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WORKING PAPER

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Safety and Air Navigation Directors of the CAR Region Meeting (CAR/DCA/OPSAN)
Mexico City, Mexico, 18 to 19 February 2014

Agenda Item 4: Regional Performance Indicators and Metrics for Implementation of Improvements in Safety and Air Navigation
4.6 CAR Region Aeronautical Information Management (AIM) Implementation

AIM IMPLEMENTATION

(Presented by the Secretariat)

EXECUTIVE SUMMARY	
<p>The purpose of this working paper is to emphasise the importance of implementing the transition from Aeronautical Information Service (AIS) to AIM and to review the progress made with CAR Region AIM implementation. Electronic processing and digital management of aeronautical information and data are the most important parts of AIM implementation, which implies the use of Aeronautical Information Exchange Model (AIXM), migration to electronic aeronautical information publication (eAIP), improvement of Quality Management Systems (QMS), and availability of electronic terrain and obstacle data (eTOD) sets in electronic formats.</p>	
Action required:	Approve Conclusion in Section 3
<i>Strategic Objectives:</i>	<ul style="list-style-type: none"> • Safety • Air Navigation Capacity and Efficiency • Security and Facilitation • Economic Development of Air Transport • Environmental Protection
<i>References:</i>	<ul style="list-style-type: none"> • Global Air Navigation Report; 2013 • Annex 15, Amendment 37 • AIS to AIM Transition Roadmap • Report of the Twelfth Air Navigation Conference (AN-Conf./12) • Follow-up on the NAM/CAR Regional Performance-Based Air Navigation Implementation Plan (NAM/CAR RPBANIP) • ICAO Regional NAM/CAR Workshop on the Aviation System Block Upgrade (ASBU) Methodology Framework: Planning, Implementation and Monitoring, Mexico City, Mexico, 22 to 26 July 2013, Block 0 and 1 Modules

1. Introduction

1.1

1.1.1 AIM implementation is an evolutionary process and requires consistency of information and data in the implementation process in order to ensure that States can make feasible decisions. Safety is the key for global civil aviation and is taken into account by the ICAO AIM for planning timely actions as per the performance-based aeronautical information.

1.2

The Meeting must note that the most important change in moving from AIS to AIM is the transition from a product-centred service to the provision and management of data in a sufficient interoperable form for final use with new technologies. The biggest change in the transition to AIM will be the increased use of relational databases with geospatial technologies for management of aeronautical information and data. This will occur through an increased emphasis on the digital and electronic form of data that will drive all processes for information management.

1.3

The AIM concept requires that all aeronautical information, including that currently in the Integrated Aeronautical Information Package (IAIP), be stored as individual standardized data sets to be accessed by user applications. This will constitute the minimum regulatory requirement to ensure the necessary information flow for the safety and efficiency of international air navigation.

2. Discussion

2.1

The capabilities of transferring digital and/or electronic data between the air and the ground will be used for providing new products, such as in-flight information bulletins, by uploading aeronautical and meteorological information directly on-board the aircraft at all phases of flight.

2.2

The Meeting should take note that the ICAO AIS to AIM Transition Roadmap identifies the major milestones for uniform global evolution to AIM and indicates specific steps and timelines for implementation as follows:

- Phase 1 - Consolidation involves the refinement and strengthening of existing ICAO Annex 15 SARPs and their implementation in all States.
- Phase 2 - The main focus going to digital during the transition to AIM is the establishment of data-driven processes. States must use computer technology and digital communications, introducing structured digital data from relational databases into their production processes with emphasis on the introduction of highly structured databases (including metadata) and tools such as Geographic Information Systems (GIS - geo-spatial data).
- Phase 3 - Steps will be taken to enable new AIM functions in States (such as digital NOTAM) to address new requirements needed for Global Air Traffic Management Operational Concept implementation in a net-centric information environment towards System Wide Information Management (SWIM) for information and data exchange in electronic format. A Standard will be adopted for AIXM to ensure interoperability between all systems, not only for the exchange of full aeronautical data sets.

