



Fifth Meeting of the Programmes and Projects Review Committee (PPRC/5)
 Mexico City, Mexico, 16 to 18 July 2019

Agenda Item 5: Review of GREPECAS Programmes and Projects and Subsidiary Groups
5.6 Projects under the AIM Programme (B0-DATM)

PROJECTS UNDER THE AIM PROGRAMME (B0-DATM)

(Presented by the Secretariat)

EXECUTIVE SUMMARY	
<p>This working papers presents the follow-up to the programs and projects under the GREPECAS Program G. Additionally, it presents the follow-up to the requirements introduced by amendment 40 to Annex 15 of the ICAO and the new PANS-AIM document in the SAM Region, and the progress of the CAR Region related to the G Program and QMS Projects and eTOD, as well as the proposal of changes in said projects..</p>	
Action:	Described in Section 3.
<i>Strategic Objectives:</i>	<ul style="list-style-type: none"> • Air Navigation Capacity and Efficiency • Environmental Protection
<i>References:</i>	<ul style="list-style-type: none"> • Annex 15 - <i>Aeronautical Information Services</i> • Global Air Navigation Plan (Doc 9750) • Doc. 10066 - <i>PANS-AIM</i> • Report of the Eighteenth Meeting of GREPECAS • Report of the Twelfth Meeting of the SAM/AIM • Transition Roadmap from AIS to AIM

1. Introduction

1.1 ICAO, taking into account the progress on information and data management technology and considering the increase of air traffic every 15 years, has observed, within the Global ATM Operational Concept, the need to change the focus of aeronautical information. For which, in 2009, it establishes a Roadmap for the transition from AIS to AIM.

1.2 The Global Air Navigation Plan (GANP, Doc 9750) is the highest level document for the air navigation strategy and in its various revisions, includes the proposals of this Roadmap and incorporates it as part of the B0-DATM module and its evolutions in the ASBUs blocks.

1.3 Amendment 40 to Annex 15 of the ICAO has been made in order to give the regulatory framework to Phase 1 and Phase 2 of this Roadmap.

1.4 Amendment 40 to Annex 15 and the promulgation of Doc. 10066 PANS-AIM restructure the AIS/AIM documentation in order to provide a normative and procedural framework for the exchange of aeronautical data and information in the digital and electronic environment.

1.5 SAM/AIM meetings monitor the GREPECAS G Projects for the SAM Region. The GREPECAS/18 Meeting had analysed the activities of Project G (AIS/AIM). Additionally, it issued a decision to review the aeronautical charts and compliance with ICAO standards for both CAR and SAM Regions

2. Discussion and Conclusion

SAM Region

QMS/AIM Implementation

2.1 During the examination of this matter, the SAM/AIM/12 Meeting analysed the current status of the implementation of the Quality Management System in the AIM processes, in the SAM Region.

2.2 The States that had already certified the QMS/AIM with the ISO 9001, Version 2015 (Brazil, Paraguay, Chile, Panama, Peru) before the SAM/AIM/11, Uruguay has joined the list, achieving the certification of its QMS / AIM late on 2018.

2.3 The Meeting noted that the States of Suriname, Guyana, Bolivia, Colombia, Venezuela and Ecuador have not yet completed the implementation of the QMS/AIM.

2.4 Related to the previous point, the States reported the following:

- Bolivia: The Authority is working with the service provider (AASANA) for the implementation of the QMS/AIM. AASANA has presented an Action Plan with six phases, of which, for the time being, only two have been implemented. There are no major advances except for the training of two staff members in the QMS.
- Colombia: Without information.
- Ecuador: The QMS implementations must be adapted to the States requirements that works with other standards.
- Guyana: It has not reported progress.
- Venezuela: It has two deliverables in reference to the implementation of the QMS to the AIM processes.
- Suriname: Indicated that it is preparing the National Air Navigation Plan. In this context, they plan to implement the QMS in the AIM in the coming years

Implementation of the Aeronautical Information Exchange Standard Model

2.5 With regard to the exchange of aeronautical information model, the SAM Region has shown progress according to the last meeting of the SAM / AIM. Additionally, Amendment 40 to Annex 15 and the new PANS-AIM Doc, should be considered, defines the digital data sets that must be supplied by the AIS services, which are:

- AIP data sets;
- terrain data sets;
- obstacle data sets;
- aerodrome chart data sets; and
- instrument flight procedure data sets.

2.6 In relation to the implementations in this project, the following is mentioned:

- a) Project G2 Coordination informed to the Meeting that, with the support of the Secretariat, it has continued to work on the preparation and translation of the EUROCONTROL document related to the publication of the AIP in electronic format (eAIP). The document is found as **Appendix A** to this working paper (available only in Spanish). This Summary Guide is designed to help you clearly and specifically understand the content of the original document.
- b) Brazil, reported on its national implementation planning of the transition from AIS to AIM. In this regard, it is reported in detail on the processes carried out for the implementation of the requirements of Amendment 40 to Annex 15 and the PANS-AIM. Brazil highlighted the implementation processes of the Data Catalogue, as well as the monitoring of quality in the data and information chain.
- c) Panama implemented the e-AIP. The software was acquired in 2013 but its implementation was affected by changes in administration. Panama informed that the e-AIP currently works in AIXM 4.5 but the process is subject to improvements and continuous updating.
- d) Peru informed that it is currently working on the preparation of the e-AIP, which would be ready for the second quarter of 2020.
- e) Argentina, Chile, Colombia and Venezuela record progress, but do not indicate the dates of their implementation
- f) Ecuador, Guyana have not reported progress in the implementation of the e-AIP
- g) Paraguay has informed that the State is currently in a bidding process for the implementation of aeronautical information management software
- h) Uruguay had reported that it is in contact with COCESNA to explore the feasibility of technically assisting to Uruguay in the preparation of the e-AIP, a process similar to that of Suriname

2.7 In addition, it is important to inform that the Meeting that SAM/IG/22 considered necessary the creation of a task group in the structure of the SAM Region Implementation Group (SAM/IG), with a view to guarantee the interoperability of the systems implemented, taking into account the number of new systems required in the automation of aeronautical information management services (AIM) and the SWIM concept (System Wide Information Management), air traffic management (ATM) and flow management air traffic (ATFM), communication, navigation and surveillance (CNS) and meteorology (MET).

e-TOD Implementation

2.8 With regard to the Project related to the implementation of e-TOD, the monitoring carried out by SAM/AIM/12 has indicated that the States of Brazil, Argentina and Chile have presented progress in the provision of obstacle data in electronic format for the area 2.

2.9 In relation to the implementation of e-TOD, the current status of implementation in the States of the SAM Region is listed below:

- Argentina: 4 airports
- Brazil: 10 airports
- Chile: Add two airports to which I had previously reported (up to SAM/AIM/11)
- Panamá: Has prepared a project for the obstacle survey for two airports
- Uruguay has prepared the Plan, which has been approved by the authorities, and is currently in the process of implementing the plan.
- Suriname has not prepared a plan so far because they do not have an expert for this task. They will carry out training in the month of July after which they prepare the e-TOD implementation plan.
- Paraguay has not prepared a Plan for the implementation of e-TOD. However, it is preparing an agreement with companies that are surveying obstacles in Paraguay in order to have the data that these companies generate from their observations.
- Peru has a binding process for survey the obstacle for Cuzco airport.
- Venezuela reported that it has an obstacle database, but it must be updated

Follow-up to Decision GREPECAS/18/11

2.10 The SAM/AIM/12 Meeting took note of the GREPECAS/18/11 Decision, through which the G Projects of both regions were requested to follow up on the problems related to the Aeronautical Chart, mainly the Aeronautical Charts that do not comply with ICAO provisions, and this is causing concern among users.

2.11 The Meeting, after analysing this problem, decided to implement an action plan to identify, firstly, if the problem arises in its States, and if it exists, to trace a strategy for its resolution. The strategy is described below:

- Review the aeronautical cartography available in the States during the third quarter of 2019 and the first quarter of 2020. Communicate the results to the secretariat no later than March 31, 2020.
- Once the chart that do not comply with ICAO provisions have been identified, draw up an action plan to amend them during 2020.
- Once the identified charts with problems have been amended, plan your introduction to the AIP in successive amendments trying to minimize the impacts on flight procedures and routes affected by the amended maps. Amendments should be made as of the last quarter of 2020.

- States that identify a large volume of chart that do not comply with ICAO requirements should notify the Secretariat in order to extend the deadlines for resolving these problems, in order to minimize the impact of the amendments.
- The Secretariat will send a letter to the States to initiate the process

Digital Phase

2.12 The Meeting may note that Amendment 40 to Annex 15 and Doc 10066 - PANS-AIM provide the normative and procedural framework for the exchange of aeronautical data and information in the digital environment.

2.13 The meeting will agree that it is imperative that the implementation of the AIM progress, but for this, it is necessary design an effective strategy for the continuous planning and progress of the work of digitization. The main point of this strategy should be the sensitization of the civil aviation authorities and the ANSP on the implications of delays in the implementation of the AIM and its impact on global priorities such as PBN, A-CDM, AFTM, SWIM, among others.

2.14 La Reunión, debería de analizar la mejor estrategia para cumplir con la Hoja de Ruta de Transición del AIS al AIM, considerando que las implementaciones deben ser la prioridad, y fomentar la creación de consciencia en relación a generar una base sólida para el AIM mediante la mejora de calidad de los productos y servicios existentes para luego fomentar la migración a los formatos digitales.

CAR Region

Implementation of the Transition to AIM

2.15 The status of the transition from the AIS to the AIM Transition in **Appendix B** is presented to the Meeting

2.16 It is important to mention that three meetings were held in the CAR Region during 2018, that Regional Meetings were held (in Mexico - NACC Office, COCESNA and in Trinidad and Tobago) for the analysis of amendment 40 to Annex 15, the new PANS -AIM and the presentation of the Collaborative Plan for the Transition to AIM (see **Appendix C**).

2.17 Regarding the QMS and eTOD Projects of the AIM Program, it is considered that they should be cancelled, because both Cuba and COCESNA, respectively, complied with the requested developments, until an advance in the case of the QMS is enough and for the case of the e TOD it was reached a limit that would no longer be a reason for the work proposed in the terms of reference of the Project as such.

2.18 The fact that, unfortunately, of the membership in both Projects, only two people participated, one for each Project, who worked hard and elaborated the works and activities of the Projects. This situation was in despite the multiple invitations and calls to the other members over several years.

2.19 A change is proposed with the creation of a new Project for the Transition to AIM using the functional scheme of the AIM TF of the ANI WG Group, with their respective ToRs and Work Program (see **Appendix D**), which is in fact the one that has reported progress in the various Steps (21) of the three Phases to complete the transition in accordance with the Roadmap for the Transition from AIS to AIM of ICAO,

2.20 On the other hand, as a complement to the Collaborative Plan for the Transition to the AIM (draft) presented in Appendix C, a site is being developed on the NACC website, which is intended to be enabled in the first months of next year. The site will be called "AIM TRACKING", which will present the updated status of each State in the Region and the documentary elements as well as regional assistance programs based on the Systemic Assistance Program (SAP).

3. Suggested actions

3.1 The Meeting is invited to:

- a) take note of the information provided;
- b) review the Projects G for the SAM region and consider the feasibility of their continuity;
- c) analyse actions to accelerate the implementation processes related to the QMS/AIM, the Aeronautical Information Exchange Standard Model and the e-TOD;
- d) analyse strategies for the implementation of Phase 2 of the Transition Roadmap from AIS to AIM;
- e) analyse the proposals for the CAR Region in the substitution of the Projects and the creation of the new AIM for the Transition; and,
- f) review and comment on the draft of the Collaborative Plan for the Transition to AIM.

GUÍA PARA LA PUBLICACIÓN DE INFORMACIÓN AERONÁUTICA ELECTRÓNICA

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1. RESUMEN EJECUTIVO

Este documento es una Guía para la Publicación de Información Aeronáutica Electrónica (e-AIP).

Esta Guía está diseñada para ayudar a comprender de manera sencilla el documento de Eurocontrol “*Specification for the Electronic Aeronautical Information Publication (e-AIP)*”.

Este documento muestra requisitos mínimos y necesarios para la presentación de la AIP electrónica (e-AIP) tomando en consideración la presentación visual, asimismo pretende incluir en próximas versiones más información en relación a Enmiendas a la AIP (AMDT), Suplemento AIP (SUP-AIP) y Circular de Información Aeronáutica (AIC) para una aplicación correcta y armonizada de las SARPs Normas y métodos recomendados por OACI.

2. APORTES IMPORTANTES DE LA AIP ELECTRÓNICA

Un componente esencial de la gestión del tráfico aéreo futuro (ATM) está en marcha es la transición del Servicio de Información Aeronáutica AIS a la Gestión de la Información Aeronáutica (AIM), a partir de los procesos manuales y productos basados en papel y servicios hacia datos, procesamiento automatizado y servicios digitales.

En este nuevo ambiente, donde los datos aeronáuticos e información se mantienen en forma digital, desde el punto de origen hasta el punto de uso, ya sea a bordo de una aeronave o en un sistema ATM, la normalización y la interoperabilidad desempeñan un papel importante.

En esta tendencia, muchos estados están optando por la publicación de la AIP electrónica, los usuarios finales pueden visualizar la mayor parte de la información desde la pantalla de un ordenador.

La migración hacia documentos electrónicos introduce nuevas capacidades, como la búsqueda rápida de hipervínculos, presentación dinámica de los cambios en el texto y los gráficos, etc.

Esto también viene con limitaciones, por lo general relacionados con el diseño de página y el formato de codificación.

Las especificaciones de los documentos de papel deben adaptarse al nuevo entorno digital.

Publicación de información aeronáutica electrónica (e-AIP)

El eAIP se produce utilizando información aeronáutica almacenada en una base de datos, estos datos son transferidos a un software especializado en la edición del e-AIP para luego ser publicado en el internet y estar disponible en diferentes ordenadores, dispositivos móviles entre otros.

Para reflejar la transición del papel a los medios electrónicos, la Publicación de Información Aeronáutica Electrónica e-AIP proporciona la siguiente funcionalidad:

- La comparación de las versiones anteriores y modificaciones del texto;
- La verificación de las fechas de vigencia para cada sección y, cuando sea posible, la fuente de la información;
- La vinculación de las referencias cruzadas dentro del cuerpo del texto;
- La capacidad de escalar y hacer un zoom dentro y fuera de las cartas.
- También se puede mostrar contenido configurable.

3. REQUISITOS DE VISUALIZACIÓN Y FUNCIONALIDAD DE LA AIP ELECTRÓNICA (e-AIP)

Los requisitos para la estructura y el diseño de la AIP electrónica se adhieren a los requisitos del Anexo 15 de OACI Servicio de Información Aeronáutica, requisitos del ciclo AIRAC, Documento 8126 Manual para los servicios de información aeronáutica y ahora a los requisitos del PANS AIM Documento OACI 10066 Gestión de la Información Aeronáutica.

4. ESTRUCTURA Y DISEÑO GENERAL DE LA AIP ELECTRÓNICA (e-AIP)

Descripción de los requisitos generales asociados con la visualización de la pantalla principal de la AIP electrónica (e-AIP) en el internet.

Se muestra una ventana que consta de tres paneles, el panel de comandos, el panel de navegación y el panel de contenido.



