



International Civil Aviation Organization

**North American, Central American and Caribbean (NACC)
Regional Office**

REGIONAL AND NATIONAL AIR NAVIGATION PERFORMANCE FRAMEWORK/AVIATION SYSTEM BLOCK UPGRADE (ASBU) IMPLEMENTATION WORKSHOP FOR THE NAM/CAR REGIONS

(Mexico City, Mexico, 22-26 August 2016)

Final Summary of Discussions

Presented by the Secretariat

August 2016

REGIONAL AND NATIONAL AIR NAVIGATION PERFORMANCE FRAMEWORK/AVIATION SYSTEM BLOCK UPGRADE (ASBU) IMPLEMENTATION WORKSHOP FOR THE NAM/CAR REGIONS

FINAL SUMMARY OF DISCUSSIONS

- Date:** 22 to 26 August 2016
- Venue:** Mexico City, Mexico
- Participants:** The workshop was attended by 40 representatives of 15 NAM/CAR States/Territories, and 4 International Organizations. The list of participants is presented in the **Attachment** to this document.

1. Background Information

- Sixth Meeting of the North American, Central American and Caribbean Directors of Civil Aviation, Conclusion NACC/DCA/6/3 — *ASBU Implementation on the NAM/CAR Regions*
- Third Meeting of the GREPECAS Programmes and Projects Review Committee, Conclusion PPRC/3/10 — *Development of Air Navigation Plans Aligned with the GANP and the Regional Performance-Based Air Navigation Plans*
- Second NAM/CAR Air Navigation Implementation Working Group Meeting, Conclusion ANI/WG/2/20 — *Adoption of New ANRF and Reporting Approach to ASBU Implementation*

2. Objectives

2.1 The objective of the workshop was to develop/update the State plans to achieve the agreed regional air navigation objectives/targets under the ICAO NACC No Country Left Behind (NCLB) Strategy.

Specific Objectives:

- a) assist States and Air Navigation Services Providers (ANSPs) to understand the technological and procedural improvements that make up the Aviation System Block Upgrade (ASBU) framework
- b) assist States and ANSPs to assess ASBU module elements in order to determine whether or not any of them can address their specific aviation system performance requirements
- c) use of the Air Navigation Report Form (ANRFs) to document ASBU assessment and implementation status
- d) use of ANRFs to document Regional Aviation System Improvement (RASI)
- e) provide participants with practical experience for updating National Air Navigation Plans (NANPs) on the basis of the ASBU concept and the understanding of the impact on the NAM/CAR Regional Performance-Based Air Navigation Implementation Plan (RPBANIP) Digital Regional Air Navigation Plan (e-ANP) Volume III

3. Introduction

3.1 Mr. Julio Siu, Deputy Regional Director of the ICAO NACC Regional Office, welcomed the participants and highlighted the importance of the National Plans in the harmonized implementation of air navigation and to work effectively in the NACC No Country Left Behind (NCLB) Strategy State tailored plans for improving the effective implementation, obtaining operational benefits and moving forward on a continuous enhancement of the Air Navigation Services (ANS) and infrastructure. Mr. Melvin Cintron, Regional Director of the ICAO NACC Regional Office highlighted the importance of the event in supporting the States on developing and updating their National Air Navigation Plans (NANPs). Mr. Luis Sánchez, Regional Officer Aeronautical Meteorology and Environment of the ICAO NACC Regional Office, acted as Secretary of the event.

4. Conduction of the Workshop

The workshop was conducted from 09:00 to 16:30, with several working sessions and exercises.

PRESENTATION 1 – Introduction and workshop objectives

4.1 ICAO presented an introduction to the workshop, reviewing background information, objectives and expectations; the programme of the event was explained, presenting the daily objectives, methodology and administrative topics.

4.2 Participants were informed about the establishment of the ASBU ANI/WG Ad hoc Group to monitor the NACC NCLB strategy and the NAM/CAR Regional Performance-Based Air Navigation Implementation Plan (RPBANIP) targets in accordance with the NACC/DCA/6/3 Conclusion - *ASBU Implementation on the NAM/CAR Regions*, Mrs. Betty Castaing, Dominican Republic, was designated rapporteur.

