SAM/AIM/10

INTERNATIONAL CIVIL AVIATION ORGANIZATION
SOUTH AMERICAN REGIONAL OFFICE

TENTH MULTILATERAL MEETING OF THE SAM REGION FOR THE TRANSITION OF AIS TO AIM (SAM/AIM/10)

FINAL REPORT

Lima, Peru, 28 August to 1st September 2017

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HISTORY OF THE MEETING

ii-1 PLACE AND DURATION OF THE MEETING

The Tenth Multilateral Meeting of the SAM Region for the transition of AIS to AIM (SAM/AIM/10) was held at the ICAO South American Regional Office, Lima, Peru, from 28 August to 1st September 2017.

ii-2 OPENING CEREMONY AND OTHER MATTERS

Mr. Franklin Hoyer, Regional Director of the ICAO South American Office, greeted the participants and highlighted the importance of the objectives of the Meeting regarding the follow up to Phase 1 implementation, as well as the adjustment of the Region to the new standard procedures, the correct use of aeronautical information services messages and documents, besides getting involved with the new documents foreseen by the AIS Study Group. He also highlighted that the change in Standard ISO 9001 presents a new scenario with regard to the conclusion of Phase 1 of the roadmap, but nevertheless he expressed the conviction that this should not be an obstacle to proceed towards Phase 2 implementation, since the technology is available and both tasks can be developed in parallel.

Mr. Hoyer also highlighted that e-TOD, AIXM and e-AIP related issues will be developed during this Meeting. In this regard, he expressed his satisfaction for the presence of industry representatives and invited States to discuss with them and exchange ideas and options about the solutions offered by the industry for these items. Furthermore, he considered important the preparatory work to introduce States in the implementation of the System-wide Information Management as *SWIM*.

Several presentations were made during the Meeting on different issues, such as: eTOD, AIXM (Peru), Standard ISO 9001:2015 (Brazil and Paraguay), Transition to AIM (Avitech), Global AIM (IFAIMA), AIM in Air Navigation (Lufthansa Lido), SWIM (Thales). Furthermore, the Secretariat made a presentation on the Air Navigation System Performance-Based Implementation Plan for the SAM Region (PBIP) and the Second Global Runway Safety Symposium (GRSS).

ii-3 SCHEDULE, ORGANIZATION, WORKING METHODS, OFFICERS AND SECRETARIAT

The Meeting agreed to hold its sessions from 0830 to 1530 hours, with appropriate breaks. The work was done with the Meeting as a Single Committee and Working Groups.

Mr. William Santamaria, ANS AIS/MAP Inspector of the Civil Aviation Authority (CAA) of Panama, was unanimously elected as Chairperson of the Meeting. Mrs. Silvina Beatriz Rotta, AIS Expert of the National Civil Aviation Administration – ANAC, Argentina, was elected as Vice-Chairwoman.

Mr Jorge Armoa Cañete, AIM/MET Regional Officer from the South American Regional Office, acted as Secretary.

ii-4 **WORKING LANGUAGES**

The working language of the Meeting was Spanish, with simultaneous interpretation into English, and its relevant documentation was presented in both languages.

ii-5 **AGENDA**

The following agenda was adopted:

Agenda Item 1: Implementation of provision of Electronic Terrain and Obstacle Data (e-TOD)

Agenda Item 2: Implementation of Aeronautical Information and Aeronautical Data Exchange Systems

Agenda Item 3: Implementation of the Quality Management System in AIM units

Agenda Item 4: AIM deficiencies and ICARD system

Agenda Item 5: Analysis of objectives, metrics and dates for the implementation of elements regarding second phase of the plan for the transition of AIS to Digital AIM

Agenda Item 6: Analysis Proposals for Amendment to Annex 15 – Aeronautical Information Services and PANS-AIM

Agenda Item 7: Performance Based Implementation Plan for the South American Region (SAM-PBIP) and its alignment to GANP 2015

Agenda Item 8: Planning for SWIM Implementation

Agenda Item 9: Other business

ii-6 **ATTENDANCE**

The Meeting was attended by 36 participants from 9 States of the SAM Region, (Argentina, Bolivia, Brazil, Chile, Guyana, Panama, Paraguay, Peru and Venezuela), as well as 5 international organizations.

The list of participants is presented in page iii-1.

LIST OF PARTICIPANTS

ARGENTINA
1. Silvina Beatriz Rotta
2. Sergio Fabián Mendilaharzu
3. Jorge Roberto Cornelio
4. María Amelia Schulz
5. María Inés Villalba
6. Oscar Ramón Gomez
7. Daniel Marcos Cozzi

BOLIVIA
8. John Felix Apaza Apaza

BRASIL
9. Rinaldo Ferreira Marinho
10. Cristiane de Barros Pereira
11. Leonardo Coelho de Almeida

CHILE
12. Sergio M. García Jorquera
13. Pablo A. Pérez Fernández

GUYANA
14. Brian Jefferey
15. Roy Sookhoo

PANAMÁ
16. Iris Marlene González Pérez
17. Dalys Rodríguez Valdez
18. William Santamaría

PARAGUAY
19. Lidia Cáceres
20. Antonio Infraín

PERÚ
21. Luis Luna Calderón
22. Jorge Taramona Perea
23. Libio Benites
24. Sara Siles La Rosa
25. Federico Vásquez Cáceres
26. Karina Calderón Yactayo

PERÚ (Cont.)
27. Angel Carrera Matías
28. Juan Vargas Gavancho
29. Walter Peceros López
30. Ever Ponte Vergaray

VENEZUELA
31. Samuel Alexander Delgado Figueroa
32. José Ramón Pacheco Depablos

AVITECH, GmbH - (Web)
33. José Rodriguez

IFAIMA
34. Luis F. Cruz Alburqueque

JEPPESEN
35. Scott Blum, Ph.D.

LUFTHANSA SYSTEMS
36. Michael Sauter*

THALES
37. Hervé Puget

OACI
38. Jorge Armoa

Agenda Item 1: Implementation of provision of Electronic Terrain and Obstacle Data (e-TOD)

1.1 Under this Agenda Item, the Meeting reviewed the following papers:

- WP/02 – *GREPECAS Project G1* (Presented by the Secretariat)
- WP/03 – *Deficiencies in e-TOD implementation and Action Plan* (Presented by the Secretariat)
- WP/04 - *Action plan for the implementation of Service Level Agreement (SLA)* (Presented by the Secretariat)

GREPECAS Proyecto G1 - Implementation of the provision of electronic terrain and obstacle data (e-TOD)

1.2 During the review of this agenda item, the Meeting analyzed the progress made in the various terrain and obstacle surveys related to the different areas listed in Annex 15. The current status is as follows:

AREA 1 - Terrain

1.3 Information was compiled in relation to compliance with terrain surveying requirements in Area 1, with the following results:

a) Regarding implementation, **Argentina, Brazil, Chile, Colombia, French Guiana**, **Panama, Paraguay, Peru,** and **Venezuela** had a terrain and/or elevation or surface digital model for the development of Area 1. **Panama** informed that surveying was being conducted at national level, currently reaching 90%. They expected to complete it in December 2016. Fifty-six percent (56%) of States in the Region had digital models, **with 44% pending implementation. The progress made since August 2016 was 7%.**

b) Regarding compliance with terrain requirements for Area 1, according to Annex 15 Table 8-1, **Argentina, Brazil, Chile, French Guiana, Paraguay,** and **Venezuela** were in compliance. The current implementation percentage is 57%, with **43% pending implementation. The progress made since August 2016 is 7%.**

c) Regarding the ISO 19110 Digital Model Methodology, **Argentina, Brazil, Chile, Colombia, French Guiana, Panama** and **Venezuela** reported compliance, reaching 56% implementation in the SAM Region, with **44% pending compliance. No progress had been made since Augsut 2016.**

AREA 1 - Obstacles

1.4 Information was compiled on compliance with obstacle surveying requirements for Area 1, with the following results:

a) Regarding the availability of an obstacle database covering Area 1, **Argentina, Brazil, Colombia, French Guiana** and **Venezuela** reported compliance, thus reaching 42% implementation in the Region. Chile complied only partially, so it is

considered as not completed. **58% pending completion by November 2017. The progress made since March 2015 was 7%.**

b) **Argentina, Brazil, Chile, Panama, Uruguay,** and **Venezuela** reported compliance with the obstacle requirements of Table 8-1 for Area 1. The implementation level in the Region went to 42%, with **58% pending completion by November 2017. The progress made since March 2015 was 28%.**

AREA 2 - Terrain

1.5 Regarding Action Plans for obtaining electronic terrain data in Area 2a, **Argentina, Bolivia, Brazil, Chile, Colombia, Ecuador, Panama, Paraguay** and **Uruguay** accounted for 56% compliance, with **44% pending implementation in 2015. No improvement was registered since August 2016.**

1.6 Regarding compliance with the provision of terrain data for the take-off path, States that reported the development of an Action Plan were **Argentina, Brazil, Chile, Ecuador, Panama, Paraguay,** and **Uruguay**, reaching 57% compliance in the Region, with **43% pending completion in 2015. Progress made in this area since August 2015 was 8%.**

1.7 Regarding the provision of electronic terrain data corresponding to the area defined by the lateral extension of the aerodrome obstacle limition surfaces, **Argentina, Brazil, Chile, Ecuador, Panama** and **Paraguay** accounted for 50% implementation, **50% pending completion in 2015. Progress made in this area since August 2015 was 15%.**

AREA 2 - Obstacles

1.8 **Argentina, Bolivia, Brazil, Chile, Ecuador, Panama** and **Paraguay** developed Action Plans for the compilation of Area 2a data, concerning obstacles that penetrated the obstacle limitation surface, in accordance with Appendix 8 to Annex 15, reaching 57% compliance, with **43% pending completion in 2015**. **No progress had been made in this area since August 2016.**

1.9 Likewise, **Argentina, Brazil, Chile, Ecuador, Panama** and **Paraguay** 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, thus increasing imlementation in the Region from 42% to 57%, with **43% pending implementation in 2017. No progress had been made in this area since August 2016.**

1.10 Regarding the provision of electronic data on the penetration of obstacle limitation surfaces at aerodromes, **Argentina, Bolivia, Brazil, Chile, Ecuador, Panama** and **Paraguay** had developed Action Plans to comply with the requirement. Compliance reached 64%, with **36% pending completion in 2017. No progress had been made in this area since March 2015.**

1.11 Likewise, **Argentina, Brazil, Chile, Colombia, Ecuador, French Guiana, Panama, Suriname** and **Uruguay** had produced a Manual on technical specifications for e-TOD implementation, with **16% pending completion in 2017. No progress had been made since August 2015.**

1.12 With regard to obstacle surveying for Area 2, Paraguay informed that obstacle surveying had been completed in six airports, Argentina completed the obstacle surveying for seven airports, Chile, in three airports, Panama was in a bidding process for two airports, Peru had awarded the job for the Cuzco airport, and Uruguay expected to complete the survey by the end of 2017.

e-TOD Training in the SAM Region

1.13 The Meeting took note that regarding e-TOD training, there had been no change in the Region. **Argentina, Brazil, Chile, Colombia, Ecuador, French Guiana**, **Panama, Uruguay** and **Venezuela** continued with e-TOD training plans, **accounting for 71% of the States,** with **29% pending completion in 2017**. **Progress made in this area since August 2016 is 18%.**

1.14 Regarding the inclusion of operational concepts in training, **implementation reached 72% in the Region**, with **28% pending completion in 2016**. **No progress had been made since August 2015.**

1.15 Regarding equipment and programmes required for e-TOD information management, the Region had reached 56% compliance, with **44% pending completion in 2016**. **No progress has been made in this area since August 2016.**

Service Level Agreement (SLA) and Geographic Information Systems (GIS)

1.16 Regarding Service Level Agreements (SLA) between AIM units and data providers, the Meeting noted that Argentina implemented the SLA. Chile informed that the procedure has been included in the Quality Management processes. Paraguay has issued a Circular containing the requirements to be complied by data and information providers when providing data to the AIS/AIM in order to replace the SLA requirement. Guyana informed that a draft SLA has been prepared and is working with 15 providers for its implementation. Bolivia has not yet implemented the SLA and Venezuela expressed that a draft SLA is in preparation.

