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International Civil Aviation Organization
South American Regional Office
Fifth Meeting of Air Navigation and Safety Directors of the SAM Region (ANFS/5)
(Lima, Peru, 20 to 22 August 2018)

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

FOLLOW-UP TO AIM IMPLEMENTATION GOALS

(Presented by the Secretariat)

SUMMARY

This working paper refers to GREPECAS Programmes and Projects within the context of AIS-to-AIM transition, and presents the progress made by SAM States, Territories and international organisations in the implementation of the quality management system (QMS), the availability of electronic terrain and obstacle data (e-TOD) sets to users, and AIXM, which is being addressed as part of the second phase of AIS-to-AIM transition.

References

- Eighteenth meeting of GREPECAS - Punta Cana, Dominican Republic, 9-13 April 2018
- Fourth meeting of Air Navigation and Safety Directors – Lima, Peru, 2-4 October 2017
- Annex 15 – Aeronautical information services
- ICAO roadmap for the transition from AIS to AIM
- SAM/AIM/11 meeting - Lima, Peru, 23-27 April 2018

ICAO strategic objectives:	*A - Safety* *B – Air navigation capacity and efficiency*

1. Introduction

1.1 The completion of Phase 1 of the Roadmap for the transition from AIS to AIM is a very important landmark to achieve the consolidation of AIS.

1.2 The Fourth meeting of air navigation and safety directors reviewed the status of implementation of steps in Phase 1, within the context of the Declaration of Bogota.

1.3 Amendment 40 to Annex 15, effective in November 2018, includes rules for the transition to Phase 2, depending on the availability of technology and the inclusion of Procedures for Air Navigation Services for AIM (PANS-AIM).

1.4 The SAM/AIM/11 meeting updated the data on implementation activities in Phase 1 and projections for Phase 2.

2. **Discussion**

2.1 The AN&FS/4 meeting reviewed the progress made in the attainment of the goals of the Declaration of Bogota concerning AIM requirements. It also took note that, of all the items contemplated in Phase 1 of the Roadmap for the transition from AIS to AIM, the Project on implementation of quality in aeronautical information management (AIM) units is the one that is hindering the transition most.

2.2 Upon reviewing AIM/QMS implementation, the SAM/AIM/11 meeting took note of the action plans of States that had not yet implemented the quality management systems in AIM processes. In this regard, **Brazil, Chile, Panama, Paraguay** and **Peru have been certified under ISO 9001:2015**. **Argentina** has pending a call for bids for the aeronautical information management software package (e-AIP and e-TOD modules, *inter alia*), which would lead to a reformulation of AIM processes and thus, of QMS. It is expected that the process will be completed this year, and QMS reformulation by the first quarter of 2019. **Bolivia** mentioned that it had not made much progress in the implementation due to successive changes is the proceedings, which had delayed the process. Likewise, **Guyana** stated that it had completed training of personnel in version 2015 of ISO 9001 and that they already had a draft Quality Manual, currently under review. **Uruguay** reported that it was conducting an internal audit process and that the certification audit was scheduled for the last quarter of 2018. It considered that the change made to ISO 9001 in 2015 had given rise to a new implementation outlook, since all certifications granted under version 2008 of the standard would expire in September 2018. **Venezuela** informed that the process of adjusting the QMS implemented in AIM under version 2015 would be completed by the first quarter of 2019. **No information has been provided by Colombia, Ecuador** and **Suriname.**

2.3 The Meeting should consider the action required to move to the provision of aeronautical information in electronic format. In this regard, the Meeting will recall that GREPECAS/18 reviewed implementations in the AIM area. The aforementioned meeting expressed its concern over delays experienced in e-TOD implementation; *ad hoc* group had even been established to analyse strategies that could expedite implementation. The recommendations of the *ad-hoc* group are shown in **Appendix A** to this working paper.

