



ICAO

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North American, Central American and Caribbean Office

WORKING PAPER

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Twenty-sixth Directors of Civil Aviation of the Eastern Caribbean Meeting (E/CAR/DCA/26)  
New Orleans, United States, 1 - 3 December 2015

- Agenda Item 6: Air Navigation Matters**
- 6.3 Implementation of Air Navigation under the NAM/CAR Regional Performance Based Air Navigation Implementation Plan (RPBANIP)**
- 6.3.1 Follow-up to North American, Central American and Caribbean Working Group (NACC/WG) and North American, Central American and Caribbean Air Navigation Implementation Working Group (NAM/CAR ANI/WG)**

**OPTIMIZATION AND HARMONIZATION OF THE LONGITUDINAL SEPARATION MINIMA IN THE CAR/SAM FIR'S BOUNDARIES**

(Presented by IATA)

<b>SUMMARY</b>	
This working paper presents a proposal for establishing a concrete goal for Optimization and harmonization of the Longitudinal Separation Minima in the CAR/SAM FIR's boundaries, using the current ATC systems and infrastructure.	
<b>References:</b> <ul style="list-style-type: none"><li>- ANI/WG/2</li><li>- SAMIG/15 Meeting Report</li><li>- AN &amp; FS/2</li></ul>	
<b>ICAO Strategic Objectives:</b>	<i>Safety Environmental Protection and Sustainable Development of Air Transport</i>

**1. Introduction**

1.1 The longitudinal separation minima has normally a domino effect on the flight operations, due to the need of coordination between ACCs responsible by ATS in neighboring FIRs. In this sense, it is important to establish a close coordination between CAR and SAM Region, with objective of avoiding the mentioned domino effect.

1.2 In this sense, the following conclusions and goals achieved by Second NAM/CAR Air Navigation Implementation Working Group Meeting (ANI/WG/2) should be considered, in order to achieve a better coordination between CAR and SAM Regions:

4.1.2.17 The Meeting agreed that this matter deserves high priority and that under ICAO Document 4444, paragraph 5.4.2.3.3.1, longitudinal separation of 20 NM may be applicable under the specified condition. The meeting recommended that the issue can be dealt through bilateral discussions under the guidance of the ATM Regional Officer of the ICAO NACC Office.

4.1.2.18 it was informed that, during the SAM/CAR ATFM workshop held in Panama City, Panama, 25-29 May 2015, the participants proposed to reduce the ATC separation 40 NM by December 2016, 20 NM by December 2017 and 10 NM by December 2018.

1.3 In the same direction, the SAMIG/15 Meeting considered that the Optimization of longitudinal separation could be gradual and that it was advisable that this optimization be applied regionally to increase airspace efficiency and capacity.

## 2. Discussion

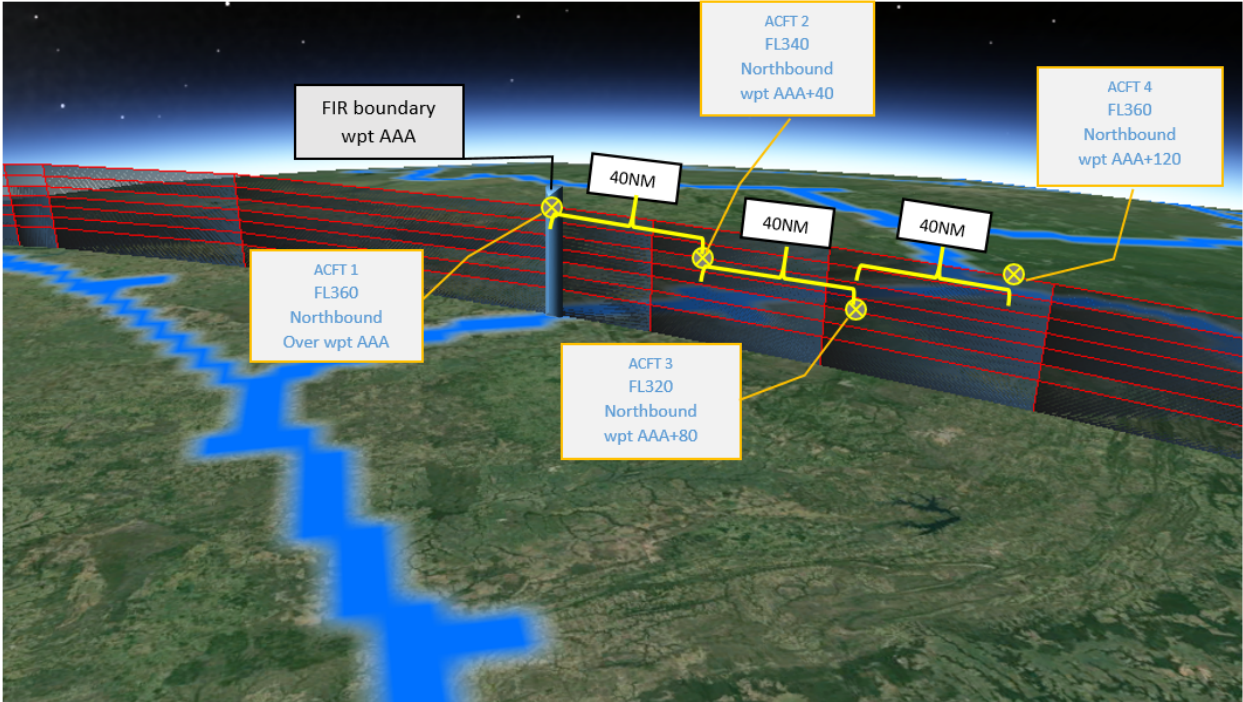
2.1 IATA would like to reinforce his position about the need of optimizing the Longitudinal Separation as an important tool for flight efficiency.