PRESENTATION 2 - Global Air Navigation Plan and the Aviation System Block Upgrades (ASBUs)

4.3 The objective of P/02 by ICAO was to level the knowledge on the relationship between the Global Air Navigation Plan (GANP), the ASBUs, their policies and their operational impact. ICAO presented the following items:

- GANP Update
- ASBUs: definition, challenges and framework
- Enhancement Plan:
 - Phase 1: Harmonization of Air Navigation Services (ANS) through ICAO Standards and Recommended Practices (SARPS)/Procedures for Air Navigation Services (PANS)
 - Phase 2: Improve performance of the air navigation system as a whole

4.4 Participants received information on the importance of using a performance-based approach to ensure a cost-effective implementation when operational enhancements are planned.

4.5 Participants understood that ASBU framework defines an operational improvements menu, in a specific order to facilitate identification of possible solutions to the identified operational problems through the method explained during the workshop, depending on the dates when these improvements will be available.

4.6 Participants also understood that the dates defined by the block upgrades are not compulsory for element implementation. These are only dates that ICAO and other stakeholders have agreed to make available all the enablers (procedures, standards, training, technology, etc.) needed for the implementation of a specific element. Such element should be implemented only if its need has been identified during the performance based approach application in a specific operational scenario.

PRESENTATION 3 – REGIONAL ELECTRONIC AIR NAVIGATION PLAN (e-ANP)

4.7 Under P/03, ICAO defined the Air Navigation Plan, its background and planning fundamentals and introduced the Electronical Air Navigation Plan (e-ANP) explaining its definition, new features, users' roles and rights, and finally, its benefits.

PRESENTATIONS 4 TO 8– PERFORMANCE BASED DECISION MAKING METHOD

4.8 Under P/04, P/05, P/06, P/07 and P/08, ICAO informed on the different layers in the design of the GANP 2019, briefly explaining its components and emphasizing the connections between regional and national plans.

4.9 A detailed explanation of the method was developed, involving participants through examples that allowed understanding the basics and the five steps of the method. Participants' doubts were solved through particular examples.

4.10 Participants received information and made a practical exercise on how to apply step by step the performance-based decision making five step method. This method has as objective the identification of optimal solution to cover the identified operational need from a cost-effective point of view. This analysis, as well as the identified solutions, is the base for the NANP development. ICAO Headquarters will develop a template for the definition of the NANP as reference for those States who require it.

SELECTION, FOLLOW-UP AND MEASUREMENT OF ASBU IMPLEMENTATIONS

4.11 The ASBU Ad hoc Group rapporteur welcomed the participants and thanked the Civil Aviation Directors' support to the workshop, requested in working paper (WP/14) presented in the NACC/DCA/6 meeting. The first version of the regional management process of ASBU implementation was also presented, for consideration of participants, and on which work will be made in the following weeks.

PRESENTATION 9 – ASBU BLOCK 0

4.12 ICAO described all modules and elements included in the ASBU framework available since 2013 and explained its benefits.

PRESENTATION 10 - AIRLINES REQUIREMENTS “OBTAINING OPERATIONAL IMPROVEMENTS”

4.13 Under P/10 IATA explained the operational improvement concept and its view on the existent relationship between the GANP and ASBU, proposing a roadmap to success that involves the cost-benefit calculation in all domains, the selection of an operational solution, the collaboration between all stakeholders to determine objectives through multidisciplinary teams and to analyze the best option. Finally, IATA introduced a case study regarding the Airspace concept.

PRESENTATION 11 – RTCA A PARTNERSHIP FOR PROGRESS IN MEXICO

4.14 The Radio Technical Commission for Aeronautics (RTCA) presented a project launched in Mexico to assist in validating the implementation plan for Communications, Navigation and Surveillance/Air Traffic Management (CNS/ATM) modernization in accordance with the GANP and the Mexico's Performance Based Navigation (PBN) Implementation Plan. The overall goal of the project is to expedite the deployment of appropriate operational capabilities and begin to reap tangible benefits from those enhancements. The project will produce a detailed report for Mexico showing the highest priority capabilities for deployments along with all the necessary activities that must be completed to successfully implement and deliver a return on investments. The implementation will remain the responsibility of the Directorate General of Civil Aeronautics (DGAC) and Mexican Airspace Navigation Services (SENEAM).

