International Civil Aviation Organization
South American Regional Office
Third Meeting of Air Navigation and Safety Directors of the SAM Region
(Lima, Peru, 22 to 24 August 2016)

Agenda Item 1: Declaration of Bogota: Follow-up to the implementation of air navigation priorities

Follow-up to AIM implementation goals

(Presented by the Secretariat)

SUMMARY

This working paper makes reference to GREPECAS Programmes and Projects within the context of the AIS-to-AIM transition, showing the progress made by SAM States, Territories, and international organisations regarding the implementation of the Quality Management System (QMS) as a goal of the Declaration of Bogota. It also presents the progress made in the availability to users of electronic terrain and obstacle data sets (e-TOD) and AIXM, which are being addressed as part of the second phase of the AIS-to-AIM transition.

References:

- Annex 15 - Aeronautical Information Services
- ICAO AIS-to-AIM Transition Roadmap
- PPRC/4 meeting
- SAM/AIM meetings

ICAO strategic objectives:	*A - Safety* *B - Air navigation capacity and efficiency* *E - Environmental protection*

1. Introduction

1.1 Within the AIM Programme, the objectives of the SAM Region are focused on the implementation of the AIS-to-AIM Transition Roadmap. This roadmap shows the transition from AIS to AIM in three phases. In order to implement the first phase and prepare for the implementation of the second phase, ICAO has focused on the development of standard supporting regulations that must be implemented first and foremost.

1.2 GREPECAS supports this transition through three projects related to the electronic supply of terrain and obstacle data (known as e-TOD), the implementation of electronic tools for the exchange of aeronautical information, such as AIXM, and, in parallel, the quality certification of AIM processes as the basis for ensuring the quality of data and information.

e-TOD Project

1.3 The provision of electronic terrain and obstacle data is a very important objective, since this data is to be used in various air navigation applications.

1.4 These applications include the ground proximity warning system with avoidance of flight into terrain function, and the minimum safe altitude warning (MSAW) system; the definition of contingency procedures during a missed approach or rejected take-off; the analysis of aircraft operational limitations; the design of instrument procedures; the determination of the en-route cruise descent procedure and location of en-route emergency landing; the advanced surface movement guidance and control system (A-SMGCS); and the production of aeronautical charts and on-board databases.

1.5 Regarding the above, the implementation date of 15 November 2015 established for Area 2 in Annex 15 is critical, due to its impact on other applications that are beneficial for the industry.

1.6 Regarding e-TOD implementation, the date of implementation of the ground and obstacle data survey for Area 2 was 12 November 2015, but unfortunately, most of the States of the Region have not complied. The Secretariat has sent letters asking States about their ability to comply with this STANDARD but, regrettably, there has been no response. **It should be noted that, according to Annex 15, Chapter 10, 10.1.5 is a STANDARD, and failure to comply is considered to be a State deficiency.**

AIXM Project

1.7 The Aeronautical Information Exchange Project, despite the fact that software tools are of free and open access, did not get the expected momentum in the Region, since in many States, AIS units were not suitably staffed or lacked knowledge of database management, geographic information systems, and integrated automated systems.

1.8 However, some boost was given to this project last year with the designation of a Project Coordinator, since it lacked one. The current Project coordinator is working in coordination with the eTOD Project coordinator to address AIM data transmission formats and models, and major progress has been achieved in 2015 and the first half of 2016.

QMS Project

1.9 The objective of this project is to implement quality in AIM processes. Although it is the first on which work was started, it has not given the expected results, taking into account the guidance and training provided to State experts for the implementation of quality in their AIS units.

1.10 The QMS Project is part of the commitment of the Declaration of Bogota and serves as the basis for the other implementation programmes. Therefore, delays in quality implementation and certification by States have a multiplying effect, since the future development of the digital phase depends on this implementation.

2. **Discussion**

QMS Project

2.1 The Project for the implementation of the Quality Management System in AIM processes has made progress in terms of pre-certification activities. In this regard, **Uruguay** obtained its quality certification under ISO standard 9001:2008 on 31 August 2015. **Peru** was certified in December 2015.

Panama completed the internal audit process and the call for bids for hiring the certifying company; accordingly, it expects to complete the processes and obtain the certification by the end of August 2016. And **Argentina** is waiting for the certificates of the processes approved by the certifying company.

2.2 **Colombia** and **Venezuela** still cannot certify their AIM systems, and the most disturbing delay in quality implementation is that seen in **Bolivia, Guyana,** and **Suriname**.

2.3 Regarding the above, **Bolivia** reported at the SAM/AIM/8 meeting that the Civil Aviation Authority of Bolivia had requested the top management of the service provider, AASANA, to assign more priority to, and take urgent steps to expedite, the implementation of quality systems in AIM units and their subsequent certification.

