NACC/WG/RAP/03 — WP/07
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**Third Meeting of Rapporteurs of the North American, Central American and
Caribbean Working Group (NACC/WG/RAP/03)**
(ICAO NACC Regional Office, from 24 to 27 March 2025)

Agenda Item 3: **Update NAM/CAR regional needs and NACC/WG objectives, its structure and the review and reporting mechanisms (Dashboard)**

WORK PLAN AND PRIORITIES OF THE AERONAUTICAL INFORMATION MANAGEMENT (AIM) AREA

(Presented by AIM TF Rapporteur)

EXECUTIVE SUMMARY
This working paper presents major updates to the Digital Aeronautical Information Management (DAIM)-related work programme towards the System Wide Information Management (SWIM) implementation.

Action:	Action required in Section 3.
Strategic Objectives:	• Strategic Objective 1 – Safety • Strategic Objective 2 – Air Navigation Capacity and Efficiency
References:	• ICAO 41st. Assembly • Global Air Navigation Plan (GANP) • Basic Building Block (BBB) Framework • AIM TF Meetings – AIM/TF/07

1. Introduction

1.1 In accordance with its Terms of Reference (TOR), the AIM Subgroup is expected to monitor and address relevant global and regional developments. This working paper provides information on ICAO Assembly 41 (https://www.icao.int/Meetings/a41/Pages/default.aspx) and activities of the GANP and the Global Air Navigation Plan – GANP (ICAO DOC 7950), was also approved by the ICAO Assembly 41st. Whose main objectives of the GANP are in the link: https://www4.icao.int/ganpportal/.

1.2   Currently the Global Air Navigation System promotes investment in innovation through research and development activities and aligning regional research and development programs, supports implementation at the global technical level with the Air Navigation System (BBB) to facilitate a transformational change: ASBU framework to optimize the allocation and use of resources for air navigation through the performance-based decision-making method with 4 levels to consider:

✈ Global Strategic Level: includes the ambitious global performance and the AIM conceptual roadmap
✈ Global Technical Level: includes the BBB, ASBU and the performance-based decision-making method
✈ Regional Level: includes the Regional Air Navigation Plans and the Regional Information and Data Programs
✈ National Level: includes the National Plans and their deployment

1.3   The AIM TF of ICAO NACC WG, executes tasks, workshops and interactions between Contracting States regarding 1.1 and 1.2 above, in order to comply wit, implement and maintain the various KPIs and Projects within the area of AIM.

1.4   The D-AIM ROADMAP TIMELINE *(Source: NACC/WG/RAP/02 — WP/06)*

This D-AIM roadmap provides a general indication of what the air transport industry may be expecting from States in their implementation of the transition to AIM. The timeline below indicates to States the major milestones that ICAO envisages to support the transition to AIM and the Global Air Traffic Management Operational Concept initiatives related to the management of aeronautical information.

✈ **December 2008** Phase 1 — Consolidation began with the establishment of the AIS-AIM Study Group. More information on the work and planned actions of the Group may be found on the ICAO website at www.icao.int/anb/aim.

The consultation process for Amendment 36 to Annex 15 and Amendment 56 to Annex 4 was initiated in the first quarter of 2009.

The development of Amendment 2 to the AIS Manual (Doc 8126) and Amendment 30 to the PANS-ABC (Doc 8400) introduced guidance material on best practices already available.

✈ **November 2009** Phase 2 — Going digital will begin by the development of new, related guidance material (electronic AIP, aeronautical information conceptual model, training, quality) that will be developed with the support of the AIS-AIMSG which will hold its second meeting at the end of 2009.

✈ **November 2010** Amendment 36 to Annex 15 and Amendment 56 to Annex 4 will become applicable. The preparation of Amendment 37 to Annex 15 and Amendment 57 to Annex 4 and any consequential amendments required in other annexes will progress with the help of the AISAIMSG.