1.17 The Secretariat emphasized the importance of publishing an AIC with the numerical requirements for keeping in pace with the changes made to the Amendments to Annex 15 in this respect. **The level of implementation of SLAs was 57%. Progress made in this area since March 2015 was 14% since August 2016**.

2017 State	% of States with Automated or GIS systems = 56%	% of States that have established SLA agreements = 57%
ARG	YES	YES
BOL		NO
BRA	YES	YES (Standard)
CHI	YES	YES within the Quality Integrated System
COL	YES	YES (Included in quality management processes)
ECU		---
FGY	YES	---
GUY		NO (In process)
PAN	YES	YES
PAR		YES (Issued Circular)
PER	YES	YES
SUR		NO
URU	YES	YES
VEN		NO (In process. Draft letters for data providers have been prepared)

1.18 The Meeting updated the information of **Appendix A** to this part of the Report, and the Secretariat would make any required changes in **Appendix B,** corresponding to the description of GREPECAS Project G1.

e-TOD Corrective Action Plan

1.19 The Meeting reviewed the Corrective Action Plans submitted by States in response to State Letters SA615 y SA413, sent by the Secretariat in November 2015 and August 2016, in order to correct the deficiency established after 12 November 2015. **Appendix C** to this part of the report presents the changes to the plans suggested by the States participating in the Meeting.

1.20 In addition, the delegate of Peru made a presentation on "e-TOD Standard-related Aspects", emphasizing the standards related to e-TOD implementation and the areas where electronic format data is used.

e-TOD final considerations

1.21 The Meeting noted with concern the delays regarding e-TOD implementation.

1.22 It was considered important to entrust the Secretariat to submit the information regarding e-TOD to a greater decision fora as the Meeting of Air Navigation and Flight Safety Directors of the SAM Region (AN&FS) or the Meeting of Civil Aviation Authorities of the SAM Region, since e-TOD implementation involves the provision of budget and human resources for the acquisition of software, equipment, training and the development of works to complete e-TOD implementation.

APPENDIX A

SAM Region States	Action Plan	Follow up
Argentina	Estimated date: 27 November 2019.	Action Plan will be reviewed and corrections will be submitted with more detailed information.
Bolivia	Date to start the corrective actions: July 2017.	Corrective actions started in the specified 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 in the terms referred.
Chile	Conclusion foreseen for 2022. Survey of Area 2a, 2b and 2c of Arturo Merino Benitez Airport of Santiago and Chacalluta Airport of Arica has been initiated	Surveying work have also been completed in the Diego Aracena Airport of Iquique.
Colombia	Plan has not been presented.	
Ecuador	Plan has not been presented.	
French Guiana	Plan has not been presented.	
Guyana	Estimated starting date: April 2017. So far the first seven points of the Action Plan presented should be completed	As informed by Guyana, the work is being done according to the plan presented.
Panama	Plan has not been presented.	
Paraguay	Data compilation for areas 2a, b, c, d completed. Other e-TOD related activities are foreseen for 2016 to 2019.	
Peru	Plan has not been presented.	Peru will hold a meeting among the civil aviation authority, the service provider-CORPAC and aerodrome users to prepare the Plan.
Suriname	Plan has not been presented.	
Uruguay	Plan has not been presented.	
Venezuela	During the second half of 2017 the corresponding terrain and obstacle data will begin.	

Agenda Item 2: Implementation of Aeronautical Information and Aeronautical Data Exchange Systems

2.1 Under this agenda item, the Meeting reviewed the following paper:

- WP/05 – *GREPECAS Project G2* (Presented by the Secretariat)
- WP/06 – *Important considerations for the development of a technical requirements specification for an AIXM aeronautical system* (Presented by Peru)
- IP/03 – *AIXM data exchange tests between Argentina and Panama* (Presented by Argentina
- Presentation – *Important considerations for the development of the requirements specifiations of an AIXM System* (Presented by Peru)

GREPECAS Project G2

2.2 The Coordinator of *Project G2 - "Implementation of Aeronautical Information Exchange Systems (AIXM)"*, in coordination with the Secretariat, presented several activities, which were reviewed by the Meeting. The activities are presented in **Appendix A** to this part of the report. The Meeting deemed it important to update the dates of the activities and change their status. These changes are reflected in Appendix A.

2.3 The Meeting considered that since the four EUROCONTROL documents selected as a starting base to analyse the operation of AIXM systems--the *Temporality Model* (**Appendix B**), *AIXM Conceptual Model* (**Appendix C**), *AIXM Application Schema Generation* (**Appendix D**) and *Feature Identification and Reference* (**Appendix E**) are enough to be used as AIXM Concept Guide, the preparation of guidance material would not be necessary for AIXM concept management. Nevertheless, the Meeting requested the Secretariat to make every effort in the translation of the Eurocontrol document related to the preparation and dissemination of the electronic AIP (e-AIP).

2.4 Regarding the AIXM message exchange tests, the delegation of Argentina presented the details on the information exchange in AIXM carried out between Argentina and Panama, informing that the difficulties to carry out the task were resolved with the support of the software provider of both States. In this regard, Brazil informed they have made all the arrangements to develop the test with Peru, but problems in the software update of Peru prevented from doing so.

2.5 The Meeting deemed important to make other exchange tests among the States that are capable to develop them. In this sense, Venezuela will determine the viability of making the tests with Argentina and Brazil, after consulting the software providing company in process of implementation in this State. The date to define whether the test will be developed or not was set for 6 October 2017.

2.6 The delegation of Peru, considering that in previous SAM/AIM meetings mention has been made of the difficulties facing States when developing aeronautical information management software (e-AIP, e-TOD) technical specifications that are compatible with aeronautical information exchange models (AIXM), presented guidelines to be considered when preparing technical specifications requesting the rental or purchase of aeronautical information management software. The document prepared by Peru contains a detailed list of all the aspects that should be taken into account in the drafting of technical specifications documents.

2.7 The delegation of Peru, in its presentation emphasized the need to work as a Project in the drafting of this document, convening all interested parties in the rental of the software and that it would be advisable to work under the direction of a project director.

2.8 The Meeting noted that the success of an equipment or software implementation correctly or with minimum inconveniences depends in high percentage on the preparation of the technical specifications of the equipment or software to be acquired. Therefore, it considered that the document presented by Peru could be used as a guide for the preparation of these technical specifications, since it contains detailed information and recommended procedures, thus, thanked the delegation of Peru for their contribution. The Meeting concluded that the success in the implementation of the aeronautical system lies mainly in a good drafting of a system or software requirements specifications.

APPENDIX A

SAM Region	**PROJECT DESCRIPTION (DP)**	DP N° G2	
Programme	**Title of the Project**	**Start**	**End**
AIM (ICAO Programme Coordinator: Jorge Armoa Cañete)	G2: Implementation of Aeronautical Information Exchange Systems (AIXM) (SAM) Project coordinator: Eng. Karina Calderón Experts contributing to the project: SAM/AIM/IG	01/03/12	30/06/18
Objective	Prepare an action plan to be implemented by States for the application of the aeronautical information/data exchange model.		
Scope	The scope of the project contemplates the evaluation and identification of automation levels associated to the integration of the aeronautical information and data exchange model in the Region, through surveys, the identification of database providers, and the follow-up on the development of SARPs on this matter.		
Metrics	Number of States that have implemented an Action Plan for data exchange systems.		
Goals	Complete all the documentation needed by States before 31/12/16. Achieve AIXM implementation in 40% of States for 2018. Achieve AIXM implementation in 75% of States for 2019.		
Strategy	Project activities will be coordinated among project members, the Project Coordinator, and the Programme Coordinator, mainly through teleconferences (GoToMeeting application). Seminars/meetings are scheduled in accordance with work programme activities. The Project Coordinator will coordinate with the Programme Coordinator for the inclusion of additional experts, if warranted by the tasks and work to be performed. Coordination will take place between the CAR and SAM Regions. The results of the work done will be submitted to the consideration and review of State experts in the form of a final consolidated document for analysis, review, and approval, and for presentation to the GREPECAS PPRC by the Programme Coordinator.		

Rationale	Integrate aeronautical information so as to permit the interoperability of ATM systems while preserving safety, applying the information exchange models.
Related projects	This project is related to Project G3 "*Implementation of the Quality Management Systems in the AIM units in SAM States*".

Project deliverables	**Relationship with the performance-based regional plan (PFF)**	**Responsible party**	***Status of Implementation**	**Delivery date**	**Comments**
Survey of the provision of IAIP, using a table.	D-ATM	ICAO coordinator		16/03/12	Finalised on schedule at the SAM/AIM meeting.
Circulation of IAIP survey to States	D-ATM	ICAO coordinator		16/03/12	Finalised on schedule at the SAM/AIM meeting.
Collection and updating	D-ATM	ICAO coordinator		16/03/12	Finalised on schedule at the SAM/AIM meeting.
Collection of experiences in SAM States with the electronic AIP	D-ATM	ICAO coordinator		16/03/12	Finalised on schedule at the SAM/AIM meeting.
Develop AIXM action plan	D-ATM	ICAO coordinator		24/04/15	Finalised on schedule.
AIXM documentation collection	D-ATM	ICAO coordinator		22/05/15	Finalised on schedule.
AIXM documentation translation	D-ATM	ICAO		10/07/15	Finalised on schedule.

AIXM documentation revision	D-ATM	ICAO coordinator		21/08/15	Finalised on schedule.
Documentation validation	D-ATM	ICAO coordinator		30/11/16	
Develop document describing AIXM tests steps	D-ATM	ICAO coordinator		December del 2017	
AIXM tests	D-ATM	ICAO coordinator		December del 2017	
Transmission and reception of tests results data	D-ATM	ICAO coordinator		19/05/17	
AIXM seminar	D-ATM	ICAO coordinator		02/10/15	Finalised on schedule.
Resources required	Designation of experts in the execution of some of the deliverables. Commitment by States to support the coordinators and experts.				

**Grey* *Task not started*
Green *Activity underway as scheduled*
Yellow *Activity started with some delay but expected to be completed on time*
Red *It has not been possible to implement this activity as scheduled; mitigating measures are required*

Agenda Item 3: Implementation of the Quality Management System in AIM units

3.1 Under this agenda item, the Meeting reviewed the following papers:

- WP/07 - *GREPECAS Project G3* (Presented by the Secretariat)
- WP/08 – *Measuring quality* (Presented by the Secretariat)
- WP/20 - *Implementation of ISO 9001:2015 in aeronautical publication processes* (Presented by Brazil)
- Presentation – *Implementation of Standard ISO 90001:2015 in Aeronautical Publications Processes* (Brazil)
- Presentation – *Quality Management System Certification ISO 9001:2015* (Paraguay)

GREPECAS Project G3

3.2 The Meeting took note of the action plans of the States that had not yet implemented the quality management system in AIM processes. In this regard, **Bolivia** noted that they had made no major progress in the implementation due to consecutive changes in their arrangements, which had delayed the process. On the other hand, **Guyana** had completed the training of their staff in ISO 9001 version 2015, and already had a draft Quality Manual, which was currently under review. **Panama** noted that they were undergoing an audit process and that certification audits under ISO 9001:2015 would take place in November and December 2017. They considered that the change introduced in ISO 9001:2015 presented a new implementation scenario, since all certifications issued under version 2008 of the standard would expire in September 2018. **Venezuela** informed that the process to adjust the AIM/QMS to version 2015 would be completed in November 2018. QMS certification would be hard to attain, since there was no ISO 9001 certifying company in Venezuela.

