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Tenth Eastern Caribbean Civil Aviation Technical Group Meeting (E/CAR/CATG/10)
Fort-de-France, Martinique, 15 to 17 July 2026

Agenda Item 4: Follow-up of the activities of the E/CAR/CATG
4.5 Progress report of the Communications Navigation and Surveillance (CNS) Committee

Surveillance Data Sharing - ATM modernisation

(Presented by France and Trinidad and Tobago)

EXECUTIVE SUMMARY

This paper consolidates more than two decades of efforts on ATS surveillance data sharing in the Eastern Caribbean, from the French DACOTA/IRMA initiative of 1998 to the present distributed model centred on the Trinidad and Tobago multi-radar tracking (MRT) capability and the upcoming implementation of space-based ADS-B across the Piarco FIR. It describes the current state of ATS provision in the States of the Caribbean arc, identifies the operational and governance gaps that now constrain the region, and invites the meeting to endorse a coordinated path towards ATM modernisation — including a regional Request for Proposal (RFP) — to absorb forecast traffic growth in conformity with safety and environmental objectives.

Action:	The suggested actions are presented in Section 7
Strategic Objectives:	• Every Flight is Safe and Secure • Aviation is Environmentally Sustainable • Aviation Delivers Seamless, Accessible, and Reliable Mobility for All • No Country Left Behind
References:	• E/CAR/CATG – E/CAR/NTG – E/CAR/RD final reports from 2004 to 2025

1. Introduction

1.1 The Piarco Flight Information Region (FIR) covers approximately 2.5 million square kilometres of predominantly oceanic airspace in the Eastern Caribbean, interconnecting the air navigation service providers (ANSPs) of Europe, Africa, Central America and the Caribbean. The States of the Caribbean arc — from the French Antilles (Martinique, Guadeloupe) through Dominica, Saint Lucia, Saint Vincent and the Grenadines, Grenada, Barbados, Antigua and Barbuda, Saint Kitts and Nevis, Montserrat, Anguilla and Trinidad and Tobago — share a single contiguous traffic flow but operate ATS systems of markedly different technical maturity.

1.2 The post-pandemic recovery has brought a sustained increase in traffic across the region. This paper presents, for the consideration of the E/CAR/CATG, an updated picture of where the region now stands and proposes pathways to ensure that surveillance data distribution, interoperability and ATM capability to keep pace with demand while meeting ICAO safety and environmental commitments.

2. Historical perspective: from a centralised vision to a distribution reality

2.1 The French initiative (1998–2014)

2.1.1 Following a 1998 DGAC mission to the French West Indies, France proposed the deployment of the DACOTA radar data processing system in Martinique and Guadeloupe and offered neighbouring States a shared, multi-radar composite surveillance picture. An E/CAR Radar Data Sharing Task Force, chaired by France, was established on 21 August 1998 and promoted regional requirements and interoperability through the ASTERIX format. Radar data exchange with Saint Lucia became operational in January 2009, and the IRMA2000 visualisation programme subsequently equipped familiarisation sites across the arc.

2.2 Reactivation and the emergence of a regional capability in Trinidad and Tobago (2009–2015)

2.2.1 After a period of dormancy from 2004, several States — notably Barbados — called at E/CAR/WG31 (October 2009) for reactivation, having invested to meet expected standards. In parallel, the Trinidad and Tobago Civil Aviation Authority (TTCAA) matured a multi-sensor tracking capability able to assume a regional role. The model evolved from a single centralised server towards point-to-point exchanges and incremental implementation adapted to national capabilities, with fusion of surveillance sources into the Trinidad MRT and distribution over the E/CAR network.

2.3 Consolidation and the move to space-based surveillance (2015–present)

2.3.1 Trinidad and Tobago has progressively recovered surveillance data from France, Antigua and Barbuda, Barbados and others, consolidating sources into the MRT for redistribution across the E/CAR region. In June 2025, TTCAA contracted Aireon space-based ADS-B for the entire Piarco FIR, complementing SSR and ground-based ADS-B and extending surveillance into oceanic areas beyond radar reach — a decisive step for ATS and search-and-rescue, consistent with neighbouring ANSPs (NAV Portugal, ASECNA, COCESNA, Curaçao, DSNA/Cayenne) already using Aireon data.