✈ **October 2011** Phase 3 — Information management will begin with the fourth meeting of the AIS-AIMSG which will finalize the proposals for Amendment 37 to Annex 15 and Amendment 57 to Annex 4. These amendments will set the scene for the future requirements for States to produce data sets. It is not envisaged that new data products will be required for mandatory provision by the future ATM systems by this date, but if States choose to provide the data identified in scope at that time, they will be able to base their development on recommendations, ensuring global harmonization.

The consultation process of Amendment 37 to Annex 15 and Amendment 57 to Annex 4 will be initiated in the first quarter of 2012.

✈ **November 2013** Amendment 37 to Annex 15 and Amendment 57 to Annex 4 will become applicable.

A divisional-type meeting may be held, should a substantial number of subjects of worldwide scope involving meteorological, aeronautical information and supporting communication network fields need to be agreed upon in order to finalize the transition to AIM. This could include a substantial enlargement of the scope of aeronautical information required by ATM and an obligation to provide the information in the form of digital data.

✈ **November 2016** Amendment 38 to Annex 15 and Amendment 58 to Annex 4 will become applicable including the recommendations of the divisional meeting.

✈ **November 2018** Amendment 40 to Annex 15 concerns the restructure of Annex 15 to facilitate the incorporation of AIM requirements. Changes to the technical content of Annex 15 to enable the transition from AIS to AIM and consequential amendments in support of space weather information.

✈ **January 2019** The 2019 Edition of The ICAO Global Air Navigation Plan (GANP) will assess the status of all Modules based on the level of deployment and the updates availability of the technology and standards. ICAO will continue to develop guidance material for the implementation of ASBU and more material will be available for the 2019 update of the GANP.

✈ **September 2020** Develop Training Manual content in line with Annex 15 amendment 40 and PANS-AIM edition 1. Use of competency-based Training and Assessment (CBTA) methodology of the PANS TRG as the context for AIS/AIM training and competency guidance. Consider what training and competency content should be placed in the Training Manual, and the AIS Manual (Doc. 8126).

✈ **May 2021** Ratification of ICAO PANS-IM.

✈ **January 2022** Illustrate links between ASBU Modules and KPIs, exchange of experience and best practices at regional and subregional levels. Update of performance relates ICAO Manuals (Doc. 9883 and Doc 9161) and development of additional guidance material on data collection, data analysis, etc. Define a global performance baseline, based on States performance monitoring and reporting, against which future progress will be measured.

✈ 2022 -Beyond Standardization of performance data and enhanced data exchanges to automate and reduce the cost of performance data collection and processing. This work could benefit from existing work on exchange models.

✈ November 2024 Applicability date for future proposals for amendments to ICAO Annex 15, ICAO Annex 4 and PANS-AIM.

✈ January 2025 **Flight and Flow Information** for a Collaborative Environment (FF-ICE) – full implementation.

The adjustment of dates for the Blocks in the most visible change (B0 = 2013 – 2028, B1 = 2019 – 2024, B2 = 2025 – 2030, B3 = 2031 onward). This will allow better synchronization with the ICAO Assembly and amendment cycles.

2. Discussion

2.1 At the global technical level, the Building Blocks Baseline (BBB) framework establishes the foundational elements necessary for a robust air navigation system. It identifies the essential services that must be provided for international civil aviation in compliance with ICAO Standards and Recommended Practices (SARPs). These services are defined within Aeronautical Information Management (AIM) and other Air Navigation Services (ANS) domains, ensuring a structured and harmonized approach to service delivery. The BBB framework also identifies the end users of these services and outlines the necessary Communication, Navigation, and Surveillance (CNS) infrastructure assets required to support their provision.

2.2 The BBBs are to be seen as a Separate Framework. The BBBs are distinct from the Aviation System Block Upgrades (ASBU) framework because they represent a baseline rather than a progressive, evolutionary step in air navigation improvements. While the ASBU framework outlines a roadmap for enhancements over time, the BBB framework defines the minimum operational requirements that must be in place to ensure the safe and efficient operation of air navigation services. Once these essential services are implemented, they serve as the foundation for any further operational enhancements under the ASBU framework.