2.4 In order to advance with the AIS-to-AIM Transition Plan, it is necessary to request those States that have not certified their AIM QMS and that are below 80% implementation, to submit an Action Plan. In this Action Plan, the experts responsible for implementation in AIM units must provide a detailed description of tasks.

2.5 Top management has been identified as the main articulating factor for advancing in the certification of quality management systems in the States. Top management, when committed to obtaining the quality certification of systems and processes, helps remove managerial barriers that hinder implementation.

2.6 The Declaration of Bogota entails a regional commitment by top management to quality certification of AIM processes. This commitment must be replicated at national level in order to achieve certification as scheduled.

2.7 The States shall draft plans to update the implemented and certified AIM/QMS, and align it with version 2015 of ISO 9001. It should be noted that the transition period ends in September 2018. After that date, no certification under version 2008 of ISO 9001 will be considered valid.

2.8 The latest update on the status of quality implementation is shown in the following table:

STATE	% OF IMPLEMENTATION AUGUST 2016	IMPLEMENTATION DATE	% PROGRESS	REMARKS
Argentina	100%	FEB/2016	30%	Internal and external audits have been conducted. They are waiting for the certificates.
Bolivia	30%	TBD	0%	The provider AASANA has trained two experts for quality implementation.
Brazil	**CERTIFIED**	----------	----------	
Chile	**CERTIFIED**	----------	----------	
Colombia	90%	SEP/2014	25%	Has hired consultancy services for the certification of AIM and MET QMS.
Ecuador	**CERTIFIED**	----------	----------	
French Guiana	**CERTIFIED**	----------	----------	
Guyana	25%	DEC/2015	25%	Shows no progress.
Panama	90%	DEC/2015	20%	Internal audit conducted. Expects certification in AUGUST 2016.
Paraguay	**CERTIFIED**	----------	----------	
Peru	**CERTIFIED**	DEC/2015		
Suriname	45%	AUG/2014	0%	.
Uruguay	**CERTIFIED**	AUG/2015	--------	
Venezuela	85%	NOV/2014	15%	Shows no progress.

<u>Supplementary AIM activities related to the second transition phase</u>

Status of implementation of e-TOD

2.9 At the same time, some progress has been made in e-TOD implementation in accordance with the Annex 15. This is part of the electronic provision of data in the digital phase of AIM, and is of extreme importance for the systems described in paragraph 1.4 above.

<u>Note:</u> *The coverage areas and requirements for the provision of e-TOD, as well as the terrain and obstacle data set for these areas are specified in Chapter 10 and its respective appendices, of Annex 15, 14th edition.*

2.10 The status of implementation in the Region of electronic terrain and obstacle data related to the different areas described in Annex 15 is as follows:

AREA 1 - Terrain

2.10 Information was collected on compliance with Area 1 terrain surveying requirements, with the following results:

a) **Argentina, Brazil, Chile, Colombia French Guiana, Panama, Peru**, and **Venezuela** have a digital elevation model for the development of Area 1. The percentage of States in the Region with digital models went from 49% to 56%, a **7% increase. 44% is pending completion in 2016.**

b) Regarding compliance with Table 8-1 of Annex 15 on terrain requirements for Area 1, the States that meet the requirements are **Argentina, Chile, French Guiana, Panama, Peru**, and **Venezuela.** Implementation in the Region went from 28% to 42%, a **14% increase. 58% is pending completion in 2016.**

c) Regarding compliance with ISO 19110 for the digital model, **Argentina, Chile, Colombia, French Guiana, Panama, Peru**, and **Venezuela** report compliance, raising the level of the Region from 42% to 57%, a **15% increase. 43% is pending completion in 2016.**

AREA 1 - Obstacles

2.11 Information was collected on compliance with Area 1 obstacle surveying requirements, with the following results:

a) Regarding the availability of an obstacle database covering Area 1, **Argentina, Brazil, Colombia, French Guiana**, **Peru,** and **Uruguay** meet the requirement, raising the percentage of completion in the Region from 35% to 43%, an **8% increase. 57% is pending completion in 2016.**

b) **Argentina, Brazil, Chile, Panama, Peru, Uruguay**, and **Venezuela** meet the obstacle requirements established in Table 8-1 for Area 1, raising the level of implementation in the Region from 21% to 50%, a **29% increase. 50% is pending completion in 2016.**

AREA 2 - Terrain

2.12 Regarding action plans to obtain electronic terrain data in Area 2a, **Argentina, Bolivia, Brazil, Chile, Colombia, Panama, Paraguay, Peru**, and **Uruguay** reported progress, raising the level of compliance in the Region from 49% to 64%, a **15% increase. 36% is pending completion in 2016.**