Figura 1

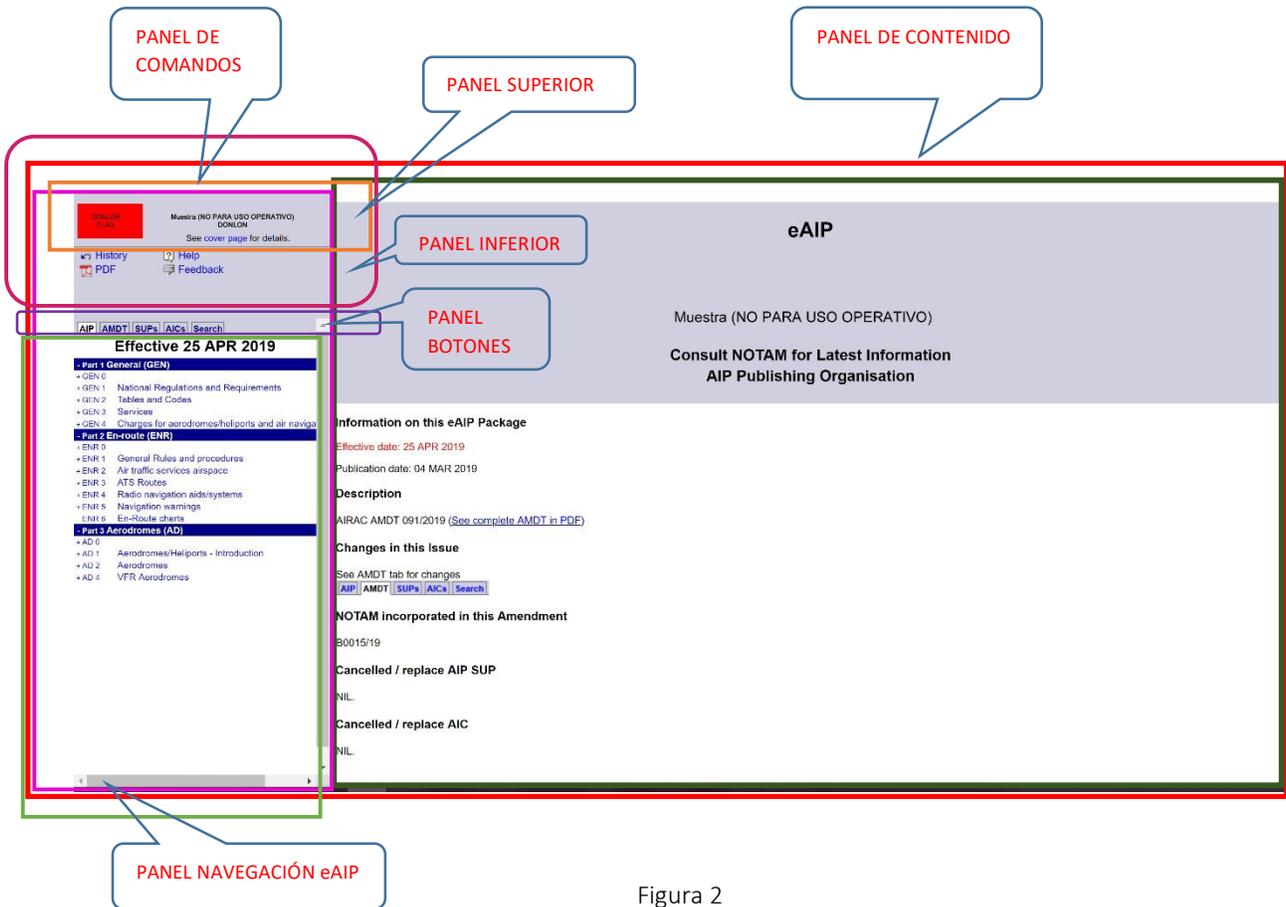


Figura 2

El panel de comandos de la ventana e-AIP contendrá el menú e-AIP, que comprende dos paneles, el panel superior y el panel inferior.

El panel de navegación de la ventana e-AIP contendrá el menú de navegación para el e-AIP.

El panel Contenido de la ventana e-AIP contendrá la portada de la e-AIP cuando el e-AIP se abre inicialmente.

El panel Contenido de la ventana e-AIP contendrá el contenido relevante de la e-AIP cuando son seleccionados por el usuario en el panel de navegación.

5. VENTANA ACTIVA eAIP

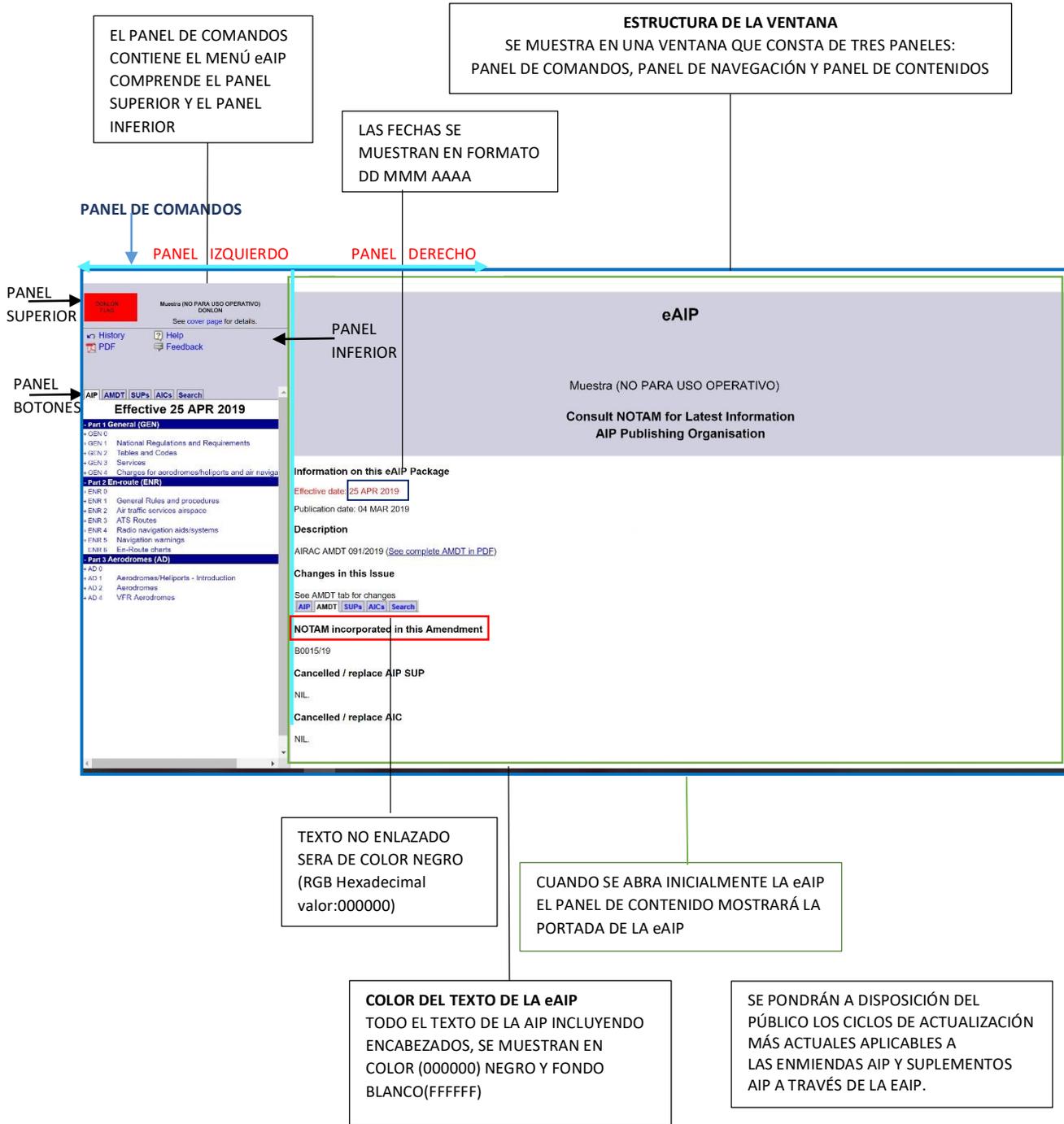


Figura 3

6. PANEL DE COMANDOS

El panel de comandos de la ventana e-AIP contendrá el menú e-AIP, que comprende dos paneles, el panel superior y el panel inferior.

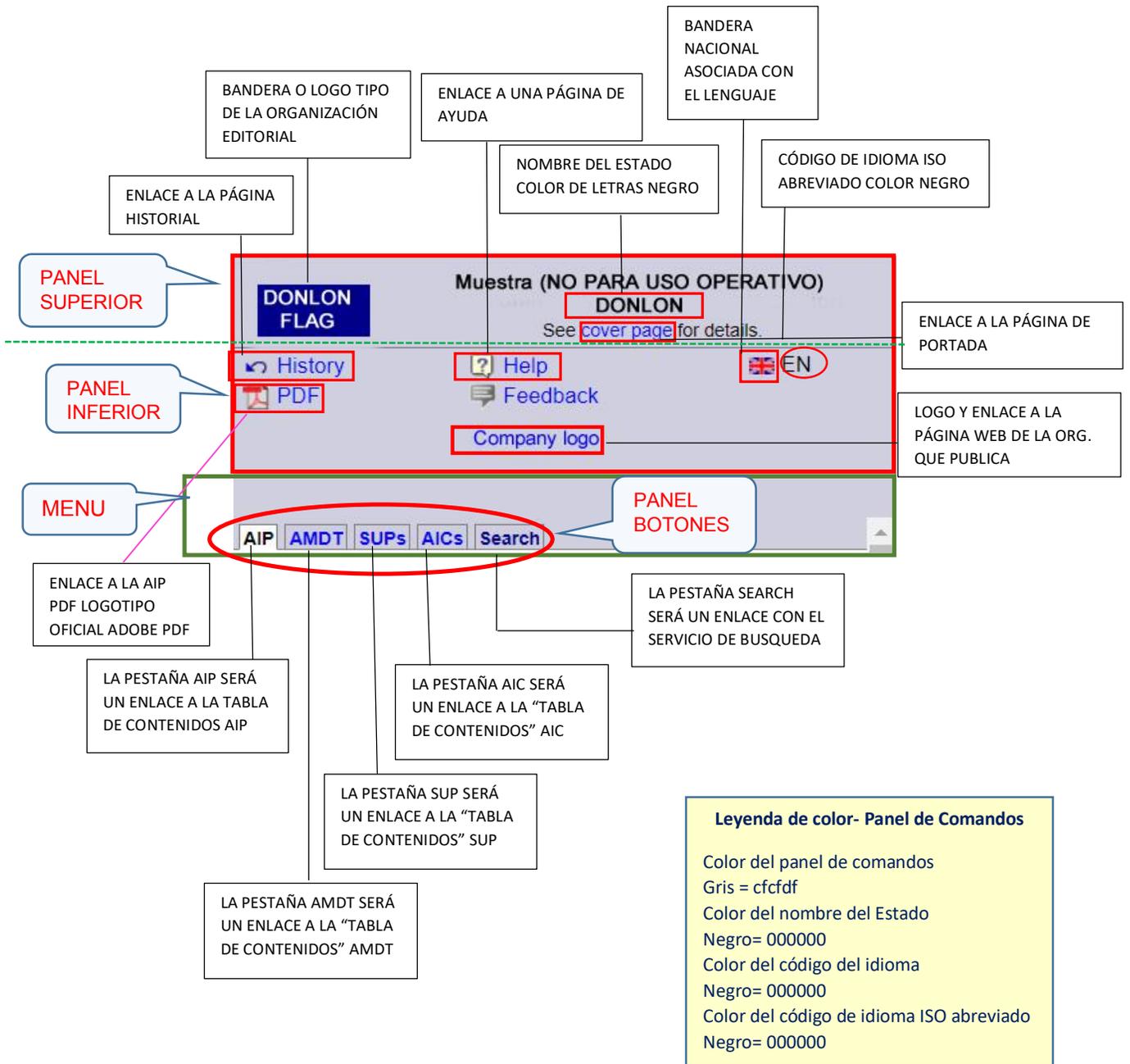


Figura 4

7. PANEL DE NAVEGACIÓN

El panel de navegación de la ventana e-AIP contendrá el menú de navegación para el e-AIP.

Requisitos asociados con la tabla de contenido.

The screenshot shows a navigation menu for the e-AIP system. At the top, there are tabs for 'AIP', 'AMDT', 'SUPs', 'AICs', and 'Search'. Below these is a date indicator 'Effective 25 APR 2019'. The menu is organized into three main parts: 'Part 1 General (GEN)', 'Part 2 En-route (ENR)', and 'Part 3 Aerodromes (AD)'. Each part contains a list of sub-sections with expandable/collapsible icons (+/-). Annotations provide details about the visual design and user interaction requirements.

Part	Section	Sub-section
Part 1 General (GEN)	GEN 0	
	GEN 1	National Regulations and Requirements
	GEN 2	Tables and Codes
	GEN 3	Services
	GEN 4	Charges for aerodromes/heliports and air naviga
Part 2 En-route (ENR)	ENR 0	
	ENR 1	General Rules and procedures
	ENR 2	Air traffic services airspace
	ENR 3	ATS Routes
	ENR 4	Radio navigation aids/systems
	ENR 5	Navigation warnings
	ENR 6	En-Route charts
Part 3 Aerodromes (AD)	AD 0	
	AD 1	Aerodromes/Heliports - Introduction
	AD 2	Aerodromes
	AD 4	VFR Aerodromes

Annotations:

- Effective 25 APR 2019:** Indica Fecha efectiva de la AIP.
- Las cabeceras azules en las 3 partes de la AIP (GEN-ENR-AD):** Las secciones dentro de GEN-ENR-AD son un enlace a sub secciones de la AIP.
- LA VISUALIZACIÓN DE TODOS LOS HIPERVÍNCULOS SE BASARÁ EN LA CONFIGURACIÓN DEL NAVEGADOR DEL CLIENTE.**
- CUANDO NO ESTÁ DESPLEGADO SE MUESTRA EL SIGNO DE (+) PERMITE AMPLIAR INFORMACIÓN**
- EL USUARIO SERÁ CAPAZ DE CAMBIAR LAS RELACIONES DE OCUPADOS POR LOS PANELES DE LA IZQUIERDA Y DE LA DERECHA DE LA VENTANA e-AIP MOVIENDO EL SEPARADOR.**
- LAS BARRAS DE DESPLAZAMIENTO SE PONDRÁN A DISPOSICIÓN EN EL PANEL DE NAVEGACIÓN CUANDO EL CONTENIDO EXCEDE EL TAMAÑO DEL PANEL, PARA PERMITIR AL USUARIO VER TODO EL CONTENIDO.**
- Barras de desplazamiento**

Figura 5

The image shows a screenshot of a web application interface for the Aeronautical Information Publication (AIP). At the top, there are navigation tabs: AIP, AMDT, SUPs, AICs, and Search. Below these tabs, the text "Effective 25 APR 2019" is displayed in a red-bordered box. The main content is a table of contents organized into three parts:

- Part 1 General (GEN)**
 - + GEN 0
 - + GEN 1 National Regulations and Requirements
 - + GEN 2 Tables and Codes
 - + GEN 3 Services
 - + GEN 4 Charges for aerodromes/heliports and air naviga
- Part 2 En-route (ENR)**
 - + ENR 0
 - + ENR 1 General Rules and procedures
 - + ENR 2 Air traffic services airspace
 - + ENR 3 ATS Routes
 - + ENR 4 Radio navigation aids/systems
 - + ENR 5 Navigation warnings
 - ENR 6 En-Route charts
- Part 3 Aerodromes (AD)**
 - + AD 0
 - + AD 1 Aerodromes/Heliports - Introduction
 - + AD 2 Aerodromes
 - + AD 4 VFR Aerodromes

Three callout boxes on the left provide styling instructions:

- Top Callout:** EN EL PANEL DE NAVEGACIÓN DE LA VENTANA EAIP, LA TABLA DE CONTENIDOS AIP INDICARÁ LA FECHA EFECTIVA DE LA AIP, LA CUAL SERÁ DE COLOR NEGRO (RGB HEXADECIMAL VALOR: 000000), ESTILO DE FUENTE NEGRITA. TAMAÑO DE FUENTE DE LA FECHA EFECTIVA SERÁ DE 150% DEL TAMAÑO DE FUENTE PREDETERMINADO
- Middle Callout:** LAS TRES PARTES DE LA AIP EN LA TABLA DE CONTENIDOS AIP SERÁN RESALTADOS CON CABECERAS AZULES OSCUROS (RGB HEXADECIMAL VALOR: 00008B).
- Bottom Callout:** EL TÍTULO DE LAS 3 PARTES DE LA AIP SERÁ DE COLOR BLANCO (RGB HEXADECIMAL VALOR: FFFFFFFF). ESTILO DE FUENTE NEGRITA. EL TÍTULO DE CADA PARTE DE LA AIP CONTENDRÁ UN NÚMERO.