2.3 The BBBs are a reference for AIS/AIM as the BBB framework provide two key reference structures for Aeronautical Information Services (AIS) and the transition to Aeronautical Information Management (AIM), namely:

✈ AIS [AIM] Basic Modules and Elements – This outlines the core components of AIS/AIM, with direct references to ICAO provisions, such as Annex 15 (Aeronautical Information Services) and Doc 10066 (PANS-AIM). It defines the minimum requirements for aeronautical data quality, integrity, and digital transformation.

✈ AIS [AIM] Supports and End Users – This framework focuses on the stakeholders and users of AIS/AIM services, including Air Traffic Management (ATM), flight operations, airport authorities, and other aviation partners. It emphasizes the role of AIM in ensuring data accuracy, interoperability, and timely information exchange to support safe and efficient airspace operations.

2.4   The ASBU framework, outlined in the ICAO Global Air Navigation Plan (GANP) 7th Edition, provides a structured approach to improving air navigation services through technological and operational advancements. The following table highlights the evolution of the ASBU framework in the GANP 7th Edition compared to its previous versions. More details on the latest GANP and ASBU framework can be found at https://www4.icao.int/ganpportal.

2.5   System-Wide Information Management (SWIM) is an essential enabler of the digital transformation in air navigation. It consists out of three fundamental components, namely:

- ✈ Standards – Define the common formats, protocols, and rules for aeronautical information exchange.
- ✈ Infrastructure – Provides the digital platforms and networks that enable real-time, secure, and reliable information sharing.
- ✈ Governance – Establishes policies, responsibilities, and best practices for managing aeronautical data and ensuring interoperability between stakeholders.

SWIM therefore facilitates the exchange of aeronautical, meteorological, and flight data across various aviation domains through interoperable services, ensuring seamless information flow between different air navigation system users.

2.6   Previous meetings informed about the preliminary material being developed by ICAO for SWIM provisions and AIM, which will be included in:

- ✈ New Procedures for Air Navigation Services – Information Management (PANS-IM)
- ✈ Volume II of the SWIM Manual (Doc 10039)

Additionally, during the 2022 World Conference of the International Federation of Aeronautical Information Management Associations (IFAIMA), the following key recommendations were made regarding the evolution of AIM:

- ✈ AIM 2.0 represents enhanced information quality, increased personnel qualifications, and the full digitization of aeronautical data for SWIM-based dissemination.
- ✈ AIM 2.0 does not mean automatic SWIM implementation; rather, AIM 2.0 serves as a prerequisite, as it forms one of the core information domains within SWIM.
- ✈ AIM 2.0 enables more efficient service delivery and provides the flexibility to select service providers and system integrators, considering operational needs.
- ✈ AIM 2.0 is necessary to accommodate new airspace entrants, including drones (UAS), high-altitude platforms, and urban air mobility systems.
- ✈ Before transitioning fully to AIM 2.0, global AIM 1.0 implementation must be strengthened, as many States still lack the necessary investments for full adoption. Greater awareness among decision-makers is needed to emphasize AIM's role in driving operational improvements and the benefits of AIM as a cornerstone for digital air navigation services.

2.7   The ICAO NACC WG AIM Task Force Work Programme and Regional Implementation Updates are as follow:

The AIM Task Force (AIM TF) meeting reviewed the AIM Work Programme, addressing cybersecurity, data integrity, SWIM implementation, and AIM personnel competency requirements. Key discussions included:

→ Cybersecurity in AIM Data: Strengthening protection measures for digital aeronautical information and ensuring compliance with international cybersecurity standards.
→ AIM Implementation & Digital Transition: Reviewing the AIM Collaborative Plan and progress towards Digital AIM (D-AIM), Digital NOTAM, and dataset publication.
→ AIM Roadmap in NAM/CAR Regions: Updating State-level AIM transition plans based on the Roadmap for the Transition to Digital AIM (2021).

2.8   The AIM Task Force also highlighted the critical need for defining English Language Proficiency (ELP) standards for AIM personnel. Discussions focused on:

→ Establishing a formal ICAO requirement for AIM experts handling international aeronautical data exchange.
→ Identifying the impact of limited English proficiency on AIM service quality and NOTAM accuracy.
→ Developing a standardized ELP assessment framework for AIM specialists in the region.

