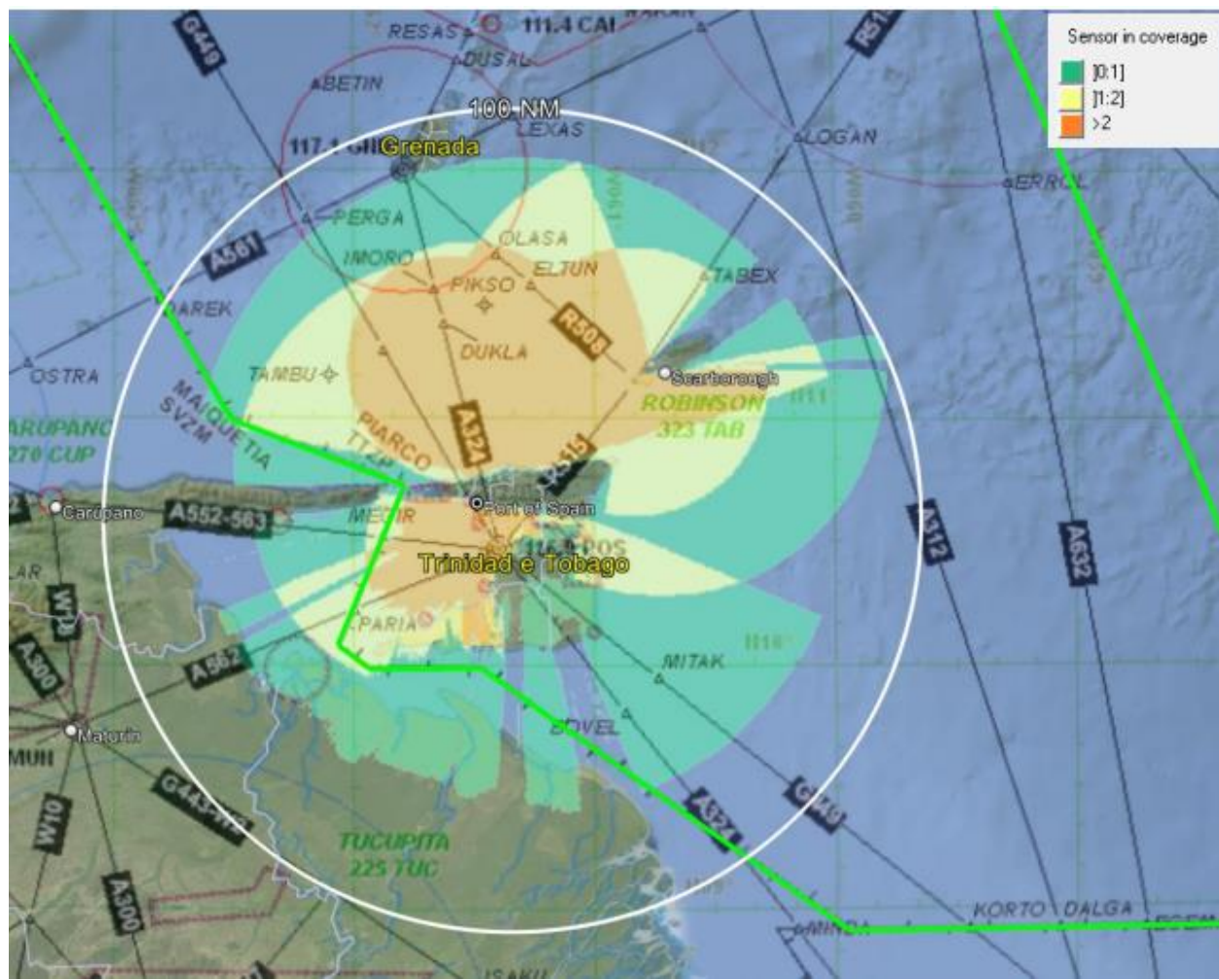


Habilitadores: Aviónica

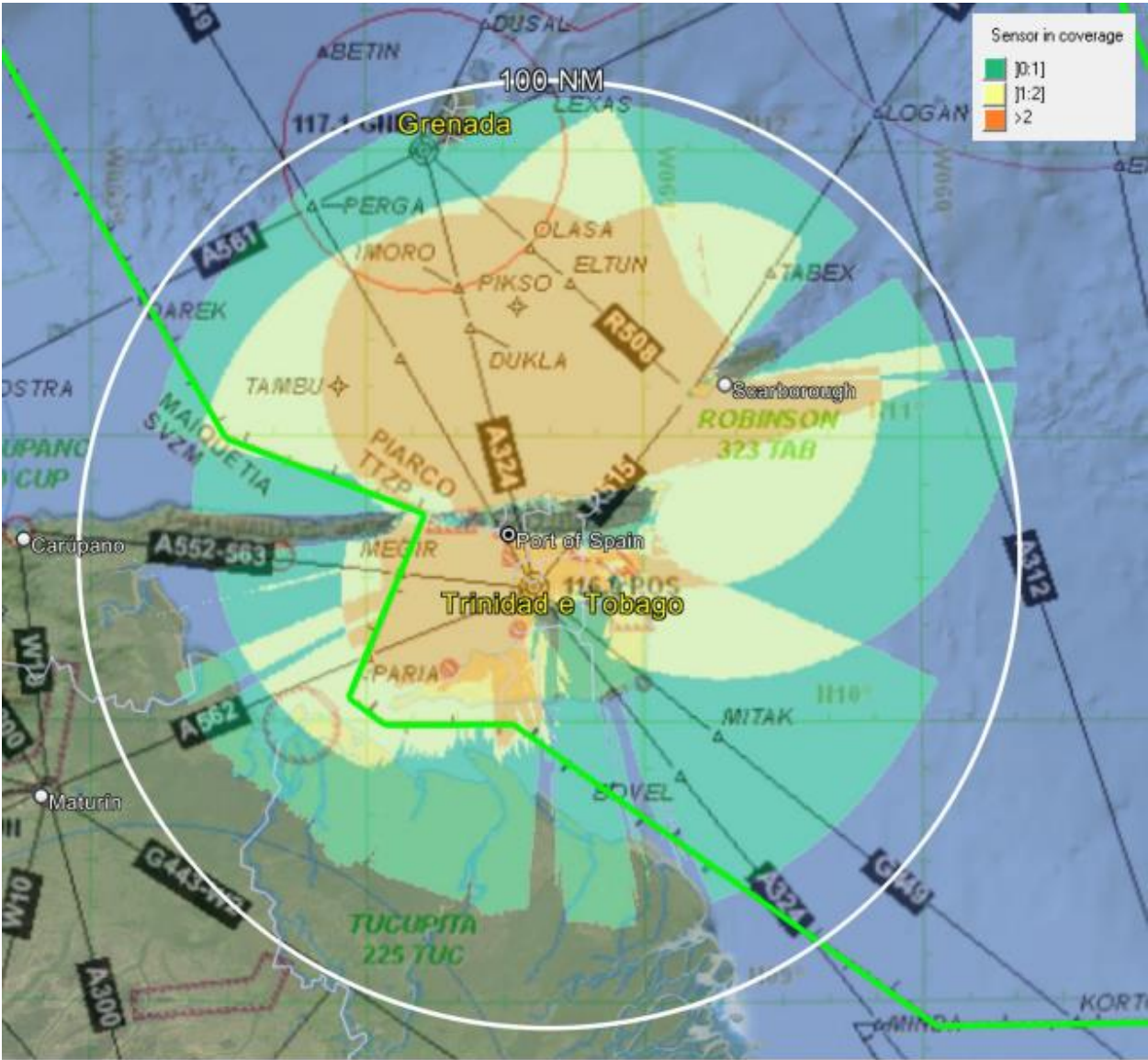