2.4 Regarding e-TOD, States have submitted their action plans. However, there are other challenges, mainly related to a cost-benefit study for its implementation, and the establishment of work programmes with other State institutions involved in geodesy and obstacle management, in order to establish joint strategies to share costs and derive common benefits from the generation of terrain and obstacle databases. State action plans and their status of implementation are shown in the following table:

SAM STATES	ACTION PLAN	FOLLOW-UP
Argentina	Estimated date: 27 November 2019.	Will review the action plan and corrections will be sent with more detailed information.
Bolivia	Start of corrective action: July 2017	Corrective action was initiated on the scheduled date.
Brazil	*2017 - 8 AD* *2018 - 8 AD* *2019 - 8 AD* *2020 - 7 AD* *2021 - 7 AD* *2022 - 7 AD*	Brazil modified its action plan as indicated.
Chile	Completion foreseen by 2022. Surveys have started in Areas 2a, 2b and 2c at the Arturo Merino Benítez airport in Santiago and Chacalluta in Arica.	Surveying has also been completed at the Diego Aracena airport in Iquique.
Colombia	Has not submitted a plan.	
Ecuador	Has not submitted a plan.	
French Guiana	Has not submitted a plan.	
Guyana	Estimated start date: April 2017. The seven first points of the action plan should have been completed by now.	As reported by Guyana, work is being carried out as planned.
Panama	Has not submitted a plan.	
Paraguay	Data collection for Areas 2a, b, c, d, completed. Other e-TOD related activities are foreseen for 2016-2019.	
Peru	Has not submitted a plan.	Peru will hold a meeting among the civil aeronautical authority, the service provider (CORPAC), and aerodrome operators to draft the plan.
Suriname	Has not submitted a plan.	
Uruguay	Has not submitted a plan.	
Venezuela	Activities regarding terrain and obstacle data started on the second semester of 2017.	

2.5 Regarding AIXM implementation, important progress is being made in the Region. Initial data exchange tests have been conducted through AIXM between Argentina and Panama, with successful results. Other tests are scheduled for this year with the possible participation of Argentina, Brazil, Panama, and Venezuela. However, despite the successful results obtained, it is necessary for the other States to join in the implementation of AIXM, since benefits would improve if implementation is carried out at regional level. Regarding e-AIP implementation, Argentina, Chile and Panama stated that their plans were being developed and would be consolidated in 2019. In Peru, the process would be completed by the first quarter of 2019. Argentina is awaiting the acquisition of the e-AIP module, currently subject to a bidding process.

2.6 The Meeting shall also consider the new requirements introduced by Amendment 40 to Annex 15, as well as the new Doc 10066 - PANS-AIM. It should be noted that the changes introduced by Amendment 40 and the new PANS-AIM will provide the regulatory framework for the implementation of the digital phase of aeronautical information management, which will serve as the basis for the implementation of system-wide information management (SWIM). One of the main requirements introduced by the PANS-AIM is the need to develop data catalogues.

2.7 The Meeting should also take note of AIM implementation priorities. It is important to recall that implementation calls for interoperable systems. Data and system interoperability requires the implementation of the elements of B0-DATM, a module that is essential for PIA 2. Priorities for the period 2018-2022 are contained in **Appendix B** to this working paper.

3. Suggested action

3.1 The Meeting is invited to:

a) take note of the information provided herein;

b) review and discuss AIM/QMS implementation and certification activities;

c) review and discuss e-TOD and AIXM implementation activities;

d) plan for PANS-AIM implementation;

e) review AIM implementation priorities for the period 2018-2022; and

f) take any other action it may deem appropriate.

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APPENDIX A

REPORT OF THE E-TOD *AD-HOC* GROUP

1. Participating States:

   Brazil, Costa Rica, Panama, Dominican Republic, Trinidad and Tobago, Uruguay, and the Secretariat (CAR and SAM AIM ROs). The delegates of Cuba and CANSO also expressed their intention to join in for subsequent tasks.

2. Based on the proposals presented in WP/29, the Group agreed to establish an *ad hoc* working group to address the implementation of e-TOD and to define activities. The Secretariat presided over the meeting. Mr. Jorge Armoa served as rapporteur and made a brief introduction. The working group approved the proposal based on the seven items identified in WP/29, as follows:

   i. Implement appropriate regulations to support e-TOD data collection and management by the competent authority: State/government authorities, air navigation service providers (ANSPs), aerodrome operators, military, etc.

   ii. Define the data collection method, whether topography (using WGS-84) or other means (drones, satellite images/3D graph information processing/LIDAR).

   iii. Define the format in which data will be stored and distributed.

   iv. Implement the required infrastructure (one database - GIS) capable of managing/hosting e-TOD data. (The database must be able to load the required terrain data in the digital surface model (DSM) or digital terrain model (DTM) with the associated metadata traceability).

   v. Make sure that the State has the necessary resources to manage and maintain the e-TOD database in coordination with the military representatives (national security issues).

   vi. Make sure that State human resources are duly trained in terrain and obstacle data management (*i.e.,* understand the complexities of terrain data file formats and terrain data file bundling).

   vii. Make sure that the State has implemented a quality management system (QMS) with the associated processes and procedures to ensure quality in data processing from origin to publication (controlled harmonised aeronautical information network - CHAIN) in AIP section AD 2.10 (or other related IAIP documents).

