



*International Civil Aviation Organization*

**MIDANPIRG ATM Sub-Group**

**First Meeting (ATM SG/1)**  
*(Cairo, Egypt, 9 - 12 June 2014)*

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**Agenda Item 3: Global and Regional Developments related to ATM**

**GLOBAL AND REGIONAL DEVELOPMENTS RELATED TO ATM**

*(Presented by the Secretariat)*

**SUMMARY**

This paper presents the global and regional developments related to ATM in addition to the latest amendment of the PANS-ATM Doc 4444.

Action by the meeting is at paragraph 3.

**REFERENCES**

- GANP DOC 9750
- ICAO Assembly 38th Session
- ICAO State Letter Ref.: AN 13/2.5-13/85

**1. INTRODUCTION**

1.1 The ICAO 38th Assembly was held in Montreal, Canada, from 24 September to 4 October 2013, endorsed the Fourth edition of Global Air Navigation Plan (GANP).

**2. DISCUSSION**

2.1 The 38th Assembly called upon States, planning and implementation regional groups (PIRGs), and the aviation industry to:

- utilize the guidance provided in the GANP for planning and implementation activities which establish priorities, targets and indicators consistent with globally-harmonized objectives, taking into account operational needs;
- provide timely information to ICAO, and to each other, regarding the implementation status of the GANP, including the lessons learned from the implementation of its provisions;

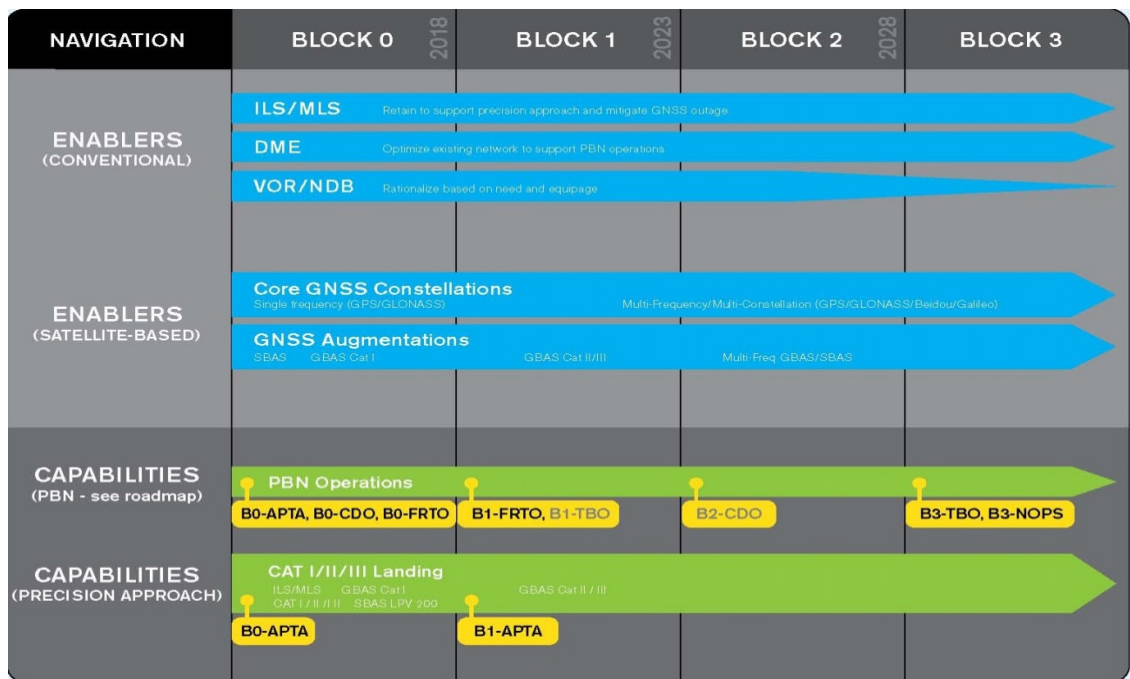
2.2 The 38th Assembly urged States:

- to take into consideration the GANP guidelines as an efficient operational measure for environmental protection;