3.3 The Meeting expressed its concern for the situation of **Colombia**, which was still unable to certify its AIM systems, and for the delay in quality implementation in **Bolivia**, **Guyana** and **Suriname**.

3.4 The Meeting noted that the change in ISO 9001:2015 created a new implementation scenario, since States had already certified their AIM/QMS. These certifications would expire in September 2018 and re-certification would be needed under ISO 9001:2015 requirements.

3.5 The States that had their AIM/QMS already certified under version 2008 of the standard informed the following regarding their plans to adjust to the new requirements of version 2015:

- Argentina: no progress had been made in planning and re-certification in September 2018 was not confirmed.
- Brazil: all processes were under way and could re-certify in November 2017.
- Chile: a certification audit was conducted in July 2017, with minor findings, for which corrective action plans were submitted, expecting re-certification in December 2017.
- Paraguay: had re-certified in July 2017.
- Peru: staff had been trained in version 2015 of the standard. Currently, CORPAC S.A was making the necessary arrangements with an ISO 9001 certifying company in order to carry out the Second Maintenance Audit of ISO 9001:2008 and the migration to ISO 9001:2015.

3.6 Based on the information provided, the Region might have five States certified in ISO 9001:2015 by the end of 2017.

3.7 The Meeting took note of the information presented by Brazil and Paraguay regarding the implementation of AIM/QMS in their processes. Emphasis was placed on the commitment of staff and top management, and on the fact that team work had enabled the successful implementation of this requirement, and in the case of Paraguay, certification. States that had advanced in the implementation of the new requirements foreseen in version 2015 noted that the inclusion of Opportunities and Risk Management would expedite implementation of a safety management system (SMS) in the AIM area in the future.

3.8 In view of the change made to the standard, the Meeting considered modifying the implementation follow-up Table to include a new column regarding version 2015. The last update on the progress made in quality implementation is shown below:

STATE	% IMPLEMENTATION OCTOBER 2016	IMPLEMENTATION DATE	% PROGRESS	Progress in version 2015	REMARKS
Argentina	100%	FEB/2016	30%	No progress	Planning is still very basic.
Bolivia	30%	TBD	0%		The provider, AASANA, has trained two experts for quality implementation. One DGCA official attended the Lead Auditor course held in October 2015.
Brazil	CERTIFIED	----------	----------	95%	Foresee to re-certify in November 2017
Chile	CERTIFIED	----------	----------	95%	Certification audits have been carried out, with minor findings. Foresee to re-certify in November 2017
Colombia	90%	SEP/2014	25%	No progress	A consulting firm has been engaged for AIS/QMS and MET/QMS certification.
Ecuador	Has not achieved re-certification	----------	----------	No progress	There is no information on re-certification plans**.**
French Guiana	CERTIFIED	----------	----------	No progress	

STATE	% IMPLEMENTATION OCTOBER 2016	IMPLEMENTATION DATE	% PROGRESS	Progress in version 2015	REMARKS
Guyana	60%	DEC/2017	35%		Presented implementation and certification plan. Implementation foreseen for July 2018.
Panama	100%	DEC/2017	10%	Initial planning maintains possible certification in December 2017	Administrative restrictions did not permit certification. The date proposed is December 2017 under ISO 9001:2015.
Paraguay	CERTIFIED	----------	----------	Certified	Certified under ISO 9001:2015
Peru	CERTIFIED	---------	----------	90%	Currently, they are making all the necessary arrangements with a certifying company in order to carry out the Second Maintenance Audit of ISO 9001:2008 and migration to ISO 9001:2015.
Suriname	50%	AUG/2014	5%	No progress	Presented Action Plan
Uruguay	CERTIFIED	---------	--------	No information	No information
Venezuela	85%	NOV/2014	0%	70%	Implementation of version 2015 is expected to be completed by November 2018

3.9 The Secretariat would update the Project Description shown in **Appendix A** to this part of the report as approved by the Meeting.

Measuring Quality

3.10 The Meeting considered very important to measure the quality of the services provided by AIS/AIM. It also noted the importance of having performance indicators, and of setting goals to measure real quality rather than formal quality.

3.11 The Meeting noted that, based on the experience of States that had implemented AIM/QMS, the establishment of a quality management system provided the benefit of working in an orderly environment, observing clear differences between those areas that had implemented QMS and those that had not.

APPENDIX A

SAM Region	**PROJECT DESCRIPTION (DP)**	DP N° G3	
Programme	**Title of the Project**	**Start**	**End**
AIM (ICAO Programme Coordinator: Jorge Armoa)	Assessment and development of QMS applied to AIM in SAM States Project coordinator: Oscar Dioses (Peru) Experts contributing to the Project: SAM/AIM IG	03/10/11	01/11/20
Objective	Implement guides applicable to the quality management system in a digital/electronic AIM environment in the SAM Region, based on the regional performance objectives of the SAM performance-based implementation plan.		
Scope	The scope of the project contemplates the assessment and identification of implementation levels associated to quality management in AIM services in the Region. Drafting of an action plan and guides for the implementation of QMS in a digital/electronic AIM environment.		
Metrics	Percentage of States with ISO 9001:2008 QMS certification.		
Goals	50% of States with the ISO standard 9001:2015 implemented by 2018, and 75% certified by 2019.		
Strategy	Project activities will be coordinated among project members, the project coordinator, and the programme coordinator, mainly through teleconferences (GoToMeeting application) and meetings that may be held within other scheduled events, based on the activities of the work programme. The project coordinator will coordinate with the programme coordinator for the inclusion of additional experts, if warranted by the tasks and work to be performed. The results of the work done will be submitted to the consideration and review of State experts in the form of a final consolidated document for analysis, review, and approval, and for presentation to the GREPECAS PPRC by the programme coordinator.		

Rationale	The quality management system in AIM services must provide users the required guarantee and assurance that the aeronautical information/data distributed meets quality requirements in terms of accuracy, resolution and integrity. There needs to be a close relationship with other projects in order to collect the operational requirements of the aforementioned applications and their respective tentative dates of implementation.				
Related projects	This project is related to Projects G1 “Implementation of the provision of electronic terrain and obstacle data e-TOD” and G2 “Implementation of Aeronautical Information Exchange Systems (AIXM)”.				
Project deliverables	**Relationship with the performance-based regional plan (PFF)**	**Responsible party**	**Status of imple-mentation***	**Delivery date**	**Comments**
Collect and tabulate the information of the States	PFF: SAM AIM/01	ICAO coordinator		13/12/17	Valid.
QMS implementation plan updated to Standard ISO 9001:2015	PFF: SAM AIM/01	States		29/09/17	Valid.
Update of AIM Training Programmes	B0 DATM	States		30/11/17	Valid.
Collect certifications and produce report on the status of ISO 9001:2015 certifications in the SAM Region	B0 DATM	ICAO coordinator		15/06/20	Paraguay Certified Standard ISO 9001:2015
Resources required	Designation of experts in the execution of some of the deliverables. More commitment by States to support the designated coordinators and experts.				

**Grey* *Task not started*
Green *Activity underway as scheduled*
Yellow *Activity started with some delay but expected to be completed on time*
Red *It has not been possible to implement this activity as scheduled; mitigating measures are required*

Agenda Item 4: NOTAM Contingency Plan, AIM deficiencies and ICARD system

4.1 Under this agenda item the Meeting reviewed the following paper:

- WP/09 - *NOTAM Contingency Plans, deficiencies in the AIM area and ICARD System* (Presented by the Secretariat)
- WP/10 - *Update of Module 5LNC of ICARD Database* (Presented by the Secretariat)

Updates to NOTAM Contingency Plans

4.2 The Meeting was informed that the NOTAM Contingency Plan between Paraguay and Chile was in its final draft version and was expected to be signed in November 2017.

4.3 The delegation of Venezuela informed that they had started discussions with Peru to establish the NOTAM Contingency Plan between these two States.

4.4 Additionally, some States had reviewed the information contained in their contingency plans and provided new data, which appears in **Appendix A** to this part of the report.

NOTAM Contingency

4.5 SAM States that already have their corresponding NOTAM Contingency Plans are listed in **Appendix B** to this part of the report.

4.6 It was noted that the NOTAM Contingency Plan was subject to periodic revisions. Any modifications to be made required prior coordination between the parties. It has been agreed that modifications would be effective not before 30 days after the date of approval.

AIM deficiencies

4.7 Regarding deficiencies reported in the AIM area, there is still the issue of deficiencies that remain in the GANDD for years without any action being taken to correct them. This generates great concern in GREPECAS and Headquarters and is also reflected in safety audits.

4.8 Current AIM deficiencies in SAM States will further be updated in the GANDD, based on the information provided at this Meeting. The action plans for correcting deficiencies concerning e-TOD implementation will be taken from the plans submitted by the States.

ICARD System

4.9 The Meeting took note that the SAM/AIM/7 and SAM/AIM/8 meetings had discussed the extent of the changes that were required in the ICARD system to avoid duplication of codes, as well as the processes to be taken into account, and had concluded that the most appropriate target date for publishing an **AIP Supplement** or an **AIP amendment** would be **23 July 2015**.

4.10 Regarding the above, the Meeting recalled that the SAM/AIM/8 meeting had proposed **17 September 2015 as the effective date for these changes**. Thus, there would be enough time for data providers to make the necessary corrections and for users to load the database on their aircraft.

4.11 Regarding compliance with this commitment, the States reported the following:

- ✓ Argentina: Although an amendment was implemented on 13 October 2016, the State continued with the review and refinement process and expected to issue another amendment by the first half of 2018.
- ✓ Brazil: The SAM/IG is addressing this issue.
- ✓ Chile: Has not generated the amendment yet due to changes in the ICARD focal point.
- ✓ Paraguay: Will conduct a review.
- ✓ Guyana: Requested that the list provided by IATA at the SAM/AIM/6 be delivered to them again in order to work on the amendments in case there were duplicate or similar-sounding points within the Georgetown FIR.
- ✓ The other States did not report any action taken, except for Bolivia that reported at the SAM/AIM/8 meeting that the corresponding amendment had already been made, but would continue to work in order to see if there were other repeated or similar-sounding points in the La Paz FIR.

4.12 The Meeting took note of the change made in the ICAO ICARD platform. The updated ICARD database replaced the previous platform and would meet the needs of States in support of an efficient and safe implementation of unique 5LNCs.

4.13 The Meeting took note of the rules for correcting duplicated 5LNCs. Furthermore, the Secretariat expressed that it would be very important to first validate with the Regional Office any points to be included in an amendment and to take into consideration the validation period within the amendment development plans.