Figura 6

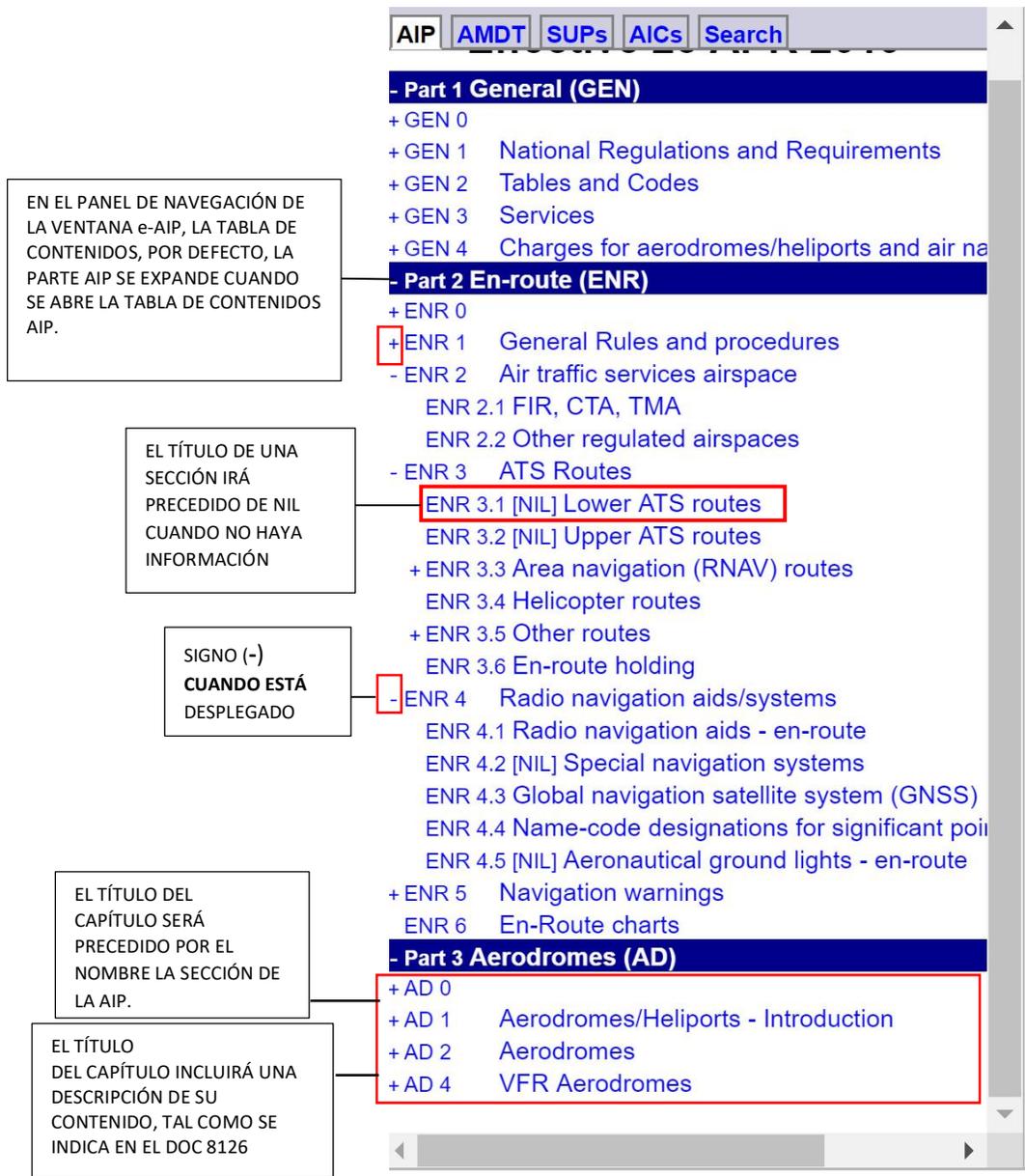


Figura 7

8. PANEL DE CONTENIDO

El panel Contenido de la ventana e-AIP contendrá la portada de la e-AIP cuando el e-AIP se abre inicialmente.

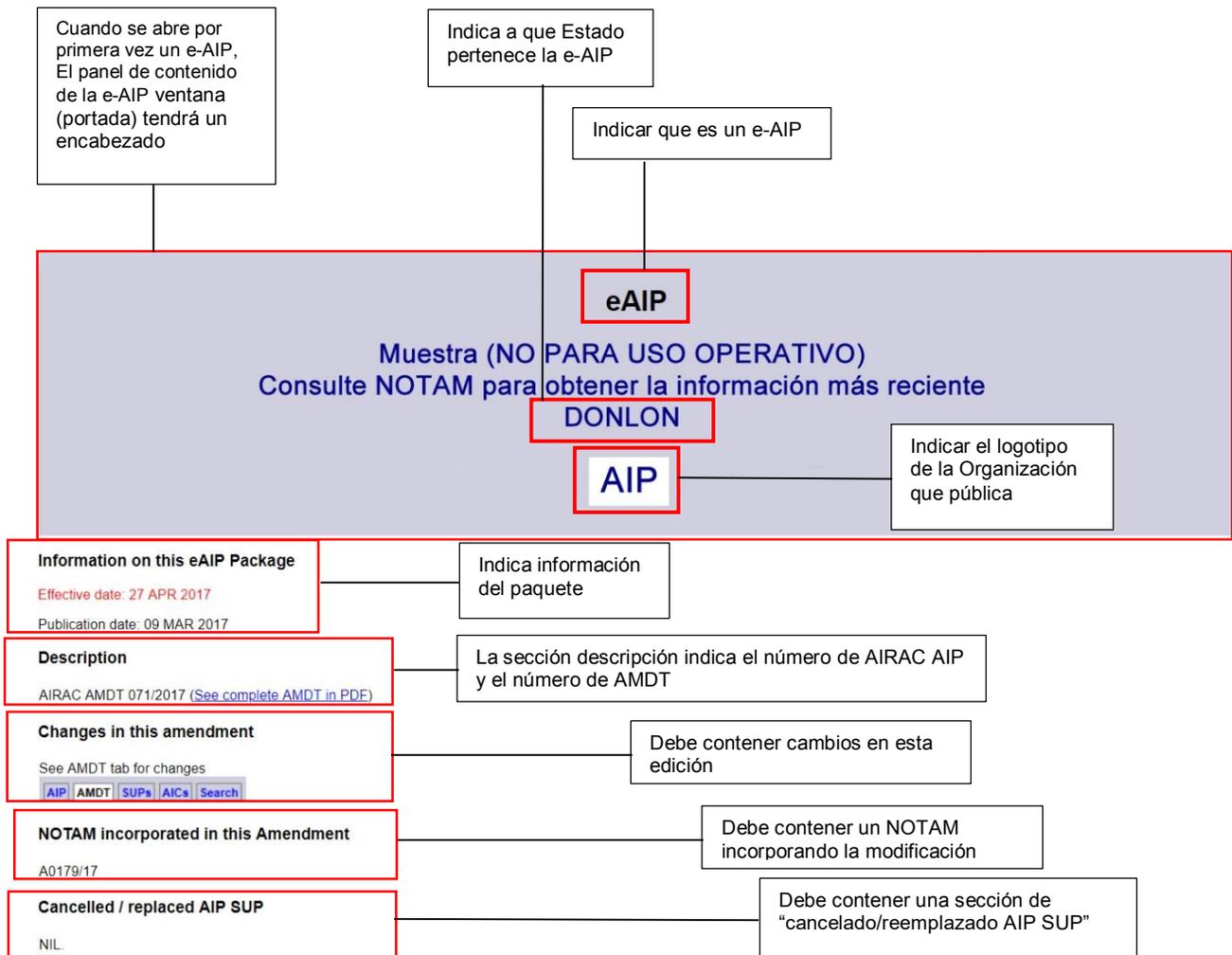


Figura 8

9. SERVICIO DE BÚSQUEDA

Cuando se selecciona la pestaña **SEARCH** debe aparecer una página de búsqueda en el panel de navegación, el cual tendrá un botón de inicio y un botón borrar.

Cada resultado de entrada en el panel de navegación debe ser un **enlace**.

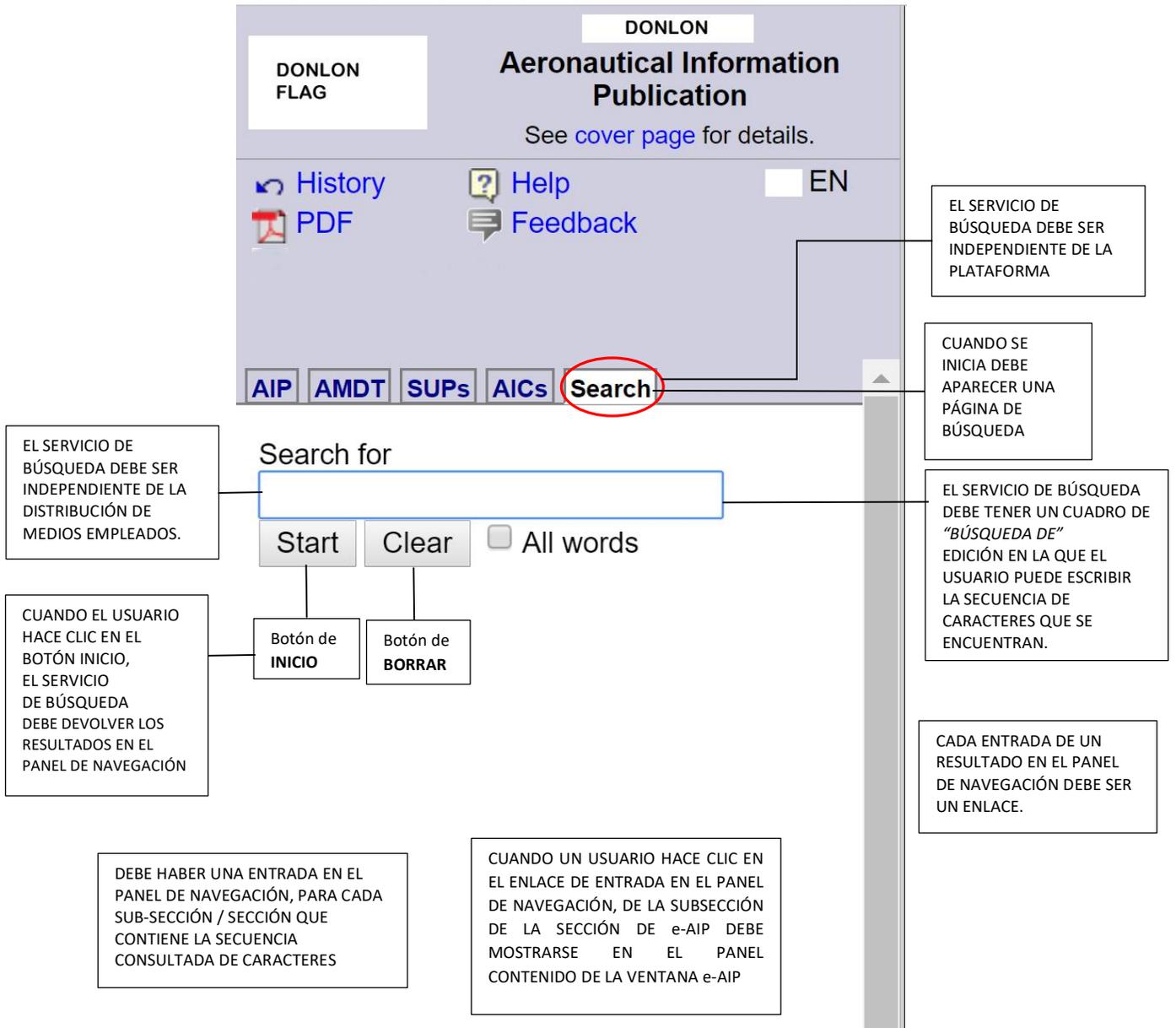


Figura 9

10. HISTORIAL DE LA PÁGINA

The screenshot shows the 'eAIP Issues' page for the state of DONLON. The page is titled 'eAIP Issues' and includes a warning: 'Specimen (NOT FOR OPERATIONAL USE) Consult NOTAM for Latest Information'. The state name 'DONLON' and the 'AIP' logo are also visible. The page is divided into three sections: 'Currently Effective Issue', 'Next Issues', and 'Expired Issues (Archives)'. Each section contains a table with columns for 'Effective date', 'Publication date', and 'Reason for Change'. Callouts identify the state name, the organization's logo, the current issue, the next issues, and the expired issues.

eAIP Issues
Specimen (NOT FOR OPERATIONAL USE)
Consult NOTAM for Latest Information
DONLON
AIP

Currently Effective Issue

Effective date	Publication date	Reason for Change
30 SEP 2004	19 AUG 2004	AMDT 03/04

Next Issues

Effective date	Publication date	Reason for Change
25 NOV 2004	14 OCT 2004	AIRAC AMDT 04/04
28 OCT 2004	16 SEP 2004	Cancelled AIPSUP 13/03

Expired Issues (Archives)

These past amendments are provided for information. They are not to be used in operations anymore.

Effective date	Publication date	Reason for Change
02 SEP 2004	22 JUL 2004	AIC 07/04
05 AUG 2004	24 JUN 2004	AIPSUP 15/04
08 JUL 2004	27 MAY 2004	AIRAC AMDT 02/04 AIPSUP 01/04 & AIPSUP 02/04 AIC 06/04 & AIC 05/04
10 JUN 2004	29 APR 2004	Initial electronic AIP

Figura 10

LA PÁGINA HISTORIAL E-AIP INFORMARÁ AL USUARIO QUE CONSULTE NOTAM PARA LA INFORMACIÓN MÁS RECIENTE

LA PÁGINA HISTORIAL E-AIP TENDRÁ EL TÍTULO 'CUESTIONES E-AIP'.

La página Historial e-AIP, la sección Edición, deberá contener:

- Una tabla con una columna Fecha de vigencia
- Una tabla con una columna de fecha de publicación.
- Una tabla con una columna Motivo de cambio.

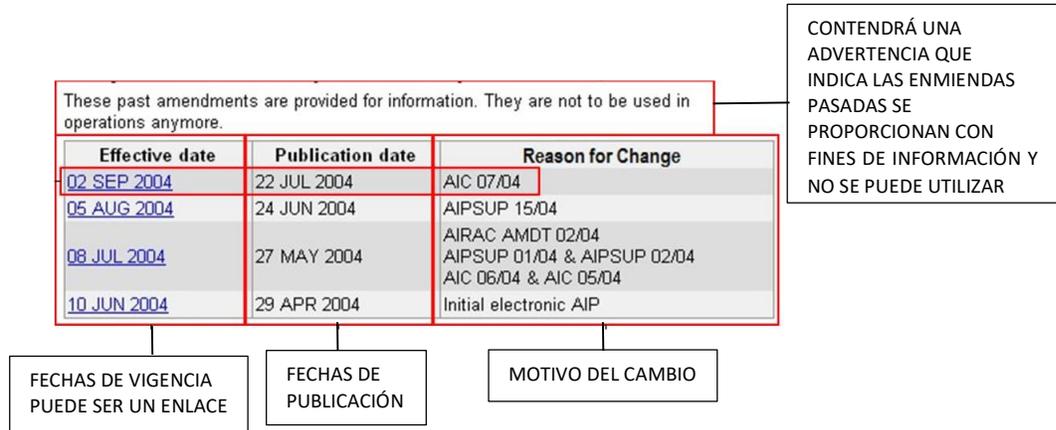
PUBLICACIÓN ACTUALMENTE VIGENTE



PRÓXIMAS PUBLICACIONES



PUBLICACIONES VENCIDAS



11. OPORTUNIDADES DE MEJORA EN LA DISTRIBUCIÓN DE INFORMACIÓN AERONÁUTICA ELECTRÓNICA (e-AIP) EN INTERNET

A continuación, se describen algunas consideraciones importantes para la distribución de la AIP electrónica:

- Para distribuir la AIP en Internet es importante contar con una infraestructura técnica adecuada.
- Analizar el proceso a través del cual se carga el contenido de la AIP electrónica en el Internet, con la finalidad de asegurar la integridad de la información.
- La fecha de corte de la base de datos y la fecha de entrega más reciente no es suficiente para permitir el tratamiento, verificación y validación de la AMDT debido a que el volumen de datos está en constante crecimiento.
- Es recomendable establecer políticas que permitan realizar un análisis de seguridad de la información para adaptar mecanismos que respalden la distribución segura de la AIP electrónica en Internet.
- Instruir al personal AIM en nuevas tecnologías.

[EXAMPLE OF A TABLE WITH 3 COLUMNS THAT MUST BE FILLED OUT](#)
[until the completion or current status. See the](#)
[EXAMPLE](#)

7	Implemented through a third party	100%
8	Scheduled to be completed and/or fully implemented by this date / period	Provide more information
9	Will not implement this step (Fill all years grey)	Provide reason

[1] Please provide details / reason / in the "Remarks" column for each step!

[EXAMPLE OF A TABLE WITH 100% AND 0% IMPLEMENTATION UNTIL THE COMPLETION OR CURRENT STATUS. SEE THE EXAMPLE](#)

7	Implemented through a third party	100%
8	Scheduled to be completed and/or fully implemented by this date / period	Provide more information
9	Will not implement this step (Fill all years grey)	Provide reason

[1] Please provide details / reason / in the "Remarks" column for each step!