PRESENTATION 12 - CHARTING THE FUTURE -- THE AIR NAVIGATION SYSTEM PLAN

4.15 Under P/12, participants received information on Canadian ANS planning, where ANS is provided by Nav Canada, a private, non-share capital company. Nav Canada consults and collaborates with customers and other stakeholders to identify safety, environmental, economic and efficiency requirements and discuss the technological and procedural changes that could address those requirements. Taking account of these outcomes, and seeking alignment with other ANSPs and regional and global stakeholders to maximize potential benefits, Nav Canada develops ANS plans that are published approximately every three years. These plans communicate the short and medium term activities and initiatives that are planned by Nav Canada to enhance its services and deliver value to its customers. Beginning in 2012, the ANS plan initiatives have been mapped to the corresponding ASBU modules, providing internal and external visibility on how the ANS plans aligns to the global planning framework and supports harmonization and interoperability. Nav Canada has developed the ANRFs aligned to the forms adopted by the ANI/WG to track its ASBU implementation status and to support ICAO regional and global reporting requirements. The correlation between Canadian priorities and the ASBU framework is possible because the detailed mapping is done at the element level. Nav Canada has thereby retained its governance and planning processes, maintaining the advantages of consultation and collaboration with its stakeholders.

PRESENTATION 13 - FEDERAL AVIATION ADMINISTRATION: ASBU DEPLOYMENT STATUS

4.16 Under P/13, United States discussed the implementation status using the ASBU implementation status summary tables. Among 63 Block 0 elements, five are not-applicable (N/A), one is in the planning phase, two are in the developing phase, three are partially implemented, and 52 are implemented. The Federal Aviation Administration (FAA) also presented the activities supporting ASBU implementation including the identification of ASBU elements and creation of NAM ASBU Handbook.

PRESENTATION 14 - REGIONAL AIR NAVIGATION PRIORITIES

4.17 Under P/14, an overview of the regional priorities agreed under the RPBANIP as Regional Performance Objectives (RPOs) was provided by ICAO, including the ASBU adopted modules for the NAM/CAR Regions. Similarly, a general description of the CAR/SAM e-ANP Vol III was provided, highlighting its scope on the follow-up to mandatory requirements and operational improvements

PRESENTATION 15 – ASBU ANI/WG AD HOC GROUP

4.18 The objective of the presentation was to confirm the membership of the ASBU Ad hoc Group and to present WP/14 of the NACC/DCA/6 meeting to the participants, which is the group’s deliverable, where the scarce information on the States progress was presented as the main problem in the ASBU implementation, in order to foster the active participation of the States in the future ANRF. This creates a need to convert the Ad hoc group into a ANI/WG Task Force (TF), in order to provide continuity to pending work.

PRESENTATION 16 - MONITORING/REPORT OF IMPLEMENTATION ANRF/DASHBOARDS

4.19 Under P/16, the participants were briefed by ICAO on the principles for performance-based approach reporting and monitoring, describing the current and future ICAO reporting means (Annual Air Navigation Report, air navigation dashboards, etc.), the current procedure for reporting as conducted in the NAM/CAR/SAM Regions. Finally, ICAO reminded on the actions for States to use the ANRFs as a way of communicating the progress and benefits achieved from the implementation.

PRESENTATION 17 - MAKING THE WORLD A BETTER PLACE TO LIVE

4.20 IATA explained the facts about fuel consumption, emphasizing the need to count seconds not minutes, following the concepts Minimum Time Track, Minimum Cost Track and Cost index. The implication of consumption in each phase of flight was described to introduce a case study about potential savings including the application of different concepts, such as saving calculation method, the continuous descent operations and ATFM.

PRESENTATION 18 - DISCUSSION ON NATIONAL AIR NAVIGATION PLAN

4.21 Under P/18, United States led the discussion on NANP by clarifying the relationship between GANP, regional ANP and State Air Navigation Plan. United States presented an ASBU Element Analysis and Implementation Process; improved ANRF, ASBU implementation status summary table, and ASBU element target table. These process, form, and tables are the potential components of State Air Navigation Plan.

4.22 United States explained the NAM ASBU Handbook and the ICAO document titled “Working Document for the Aviation System Block Upgrades – The Framework for Global Harmonization”. FAA also presented the structure of NAM ASBU Handbook and elements identification process followed by the review of all 63 elements in block 0.