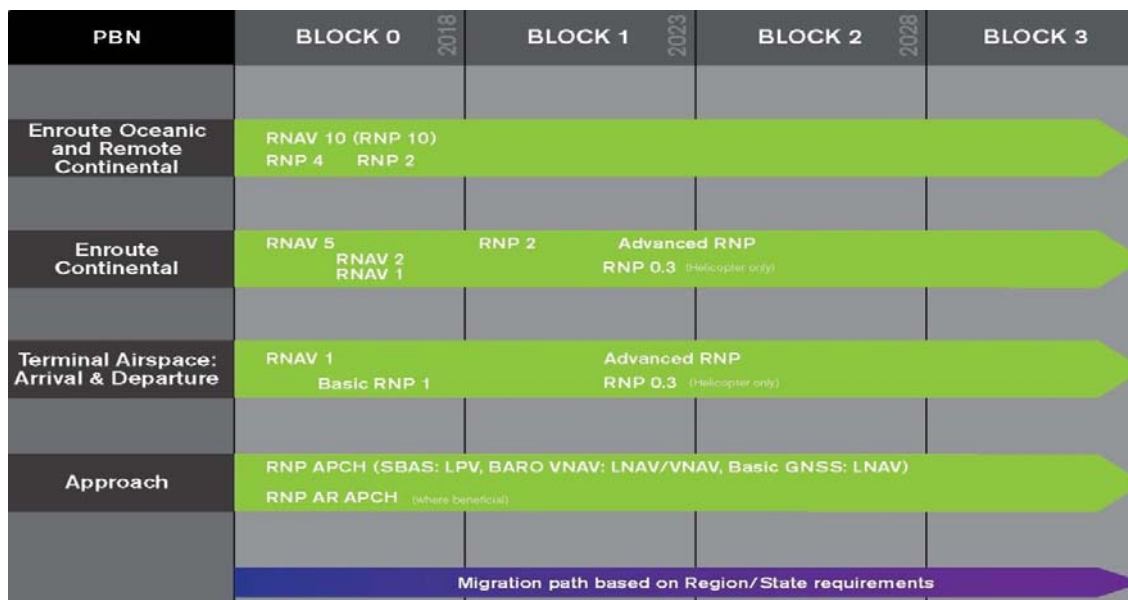
- that are developing new generation plans for their own air navigation modernization to coordinate with ICAO and align their plans so as to ensure global compatibility and harmonization
- to utilize the Flight Procedures Programme, where available, for PBN implementation

2.3 The meeting may wish to note that, at global level, PBN is considered as the highest priority for air navigation, in addition to the Continuous Descent Operations (CDO), and Continuous Climb Operations (CCO).

2.4 The GANP includes the below Roadmaps (5 and 6), which depict migration paths for the implementation of PBN levels and precision approaches for the following operations: en-route oceanic and remote continental, en-route continental, TMA arrival/departure, and approach. There is no attempt to show detailed timelines because Regions and States will have different requirements; some may need to move quickly to the most demanding PBN specification while others will be able to satisfy airspace users' requirements with a basic specification. The figures do not imply that States/Regions have to implement each step along the path to the most demanding specification. The PBN Manual (Doc 9613) provides the background and detailed technical information required for operational implementation planning.



Roadmap 5



Roadmap 6

2.5 The meeting may wish to recall that the 38th Assembly approved the Regional Performance Dashboards. These Dashboards aim to provide a glance of both Safety and Air Navigation Capacity and Efficiency strategic objectives, using a set of indicators and targets based on the regional implementation of the Global Aviation Safety Plan (GASP) and the Global Air Navigation Plan (GANP). The Dashboards are available on the ICAO website.

2.6 The purpose of these Dashboards is to show targeted performance at the regional level and, initially, contain graphics and maps with a planned expansion to include the Aviation System Block upgrades (ASBU) Block 0 Modules. The ICAO website will allow the visualization of the status of implementation through dynamic and interactive charts. This system will generate ad-hoc reports and enable an easy transformation of the dataset into the Regional Performance Dashboard and the annual Global Air Navigation Report.

2.7 The Air Navigation Dashboard (V 1.0) contains the following Metrics:

- a) Implementation of PBN Approaches at International Aerodromes Runways;
- b) Utilizing of Air Traffic Flow Management (ATFM) Systems;
- c) Implementation of Aeronautical Information Management (AIM);
- d) Implementation of Ground-Ground Digital Coordination / transfer; and

2.8 The the 38<sup>th</sup> Assembly addressed the delimitation of Air Traffic Services (ATS) airspace and civil/military cooperation through Resolution A38-12 - Appendices G and H as shown at **Appendix A** to this working paper.