International Civil Aviation Organization

NAM CAR REGION AIM IMPLEMENTATION ROADMAP STATUS FOR THE TRANSITION FROM AIS TO AIM

Phase/Step	Step No.	Timeline																				Start Date MM / DD / YY	(Planned) End Date MM / DD / YY	Barbados	Remarks
		2019				2020				2021				2022				2023							
		Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4				
Phase I																									
AIRAC adherence	P-03																							6	Started approximately 2013
Monitoring of Annex differences	P-04																							6	Started approximately 2010
WGS-84 implementation	P-05																							6	Completed before 2004
QMS	P-17	3	3	3	3	3	3	3	3															3	AIS been working in a quality environment since 2008. ATS Formally certified ISO 9001:2008. Updates to achieve ISO 9001 :2015 ongoing . To be coordinated with Plarco.
Phase II																									
Data Quality Monitoring	P-01																							2	
Data Integrity Monitoring	P-02																							2	
AIXM	P-06																							2	
Unique identifiers	P-07																							1	
Aeronautical information conceptual model	P-08																							1	
eAIP	P-11	3	3	3	3	3	3	3	3															4	Developing the HTML version of the AIP
Terrain A-1	P-13																							3	Seeking to gain information from Lands and Surveys department on Terrain and Obstacle data. GIS Training provided, discussions with a private GIS Company
Obstacle A-1	P-14																							3	see above
Terrain A-4	P-13																							3	see above
Obstacle A-4	P-14																							3	see above
Terrain A-2[1]	P-13																							3	see above
Obstacle A-2[2]	P-14																							3	see above
Terrain A-3	P-13																							3	see above
Obstacle A-3	P-14																							3	see above
Aerodrome Mapping	P-15																							2	see above
Phase III																									
Aeronautical data exchange	P-09																							1	Proposed regional implementation with sensitization training scheduled for 2020.
Communication networks	P-10																							1	
Aeronautical information briefing	P-12																							3	Textual environment available, development of graphical to come.
Training	P-16																							4	Trainair Plus Basic training & Advanced AIS training.
Agreement with data originators	P-18																							3	Info received from Airport Authority and currently utilize MOUs.
Interoperability with meteorological products	P-19																							2	Interconnectivity achieved with MET & AIS for Met information
Electronic aeronautical charts	P-20																							2	This will be accomplished through a third party who supplies current AD chart data.
Digital NOTAM	P-21																							1	

[1] Please specify implementation of Area 2a, 2b, 2c and/or 2d

[2] Please specify implementation of Area 2a, 2b, 2c and/or 2d

Legend*[1] - Please use this color guidance chart to fill out cells in this form accordingly. Enter the number corresponding with the status into a cell (in the correct year(s)). for the status of the AIS Unit. Use the same

1	Not Started (leave empty)	0%
2	Initial Stage	1 - 25 %
3	Developing Stage	26 - 50 %
4	Advanced Stage	51 - 75 %

State/AIS Unit to fill ▼	
State	BARBADOS
Title	
Member of the ICAO NACC AIM TF?	YES
Name	SHIRLEY FORD

[method to fill out an implementation target date/year, if the step has not been completed and/or fully implemented yet! Refer to the example tab, for an example of a filled out form. All cells must be filled out until the completion or current status. See the EXAMPLE](#)

5	Finalizing Stage	76 – 99 %
6	Fully Implemented	100%
7	Implemented through a third party	100%
8	Scheduled to be completed and/or fully implemented by this date / period	Provide more information
9	Will not implement this step (Fill all years grey)	Provide reason

[1] Please provide details / reason / in the "Remarks" column for each step!

[1] Please specify implementation of Area 2a, 2b, 2c and/or 2d
 [2] Please specify implementation of Area 2a, 2b, 2c and/or 2d

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[1] Please provide details / reason / in the "Remarks" column for each step!

State/AIS Unit to fill ▼	
State	Canada
Title	Manager, Standards and Procedures, AIM and IFP Division
Member of the ICAO NACC AIM TF?	Yes
Name	Caroline Doucet



International Civil Aviation Organization

NAM CAR REGION AIM IMPLEMENTATION ROADMAP STATUS FOR THE TRANSITION FROM AIS TO AIM

Phase/Step	Step No.	Timeline																				Start Date MM / DD / YY	(Planned) End Date MM / DD / YY	Costa Rica	Remarks
		2019				2020				2021				2022				2023							
		Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4				
Phase I																									
AIRAC adherence	P-03																					1-Jan-17	31-Dec-19	6	
Monitoring of Annex differences	P-04																							6	
WGS-84 implementation	P-05																							6	
QMS	P-17																							6	
Phase II																									
Data Quality Monitoring	P-01																							6	
Data Integrity Monitoring	P-02																							6	
AIXM	P-06																							3	
Unique identifiers	P-07																							3	
Aeronautical information conceptual model	P-08																							3	
eAIP	P-11																							3	
Terrain A-1	P-13																							4	
Obstacle A-1	P-14																							2	
Terrain A-4	P-13	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9			9	
Obstacle A-4	P-14	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9			9	
Terrain A-2[1]	P-13																							4	
Obstacle A-2[2]	P-14																							2	
Terrain A-3	P-13																							3	
Obstacle A-3	P-14																							1	
Aerodrome Mapping	P-15																							1	
Phase III																									
Aeronautical data exchange	P-09																								
Communication networks	P-10																								
Aeronautical information briefing	P-12																								
Training	P-16																								
Agreement with data originators	P-18																								
Interoperability with meteorological products	P-19																								
Electronic aeronautical charts	P-20																								
Digital NOTAM	P-21																								

[1] Please specify implementation of Area 2a, 2b, 2c and/or 2d
 [2] Please specify implementation of Area 2a, 2b, 2c and/or 2d

1	Not Started (leave empty)	0%
2	Initial Stage	1 - 25 %
3	Developing Stage	26 - 50 %
4	Advanced Stage	51 - 75 %

Legend*[1] - Please use this color guidance chart to fill out cells in this form accordingly. Enter the number corresponding with the status into a cell (in the correct year(s)), for the status of the AIS Unit. Use the same

State/AIS Unit to fill ▼	
State	COSTA RICA
Title	ENCARGADO AIM
Member of the ICAO NACC AIM TF?	YES
Name	GERARDO AGÜERO AGÜERO

[method to fill out an implementation target date/year, if the step has not been completed and/or fully implemented yet! Refer to the example tab, for an example of a filled out form. All cells must be filled out until the completion or current status. See the EXAMPLE](#)

5	Finalizing Stage	76 – 99 %
6	Fully Implemented	100%
7	Implemented through a third party	100%
8	Scheduled to be completed and/or fully implemented by this date / period	Provide more information
9	Will not implement this step (Fill all years grey)	Provide reason

[\[1\] Please provide details / reason / in the "Remarks" column for each step!](#)

[example of a filled out form. All CENS must be filled out until the completion or current status. See the \[EXAMPLE\]\(#\)](#)

7	Implemented through a third party	100%
8	Scheduled to be completed and/or fully implemented by this date / period	Provide more information
9	Will not implement this step (Fill all years grey)	Provide reason

[1] Please provide details / reason / in the "Remarks" column for each step.



International Civil Aviation Organization

NAM CAR REGION AIM IMPLEMENTATION ROADMAP STATUS FOR THE TRANSITION FROM AIS TO AIM

Phase/Step	Step No.	Timeline																Start Date MM / DD / YY	(Planned) End Date MM / DD / YY	Dutch Caribbean: Curacao, Aruba, Saint Maarten & BES	Remarks				
		2019				2020				2021				2022								2023			
		Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4					Q1	Q2	Q3	Q4
Phase I																									
AIRAC adherence	P-03																					1-Feb-14	31-Dec-14	6	
Monitoring of Annex differences	P-04																					1-Feb-14	31-Dec-14	6	Continued process
WGS-84 implementation	P-05																					1-Feb-14	31-Dec-14	6	
QMS	P-17	3	3	4	4	4	4	5	5	5	5	8	8									1-Feb-14	31-Dec-21	4	
Phase II																									
Data Quality Monitoring	P-01	4	4	4	5	5	5	5	5	5	5	8	8									1-Jul-14	31-Dec-21	5	
Data Integrity Monitoring	P-02	4	4	4	5	5	5	5	5	5	5	8	8									1-Jul-14	31-Dec-21	5	
AIXM	P-06																					1-Oct-11	31-Dec-12	6	System in place
Unique identifiers	P-07																					1-Feb-14	31-Jul-15	6	Website active
Aeronautical information conceptual model	P-08																					1-Oct-11	31-Dec-12	6	Included in AIXM system 5.1
eAIP	P-11																					1-Feb-14	1-Jan-15	6	Implemented since 1 JUL 2015
Terrain A-1	P-13	5	5	5	5	6																1-Aug-18	31-Mar-20	5	
Obstacle A-1	P-14	5	5	5	5	6																1-Aug-18	31-Mar-20	5	
Terrain A-4	P-13	5	5	5	5	6																1-Aug-18	31-Mar-20	5	
Obstacle A-4	P-14	5	5	5	5	6																1-Aug-18	31-Mar-20	5	
Terrain A-2[1]	P-13	5	5	5	5	6																1-Aug-18	31-Mar-20	5	
Obstacle A-2[2]	P-14	5	5	5	5	6																1-Aug-18	31-Mar-20	5	
Terrain A-3	P-13	5	5	5	5	6																1-Aug-18	31-Mar-20	5	
Obstacle A-3	P-14	5	5	5	5	6																1-Aug-18	31-Mar-20	5	
Aerodrome Mapping	P-15	1	1	1	2	2	3	4	4	5	5	8										1-Dec-19	30-Sep-21	2	
Phase III																									
Aeronautical data exchange	P-09	1	1	1	1	1	1	1	1	1	2	2	3	4	5	8						1-Apr-21	30-Sep-22	1	
Communication networks	P-10																					1-Feb-14	31-Mar-20	6	
Aeronautical information briefing	P-12	4	4	4	5	8																1-Jul-14	31-Mar-20	4	Various softwares already in place
Training	P-16		6	6			4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	1-Mar-14		4	On going process, incl. refresher training and skilled trainings
Agreement with data originators	P-18	4	4	4	5	8																1-Aug-15	31-Mar-20	4	On going process via SLA's. In addition PLX will be introduced
Interoperability with meteorological products	P-19	1	1	1	1	1	1	2	2	2	2	3	3	3	3	3	3	4	4	4	4	1-Jun-20	30-Jun-24	1	
Electronic aeronautical charts	P-20	1	1	1	2	2	3	4	5	8												1-Dec-19	31-Mar-21	3	
Digital NOTAM	P-21	1	1	1	1	1	1	1	1	1	1	1	1	1	2	2	2	3	3	4	4	1-Apr-22	30-Jun-24	1	

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5	Finalizing Stage	76 - 99 %
6	Fully Implemented	100%

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State/AIS Unit to fill ▼	
State	Curacao (Dutch Caribbean States)
Title	Chief AIS/ARO
Member of the ICAO NACC AIM TF?	Yes
Name	N. Leonora-Belefanti

[EXAMPLE OF A TIERED PLAN WITH ALL STEPS IMPLEMENTED UNTIL THE COMPLETION OR CURRENT STATUS. SEE THE EXAMPLE](#)

7	Implemented through a third party	100%
8	Scheduled to be completed and/or fully implemented by this date / period	Provide more information
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[1] Please provide details / reason / in the “Remarks” column for each step!

State	Jamaica
Title	KINGSTON FIR
Member of the ICAO NACC AIM TF?	Yes
Name	Sharon Edwards



International Civil Aviation Organization

NAM CAR REGION AIM IMPLEMENTATION ROADMAP STATUS FOR THE TRANSITION FROM AIS TO AIM

Phase/Step	Step No.	Timeline																Start Date MM / DD / YY	(Planned) End Date MM / DD / YY	Mexico	Remarks							
		2019				2020				2021				2022								2023						
		Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4					Q1	Q2	Q3	Q4			
Phase I																												
AIRAC adherence	P-03	6																				1-Jan-12	1-Mar-19	6	Continued process			
Monitoring of Annex differences	P-04	6																				1-Jan-12	1-Mar-19	6	Continued process			
WGS-84 implementation	P-05	6																				1-Jan-97	1-Mar-19	6	Continued process			
QMS	P-17	6																				1-Jan-11	1-Mar-19	6	En proceso de actualización a la norma ISO 9001:2015			
Phase II																												
Data Quality Monitoring	P-01	2	3	3	4	4	5	5	6													1-Jan-19	31-Dec-20	3				
Data Integrity Monitoring	P-02	2	3	3	4	4	5	5	6													1-Jan-19	31-Dec-20	3				
AIXM	P-06	6																				1-Jan-12	1-Jun-19	6	Continued process			
Unique identifiers	P-07	6																				1-Jan-12	1-Jun-19	6	Continued process			
Aeronautical information conceptual model	P-08	6																				1-Jan-12	1-Jun-19	6				
eAIP	P-11	4	4	4	4	5	5	5	6													1-Jan-13	1-Jan-20	4				
Terrain A-1	P-13	1	1	2	2	3	3	3	3	4	4	4	4	4	5	5	6					1-Jan-20	31-Dec-21	1				
Obstacle A-1	P-14	1	1	2	2	3	3	3	3	4	4	4	4	4	5	5	6					1-Jan-20	31-Dec-21	1				
Terrain A-4	P-13	1	1	2	2	3	3	3	3	4	4	4	4	4	5	5	6					1-Jan-20	31-Dec-21	1				
Obstacle A-4	P-14	1	1	2	2	3	3	3	3	4	4	4	4	4	5	5	6					1-Jan-20	31-Dec-21	1				
Terrain A-2[1]	P-13	1	1	2	2	3	3	3	3	4	4	4	4	4	5	5	6					1-Jan-20	31-Dec-21	1				
Obstacle A-2[2]	P-14	1	1	2	2	3	3	3	3	4	4	4	4	4	5	5	6					1-Jan-20	31-Dec-21	1				
Terrain A-3	P-13	1	1	2	2	3	3	3	3	4	4	4	4	4	5	5	6					1-Jan-20	31-Dec-21	1				
Obstacle A-3	P-14	1	1	2	2	3	3	3	3	4	4	4	4	4	5	5	6					1-Jan-20	31-Dec-21	1				
Aerodrome Mapping	P-15	3	3	3	3	4	4	5	5	5	5	5	6									1-Jan-12	31-Dec-21	3				
Phase III																												
Aeronautical data exchange	P-09	3	3	3	3	4	4	4	4	5	5	5	6									1-Jan-12	31-Dec-21	3				
Communication networks	P-10	1	1	1	1	2	2	2	2	3	3	3	3	4	4	4	4	4	4	4	5	5	5	6	1-Jan-20	31-Dec-23	1	
Aeronautical information briefing	P-12	1	1	1	1	2	2	2	2	3	3	3	3	4	4	4	4	4	4	4	5	5	5	6	1-Jan-20	31-Dec-23	1	
Training	P-16	3	3	3	3	4	4	5	5	6														1-Jan-12	1-Jan-21	3	Continued process	
Agreement with data originators	P-18	1	1	1	1	2	2	3	3	4	4	5	6											1-Jan-19	31-Dec-21	1		
Interoperability with meteorological products	P-19	1	1	1	1	2	2	2	2	3	3	3	3	4	4	4	4	4	4	4	5	5	5	6	1-Jan-20	31-Dec-23	1	
Electronic aeronautical charts	P-20	1	1	1	1	2	2	2	2	3	3	3	3	4	4	4	4	4	4	4	5	5	5	6	1-Jan-20	31-Dec-23	1	
Digital NOTAM	P-21	1	1	1	1	2	2	2	2	3	3	3	3	4	4	4	4	4	4	4	5	5	5	6	1-Jan-20	31-Dec-23	1	

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State/AIS Unit to fill ▼	
State	Mexico
Title	
Member of the ICAO NACC AIM TF?	Yes
Name	

[method to fill out an implementation target date/year, if the step has not been completed and/or fully implemented yet! Refer to the example tab, for an example of a filled out form. All cells must be filled out until the completion or current status. See the \[EXAMPLE\]\(#\)](#)

5	Finalizing Stage	76 – 99 %
6	Fully Implemented	100%
7	Implemented through a third party	100%
8	Scheduled to be completed and/or fully implemented by this date / period	Provide more information
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NAM CAR REGION AIM IMPLEMENTATION ROADMAP STATUS FOR THE TRANSITION FROM AIS TO AIM

Phase/Step	Step No.	Timeline																Start Date MM / DD / YY	(Planned) End Date MM / DD / YY	Trinidad and Tobago	Remarks				
		2019				2020				2021				2022								2023			
		Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4					Q1	Q2	Q3	Q4
Phase I																									
AIRAC adherence	P-03	6																						6	AIRAC system used for Publications.
Monitoring of Annex differences	P-04	1				2				3		4		5	6							1-Jan-19	31-Mar-22	1	Monitoring of Annex Differences has not commenced due lack of staff resources. Efforts are currently underway to recruit staff to start this project. Guidance is requested from ICAO on how to proceed regarding EFOD
WGS-84 implementation	P-05	6																						6	WGS-84 coordinates are used in AIP and Charts for Trinidad and Tobago.
QMS	P-17	6																						6	AIM Department's QMS is currently certified to the ISO 9001:2015 Standard
Phase II																									
Data Quality Monitoring	P-01	6																						6	Data Quality monitored against ICAO SARPS through manual and system evaluation processes.
Data Integrity Monitoring	P-02	4				5		6															30-Sep-20	4	PLX Software already acquired. Software upgrade and re-training required. Monitoring is done throughout the data process manually.
AIXM	P-06	6																						6	Systems meet the AIXM 5.1 Standards.
Unique identifiers	P-07	6																						6	Fully implemented through the use of ICARD and processes involved to ensure no conflict of identifiers occur in the aeronautical database
Aeronautical information conceptual model	P-08	6																						6	Systems meet the AICM Standards.
eAIP	P-11	4				5	6																31-Mar-20	4	HTML AIP work has started. PDF Files electronically available on TTCAA Website
Terrain A-1	P-13																							6	DTM for both islands are available
Obstacle A-1	P-14				4					5			6									1-Jul-19	1-Dec-21	4	Data collection initiated, database will be populated through collaboration with various stakeholders and supplemented by terrestrial surveys and LIDAR when required
Terrain A-4	P-13							6														1-Nov-19	1-Sep-20	3	TTPP & TTCP CAT I but can be included with AD survey
Obstacle A-4	P-14							6														1-Nov-19	1-Sep-20	3	TTPP & TTCP CAT I but can be included with AD survey
Terrain A-2[1]	P-13																							6	Area 2 DTM available for both islands
Obstacle A-2[2]	P-14				4			5		6												1-Jul-19	1-Dec-20	4	Database population commenced, requires update
Terrain A-3	P-13							6														1-Jul-19	1-Mar-20	3	LIDAR and AD survey available for both islands
Obstacle A-3	P-14							6														1-Jul-19	1-Mar-20	3	Information to be obtained from the TT Airports Authority
Aerodrome Mapping	P-15							6														1-Jul-19	1-Dec-20	3	Information to be obtained from the TT Airports Authority
Phase III																									
Aeronautical data exchange	P-09	6																						6	System meets the AIXM Specifications
Communication networks	P-10	6																						6	AIP Publications available on TTCAA Website
Aeronautical information briefing	P-12																								
Training	P-16	2																						2	Dependent on Doc 9991 availability and guidance from ICAO.
Agreement with data originators	P-18	5					6																31-Mar-20	5	MOAs to be finalised for the sharing of geospatial information. Stakeholder group established and TTCAA responded to be involved in the initiative. This group will be a source of data. Existing LOAs are with data originators being reviewed and amended and additional agreements to be developed.
Interoperability with meteorological products	P-19																								
Electronic aeronautical charts	P-20												6									1-Jan-20	1-Dec-21	3	GIS software to be acquired for the completion of basemaps. GIS information in the form of shapefiles is being collected
Digital NOTAM	P-21																								

[1] Please specify implementation of Area 2a, 2b, 2c and/or 2d
 [2] Please specify implementation of Area 2a, 2b, 2c and/or 2d

1	Not Started (leave empty)	0%
2	Initial Stage	1 - 25%
3	Developing Stage	26 - 50%

Legend*[1] - Please use this color guidance chart to fill out cells in this form accordingly. Enter the number.