PRESENTATION 19 – NATIONAL PERFORMANCE OBJECTIVES AND ASBU METHODOLOGY MODULES IMPLEMENTATION IN CUBA

4.23 The participants received information on the implementation of the national performance objectives and the ASBU methodology modules in Cuba, as expressed on its Performance Based Air Navigation Implementation Plan. This plan is updated every five years, or when the RPBANIP is updated. 14 ASBU B0 Modules have been adopted. ASBU B0 modules – RSEQ, ASEP, OFPL and WAKE - will be included in future reviews of the plan based on the national tasks and priorities maturity. Information was given on the behaviour of controlled flights in the Habana FIR. These report a 6% growth in the last year and it is expected that this trend will continue in the future. Cuba showed how the implementation control is made through the format requested in the RPBANIP, and also through the checklist of the ASBU modules implementation

status and the simplified ANRFs, developed in the ANI/WG/2 Meeting.

4.24 It was announced that the Civil Aviation Authority of Cuba made a diagnosis of the Block 0 modules implementation of the ASBU methodology and the causes that prevent the progress of some modules were identified. Based on the developed diagnosis, a corrective action plan was developed, where the challenges of the implementation of the national performance objectives and the ASBU methodology Block 0 modules are developed through measurable tasks.

PRESENTATION 20 - AIR NAVIGATION SERVICES NATIONAL PLAN

4.25 The Dominican Republic Air Navigation Plan was presented, and its harmonization at the international level, with the GANP and RPBANIP, and at the national level, with the Development National Strategy and the Strategic Plan of the Dominican Civil Aviation Institute (IDAC). It is worth noting as a good practice presented, the way to operate as planned, in accordance with the annual budgets and to the available time of capabilities of the ASBU Block 0, as framework.

PRESENTATION 21 - NATIONAL PERFORMANCE OBJECTIVES AND ASBU ELEMENTS IMPLEMENTATION IN COSTA RICA

4.26 Costa Rica participated in the workshop with the expectation to deepen the current knowledge on the ASBU framework in order to review and update its NANP. The plan has a long term scope, with five-year cycles, and it adapts to a local level the concepts found on ICAO's GANP and RPBANIP. Currently Costa Rica is experiencing very high traffic growth rates that pose a challenge to the ANSP, which in this case is the State. Additional to the increase in operations there are other challenges that Costa Rica must address, among them lack of familiarity with the ANRFs and airport capacity, to successfully implement its NANP. In conclusion, it is mandatory for States to implement only those ASBU elements that will provide them some benefit, and to review and update their ANP.

PRESENTATION 22 - COCESNA

4.27 COCESNA presentation was intended to update de PBN implementation plan of the Central American Air Navigation Agency (ACNA), in order to achieve the air navigation regional objectives/targets under the NACC NCLB strategy, promoted by the ICAO NACC Regional Office. COCESNA's first implementation plan was developed in 2011 and updated in May 2014, following the NAM/CAR RPBANIP Version 3, and including ASBU topic and the ANRFs related with the RPOs and the Port-of-Spain Declaration targets. The Performance Based Air Navigation Implementation Plan (IPBN)/ACNA from COCESNA has been updated showing the specific activities or tasks, together with the expected benefits and the deadlines for completion, according to the users' needs, who are annually invited to participate in meetings at COCESNA headquarters, to know the progress and contribute with this end, besides of knowing Central American implementation needs, based on the agreed RPOs.

4.28 **Recommendation 1:** Each PBN implementation plan should be updated every three years minimum, or in accordance with the improvements and changes notified by ICAO and the regional planning groups.

4.29 **Recommendation 2:** A simplified executive summary (PBN roadmap) could be useful for the users' knowledge and anyone interested in the PBN planning.

4.30 COCESNA has both documents available in English and Spanish: IPBN and PBN Roadmap 2015-2018.

PRESENTATION 23 – ASBU AND YOU

4.31 Under P/23, the Civil Air Navigation Services Organization (CANSO) commented that the performance based approach is an excellent support for ANSPs to develop a ANP. It is important to start building the plan and work in a cooperative manner to achieve global harmonisation. CANSO supports the ASBU initiative and is also committed to assist ANSPs in Latin America and the Caribbean in reaching its goal of global interoperability and harmonisation. A genuine and clear example of support from CANSO to its Latin America and Caribbean members is the CANSO Air Traffic Flow Management (ATFM) Data Exchange Network for the Americas (CADENA) Regional Implementation Group (RIG) that was created with the aim to developing a virtual ATFM for CANSO members to start sharing data, coordinate and enhance ATM operations among each other. In addition, CANSO, together with its members, prepares and publishes best practice and guidance materials to help members understand the concepts and share experiences in a particular matter related to air navigation.