Sistema de monitoreo de datos ADS-B

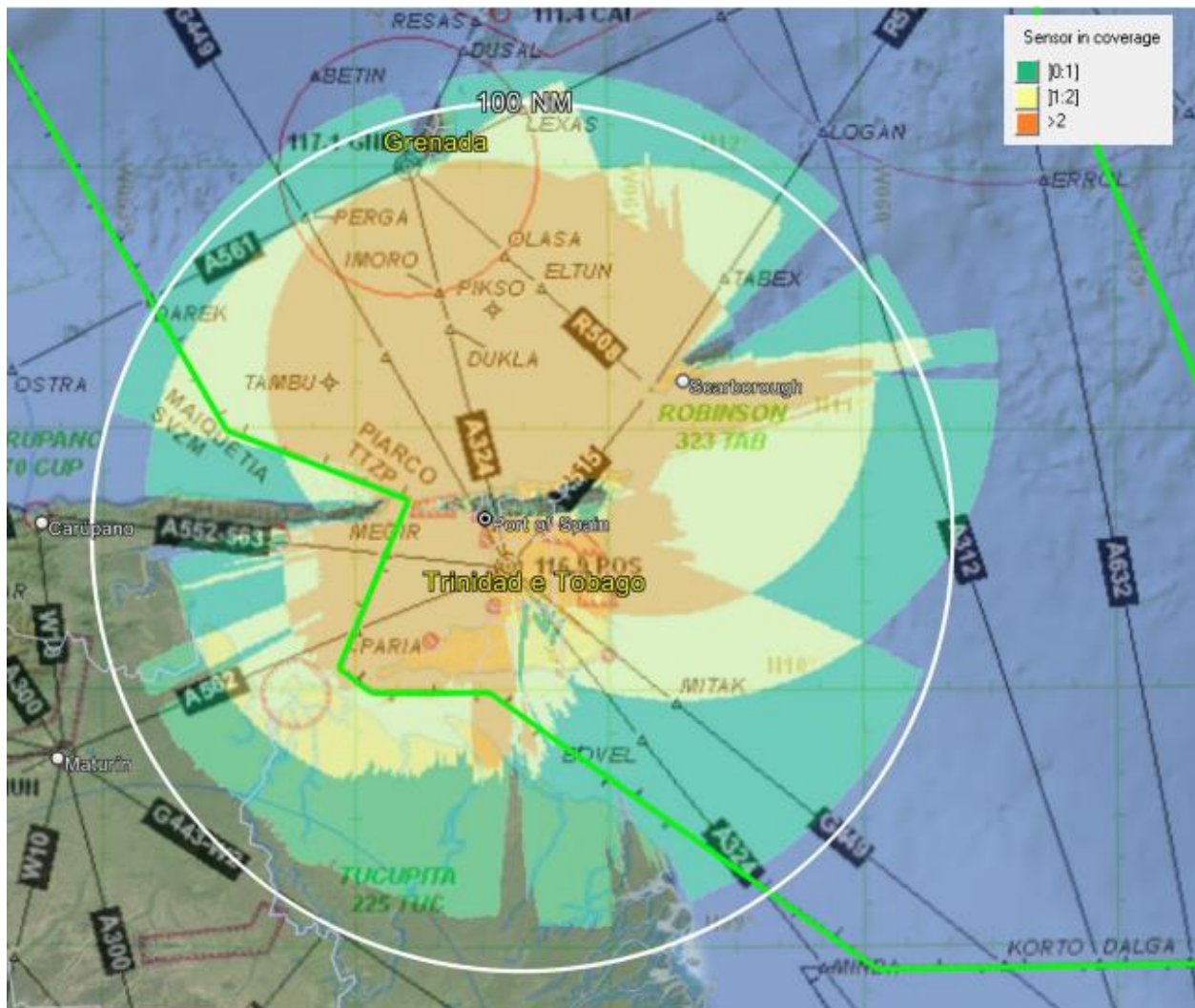


PIARCO ADS-B COVERAGE DIAGRAMS

