



ICAO

International Civil Aviation Organization
North American, Central American and Caribbean Office

WORKING PAPER

CIIFRA/05— WP/02
28/07/22

5th Meeting of the CIIFRA Team (CIIFRA-T/05)
Miami, United States, and on-line 2 to 4 August 2022

Agenda Item 6: IATA/Airline discussion

USE OF POINT MERGE CONCEPT

(Presented by IATA)

EXECUTIVE SUMMARY	
IATA proposes a discussion regarding the need of a deeper analysis to implement the best option of airspace planning and procedure design for a particular air traffic volume/complexity/terrain scenario, as well as a commitment to a harmonized ATFM solution in the region to realize the benefits of the airspace and PBN improvement efforts.	
Action:	Under paragraph 3.
Strategic Objectives:	<ul style="list-style-type: none">• Air Navigation Capacity and Efficiency
References:	ICAO Doc 9992 - Manual on the Use of Performance-based Navigation (PBN) in Airspace Design

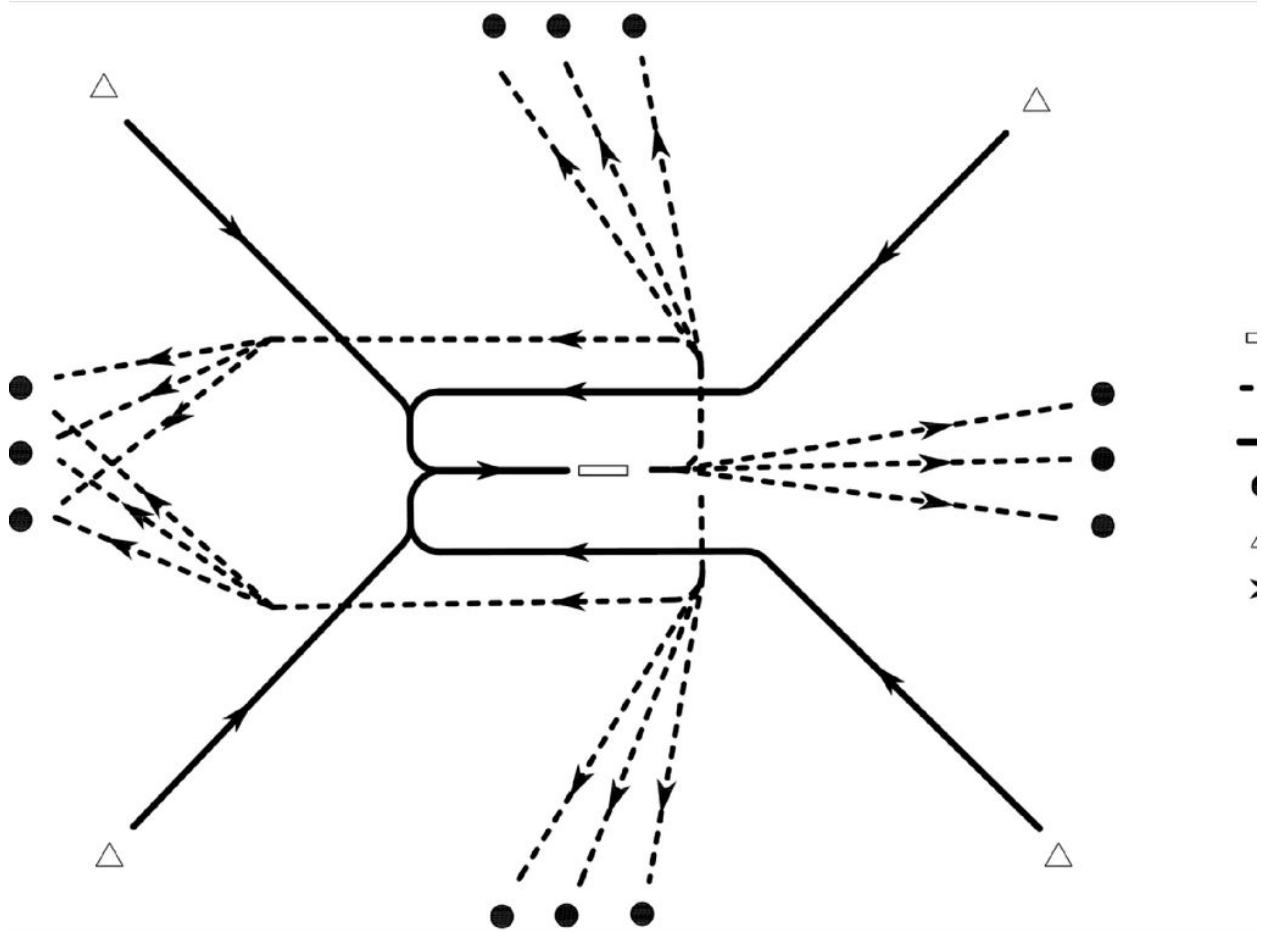
1. Introduction

1.1 In recent years, the Point Merge STAR procedures have become one of the primary solutions to optimize terminal airspace in the Caribbean and South America regions. One of the expected benefits of point merge procedures was to reduce excessive vectors in sequencing arrivals and to reduce airborne holding.