APÉNDICE / APPENDIX A

Catálogo de los Planes de Contingencia NOTAM de la Región SAM **Fecha: 01 de septiembre de 2017**
Catalogue of NOTAM Contingency Plans in the SAM Region **Date: 01 September 2017**

Estado/ State	Estado de respaldo/ Backup State	Situación / Status		Punto de Contacto/ Contact Point	Descripción general de facilidades y servicios que garantizan la continuidad / General description of facilities and services available which ensure continuity	Banco NOTAM NOTAM Bank
		Borrador/ Draft	Final			
1	2	3	4	5	6	7
Argentina	Uruguay		X	NOF Ezeiza Tel: 541 4480 2294 Fax: 541 4480 2260 Email: nofezeiza@anac.gob.ar NOF Montevideo Tel: 5982 6040067 Email: ais@adinet.com.uy	AFS, Tel/Fax, REDDIG, Internet	AMHS
Bolivia	Perú		X	NOF La Paz Tel: 5912 2316686 Email: ais@aasana.bo NOF Lima Tel: 511 2301288 –2301172 – 51 978471875 Email: fvasquez@corpac.gob.pe nofperu@corpac.gob.pe aislima@corpac.gob.pe	AFS, Tel, REDDIG, Internet	
Brasil/Brazil				NOF Brasil Tel/Fax: 5521 21016976 Email: nofbrazil@decea.gov.br	Tel, Fax, Internet	SISNOTAM

Estado/ State	Estado de respaldo/ Backup State	Situación / Status		Punto de Contacto/ Contact Point	Descripción general de facilidades y servicios que garantizan la continuidad / General description of facilities and services available which ensure continuity	Banco NOTAM NOTAM Bank
		Borrador/ Draft	Final			
1	2	3	4	5	6	7
Chile	Ecuador		X	NOF Chile Tel: 562 28364033 Email: nofchile@dgac.gob.cl NOF Guayaquil Tel: 5934 2285661 – 5934 2282017 Email: nof_ecuador@dgac.gob.ec	AFS, Tel/Fax, REDDIG, Internet	IAT-WIN
Colombia				NOF Bogotá Tel: 571 2962991 Email: ais@aerocivil.gov.co; solicitudes.notam@aerocivil.gov.co		Actual Banco Web / Current Web Bank AMHS
Ecuador	Chile		X	NOF Guayaquil Tel: 5934 2285661 – 5934 2282017 Email: nof_ecuador@dgac.gob.ec NOF Chile Tel: 562 28364033 Email: nofchile@dgac.gob.cl	AFS, Tel/Fax, REDDIG, Internet	IAT-WIN
Guyana	Suriname		X	NOF Guyana Telefax: 592 2612279 Tel: 592 2612269 AFS: SYCJYNYX Cable: TIMAIRPORT GUYANA Email: aisguyana@gcaa-gy.org NOF Suriname Tel: 597 0325103 Email: ais.sur@hotmail.com ais@cadsur.sr	AFS, Tel/Fax, REDDIG, Internet	AMHS

Estado/ State	Estado de respaldo/ Backup State	Situación / Status		Punto de Contacto/ Contact Point	Descripción general de facilidades y servicios que garantizan la continuidad / General description of facilities and services available which ensure continuity	Banco NOTAM NOTAM Bank
		Borrador/ Draft	Final			
1	2	3	4	5	6	7
Guyana Francesa/ French Guiana						
Panamá	Perú		X	NOF Panamá Tel: 2382 6152616 Email: aisnof@aeronautica.gob.pa NOF Lima Tel: 511 2301288 – 2301172 Email: fvasquez@corpac.gob.pe nofperu@corpac.gob.pe	AFS, Tel/Fax, REDDIG, Internet	AMHS AMHS
Paraguay	Chile	X	OCT/2017	NOF Asunción Tel: 59521 645952 Email: aisnof_ad@dinac.gov.py NOF Chile Tel: 562 28364033 Email: nofchile@dgac.gob.cl	AFS, Tel/Fax, REDDIG, Internet AFS, Tel/Fax, REDDIG, Internet	AMHS IAT-WIN
Perú	**Bolivia**		X	NOF Lima Tel: 511 2301288 – 2301172 – 51 978471875 Email: fvasquez@corpac.gob.pe nofperu@corpac.gob.pe aislima@corpac.gob.pe NOF La Paz Tel: 5912 2316686 Email: ais@aasana.bo		AMHS

Estado/ State	Estado de respaldo/ Backup State	Situación / Status		Punto de Contacto/ Contact Point	Descripción general de facilidades y servicios que garantizan la continuidad / General description of facilities and services available which ensure continuity	Banco NOTAM NOTAM Bank
		Borrador/ Draft	Final			
1	2	3	4	5	6	7
Suriname	Guyana		X	NOF Suriname Tel: 597 0325103 Email: ais.sur@hotmail.com ais@cadsur.sr NOF Guyana Telefax: 592 2612279 Tel: 592 2612269 AFS: SYCJYNYX Cable: TIMAIRPORT GUYANA Email: aisguyana@gcaa-gy.org	AFS,Tel/Fax, REDDIG, Internet	AMHS
Uruguay	**Argentina**		X	NOF Montevideo Tel: 5982 6040067 Email: ais@adinet.com.uy NOF Ezeiza Tel 5414 480 2294 Fax 5414 480 2260 Email: nofezeiza@anac.gob.ar	AFS, Tel/Fax, REDDIG, Internet	AMHS
Venezuela	Perú	X		NOF Lima Tel: 511 2301288 – 2301172 – 51 978471875 Email: fvasquez@corpac.gob.pe nofperu@corpac.gob.pe aislima@corpac.gob.pe		.

Nota/Note:

Columna 1: Indicar Estado, Territorio u Organismo Internacional / *Indicate State, Territory or International Organization.*

Columna 2: Indicar Estado, Territorio u Organismo Internacional con quien debe coordinarse el Plan de Contingencia del Estado citado en la Columna 1 / *Indicate State, Territory or International Organization with whom the Contingency Plan of the State mentioned in Column 1 should be coordinated.*

Columna 3: Marcar con X en el caso que el Plan de Contingencia se encuentre en proceso para su armonización con el Estado en cuestión / *Mark with an X in case the Contingency Plan is in process for its harmonization with the referred State.*

Columna 4: Marcar con X en el caso que el Plan de Contingencia se encuentre armonizado con el Estado en cuestión / *Mark with an X in case the Contingency Plan is in process for its harmonization with the referred State.*

Columna 5: Indicar cargo del Punto de Contacto y medio de comunicación a utilizar en caso de ser necesario / *Indicate position of the Point of Contact and communications means to be used, if necessary.*

Columna 6: Indicar cuáles son, en general, las facilidades y los servicios disponibles mientras el Plan de Contingencia se encuentra activado / *Indicate which are, in general, the facilities available services while the Contingency Plan is activated.*

Columna 7: Banco NOTAM / *NOTAM Bank.*

APÉNDICE / APPENDIX B

ESTADO DE IMPLANTACIÓN DE PLANES DE CONTINGENCIA NOTAM EN LA REGIÓN SAM STATUS OF IMPLEMENTATION OF CONTINGENCY NOTAM PLANS IN THE SAM REGION			
PLANES EN GESTIÓN ONGOING PLANS	**PLANES VIGENTES VALID PLANS**	**ESTADOS NO INICIADOS STATES WHICH HAVE NOT INITIATED**	**BANCO NOTAM NOTAM BANK**
	ARGENTINA/URUGUAY		AMHS
		BRASIL/BRAZIL	SISNOTAM
	BOLIVIA/PERU		AMHS
	PERU/PANAMA		AMHS
		COLOMBIA	ACTUAL BANCO WEB CURRENT WEB BANK AMHS Sep/2010
	CHILE/ECUADOR		IAT-WIN
	ECUADOR/CHILE		AMHS
	GUYANA/SURINAME		AMHS
	SURINAME/GUYANA		AMHS
PARAGUAY			AMHS
	PANAMÁ/PERU		AMHS
	PERU/BOLIVIA		AMHS.
	URUGUAY/ARGENTINA		SISNOTAM
VENEZUELA			

Fecha de actualización: **01 setiembre 2017**
Updating date: **01 September 2017**

Agenda Item 5: Analysis of objectives, metrics and dates for the implementation of elements regarding second phase of the plan for the transition of AIS to Digital AIM

5.1 Under this Agenda Item, the Meeting reviewed the following working papers:

- WP/11 - *Second phase of the transition to AIM Digital and follow up on the implementation of automated systems and other requirements according to Annex 15* (Presented by the Secretariat)

B0-DATM implementation

5.2 The Meeting recalled that the last SAM/AIM meetings had followed up the implementation of B0-DATM. It is important to recall that this module is to be implemented through the States, and the more States implement it, the greater the benefits.

5.3 The Secretariat highlighted that the second phase included the implementation of Steps 1, 2, 6, 7, 11, 13, 14, and 15 of the Roadmap and that these should be implemented after completion of Phase 1.

5.4 The Meeting recognized the importance of reconciling the steps of the roadmap with ASBU modules, specifically those that make up performance improvement area 2 (PIA 2), which includes module B0-DATM in Block 0 that then extends to B1-DATM in Block 1, so as to harmonize roadmap implementation efforts with the ASBU performance framework.

5.5 **Appendix A** to this part of the report contains the metrics used for measuring progress made in the implementation of B0-DATM, as well as implementation expectations for the coming years.

Methodology for reporting progress made in the transition from AIS to AIM

5.6 The Meeting took note that States had to report the status of implementation of the roadmap in order to prepare the progress report of the SAM Region for the global report.

5.7 **Appendix B** to this part of the report contains a methodological proposal for submitting reports and assessing progress in the transition from AIS to AIM. This methodological proposal had been analyzed and completed at the SAM/AIM/8 meeting and is the one that should be completed for drafting the report of the SAM Region.

National Plan for migration from AIS to AIM

5.8 The Secretariat reminded the Meeting that States should submit their national plans for migration from AIS to AIM. So far, Brazil was the only State that had sent its National Plan.

5.9 The Secretariat has requested this Plan because it is an important tool for measuring the attainment of goals and quantifying the progress made in the implementation of the roadmap and B0-DATM.

5.10 The Meeting recognized the importance of preparing this plan, and set it as a task to be completed and submitted to the Secretariat by the end of 2017.

Training requirements for Phase 2

5.11 The Meeting recognized that the implementation of Phase 2 of the Roadmap for the transition of AIS to AIM would require training of AIS technical personnel in digital aeronautical information management.

5.12 The Meeting felt that States should be aware that the profile of the AIS/AIM specialist would need to be modified, moving more towards that of an AIS/IT specialist. For this reason, the Meeting suggested a revision of the professional profile for purposes of training the new AIM specialists.

5.13 It would be important to coordinate with CATCs and training institutes in order to gear training programs towards the aforementioned profile so that the new professionals may become proficient in the technological tools to be implemented in preparation for the digital phase of AIM.

Implementation of automated systems and other requirements as per Annex 15

5.14 The Meeting recognized the need for automation in order to avoid unnecessary duplication of efforts and ensure standardization of procedures, products, and services for end users.

5.15 The Meeting recognized that States should plan for, and move towards, automation. To this end, in addition to aeronautical information management software, it would be necessary to train AIS/AIM technical personnel in digital aeronautical data management.

5.16 Regarding implementation follow-up, **Appendix C** to this part of the report shows the status of implementation of automation.

APPENDIX A

STATUS OF IMPLEMENTATION OF B0-DATM ELEMENTS

B0 – DATM: Service improvement through digital aeronautical information				
ELEMENTS	**SCOPE**	**INDICATORS/ METRICS**	**GOALS: %/ Date**	**STATUS**
1- National AIM plan / Action plan	All States	Indicator: % of States that have developed a National AIM Plan and an Action Plan. Metrics: Number of States that have developed a National AIM Plan and an Action Plan.	50% 2nd Semester 2015 100% 2nd Semester 2016	43% (6 States)
2 - AIXM	All States	Indicator: % of States that have implemented AIXM on an AIS database. Metrics: Number of States that have implemented AIXM on an AIS database.	Tests 2017 (4 States: ARG, BRA, PER, VEN) 57% by 2017 86% by 2018 100% by 2019	36% (5 States)
3 – Electronic AIP	All States	Indicator: % of States that have implemented an IAID for managing the production of the electronic AIP (eAIP). Metrics: Number of States that have implemented an IAID for managing the production of the electronic AIP (eAIP).	21% by 2017 43% by 2018 71% BY 2019 86% by 2020 100% by 2021	XX% (X States)
4 - QMS	All States	Indicator: % of States that have obtained AIM/QMS certification updated to version 2015 with Standard ISO 9001. Metrics: Number of States that have obtained AIM/QMS certification updated to version 2015 with Standard ISO 9001.	36% by 2017 64% by 2018 100% by 2019	7% (1 State)
5 - WGS-84	All States	Indicator: % of States that have implemented WGS-84 on the horizontal plane (ENR, terminal, AD) Metrics: Number of States that have implemented WGS-84 on the horizontal plane (ENR, terminal, AD)	Horizontal: 100% by 2014 Vertical: 100% by 2014	100% (14 States) 100% (14 States)

