

ICAO/IATA/CANSO Performance-Based
Navigation (PBN) Harmonization,
Modernization and Implementation Meeting
for the Caribbean (CAR) Region

28 March – 1 April 2016, Fort Lauderdale, Florida, United
States

38th ICAO General Assembly (A37-11)

- All States to complete a national PBN implementation plan as soon as possible;
- All States to implement RNAV and RNP ATS routes and approach procedures in accordance with the ICAO PBN concept laid down in the *Performance-based Navigation (PBN) Manual* (Doc 9613);
 1. **implementation of RNAV and RNP operations** (where required) **for en route and terminal areas** according to established timelines and intermediate milestones; and
 2. **implementation of approach procedures** with vertical guidance (APV) (Baro-VNAV and/or augmented GNSS), including LNAV only minima **for all instrument runway ends, either as the primary approach or as a back-up for precision approaches by 2016** with *intermediate milestones* as follows: ***30 per cent by 2010, 70 per cent by 2014***; and
 3. **implementation of straight-in LNAV only procedures, as an exception to 2) above**, for instrument runways at aerodromes where there is no local altimeter setting available and where there are no aircraft suitably equipped for APV operations with a maximum certificated take-off mass of 5 700 kg or more;
- ICAO develop a coordinated action plan to assist States in the implementation of PBN and to ensure development and/or maintenance of globally harmonized SARPs, Procedures for Air Navigation Services (PANS) and guidance material including a global harmonized safety assessment methodology to keep pace with operational demands;

STAGE	OPERATIONAL IMPROVEMENT
Stage I (2010 2011)	<u>Review of ATS route network in the CAR Region</u> <ul style="list-style-type: none"> • Gathering data on aircraft PBN capacity • Review of CNS infrastructure • Realignment and implementation of new RNAV routes in the upper airspace based on RNAV 5 • Implementation of RNAV routes in the lower airspace based on RNAV 1, RNAV 2 and RNP 1, as required • Implementation of PBN approach procedures in accordance with Assembly Resolution A37-11
Stage II (2011 2012)	<u>Review and interface of the ATS routes network in the CAR/SAM Regions</u> <ul style="list-style-type: none"> • Realignment and implementation of new RNAV routes in the interface of the upper airspace between the CAR and SAM Regions, based on RNAV 5 or RNAV 2, as applicable • Implementation of CDO in international airports, as required
Stage III (2012 2014)	<ul style="list-style-type: none"> • Elimination of conventional ATS routes in the upper and lower airspace, as required • Implementation of random routes, by airspace altitude stratum • Review of the upper airspace configuration • Review of the lower airspace configuration • Implementation of flexible use of airspace (FUA) • Implementation of dynamic ATS route management

ICAO Standards and Guidance Material

- ATM Operational Concept, Doc 9735, Doc 9613, RPB-ANIP
- AOM requirements
- PANS-ATM, RNAV lateral & longitudinal separation; Oceanic areas RNP 10 = 50 NM, RNP 4 = 30 NM – domestic areas (ADS- C, ADS-B, no-radar, radar, MLat)
- Doc 7030 & Doc 8733
- Safety assessment
- PBN airspace concept for en-route operations
- Develop a PFA (e.g. ANI/WG/3, **WP 05 / Proposal for Amendment to Doc 7030**)
- Training requirements (pilots, ATCOs) for En-route (Oceanic/Domestic), TMA and RNP approach procedures
- Update ATS LOAs

Objective

- Review, enhance and sign new Letters of Agreement for the coordination of operational procedures between ATC facilities
- Propose changes to existing longitudinal separation standards
- Discuss and propose changes for the optimization of routes in the upper airspace
- Facilitate, coordinate and harmonize PBN plans to align ANSPs, operators and States' Civil Aviation Authorities as well as projects are in accordance with Regional Air Navigation Implementation Plans (RPBANIP)
- Analyze regional PBN implementation efforts and discuss best practices concerning Air Traffic Flow Management
- Discuss methodology to enhance route efficiency and agree to implementing action plan(s) to improve Airspace Organization and Management (AOM)

Output and Outcome

- A key result/outcome is the manner in which participating States, air operators, and key industry stakeholders worked together to accomplish key tasks that will lead to true safety and efficiency efforts in the Caribbean Region. A model for future technical meetings.
- Through the Collaborate Decision Making process (CDM), all participating States agreed in principle, to the extent applicable, to reduce longitudinal separation from 80 nm to 40 NM In some states, and in some areas, agreement made to reduce to 20 NM
- Understanding the need for consistency, the proposed controller to controller phraseology for separation shall be discussed and agreed upon at the first teleconference in April, 2016.
- Seven (7) routes have been agreed to by the respective FIRs and will be submitted to ICAO for PFA.
- FAA to submit proposed RNAV routes from the METROPLEX and Y projects
- States should also publish in the AIP the available RANDOM routes or areas for airspace users
- IATA has agreed to support the Central American route harmonization project (ARESAC) and requested that Panama join the project as full participant.

