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WORKING PAPER

NACC/WG/6 — WP/10

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

On-line, 25 to 27 August 2021, 09:00 to 13:00 (UTC-5)

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

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

**PROGRESS REPORT ON THE WORK OF THE SURVEILLANCE TASK FORCE (SURV/TF)**

(Presented by Rapporteur)

<b>EXECUTIVE SUMMARY</b>	
This paper presents the progress made by the Surveillance Task Force (SURV/TF) of the NAM/CAR Air Navigation Implementation Working Group (ANI/WG).	
<b>Action:</b>	As indicated in point 4 of this paper.
<i>Strategic Objectives:</i>	<ul style="list-style-type: none"><li>• Safety</li><li>• Air Navigation Capacity and Efficiency</li><li>• Economic Development of Air Transport</li></ul>
<i>References:</i>	<ul style="list-style-type: none"><li>• Automatic Dependent Surveillance – Broadcast (ADS-B) Implementation and Regulation Meeting for the NAM/CAR/SAM Regions (ADS-B/LEG)</li><li>• Fifth NAM/CAR Air Navigation Implementation Working Group Meeting (ANI/WG/5)</li><li>• Fifth Meeting of the Programmes and Projects Review Committee (PPRC/5) of GREPECAS</li><li>• Automatic Dependent Surveillance – Broadcast OUT Technical On-Line Workshop for</li><li>• the NAM/CAR Regions (ADS-B/OUT/W)</li></ul>

**1. Introduction**

1.1 The Surveillance Task Force (SURV/TF) works based on its Terms of Reference (ToR) and the update of its action plan, in order to make the implementation activities related to new surveillance systems combined with existing radar systems more efficient, to guarantee the safety of air navigation in our geographic region.

1.2 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.

1.3 The activities of the SURV/TF (see **appendix A**) were made compatible with the GREPECAS programmes and projects, specifically with the Automation and Situational Awareness programme, which includes the activities agreed for this group.

## **2. Latest Activities carried out by the SURV/TF of the ANI/WG**

2.1 A regional Concept of Operations (CONOPS) for the operational implementation of the ADS-B was finalized, to serve as a guide to Member States in their respective implementation processes, which will be presented for final review and approval at this meeting.

2.2 Barbados has a recently installed radar surveillance system and they plan to implement a Multilateration (MLAT) with 7 MLAT stations and 5 stations for surface movement.

2.3 COCESNA reported on the implementation of ADS-B technology in the Central American region, which includes the installation of 4 ADS-B receivers in Costa Rica, 2 in Guatemala, 3 in Honduras and 2 in Nicaragua.

2.4 Cuba will have a new automated system for the Havana Air Traffic Control Centre (ATCC), which will allow the introduction of incoming information from the ADS-B and MLAT sensors installed throughout the country. It maintains the data exchange from the radar sensors of San Julian and Camagüey with COCESNA and Jamaica, respectively, and is in the process of starting the exchange of surveillance data with Merida.

2.5 Jamaica completed the renovation of its ATS system, which included the renovation of surveillance systems.

2.6 To date, SENEAM has installed 10 ADS-B stations at the following sites:

- 5 in the Valley of Mexico City (Toluca Airport, Cerro Peñón, Cerro Catedral, Cerro Gordo and Air Traffic Control [ATC] Aerodrome Control Tower [TWR] of México);
- 1 at the Cerro Los Gallos Radar station, Aguascalientes (LGS);
- 1 in the Southeast of Mexico, in Ciudad del Carmen (CME);
- 2 in the Northeast of Mexico at the Monterrey Terminal Airport (MTY) and at the Cerro de Potosí radar station (CPT);
- 1 at the Radar station in Puerto Peñasco, Sonora (PPE), in the Northwest of Mexico;
- Being in the updating process of the surveillance processing system the software of the four Area Control Centres (ACC).

2.7 Panama reported that it has two ADS-B stations installed, which are already integrated with the radar information in the Panama ACC and the acquisition and installation of 2 new ADS-B stations are planned.

2.8 The Dominican Republic had informed that it had planned for the installation of Terrestrial ADS-B and Satellite ADS-B for the year 2020.

2.9 Trinidad and Tobago explained that the State is in the process of developing a project to update the Air Traffic Management (ATM) system, which considers new features, including ADS-B data management. It was also indicated that Trinidad and Tobago receives surveillance data from Guadeloupe and Martinique; this is merged with radar data from Trinidad and Tobago and is used to provide surveillance coverage in the mainland of the FIR. Trinidad and Tobago also redistributes data received from Guadeloupe and Martinique to States within the FIR to improve situational awareness.

