PIARCO FIR PBN AIRSPACE REDESIGN CONCEPT
2015-2020

Workshop on Regional Implementation on PBN Airspace Redesign for the CAR Region
Mexico City, Mexico, 4 to 8 May 2015
This is all of the 750,000 sq. miles of airspace where Piarco provides Air Navigation Services excluding the Terminal Airspaces (TMA’s)
PRESENT PIARCO FIR LIMITATIONS

PIARCO CONTINENTAL AIRSPACE

- ATS ROUTES ARE NAVAID CENTRIC
- CONGESTION AT THE PIARCO/SYGC FIR BOUNDARY AND AT VORs
- INEFFICIENT ATS ROUTING SYSTEM
- ENROUTE AND ARRIVAL/DEPARTURE PATHS ARE COINCIDENT
- NO SIDs AND STARs IN TBPB, TAPA, TGPY, TVSV, TLPL, TTPP & TTCP

PIARCO OCEANIC SECTOR

- NO SURVEILLANCE – FLIGHT PLAN TRACKS (FPTS) HAVE TO BE GENERATED FOR FLIGHTS ENTERING THIS AIRSPACE.
- THIRD PARTY HF COMMUNICATION (HF COMMUNICATIONS VIA NEW YORK ARINC CAUSES A TIME LAPSE BETWEEN PILOT/CONTROLLER COMMUNICATIONS (5 MINUTES OR MORE).
- LACK OF HARMONIZATION WITH ADJACENT FIRs.

PIARCO APPROACH AIRSPACE

- ALL ROUTES CONVERGE OVERHEAD POS VOR.
- HIGH CONTROLLER WORKLOAD DURING BUSY PERIODS DUE TO LACK OF CCOs AND CDOs.
- AIRCRAFT VECTORED UNTO FINAL APPROACH.
- DEPARTING AIRCRAFT VECTORED TO JOIN ENROUTE AIRWAYS.

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MAJOR CONGESTION POINT
PRESENT PIARCO EOS

CURRENTLY 100NM LATERAL SEPARATION

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PRESENT PIARCO APPROACH

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PBN Implementation Tasks

Developing/modifying an airspace concept
Electronic DATA collection /analysis /distribution
Collaboration with stakeholders
Developing/modifying regulatory framework
Conducting cost benefit analyses
Conducting safety assessments
Developing/conducting training in PBN matters
Piarco FIR Airspace Concept

Piarco FIR Continental Sector
RNAV 5 routes – more direct, less route spacing, increased capacity

Piarco Oceanic Sector
Currently 100 NM Separation
RNAV 10 application – 50 NM
Use of CPDLC & ADSC – 30 NM
User Preferred Routing
Reduced CCOs and CDOs

Piarco Terminal Area (APP)
Connecting Upper RNAV route with all TMAs within ECAR Region

Congested, inefficient, high controller workload

Connecting Upper RNAV route with all TMAs within ECAR Region
### Piarco FIR PBN Airspace Re-Design Concept

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<td><strong>Piarco Oceanic</strong></td>
<td>RNAV 10 (ADS-C/CPDLC)</td>
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<td>RNP 4 (ADS-C/CPDLC)</td>
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<tr>
<td><strong>Piarco Continental</strong></td>
<td>RNAV 5 Upper Routes (SSR/ADS-B/MLAT)</td>
<td>Arrival/Departure Routes to Join SIDs/STARs in TAPA/TBPN/NOTYS/ITR/ITT/TLP/TMA</td>
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<td><strong>Piarco TMA</strong></td>
<td>RNAV 1 &amp; RNAV 2 SIDs/STARs</td>
<td>RNP APCH CCOs/CDOs</td>
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REDESIGN OF PIARCO FIR

PIARCO CONTINENTAL AIRSPACE

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REDESIGN PIARCO CONTINENTAL AIRSPACE

OVERFLIGHTS

- RNAV 5 Routes within Piarco Continental Airspace. This will assist in air traffic congestion at the TTZP/SYGC FIR boundary. The separation will be 30NM lateral spacing.

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Workshop on Regional Implementation on PBN Airspace Redesign for the CAR Region
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THE REDESIGN OF THE PIARCO OCEANIC AIRSPACE TO ACCOMMODATE FLIGHTS UTILIZING RNAV 10 SEPARATION STANDARD (50NM LATERAL SEPARATION)

RNAV 10 will enable a reduction from 100nm to 50nm lateral separation (short term)

Longitudinal separation shall be:
Fifteen (15) minutes, or
The application of Mach number technique based on time. (ICAO DOC 4444 Section 5.4.2.4).

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THE REDESIGN OF THE PIARCO OCEANIC AIRSPACE TO ACCOMMODATE FLIGHTS UTILIZING RNP 4 SEPARATION STANDARD (30NM LATERAL/LONGITUDINAL) AND ADS-C /CPDLC

RNP 4 WILL ENABLE A REDUCTION FROM 50NM TO 30NM LATERAL SEPARATION and 30NM LONGITUDINAL SEPARATION MINIMA

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REDESIGN OF PIARCO TERMINAL AIRSPACE

**Improvements with new Piarco TMA Concept:**

- Routes re-structured.
- SIDs and STARs implemented utilizing RNAV 1 and RNAV 2 RNP APCH BARO VNAV.
- CDOs and CCOs facilitated.
- TMA size reduced.

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OVERALL OBJECTIVES OF THE PIARCO FIR PBN AIRSPACE REDESIGN

- Improve aviation operational safety.
- Improve operational benefits.
- Improve airspace and airport capacity.
- Promote Greener operations in all phases of flight.
- Achieve harmonization with global standards.
GRACIAS POR SU ATENCIÓN

THANK YOU FOR YOUR ATTENTION