State/AIS Unit to fill ▼	
State	Trinidad & Tobago
Title	Unit Chief AIM Quality Assurance
Member of the ICAO NACC AIM TF?	Yes

[corresponding with the status into a cell \(in the correct year\(s\)\), for the status of the AIS Unit. Use the same method to fill out an implementation target date/year, if the step has not been completed and/or fully implemented yet! Refer to the example tab, for an example of a filled out form. All cells must be filled out until the completion or current status. See the \[EXAMPLE\]\(#\)](#)

4	Advanced Stage	51 – 75 %
5	Finalizing Stage	76 – 99 %
6	Fully Implemented	100%
7	Implemented through a third party	100%
8	Scheduled to be completed and/or fully implemented by this date / period	Provide more information
9	Will not implement this step (Fill all years grey)	Provide reason

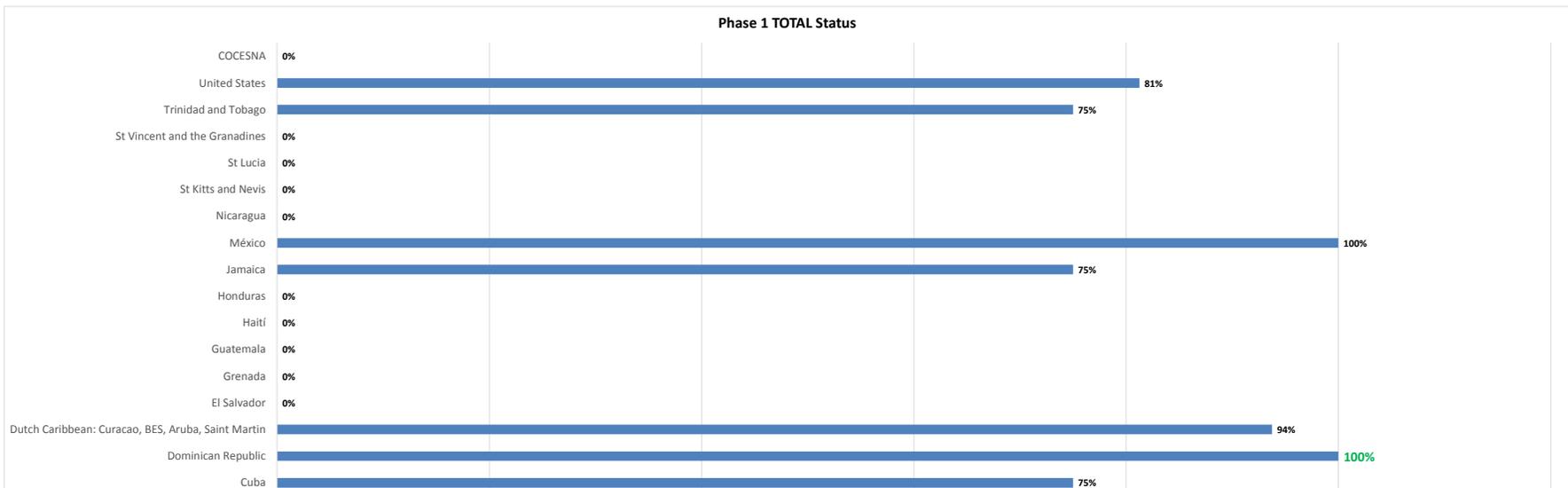
Name	N. Nohar
------	----------

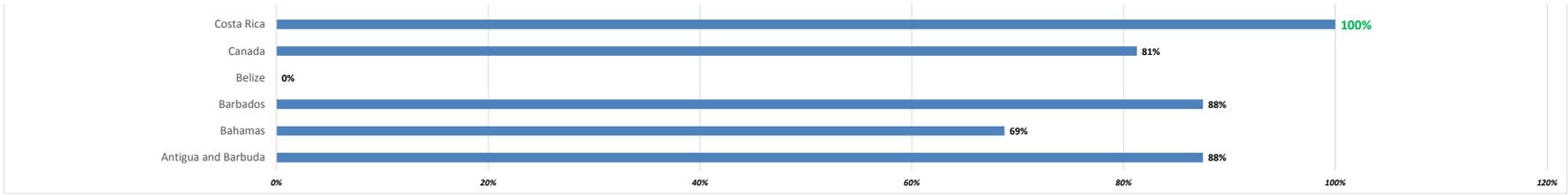
[1] Please provide details / reason / in the "Remarks" column for each step!

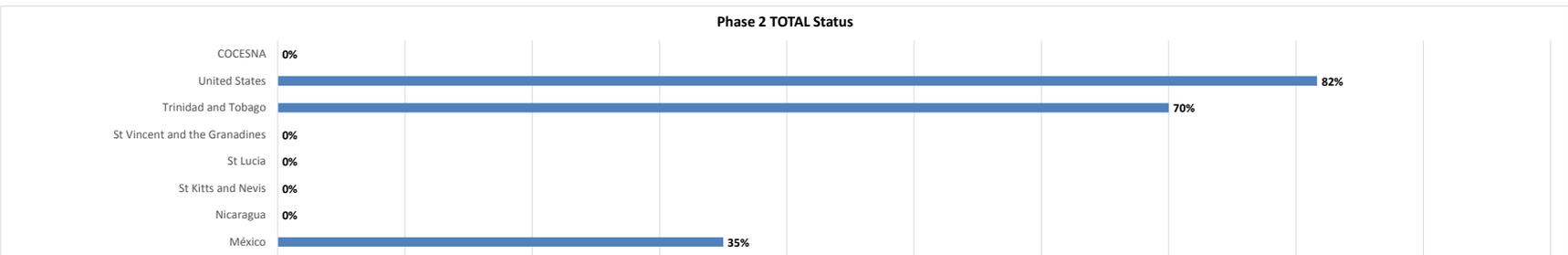
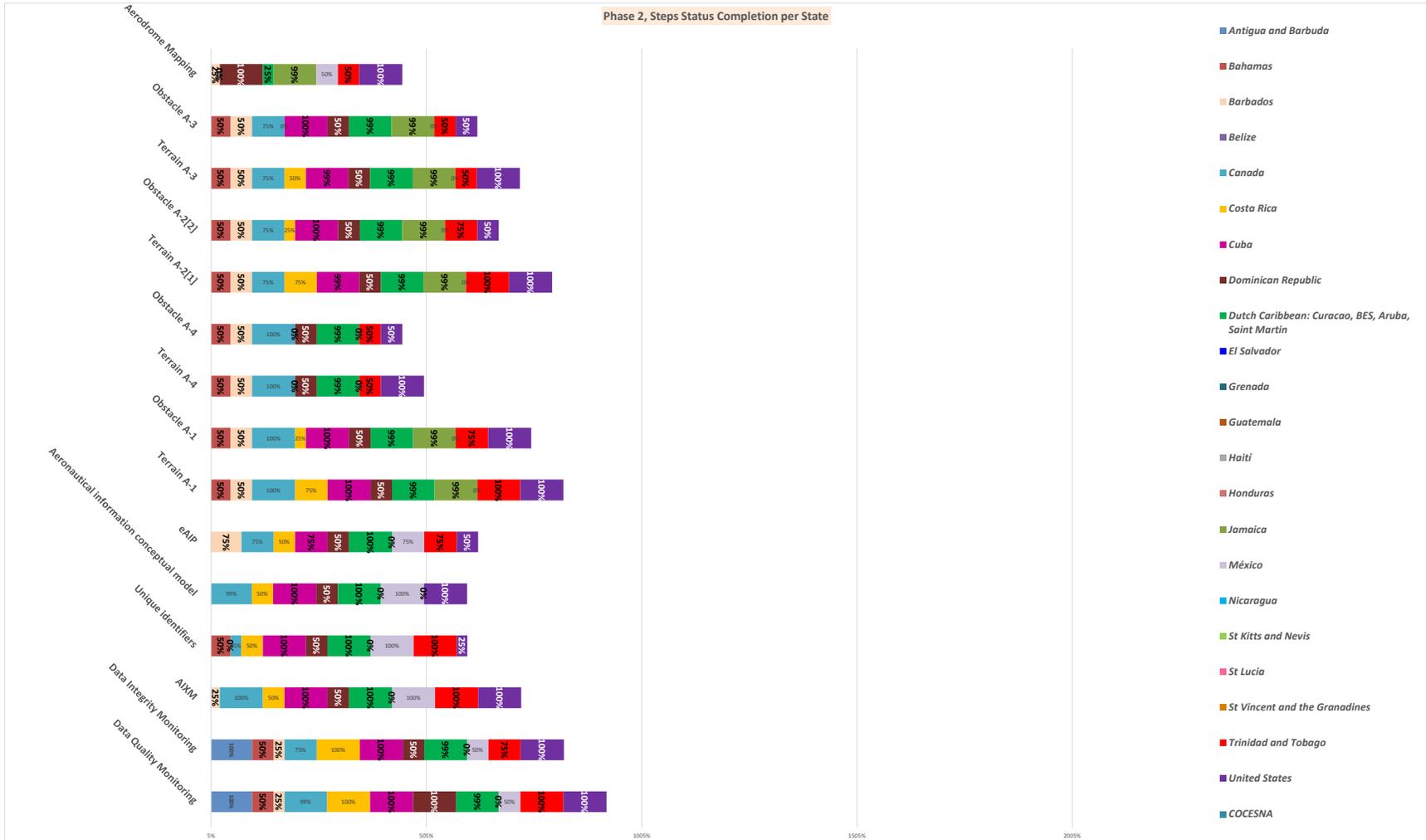
[example of a filled out form. All CENS must be filled out until the completion or current status. See the \[EXAMPLE\]\(#\)](#)

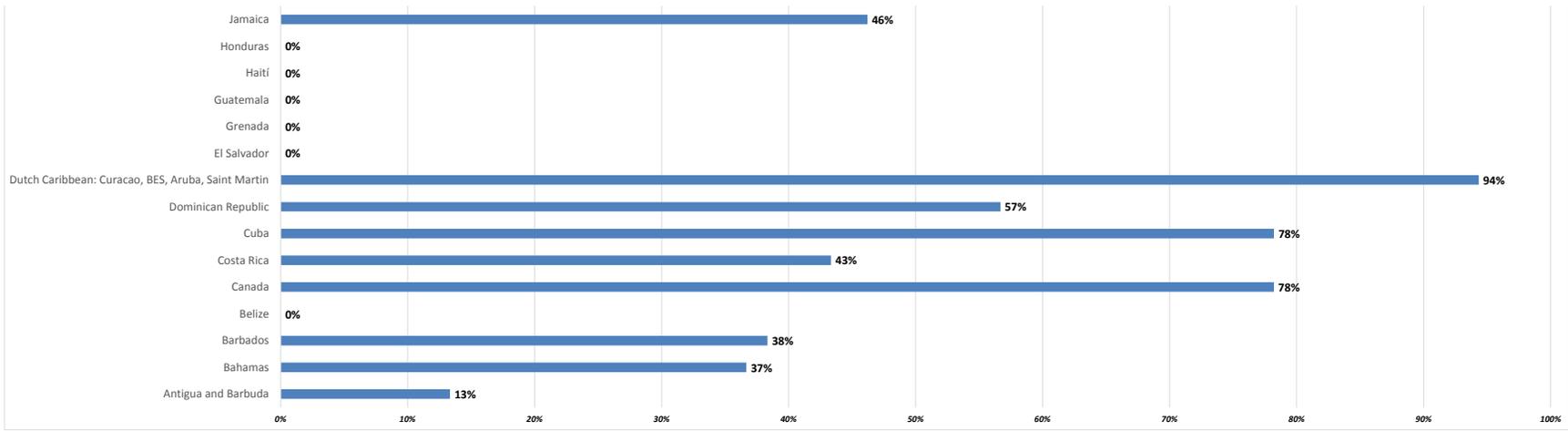
7	Implemented through a third party	100%
8	Scheduled to be completed and/or fully implemented by this date / period	Provide more information
9	Will not implement this step (Fill all years grey)	Provide reason

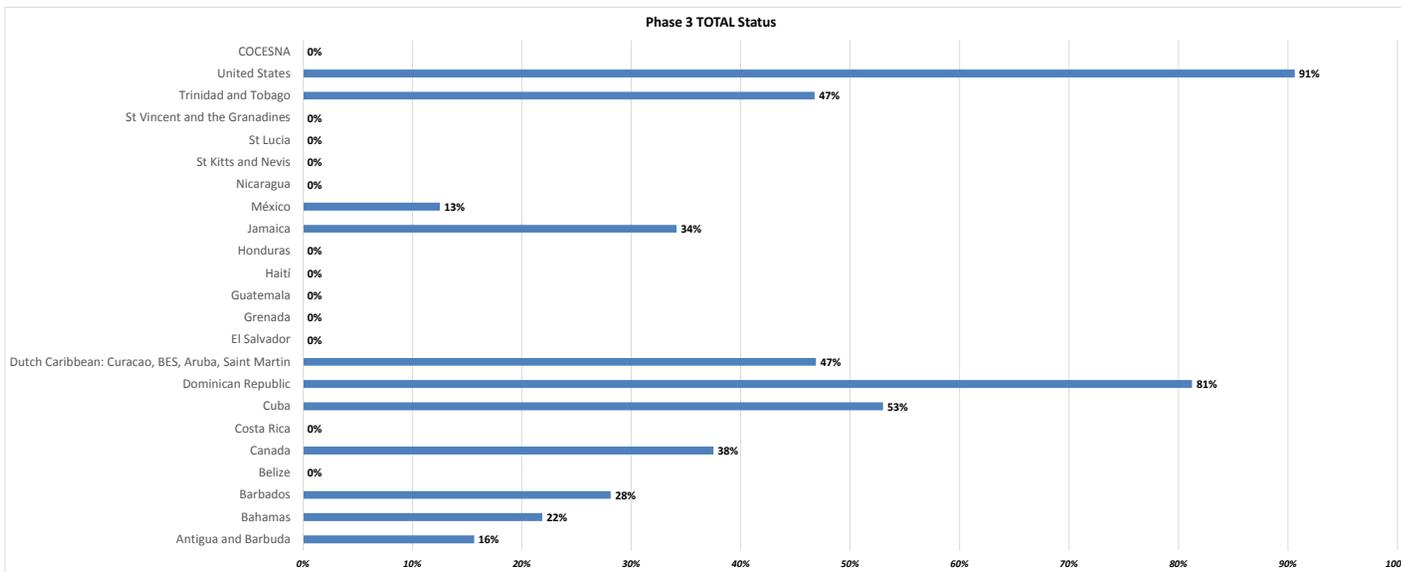
[1] Please provide details / reason / in the "Remarks" column for each step.

