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- Agenda Item 3: Review of Planning Aspects and the Transition towards AIM**
3.1 Review of the implementation status in the CAR/SAM Regions on AIS/MAP actions adopted by the Eleventh Air Navigation Conference and the new AIM concept.

IMMEDIATE AIS ACTIONS TO INCORPORATE THE ATM GLOBAL OPERATIONAL CONCEPT

(Presented by the Secretariat)

SUMMARY

This working paper presents an overview of the AIM concept regarding the control of the origin, storage, retrieval, exchange and submission of digital Aeronautical information (AI) in the context of gate to gate flight operations, from a strategic flight-planning phase until a post-flight phase that may be transmitted to the GREPECAS/14 meeting..

References:

- 11th Air Navigation Conference
- Global AIS Congress and Exhibition – Madrid, Spain, 17-29 June 2006

1. Introduction

1.1 AIM is a facilitator concept in the future development of Collaborative Decision Making (CDM) with tools that will make it available and relevant in an aeronautical information-based context to all participants of Air Traffic Management (ATM).

1.2 AIM is an element of the future Air Traffic Management/Communications, Navigation, Surveillance (ATM/CNS) systems with an architecture of global objectives including a global information architecture and introducing the System-Wide Information Management (SWIM) concept, currently used with efficiency in Europe.

1.3 The AIM concept will support the interaction of aeronautical information, used by the current AIS/MAP, meteorological information (MET), military information (MIL) and Air Traffic Flow Management (ATFM).

2. Technical Infrastructure for AIM

2.1 AIM does not constitute a physical system; however, this does not imply the implementation of a single centralized database, but rather a “system of systems,” based on several components of databases of interconnected networks, i.e., European AIS Database (EAD).

2.2 AIM differs from the current AIS mainly with regard to the wide coverage of aeronautical information by the AIM. AIM recognises the need to evolve from the slow distribution of the printed amendment to providing and managing digital aeronautical information. AIM also extends itself to all phases of flight, whereas AIS is mainly focused on the pre-flight phase. Finally, AIM will be based on totally digital and inter-operable data processes, as opposed to current AIS which is, in the best of cases, semi-automated and handles mainly paper-based products. This implies a series of transition points where aeronautical information integrity is potentially exposed to error and the importance of the information is lost; the same information is entered manually or omitted a number of times in obsolete systems.

2.3 The temporality, precision and integrity of aeronautical information needs to transition to AIM now, as the current AIS does not meet navigation systems requirements anymore, especially those with RNAV/RNP. Moreover, in many States the current ATM system is no longer based on isolated information such as civil and military AIS, MET, ATFM, among others. AIM will ensure the unity and integrity of aeronautical information along the ATM/CNS systems.

2.4 Migrating from AIS to AIM will require the development of a group of inter-related aspects with regard to AIM including information architecture (data dictionaries, interface definitions, exchange protocols, access hierarchies, etc.), including safety, security, business and human resources cases, new SARPs and regulation.

2.5 In summary, AIM is a new function of ATM/CNS incorporating the vision of aeronautical information, which will ensure quality, integrity and timeliness through the use of digital inter-operable systems that will enable a dynamic context based on the reception and delivery of aeronautical information and data.

2.6 Several CNS/ATM concepts were posed again at the 11th Air Navigation Conference (AN-Conf/11) with the aim of implementing new satellite-based air navigation systems which are focused on being developed as per the “Global ATM Operational Concept.” Moreover, this working paper presents the conclusions and recommendations of the Global AIS event held in Madrid, as well as aspects of the 11th Air Navigation Conference, in order for the Subgroup to determine their urgent application in aeronautical information services.

3. Definition of the Global ATM Operational Concept

3.1 The global ATM operational concept offers a framework that would allow unifying the planning processes of States in the Regions at a global scale. The following recommendation of the Conference contains the primary guidelines that will serve as a basis for future work of the AIS/MAP Subgroup concerning AIM.