PRESENTATION 24 - NO COUNTRY LEFT BEHIND NACC STRATEGY

4.32 ICAO presented the NACC NCLB strategy, its scope, phases and a detailed description of the implementation status, emphasizing the progress and challenges. Likewise, the Multi-regional Civil Aviation Assistance Programme was presented.

PRESENTATION 25 - B0 TO B1

4.33 ICAO described the modules and elements included in the ASBU framework, which will be available in 2019, and explained its benefits. The steps were shown as an evolution of the capabilities of the air navigation system.

PRESENTATION 26 - HAITI AIR NAVIGATION PLAN

4.34 Under P/26, Haiti commented on its air navigation plan, outlining the basics, considerations and fundamentals of this document, as well as the implementation methodology emphasizing on the need to harmonize its national planning along with regional and global planning. The plan includes an alignment to the ASBU framework with the selection of some elements to improve performance indicators and accommodate traffic growth, taking into account the need to prioritize some activities to immediately address deficiencies. While being aware of the challenges ahead of implementation, Haiti strongly believes that its ANP is a powerful tool to move forward and apply global ATM concepts within its Flight Information Region (FIR).

4.35 **Recommendation 3:** The participants should follow-up on required actions to continue harmonizing regional planning for better decision-making at a national level.

4.36 **Recommendation 4:** The participants should consider the challenges raised by the States ahead of their ANP implementation to look for potential solutions that could mitigate risks.

PRESENTATION 27 – ASBU B0 ANRF EXERCISE

4.37 On Session 5, United States prepared and led the exercise to understand and fill in the ANRF for Block 0 Modules by reviewing each element. An explanation was given on how to fill in the ASBU element target table and ASBU implementation status summary table.

5. OUTCOME/RECOMMENDATIONS

5.1 Based on the presentations and discussion, participants agreed on the following outcomes and recommendations:

- a) The Secretariat considers that the proposed objectives of the workshop were achieved and highlights that States shared their experiences and best practices in the development of their NANP. The participants, through various hands-on exercises, applied the performance-based approach method included in the GANP 2019, in the same way they understood and filled in the ANRFs for Block 0 Modules by reviewing each element.
 - b) Improvements to the RPBANIP were identified, updates of the document will be worked by States, stakeholders and the ICAO NACC Regional Office, promoting its next review on 2017:
 - review and update of RPOs
 - update ASBU concepts and formats according to the GANP and Doc 9883 - *Manual on Global Performance of the Air Navigation System*.
 - c) That the States that have not yet amended or developed their NANPs aligned with the GANP, 4th edition and the RPBANIP, continue working in order to harmonize the implementation and facilitate the interoperability of air navigation system. With this purpose ICAO recommends that States consider the use of the ASBU framework performance-based decision-making method, presented through the workshop.
 - d) ICAO continues working in the development of the guidance material updating the terminology and concepts according to the development of GANP 2019.
 - e) Participants were informed on the key performance indicators catalogue that is available in the ICAO website (<http://www.icao.int/airnavigation/Pages/GANP-Resources.aspx>). Participants were also urged to propose other indicators which are not found in the catalogue, to the ICAO NACC Regional Office using the same template as the one of the catalogue. The ICAO NACC Regional Office will submit them to Headquarters so they are included in the catalogue.
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ATTACHMENT/ADJUNTO



North American, Central American and Caribbean Office (NACC)
Oficina para Norteamérica, Centroamérica y Caribe (NACC)

**Regional and National Air Navigation Performance Framework/Aviation System Block Upgrade (ASBU)
Implementation Workshop for the NAM/CAR Regions
Taller para la Implementación del Marco de Referencia de Performance de Navegación Aérea Regional y
Nacional y las Mejoras por Bloques de la Aviación (ASBU) para las Regiones NAM/CAR
(ASBU/NAM/CAR)**

Mexico City, Mexico, 22 to 26 August 2016/Ciudad de México, México, 22 al 26 de agosto de 2016

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