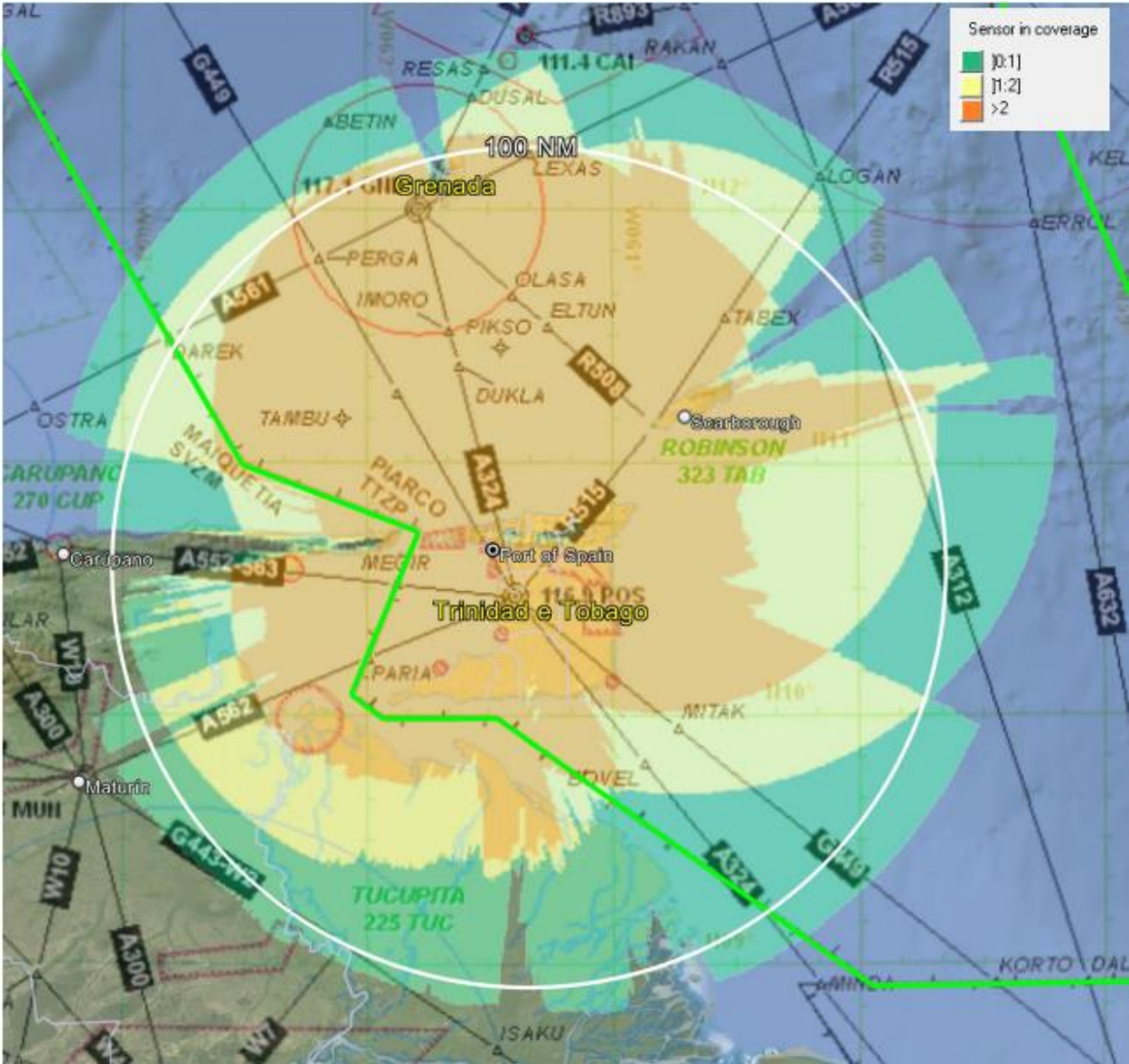


ADS-B coverage @250 feet ASL

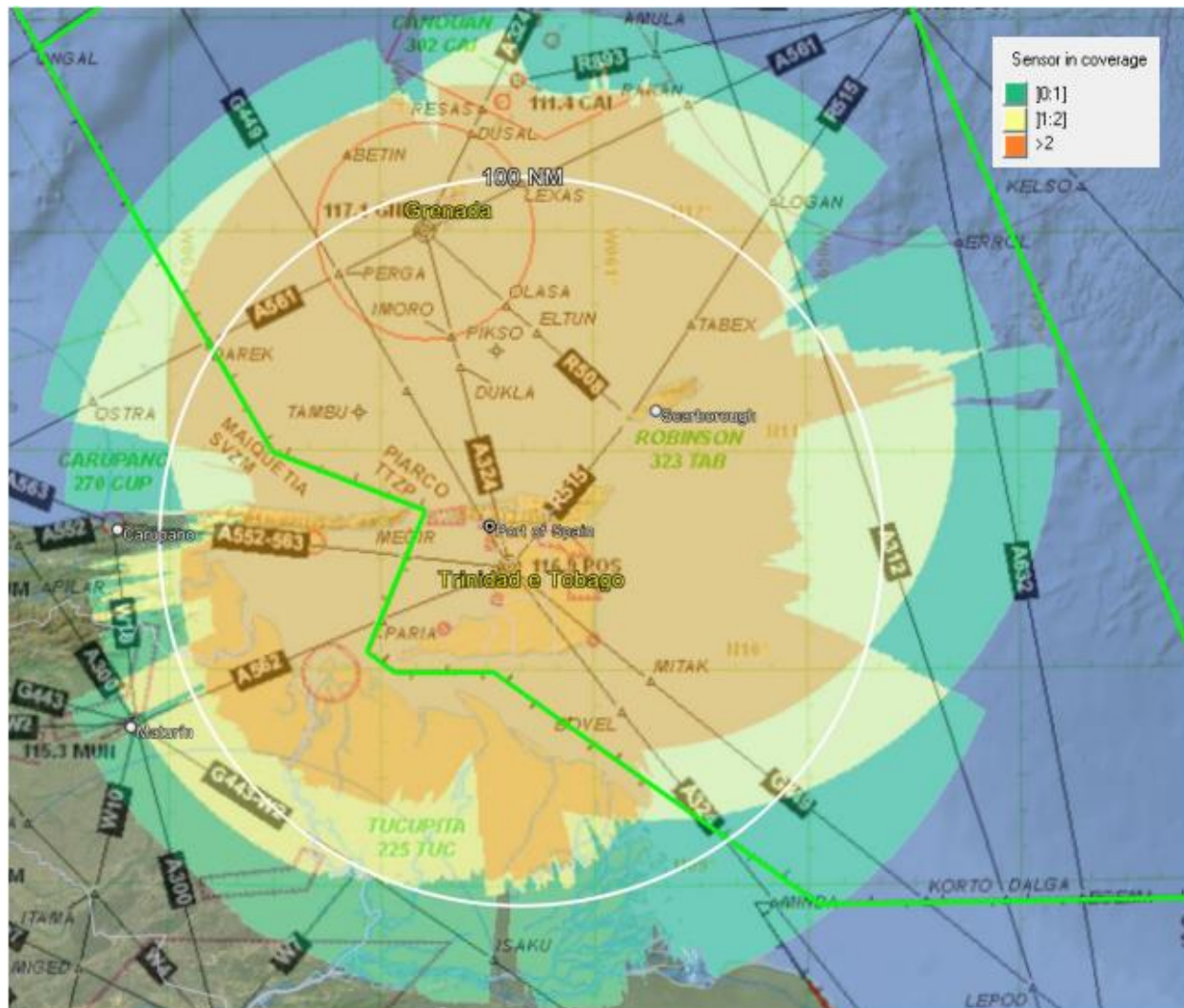