Recommendation 1/1 — Endorsement of the Global ATM Operational Concept

That:

- a) *ICAO, States and planning and implementation regional groups (PIRGs), consider the Global ATM Operational Concept as the common global framework to guide planning for implementation of ATM systems and to focus all ATM development work;*
- b) *the Global ATM Operational Concept be used as guidance for development of ICAO CNS/ATM related provisions;*
- c) *States with the support of the other members of the ATM community undertake work to validate the seven components in the Global ATM Operational Concept;*
- d) *ICAO, States and PIRGs develop transition strategies for implementation of ATM systems based on the Global ATM Operational Concept; and*
- e) *ICAO align its technical work programme to facilitate future work related to the Global ATM Operational Concept.*

3.2 The ATM operational concept defines its components as airspace organization and management, aerodrome operations, demand and capacity balancing, traffic synchronization, conflict management, airspace user operations and ATM services provider management, wherein the necessary services for the operation of the foregoing concept is the proper management, usage and transmission of data and information in order to increase operational efficiency and improve levels of safety.

3.3 The States of different regions cannot immediately transit to the ATM system described in this concept, being that the operational concept includes details or intermediate and consecutive steps towards a foreseen plan and evolutionary process within the ICAO framework, in order to ensure as much as possible that solutions are internationally harmonized and integrated into the ATM system.

4. Discussion

Information Services

4.1 The Conference used criteria focused with a general information services perspective as it was pointed out that the information services function corresponds to the exchange and management of information used by the different services and processes, and is expected to ensure the cohesion and links between the elements of the concept.

4.2 Note should be taken that for ICAO the Air Traffic Management Global Operational Management Concept, in the context of 11th Air Navigation Conference, includes an integrated, harmonized and globally inter-functional ATM system, where planning goes beyond year 2025. AIM is found within planning of the integrated, harmonized and inter-functional concept as an essential part.

4.3 In accordance with what was expressed in paragraph 1.2.2.24 of the report of the AN-Conf/11, it is necessary to consider AIM requirements along with the different inter-relationships and dependencies of the ATM concept which were updated and expanded during the Global AIS Congress in Madrid that specifically addressed the transition from AIS to AIM.

<u>AIM</u>	<p>Within the subjects of the AN-Conf/11, the subjects regarding:</p> <ul style="list-style-type: none"> • facilitating concepts to support the Global ATM Operational Concept; • role and duties of the Global Air Navigation Plan for CNS/ATM Systems; • greater data integrity for RNAV operations and GNSS-based operations.
	correspond to Aeronautical information Management (AIM).

4.4 When finalizing the discussion of the aforementioned subjects, the AN-Conf/11 agreed to adopt three recommendations explaining the objectives of AIM within the Global ATM Operational Concept, which is included in the **Appendix** to this working paper.

5 Suggested Action

5.1 The Meeting is invited to:

- a) note the contents of this working paper;
- b) have the Secretariat of the Subgroup keep the members and the CAR/SAM AIS/MAP community informed by e-mail on the actions taken by the ICAO Council with regard to the recommendations of the AN-Conf/11 concerning AIM; and
- c) adopt the following Draft Decision:

**DRAFT
DECISION 10/X TRANSITION TO AIM PLAN TASK FORCE**

The AIS/MAP Subgroup activates the Transition to AIM Plan Task Force, whose Terms of Reference and Work Programme will include developing necessary tasks and creating a plan for the transition to the AIM concept in the CAR/SAM Regions linked to the activities of the ATM Global Operational Concept, to be submitted to the Secretariat by **15 November 2007**.

APPENDIX

RECOMMENDATIONS OF THE 11th AIR NAVIGATION CONFERENCE RELATED TO AIM

Recommendation 1/8 — Global aeronautical information management and data exchange model

That ICAO:

- a) *when developing ATM requirements, define corresponding requirements for safe and efficient global aeronautical information management that would support a digital, real-time, accredited and secure aeronautical information environment;*
- b) *urgently adopt a common aeronautical information exchange model, taking into account operational systems or concepts of data interchange, including specifically, AICM/AIXM, and their mutual interoperabilities; and*
- c) *develop, as a matter of urgency, new specifications for Annexes 4 and 15 that would govern provision, electronic storage, on-line access to and maintenance of aeronautical information and charts.*

Recommendation 1/14 — Development of an ICAO air navigation plan database and associated Web-based information and charting service

That ICAO develop and maintain a database containing all tabular material from all the regional air navigation plans, both Basic Operational Requirements and Planning Criteria (BORPC) and the Facilities and Services Implementation Document (FASID), together with the major traffic flows and other regional data from Part II of the Global Air Navigation Plan for CNS/ATM Systems (Doc 9750), and make this database and associated charts available through the Web.

Recommendation 6/16 — Completion of guidance material on application of data quality SARPs in Annex 15

That ICAO give high priority to the completion of guidance material for the data quality assurance including the data processing from origination to end-use.

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