3. The proposals of the Group are:

   a) The Group proposes States an exchange between geodetic and aeronautical mapping institutions.

   b) Give priority to eTOD area 3 for international airports.

   c) Assess the allocation of resources to a number of airports in each CAR and SAM State.

   d) Allow time for the development of plans in each project stage.

   e) Use satellite images and LIDAR data for areas 1 and 2, and drones for areas 3 and 4.

f) Share expenditures among various State institutions that could derive benefits based on a cost-benefit analysis, maintaining continuity of e-TOD projects with adequate resources.

g) Establish work agreements among State institutions and the military for the conduction of work, giving priority to areas 1 and 3.

h) Consider the use of 3D data management software to obtain e-TOD products.

i) Request States that have started e-TOD to share information and experts to advise other States that so require.

j) Incorporate universities and mapping/geodetic institutes into the project.

k) Identify project risks and develop plans to address them.

l) Create a team in each CAR and SAM State to conduct cost-benefit analyses.

4. The *ad-hoc* group will keep in contact to follow up on the tasks and activities in both Regions in a coordinated manner. Progress will be reported to the CAR and SAM AIM ROs. Such progress will be reported at the upcoming CRPP/5 meeting through a working paper.

APPENDIX B

AIM AREA

B0 – DATM: Service improvement through digital aeronautical information management 2017-2019				
ELEMENTS	**SCOPE**	**INDICATORS/ METRICS**	**GOALS: %/ Date**	**STATUS**
1- AIXM	All States	Indicator: % of States that have implemented AIXM in an AIS database. Metrics: Number of States that have implemented AIXM in an AIS database.	**Tests** 2018 (4 States: ARG, BRA, PAN, URU) 49% by 2018 100% by 2019	XX% (X States)
2- Electronic AIP	All States	Indicator: % of States that have implemented an IAID to manage production of the electronic AIP (eAIP). Metrics: Number of States that have implemented an IAID to manage production of the electronic AIP (eAIP).	60% by 2018 100% by 2019	XX% (X States)
3- Electronic terrain and obstacle data (e-TOD)	All States	Indicator: % of States that have implemented the terrain data set. Metrics: Number of States that have implemented the terrain data set. Indicator: % of States that have implemented the obstacle data set. Metrics: Number of States that have implemented the obstacle data set.	**Area 1**: Obstacles: 51% by 2018	**Area 1**: Terrain: XX% (XX States) Obstacles: XX% (XX States)

B0 – DATM: Service improvement through digital aeronautical information management 2017-2019				
ELEMENTS	**SCOPE**	**INDICATORS/ METRICS**	**GOALS: %/ Date**	**STATUS**
Cont.: 3- Electronic terrain and obstacle data (e-TOD)	All States	Indicator: % of States that have implemented the data set for terrain and obstacles that penetrate the terrain and obstacle data collection surface. Metrics: Number of States that have implemented the data set for terrain and obstacles that penetrate the terrain and obstacle data collection surface.	**AREA 2b, 2c and 2d** Obstacles: 100% by 2019	**AREA 2b, 2c and 2d** Terrain: XX% (XX States) Obstacles: XX% (XX States)
4- Digital NOTAM	All States	Indicator: % of States that have included the digital NOTAM in their National AIS-to-AIM transition plans. Metrics: Number of States that have included the digital NOTAM in their National AIS-to-AIM transition plans.	28% by 2019 51% by 2021 100% by 2023	XX% (XX States)
5- Integrated aeronautical information databases (IAID)	All States	Indicator: % of States that have developed integrated aeronautical information databases (IAID). Metrics: Number of States that have developed integrated aeronautical information databases (IAID).	56% by 2018 100% by 2019	XX% (XX States)
6- Data catalogues	All States	Indicator: % of States that have developed data catalogues. Metrics: Number of States that have developed data catalogues.	56% by 2020 100% by 2022	XX% (XX States)
