International Civil Aviation Organization
Regional Planning and Implementation Group CAR/SAM (GREPECAS)
EIGHTEENTH MEETING OF THE REGIONAL PLANNING AND IMPLEMENTATION GROUP CAR/SAM (GREPECAS/18)
Punta Cana, Dominican Republic, April 9th to 14th, 2018

Agenda Item 4: **Regional air navigation planning and implementation performance framework: Review of programmes and projects**

4.1 Projects under the PBN Programme (B0-APTA, B0-FRTO, B0-CDO and B0-CCO)

State of implementation of PBN in the Dominican Republic

(Presented by the Dominican Republic)

SUMMARY

The objetive of this note is to inform GREPECAS about the PBN implementarion status of the Air Navigation Service provider in the Dominican Republic.

References:

- Annex 4 Aeronautical Charts
- Doc. 9613 PBN Manual
- Doc.8168 Vol.2 Pans-Ops
- Doc.9750 Global Air Navigation Plan
- Doc.9931 CDO Manual
- Doc.9993 Manual CCO

1. Introduction

1.1 The Dominican Institute of Civil Aviation (IDAC), through the Air Navigation Directorate (DINA), entity in charge of providing Air Navigation Services for the Santo Domingo Flight Information Region, summarizes our experience in the implementation of the PBN concept, aware that the PBN concept represents the present and future of air navigation worldwide, whose objective is to optimize the capacity of its airspaces under the modality of navigation based on performance.

1.2 The Dominican Republic does not escape this reality, we are currently among the leading countries in the region, with 100% implementation in PBN instrument approach procedures with lateral guidance (LNAV) to all the tracks in the eight (8) international airports in our country and we are in the process of redesigning our airspace within a PBN context, creating new routes, realigning existing routes and eliminating inefficient routes.

1.3 We have also restructured our terminal control areas, allowing a more flexible and dynamic use for the interaction of aircraft to and from the different airports operating in our country.

2. Discussion

2.1 The Dominican Republic is a State committed to the implementation of the rules issued by the International Civil Aviation Organization (ICAO) and the resulting agreements of its task forces.

2.2 In this sense, we have undertaken to implement a systemic and harmonious transformation in line with regional air navigation agreements to move from conventional routes and procedures based on terrestrial equipment and radio aids to a system of routes and procedures based on performance (PBN).

2.3 At the beginning of our transition, we began implementing RNAV airways with separation corresponding to the Remote-Oceanic Airspace (RNAV-10), 50 NM of lateral separation between their axes, after a period of maturity, in 2016 we changed the specifications of PBN airways already established from RNAV-10 to RNAV-5 corresponding to the continental airspace, for having an efficient system of ATS surveillance services, in compliance with what is established in document 9613 Vol. 2 of ICAO.

2.4 With the old RNAV 10 specification we could not design new routes, since it implied a requirement of 50 NM lateral separation for a relatively small space like that of the Santo Domingo FIR, in addition to not adapting to our airspace because it is a specification intended for oceanic and remote areas, where there are no radio-aids or surveillance services within 200 NM.

2.5 Once the specification of RNAV-10 to RNAV-5 was changed, we were able to implement 8 new RNAV Routes in coordination with other States of the region

- UL468 (Mostly Flow To-From USA-ARUBA)
- UL221 (Mostly Flow To-From Panama-San Juan)
- UT14 (Mostly flow to-From Panama and Peru- Punta Cana)
- UL342 (Mostly flow to-From Colombia and Peru-Punta Cana)
- UL349 (Mostly Flow To-From Jamaica and Mexico- Eastern Caribbean)
- UL577 (Mostly Flow To-From Haiti-Eastern Caribbean)
- UL216 (Mostly Flow To-From US-Brazil)
- UL339 (Mostly Flow To-From USA and Canada-Curacao)

2.6 We designed PBN procedures for lanes 01-19 at Joaquin Balaguer airport (MDJB) and lanes 12-30 at Maria Montez airport, Barahona (MDBH), completing with those 2 airports a 100% implementation status of approach procedures by PBN instruments in all our international airports, effective from November 10, 2016.

2.7 In the case of Barahona (MDBH), it is still an Airport that is maintained with little flow of operations, so the expected benefits will be verified in the long term, however, in the case of Joaquin Balaguier (MDJB), with the new ones RNAV procedures are providing more direct access to the terminal, lower fuel consumption, reduced CO2 emission and avoiding delays caused by weather conditions.

2.8 We redesigned the Arrivals and Departures procedures standardized by Instrument in the airports of Las Americas (MDSD), Puerto Plata (MDPP) and Punta Cana (MDPC) providing with them, greater benefit for users to guarantee operations with Ascent and continuous descent, (CCO and CDO). According to a study carried out by IATA, an aircraft with similar performance to the A320 / B737 consumes about 10 kilos of fuel per minute while it is in continuous climb / descent, while the same aircraft report a consumption close to 40 kilos of fuel when they must be constantly leveled in the ascending or descending processes.

2.9 We redesigned the three terminal control areas of our country with the aim of covering the international airports with the highest flow and guaranteeing an effective influx.

3. The benefits achieved with our implementation, are shown in the comparative table in the Appendix.

4. Suggested action

4.1 The meeting is invited to:

a) Take note of the provided information.
b) Consider the lessons learned in this information paper.
c) Any other action deemed necessary

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APPENDIX

CONVENTIONAL ROUTE	FLYING DISTANCE (NM)	NEW RNAV ROUTE	NEW DISTANCE FLOWN	DIFFERENCE DIST. (NM)	AVG. MONTHLY OPERATIONS BY ROUTE (Year 2017)	AVG. DIST. MONTHLY SAVINGS (NM)
PIGBI-UA315-VESKA-UA315-DUSAN-UA567-ARUBA (ABA)	326	PIGBI-UL468-ARUBA (ABA)	318 NM	8	446	**3,568**
VESKA-UM525-MELLA-UG633-JOSHE-TJSJ	322	VESKA-UL221-TJSJ	309 NM	13	128	**1,664**
PALAS-UA319-CDO-W6-PNA	235	PALAS-UT14-PNA	224 NM	11	353	**3,883**
VESKA-UM525-ILAMO-PNA	214	KARUM-UL342-PNA	164 NM	50	195	**9,750**
DCR-UB250-LECKY-UG633-CDO-UG633-MELLA	216	DCR-UL349-SATOE	209 NM	7	83	**581**
ANTEX-UB520-CDO-UB520-LECKY-UG633-ETBOD	228	ANTEX-UL577-ETBOD	221 NM	7	47	**329**
POKAK-A554 -CDO-A554-SEKAR	294	POKAK-UL216-LERED	285 NM	9	12	**108**
KARUM-UG446 CDO-UA554-SEKAR	281	KARUM-UL339-SEKAR	275 NM	6	4	**24**
Notes:						
More than 95% of the aircraft that used these routes are Category D within RVSM Airspace.						
All aircraft were in ATS Surveillance environment						

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