ADS-B coverage @1000 feet ASL

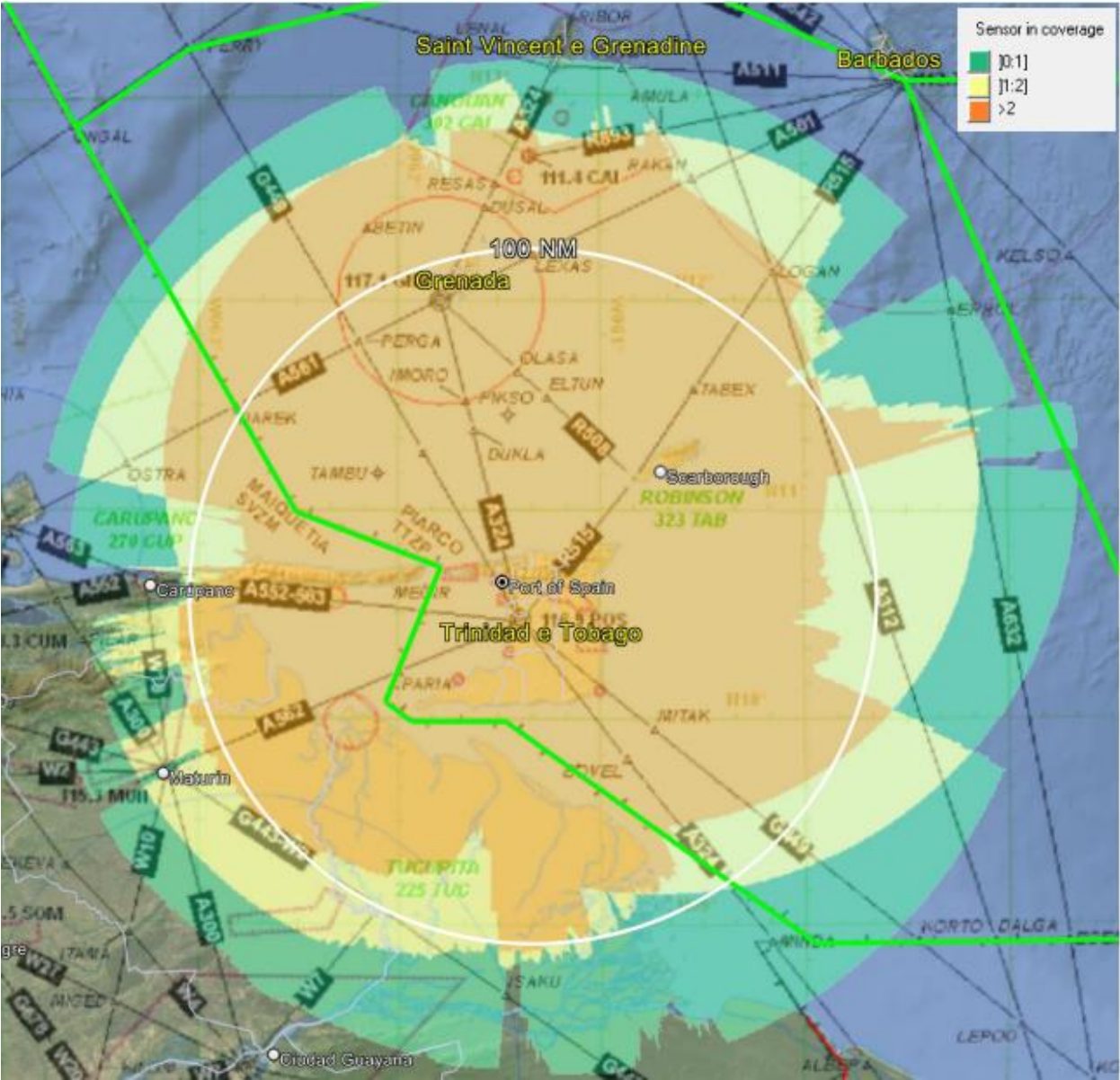


ADS-B coverage @2000 feet ASL