2. Discussion

2.1 IATA has analyzed the application of the point merge implementation and noted the airspace redesign and implementation of STAR procedures lack connectivity with a robust ATFM plan. The expected benefits of reduced vectors and airborne holding has only been applied in less than moderate traffic volume situations. During periods of higher than moderate traffic volumes, excessive vectoring and airborne holding have resulted. Benefits gained through continuous descent, with enroute enhancements from DCT, UPR, and FRA efforts are negated in these high-volume periods; and confusion and or increased workload is unnecessarily placed on the pilots with constant re-issuance of clearances.

2.3 Regarding the airspace planning, it important to note that the application of point merge requires a larger amount of airspace in comparison, for example, with 4 corner concept applied in several airport in US (See figure below). The extra portion of airspace required for point merge implementation prevents the optimization of the airspace, taking into consideration that longer trajectories for arrivals and departures are necessary.



2.4 Point merge concept also requires a crossing point between arrivals and departures at a greater distance from the airport, preventing an optimal relationship between arrival and departure gradients. See figure below.

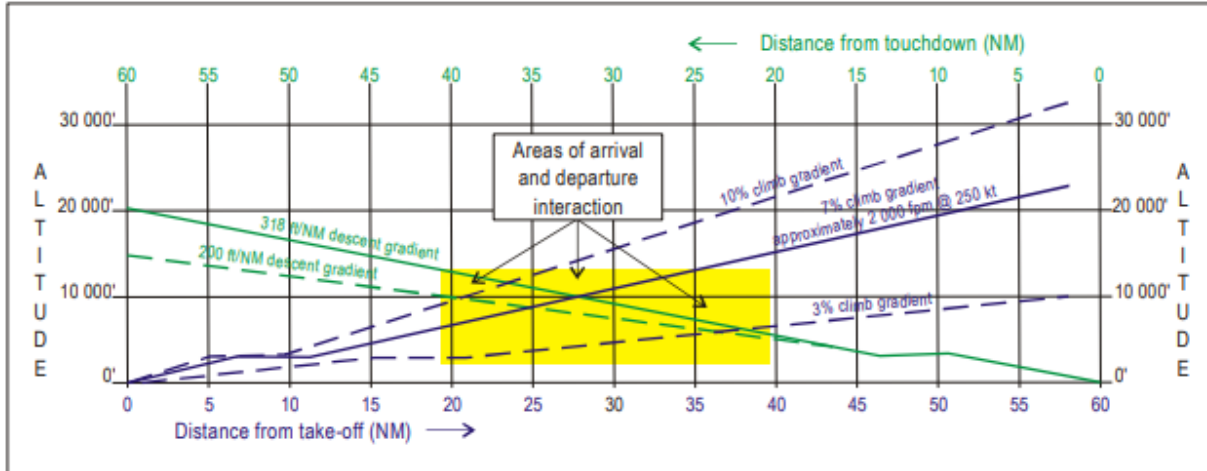


Figure 2-12. Vertical interaction

2.5 A combination of 4 corner concept and the implementation of an Airport Efficiency Program (refers to WP XX), allows for the application of reduced aircraft separation standards and, in consequence, optimum arrival acceptance rates, managed by a robust ATFM Plan, typically represents the best solution for Airlines, ANSPs and Airports.

2.6 The main impacts on the aircraft operators by the application of point merge are:

- a. excessive fuel expenditure;
- b. increase CO2 emissions;
- c. ineffective fuel planning; and
- d. unpredicted on time performance leading to degradation of network connectivity.

3. Action by the Meeting

3.1 The Meeting is invited to:

- a) consider a deeper analysis to implement the best option of airspace planning and procedure design for a particular air traffic volume/complexity/terrain scenario; and
- b) commit to a harmonized ATFM solution in the region or at least to the major airports in the region to realize the benefits of the airspace and PBN improvement efforts.