2.2 The importance of the Longitudinal Separation Optimization is reflected in the table below, provided by an IATA Airline Member, where the loss due to the use of a non-preferred flight level can be verified:

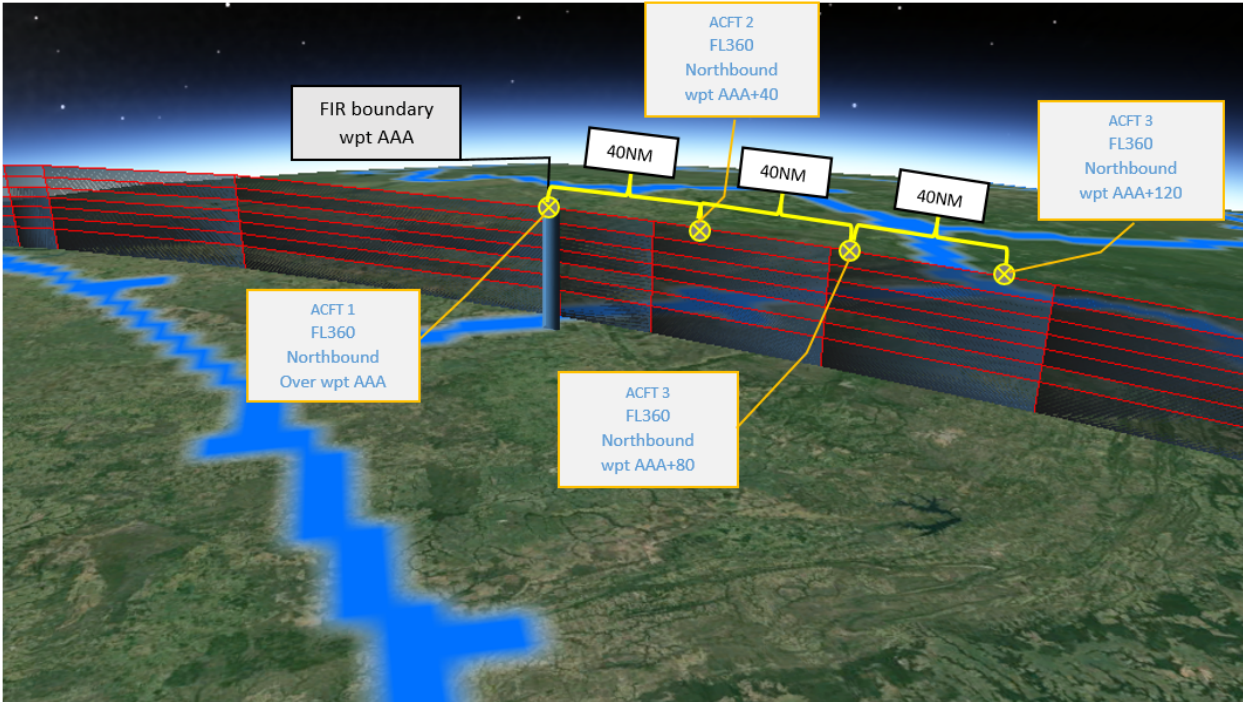
FL Difference	B767-300ER	B767-400ER	B777-200ER	B777-200ER PW	B787-8 GENX	B757-200W	B737-700
1000 FT	0.9 kg/minute	0.1 kg/minute	0.1 kg/minute	1.1 kg/minute	0.2 kg/minute	0.5 kg/minute	0.3 kg/minute
2000 FT	2.2 kg/minute	0.9 kg/minute	1.6 kg/minute	2.8 kg/minute	0.8 kg/minute	1.4 kg/minute	0.8 kg/minute
3000 FT	3.8 kg/minute	2.2 kg/minute	3.7 kg/minute	5.1 kg/minute	2.0 kg/minute	2.6 kg/minute	1.4 kg/minute
4000 FT	5.7 kg/minute	4.0 kg/minute	6.1 kg/minute	7.7 kg/minute	3.3 kg/minute	3.9 kg/minute	2.3 kg/minute