2.9   With reference to AIM Standardized Training, Competency, and Future Digital Capability to support AIM 2.0 and future SWIM-based operations, the Task Force emphasized the importance of:

→ Expanding AIM training curricula to cover digital aeronautical data management, cybersecurity, and automation tools.
→ Defining AIM personnel competency requirements aligned with ASBU Block 1 and Block 2 digital transition needs.
→ Promoting collaboration with international AIM organizations (IFAIMA, NAV Canada, NGA) to share lessons learned in managing aeronautical information digitally.

2.10   The AIM Task Force created Subgroups to carry out the various Action Plan tasks, for a more efficient approach to multiple tasks execution and implementation strategy. These were held in Plenary Session and the outcomes were presented in the AIM/TF/07 meeting.

During the plenary sessions, six subgroups tackled specific AIM transition challenges, resulting in key recommendations:

→ Subgroup A: AIM ELP → Urging ICAO to define minimum English proficiency requirements for AIM personnel.
→ Subgroup B: Airspace Optimization & AIP Centralization → Advocating for a regional centralized AIP to enhance data consistency.
→ Subgroup C: eCharts & PANS-OPS → Encouraging States to accelerate electronic charting implementation.
→ Subgroup D: Aerospace Operations NOTAM → Improving NOTAM structure for high-altitude and space operations.
→ Subgroup E: AIM Training & Competency → Standardizing regional AIM training programs.
→ Subgroup F: AIM Collaborative Plan & Tracking Website → Developing a regional AIM status monitoring platform.

These conclusions reinforce the importance of harmonizing AIM services, accelerating digital transformation, and enhancing personnel competencies across the NACC region, maintaining the BBBs Roadmap Timeline into account:

Phase/Year	Milestone/Event
December 2008	**Phase 1 — Consolidation begins** with the establishment of the **AIS-AIM Study Group**. Initiation of **Amendment 36 (Annex 15)** & **Amendment 56 (Annex 4)**.
November 2009	**Phase 2 — Going Digital** begins. Development of **electronic AIP, AIM conceptual model, training, and quality guidance**. Second AIS-AIMSG meeting.
November 2010	**Amendment 36 (Annex 15) & Amendment 56 (Annex 4) become applicable**. Work on Amendment 37 & 57 progresses.
October 2011	**Phase 3 — Information Management begins**. AIS-AIMSG's fourth meeting finalizes **Amendment 37 (Annex 15) & Amendment 57 (Annex 4)**.
November 2013	**Amendment 37 (Annex 15) & Amendment 57 (Annex 4) become applicable**. Possible divisional meeting to finalize the transition to AIM.
November 2016	**Amendment 38 (Annex 15) & Amendment 58 (Annex 4) become applicable**, including divisional meeting recommendations.
November 2018	**Amendment 40 (Annex 15)** restructures the Annex to incorporate **AIM requirements** and introduces **space weather information**.
January 2019	The **ICAO Global Air Navigation Plan (GANP) 2019 Edition** assesses ASBU Module status and updates technology/standards.
September 2020	**Training Manual content aligned** with Annex 15 Amendment 40 & PANS-AIM Edition 1. **Competency-Based Training and Assessment (CBTA)** methodology applied.
May 2021	**Ratification of ICAO PANS-IM**.
January 2022	**Link ASBU Modules & KPIs, exchange best practices regionally**, and update **ICAO performance manuals (Docs 9883 & 9161)**.
2022 - Beyond	**Standardization & automation of performance data collection**, enhanced data exchanges to reduce costs.
November 2024	**Future amendments to ICAO Annex 15, Annex 4, and PANS-AIM become applicable.**
January 2025	**Full implementation of Flight and Flow Information for a Collaborative Environment (FF-ICE).**
2025 - Beyond	**ASBU Blocks adjusted**: B0 (2013–2028), B1 (2019–2024), B2 (2025–2030), B3 (2031+). Synchronization with ICAO Assembly cycles.