3. Current ATS provision in the States of the Eastern Caribbean arc

3.1 A necessary first step is to take stock of the IRMA visualisation systems provided by France in 2015 that remain in active use across the arc, to confirm which units are still operational and to have each State formally confirm the type of ATS service it currently provides. This baseline is essential to the orderly planning of the regional transition described below. Three tiers of service coexist today, reflecting differing levels of infrastructure and the shared surveillance picture distributed through the E/CAR network:

Service tier	Providing States / Territories	Capability
Radar control	Barbados, Trinidad and Tobago, French Antilles (Martinique/Guadeloupe), Antigua and Barbuda	Direct vectoring, conflict detection and separation using composite radar / MLAT
Radar-assisted situational awareness (RASA)	Dominica, Grenada, Montserrat, Saint Kitts and Nevis, Saint Lucia, Saint Vincent and the Grenadines, Anguilla	Enhanced procedural control with shared-display radar monitoring (OECS RASA procedures)
Procedural control	All participating States (as fallback)	Traditional separation from flight-plan and position-report data; backup during outages or in non-surveillance areas

3.2 Residual gaps remain, notably Piarco VHF coverage limitations in low-altitude operations (below FL100) where Piarco assumes alerting services in TMAs declassified to Class G under contingency measures.

3.3 French ATM modernisation (SEAFLIGHT) and its regional impact

3.3.1 France is modernising its overseas ATM systems under the SEAFLIGHT project, which replaces the legacy IRMA (monitoring) and SIGMA (flight-plan) platforms with a single integrated solution built on the Aurora ATM system (ADACEL). SEAFLIGHT delivers a combined approach-and-tower environment with electronic flight strips, automated Martinique–Guadeloupe coordination and native AIDC capability is targeted. The system became operational in Martinique on 24 May 2025 — the first deployment of an integrated approach-and-tower electronic-stripping system in France — and is to be deployed next year in Guadeloupe.

3.3.2 This modernisation has a direct consequence for the region. The IRMA units distributed to E/CAR States rely on the legacy MAC LLC radar-data format, whereas the French MSSR and DACOTA MRT outputs now migrate to UDP/IP. IRMA is already withdrawn in Martinique (remaining temporarily in Guadeloupe), and from 2026 onward the MAC LLC standard will no longer be maintained by SNA-AG. States still operating IRMA in decommissioning will therefore progressively lose the ability to display French radar and DACOTA data for situational awareness unless they transition to UDP/IP-based exchange. A precise assessment of the impact on each affected State is required, together with a review and update of the 2018 TTCAA–SNA-AG radar-data Letter of Agreement to reflect the new technical environment.

3.3.3 Saint Lucia is likewise set to deploy its own ADACEL ATM system, comparable to SEAFLIGHT, signalling a broader regional convergence towards integrated, electronic-stripping ATM platforms and reinforcing the case for a coordinated modernisation pathway.

4. Interfaces and human machine interaction (HMI)

4.1 Analysis of the earlier Request for Information (RFI), whose vendor presentations and evaluation were completed on 24 October 2014 and to which SELEX, INDRA, COMSOFT and ADACEL

responded, identified three architectural approaches that remain the reference framework for equipping ATS units across the arc:

- Architecture 1 — Simple visualisation (IRMA2000-type): displays Trinidad MRT data, optional local radar/ADS-B integration, minimal processing.
- Architecture 2 — Remote/deported tower solution: a deported position of the Trinidad ATM system providing flight-plan data, interoperability, automatic activation and electronic flight-strip management.
- Architecture 3 — Complete ATM system: full architecture with advanced functionalities, interfaces, visualisation and MRT processing, comparable to overseas modernisation programmes.

4.2 Following the 2014 RFI, a formal Request for Proposal (RFP) was scheduled for the first quarter of 2016 with vendor selection expected in April 2016 (E/CAR/NTG/5–E/CAR/RD/3 timeline). That procurement was not ultimately carried through, which is why a renewed RFP is proposed below to reflect the technologies and standards now available (UDP/IP, ASTERIX, AIDC, ADS-B).

5. Key issues to be addressed

- Governance and sovereignty of shared surveillance data, and the legal arrangements (LOAs) underpinning distribution.
- Interoperability through consistent application of ASTERIX and AIDC standards;
- Sustainability and technical capacity of the smaller States, several of which renewed IRMA2000 requests in 2026;
- Balancing centralised fusion (~~Trinidad MRT, space-based ADS-B~~) with distributed national responsibilities;
- Absorbing forecast traffic growth while meeting ICAO environmental objectives through more direct, fuel-efficient trajectories enabled by continuous surveillance.