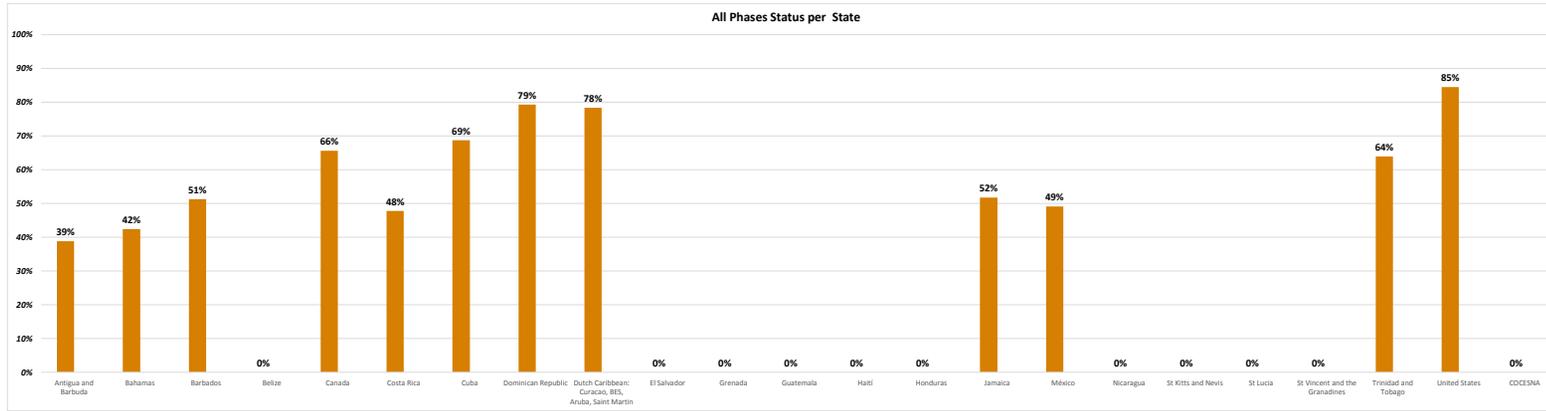












Conclusion: 11
 out of the 23 (47.8%) member States have not provided information on (or did not start yet with the) transition of AIS to AIM.
 Of the 53.2% which have provided information, it can be concluded that:
 33.3% are in a development stage.
 41.7% are in Advanced stage.
 And 25% are in Final stage of completing the whole transition.
 From the detailed information provided, most are stuck at phase two and three of this transition.
 Although informed that QMS is in place for the majority of the States, as ICAO has not required a proof of certification, this cannot be proven.

All Phases	Antigua and Barbuda	Bahamas	Barbados	Belize	Canada	Costa Rica	Cuba	Dominican Republic	Dutch Caribbean: Curacao, BES, Aruba, Saint Martin	El Salvador	Grenada	Guatemala	Haiti	Honduras	Jamaica	Mexico	Nicaragua	St Kitts and Nevis	St Lucia	St Vincent and the Grenadines	Trinidad and Tobago	United States	COCESNA
TOTAL Status Complete Transition per State	39%	42%	51%	0%	66%	48%	69%	79%	78%	0%	0%	0%	0%	0%	52%	49%	0%	0%	0%	0%	64%	85%	0%
	DEVL	DEVL	ADV	NO START/NO INFO PROVIDED	ADV	DEVL	ADV	FINAL	FINAL	NO START/NO INFO PROVIDED	ADV	DEVL	NO START/NO INFO PROVIDED	ADV	FINAL	NO START/NO INFO PROVIDED							

1	Not Started (leave empty)	0%
2	Initial Stage	1 - 25 %
3	Developing Stage	26 - 50 %
4	Advanced Stage	51 - 75 %
5	Finalizing Stage	76 - 99 %
6	Fully Implemented	100%
7	Implemented through a third party	100%
8	Scheduled to be completed and/or fully implemented by this date / period	Provide more information
9	Will not implement this step (Fill all years grey)	Provide reason



International Civil Aviation Organization

NAM CAR REGION AIM IMPLEMENTATION ROADMAP STATUS FOR THE TRANSITION FROM AIS TO AIM

Phase/Step	Step No.	Timeline																Start	(Planned) End	State Name	Remarks				
		2019				2020				2021				2022				2023				Date	Date		
		Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2			Q3	Q4	MM / DD / YY	MM / DD / YY
Phase I																									
AIRAC adherence	P-03																								
Monitoring of Annex differences	P-04																								
WGS-84 implementation	P-05																								
QMS	P-17																								
Phase II																									
Data Quality Monitoring	P-01																								
Data Integrity Monitoring	P-02																								
AIXM	P-06																								
Unique identifiers	P-07																								
Aeronautical information conceptual model	P-08																								
eAIP	P-11																								
Terrain A-1	P-13																								
Obstacle A-1	P-14																								
Terrain A-4	P-13																								
Obstacle A-4	P-14																								
Terrain A-2[1]	P-13																								
Obstacle A-2[2]	P-14																								
Terrain A-3	P-13																								
Obstacle A-3	P-14																								
Aerodrome Mapping	P-15																								
Phase III																									
Aeronautical data exchange	P-09																								
Communication networks	P-10																								
Aeronautical information briefing	P-12																								
Training	P-16																								
Agreement with data originators	P-18																								
Interoperability with meteorological products	P-19																								
Electronic aeronautical charts	P-20																								
Digital NOTAM	P-21																								

[1] Please specify implementation of Area 2a, 2b, 2c and/or 2d

[2] Please specify implementation of Area 2a, 2b, 2c and/or 2d

1	Not Started (leave empty)	0%
----------	---------------------------	----

State/AIS Unit to fill ▼	
State	

[Legend*\[1\]](#) - Please use this color guidance chart to fill out cells in this form accordingly. Enter the number corresponding with the status into a cell (in the correct year(s)), for the status of the AIS Unit. Use the same method to fill out an implementation target date/year, if the step has not been completed and/or fully implemented yet! Refer to the example tab, for an example of a filled out form. All cells must be filled out until the completion or current status. See the EXAMPLE

2	Initial Stage	1 - 25 %
3	Developing Stage	26 - 50 %
4	Advanced Stage	51 - 75 %
5	Finalizing Stage	76 - 99 %
6	Fully Implemented	100%
7	Implemented through a third party	100%
8	Scheduled to be completed and/or fully implemented by this date / period	Provide more information
9	Will not implement this step (Fill all years grey)	Provide reason

Title	
Member of the ICAO NACC AIM TF?	
Name	

[1] Please provide details / reason / in the "Remarks" column for each step!

APPENDIX C

INTERNATIONAL CIVIL AVIATION ORGANIZATION

DRAFT

NACC REGIONAL PLAN FOR COLLABORATIVE AERONAUTICAL
INFORMATION MANAGEMENT (AIM)

DRAFT Version 1.0, May 2019

This Plan was based on the development made by (Ms.) Ying Zhou, Associate
Officer (ATM/AIM) ICAO CAR - AIS-AIM

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1. SCOPE OF THE PLAN

Plan Structure

1.1 Air Traffic Management (ATM) involves the best integration of real-time, historical and prospective ATM data and information, and the management, sharing and distribution of that data to shareholders. Information Management is based on the strategic and tactical provision of quality assured and timely operational data in support of ATM operations.

1.2 The Seamless ATM Plan references different levels. The upper level is from global perspective, which is guided mainly by references to the Global Air Navigation Plan (GANP, Doc 9750), the Global ATM Operational Concept (Doc 9854) and the Global Aviation Safety Plan (GASP). Beneath it is regional planning, primarily provided by the NACC Plan for Collaborative Aeronautical Information Management (hereinafter referred to as the 'Plan') and other guidance materials, to define goals and means of meeting State planning objectives. Aeronautical Information Management (AIM) needs to be framed with an awareness of the ATM system as a whole and its purpose of Information Management within ATM system.

1.3 The Plan addresses the full range of ATM stakeholders, and was developed as part of a suite of NACC air navigation plans, thus, it should not be considered in isolation.

1.4 The word 'States' in the Plan includes Special Administrative Regions and Territories.

Plan Review

1.5 The Seamless ATM performance framework focuses on technological and human performance within Aviation System Block Upgrade (ASBU) elements. ASBU Block 0 modules contain technologies, systems and procedures which are expected to be available from 2013. However, the Plan also has references to ASBU modules in Block 1, 2 and 3, which are expected to be available from 2019, 2025 and 2031 respectively.

1.6 ASBU focuses on the initial introduction of digital processing and management of information. On the process of transition from AIS to AIM, aeronautical information exchange model (AIXM), migration to electronic Aeronautical Information Publication (eAIP), better quality (QMS) and availability of data should be under consideration and in usage. Therefore, the Plan needs to be updated and take into account ASBU modules in Block 0, 1, 2 and 3.

1.7 The Plan requires regular updating to keep current with aviation system changes. It is intended that CAR/SAM Air Navigation Planning and Implementation Regional Group (GREPECAS) and its contributory bodies conduct a complete review every three years (or a shorter period determined by GREPECAS) of the Plan to align with the recent review cycle of the GANP. The Plan and its subsequent revisions should be endorsed by GREPECAS.

2. OBJECTIVES

Plan Objective

2.1 The objective of the Plan is to facilitate NACC Seamless ATM operations, by developing and deploying AIM solutions capable of ensuring safety and efficiency of air transport throughout the NACC Region.

2.2 Noting that more complex and costly challenges of implementing the digitally based AIM environment expected under Amendment 40 to Annex 15, the Plan provides a framework for a transition to a collaborative AIM environment, in order to meet future global and regional performance requirements, including PANS AIM.

Guidance for the Transition from AIS to AIM

2.3 The Plan it is neither isolated, nor conflicts with other plans or strategies, it is well-referenced in conjunction with other previous ones.

3. EXECUTIVE SUMMARY

Driving Force for Collaborative AIM

3.1 AIM is envisaged as one of the most valuable and important enabling services in ATM operational concept. To satisfy new requirements of ATM, which is based on a collaborative decision-making environment, AIS has to transit to a broader concept of AIM, which provides aeronautical data and information in digital and electronic formats and is displayed graphically and geodetically, complies with international standards and formats exchanges, is accessible system-wide by all stakeholders and more real-time, given its data-centric nature as opposed to the product-centric nature of the previous concept of AIS.

3.2 Due to economic and efficiency drivers, GREPECAS has foreseen an increasing need for States and systems to work together, which may develop into joint or shared operations, such as sub-regional Aeronautical Information Publications (AIPs for ECAR States, Netherland Territories and COCESNA for Central American States), AIM training and aeronautical databases. Moreover, it is recognised that collaboration between States inevitably improves the harmonisation and interoperability of systems – it is a key basis of Seamless ATM.

3.3 Collaboration is especially important for small, less resourced States and Territories as the technical challenges increase and the maintenance of technical competency and systems becomes more difficult. In this way, Collaborative AIM is expected to benefit all States and Territories, from the most vulnerable to the better resourced, as the latter will have assurance that increasingly interconnected smaller States will also be able to fulfil their international obligations.

3.4 AIM is one of the foundation elements that supports other aspects of the current and future aviation systems dependent of data in electronic and digital formats, and as such requires a high priority. GREPECAS agreed that the transition from AIS to AIM should receive the highest priority, yet many States are lagging in their implementation of this key element.

4. BACKGROUND INFORMATION

Principles

4.1 There are considered to be three major areas of AIM Principles:

- a) People (human performance, ensure complete understanding of AIM concepts including training of relevant staff, common procedures based on a Regional Operational Concept, etc.)
- b) Facilities (physical equipment, Data-sharing), Technology
- c) Aeronautical Information and Data sets

Aviation System Block Upgrades (ASBU)

4.2 At the Global level, ICAO started the ASBU initiative as a programme framework that developed a set of aviation system solutions or upgrades intended to exploit current aircraft equipage, establish a transition plan and enable global interoperability. ASBU comprises a suite of modules organised into flexible and scalable building blocks, where each module represents a specific, well bounded improvement. The

building blocks could be introduced and implemented in a State or a Region depending on the need and level of readiness, while recognizing that all the modules are not required in all airspaces. ASBU describes a way to apply the concepts defined in the Doc 9854, with the goal of implementing regional performance improvements, and is used in the new edition of the GANP to guide implementation. Since the Air Navigation Conferences (AN-Conf. /12 and 13) it was agreed that ASBU and the associated technology roadmaps are integral parts of the GANP new 6th. Ed and a valuable implementation tool kit.

4.3 ASBU is heavily dependent on AIM, as AIM is a critical prerequisite for the implementation of many current or future ATM or Air Navigation concepts that relies on the accuracy, integrity and timeliness of data.

4.4 In the AIM field domain, the main ASBU blocks which are relevant with Seamless ATM are as follows:

- B0-DAIM Service Improvement through Digital Aeronautical Information Management (AIM). A key strategy activity during Block 0 from 2013 until 2019 may include the initial introduction of digital processing and management of information/data, through AIS/AIM implementation, use of aeronautical information exchange model (AIXM), migration to electronic aeronautical information/data publication (AIP) and better quality (QMS) and availability of data.
- B1-DAIM Service Improvement through Integration of all Digital AIM Information (2019-2025): ATM information reference model (AIRM) integrates all ATM information/data and other Information/data Users (using UML, GML/XML), and implements information/data management with exchange data models: common formats are AIXM, FIXM, WIXM and internet protocols.
- B1-SWIM Performance Improvement through the application of SWIM applications and infrastructure (2019-2025): standard data models, internet-based protocols to maximize interoperability. Most of the air ground data exchanges will remain based on point-to-point communication.
- B2-SWIM Enabling Airborne Participation in Collaborative ATM through SWIM (2025-2031): aircraft as a fully connected information node in SWIM and collaborative ATM processes – exchange of data.

5. AIS-AIM Roadmap Phases and Steps

5.1 According to AIS-AIM Roadmap, there are three phases and 21 steps. Failure to take action on any of these steps would increase the duration of the transition and negatively affect the enabling role of AIM. The three phases, according to the AIS-AIM Transition Roadmap, are as follows.

- Phase 1 – **Consolidation**. Quality Management System (QMS), is a prerequisite for commencement of the transition from AIS to AIM. In this phase, States were expected to enhance the quality of their existing AIS products, attach great importance to AIRAC adherence and WGS84 implementation and publish their Differences related to ICAO Annexes (AIP and/or electronically).
- Phase 2 – **Going Digital**, In this phase, States were expected to create national or regional database to produce existing products and services with better quality and availability, such as the delivery of eAIP, eTOD, etc.
- Phase 3 – **Information Management**. This is the final phase in the evolution to AIM, is also known as SWIM. Keywords of this phase are integration, collaboration and self-

network.

5.2 **Phase 1** - Consolidation and **Phase 2** – Going digital, are important preparatory phases of the final transition to AIM. Consolidation is the main theme of Phase 1, whereas Phase 2 is the step to going digital, when information is increasingly being managed and exchanged digitally. Phase 2 can be characterized as being the most critical in the transition, and should be kept as short as possible.

The 21 steps and deadline for implementation are shown below.

ROADMAP PHASE	ROADMAP STEPS	DEADLINE
PHASE 1	P-03 — AIRAC adherence monitoring	Initial date November 2010 ----- Adjusted December 2020
	P-04 — Monitoring of States’ differences to Annex 4 & 15	
	P-05 — WGS-84 implementation	
	P-17 — Quality	
PHASE 2	P-01 — Data quality monitoring	Initial date November 2013 ----- Adjusted December 2022
	P-02 — Data integrity monitoring	
	P-06 — Integrated aeronautical information database	
	P-07 — Unique identifiers	
	P-08 — Aeronautical information conceptual model (AICM)*	
	P-11 — Electronic AIP	
	P-13 — Terrain	
	P-14 — Obstacles	
	P-15 — Aerodrome mapping	
PHASE 3	P-09 — Aeronautical data exchange	Initial date November 2016 ----- Adjusted December 2025
	P-10 — Communication networks	
	P-12 — Aeronautical information briefing	
	P-16 — Training	
	P-18 — Agreements with data originators	
	P-19 — Interoperability with meteorological products	
	P-20 — Electronic aeronautical charts	
	P-21 — Digital NOTAM	

Figure 1: The 21 steps of the roadmap in the three phases

6. The Interim AIM Transition Guidance

6.1 The latest Meeting of the AIM Task Force (AIM TF, Miami, United States, August 2018), recognized that the lack of AIM transition guidance plan material was a matter of significant concern to State Administrations. There had been delays in the production of global ICAO guidance documents, those of

most immediate significance being the PANS AIM (Doc 10066), AIS Manual updated Doc 8126 (four Volumes), the new Doc 9839 Quality Manual (unedited) and Doc 9991 AIS Training Manual (unedited). That Meeting agreed to continue to work on Regional AIM transition guidance material for key AIM transition steps from the ICAO Roadmap for Transition from AIS to AIM.

6.2 The AIM TF will contribute to update the Status for Aeronautical Information Services (AIS) in the NACC Region by adding a new information on a website, Interim AIM Transition Guidance from EUROCONTROL, which emphasizes four priority steps from AIM transition roadmap, they are:

- P-17 – Quality
- P-16 – Training
- P-18 – Agreements with data originators
- P-11 – Electronic AIP

7. Emphasis of the four priority AIM transition steps

7.1 The transition **Step P-17** – Quality is one of the four steps in AIM Transition Phase 1 – Consolidation. Along with the other Phase 1 transition steps, P-17 – Quality is a prerequisite for commencement of the transition from AIS to AIM. In this phase, States were expected to enhance the quality of their existing AIS/AIM products.