2.10 United States has more than 600 ADS-B stations installed, and officially began its operational use in its FIRs as of 1 January 2020. It maintains data exchange with the Bahamas through a dedicated telecommunications line with Miami. There are intentions to share information between Sint Maarten and San Juan, Puerto Rico, using facilities that use Improvements to the Air traffic services (ATS) Voice Link (MEVA), but that was delayed when hurricanes destroyed the Sint Maarten systems. Additionally, they only have a few radars that are sharing data between Canada and United States, also using a direct FTI telecommunications line.

2.11 The Adhoc Group organized to analyze the proposed surveillance solution in oceanic airspaces, determined the feasibility of using the satellite ADS-B provided by AIREON, urging the interested States to initiate the pertinent coordination for its implementation.

### **3. Conclusions**

3.1 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.

3.2 The region began the operational implementation of the ADS-B as a new surveillance system as of January 2020, which constitutes an important improvement to situational awareness, both on board the aircraft and in the ATCCs, for which it is necessary that all the States of the region plan its use, as well as the pertinent national regulations.

3.3 There are potential data exchange possibilities that should be exploited, for which the neighboring ACCs that have not yet done so, should analyze starting short-term coordination for their implementation.

3.4 The latest ADS-B implementation compliance update received is shown in **Appendix B**.

**4. Actions to follow:**

- a) Take note of what is presented in this working paper;
- b) Carry out the actions deemed appropriate for compliance with current regional agreements on surveillance for all FIRs in the region:
  - achieve 100% surveillance coverage,
  - start the operational use of ADS-B,
  - share surveillance data among neighboring States.
- c) Comply with the dates agreed in the regional plans and projects of the GREPECAS programs, for the points indicated above.

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**APPENDIX A  
SUR/TF ACTIVITIES**

<b>TASK NAME</b>	<b>DELIVERABLE</b>	<b>DATE START</b>	<b>DATE END</b>	<b>RESPONSIBLE</b>	<b>COMPLIANCE</b>
Actividades del Grupo de Tarea	ToR and Working Plan	1/8/13	31/12/23	TF Members	100 %
Revising and updating the Working plan	TF Working Plan Updated	26/5/17	21/8/19	TF Rapporteur	100 %
Collecting statistics from ADS-B Trials	Statistics of the Trials	30/10/13	31/12/23	Cuba, México, T & T and COCESNA	50 %
Review and update of the ConOps.	ConOps Updated	26/9/18	21/8/19	Adhoc Group for ConOps	100 %
Analysis of ADS-B SAT use in NAM CAR region.	Ad Hoc Group Inform	26/09/18	21/08/19	Adhoc Group for ADS-B SAT	100 %
Notifying the plans of Implementation.	State Compliance ADS-B Implementation	21/7/19	21/8/19	States of the Region	100 %
Issue the corresponding regulations	State regulations for ADS-B implementation	21/08/19	31/12/23	States of the Region	0 %
Report on the state of Advancement of the regional Implementations	SURV TF Advancement Report	11/7/19	21/08/19	TF Rapporteur	100 %
Review Plan regional of implementation of new systems of Surveillance (ADS B, ADS C, MLAT and A-SMGCS)(ACAS 7.1) y CPDLC/VHF Data Link	Regional Plan of Implementation Updated	23/8/19	31/5/23	States of the Region	20 %
Achieving implementation Operational of the new Surveillance systems	Publication in AIP	31/12/18	31/12/23	States of the Region	10 %
Effective implementation of Data sharing	Report of the Exchange	31/12/17	31/12/22	States of the Region	60 %

Achieve 100% of the Surveillance Coverage Required by the PBN in each Region FIR.	Publication in AIP	26/5/17	31/12/22	States of the Region	80 %
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Metrics SURV TF