3. Conclusion

3.1   Taking into account the evaluation of the information in this working paper, updates and refinements have been incorporated into the AIM Task Force (AIM/TF) work program to align with current priorities and evolving regional and global objectives. These adjustments will be implemented until the next AIM/TF face-to-face meeting in 2025, ensuring continued progress in AIM-related developments within the Air Navigation Services (ANS) framework. The AIM TF reaffirms the following objectives:

a) Ensure that AIM implementation in the CAR Region remains aligned with the latest developments in adjacent regions and ICAO's strategic plans, including the Global Air Navigation Plan (GANP), Aviation System Block Upgrades (ASBU) framework, and Digital Regional Air Navigation Plan (eANP).

b) Monitor the status of AIM-related ASBU implementation in the CAR Region, including Digital Aeronautical Information Management (D-AIM), Digital NOTAM, and related SWIM initiatives, while addressing challenges and reporting progress.

c) Strengthen collaboration between stakeholders to enhance regional cybersecurity measures in AIM data exchange, ensuring compliance with evolving digital transformation needs.

d) Maintain oversight of AIM personnel English language proficiency (ELP) requirements and training to enhance operational safety and regional harmonization.

e) Continue supporting the development and implementation of new NOTAM concepts, such as Digital NOTAM and the Digital Operational Reporting Information System (D.O.R.I.S.), aligning with industry perspectives and regional deployment strategies.

f) Promote the use of centralized aeronautical data repositories and AIM tracking tools for improved coordination and implementation monitoring across States.

g) Provide expert guidance on AIM procedural and technical developments, ensuring interoperability, harmonization, and compliance with ICAO SARPs and regional strategies.

h) Deliver periodic updates to GREPECAS and other relevant bodies on AIM TF work program progress and implementation challenges.

i) Review and update AIM TF Terms of Reference (ToRs) as necessary to reflect emerging requirements, particularly concerning electronic aeronautical charts, aeronautical publications, and PANS-IM integration.

3.2   In line with its Terms of Reference, the AIM Task Force will undertake the following actions:

a) Continuously monitor and assess the status of AIM facilities, products, and services in the CAR Region, including implementation of AIM Collaborative Plan initiatives.

b) Support States in developing and updating National AIM Plans/Roadmaps, particularly in transitioning to Digital Data Sets and SWIM-based solutions.

c) Provide structured assistance to States to ensure a harmonized transition from AIS to AIM, following global and regional strategies.

d) Enhance stakeholder engagement in AIM training and competency development, ensuring compliance with evolving operational needs.

e) Identify and mitigate AIM-related deficiencies and challenges, recommending corrective actions and improvements.

f) Propose updates to ICAO documentation and regional air navigation plans as necessary to reflect evolving AIM requirements.

g) Promote regional coordination on AIM-related safety matters through collaboration with GREPECAS, RASG-PA, and industry partners.

By addressing these objectives, the ICAO NACC WG AIM Task Force aims to ensure a smooth transition towards fully digital AIM services while supporting ICAO's global and regional aviation strategies.

4. Action for the Meeting

4.1   The Meeting is invited to:

a) Review and consider AIM-related developments in the regional AIM Work Programme, planning, and Terms of Reference (ToRs) to ensure alignment with ICAO's strategic objectives, including GANP, ASBU, and eANP initiatives.

b) Evaluate the impact of the proposals outlined in paragraphs 3.1 and 3.2 of this Working Paper, particularly in relation to:
    ✈ Implementation of Digital AIM (D-AIM), Digital NOTAM, and SWIM initiatives
    ✈ Cybersecurity measures for aeronautical information management
    ✈ AIM personnel English language proficiency (ELP) and training requirements
    ✈ Harmonization of AIM developments with global and regional air navigation strategies

c) Provide additional recommendations on actions related to the AIM TF work program, including:
    ✈ Enhancing cross-regional coordination for AIM implementation
    ✈ Strengthening data exchange and interoperability between States

✈ Addressing operational and regulatory challenges for AIM transformation

By taking these actions, the Meeting will contribute to the harmonized and efficient modernization of AIM services in the NACC Region as well for the collaboration with the SAM Region.

— END —