2.9 The meeting may wish to note that the Air Navigation Commission, at the sixth and seventh meetings of its 194th Session on 26 and 27 November 2013, considered a proposal to amend the *Procedures for Air Navigation Services — Air Traffic Management* (PANS-ATM, Doc 4444) on the subject of 9.3 km (5 NM) terminal separation based on required navigation performance (RNP), performance-based navigation (PBN) lateral separation and VHF omnidirectional radio range/global navigation satellite system (VOR/GNSS) lateral separation and authorized its transmission to Contracting States and appropriate international organizations for comment.

2.10 It is to be highlighted that the proposed amendments to PANS-ATM were originated by the Separation and Airspace Safety Panel (SASP) and, as modified by the discussions of the Commission, are contained in the ICAO State Letter Ref.: AN 13/2.5-13/85 dated 13 December 2013.

2.11 Proposals are made to expand the availability of PBN lateral separation minima applicable outside terminal control areas (TMAs), to take greater advantage of RNAV 10 (RNP 10) and RNP 4 capabilities and include RNP 2 separation minima in the PANS-ATM for the first time. It also reduces the separation minima in airspace where RNP1, RNP APCH or RNP AR APCH are prescribed. Recognizing that there are many IFR GNSS equipped aircraft yet to obtain appropriate PBN operational approvals, GNSS-based lateral separation minima and ATC procedures are proposed. This amendment will be applicable on 13 November 2014.

2.12 In the same vein, the proposed amendment to PANS-OPS, Volumes I and II along with the consequential amendments to Annexes 4; 6, Parts I, II and III; 14, Volume II; 15; and the PANS-ABC, which are envisaged for applicability on 13 November 2014 were circulated in the ICAO State Letter Ref.: SP 65/4-13/24 dated 14 June 2013.

2.13 The amendment regarding the conversion of area navigation (RNAV) approach procedure depiction to required navigation performance (RNP) in the PANS-OPS, Volume II is required to align charts with the PBN navigation specifications thereby reducing confusion on operation approvals and flight planning requirements. A one-step eight-year transition period, starting 13 November 2014, is being proposed to allow States sufficient time to develop a transition plan and to convert the existing RNAV approach procedures to RNP by 2022.

2.14 The meeting may wish to note the following activities of other ICAO Regions related to ATM and SAR fields:

***Asia and Pacific Office (Bangkok):***

- The Asia/Pacific Seamless ATM Planning Group completed planning of the future Asia/Pacific Region Air Traffic Management System in a Seamless ATM environment. The Asia Pacific Seamless ATM Plan was endorsed at the APANPIRG/24 meeting.
- Initial development of a Regional ATM Contingency Plan, including plans for volcanic ash, tropical cyclone, radioactive cloud and Tsunami events.
- Initial development of an Asia/Pacific Search and Rescue Plan.
- Initial development of an Asia Pacific Regional ATFM Framework.
- Conducted a Europe – Asia Trans-regional Special Coordination Meeting to discuss ATS routes in cross border areas.
- Development of regional guidance on regional ATM contingency planning, regional Air Traffic Flow Management (ATFM) framework and regional search and rescue provisions.

***Western and Central African Office (Dakar)***

- The AFI Flight Procedure Programme started its operations on 2 June 2014.
- Development of the revised AFI ANP in line with ICAO Global Air Navigation Plan (GANP Doc. 9750).
- Development of a TCB Project to the implementation of SSR and ADSC/CPDLC system within 11 ASECNA ATCs.

***South American Office (Lima)***

- Implemented the route network optimization programme, phase 3, version 2: Implementation of 3 RNAV-5 new routes, 11 routes aligned, resulting in fuel

savings of 12,658,227 Kg per year and CO2 emissions reduction of 39,500 tons per year.