B0 – DATM: Service improvement through digital aeronautical information				
ELEMENTS	**SCOPE**	**INDICATORS/ METRICS**	**GOALS: %/ Date**	**STATUS**
Consult the States		Indicator: % of States that have implemented WGS-84 geoidal undulation. Metrics: Number of States that have implemented WGS-84 geoidal undulation.	100% by 2017	86% (12 States)
6 – 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**: Terrain: 56% by 2018 71% by 2019 79% by 2020 86% by 2021 100% by 2022 Obstacles: 56% by 2018 71% by 2019 79% by 2020 86% by 2021 100% by 2022 **Area 4**: 56% by 2018 71% by 2019 79% by 2020 86% by 2021 100% by 2022 Obstacles: 56% by 2018 71% by 2019 79% by 2020 86% by 2021 100% by 2022	**Area 1**: Terrain: XX% (X States) Obstacles: XX% (X States) **Area 4**: Terrain: XX% (X States) Obstacles: XX% (X States)
7 - 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 56% by 2020 100% by 2021	XX% (X States)

B0 – DATM: Service improvement through digital aeronautical information				
ELEMENTS	**SCOPE**	**INDICATORS/ METRICS**	**GOALS: %/ Date**	**STATUS**
8- 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).	28% by 2017 56% by 2018 86% by 2019 100% by 2020	XX% (X States)

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APPENDIX B

(Available in Spanish only)

METODOLOGÍA PARA LA PRESENTACIÓN DE INFORMES Y EVALUACIÓN DE LOS PROGRESOS RELACIONADOS CON LA TRANSICIÓN DEL AIS AL AIM

1. Introducción

La transición de servicios de información aeronáutica (AIS) para gestión de información aeronáutica (AIM) es un área de alta prioridad para el progreso de la navegación aérea. Esta es una iniciativa de posicionamiento estratégico para manejar la entrega de información aeronáutica mejorada en términos de calidad, puntualidad y la identificación de nuevos servicios y productos para servir mejor a los usuarios aeronáuticos. Esta metodología tiene como objetivo desarrollar un método y un plan para la presentación de informes por los Estados sobre los progresos realizados para la transición del AIS al AIM, basado en el plan de trabajo de la OACI para la transición del AIS al AIM.

Necesidad de informar y evaluar el progreso relacionado con la transición del AIS al objetivo

El marco de rendimiento de OACI en la planificación e implantación de la navegación aérea exige que el informe, monitoreo, análisis y la revisión de las actividades se lleve a cabo sobre una base cíclica anual (ICAO DOC 9750). Los datos recopilados van a poder ser utilizados entre otros para monitorear funciones y para reflejar el progreso en los Informes Mundiales de Navegación Aérea, así como en los cuadros mundiales de rendimiento que muestra la Sede.

2. Aproximación metodológica

El enfoque principal de esta metodología en la recolección de datos e informes es cuantitativo, basado en la regla SMART. Todos los elementos y métricas e indicadores utilizados para la presentación de informes deben ser específicos, medibles, alcanzables, relevantes y tiempo limitado. Algunos elementos de la hoja de ruta del AIS al AIM como por ejemplo: P-02 Monitoreo de la integridad del dato, P-07 Identificadores únicos, P-10 Redes de comunicación, P-16 Entrenamiento y P-19 Interoperabilidad con productos meteorológicos, no se toman en cuenta para la elaboración de informes, considerando que ya son parte de otras medidas o medición que no podría realizarse en términos cuantitativos.

3. Estrategia para la recolecta de los datos

Con el fin de evitar la confusión entre las numerosas formas de presentación de informes de los Estados para la recolección de datos, se ha diseñado una recolección metodológica de los datos a través de herramientas actuales como tablas de eANP, etc. No obstante lo anterior, hojas Excel de apoyo a esta recolección pueden utilizarse, si es necesario.

4. Estructura y Plan metodológico

La estructura del Plan metodológico consta de los siguientes elementos:

1. Elemento (fase/paso Nº): se refiere al número de fase (1-3), paso y paso número (1-21) de la hoja de ruta de la OACI para la transición del AIS al AIM. Algunos pasos de la hoja de ruta de la OACI para la transición del AIS al AIM (es decir, P-02, P-07, P-10, P-16 y P-19) no se consideran para la elaboración de informes, considerando que ya son parte de otras medidas o medición que no podrían realizarse en términos cuantitativos.

2. Métricas/indicador: se refiere a la condición de cumplimiento e implementación de paso y podría ser por ejemplo no conformidad (NC), cumplimiento parcial (PC) o cumplimiento total (FC).

3. Fuente de datos (cómo recoger datos): la principal herramienta para la recogida de datos sería eANP tablas. Especiales de hojas Excel de apoyo a la recogida de datos pueden utilizarse, si es necesario.

4. Quién recogerá los datos: los datos se deben recoger por la Oficina Regional de OACI/ICAO HQ.

5. Cuándo se recopilan los datos: los datos para cada reporte se recolectarán en noviembre.

6. Año de publicación del informe: el año, en el que se publicarían los reportes (Informe Mundial de Navegación Aérea & Cuadro de Rendimiento regional.

7. Observaciones: cualquier información adicional, por ejemplo, en caso de estado de la aplicación es PC; lista de elementos secundarios que se han implementado.

5. Plan Metodológico para el informe anual

Elemento (Fase/ Paso No.)			Métrica/ Indicador	Fuente de los datos (cómo colectar los datos)	Quién colecta los datos*	Año del Informe	Observaciones
1			**2**	**3**	**4**	**5**	**6**
Fase 1							
Adherencia al AIRAC		P-03	FC/NC	eANP	ICAO HQ/RO	2014	
Implantación WGS-84		P-05	FC/PC/NC	eANP	ICAO HQ/RO	2014	
Certificación QMS		P-17	FC/NC	eANP	ICAO HQ/RO	2014	
Fase 2							
Monitoreo calidad del dato		P-01	FI/NI	TBD	TBD	TBD	
Monitoreo Integridad del dato		P-02	N/A	N/A	N/A	N/A	N/A (Unida al P-01)
Base de datos de Información Aeronáutica Integrada	AIXM-con Base de datos AIS	P-06	FI/NI	eANP	ICAO HQ/RO	2017	*Base de datos de Información Aeronáutica estructurada con capacidad de intercambio (e.g. AIXM)* Iniciada
	Implantación de IAID		FI/PI/NI	TBD	TBD	2018	*En caso de PC, listar los nombres de los AI Products del IAID*
Identificadores únicos		P-07	N/A	N/A	N/A	N/A	Relacionado con P-06
Modelo conceptual de Información Aeronáutica		P-08	N/A	N/A	N/A	N/A	Relacionado con P-06
AIP Electrónico		P-11	FI/NI	eANP	ICAO HQ/RO	2017	Seguimiento a la Implantación
Terreno	Area 1	P-13	FC/NC	eANP	ICAO HQ/RO	2018	Informe de seguimiento de los Planes de Acción
	Area 4	P-13	FC/PC/NC	eANP	ICAO HQ/RO	2018	*En caso de PC, listar los nombres de ADs* Informe de seguimiento de los Planes de Acción

Elemento (Fase/ Paso No.)			Métrica/ Indicador	Fuente de los datos (cómo colectar los datos)	Quién colecta los datos*	Año del Informe	Observaciones
1			2	3	4	5	6
	Area 2a	P-13	FC/PC/NC	eANP	ICAO HQ/RO	2017	*En caso de PC, listar los nombres de ADs* Informe de seguimiento de los Planes de Acción
	Area de la trayectoria de despegue	P-13	FC/PC/NC	eANP	ICAO HQ/RO	2017	*En caso de PC, listar los nombres de ADs* Informe de seguimiento de los Planes de Acción
	Area delimitada por la extensión lateral de la superficie limitadora de obstáculos	P-13	FC/PC/NC	eANP	ICAO HQ/RO	2017	*En caso de PC, listar los nombres de ADs* Informe de seguimiento de los Planes de Acción
Obstáculos	Area 1	P-14	FC/NC	eANP	ICAO HQ/RO	2018	Informe de seguimiento de los Planes de Acción
	Area 4	P-14	FC/PC/NC	eANP	ICAO HQ/RO	2018	*En caso de PC, listar los nombres de ADs* Informe de seguimiento de los Planes de Acción
	Area 2a	P-14	FC/PC/NC	eANP	ICAO HQ/RO	2018	*En caso de PC, listar los nombres de ADs* Informe de seguimiento de los Planes de Acción
	Objetos situados en área de trayectoria de despegue que pasen la superficie plana de 1.2 % con el mismo origen que el área de la trayectoria de despegue	P-14	FC/PC/NC	eANP	ICAO HQ/RO	2018	*En caso de PC, listar los nombres de ADs* Informe de seguimiento de los Planes de Acción

Elemento (Fase/ Paso No.)		Métrica/ Indicador	Fuente de los datos (cómo colectar los datos)	Quién colecta los datos*	Año del Informe	Observaciones
1		2	3	4	5	6
Penetración de las superficies limitadoras de obstáculos	P-14	FC/PC/NC	eANP	ICAO HQ/RO	2018	*En caso de PC, listar los nombres de ADs* Informe de seguimiento de los Planes de Acción
Cartogafía de Aeródromos	P-15	FI/PI/NI	TBD	TBD	TBD	*En caso de PC, listar los nombres de ADs*
Fase 3						
Intercambio de datos aeronáuticos	P-09	FI/PI/NI	TBD	OACI	2019	*En caso de PC, listar nombres de unidades (Originadores de datos/usuarios)*
Redes de comunicaciones	P-10	N/A	N/A	N/A	N/A	N/A
Notificación de información aeronáutica	P-12	FI/PI/NI	TBD	TBD	TBD	*En caso de PC, listar los nombres de ADs*
Capacitación	P-16	FI/PI/NI	QMS/AIM	OACI	2018	Se debe coordinar con el foro del CIAC para que la información sea coherente.
Acuerdos con los originadores de datos	P-18	FI/PI/NI	eANP	ICAO HQ/RO	2016	*En caso de PC, listar nombres de originadores de datos*
Interoperabilidad con productos meteorológicos	P-19	N/A	Bancos de datos OPMET	Estados/Industria	2019	N/A
Cartas Aeronaúticas electrónicas	P-20	FI/NI	TBD	TBD	2018	
NOTAM Digital	P-21	FI/NI	Bancos de NOTAM	Estados/Industria	2019	

FC: Cumplimiento total; PC: Cumplimiento parcial; NC: No cumple; FI: Implantación total; PI: Implantación parcial; NI: No implantado, N/A: No aplicable

** La recolecta de los datos será llevada a cabo por la Sede de OACI y/o Oficina Regional.*

6. Fechas para los Informes

Informe anual	Elemento	Paso No.	Observaciones
2014	Adherencia AIRAC Implantación WGS-84 Certificación QMS	P-03 P-05 P-17	Completado Completado Parcialmente completado
2018	AIXM-con base de datos AIS AIP electrónico Terreno(Área 1 y Área 4) Obstáculos (Área 1 y Área 4)	P-06 P-11 P-13 P-14	Iniciada
2018	Terreno (Area 2a) Obstáculos (Area 2a) Acuerdo con originadores de datos.	P-13 P-14 P-18	Iniciada
2017 +	Cartas Eléctrónicas	P-20	

7. Finalización y Criterio de Cumplimiento

Los criterios por los cuales se pueden observar finalización y cumplimiento de las métricas (paso).

Elemento (Paso)	Criterio de finalización, de implantación o cumplimiento (para Métricas 2015 y 2016)
AIXM con Base de datos AIS	Base de datos nacional e información está y es mantenida en una base de datos AIXM-que tiene una base de datos AIS.
AIP Electrónico	AIP GEN 3.1.3 '*publicaciones Aeronáuticas*' provee información acerca de la disponibilidad del AIP nacional en formato electrónico (eAIP).
Set de datos terreno Area 1	AIP GEN 3.1.6 '*Terreno y obstáculos electrónico*' provee información de cómo ese set de datos puede ser obtenido.