2.3 The proposed longitudinal separation optimization will not increase the traffic per ATC sectors. The airlines will not change their itineraries due to the application of a lower separation. The same amount of flights that the ATC sector are handling today, will be handled post implementation, but with a more efficient longitudinal separation that will increase the possibility of the crews to climb to a more optimum flight level. The graphics bellow show the expected present and future situations:

TODAY'S SITUATION (VERTICAL ENROUTE RESTRICTIONS)



IMPROVED SITUATION (OPTIMUM VERTICAL PROFILE FOR ENROUTE)



2.4 It's important to observe that the implementation of separation of 40 NM is quite simple, considering that:

- a) 20 NM Conventional separation minima based on the application of GNSS is already established in Doc. 4444 and its safety has already been proved by the Panel on Separation and Airspace Safety (SASP).
- b) The proposed separation of 40 NM is twice the minimum required under Doc. 4444.
- c) The implementation of this proposal would need to provide the following information (briefing) to the ATCOs:
  - The new separation minima;
  - The corresponding phraseology; and
  - The application of the new letters of agreement.
- d) The effectiveness of the new separation would be done by small changes in the current operational agreement letters, replacing the current 80 NM Longitudinal separation by 40 NM.

2.5 The 20 NM longitudinal separation minima should be the next phase of implementation, taking into account that the 40 NM separation would be applied "only" for the ATCOs adaptation, in order to allow application of 20 NM separation minima in the near future, as contained in Doc. 4444. Thus, the transition from separation to 40 NM 20 NM separation could be made within a period of 1 year and may be already established in the same letter of agreement signed for a change from 80 NM separation minima to 40 NM. Although it's not a specific requirement of Doc. 4444, taking into consideration that 20 NM is a conventional separation, it's important to observe that a significant portion of the separation of 20 NM will be held in airspace with radar coverage.

