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**Twelfth North American, Central American and Caribbean Directors of Civil Aviation Meeting (NACC/DCA/12)**
Placencia, Stann Creek District, Belize, 9-11 July 2024

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**Agenda Item 5:**        **Toward More Effective Implementation Support**

**PROGRESS IMPLEMENTATION OF RNP-AR PROCEDURES DEVELOPED BY COCESNA
FOR MHLM AND MHPR AIRPORTS.**
(Presented by Belize, Costa Rica, El Salvador, Guatemala, Honduras and Nicaragua)

| EXECUTIVE SUMMARY | |
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| The present information note details the procedures optimization pilot project for the international airports of Honduras, which includes the implementation of RNP-AR Approaches developed by COCESNA and to be published by the state. | |
| **Action:** | • The meeting is invited to take note of the information presented.<br>• Promote and support this type of initiatives that directly impacts the efficiency of operations.<br>• Support and strengthen processes aimed at developing capacity in State personnel for the design of procedures (example of the FPP project) |
| *Strategic Objectives:* | • Safety<br>• Air Navigation Capacity and Efficiency<br>• Security & Facilitation<br>• Economic Development of Air Transport<br>• Environmental Protection |
| *References:* | • ICAO Doc. 9613 Performance Based Navigation (PBN) Manual.<br>• ICAO Doc. 8168 Procedures for Air Navigation Services Aircraft Operation Volume II - Construction of visual and instrument flight procedures.<br>• ICAO Doc 9905 Required Navigation Performance Authorization Required (RNP AR) Procedures Design Manual . |

## 1.  Introduction

1.1 The Required Navigation Performance Authorization Required (RNP AR) Procedures Design Manual , Doc 9905, notes that RNP AR procedures offer significant operational and safety advantages over other area navigation (RNAV) procedures.

1.2 This is accomplished by including navigation accuracy, integrity and additional functional capabilities that allow operations with obstacle clearance tolerances, making it possible to implement approach and departure procedures in situations where other types of procedures would not be feasible or operationally satisfactory.

1.3 The procedures implemented in accordance with the manual allow taking advantage of high quality managed vertical navigation (VNAV) and lateral navigation (LNAV) capabilities, leading to improvements in safety and a reduction in the risk of ground impact without loss of control (CFIT).

## 2. Development

2.1 In the Central American region, there has been a lack of specialists trained in the design of RNP-AR approach procedures. The current procedures that comply with this specification have been developed by external companies, which in turn implies that they have not been subject to periodic review and improvement.

2.2 In 2023, the Central American Institute for Aeronautical Training (ICCAE) trained the first group of Central American PANSOPS specialists in the design of RNP-AR procedures. Therefore, it is imperative to take advantage of these new capabilities immediately to improve air operations in the region. This initiative represents a significant step forward in building a solid base of knowledge and technical skills that are essential to ensure safety and efficiency in Central American airspace. The training of local specialists in this area will allow greater autonomy and control over the design and implementation of approach procedures, which will contribute to raising standards of quality and efficiency in the region.

## 3. Action Taken

3.1 As part of a pilot plan, COCESNA has begun to study the implementation of RNP-AR approaches at Ramon Villeda Morales (La Mesa) and Palmerola airports in Honduras. Runway 04 at La Mesa has lacked instrument-based approach procedures due to the risk associated with the high terrain of the Merendon mountain range.

3.2 In the case of Palmerola Airport, the adoption of RNP-AR procedures would allow a reduction in the distance flown during arrivals and final approaches, resulting in substantial savings in miles flown.

3.3 The following are estimated values that illustrate the potential benefits of this project:

    a.  With 365 annual flights from Houston, Palmerola could save 4,515 miles flown, saving 33.7 tons of fuel and reducing 106 tons of $CO_2$ emissions.

    b.  The 1,460 annual flights from Florida to Palmerola could experience a savings of 32,178 miles flown, saving 240 tons of fuel and preventing the emission of 755 tons of $CO_2$.

    c.  Daily flights from El Salvador and Panama to Palmerola would also see a decrease in distance flown by approximately 13 miles in each operation to Runway 17, generating significant savings throughout the year.

    d.  In addition to the reduction of $CO_2$ emissions, the fuel savings derived from the implementation of RNP-AR procedures would contribute to avoid the release of other pollutants such as nitrogen oxide and sulphur, which have negative environmental impacts.

3.4 The introduction of RNP-AR procedures would not only increase operational safety, but also generate considerable savings in fuel consumption and a reduction in $CO_2$ emissions and other environmental pollutants released into the atmosphere during air operations.

**4. Request for Action**

    a)  The meeting is invited to take note of the information presented

    b)  Promote and support this type of initiatives that directly impacts the efficiency of operations.

    c)  Support and strengthen processes aimed at developing capacity in State personnel for the design of procedures (example of the FPP project)

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