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North American, Central American and Caribbean Office

INFORMATION PAPER

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Mexico City, Mexico, 30 September to 04 October 2024

Agenda Item 4: Follow-up to the NACC/WG 2023-2024 work plan

AIRSPACE OPTIMIZATION INITIATIVES WITHIN THE PIARCO FIR

(Presented by Trinidad and Tobago)

EXECUTIVE SUMMARY	
This Information Paper provides an update from Trinidad and Tobago on the Airspace Optimization initiatives within the Piarco FIR.	
Strategic Objectives:	• Safety • Air Navigation Capacity and Efficiency • Economic Development of Air Transport • Environmental Protection
References:	• Third Meeting of the North American, Central American and Caribbean Working Group (NACC/WG) Airspace Optimization Task Force (AO/TF/3), Fifth Meeting of the NACC/WG Air Traffic Flow Management Implementation Task Force (ATFM/TF/5), and Seventh Meeting of the CANSO IATA ICAO Free Route Airspace (CIIFRA/7) Team (AO/TF/3/ATFM/TF/5/CIIFRA/7) (25-29 September 2023) • Eighth North American, Central American and Caribbean Working Group Meeting (NACC/WG/8) ICAO NACC Regional Office, Mexico City, Mexico, 29 August to 1 September 2023

1. Introduction

1.1 This information paper provides an update on the initiatives within the Piarco Flight Information Region (FIR) with regard to Airspace Optimization (AO).

2. Discussion

2.1 Collaborative Decision Making (CDM) with Eastern Caribbean (ECAR) States

2.1.1 Between 2022 – 2024, Trinidad and Tobago has conducted several briefings with the Eastern Caribbean (ECAR) States. These efforts are part of a larger initiative to optimize the lower airspace within the Piarco FIR and ensure smooth air traffic flow across the region. Trinidad and Tobago remains committed to offering additional briefings as needed to harmonize both the upper and lower airspace within the Piarco FIR, thereby improving Air Traffic Management (ATM) throughout the Eastern Caribbean (ECAR). Thus far, waypoints have been implemented with Barbados and Martinique facilitate CDOs and CCOs for transatlantic flights into these islands. A similar initiative had been agreed to with Guadeloupe and will come into effect in October of 2024.

2.2 New Waypoints at the TTZP/KZWY FIR Boundary

2.2.1 In July 2024, new waypoints were implemented along the common boundary between the Piarco FIR and the New York Oceanic FIR. These waypoints aim to improve routing precision and efficiency between the two FIRs, ensuring harmonized procedures and enhancing communication and coordination between the respective Air Traffic Services (ATS) units. The waypoints will also support ATS Inter-Facility Data Communication (AIDC) operations.

2.2.2 Trinidad and Tobago worked in collaboration with Delta Airlines (DAL) and United Airlines (UAL) to establish these waypoints along the Piarco and New York FIR boundary.

2.3 User Preferred Route (UPR)/Strategic Direct Routing (SDR) Update

2.3.1 The Oceanic Sector of the Piarco FIR allows for SDR operations from waypoint to waypoint. An AIC published in 2022 provided several UPRs for flights traversing through the continental sector of the Piarco FIR. SDR operations are allowed within the continental airspace based on prior coordination with airlines. Since the publication of the AIC in 2022, Trinidad and Tobago has approved waypoint-to-waypoint filing requests from major airlines operating in the Piarco FIR, including American Airlines (AAL), Caribbean Airlines (BWA), Delta Airlines (DAL), JetBlue Airways (JBU), GOL Airlines (GLO), LATAM Airlines (TAM), and United Airlines (UAL).

2.3.2 The full implementation of SDR in the continental sector has been delayed due to ongoing issues with the Very High Frequency (VHF) communication system. A project is currently underway to upgrade the VHF system, and on completion of this project, Trinidad and Tobago expects to allow:

- Unrestricted SDRs for overflights within the Piarco FIR,
- Waypoint to arrival fix* for flights landing within the Piarco FIR, and
- Departure fix* to waypoint for departing flights.

Note: * Requires collaboration with TMAs within the Piarco FIR.

2.4 Reduction of Lateral Separation in the Piarco Oceanic FIR

2.4.1 In 2015, a safety assessment determined that reducing lateral separation in the oceanic sector from one hundred (100) Nautical Mile (NM) to fifty (50) NM, using Controller-Pilot Data Link Communications (CPDLC), met the required Target Level of Safety (TLS). Following a recent ATM system upgrade, Trinidad and Tobago has resumed efforts to implement this reduction in lateral separation within the Piarco Oceanic Sector. CPDLC will facilitate effective communication between ATC and flight crews, with specific provisions in place to address convective weather, particularly during hurricane season.

2.4.2 The 2015 safety assessment was reviewed in 2024 and continues to meet the required TLS. Simulations and live traffic trials are scheduled for the last quarter of 2024, with full implementation expected by the end of the first quarter of 2025. This reduction in lateral separation is a significant advancement toward optimizing airspace utilization, increasing capacity, and enabling more efficient use of available airspace, potentially reducing flight distances and improving overall airspace efficiency.

2.5 Use of GNSS to reduce longitudinal separation

2.5.1 Currently, Trinidad and Tobago has agreements with Guyana to reduce the longitudinal separation to 40 NM for aircraft operating between the two FIRs. This has provided significant improvements to efficiency for flights operating between North and South America. Trinidad and Tobago is seeking collaboration with the following States in order to improve the efficiency gains from this initiative:

- Guyana - Discussions to reduce longitudinal separation from 40NM to 20NM with the use of GNSS,
- Venezuela - Discussions to utilize GNSS based separation to reduce longitudinal separation between eastbound and westbound flights,
- United States - Discussions to solve the issue which currently prevents the continuation of the application of 40NM longitudinal separation based on GNSS for flights proceeding from Piarco’s airspace into San Juan’s airspace.

2.6 Proposed trials to reduce longitudinal separation with New York ARTCC

2.6.1 After many delays due to system configurations, Piarco ACC and New York ARTCC have began live testing of AIDC. Trinidad and Tobago wishes to express its gratitude to the United States and in particular the management, technical staff and the ATCOs of New York ARTCC for their assistance and patience during this process. Concurrent with these tests is an amendment of the LOA between the two Units which will lead to improvements in safety and efficiency.

2.6.2 Additionally, Trinidad and Tobago is seeking to engage in further discussions with New York ARTCC to utilize the surveillance and automated technologies of both units to develop a trial that may reduce the current transfer of longitudinal separation between the units from 80NM to 30NM for aircraft so equipped.

3. Conclusion

3.1 Trinidad and Tobago will continue its initiatives geared towards AO; with the goal of enhancing safety, increasing capacity, and improving operational efficiency for all current and future airspace users. Ongoing efforts will also focus on the collaboration with all adjacent ATSUs to maintain a smooth traffic flow in both the upper and lower airspace of the region.

3.2 Although some Airspace Optimization initiatives may be accomplished by amendments to ATM procedures (example LOAs, MOUs, training etc.); more significant initiatives require CNS investments and subject matter expertise on automated ATM system performance. While some States may have internal expertise, e.g. software designers; many States have to rely on information from third parties. While automated systems may theoretically have the capability to perform certain functions, if those modules or configurations are not included in the original RFP, there may be additional costs to acquire them.

4. Suggested Actions

4.1 The meeting is invited to note the content of the paper and discuss any relevant matters as appropriate.

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