Set de datos terreno Area 4	AIP GEN 3.1.6 '*Terreno y obstáculos electrónico'* provee información de cómo ese set de datos para especificaciones CAT II/III RWY puede ser obtenido. Estados deberán indicar en Observaciones el número existente de CAT II/III RWY. N/A para Estados que no tienen CAT II/III RWY.
Set de datos terreno Area 2[1]	AIP GEN 3.1.6 '*Terreno y obstáculos electrónico'* provee información de cómo ese set de datos puede ser obtenido. Estados deberían indicar en observaciones el número AD elegible para provisión de datos de Area 2. Este número debería ser acorde con la Tabla Regional eANP Tabla AOP II-1 – para aeródromos con la siguiente denominación: — RS: *international scheduled air transport, regular use* — RNS: *international non-scheduled air transport, regular use* — RG: *international general aviation, regular use.*
Set de datos obstáculos Area 1	AIP GEN 3.1.6 '*Terreno y obstáculos electrónico'* provee información de cómo ese set de datos puede ser obtenido.
Set de datos obstáculos Area 4	AIP GEN 3.1.6 '*Terreno y obstáculos electrónico'* provee información de cómo ese set de datos para especificaciones CAT II/III RWY puede ser obtenido. Estados deberán indicar en Observaciones el número existente de CAT II/III RWY. N/A para Estados que no tienen CAT II/III RWY.
Set de datos obstáculos Area 2[2]	AIP GEN 3.1.6 '*Terreno y obstáculos electrónico'* provee información de cómo ese set de datos puede ser obtenido.. Estados deberían indicar en observaciones el número AD elegibles para provisión de datos de Area 2. Este número debería ser acorde con la Tabla Regional eANP Table AOP II-1 – para aeródromos con la siguiente denominación: — RS: international scheduled air transport, regular use — RNS: international non-scheduled air transport, regular use — RG: international general aviation, regular use.
Acuerdos con Originadores de datos	TBD

- - - - - - -

[1] Set de datos requeridos de acuerdo con Anexo 15 (10.1.5)
[2] Set de datos requeridos de acuerdo con Anexo 15 (10.1.6)

APÉNDICE C / APPENDIX C

SEGUIMIENTO AL NIVEL DE IMPLANTACIÓN DE LA AUTOMATIZACIÓN PARA LA PROVISIÓN DE INFORMACIÓN AERONÁUTICA (Ref.: Anexo 15, 3.6 y Doc 8126, Capítulo 9)

FOLLOW-UP THE LEVEL OF IMPLEMENTATION OF THE AUTOMATION FOR THE PROVISION OF AERONAUTICAL INFORMATION (Ref.: Annex 15, 3.6 and Doc 8126, Chapter 9)

ESTADOS / *STATES*	**ARG**	**BOL**	**BRA**	**CHI**	**COL**	**ECU**	**GUY**	**FGU**	**PAN**	**PAR**	**PER**	**SUR**	**URU**	**VEN**
Modelo AIXM, Digital NOTAM, GIS y Metadatos / *AIXM Model, Digital NOTAM, GIS and Metadata*														
¿Tiene el Estado un Plan de Implantación de Automatización de la provisión de información aeronáutica? / *Has the State an Automation Implementation Plan for the provision of aeronautical information?*	SI	NO	SI/*YES*	SI	---	---	NO	---	SI	---	SI/YES	NO	NO	SI/YES
¿Dispone el Estado del e-AIP en un formato de lenguaje extensible de acuerdo al modelo AIXM? (Especifique) / *Has the State the e-AIP in an extensible language format according to the AIXM model? (Specify)*	NO	NO	SI/YES[1]	NO[1]	---	---	NO	---	P[2]	---	SI/YES[1]	NO	NO	NO
¿Tiene el Estado la capacidad de preparar Digital NOTAM? / *Has the State the capacity to prepare Digital NOTAM?*	NO	NO	NO [(2)]	NO	---	---	---	---	NO	---	SI/YES	NO	NO	NO
¿Cuenta el Estado con capacidad de generar Cartas Aeronáuticas electrónicas?/ *Has the State the capacity to generate electronic aeronautical charts?*	SI/*YES*	NO	SI/*YES*[3]	SI/YES [2]	---	---	---	---	SI[1]	---	SI/YES[2]	NO	NO	NO

ESTADOS / *STATES*	ARG	BOL	BRA	CHI	COL	ECU	GUY	FGU	PAN	PAR	PER	SUR	URU	VEN
En caso de que la pregunta anterior sea afirmativa ¿ha considerado la recopilación y aplicación de los metadatos para dar trazabilidad a los datos que son utilizados para generación de las cartas aeronáuticas? / ***If the previous question is affirmative, has the compiling and application of metadata to give traceability to the data used for the generation of aeronautical charts be considered?***	SI/*YES*	NO	SI/*YES*	NO	---	---	NO	---	SI	---	SI/*YES*	NO	NO	---
¿El modelo de metadato utilizado, está acorde con el presentado en la ISO 19115?/ ***Is the model of the metadata used in accordance with the one presented in ISO 19115?***	SI/*YES*	NO	SI/*YES*	NO	---	---	---	---	SI	---	SI/*YES*	NO	NO	NO

Y = Si / Yes
[1, 2, ...] = Ver comentarios / *See comments*
N = No
P = Parcialmente / *Partially*
N/A = No aplicable / *Not applicable*
S/R = Sin respuesta / *Without answer*

COMENTARIOS DE LOS ESTADOS / *COMMENTS BY STATES*

ESTADOS/ *STATES*	**COMENTARIOS / *COMMENTS***
ARG	
BOL	
BRA	Brasil utiliza el software IDS, y una base de datos llamada AERODATABASE. Los datos se encuentran en procesos de carga y esperan contar con e-AIP para 2017. Con relación al NOTAM Digital, esperan poder implantarlo para el 2017 / *Brazil uses IDS software and a database named AERODATABASE. The data is in the loading process and expect to count with e-AIP for 2017. With regard to Digital NOTAM, they expect to implement it in 2017.*
CHI	[1] Una empresa ha hecho una propuesta para la preparación del AIP electrónico. / *A Company has made a proposal for the preparation of the electronic AIP.* [2] Chile tiene cartas digitales pero no son interactivos. / *Chile has digital charts but they are not interactive.*
COL	
ECU	
FGU	

ESTADOS/ *STATES*	**COMENTARIOS / *COMMENTS***
GUY	
PAN	[1]Panamá produce cartas digitales pero no son interactivas. / *Panama produces digital charts but they are not interactive.* [2] Panamá está preparando el AIP electrónico en un formato de lenguaje extensible, el cual estaría disponible para el 2017. / *Panama is preparing the electronic AIP in an extensible language format, which would be available for 2017.*
PAR	
PER	[1]Perú, para las publicaciones utiliza el software GROUPVERVE. Para la cartografía, utiliza el software ACCENT. La base de datos proviene del CADAS-AIMDB / *For publications, Peru uses GROUPVERVE software. For cartography, uses ACCENT software. The database comes from CADAS-AIMDB.* [2] Perú elabora cartas digitales pero no son interactivas. / *Peru prepares digital charts but they are not interactive.*
SUR	
URU	
VEN	

Agenda Item 6: Proposals for amendment to Annex 15 – Aeronautical Information Services

6.1 Under this agenda item, the Meeting reviewed the following papers:

- WP/12 – *Proposal for Amendment to Annex 15* (Presented by the Secretariat)
- WP/13 – Proposal for the creation of PANS-AIM (Presented by the Secretariat)
- WP/14 – *Data Catalogue* (Presented by the Secretariat)

Proposal for amendment 40 to Annex 15

6.2 The Meeting took note of proposal for amendment to Annex 15 circulated on 21 April 2017, expressing that it was very extensive turning difficult the analysis of all the changes proposed in the amendment.

6.3 The Meeting also noted the analysis conducted by the AIS-AIM SG to existing provisions and of the need to incorporate the AIM into Annex 15, which is part of an evolutionary process. In order to facilitate the incorporation of the new technical requirements and provisions, the AIM-AIM SG group decided to conduct a major restructuring of Annex 15.

6.4 The Secretariat informed the Meeting that, besides restructuring Annex 15, the proposal includes new provisions related to AIM that can be grouped as follows:

a) Split of data origination requirements from data publication requirements

b) Introduction of the Aeronautical Data Catalogue

c) Digital data sets

d) Aeronautical information product

e) Data quality requirements

f) New terminology

g) NOTAM improvement proposal

h) CRC performance-based requirements

i) Clarification of requirements

6.5 The Meeting urged States to review the regulations that shall affect the prompt approval of the proposal to be able to adapt the documentation when the proposal becomes effective (probably November 2018).

PANS-AIM

6.6 The Meeting took note that the PANS-AIM arises from a restructuring of Annex 15 – *Aeronautical Information Services* and Doc 8126 - *Aeronautical Information Services Manual.* The group observed that the Procedures for Air Navigation Services (PANS) - Aeronautical Information

Management (Doc. 10066, Document planned to be created), provides a detailed description of the AIM functions, products and services and outlines the data origination requirements and the procedures according to which data shall be collected and transmitted to the AIS in accordance with accuracy, resolution and integrity classification requirements.

6.7 The Secretariat informed that the creation of the PANS-AIM, intends that all the specifications published within this document provide a means for increased harmonization within the domain of AIS/AIM and span the gap between the guidance contained in Doc 8126 and the SARPs embodied in Annex 15. Additionally, PANS-AIM provides a vehicle for expanded and/or new specifications for digital data sets and digital data exchange where it was found desirable to have a level of standardization but where the material was too detailed or not appropriate for inclusion in Annex 15.

6.8 The Meeting deemed important to start planning the implementation or the familiarization processes with this document as soon as possible, although it will become effective in 2020.

Data Catalogue

6.9 The Meeting observed that the new PANS AIM document sets forth in Appendix 1, the need for States to develop a Data Catalogue as a reference for all the provisions related to the generation and publication of aeronautical data.

6.10 The Meeting took note that the purpose of developing a data catalogue is to provide a general description of the scope of AIM data, and not to be an inventory of the data to be collected. The group observed that purpose of developing a catalogue of aeronautical data is to provide a general description of the scope of AIM data and consolidate all the aeronautical data and aeronautical information that AIM organisations must collect and maintain.

6.11 The Meeting acknowledged that the AIS-AIM SG considered that the transfer of all data quality requirements contained in Annex 4 (Appendix 6), Annex 11 (Appendix 5), Annex 14 (Appendix 5, Volume I) Annex 14 (Appendix 1, Vol. II) and Annex 15 (Appendices 7 and 8) to the PANS-AIM, and their consolidation in a single place of the data catalogue, would be beneficial since it would provide a central reference to facilitate the identification of discrepancies.

6.12 The Secretariat informed that the data catalogue is aimed at consolidating the data that may be collected and maintained by the AIS. Furthermore, it is the source of accuracy and integrity requirements for detection and reporting of aeronautical data to the AIS. It is also the source of resolution and integrity requirements for the publication and mapping of products, including the aeronautical data listed in Annex 15.

6.13 The Meeting considered that the implementation of the Data Catalogue could subsequently provide important information for the generation of “databases” to be used in automated systems.

Agenda Item 7: Performance Based Implementation Plan for the South American Region (SAM-PBIP) and its alignment to GANP 2015

7.1 Under this Agenda Item, the Meeting reviewed the following working papers:

- WP/15 - *Analysis of SAM-PBIP AIM chapter and PFF* (Presented by the Secretariat)
- Presentation – *Performance Based Implementation Plan for the South American Region (SAM-PBIP)* (Presented by the Secretariat)

7.2 The Meeting took note that the *Performance Based Implementation Plan for the South American Region (SAM-PBIP)* has been drafted taking into consideration ICAO Global Air Navigation Plan (Doc. 9750) and is framed within the of Aviation System Blocks Upgrades (ASBU) methodology.

