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International Civil Aviation Organization
South American Regional Office

FIRST WORKSHOP/MEETING OF THE SAM IMPLEMENTATION GROUP (SAM/IG/1)
REGIONAL PROJECT RLA/06/901

Lima, Peru, 21 to 25 April 2008

Agenda Item 1: **Optimization of the ATS route structure in terminal and en-route airspace and implementation of performance-based navigation (PBN) in the SAM Region**.

OPTIMIZATION OF THE ATS ROUTE NETWORK IN THE SAM REGION

(Presented by the Secretariat)

Summary

This working paper contains information on the implementation of RNAV routes in the CAR/SAM Regions, which was carried out by the AP/ATM meetings sponsored by Project RLA/98/003, and proposes that efforts be continued to optimize the ATS route structure in terminal (SID/STAR RNAV) and en-route (RNAV) airspace, in keeping with Result 1.1 of Immediate Objective N° 1 of Project RLA/06/901.

References:

- Project RLA/98/003
- Project RLA/06/901

1 Background

1.1 As the meeting already knows, Project RLA/98/003, through its support to the meetings of ATM authorities and planners (AP/ATM), enabled the revision and implementation of new RNAV routes proposed by the States, Territories, International Organizations, and IATA at such meetings, with a view to modifying the RNAV route network as necessary in order to contribute to the reduction of some paths and thus achieve a compatible transition from the en-route flight phase to the terminal control area (TMA).

1.2 As a result of the work carried out at the aforementioned meetings, 69 RNAV routes have been implemented, 72 have been modified, and 13 have been eliminated. Accordingly, the ICAO Council has approved the respective amendments to the CAR/SAM ANP Route Network.

1.3 Likewise, various situations have been identified based on follow-up and assessment activities, *inter alia*:

a) Some routes have not met the expectations in terms of their use by operators, despite the fact they insisted on their implementation.

b) It was noted that, although properly implemented, some routes were being scarcely used, the operators preferring to use less direct ATS routes, which resulted in higher operational costs and, in some cases, reduced airspace capacity and flexibility;

c) A large number of RNAV routes have not yet been linked through the SID and STAR procedures established at the TMAs, making flight and ATC system operation more difficult;

d) Airspace complexity is more related to air traffic flow than to airspace design *per se*. Therefore, in some cases, low-traffic routes could be maintained provided the corresponding operational benefits are achieved.

2 Discussion

Optimization of the ATS route network in the SAM Region

2.1 The optimization of the ATS route structure in terminal (SID/STAR RNAV) and en-route (RNAV) airspace, as well as the implementation of RNP approaches, are associated with **Result 1.1 of Immediate Objective N° 1 of Project RLA/06/901**, Implementation of performance-based navigation (PBN). Within the framework of this optimization, the ATS route network will continue to be improved, and, if applicable, conventional routes that are not used by airspace users will be phased out and replaced by RNAV routes. Likewise, the States must review their respective national RNAV route implementation programmes to make them compatible with the RNAV implementation programme of the SAM Region, defining actual implementation requirements, analyzing the possible impact that the implementation would have on the airspace, aircraft fleet, and in the provision of air traffic services, and to establish the relevant coordination activities that will permit an integrated, harmonious, and timely implementation of more direct RNAV routes.

2.2 Within this process, and in coordination with the military authorities, policies will be established on the use of temporarily or permanently restricted airspaces or special use airspaces, taking into account the need to avoid, inasmuch as possible, the adoption of airspace restrictions, especially those of a permanent nature, thus enabling a flexible use of airspace (FUA) and, consequently, optimized airspace management in the Region, while reducing the operational costs for airspace users.

2.3 This implementation will benefit the environment and the operational efficiency, reducing fuel consumption, using preferred flight paths, increasing airspace capacity, using state-of-the-art technologies (*e.i.,* FMS-based arrivals) and ATC decision-support tools (*e.i.,* separation and sequencing), increasing aerodrome capacity and efficiency, improving aerodrome safety, and preserving the environment.

3 **Suggested action**

3.1 The meeting is invited to:

a) Take note of the information provided in this working paper;

b) Continue reviewing, implementing, modifying and eliminating routes in the SAM Region in order to optimize the ATS route structure.

c) Continue analyzing the drafting of a national RNAV route implementation programme that is consistent with the CAR/SAM RNAV implementation programme, and which defines actual implementation requirements, analyzes the impact that the implementation would have on the airspace, the aircraft fleet, and the provision of air traffic services, and establishes the relevant coordination activities to enable an integrated, harmonious, and timely implementation of more direct RNAV routes.

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