2.13 Upon analysing compliance with the supply of terrain data corresponding to the take-off path, the States that reported having developed an action plan were **Argentina, Brazil, Chile, Colombia, Panama, Paraguay, Peru**, and **Uruguay**, raising the level of compliance in the Region from 42% to 56%, a **14% increase. 44% is pending completion in 2016.**

2.14 Likewise, there was some progress in the Region with respect to the provision of electronic terrain data corresponding to the area delimited by the lateral extension of the obstacle limiting

surfaces of the aerodrome. **Argentina, Bolivia, Brazil, Chile, Colombia, Panama**, and **Peru** increased implementation from 35% to 50%, a **15% increase. 50% is pending completion in 2016.**

AREA 2 - Obstacles

2.15 **Argentina, Bolivia, Brazil, Chile, Colombia, Panama, Paraguay**, and **Peru** have developed action plans for the collection of data for Area 2a regarding obstacles that penetrate the obstacle limiting surface, in accordance with Appendix 8 to Annex 15, raising the level of the Region from 49% to 56%, a **7% increase. 44% is pending completion since 2015.**

2.16 Likewise**, Argentina, Brazil, Chile, Colombia, Panama, Paraguay**, and **Peru** reported progress in their action plans for the provision of electronic data on objects protruding from the flat slope of 1.2% with respect to the take-off path, increasing the level implementation in the Region from 42% to 50%, an **8% increase. 50% is pending completion since 2015.**

2.17 Regarding the provision of electronic data on penetration of obstacle limiting surfaces at aerodromes, **Argentina, Bolivia, Brazil, Chile, Colombia, Panama, Paraguay**, and **Peru** have developed action plans to meet this requirement, raising the level in the Region from 42% to 56%, a **14% increase. 44% is pending completion since 2015.**

2.18 Likewise, **Argentina, Bolivia, Brazil, Chile, Colombia, Ecuador, French Guiana, Panama, Paraguay, Peru, Suriname**, and **Uruguay** have adopted a Manual on technical specifications for the implementation of e-TOD, an **84% increase. 16% is pending completion since 2015.**

e-TOD training in the SAM Region

2.19 Regarding the e-TOD training programme, Colombia reported on its training programmes. The Region raised its level of implementation from 42% to 49%, a **7% increase. 51% is pending completion in 2016.**

2.20 As to the inclusion of operational concepts in training, the Region improved from 49% to 56%, a **7% increase. 44% is pending completion in 2016.**

2.21 Regarding the equipment and programmes required for managing e-TOD information, the level of compliance of the Region improved from 49% to 56%, a **7% increase. 44% is pending completion in 2016.**

2.22 Regarding the signing of service level agreements (SLAs), no progress could be made due to reluctance by data providers to sign agreements with AIM Offices, in addition to certain regulatory restrictions in some States. The reason is the requirements established by the AIM Office for complying with SARPs on data quality, precision, and integrity. In this sense, the Region showed no progress this year. **The status of implementation is 21%.**

2.23 Another achievement related to this Project is the implementation of **Geographic Information Systems (GIS), with a percentage of implementation of 56%** of the States of the Region.

2015 State	States with automated systems or GIS = 56%	% of States with guidance document with approved action plan= 100%	% of States that establish SLAs = 21%
ARG	YES	YES	YES
BOL		YES	
BRA	YES	YES	
CHI	YES	YES	
COL	YES	YES	
ECU		YES	
FGY	YES	YES	
GUY		YES	
PAN	YES	YES	
PAR		YES	
PER	YES	YES	YES
SUR		YES	
URU	YES	YES	YES
VEN		YES	

Status of implementation of AIXM

2.11 For the implementation of this application, Peru assisted in the coordination and Uruguay provided XML expert knowledge. These experts are currently performing the tasks needed to guide the implementation. Likewise, documents produced by EUROCONTROL that were needed as guidance for the States have been translated into Spanish.

2.12 It is important that, once these documents have been refined, they be analysed by experts of the respective Administrations in order to become aware of the tasks to be carried out for AIXM implementation. The Secretariat will circulate these documents once the team of experts designated by the Project completes its initial analysis.

2.13 Furthermore, with the support of a SIP, an AIXM seminar was conducted, and the AIXM Manual was translated into Spanish to be used as a reference document.

2.14 With the support of project RLA/06/901, a seminar on databases is scheduled for November 2016 with the purpose of creating a more consolidated regional structure for the exchange of AIM information in an electronic environment.

3. **Suggested action**

3.1 The Meeting is invited to:

a) encourage States to double their efforts to accelerate quality certification of AIM processes, in order to complete the first phase of the AIS-to-AIM Transition Roadmap while complying with the Declaration of Bogota;

b) take note of the information on the status of implementation of GREPECAS Projects related to the second phase of the AIS-to-AIM transition; and

c) ask States that have not shown any progress and that are listed in the table in paragraph 2.7, to inform about the status of implementation of quality to the Secretariat during this meeting.

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