7.3 The Secretariat emphasized that in view of the approval of the fifth edition of the GANP in 2016, it was necessary to review the SAM-PBIP in order to align it to the new concepts and requirements included in this version of the GANP.

7.4 The Secretariat informed the Meeting that this Plan seeks to establish an implementation strategy so that benefits can be obtained for the air navigation community, based on the ATM-related infrastructure and available and foreseen aircraft capabilities. The document contains the Regional vision for the air navigation system AGA/AOP, AIM, ATM, CNS, MET, SAR, Human Resources and Safety, giving high priority to environmental protection, training and safety.

7.5 The Meeting observed that the document should be aligned to the Aviation System Blocks Upgrades (ASBU) methodology. In this regard, the Meeting deemed important to deliver ASBU familiarization courses/workshops in view of the poor dissemination of this tool or reference framework in the AIM areas.

7.6 The Secretariat requested the review of the part corresponding to the aeronautical information service / aeronautical information management area in order to provide information to improve and enrich the final document. For this purpose, the Meeting separated in three groups to analyze the different documents of the chapter and other sections corresponding to the AIM.

7.7 After the analysis of the document, the Meeting deemed important to modify some items, specifically in the Performance Framework Form (PFF) and the Air Navigation Report Form (ANRF). **Appendix A** to this part of the report presents the AIM Chapter, as well as the changes regarding BO-DATM PFF and ANRF.

7.8 With regard to WGS-84 implementation, the Meeting expressed its reservations since, while the surveying of all the points is made in WGS-84 coordinates, in procedures design the use of this world geographic coordinates system is not ensured, since most States still use AUTOCAD and not the GIS tool, which might indicate that global georeferenced is not used.

7.9 The Meeting considered important to raise the inquiry on the type of coordinates used in procedures design to the PANS-OPS forum.

APPENDIX A

STATES' CORRECTIVE ACTION PLANS

8. Chapter 8: Aeronautical Information Services / Aeronautical Information Management

8.1 Introduction

8.1.1 SAM States must consider the operational requirements of this Plan when implementing aeronautical information services.

8.1.2 In view of the requirements derived from the implementation of the ATM Operational Concept and the AIS-AIM Transition Roadmap, SAM States shall consider planning for improvements to, and the strengthening of, Aeronautical Information Services, taking into account the initiatives of the Global Air Navigation Plan, as well as new provisions and requirements for short and medium-term implementation, and the related components of the aforementioned concept.

8.2 Analysis of the current situation (2017)

8.2.1 The AIS system, currently available in the SAM Region presents improvement opportunities in some States on issues that involve aeronautical information management, *inter alia:*

a) information with assurance of quality, integrity, and timely distribution of AIS products;
b) data-oriented activities, and in the provision of electronic information with quality assurance, in real time and with the capability of combining statistical and dynamic information in the same presentation;
c) use of standard models for the creation of integrated aeronautical, terrain and obstacle information data bases;
d) use of English language in AIS publications;
e) topographic and land relief information in instrument approach charts;
f) implementation of quality control systems;
g) implementation of automated systems;
h) provision of pre-flight information bulletin (PIB);
i) inclusion of area minimum altitudes (AMA) in route navigation charts;
j) use of English in plain-language in NOTAMs;
k) provision of post-flight information services;
l) training for AIS personnel in the new requirements of the Annexes and Documents related to AIM and ATM operational concept;
m) provision of aerodrome obstacle charts;
n) provision of 1:500,000 aeronautical charts and 1:1,000,000 global chart;
o) minor difficulties in the use of the AIRAC system; and
p) coordination between AIS/MET units for consistency between the NOTAM/ASHTAM and the volcanic ash SIGMET and for updating MET information in the AIP.

8.3 **Strategy for the implementation of performance objectives**

8.3.1 Planning has been based on two main axes, which are shown in Attachment C, and listed below:

a) Improving the quality, integrity and availability of aeronautical information (SAM AIM/01 PFF); and
b) Transition to the provision of electronic aeronautical information (SAM AIM/02 PFF).

Improving the quality, integrity and availability of aeronautical information

8.3.2 Full compliance with SARPs on quality assurance, integrity and timely availability of aeronautical information is a prerequisite for the transition to AIM.

8.3.3 In this sense, an action plan must be drafted and carried out to resolve current deficiencies as a prerequisite for the migration to AIM.

Aeronautical information regulation and control (AIRAC)

8.3.4 According to the AIS-AIM Transition Roadmap, the States must comply with the aeronautical information regulation and control (AIRAC) process, since the quality of Aeronautical Information Services depends on the efficacy of the mechanisms for distribution, synchronisation and timing of said information.

Quality management system (QMS)

8.3.5 Quality management systems covering all the functions of aeronautical information services will be implemented and maintained.

8.3.6 The use of data sets on airborne equipment (FMS), automated systems for ATC, ground proximity warning systems (GPWS) and other systems related to an improved situational awareness make it absolutely necessary to implement processes to ensure the quality and integrity of the aforementioned data. These processes should be organised in a quality management system (QMS) applicable to all activities performed by the AIS.

8.3.7 The quality management system should be consistent with the ISO 9000 series and be certified by an accredited certification body. This certification is sufficient measure of compliance.

Monitoring of integrity in the data supply chain

8.3.8 Quality management systems should evolve until they are applied to all the data supply chain, starting at their origin.

8.3.9 In order to guarantee raw data integrity, service level agreements (SLA) must be established with the originators.

8.3.10 These SLAs will serve as a regulatory framework for the provision of data by the originators, and will contain details, *inter alia*, on: services to be provided, related indicators, acceptable and unacceptable levels of service, commitments and responsibilities of the parties, action to be taken in face of given events or circumstances, agreed data transmission formats, etc.

8.3.11 The SLAs are also a tool for measuring service performance, through the use of key performance indicators (KPIs).

Use of WGS-84

8.3.12 GNSS implementation requires the use of a common geodetic reference system. The SARPs determine that this common reference system must be WGS-84.

8.3.13 Consequently, the objective should be to express all coordinates in the WGS-84 reference system in an effective and verifiable manner. This requirement will also apply to future data products.

8.3.14 SAM States have completely implemented WGS-84.

Comment [PM1]: Verify if compliance can be considered in FULL, since flight procedures designers not only use the GIS tool and might not use global georeference.

Transition to the provision of electronic aeronautical information

8.3.15 The transition to aeronautical information management (AIM) implies--as already stated--a data-oriented product. This transition to a digital format must be based on standard models and products that permit the exchange at a global level.

8.3.16 Based on this standardisation, the implementation of products and models will be done in a coordinated manner, at a global level, and in keeping with SARP updates resulting from new specifications.

Integrated aeronautical information database

8.3.17 For the design of the aeronautical information database, it is necessary to establish a conceptual model that defines the semantics of aeronautical information in terms of common data structures and takes into consideration the new requirements derived from the ATM Operational Concept.

8.3.18 The implementation of a conceptual model fosters interoperability and should serve as a reference in the design of the specified database.

8.3.19 Use will be made of an integrated aeronautical information database that integrates the digital aeronautical data of a State or Region and will serve to generate AIM products or services.

8.3.20 Use of database engines with spatial characteristics (geo-database) is highly advisable, since it enables data processing in geographical information systems (GIS).

8.3.21 Although it is not necessary for the design of these databases to be identical in all States or Regions, their modelling according to a common conceptual model would facilitate the subsequent exchange of data.

8.3.22 Database management may be carried out by a State or through regional initiatives.

Aeronautical Information Exchange Model (AIXM)

8.3.23 An exchange model is essential for interoperability, since it establishes aeronautical data syntax for names and characteristics.

8.3.24 They have been established based on open standards (XML, GML), facilitating their incorporation into pre-existing or future systems.

8.3.25 It shall contemplate, for a medium term, the exchange of dynamic information (NOTAM), enabling the extension of the traditional NOTAM format to give way to the digital NOTAM digital.

Terrain and obstacle database (e-TOD)

8.3.26 Ground proximity warning systems (GPWS), like the GIS-based procedure design and optimisation tools, require the electronic availability of high-quality terrain and obstacle data products.

8.3.27 To respond to this need, terrain and obstacle databases will be established according to common definitions that will be incorporated into the SARPs.

Electronic aeronautical information publication (e-AIP)

8.3.28 The eAIP must be considered as the evolution from the traditional paper-based AIP to the digital medium. States shall ensure to present the AIP, in the electronic environment, in two formats: one digital format, suited for printing and the other will be accessible only through web browsers.

8.3.29 The eAIP must maintain a standard format, just like its predecessor, facilitating the exchange and preventing the proliferation of different presentations.

Electronic mapping and aerodrome mapping

8.3.30 Taking into account the technology available on board and in order to improve situational awareness, new digital mapping products suited to these devices will be established.

8.3.31 The use of the exchange model will allow these products to incorporate dynamic information in real time.

AIM-MET interoperability

8.3.32 The Aeronautical Information Services and Aeronautical Meteorology should implement the information exchange standard models. Once an information exchange model has been implemented, it will be necessary to implement processes that promote AIM-MET interoperability and thus permit information integration.

8.4 **Alignment with ASBU**

8.4.1 Of the ASBU Block 0 modules taken under consideration of the SAM Region, the AIM area contributes to PIA 2 module B0-DATM and module B0-AMET. From ASBU Block 1 modules, modules B1-DATM, B1-AMET and B1-SWIM are considered.

8.4.2 Following are the AIM PFF indicated in paragraph 8.3.1 that are reflected with the following ASBU Block 0 modules indicated in paragraph 8.4.1:

a) SAM AIM/01 PFF - *Improving the quality, integrity and availability of aeronautical information*) with modules B0-DATM and B1-DATM; and

b) SAM AIM/02 PFF - *Transition to the provision of electronic aeronautical information*) with modules B0-DATM, B1-DATM, B0-AMET, B1-AMET and B1-SWIM.

<table>
<tr><th colspan="5">REGIONAL PERFORMANCE OBJECTIVE: SAM AIM/01
IMPROVEMENT OF QUALITY, INTEGRITY AND AVAILABILITY OF AERONAUTICAL INFORMATION</th></tr>
<tr><td colspan="5">Benefits</td></tr>
<tr><td>Safety</td><td colspan="4">• Assures data integrity and resolution
• Favours information traceability</td></tr>
<tr><td>Environmental protection and development of air transport</td><td colspan="4">• Assures timely awareness of significant changes in information</td></tr>
<tr><td colspan="5">Metrics</td></tr>
<tr><td colspan="5">• Number of States that meet the AIRAC calendar
• Number of States that have implemented and certified QMS
• Number of corrected deficiencies
• Number of States establish SLA agreements</td></tr>
<tr><td colspan="5">2012 - 2018
Strategy</td></tr>
<tr><th>ATM OC COMPONENTS</th><th>TASKS</th><th>PERIOD</th><th>RESPONSIBILITY</th><th>STATUS</th></tr>
<tr><td rowspan="6">AOM
AO
DCB
AUO</td><td>a) Action plan to resolve AIS/AIM deficiencies.</td><td>(*) 2019</td><td>States</td><td>Valid</td></tr>
<tr><td>b) Assess the status of implementation and update of the AIM Action Plan</td><td>2018 - 2020</td><td>ICAO - States</td><td>Valid</td></tr>
<tr><td>c) Establish and certify an AIM Quality Management System (QMS)</td><td>(*) - 2019</td><td>States</td><td>Valid</td></tr>
<tr><td>d) Follow up to the application of guidelines on service level agreements (SLAs) between data originators and AIM</td><td>*2018-2021</td><td>GREPECAS</td><td>Valid</td></tr>
<tr><td>e) Establish agreements with data originators (SLAs)</td><td>2017 - 2019</td><td>States</td><td>Valid</td></tr>
<tr><td>f) Monitor the implementation of the AIM Action Plan</td><td>2016 - 2021</td><td>GREPECAS</td><td>Valid</td></tr>
<tr><td>Relation-ship with GPIs</td><td colspan="4">GPI/9: Situational awareness, GPI/16: Decision support and alerting systems, GPI/18: Aeronautical information, GPI/20: WGS-84, GPI/21: Navigation systems.</td></tr>
</table>

(*) Indicates that the task has been started before the date contemplated in this planning.

