



**ASSEMBLY — 37th SESSION**

**TECHNICAL COMMISSION**

**Item 39: Transition from Aeronautical Information Services (AIS) to Aeronautical Information Management (AIM)**

**STRATEGIC PLAN FOR AERONAUTICAL INFORMATION MANAGEMENT (AIM)**

(Presented by Colombia)

**EXECUTIVE SUMMARY**

The aim of this working paper is to assist the 37th Assembly in determining the importance of implementing transition from AIS to AIM and, in this document, we set out a Strategic Plan for Aeronautical Information Management (AIM) to enable the establishment of a directive aimed at achieving that objective, which is likely to be of most benefit to civil aviation users.

**Action:** The Assembly is invited to consider the Strategic Plan for Aeronautical Information Management (AIM) and initiate the transition from AIS to AIM, which must be supported by ICAO Regional Offices.

Strategic Objectives:	This working paper is related to Strategic Objective E.
Financial Impact:	Operational costs generated must be financed by Member States.
References:	Doc 8126, <i>Aeronautical Information Services Manual</i> Annex 15 — <i>Aeronautical Information</i> Doc 9750, <i>Global Air Navigation Plan</i> Doc 9854, <i>Global Air Traffic Management Operational Concept Roadmap for Transition from AIS to AIM</i>

**1. INTRODUCTION**

1.1 The regional plans for transition to communications, navigation, and surveillance/air traffic management (CNS/ATM) clearly define how information in ATM is automatically exchanged through a massive, accurate, and secure aeronautical database which is updated in real time and which supports the entire air navigation service. Implicit to this new form of presentation, distribution, and exchange of aeronautical information will be a tangible and profound change to all the AIS/MAP for the Region.

1.2 The introduction of computerized air/ground systems and confidence in the accuracy, availability, security, and quality of aeronautical information is shaping new and important requirements in relation to AIS/MAP service provision.

1.3 This strategy for gradual introduction of aeronautical information management (AIM) in the region has been developed with the aim of identifying the important requirements and components of a capable and adequate aeronautical information management system, to satisfy the demands of CNS/ATM navigation, establishing stages for gradual achievement of compliance from 2008 until 2015, including its development, human resources and investment planning.

## 2. ANALYSIS

### 2.1 Current limitations

2.1.1 Integrated aeronautical information service (AIS) documentation is a complete product. Permanent “static” information is consulted in the AIP/Colombia and “dynamic” changes may be included, during a pertinent period of time, and distributed via NOTAMs and supplements.

2.1.2 Although the NOTAM format does offer a degree of information filtering according to individual requirements, the extraction of information incorporated in an integrated data package entails considerable manual selection. In the future, the “product unit” must allow individual data items to be made available, through highly automated means, so that users may extract them in any combination, to retrieve specific information.

2.1.3 Short-term changes are delivered to users through NOTAMs. These do not permit the transfer of lengthy information or of graphics, due to regulatory restrictions and limitations of application, flexibility and message size. Consequently, lengthy information notices or graphics are distributed through printed Supplements to AIP/Colombia. In spite of the ongoing introduction of computerized processing of aeronautical information, such as the NOTAM databases, there are transaction points in the production and use of integrated aeronautical information packages that require various forms of manual action.

2.1.4 Improvement of data quality together with computerized systems is vital to ensure that the requirements for integrity of aeronautical information are satisfied.

## 3. AIM TRANSITION STRATEGY

### 3.1 Scope

3.1.1 This document and its implementation will involve all areas of AIS/MAP, such as AIS publications, the NOTAM Office and AIS dependencies of AD and aeronautical cartography, in addition to the indirect involvement of other dependencies related to AIS such as ATS dependencies in general and air navigation services top-level management.

### 3.2 Strategic actions

3.2.1 **Maintain and improve an implemented and certified Quality Management System in the AIS/MAP Service.** This AIM strategy anticipates that levels of integrity of critical, essential, and ordinary flight data will be assured, as established in RAC 15, which requires the implementation and

certification of a total quality management system; currently such a system has been implemented and will soon be certified.

**3.2.2 Plan and develop an electronic AIP/Colombia.** The transition to an electronic AIP/Colombia must be planned and achieved within an appropriate period of time, although the replacement must replicate the current format, with periodic updates made to the aeronautical information thereafter. We currently have a tool which generates AIP/Colombia and amendments to AIP/Colombia and are shortly to acquire the component to generate the electronic AIP.

**3.2.3 Review the present concept of NOTAM, in view of the fact that AIM will give automatic access to the databases.** The future of NOTAM needs to be considered as the current format does not permit the exchange of digital data and the time for publication and distribution of NOTAMs does not currently satisfy the need for immediacy of information that is required from AIM. With the new system, data processing within the published document itself will be permitted as will updating in real time. We are currently implementing a NOTAM/operational meteorological (OPMET) database tool to computerize the preparation of NOTAMs.