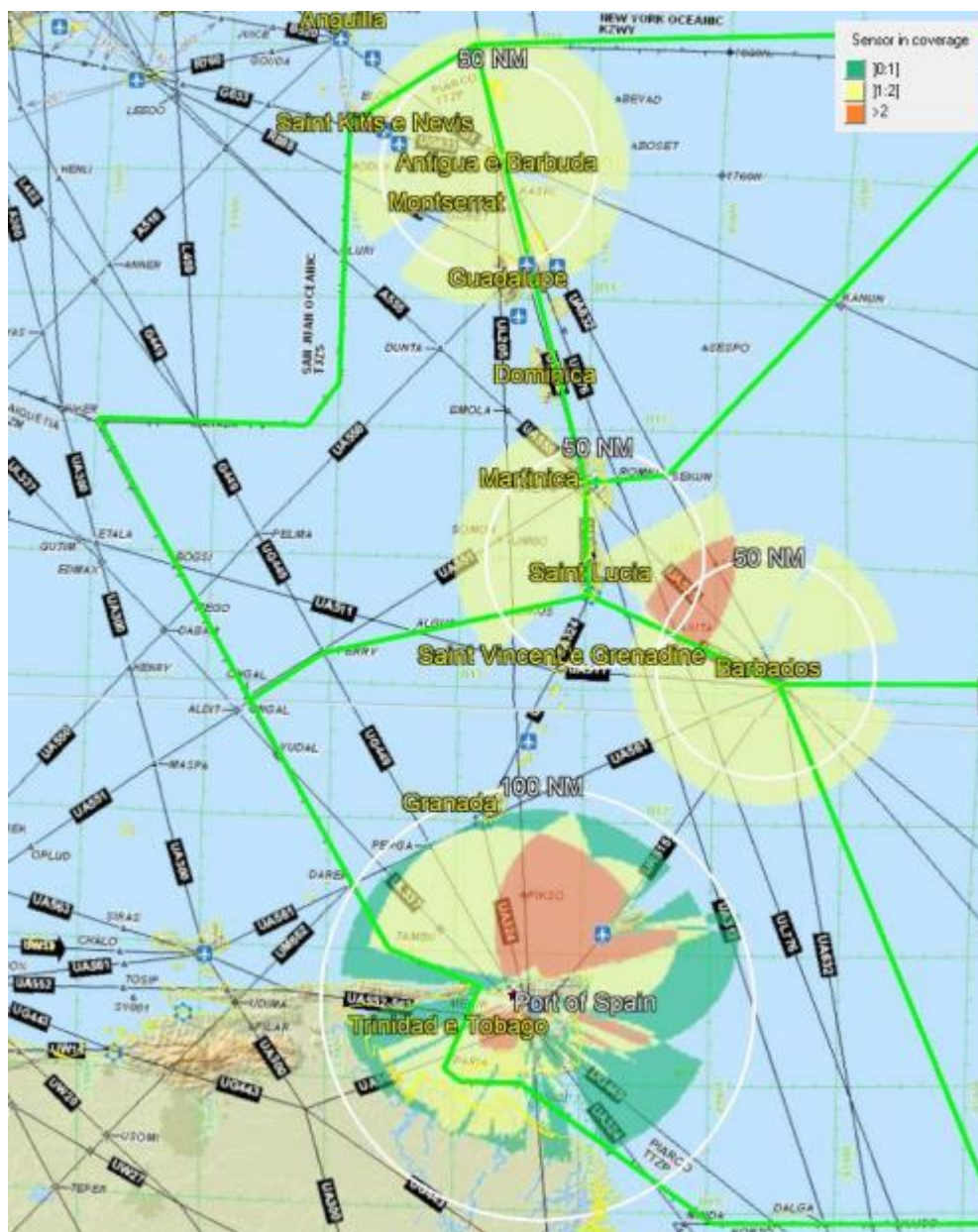


ADS-B coverage @4000 feet ASL

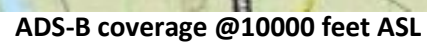
— A11 —



ADS-B coverage @ 5000 feet ASL

ECAR (PIARCO FIR) ADS-B COVERAGE DIAGRAMS**ADS-B coverage @250 feet ASL**





— A15 —



ADS-B coverage @20000 feet ASL



ADS-B coverage @30000 feet ASL

— END —