7.2 The transition **Step P-16** – Training is one of the eight steps in AIM Transition Phase 3 - Information Management. The training of personnel will be adapted to the new requirements on skill and competencies introduced by the transition to AIM; the successful Quality Management System (QMS) also deeply relies on the motivation of personnel. Training Needs Analysis (TNA) and TNA developing process are important. For transition from AIS to AIM, both tailored training based on each Contracting States and systematic and collaborative training among Contracting States in NACC region are all necessary.

7.3 The transition **Step P-18** – Agreements with Data Originators is one of the eight steps in AIM Transition Phase 3 – Information Management. While the NACC Region's current focus is on implementation of Phases 1 and 2, it is recognized that formal agreements between stakeholders in the aeronautical information chain are a critical component of robust end-to-end quality management. Step P-18 is one of four complementary Roadmap steps related to the quality management of aeronautical data: P-17 – Quality, P-01 – Data Quality Monitoring, P-02 – Data Integrity Monitoring, and P-18 – Agreements with Data Originators. Data of high quality can only be maintained if the source material is of good quality. States will be required to better control relationships along the whole data chain from the producer to the distributor. This may take the form of template service level agreements with data originators, neighboring States, information service providers or others.

7.4 The transition **Step P-11** – eAIP is one of the nine steps in AIM Transition Phase 2 - Going Digital. The electronic version of the AIP is defined in two forms: a printable document and one that can be viewed by web browsers.

7.5 The eAIP is due to be completed by November 2013. Many States in NACC Region have achieved Aeronautical Information Conceptual Model (AICM), shared their AIP hyperlink addresses, the webpages can be browsed successfully. But some countries still have problems of incorrect or inactive hyperlinks, login requirement, link functional, but no AIP (AIP SUPP and AIC provided), site accessible, but "TEST, NOT FOR OPERATIONAL USE", etc.

8. Report of AIM Task Force (AIM TF)

AIM Transition Information Sharing Website

8.1 In discussing Regional AIM transition progress, it is important to consider the need to design an AIM implementation tracking website. While the AIM Transition Table provides information on progress within the Phases, it does not provide information on the current status and challenges being faced by States, but the proposal for an AIM tracking website will share experience among States.

8.2 That, AIM TF agrees to facilitate a project by [Administration/s] to develop a website for the sharing of information related to the implementation of Aeronautical Information Management steps defined in the ICAO Roadmap for Transition from AIS to AIM.

Facilitation includes:

- a) Providing a coordination point for the contact details of the **AIM TRACKING** website administrator. Assisting in the development of a list of items for inclusion in the AIM TRACKING website
- b) Promoting the AIM TRACKING website as a valuable resource for NACC States Administrations undertaking or planning to undertake AIM transition and implementation projects
- c) Encouraging discussion of issues raised in the AIM TRACKING website and lessons learned at AIM TF meetings
- d) Providing a summary of information shared through the AIM TRACKING website, and providing hyperlink (s) to the AIM TRACKING website, in AIM TF meeting reports

Cooperation on AIM Training

8.3 Information was provided by a State highlighting the need for cooperation among Contracting States in NACC region regarding AIM implementation, in particular training for static and dynamic data management in AIXM environment, eAIP and quality management system.

8.4 Some States informed that they were developing a Standard AIS Training Package, and was open to opportunities for collaboration and technical assistance in AIM transition, and they had provided assistance to other States in AIS training, and AIM automation system and quality management system implementation, in cooperative activities through the other organizations including industry partners, and the International Federation of Aeronautical Information Management Associations (IFAIMA).

8.5 Regional cooperation in AIM training was important to ensure harmonized implementation throughout the region.

Establishment of a separate AIS unit or department

8.6 AIM TF reported that based on observations from visits to different States' AIS services and AIM meetings, it appeared that in some States the AIS was not established as a separate unit but as part of Air Traffic Services or Communication, Navigation and Surveillance organizations. In many cases ATC staff worked as AIS officers, working for both AIS and ATS. The view of the meeting AIM TF was that it was more appropriate that AIS should be established as a separate unit or department within its organization, with its personnel and management focused wholly on AIS/AIM as mentioned on Annex 15 and Doc 8126.

Delayed delivery of guidance documents

8.7 The following guidance material supporting the ICAO Roadmap for Transition from AIS to AIM was being developed by the ICAO AIS-AIM Study Group (AIS-AIM/SG):

- PANS AIM – Doc 10066 (new)
- Doc 8126 – AIS Manual (updated on four volumes);
- Doc 9839 – Quality Manual (unedited);
- Doc 9991 – AIM Training Development Manual (unedited);
- Doc 9881 – eTOD/AMDB Manual (require final validation and editing);
- Doc 9674 – WGS-84 Manual (require update - accuracy & heighting);
- Doc 8697 – Charting Manual (require update);
- Doc 9855 – Guidelines on the use of the Public Internet for Aeronautical Applications (require update);
- Doc 8400 – ICAO Abbreviations and Codes (PANS-ABC – update) and
- AIM Concept (unedited);

8.8 Delivery of the above documents had been further delayed beyond the latest advised timeframe (Q2/3 2014). The latest information from ICAO Headquarters was that most of these documents were undergoing final drafting and/or editing, but publication dates had not yet been finalized.

8.9 Other documents under development were the updated Annex 15 – Aeronautical Information Services, and the new Procedures for Air Navigation Services – Aeronautical Information Management (PANS-AIM).

9. CURRENT SITUATION

Implementation analysis for States' transition from AIS to AIM

9.1 The performance objectives of the NACC Seamless ATM Plan included the expectation that Phases 1 and 2 of the Roadmap for Transition from AIS – AIM would be completed by November 2015. As on 01 January 2016, regional implementation of Phase 1- Consolidation of the Roadmap is summarized as follows: 15 Administrations (36%) had completed implementation, 16 Administrations (38%) had partly implemented, 11 Administrations (26%) had not implemented any Phase 1 step, overall regional implementation of Phase 1 60%. Regional implementation of Phase 1 and 2 were summarized as follows:

- Under development

9.2 **Figure 2** below indicates that many States are lagging in their implementation for transition from AIS to AIM. (Date last amended in May 2019)

Under development

Figure 2: Regional AIM Implementation Status - Phase 1 and 2 Implementation in Progress

10. Implementation situation of regional ICARD.

10.1 Traffic growth in the NACC Region has resulted in traffic demand exceeding airspace capacity in many cases. The most effective initial response to this situation was to increase capacity, which often

involved ATS route re-design and implementation of new routes, requiring the efficient and Annex 11-compliant allocation of waypoint names.

10.2 The ICAO Codes and Routes Database (ICARD) system has been successfully transferred to ICAO Headquarters from EUROCONTROL where it had been developed and managed. The system, which is now available for global use, allows States to dynamically manage the allocation of five-letter name-codes (5LNCs) as well as analyze like-sounding and duplicate 5LNCs. CAR Regional Offices of ICAO coordinates States' requirements for ATS Route Designators in CAR region.

10.3 Many Contracting States in CAR region recognized the purpose of ICARD and the user registration process, updated their regional participations in ICARD, corrected common errors, known proximity checks and the process flow for requesting 5LNC, ATS route designator allocation, and ICARD_5LNC_Manager actions. With the utilization of ICARD system, 5LNCs are allocated collaboratively; avoid the occurrence of letter duplication and like-sounding problems to a large extent:

- But till now, some states cannot avoid sound-like pronunciation and/or visual confusion of 5LNC.
- ICARD Registrations of NACC

11. A Framework for AIM Quality Management System (QMS).

11.1 Annex 15 provides that States must establish a quality system and put in place quality management procedures at all stages (receiving and/or originating, collating or assembling, editing, formatting, publishing, storing and distributing) of the aeronautical information/data process. The quality system must be documented and demonstrable for each function stage, ensuring that the organizational structure, procedures, processes and resources are in place in order to detect and remedy any information/data anomalies during the phases of production, maintenance and operational use. Explicit in such a quality management regime is the ability to trace all information/data from any point, back through the proceeding processes, to its origin.

11.2 The transition step P-17 – Quality is one of the four steps in AIM Transition Phase 1 – Consolidation. Along with the other transition steps, P-17 – Quality is a prerequisite for commencement of the transition from AIS to AIM. In this phase, States were expected to enhance the quality of their existing AIS products.

11.3 However, there had been delays in the production of new global ICAO Doc 9839 *Quality Manual*. AIM TF noted that any independently developed Quality Manual could risk encouraging States to implement AIM in ways that may be divergent from anticipated global guidance.

11.4 The Plan provides a Sample Quality Manual in the NACC Region. Framework of AIM Quality Management of CAR Region (Sample) is shown in this document.

12. Knowledge and skills need to be trained and improved for AIS staff.

12.1 There are many new kinds of knowledge concerned with AIM transition process, inter alia, AICM/AIXM, data quality/originators, DNOTAM, eAIP, eTOD, Aeronautical Mapping Database (AMDM), Weather eXchange Model (WXXM) Aeronautical Information (AI) briefing, eCharts. Besides, skills and competencies also need to be improved for AIS staff members.

12.2 States have finished many tasks during the transition process from. However, AIS staff training is to some extent lagging.

13. PERFORMANCE IMPROVEMENT PLAN

13.1 ICAO's No Country Left Behind (NCLB) Initiatives determined that ICAO itself should provide more direct assistance to developing countries by playing a more active coordination role between States and by helping to generate the political will needed for States to pool resources, participate in regional efforts, earmark voluntary funds and build capacity. The NCLB campaign was endorsed to help coordinate and publicize any Organization-wide activities consistent with these priorities.

13.2 Sharing of information on ATM system resources and constraints across regions on a real time basis is a long term requirement. In the process of AIS-AIM transition, communication, collaboration, and co-operation are very important. AIS shall work in partnership, even with its users, other AIM actors, regulators, etc.

Performance Improvement Plan

Note: prior to implementation, the applicability of Performance Improvement Plan should be verified by analysis of safety, current and forecast traffic demand, efficiency, predictability, cost effectiveness and environment to meet expectations of stakeholders.

- Performance Improvement Plan Phase I – expected implementation by November 2020; and
- Performance Improvement Plan Phase II – expected implementation by November 2025.

Performance Improvement Plan Phase I

13.3 All States should make relevant regulations and specifications. The Plan is on the basis of JAP, each State should make regulations and specifications, which have close interfaces with global guidance material, especially on the following issues:

- data or raw material originators
- quality management system
- digital NOTAM filing and submitting

To improve human performance

13.4 The following should be established to support human performance in the delivery of Collaborative AIM.

- Human performance training, including assessment and management of risk, the effective safety reporting culture, etc.
- Technical training, including AICM/AIXM, Data quality/originators, digital NOTAM, eAIP, eTOD, AMDM, WXXM AI briefing, eCharts, etc.
- Qualification requirements, including personnel licences, knowledge and capability, English proficiency requirement for staffs concerning ICARD, to avoid sound-like pronunciation and/or visual confusion of 5LNC.

To establish a separate unit focused wholly on AIS/AIM.

13.5 Considering the following-up work of the transition to AIM, it should be appropriate to establish separate unit or department within AIS organization, with its personnel and management focused wholly on AIS/AIM.

13.6 To develop AIM Transition Information Sharing Website, to help States get access to ICAO Portal Website.

13.7 In order to provide information on progress within the 3 phases of AIS to AIM, encourage discussion of issues concerned with the transition and lessons learned at AIMTF meetings, as well as the current status and challenges being faced by States, a regional AIM implementation tracking website is needed and is under development. Its scope would be limited to sharing of information on AIM transition activities and experiences. Registered users, being the nominated point-of-contact from each State or Administration, would have write-access permissions for sharing information, posting questions and providing answers or suggestions. The information shared in the website would be publicly available. After the fully construction of AIM transition information sharing website for States in CAR region, States should be able to utilise the website.

13.8 Furthermore, in the process of transition from AIS to AIM, many documents are released by ICAO, CAR/SAM Air Navigation Planning and Implementation Regional Group (GREPECAS), AIM Task Force (AIM TF), International Federation of AIM Associations (IFAIMA), etc. In order to have a convenient access to acquire all related documents concerned with AIS-AIM transition, designated point-of-contact of States should be registered and qualified to access ICAO Portal Website.

To achieve Quality Management System (QMS) in CAR region

13.9 According to Annex 15, the information management resources and processes established by an aeronautical information service shall be adequate to ensure the timely collection, processing, storing, integration, exchange and delivery of quality-assured aeronautical data and aeronautical information within the ATM system.

13.10 Quality management systems shall be implemented and maintained encompassing all functions of an aeronautical information service. The established quality management system shall provide users with the necessary assurance and confidence that distributed aeronautical data and aeronautical information satisfy the aeronautical data quality requirements for accuracy, resolution and integrity and that the data traceability requirements are met through the provision of appropriate metadata. The system shall also provide assurance of the applicability period of intended use of aeronautical data as well as that the agreed distribution dates will be met.

13.11 A Structure of Agreement on data provision will be important to provide guidance on Data Quality and Data Integrity Monitoring.

13.12 Moving to a data-centric system, as distinct from product-centric, requires assurance of quality and integrity of data before and when it gets to the end-users. A key part of the information management system might be to manage non-certified aeronautical information/data that can potentially affect the safety of air navigation. For each Contracting State, management review is more difficult than annual internal audit; it is also hard to locate training organizations qualified to train AIM staff in quality management.

13.13 Regional collaborative quality assurance is needed, main task should be to review and update the quality management guidance and sample quality manual provided in the Guidance Manual for AIS in the NACC Region, data protection, automation, human factors considerations, etc.

14 Performance Improvement Plan Phase II

14.1 Utilize Aeronautical Information Exchange Model version 5.1 or later, through implementation of Phase 1 and 2 of the AIS-AIM Roadmap in adherence with ICAO and regional AIM planning and guidance material (ASBU Priority 1), support ATM operations by digitally-based AIM.

14.2 Meteorological information clearly has and will continue to have great operational impact and importance for the safety and efficiency of the air transportation system. The derived meteorological

products and services directly support the operational aspects of all phases of flight. To implement appropriate meteorological information reporting systems, providing observations, forecasts, warnings and alerts, and also providing information to meteorological authorities or offices where required.

To implement collaborative training in CAR region regarding AIM implementation

14.3 For most States, AIS is still paper based, desktop publishing, with limited digital data and quality assurance. On the process of AIS to AIM, the provision of aeronautical information should be data centric, quality assured, with single data source. State policies, regulatory oversight mechanisms, service level agreements, roles and responsibilities, data management tools, knowledge and skills, etc., need to be modified. Evolution from paper-based systems to computerised data-based systems will occur over an extended period, with present and future styles of operation proceeding in parallel. Changing the presentation and source of information will bring its own challenges, and will necessitate new skill development for all groups of users, from pilots to air traffic controllers to staff involved in producing the information.

14.4 The role of the human is especially important in delivering high quality and consistent services supporting collaborative AIM. Therefore, systematic and regional cooperation in AIM training will be highlighted among Contracting States in CAR region to ensure harmonized AIM implementation. States in CAR region should establish a working panel to analyse training demands for going to AIM collaboratively, design and develop training plans, courses and curriculum, implement training, evaluate staff competency, training courses, plans and programs, etc. Deliver collaborative training for part of AIS staffs, improve the skills and competence, this part of AIS staffs may in turn train other AIS staffs and contribute to AIM implementation.

14.5 Collaborative training should be delivered, in particular, on static and dynamic data management in AIXM environment, eAIP, digital NOTAM and quality management system. Other knowledge, skills and competencies are suggest be delivered by each Contracting State.

Further implementation of eTOD

14.6 The eTOD is safe for air navigation, efficient for PBN and ATM operations, useful for airport planning, and supports automation.

14.7 It was essential for Sates to establish a system to provide data that was compliant with the ICAO SARPs for all areas, although it would take some time. Obstacles for Area 1 shall meet the accuracy requirement provided by ICAO SARPs. For the time being, the data for Area 2 and Area 4 would be provided by prioritizing airports, firstly for the airports that were regularly used for international civil aviation and then for other airports. Furthermore, in order to achieve global eTOD exchange, States should create national or regional database to produce existing products and services with better quality and availability.

14.8 Main challenges for eTOD are costs, no or few training or supporting material, no clear allocation of responsibilities. For the matter of costs, States in CAR region should apply incremental approach, split/share the costs between stakeholders per area of responsibility and adopt competitive procurement process and negotiation. For the problem of no or few training or supporting material, regional workshops are expected to be delivered, experts (including from other regions) make presentations on eTOD, participants exchange experience and data providers present their offers. For no clear allocation of responsibilities, States in CAR region may provoke discussion; specific Task Force between regulators should address this point. Besides, qualification standards for data providers are necessary, national regulation may engage into its implementation.

15. RESEARCH AND FUTURE DEVELOPMENT

Co-operation on AIM Improvement

15.1 To develop the tools and systems required to meet foreseeable long-term requirements, there is a need for States to undertake and co-operate on AIM Improvement. This includes major efforts to define concepts, to extend knowledge and invent new solutions to future AIM challenges, so these new concepts are selected and applied in an appropriate timely manner. Such efforts could be forged through collaborative partnerships between States, ANSPs, International Organizations, institutes of higher learning and specialized technical agencies. This concept is consistent with Seamless ATM Principle (Inter-regional cooperation ('clustering') for the research, development and implementation of ATM projects).