**3.2.4 Study, plan, and manage the availability of ground and obstacle data in digital format, as well as electronic aeronautical maps and cartographical databases.** Ground and vertical obstacle data must be available and must support all flight phases, especially the landing phase and post-flight phase, as, according to ICAO recommendations, the sole publication concerning obstacles close to the runway that we have today is not sufficient to meet the growing needs of the industry.

**3.2.5 Define the scope, nature, and methods for presenting aeronautical information taking into account modifications and new requirements.** Modified presentation methods include consideration of how aeronautical maps might be incorporated in digital data alongside textual information. Advances in hardware, software, and telecommunications have provided tools that increase the speed and accuracy of input, output, and delivery of geospatial data. The growing use of graphics to present data should be noted. Virtually all onboard information will be supported electronically, with graphic display monitors. A new and important aspect will be the computerized exchange of aeronautical information in-flight and the specifications necessary to develop this. Geographic information systems (GIS) and spatial databases provide the basis for these activities with the associated benefits of accuracy, reliability, up to date data, and quality systems.

**3.2.6 Diversify and expand the means of access to aeronautical information auto-briefing.** Access to aeronautical information is achieved principally from the AIS/COM dependencies, with a package of aeronautical information in printed, digital, and electronic format for each flight, which does not benefit flexibility of access to information nor does it permit real time updates to that information. Flight crew must be offered options such as creating auto-briefing stations at airports which would allow access in situ to information during any flight phase.

**3.2.7 Plan and carry out training for AIM transition in parallel with training for the traditional AIS service, while both co-exist.** Implement training in the aeronautical studies centre, migrating AIS training to AIM.

**3.2.8 Promote the granting of licenses to AIS personnel and carry out and apply a study of requirements for hiring new personnel.** The evolution from AIS to AIM will take place over a period of time with current and future styles of work, operations, and procedures existing in parallel, until future personnel are involved in the provision of detailed, daily information in a traditional way. In the coming years, the AIS/MAP will need to undertake training of existing personnel and adopt the new skills

requirements that must be taken into account when hiring new personnel. The AIM profile project must be developed to supply trained personnel and must apply this methodology to future skills hiring requirements. Therefore, Quality Assurance work will be carried out and specialization in the traditional AIM service will continue while both systems operate in parallel. In addition, planning of training for the introduction and transition to AIM, the Study and application of new requirements for hiring AIS/MAP personnel, and the Promotion of licenses or other formal means of assessment and approval of AIS personnel, will also be undertaken.

**3.2.9 Set up an appropriate structure for the AIS/MAP Service in the AIM environment and plan links with other specialist areas within the ATM.** The change of mindset and working methods which those involved in the AIM service will need to undertake must be studied, planned, and executed gradually and in a way that ensures the transition is carried out harmoniously and effectively, including the period in which AIS and AIM coexist in parallel.

**3.2.10 Identify and resolve legal and financial issues concerning original, exchanged, and operations data.** Problems will need to be resolved, such as legal (ownership of information, control, and aspects concerning obligations in an information sharing environment); Institutional (regulatory aspects concerning shared information); Business (information in relation to cost and its related benefits, cost of recovery, and financial results in general); Organizational (regulatory mechanisms, documents, and responsibilities of all persons handling the information).

**3.2.11 Undertake extended development of AIXM and AICM for the adoption of a worldwide global database.** The aeronautical information will be obtained from many sources and will be maintained in a network of dispersed global databases. The development of databases and other aeronautical information systems requires a uniform model of aeronautical information. A preliminary version of an aeronautical information conceptual model (AICM) already exists and subsequently, an aeronautical information exchange model (AIXM) was produced; both of these are necessary to have information available in any database, regardless of structure or language, and to enable communication with other databases.

**3.2.12 Identify the need to amend ICAO SARPs, such as the requirement to achieve the objectives, and drive them through the ICAO machinery.** The specification, maintenance, and gradual fine tuning of AICM/AIXM models is critical for transition from AIS to AIM and it is vital that efforts be made to achieve adoption by ICAO of a common data exchange model. The work must also take into account the additional identified information categories that are required to serve the future ATM system.

**3.2.13 Plan harmonization of civil and military branches.** Flexible use of the air space concept requires the availability of aeronautical information for all air space users and the use of common and compatible data exchange systems. Military aspects will continue to be subject to state sovereignty, but actions must be defined to ensure interoperability between both user types and automatic systems.

## 4. CONCLUSION

4.1 We recommend that the General Assembly study this paper, with the aim of earning its approval and that a works timetable be drawn up for achieving the transition from AIS to AIM as part of the global air navigation plan.