



International Civil Aviation Organization

CAR/SAM REGIONAL PLANNING AND IMPLEMENTATION GROUP (GREPECAS)

**Eleventh Meeting of the GREPECAS Aeronautical Information Management Subgroup (AIM/SG/11)**

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**Agenda item 4: Review of the Implementation Process.**

**4.3 Action proposal for the endorsement and application of the e-AIP in preparation of the implementation of the AIXM**

(Presented by the Secretariat)

**SUMMARY**

This working paper presents an action proposal to the CAR/SAM Region States regarding the implementation of the e-AIP and its future relation with the AIXM.

**References**

- Annex 4 – Aeronautical Charts
- Doc. 9855, AN/459 – Guidelines on the use of the Public Internet for Aeronautical Applications.
- AIXM - Version 5.0
- AIM Strategy Vol. I Ed. 4.0. EUROCONTROL (Only in English)

**1. Introduction**

1.1 The work of the technical requirements (SARPs) related to the electronic presentation of AIP information and ICAO's aeronautical charts is still being prepared by an expert group at ICAO's Headquarters. It is estimated to finalize this SARPs work and guidance material between 2010 and 2013.

1.2 Due to its complexity and range, States will have to take actions to establish an initial development platform based on the agreements that previously were adopted by the AIM Subgroup and GREPECAS.

1.3 It is important to remember that ICAO Annex 4, Chapter 20, quotes that the electronic presentation of aeronautical charts is related with Annex 6 requirements, allowing flight crews to execute on a convenient and timely manner the planning tasks, as well as route observation and navigation tasks through the electronic presentation of aeronautical charts of the information required for this purposes, and that it would have the capacity to continuously determine the aircraft position on a dynamic way in which the surrounding area where they are flying would automatically be generated.

## 2. Discussion

2.1 New standards and recommendations are needed for the Annexes 4 and 15, as well as the associated guidance material to provide the conceptual Exchange models of aeronautical standardized information that will allow Worldwide Exchange data in a digital format, just as it was recommended by the AIS World Congress. There are some examples like AICM and AIXM developed by EUROCONTROL and the United States, which have been widely used for the information Exchange. However, the need to review the models documentation should be considered in order of guaranteeing its implementation in a global use context. As a complement, together with AGA field, a review of similar aerodrome charts exchange models (AMXM) should be included and integrated to the AIM process.

2.2 On the other hand, there is a need to create a mechanism that allows States to continually update in an organized way the models based on the global evolution they go through. Annexes 4 and 15 and the associated guide material should be improved to support the new digital information requirements and for an adequate presentation of the aeronautical information to the final user through the e-AIP and electronic charts. These requirements will be developed taking into account the new “**data centric**” concept in the new AIM services as an essential aspect, even though the services and the AIS traditional concept are kept the same during the transition process. The quality, consistency, and availability of the data have to keep an acceptable level, and in the case of the AIM digital format, these should substantially exceed the actual level.

2.3 During GREPECAS 14<sup>th</sup> Meeting, it was indicated that for the planning and study of the aeronautical electronic charts, new criteria and SARPs for the Annexes 4, 6 and 15 would be necessary. The meeting highlighted that it is essential that the AIM specialists in the CAR/SAM States were instructed in all the issues related with electronic aeronautical charts.

2.4 Regarding the electronic AIP, it would be important to remember the AIS automation concept and its evolution due that in recent meetings this concept has not been subject of enough consideration. The discussions focus, most of the times, on the availability of the aeronautical information/data, geographic and geodesic of high quality and integrity in digital format to conceive the electronic aeronautical charts, than in the properly concept treatment of an electronic AIP. However, to date, the hardware/software technologies and the ITC (Information Technology and Communications) have substantially modified the original idea. Now the global tendency is towards the SWIM (System Wide Information Management) which involves the most developed on aeronautical information concept on an electronic format.

2.5 The electronic AIP information display, as well as aeronautical charts implies the handling of related specialized and complex data base, but without an electronic display concept of AIP information, like the web page, cabin displays or the air traffic control systems, each one with their specifications and requirements. It is considered that in the market there are different types of tools that efficiently supports this kind of technical requirements, but the sufficient experience for their application have not been acquired yet, nevertheless the great advantages this technology is offering in the aeronautical field.

2.6 It is important to say that the data base might be directly incorporated to the Geographical Information System (GIS) which allowed integrate information hard to associate in any other means, like satellite images of emergent data analyzed and processed to produce charts or digital information to be applied in the international civil aviation. GIS represents a useful tool able to capture, to store, analyze, exhibit and represent in digital way information and identified data according to its geographical position.

2.7 A coordinated preparation of an AIP document in digital format (electronic), allows a direct interaction with all technical elements and providers that contributes to the aeronautical primary information/data creation which incorporate digital terrain models that relate with global positioning system or with air transit control systems.

### 3. Considerations

3.1 The Meeting should identified that technical requirements to satisfy the electronic display of AIP information and aeronautical charts are of global range, starting in a first stage of a coordinated integration of high reliable guarantee regional systems. In the second stage, the implementation of concrete specifications of an AIMX aeronautical information interchange model.

3.2 It is necessary to count on with guidelines and/or specifications for the use of available systems in the market, for an appropriate provision, storage, access and maintenance of required aeronautical data. ICAO HQs continues with the development of technical requirements for Annexes 4 (ICAO chart symbols) and 15 regarding the aeronautical digital information/data management for international civil aviation through electronic means directed to the e-AIP development. According to this, States will incorporate the tools and technological support that aeronautical industry has already used, like Jeppesen and Honeywell, among others.

### 4. Suggested action

4.1 Regarding the need to adopt actions designed to promote the implementation of digital systems in the CAR/SAM Regions, allowing the electronic presentation of aeronautical information (e-AIP) and aeronautical charts (e-MAP), as well as the need to incorporate an aeronautical information interchange model in the Aeronautical Information Services, the Meeting is invited to adopt the following actions:

#### **DRAFT**

#### **CONCLUSION 11/X-**

#### **ACTIONS BY STATES FOR THE INTRODUCTION OF THE e-AIP DIRECTED TO AIXM**

That, considering the evolution towards the management concept of aeronautical information through electronic means States/Territories and International Organizations of CAR/SAM Regions are invited to:

- a) Implement the automated support in AIM areas (AIS), for the electronic presentation of AIP information and Aeronautical charts;
- b) Provide training to AIM (AIS) personnel in the digital systems use and in the AIXM interchange model; and
- c) Implement necessary actions to assure and manage the operational requirements for the common inter-operable data management, essential and critical, through electronic means in preparation of an e-AIP and present a report of the developments of the ICAO Regional Offices at the end of November 2009