International Civil Aviation Organization
North American, Central American and Caribbean Office

WORKING PAPER

**Fourth North American, Central American and Caribbean Working Group Meeting
(NACC/WG/4)**
Ottawa, Canada, 24 to 28 March 2014

Agenda Item 3: **Follow-up on the NAM/CAR Regional Performance-Based Air Navigation
Implementation Plan (NAM/CAR RPBANIP) Progress**
**3.2 NAM/CAR Regional Performance-Based Air Navigation
Implementation Plan: update, review and progress**

AIM IMPLEMENTATION

(Presented by the Secretariat)

EXECUTIVE SUMMARY
The purpose of this working paper is to emphasise the importance of the transition to AIM and to review the progress made by the States, Territories and International Organizations in the CAR Region. Electronic processing and digital management of aeronautical information and data are one of the most important aspects of AIM implementation, which implies the use of Aeronautical Information Exchange Model (AIXM), migration to electronic aeronautical information publication (eAIP), application of Quality Management Systems (QMS) to electronic data processes, and availability of electronic terrain and obstacle data (eTOD) sets in electronic formats, among others..

Action:	Approve Conclusion in Section 3
Strategic Objectives:	- Safety - Air Navigation Capacity and Efficiency - Environmental Protection
References:	- 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   AIM implementation is an evolutionary process and that requires consistency in the information and data in order to ensure that States can make feasible decisions in the safety improvement for global civil aviation planning timely actions in accordance with the performance-based aeronautical information.

1.2   The Meeting must note that the most important change in moving from AIS to AIM is passing 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 occurs through an increased use on the digital and electronic form of data within processes of information management.

1.3   The AIM concept requires that all aeronautical information, including that currently in the Integrated Aeronautical Information Package (IAIP), as defined in the Regional Performance Objective (RPO) of the RPBANIP, implement standardized data sets to be accessed by user applications. This constitutes a basic AIM objective and is the minimum regulatory requirement to ensure the necessary exchange information flow for the safety and efficiency technology 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 using the electronic media available for this function.

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 completed implementation in all States for this dates, was estimated 2009 for its completion.

- 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 geo-referenced 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:

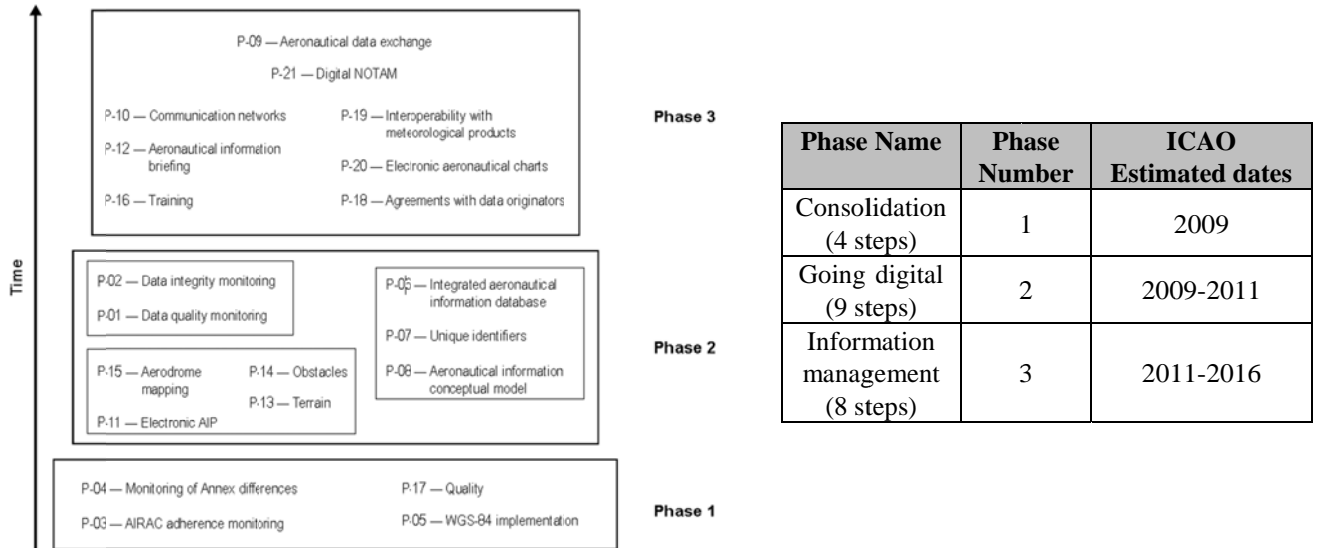| Phase Name	Phase Number	ICAO Estimated dates
Consolidation (4 steps)	1	2009
Going digital (9 steps)	2	2009-2011
Information management (8 steps)	3	2011-2016

Fig. 1

2.4   The Meeting should note that the progress made by the Study Group for the AIS transition to AIM of Headquarters on its work (development of AIM new and updated documentation) related to the availability of fundamental documentation that will disseminate as ICAO publications as follows:

Dates(s)/Time frame	Event/ Milestone		Work Deliverables	Estimated Date
2013 Quarters 3 and 4 2013	ICAO Secretariat review of completed manuals		o Amdt. 3 to Doc 8126 - *Aeronautical Information Services Manual*	2016
			o Doc 9839 - *Quality Manual* (Draft Version)	2014
			o Doc 9991 – *Training Manual* (Draft Version)	2015
			o AIM Concept	---
			o Doc 9881 - *E-TOD/AMDB Manual*	2016
14 November 2013	Annex 15 Amendment 37 applicable		o Doc 9674 - *World Geodetic System — 1984*	2016
			o Doc 8697 - Aeronautical Chart *Manual* update	2016
			o Doc 9855 - *Guidelines on the Use of the Public Internet for Aeronautical Applications.*	2016
			o PANS-AIM	2016
			o Amdt. 38 Annex 15	2016
			o Amdt. 58 Annex 4	2016

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

o   It is required to provide States with support in special assistance and awareness campaigns to Civil Aviation Authorities related to AIM implementation

o   It is necessary the development appropriate documentation on AIM SARPs and guidance material to assist States in the transition from AIS to AIM in addition to the ICAO Roadmap. For which the AIM Task Force (AIM TF) will be developing guidance material as soon as ICAO corresponding documents are available.

o   Develop standard AIM training courses related to electronic Aeronautical Charts (MAP) and design of terminal and flight procedures according Doc 8168, Vol II. through seminars and/or workshops.

2.6   Based on the information provided by NACC Regional Office 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 general difficulties that were reported and that will be observed by the AIM TF, are 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 obtained from different Meetings, Seminars and Missions to States, the following Table depicts the estimated status of CAR Region AIS to AIM transition, it is required from the Meeting to define the information so it can be updated.

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

States International Organisations	UN Code	States with Action Plan for the Transition	Estimated % of advance in the Transition	Remarks
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
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 and execute the Action Plans for the transition from AIS to AIM taking into consideration the latest AIM developments, and the AIM TF work;

b. expedite the transition from AIS to AIM; and

c. inform the ICAO NACC Regional Office of all the progress before **30 June 2014**

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