Consideration of future AIM development

15.2 The following are possible areas that should be considered for future AIM development, in order to continue pursuance of Seamless ATM beyond ASBU Block 0 implementations and global interoperability.

- While the migration of text-based AIP information, eTOD and other static data into digital databases was relatively straightforward, the migration of conventional instrument approach and landing charts to a digital form presented a significant challenge. There was no current capability available for the automatic generation of conventional charts from digital data.
- Due to technical limitations, SIGMETs and NOTAMs are transmitted in a format that is not considered, by some, to be user-friendly (CAPTIAL LETTERS, MISSING STRUCTURE, etc). When the transmitted information includes long list of coordinates defining the affected area, it becomes a nightmare for aircrews to gain situational awareness on the position of the hazard.
- SIGMETs, NOTAMs and ASHTAMs are traditionally transmitted via alpha-numeric communication means which do not allow user-friendly presentation. It is recognized that these systems will have to be maintained for years to allow information flow to the low-end users, including aircraft in flight that do not have reception capability for graphical information, although advanced airspace users (e.g. large airlines) require the information in data formats that can be used in automated systems.
- Human factors are of key importance for Seamless ATM implementation. AIS Certification/Rating, AIS training documentation & facilitations, all need to be established and standardize.
- In order to provide quality assured data, safe and quick AIS service, effectively reduce AIS cost, we need to have Collaborative AIM Services in CAR region. Each Contracting State might be facing the same problems: cross-border AIS service lack consistency and compatibility, data quality is not consistent in CAR region, different data model and data exchange methods lead to the lack of system interoperability, too much manpower and material resources increase AIS service costs, etc.
- The establishment of an CAR AIS Database (CAD) is under consideration. This aeronautical information database will base on SARPS, AICM/AIXM, it may process static and dynamic data automatically, with system interoperation and in a centralized manner. The establishment of CAD may greatly enhance data availability, provide real-time, quality assured AIS service, and improve the effectiveness of AIS operations.

16. MILESTONES, PRIORITIES AND ACTIONS

Milestones

16.1 Section 7 (Performance Improvement Plan) provides milestones and timelines for a number of elements in Performance Improvement Plan Phase I, being effective in November 2020.

16.2 States should commence planning for AIM specifications detailed in the Performance Improvement Plan at the earliest opportunity before 2020 to facilitate a smooth transition by the onset of Phase I.

16.3 Subject to future agreement by concerned parties, Section 8 (Research and Future Development Possibilities) provides possible AIM improvements beyond 2020 until 2025.

Priorities

16.4 It is a matter for each State to determine priorities in accordance with its own economic, environmental, safety and administrative drivers.

Actions

16.5 This Plan necessitates a number of implementation actions. It is expected that each NACC State and Special Administrative Region and Territory develop AIM material as part of their Seamless ATM Implementation Planning based on applicable parts of the Implementation Guidance Material, and implementation progress be reported to APANPIRG.

16.6 APANPIRG and its contributory bodies, such as the ATM Sub-group and the CNS Sub-group are responsible for the oversight of air navigation issues within the NACC, so these bodies needed to be made aware of State implementation progress of Seamless ATM initiatives. APANPIRG and its contributory bodies need to manage the implementation of Seamless ATM through the ASBU framework and this Plan.

APPENDICES

Appendix 1: AIS-AIM Transition Table

Reference on WP 12 Appendix C (ANI WG 05)

Under preparation

Electronic AIP generated from a digital database of aeronautical information

= No reports since AIM TF -- xxx

= progress reported

= amended progress reported

Appendix 2: e-AIP

Under preparation

Appendix 3: Proposal structure of AIM Quality Management Manual of NACC Region

The proposal structure of AIM Quality Management Manual may include the following contents:

- 1. Introduction.** It is an authorization statement.
- 2. Change summary.** Version, date, details of changes, etc. should be included in this part.
- 3. Purpose of the AIM Quality Manual**
- 4. Scope.** This part should include vision and priorities of AIM.
- 5. Corporate overview.** This part should include corporate culture, organization structure, etc.
- 6. AIM Quality Management System (QMS).** This part should cover operating framework, regulatory and statutory, quality standards and framework, notification requirements and documentation (control of documents and control of records).
- 7. Management responsibilities.** This part should cover management commitment, customer focus, quality policy, planning, responsibilities, authority and communication, management review, etc.
- 8. Resource management.** The following contents should be covered in this part, provision of resources, human resources, infrastructure, work environment, etc.
- 9. Product realisation.** This part should include planning of product and service delivery, AIM process, customer communication, designed development, control of design, purchasing, customer property.
- 10. Measurement.** Customer satisfaction, internal audit/review, corrective action, preventive action and control of nonconforming product should be included in this part.
- 11. Improvement.** This part should include business improvement and performance, leadership model implementation strategy, management review, new staff induction and training, risk management, system enhancements, embracing new technology, etc.
- 12. Abbreviation and definition.** Terms and definitions used throughout this document.
- 13. Appendices.** Documents, for example, the contrast for ISO Clause and How the ISO standard has been met, should be covered in Appendixes.

Appendix 4: Structure of Agreement on data provision

AGREEMENT ON DATA PROVISION

between

[the name of the entity receiving the aeronautical data and/or aeronautical information];
(hereinafter “The Data Receiver”)

and

[the name of the entity providing the aeronautical data and/or aeronautical information]
(hereinafter “The Data Provider”)

1. Introduction

1.1 Scope

1.2 Parties to the Agreement

1.3 Legal and Regulatory Basis

1.4 A number of documents specify the legal and regulatory requirements for the origination, production, storage, handling, processing, transfer and distribution of aeronautical data and/or aeronautical information, they shall include but not exclusive the following Annexes:

- a. Annex 4 – Aeronautical Charts
- b. Annex 5 – Units of Measurement to be Used in Air and Ground Operations
- c. Annex 11 – Air Traffic Services
- d. Annex 15 – Aeronautical Information Services
- e. Annex 14 – Aerodromes

2. Services and Service Levels Required by Data Receiver

3. Requirements for Data Provider

3.1 Data Changes Management

Data Provider should follow the recommendations laid down in Chapter 6 of ICAO Annex 15 concerning the advance notice of major changes to the Data.

3.2 Data Compliance Requirement

3.3 Data Errors and/or Inconsistencies

4. Coordination, Training, Data Compliance Checking

When require, the above should be implemented between Data Provider and Data Receiver.

5 Entry into Force and Termination

5.1 This Agreement is valid from [enter validity from date] to [enter term date]

5.2 This Agreement entries into force on the date of the later signature of the Parties and shall remain in force for an indefinite period unless explicitly terminated by a signed agreement between the Parties.

For the Data Receiver

Name

Title

Date

Signature

For the Data Receiver

Name

Title

Date

Signature

Appendix – 5 Abbreviations and Acronyms

ABBREVIATIONS AND ACRONYMS

To facilitate readability, abbreviations have been largely omitted throughout the document. Most abbreviations were defined when introduced. The following provides an alphabetic listing of all abbreviations.

AAITF	AIS-AIM Implementation Task Force
AATIP	ASEAN Air Transport Integration Project
A-CDM	Airport Collaborative Decision Making
ADS-B	Automatic Dependent Surveillance - Broadcast
AI	Aeronautical Information
AIC	Aeronautical Information Circular
AICM	Aeronautical Information Conceptual Model
AIM	Aeronautical Information Management
AIP	Aeronautical Information Publication
AIXM	Aeronautical Information eXchange Model
AIP	Aeronautical Information Publication
AIS	Aeronautical Information Service
AIM	Aeronautical Information Management
AFTN	Aeronautical Fixed Telecommunication Network
AIXM	Aeronautical Information eXchange Model
AIRAC	Aeronautical Information Regulation and Circular
AMDB	Aeronautical Mapping Database
ANSP	Air Navigation Service Provider
AOC	Airline Operations Centre
APANPIRG	Asia Pacific Air Navigation Planning and Implementation Regional Group
ASBU	Aviation system Block Upgrades
ASEAN	Association of Southeast Asian Nations
ATFM	Air Traffic Flow Management
ATIS	Automatic Terminal Information Service

ATC	Air Traffic Control
ATM	Air Traffic Management
ATMRPP	Air Traffic Management Requirements and Performance Panel
ATSA-SURF	Enhanced Traffic Situational Awareness on the Airport Surface
CANSO	Civil Air Navigation Services Organization
CARATS	Collaborative Action for Renovation of Air Transport Systems
CCO	Continuous Climb Operations
CDM	Collaborative Decision Making
CDO	Continuous Descent Operations
CNS	Communication, Navigation, Surveillance
CRC	Cyclic redundancy check
DBMS	Database Management System
DSS	Decision Support System
eAIP	Electronic Aeronautical Information Publication
EFF	Electronic Flight Folder
EFOD	Electronic Filing of Differences
EUROCAE	European Council of Aerospace Engineering
ERAM	En-Route Automation Modernization
eTOD	Electronic Terrain and Obstacle Data
FMS	Flight Management System
GANP	Global Air Navigation Plan
GASP	Global Aviation Safety Plan
IATA	International Air Transportation Association
ICAO	International Civil Aviation Organization
IFATCA	International Federation of Air Traffic Control Association
IFAIMA	International Federation of AIM Associations

IFR	Instrument Flight Rules
IM	Information Management
IP	Internet Protocol
ISO	International Standards Organization
JAP	Joint Acceptance Plan
KPI	Key Performance Indicator
MET	Meteorological Services
METAR	Aerodrome Routine Meteorological Report
NAS	National Airspace System
NCLB	No Country Left Behind
NOTAM	Notice To Airmen
PAIMS	Preferred Aeronautical Information Management Specifications
PIB	Pre-flight Information Bulletin
QA	Quality Assurance
QMS	Quality Management System
SARP	Standards And Recommended Practices
SESAR	Single European Sky Air Traffic Management Research
SIGMET	Significant meteorological weather phenomena
SWIM	System Wide Information Management
TIS-B	Traffic Information Services – Broadcast
TBO	Trajectory Based Operations
WXXM	Weather eXchange Model
XML	eXtensible Markup Language

APPENDIX D

TASK FORCE FOR THE IMPLEMENTATION OF AERONAUTICAL INFORMATION MANAGEMENT (AIM) TERMS OF REFERENCE (ToRs)

1. Background

During the fifth meeting of the ANI/WG, it was agreed to update the Terms of Reference of the AIM Implementation Working Group formed in order to support and make more efficient the AIM implementation activities in accordance with the Roadmap for the transition from the AIS to the ICAO AIM. This Task Force will have to improve the processes and coordination among the States, Territories and international organizations of the CAR Region, as well as offer practical guidance and advice to the regional planning groups and the States for the development of the strategies of implementation of Aeronautical Information Management. On the other hand, propose tasks and activities to be carried out and the corresponding implementation calendar, as well as update and notify their progress to the ANI/WG based on the action plan for these tasks.

2. Responsibilities

The Task Force is responsible for:

- a) Management of the AIM Work Programme
- b) Support States to complete the transition to the AIM
- c) Assisting States with the implementation of Phases 1, 2 and 3 of the ICAO Roadmap, in preparation for the establishment of the System Wide Information Management (SWIM), in consideration of the AIM based on performance
- d) Periodically ask States for information and data which allows producing statistics to monitor their status of AIM implementation in CAR Region

3. Work Methods

The Task Force:

- a) It shall submit its work programme containing activities in terms of: objectives, responsibilities, deliverables results and times
- b) Prevent duplication of work within the ANI/WG and will maintain close coordination between existing entities to optimize the use of available resources and expertise
- c) Designate if so deemed Ad hoc groups to work on specific activities and issues and organize tasks and clearly defined AIM activities
- d) will coordinate tasks to maximize efficiency and reduce costs through electronic media including e-mails, phone and teleconferencing, and convene meetings where necessary
- e) It will be notified and will coordinate the progress of the tasks assigned to the ANI/WG

**AIM TASKFORCE (AIM/TF) WORK PROGRAMME /
PROGRAMA DE TRABAJO DEL GRUPO DE TAREA AIM(AIM/TF)
2020-2022**

No	Activity Actividad	Objective Objetivo	Responsible Responsable	Deliverable Entregable	Date Fecha	Status Estado
1	<p>Coordinate activities such as Workshops and Seminars to train human resources in the interpretation and application of new Annex 15 SARPS from AMDt 40 and New PANS AIM and technological advances that provide the framework for an interoperable Global System.</p> <p>Coordinar actividades como Talleres y Seminarios para instruir al Recurso Humano en la interpretación y aplicación de nuevos SARPS del Anexo 15 AMDt 40 y del nuevo PANS AIM y avances tecnológicos que proporcionen el marco para un sistema mundial interoperable</p>	<p>Assist States, Territories and International Organizations with the process of transition to AIM, in order to implement ICAO standards to establish a harmonized operating environment performance-based</p> <p>Asistir a los Estados, Territorios y Organizaciones Internacionales con el proceso de transición a AIM, con el fin de implementar las Normas de la OACI para establecer un entorno operativo armonizado basado en el performance</p>	ICAO AIM/TF / OACI AIM/TF	Perform a Seminar or Workshop / Realizar Seminario o Taller	2020	In Progress/ En Progreso
2	<p>Encourage the adoption of cooperation agreements between NOTAM offices (NOF), and the update of contingency plans (for weather events and/or volcanic) in harmonization with ATM contingency plans</p> <p>Incentivar la adopción de convenios de cooperación entre oficinas NOTAM (NOF) y la actualización de planes de contingencia (por eventos climatológicos y/o vulcanológicos) en armonización con los planes de contingencia ATM</p>	<p>Develop AIM to support the Air traffic management operational concept; including NOTAM contingency plans</p> <p>Desarrollar AIM para apoyar el Concepto Operacional de Gestión del Tránsito Aéreo; incluyendo los planes de contingencia NOTAM</p>	ICAO AIM/TF / OACI AIM/TF	Generate support through reference RO NACC. ICAO/ Generar apoyo mediante referencia de OR NACC OACI	2020	In Progress/ En Progreso
3	<p>Consult the experience of States in the acquisition of integrated solutions to provide guidance and assistance to the States to implement a performance-based approach</p> <p>Consultar la experiencia de los Estados en la adquisición de soluciones integradas para brindar orientación y ayuda a los Estados para implementar un enfoque basado en performance</p>	<p>Ensure that AIM solutions should be harmonized and integrated at a regional and international level, in preparation for the SWIM implementation</p> <p>Asegurar que las soluciones AIM se armonicen e integren a nivel regional e internacional, en preparación para la implementación del SWIM</p>	ICAO AIM/TF / OACI AIM/TF	<p>Make consult through reference OR NACC ICAO</p> <p>Realizar consulta mediante referencia de OR NACC OACI</p>	2022	Valid / Valida

No	Activity Actividad	Objective Objetivo	Responsible Responsable	Deliverable Entregable	Date Fecha	Status Estado
4	<p>Coordinate activities such as Technical Assistance, Workshops and Seminars to train human resources in the eTOD topic</p> <p>Coordinar actividades como Asistencia Técnica, Talleres y Seminarios para instruir al Recurso Humano en el tema de eTOD</p>	<p>Share experiences and resources in the implementation of the eTOD through the establishment of an eTOD Regional Working Group</p> <p>Compartir experiencias y recursos con la implementación del eTOD a través del establecimiento de un Grupo de Trabajo Regional eTOD</p> <p>Implement technical ICAO Doc 9881 requirements, as required</p> <p>Implementar requerimientos técnicos del Doc 9881 de la OACI, según sea necesario</p>	ICAO AIM/TF / OACI AIM/TF	<p>Perform Assistance Seminars or Workshops /</p> <p>Realizar Asistencia Seminars o Talleres</p>	2022	Valid / Valida
5	<p>Develop a format for progress reports and propose it to the States/Territories/International Organizations</p> <p>Elaborar formato de avance de informes y proponerlo a los Estados/Territorios y Organizaciones Internacionales</p>	<p>Develop an agreement of high-level management of a nationwide eTOD programme</p> <p>Desarrollar un acuerdo de alto nivel para gestión de un programa nacional eTOD</p>	ICAO AIM/TF / OACI AIM/TF	Agreement format / Formato de acuerdo	2020	Valid/ Valida
6	<p>Develop a format for States/Territories/International Organizations to have basic AIM training as a standard for all AIM employees</p> <p>Elaborar formato y Guías para los Estados/Territorios y Organizaciones Internacionales para obtener la instrucción básica oficial para todo el personal de AIM</p>	<p>Assist States, Territories and International Organizations in their AIM Training implementation</p> <p>Asistir a los Estados, Territorios y Organizaciones Internacionales en la implementación de la Instrucción de AIM</p>	ICAO AIM/TF / OACI AIM/TF	<p>Progress report format and Guidance Material /</p> <p>Formato de informe de avances y Material Guía</p>	2020	In Progress / En Progreso