- SAM Implementation Group meetings (SAM/IG/11 and SAM/IG/12) held to support States on airspace optimization (routes, TMAs and PBN approaches according to Assembly Resolution A37-11), ATFM, improve CNS system and automation integration implementation
- Revision of the action plan for the implementation of ATFM which defines tasks, responsible parties, and target dates. 35% of States with FMU or FMP. ATFM units' implementation in Paraguay and Venezuela.
- States were supported in the implementation of automation system with the elaboration of a Guideline on technical/operational considerations for implementation AIDC. An AIDC training course was held in Montevideo, Uruguay, 9-13 December 2013
- The Air Navigation System Performance-Based Air Navigation System Implementation Plan for the SAM Region (PBIP) was aligned with the Aviation System Block Upgrades (ASBU).
- Seminar/Workshop on Technical and Operational Aspects for the Implementation and Operation of ATC Automated Systems in the SAM Region, Sao Jose dos Campos, Brazil, 24-28 February 2014.
- Meeting on Volcanic Ash (VA) Contingency Plan and ATS/AIM/MET Coordination, Lima, Peru, 1-4 July 2014.

***North American, Central American and Caribbean Office (Mexico)***

- The implementation of new RNP 10 route structure in the Gulf of Mexico provides fuel savings of 712,066 kg resulting cost savings of \$1,491,807 USD per month.
- Workshop on Volcanic Ash Impact on Aviation Dominican Republic, 23-25 September 2014.

***Eastern and Southern African Office (Nairobi)***

- A regional workshop on Aviation System Block Upgrades (ASBUs) was held in October 2013, in Nairobi, to assist the AFI Region in developing a regional Air Navigation System Implementation Action Plan aligned with ICAO ASBU methodology. The Action Plan developed by the workshop was endorsed by the APIRG/19 meeting.
- Conducted the first Civil/Military Cooperation Seminar/Workshop, which was well attended by military counterparts

***European and North Atlantic Office (Paris)***

- Assistance was provided to States in the optimization of the ATS route network, including the coordination of major ATS/Network development projects and the implementation of new concepts (e.g. Free Route Airspace , User Preferred Flight Profiles)
- Finalize the work on harmonization of AIDC guidance material for application in the NAT and APAC Regions;
- Coordination of ATM-related developments with a focus on the local, regional and inter-regional ATM interoperability aspects arising from the implementation of various operational improvements and harmonization of these implementation activities (e.g. Functional Airspace Blocks, Implementation of Single European Sky regulations, airspace harmonization and reorganization aspects)

- The first volcanic ash exercise in Kamchatka, Russian Federation took place in January 2013 and involved three States (Russian Federation, Japan and the United States) and several airlines.

**3. ACTION BY THE MEETING**

3.1. The meeting is invited to note the information contained in this working paper and take into consideration the global and regional developments related to ATM when developing their national plans.

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A38-12

**APPENDIX G**  
**Delimitation of air traffic services (ATS) airspaces**

*Whereas* Annex 11 to the Convention requires a Member State to determine those portions of airspace over its territory within which air traffic services will be provided and, thereafter, to arrange for such services to be established and provided;

*Whereas* Annex 11 to the Convention also makes provision for a Member State to delegate its responsibility for providing air traffic services over its territory to another State by mutual agreement;

*Whereas* cooperative efforts between Member States could lead to more efficient air traffic management;

*Whereas* both the delegating and the providing State can reserve the right to terminate any such agreement at any time; and

*Whereas* Annex 11 to the Convention prescribes that those portions of the airspace over the high seas where air traffic services will be provided shall be determined on the basis of regional air navigation agreements, which are agreements approved by the Council usually on the advice of regional air navigation meetings;

*The Assembly resolves*, with reference to regional air navigation plans, that:

1. the limits of ATS airspaces, whether over States' territories or over the high seas, shall be established on the basis of technical and operational considerations with the aim of ensuring safety and optimizing efficiency and economy for both providers and users of the services;
2. established ATS airspaces should not be segmented for reasons other than technical, operational, safety and efficiency considerations;
3. if any ATS airspaces need to extend over the territories of two or more States, or parts thereof, agreement thereon should be negotiated between the States concerned, taking into account the need for cost-effective introduction and operation of CNS/ATM systems, and more efficient airspace management, in particular, in the upper airspace;
4. the providing State in implementing air traffic services within airspace over the territory of the delegating State shall do so in accordance with the requirements of the delegating State, which shall establish and maintain in operation such facilities and services for the use of the providing State as are mutually agreed to be necessary;
5. any delegation of responsibility by one State to another or any assignment of responsibility over the high seas shall be limited to technical and operational functions pertaining to the safety and regularity of the air traffic operating in the airspace concerned;

and, furthermore, *declares* that:

6. any Member State which delegates to another State the responsibility for providing air traffic services within airspace over its territory does so without derogation of its sovereignty; and