REGIONAL PERFORMANCE OBJECTIVE: SAM AIM/02
TRANSITION TO THE PROVISION OF ELECTRONIC AERONAUTICAL INFORMATION

Benefits

Safety	• Support to ground proximity warning systems (GPWS) and procedure design and optimisation tools.
Environmental protection and development of air transport	• Integration of dynamic and static information into a single display to facilitate situational awareness. • Access to information during all flight phases.

Metrics

- Number of States that have implemented the transition plan to the provision of electronic information
- Number of States that have implemented the GIS action plan
- Number of States that have implemented the e-TOD action plan

2017 - 2021
Strategy

ATM OC COMPONENTS	TASKS	PERIOD	RESPONSIBILITY	STATUS
AOM AO CM DCB TS AUO ATM-SDM	a) Implement the transition plan for the provision of electronic aeronautical information	2017 - 2021	States	Valid
	b) Prepare a training programme for AIM personnal with the new profiles for the performance of the aeronautical inormation management in the digital environment	2017 - 2021	States - ICAO	Valid
	c) Develop and establish a programme to facilitate AIM - MET interoperability	2017 - 2019	ICAO	Valid
	d) Follow up the Action Plan for implementation of a GIS	2017 - 2019	ICAO	Valid
	e) Follow up the Action Plan for e-TOD implementation	2017 - 2019	ICAO	Valid
	f) Monitor the implementation of the transition plan for the provision of electronic aeronautical information	2017 - 2019	GREPECAS	Valid
Relationship with GPIs	GPI/9: Situational awareness, GPI/16: Decision support and alerting systems, GPI/18: Aeronautical information, GPI/19: Meteorological systems, GPI/20: WGS-84.			

AIR NAVIGATION REPORT FORM (ANRF)

SAM Regional Planning for ASBU Modules

REGIONAL PERFORMANCE OBJECTIVE – B0-DATM: Service Improvement through Digital Aeronautical Information Management Performance Improvement Area 2: Globally Interoperable Systems and Data – Through Globally Interoperable System Wide Information Management					
ASBU B0-30: Impact on Main Key Performance Areas					
	Access & Equity	**Capacity**	**Efficiency**	**Environment**	**Safety**
Applicable	Y	Y	Y	Y	Y

ASBU B0-DATM: Implementation Progress	
Elements	**Implementation Status (Ground and Air)**
1. QMS for AIM	Dec. 2019
2. e.TOD implementation	Dec. 2022
3. WGS-84 implementation	Implemented (*)
4. AIXM implementation	Dec. 2019
5. E-AIP implementation	Dec. 2021
6. Digital NOTAM	Dec. 2021

ASBU B0-DATM: Implementation Roadblocks/Issues				
Elements	**Implementation Area**			
	Ground System Implementation	**Avionics Implementation**	**Procedures Availability**	**Operational Approvals**
1. QMS for AIM 2. e-TOD implementation 3. WGS-84 implementation 4. AIXM implementation 5. e-AIP implementation 6. Digital NOTAM	Lack of electronic Database. Lack of electronic access based on Internet protocol services.	NIL	Lack of procedures to allow airlines provide digital AIS data to on-board devices, in particular electronic flight bags (EFBs). Lack of training for AIS/AIM personnel.	NIL

ASBU B0-DATM: Performance Monitoring and Measurement (Implementation)	
Elements	**Performance Indicators/Supporting Metrics**
1. QMS for AIM	Indicator: % of States QMS Certified Supporting Metric: number of States QMS Certification
2. e-TOD implementation	Indicator: % of States e-TOD Implemented Supporting Metric: number of States with e-TOD Implemented
3. WGS-84 implementation	Indicator: % of States WGS-84 Implemented Supporting Metric: number of States with WGS-84 Implemented
4. AIXM implementation	Indicator: % of States with AIXM implemented Supporting Metric: number of States with AIXM implemented

ASBU B0-DATM: Performance Monitoring and Measurement (Implementation)	
Elements	**Performance Indicators/Supporting Metrics**
5. e-AIP implementation	Indicator: % of States with e-AIP Implemented Supporting Metric: number of States with e-AIP Implemented
6. Digital NOTAM	Indicator: % of States with Digital NOTAM Implemented Supporting Metric: number of States with Digital NOTAM Implemented

ASBU B0-DATM: Performance Monitoring and Measurement (Benefits)	
Key Performance Areas	**Benefits**
Access & Equity	Improvements in the access and availability of information; more economy
Capacity	Improvements in airspace use. Cost reduction.
Efficiency	Reduction in flight operations time.
Environment	Reduced amount of paper for promulgation of information. Reduction of environmental pollution.
Safety	Risk assessments for the reduction in the number of possible inconsistencies

Agenda Item 8: Planning for SWIM Implementation

8.1 Under this Agenda Item, the Meeting reviewed the following working papers:

- WP/16 – *SWIM concepts and domains* (Presented by the Secretariat)
- WP/17 – *SWIM Interoperability Framework* (Presented by the Secretariat)

8.2 The Meeting analysed the SWIM concepts and domains. In this regard, it recalled that the scope of SWIM included information exchange model standards and the infrastructure required for the exchange of information between SWIM-enabled applications, as well as the SWIM-enabled applications that provided SWIM information services using SWIM standards.

8.3 The Meeting recalled that, in the current technological environment and in the expanding aeronautical world, information management is essential for safety, and special attention should be paid to all aspects related to data quality and security, and to informacion sources. The Meeting recalled that, within the Global Air Navigation Plan, safe management of information is fundamental for the improvement of the entire aviation system.

8.4 When analysing SWIM implementation, the Meeting noted that the implemenation of this application was one of the most important challenges to achieving the interoperability objective. It recalled that the ATM community would largely depend on the provision of timely, relevant, accurate, accredited and quality information for collaborative decision-making. System-wide information exchange would allow the ATM community to perform its activities and operations in a safe and efficient manner.

8.5 Regarding SWIM implementation, the Secretariat emphasized that standard information exchange models (AIXM, WXXM, FIXM, AIDX) should be implemented, in addition to communication and IT infrastructure. In this regard, the Meeting recognized the imperative need to coordinate at national level and, together with all the areas involved, develop a roadmap for the implementation of the data exchange domains and thus have a local intranet available. As a first step, a comprehensive analysis should be made of available facilities and the investments required to have all aviation system data available in an interoperable format.

8.6 Brazil informed the Meeting that a workshop had been conducted in May 2017 with the participation of all the parties involved in SWIM implementation. The workshop highlighted the need to take into consideration important issues such as cyber-security and data protection when planning for SWIM implementation. The Meeting recognized that this initiative could be used as a model to be replicated in other States. All the information regarding the workshop organized by Brazil is available at the following link: http://www.icea.gov.br/workshopcyberswim/.

8.7 The Meeting took note that, in order to contribute to the main objective of the GANP, information should be interoperable. In this sense, it was noted that the global interoperability framework of SWIM focused on the technical elements of the ground segment of SWIM and was consistent with the solutions being developed for the air segment. It also took note of the five layers of the SWIM interoperability framework, namely:

a) SWIM-enabled applications of information providers and users all over the world. Individuals and organisations, such as air traffic managers and airspace users, will interact using applications that interoperate through SWIM.

b) Information exchange services defined for each ATM information domain and for cross-domain purposes, where applicable, following governance specifications as agreed by SWIM stakeholders. SWIM-enabled applications will use information exchange services for interacting.

c) Information exchange models, which use specific standards for sharing information amongst the aforementioned information exchange services. Information exchange models define the syntax and semantics of data exchanged by the applications.

d) SWIM information-sharing infrastructure, which provides basic services, such as interface management, request-response and publication-subscription messaging, service assurance, and business service management.

e) Network connectivity provides consolidated telecommunication services, including hardware. This infrastructure comprises all the infrastructure of the interconnected (public/private IP) networks of the different stakeholders.

8.8 The Meeting recognized that SWIM implementation was a task that required the identification of areas and actors involved. It will be important to define focal points for coordination. Furthermore, governance aspects and user levels should be taken into account at a State, regional and global level. Accordingly, it was recommended that contact be established immediately with the stakeholders and a plan be developed for setting the foundations for SWIM implementation. Likewise, ICAO should be informed of the steps taken and the objectives set within the plan developed for such implementation.

Agenda Item 9: Other business

9.1 Under this Agenda Item, the Meeting reviewed the following working papers:

- WP/18 - *AIM Training and performance-based assessment* (Presented by the Secretariat)
- WP/19 – *Effects of Flow Control Measures applied through NOTAM* (Presented by the Secretariat)

Training and performance-based assessment

9.2 The Secretariat informed that the new AIS Manual will be developed including the new competence-based training and assessment methodology in accordance with the guidance provided in Amendment 5 to the PANS-TRG.

9.3 The objective is to create an ICAO Competence Framework for AIS/AIM functions to be included in the AIS/AIM Training Manual mainly focus on:

- ✓ Information awareness
- ✓ Coordination
- ✓ Communication
- ✓ Workload management
- ✓ Application of procedures
- ✓ Technical experience
- ✓ Leadership and team work
- ✓ Information engineering
- ✓ Non-routine situation management
- ✓ Problem-solving and decision-making
- ✓ Self-management and continuous learning
- ✓ Service provision

9.4 The Meeting discussed this matter and recommended to review the AIS Course 021 in order to adjust it to the Competence Framework. Furthermore, it deemed important to plan AIS/AIM personnel training within the Latin American Regulations (LAR) prepared by the Regional Safety Oversight Cooperation System (SRVSOP). The Meeting recommended including the training issues from LAR 215 as a chapter or advisory circular.

9.5 The Meeting also recalled that each State has its own training and education methodology and that coordination with the Civil Aviation Training Centres (CIAC) Forum should be made in order to include competence-based training.

Efects of Flow Control Measures applied through NOTAM

9.6 The Secretariat informed that during the first four-month period of 2017, the constant issuance of NOTAMs was observed in the Region applying flow control measures to use and/or overfly the FIR airspaces, due to surveillance or ATS communications equipment failures situations, or due to personnel restrictions, and that these measures significantly reduce efficiency to aircraft operations departing to international destinies.

9.7 The Meeting observed that on situations or events affecting ATS capacity in some way, flow control NOTAMs were issued sometimes reaching long duration periods, instead applying ATFM measures of Chapter 6 of ICAO Doc. 9971, through coordination messages between ACC and/or FMP/FMU.

9.8 The Secretariat recognized that ICAO Annex 11, Doc 9426 and Doc 8126 permit the use of NOTAMs in the event of short-term contingency actions due to interruption or partial interruption of air traffic services and related supporting services, but this should not be confused with ATFM measures and what should be done in case it were necessary to implement contingency measures (ATS interruptions), is that the States proceed in accordance with the Contingency Plan published in the AIP and the corresponding Letter of Agreement between the ATC units involved, using a NOTAM as a means of communication.

9.9 The Meeting referred to the procedures to be applied to decide whether to apply a NOTAM or Contingency Plans, the Secretariat explained that it is essential to observe the time of application of the restrictions. The recommendation issued by the Secretariat is that if the duration of the contingency is 1 or 2 days, NOTAM messages could be applied, but in another case, an ATS Contingency Plan should be applied.

9.10 The Secretariat informed that SAM/IG/19 Meeting formulated Conclusion 19/1 regarding this problem, seeking States' awareness on the negative effects of these measures in airspace capacity and efficiency.

9.11 The Meeting took note of the information provided by the Secretariat and considred important that States coordinate with their corresponding areas when issuing a NOTAM related to flow control measures.