International Civil Aviation Organization
CAR/SAM Regional Planning and Implementation Group (GREPECAS)

WORKING PAPER

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Fourth GREPECAS–RASG-PA Joint Meeting and Twenty-second Meeting of the CAR/SAM Regional Planning and Implementation Group (GREPECAS/22)

Virtual Phase (Asynchronous, 16 September to 11 October 2024)
In-Person Phase (Lima, Peru, 20 to 22 November 2024)

Agenda Item 5: CAR/SAM Air Navigation Services (ANS) Implementation

5.4 Aeronautical Information Management (AIM)

FF-ICE DEVELOPMENT IN BRAZIL

(Presented by Brazil)

EXECUTIVE SUMMARY

This paper presents the past and ongoing actions to enable the implementation in Brazil of the FF-ICE concept, which is an important enabler of TBO implementation. The Global Air Traffic Management Operational Concept – Doc 9854 sets the vision for the development of the future ATM system. To achieve the vision established in GATMOC, it will be necessary to implement several concepts, including Flight and Flow Information for a Collaborative Environment (FF-ICE), System Wide Information Management (SWIM) and Trajectory-Based Operations (TBO). It is essential to highlight the need to assess the importance of preparing a Regional Plan to achieve interoperability and harmonization in the CAR/SAM Region airspaces, considering each state's needs and resources.

Action:	a) Know about the actions undertaken by Brazil to enable the country to implement the FF-ICE concept. b) Discuss the importance of establishing a Regional Implementation Plan of the FF-ICE concept in the future.
Strategic Objectives:	• Safety • Air Navigation Capacity and Efficiency • Environmental Protection
References:	• Doc 9854 The Global Air Traffic Management Operational Concept • Doc 9883 Manual on Global Performance of the Air Navigation System • Doc 9965 Manual on Flight and Flow — Information for a Collaborative Environment

1. Introduction

1.1 The Global Air Traffic Management (ATM) Operational Concept (GATMOC, Doc 9854) presents the vision of the future ATM system at a high level. The FF-ICE is a crucial enabler for

implementing GATMOC and TBO and was developed to address the limitations and constraints of FPL2012 and the increasing need for the exchange of flight and flow information in a TBO environment.

1.2 The principles of FF-ICE include allowing for an early indication of intent, incorporating information for a more automated CDM, avoiding unnecessary limitations on information, supporting management by trajectory, ensuring information is machine-readable, assuring that definitions of information elements are globally standardized, among other aspects.

1.3 The transition to FF-ICE is a collaborative effort, considering the replacement of the current flight planning system with one that allows the exchange of globally standardized messages related to FPL. This transition is expected to occur simultaneously, with the possibility of certain States or Regions acting cooperatively to make the transition together. During this transition phase, both the present FPL and the FF-ICE will be accommodated for a certain period.

1.4 The FF-ICE implementation brings immediate benefits, addressing the limitations and constraints of the current flight planning mechanism. In the long term, it paves the way for a fully collaborative environment where flight trajectories can be shared and optimized during all phases of flight.

1.5 Brazil has been undertaking several actions and plans to enable the implementation of the FF-ICE concept, as will be described in the next section.

1.6 It is essential to highlight that the implementation of the FF-ICE concept by the States of the CAR/SAM Region should be harmonized, and creating a Regional Plan could help achieve this goal.

2. Discussion

2.1 In 2019, the Department of Airspace Control (DECEA), Brazil's regulatory body for airspace control activities, held the first Tabletop Exercise, referring to FF-ICE Release 1. Before the implementation of the Tabletop Exercise (TTEx), the FF-ICE concept was disseminated to the country's Air Navigation Professionals, clarifying the FF-ICE environment, components and benefits.

2.2 Furthermore, DECEA presented the FF-ICE components along with considerations in the implementation process, a description of the services, and information exchange models. Additionally, the concepts of TBO, SWIM, and GUFI were disseminated, highlighting the importance of FF-ICE as an enabler for TBO.

2.3 Brazil's Tabletop Exercise results were presented at the Fortieth Meeting of the ATMRPP in 2020 through Working Paper ATMRPP/4-WP/891.

2.4 In this exercise, eight scenarios were designed to focus on the primary FF-ICE/R1 services and raise discussion among participants. Additionally, questions were distributed to the participants to encourage discussions and obtain a perception of the threads, enablers, and elements related to FF-ICE in the ASBU and the benefits of using the services in Brazil.

2.5 No revisions were requested to the FF-ICE provisions and guidance material, and all participants agreed with the needs and benefits of all the FF-ICE/R1 services. However, the experts considered a timeframe of at least ten years from 2020 as a target, which was considered an appropriate time to update the systems in Brazil and implement any adaptation needed to FF-ICE/R1 in the Brazilian Airspace Control System.

2.6 In 2023, DECEA presented Woking Paper SAM/IG/29-WP/5.1 at the Twenty-Ninth Workshop/Meeting of the SAM Implementation Group to disseminate the concepts of FF-ICE, TBO and others throughout the SAM Region, and reported on the proposals developed by ANC to amend the Annexes, Procedures for Air Navigation Services (PANS) and guidance material, with an applicability date in the coming years, and technical and operational validations of these proposals and the concept itself underway in other Regions. In the same year, Brazil also provided an online briefing concerning the TTEx conduction for South America States.

2.7 DECEA is developing the Guidelines and the Implementation Plan for Brazil's FF-ICE concept. This document intends to include the expected implementation of the mandatory services provided for in FF-ICE/Release 1 and, initially, a few of the mandatory services revised for FF-ICE/Release 2.

2.8 In addition, DECEA started an analysis of the systems currently used for processing flight plans and performing air traffic management to identify requirements for implementing the FF-ICE concept, which will be defined in the implementation plan under development.

2.9 Finally, DECEA is preparing the Concept of Operations (CONOPS) and the technical requirements for the Brazilian system and intends to conduct a Tabletop Exercise of FF-ICE Release 2 next year, share the results to any interested ANSP and present the results to ATMRPP.

3. Conclusions

3.1 Brazil supported the AN-Conf/14-WP/11 - Cessation of ICAO 2012 flight plan by 2034, presented by Secretariat, ICAO, in the 14th Air Navigation Conference.

3.2 In order to reap the full benefits of FF-ICE services and to step closer towards the GATMOC vision, Brazil is planning to implement some of the services from FF-ICE Releases 1 and 2 as soon as possible in accordance with the ICAO provisions for the cessation of FPL2012.

3.3 Considering the FF-ICE was part of 14th Air Navigation Conference Agenda, the cessation of FPL 2012 by 2034 and based on the results of TTEx already conducted in some States it is important that CAR/SAM Regions develop national implementation plans and analyse the feasibility of a Regional Implementation Timeframe for better experience of its benefits.

4. Suggested actions

4.1 The Meeting is invited to agree on the following recommendation:

That States:

a) Engage, considering its own each countries necessity and priorities, on the several actions undertaken by Brazil to enable the country on the FF-ICE implementation concept; and

b) Discuss the feasibility of establishing a Regional Implementation Timeframe of the FF-ICE.

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