2.3 In that sense, the Meeting is invited to recall that 3 phases with 21 steps (see Fig. 1) are envisaged for States to complete the transition to AIM in accordance with ICAO Roadmap:

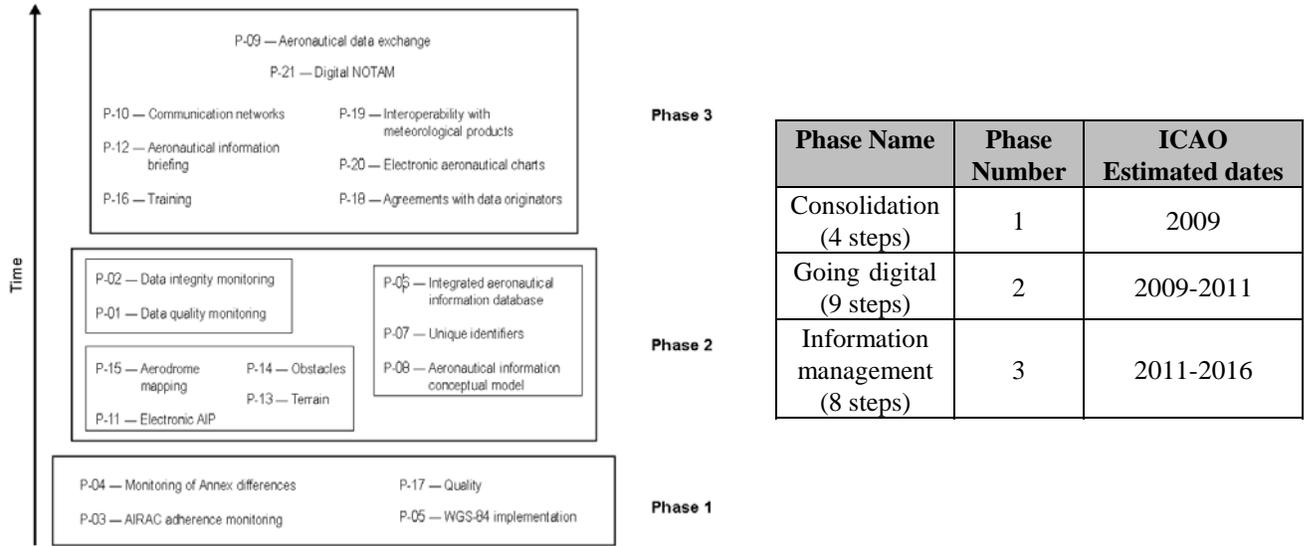


Fig. 1

2.4 The Meeting should note that the progress made by the AIS-AIM/SG (HQs) on its work (AIM new and updated documentation) related to the availability of fundamental documentation will be disseminated by ICAO as follows:

Dates(s)/Time frame		Event/Milestone	Work Deliverables	Estimated Date
2013	Quarters 3 and 4 2013	ICAO Secretariat review of completed manuals	<ul style="list-style-type: none"> ○ Amdt. 3 to Doc 8126 - <i>Aeronautical Information Services Manual</i> ○ Doc 9839 - <i>Quality Manual</i> (Draft Version) ○ Doc 9991 - <i>Training Manual</i> (Draft Version) ○ AIM Concept ○ Doc 9881 - <i>E-TOD/AMDB Manual</i> ○ Doc 9674 - <i>World Geodetic System — 1984</i> ○ Doc 8697 - <i>Aeronautical Chart Manual</i> update ○ Doc 9855 - <i>Guidelines on the Use of the Public Internet for Aeronautical Applications.</i> 	2016 2014 2015 ---
	14 November 2013	Annex 15 Amendment 37 applicable	<ul style="list-style-type: none"> ○ PANS-AIM ○ Amdt. 38 Annex 15 ○ Amdt. 58 Annex 4 	2016 2016 2016

2.5 As a result of the latest AIM implementation process review, the following aspects were identified for consideration: and discussion by the Meeting:

- Provide States with support for special assistance and awareness campaigns related to AIM implementation
- Develop appropriate documentation on AIM SARPs and guidance material to assist States in the transition from AIS to AIM in addition to the ICAO Roadmap
- Develop standard AIM training courses related to electronic aeronautical charts through seminars and/or workshops similar to previous designed for Aeronautical Maps and Charts (MAP)

2.6 Based on the information provided by AIM surveys submitted to States, it is important to emphasise that a significant number of States have not yet developed an Action Plan for the transition from AIS to AIM based on the ICAO Roadmap. In addition, the following is highlighted:

Id.	Main Difficulties Identified for the Transition from AIS to AIM
1	Implementation of Phase 1 (consolidation); some States will not complete implementation of step 17 (QMS) by the end of 2013
2	Tight timelines for Phase 2 and Phase 3 implementation; not realistic for some States; implementation of Phase 2 and Phase 3 can probably not be completed before 2016 and 2020, respectively
3	Financial constraints
4	Manpower availability, resources (human and material), and knowledge (required expertise)
5	Staff training to organize, train, and assess relevant staff for AIM tasks; the problem is to develop the required competency for the involved experts
6	Lack of detailed ICAO guidance material; AIM documentation with detailed descriptions of steps to assist States with the implementation processes and the requisite to amend ICAO Annexes 15 and 4, documents and manuals to include AIM requirements
7	Awareness and commitment of data originators and adoption of appropriate arrangements with all data originators (national regulations)
8	Lack of electronic data exchange (AIXM) development
9	Lack of e-TOD implementation - Areas 1, 2, 3 and 4, as applicable

2.7 Moreover, the Meeting should note that SWIM has emerged as a fundamental requirement and has become a priority with respect to the evolution of the Global ATM System and the development of a Global SWIM concept that incorporates the basic requirements of SESAR, Next-Gen, CARATS, and other national and regional programmes.

2.8 As a consequence, the development of an AIM Operational Concept will move beyond the present AIS-AIM Roadmap target of “digital and/or electronic AIM products” to a more integrated and related with the AIM domain that is becoming an urgent task.

2.9 As mentioned previously, an AIM Operational Concept will serve as a guide for the development of Annex 15, Amendment 38 (by 2016), including the new Procedures for Air Navigation Services (PANS-AIM) and ensure that AIM fits within a larger SWIM environment. Additionally, SWIM is included in ASBU 1. To keep abreast of new AIM/SWIM developments, States should develop or update their national plans for AIS to AIM transition with a view to support seamless ATM in a SWIM environment.

2.10 According to recent information, the following Table depicts the estimated status of CAR Region AIS to AIM transition.

States International Organisations	UN Code	States with Action Plan for the Transition	Estimated % of advance in the Transition	Remarks
Anguilla	AIA	---	---	UK
Antigua and Barbuda (PIARCO)	ATG	---	0	Under agreement with PIARCO
Aruba	ABW	---	---	No recent information
Bahamas	BHS	---	---	No recent information
Barbados	BRB	YES	20	Phase 1 in progress
Belize (COCESNA)	BLZ	YES	0	Under agreement with COCESNA/AIM
Bonaire	BES	---	---	Netherlands
Canada	CAN	YES	85	All Phases initiated and developed
Cayman Islands	CYM	---	---	UK
Costa Rica	CRI	YES	40	Phase 1 completed Phase 2 initiated
Cuba	CUB	YES	35	Phase 1 completed Phase 2 initiated
Curaçao	CUW	YES	---	Action Plan in progress
Dominica	DMA	---	---	Non contracting State
Dominican Republic	DOM	YES	45	Phase 1 completed Phase 2 in progress Phase 3 initiated
El Salvador (COCESNA and CEPA)	SLV	YES	0	Under agreement with COCESNA/AIM
Grenada (PIARCO)	GRD	---	0	Under agreement with PIARCO
Guatemala (COCESNA)	GTM	YES	0	Under agreement with COCESNA/AIM
Haiti	HTI	YES	0	No initiated
Honduras (COCESNA)	HND	YES	20	Under agreement with COCESNA/AIM
Jamaica	JAM	YES	---	Phase 1 in progress
Mexico	MEX	YES	---	Phase 1 in progress Phase 2 in progress
Nicaragua	NIC	YES	35	Phase 1 completed Phase 2 initiated
Saint Kitts and Nevis (PIARCO)	KNA	---	0	Under agreement with PIARCO
Saint Lucia (PIARCO)	LCA	---	0	Under agreement with PIARCO
Saint Vincent and the Grenadines (PIARCO)	VCT	---	0	Under agreement with PIARCO
Trinidad and Tobago (PIARCO)	TTO	YES	45	Phase 1 progress Phase 2 in progress Phase 3 initiated

States International Organisations	UN Code	States with Action Plan for the Transition	Estimated % of advance in the Transition	Remarks
United States	USA	YES	90	All Phases initiated and developed
COCESNA	---	YES	55	Phase 1 completed Phase 2 in progress Phase 3 initiated

3. Suggested Action

3.1 Based on the above, the Meeting is invited to adopt the following conclusion:

CONCLUSION 1/X AIM ACTION PLANS FOR THE AIS TO AIM TRANSITION

That CAR States that have not yet done so:

- a. develop/update Action Plans for the transition from AIS to AIM taking into consideration the latest AIM developments, including the outcome of the AN-Conf/12;
- b. look for means to expedite the transition from AIS to AIM; and
- c. inform the ICAO NACC Regional Office of all the progress before **30 April 2014**