6. Conclusion and proposed way forward

6.1 The region has progressed from a single centralised vision to a resilient, layered surveillance architecture combining ground radar, ground-based ADS-B and, since 2025, space-based ADS-B across the entire Piarco FIR. This foundation now needs to be matched by a coordinated modernisation of ATM and display systems so that every State of the arc can access a service level commensurate with traffic demand and safety expectations.

6.2 France and Trinidad and Tobago, which have driven surveillance data sharing in the region for over twenty years, are well placed to remain the motive forces of this effort — France through its IRMA/DACOTA and SEAFLIGHT heritage, and Trinidad and Tobago through its MRT fusion capability, its Piarco ACC/RCC role and its space-based ADS-B leadership. It is proposed that the meeting consider launching, under the E/CAR/CATG framework and with ICAO NACC coordination, a competitive Request for Proposal (RFP) inviting industry to deliver scalable, interoperable ATM and display solutions — spanning the three architectures above — tailored to each State's chosen service level.

6.3 Anchored in open standards (ASTERIX, AIDC) and supported by the existing ECAR network, such a modernisation would safeguard regional interoperability, strengthen safety and search-and-

rescue, enable more environmentally efficient operations, and equip the Eastern Caribbean to manage its foreseeable traffic growth in a harmonised manner.

7. Action by the meeting

7.1 The meeting is invited to:

- a) note the historical development and current status of ATS surveillance data sharing in the Piarco FIR and the Caribbean arc;
- b) acknowledge the leading contribution of France and Trinidad and Tobago, and the introduction of space-based ADS-B as a regional capability for SAR purposes;
- c) endorse the principle of a coordinated ATM and display-systems modernisation, pursued through a competitive Request for Proposal under the E/CAR/CATG framework with ICAO NACC coordination;
- d) provide guidance on governance, interoperability standards and residual coverage gaps (e.g. Piarco low-altitude VHF), and take any other action as deemed appropriate.

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ANNEX

SURVEILLANCE DISPLAY / ATM STATUS AND ATS SERVICE BY STATE

Consolidated from E/CAR/CATG/9 — WP/11 (ANS Infrastructure, July 2025), the FWI ATM modernisation paper (E/CAR/CATG/10) and OECS RASA references. **To be confirmed by each State at the meeting.**

State / Territory	IRMA display / data format	ATM system	ATS service provided
Martinique (France)	IRMA withdrawn (2025); UDP/IP	SEAFLIGHT / Aurora (ADACEL), e-strips — operational 24 May 2025	Radar control
Guadeloupe (France)	IRMA in use (temporary); UDP/IP migration	SEAFLIGHT deployment planned	Radar control
Trinidad and Tobago	n/a — MRT host	MRT fusion + space-based ADS-B (Aireon, 2025); ADS-B being implemented	Radar control
Barbados	IRMA / MAC LLC	MLAT system	Radar control
Antigua and Barbuda	IRMA / MAC LLC (situational awareness)	ATM installed, not yet implemented; radar OFF	Radar control (per Annex 3) / RASA
Saint Lucia	IRMA / MAC LLC; new request 2026	ADACEL ATM (SEAFLIGHT-type) to be deployed	RASA
Dominica	IRMA / MAC LLC; new request 2026	None	RASA
Grenada	IRMA / MAC LLC (situational awareness)	ATM installed, not yet implemented	RASA
Saint Vincent and the Grenadines	IRMA / MAC LLC	None	RASA
Saint Kitts and Nevis	IRMA / MAC LLC	None	RASA
Montserrat	IRMA / MAC LLC	Project completed, awaiting commissioning	RASA

State / Territory	IRMA display / data format	ATM system	ATS service provided
Anguilla	IRMA / MAC LLC	None	RASA

Notes:

- IRMA / MAC LLC = legacy IRMA2000 visualisation relying on the MAC LLC radar-data format, no longer maintained by SNA-AG from 2026; affected States must plan migration to UDP/IP to continue displaying French MSSR and DACOTA data.
- RASA = Radar-Assisted Situational Awareness (OECS procedures): procedural control with shared-display radar monitoring. All States retain procedural control as fallback.
- Entries marked “to be confirmed” require validation by the State concerned; the table is provided as a working baseline for the E/CAR/CATG.