Task	% comp 2020	% comp 2021	% comp 2022	% comp 2023
<b>ADS-B Operational</b>	<b>10 % States of the Region</b>	<b>20 % States of the Region</b>	<b>50 % States of the Region</b>	<b>80 % States of the Region</b>
<b>A-SMGCS</b>	<b>30 % Selected airports</b>	<b>60 % Selected airports</b>	<b>90 % Selected airports</b>	<b>100 % Selected airports</b>
<b><u>CPDLC/</u></b>	<b>10 % States of the Region</b>	<b>20 % States of the Region</b>	<b>40 % States of the Region</b>	<b>80 % States of the Region</b>
<b><u>ACAS 7.1</u></b>	<b>10 % States of the Region</b>	<b>20 % States of the Region</b>	<b>40 % States of the Region</b>	<b>80 % States of the Region</b>
<b>Sharing surveillance data</b>	<b>60 %</b>	<b>80 %</b>	<b>100 %</b>	
<b>Efficient surveillance coverage</b>	<b>80 %</b>		<b>100 %</b>	

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### ADS-B IMPLEMENTATION COMPLIANCE UPDATE

No.	State/Estado	Installed ADS-B receivers that meet the technical requirements approved regional / Receptores ADS-B Instalados que cumplen con los requerimientos técnicos regionales aprobados	Representation automated radar system ready to use ADS-B data / Sistema automatizado de representacion radar listo para usar datos ADS-B	% Coverage of ADS-B FIR installed / % de cobertura ADS-B de la FIR instalada	ADS-B deployed operationally / ADS-B implementado operacionalmente	Date to begin the ADS-B implementation / Fecha para comenzar la implementación de ADS-B	Percentage of aircraft registered with ADS-B deployed / Porcentaje de aeronaves matriculadas con ADS-B implementado	Systems planned Multilateración (P) or implemented (I) / Sistemas de Multilateración Planeado (P) o implementado (I)	REMARK/OBSERVACIONES
1.	Antigua and Barbuda / Antigua y Barbuda	0	N		N	TBD			
2.	Aruba	0	N		N	TBD			
3.	Bahamas	0	N		N	TBD			
4.	Barbados	4	Y		N	TBD		P	Planned 7 MLAT stations
5.	Belize / Belice	1	Y		N	2019	~70%	N	
6.	Canada / Canadá	Y (15)	Y	10% via terrestrial sites, 100% via space based SVA	Y	2009	~90% in areas where service is available	I	ADS-B operational FL290 and above since 2009. MLAT operational since 2009. Space-based ADS-B Operations implemented March 2019.
7.	Costa Rica	4 (2016)	N		N	2019	~70%	N	
8.	Cuba	6 (2010)	N	100%	N	2020	~83%	P	ADS-B Operational planned for 2020
9.	Curaçao / Curazao	1 (Note 5)	Y (Note 6)	100%	Y	Q3-2019	~65 % (based on filed flight plans)	I	Space-based ADS-B Operations planned for Q3-2019
10.	Dominican Republic / República Dominicana	0	Y	0	N	2020		P	Planear utilización del ADS-B

									Satelital en 2020
11.	El Salvador	N	Y		N				
12.	Grenada / Granada	0	N		N	TBD			
13.	Guatemala	2	Y		N	2019	~70%	Y (2020)	
14.	Haiti / Haití	0	N		N	TBD			
15.	Honduras	3	Y		N	TBD	~70%	3	
16.	Jamaica	0	N		N	TBD			Not planned
17.	Mexico /México	10	Y			2017		I	
18.	Nicaragua	2	Y		N	2019	~70%	2	
19.	Panama / Panamá	2	Y		Y	2017		I	
20.	Saint Kitts and Nevis / San Kitts y Nevis	0	N		N	TBD			
21.	Saint Lucia / Santa Lucía	0	N		N	TBD			
22.	Saint Vincent and the Grenadines / San Vicente y las Granadinas	0	N		N	TBD			
23.	Trinidad and Tobago / Trinidad y Tabago	0	Y	0%(note4)	N	TBD	60%	P	A full deployment of ADS-B/WAM in the continental airspace of the Piarco FIR is planned for Q4 2020
24.	United States / Estados Unidos	Over 600	Y	100% (note 3)	Y	Y	As of 1-Jul-2019, over 70% of U.S. air carrier fleet is	P/I	ADS-B operational. Wide-Area MLAT



							equipped with ADS-B Version 2		(WAM) operational in some route locations and two terminal locations. Additional terminal WAM locations are planned.
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Note 3 – this coverage percentage is applicable to all US “domestic” FIR airspace and US-managed airspace in the Gulf of Mexico – it does not include all US-managed oceanic FIR airspace  
 Note 4 - 1 Single installation supplied with ATM system and not operationalized.  
 Note5: Space-based ADS-B throws MEVA from AIREON host

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