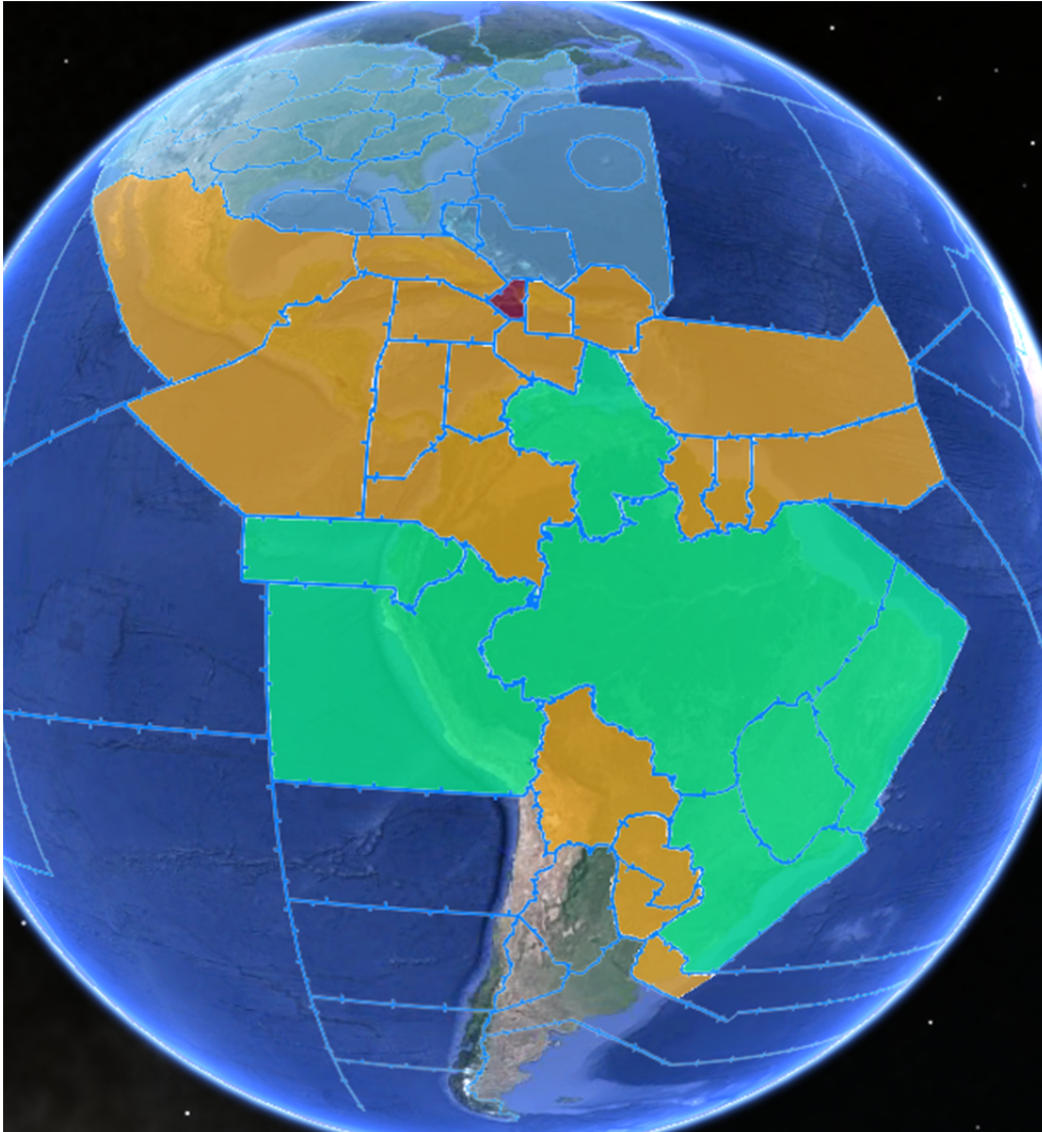
2.6 Taking into consideration the existing radar coverage in the CAR/SAM Region and the projects on expansion of this coverage, it is natural the evolution for the separation of 10 NM, with a view of a better use of existing CNS infrastructure.

2.7 The present impact of the 80 NM separation minima currently applied in the CAR/SAM FIR boundaries is equivalent to the absence of radar coverage to the international flights.

2.8 It is essential that CAR and SAM States establish a comprehensive Action Plan, beginning with the optimization to 40 NM, but also includes the separation of 20 NM and 10 NM. Thus, it is expected that the percentage of states with corresponding optimizations separation evolve over a period of approximately one year between implementations.

2.9 It is important to observe that there are states with some VHF communications coverage deficiencies in the FIR remote areas. In these cases, it is possible to optimize the longitudinal separation to 40nm only in the ATS Routes with appropriate VHF coverage.

2.10 Currently almost all CAR/SAM Regions agreed formally and informally to optimize the separation minima in the FIR's boundaries. The figure bellow indicated the status of these agreements.



- **Green:** FIRs/ANSPs (Peru Brazil, Ecuador, Venezuela) that have already signed a new LOA with 40NM and/or are in process for it.
- **Red:** Red: FIRs/ANSPs (Haiti/Port Au Prince FIR) that had no response.
- **Orange:** FIRs/ANSPs that were contacted and that informed to have not operational issue to optimize the longitudinal separation and update their LOAs with 40NM but that still need to coordinate an updated LOA.

### 3. **Suggested action**

3.1 The Meeting is invited to:

- a) Take note of the information provided in this working paper;
- b) Establish goals and States commitment to optimize the Longitudinal Separation in CAR Region.

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