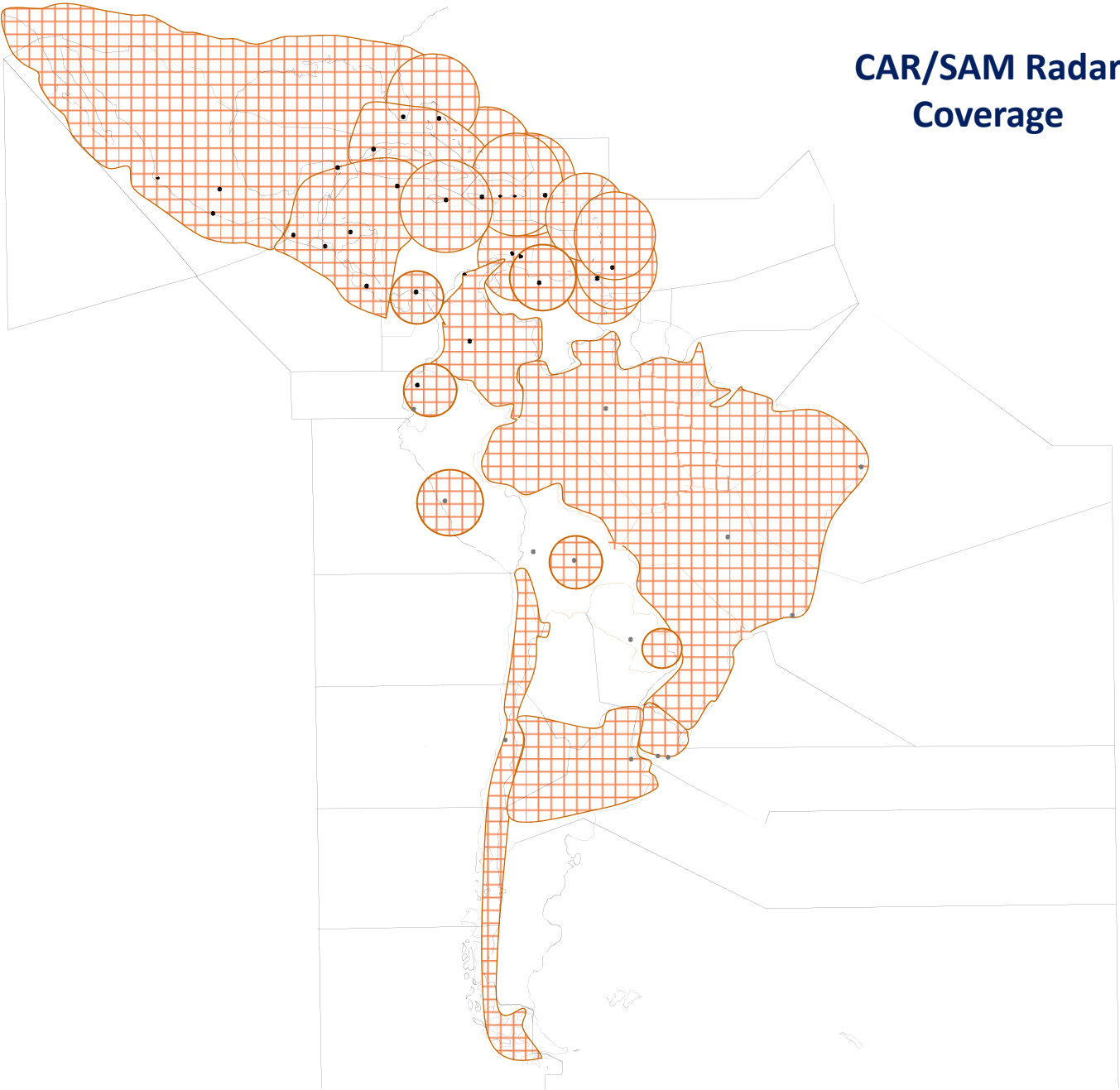
Output and

- Using a CDM process by plenary and Ad-Hoc groups, ATCOs, Procedure Designers, Airspace planners, Regulatory body, and Pilots from Airline operators, General Aviation and military authorities reviewed XXX the proposed PBN routes looking forward to develop a new PBN route network for CAR Region.
- The XXX agreed PBN routes are depicted in the Appendix C to this report. XXX route proposals are being further reviewed and will be developed for implementation over the coming months
- It is expected that the new PBN route network will improve regional capacity and efficiency to future traffic growth of 6% per year over the period 2014-2017.
- Four (4) Letters of Agreement (LOAs) for the coordination and operational procedures between the air traffic control facilities was signed on March 31st, 2016. A fifth LOA should be signed by April 8, 2016.
- States and ANSPs for CAR and SAM regions agreed to further review ATS LOAs not later than 30 of November 2016 to introduce applicable longitudinal separation minima of 40 NM or 20 NM between transferred air traffic operating in the FIRs of CAR region and adjacent FIRs of SAM region.

Output and

- The agreed new PBN route network includes implementation of Required Navigation Performance (RNP) 10, Required Navigation Performance (RNP) 4 and Required Navigation Performance (RNP) 2 in the Oceanic airspace of the FIRs of CAR Region.
- CAR States and ANSPs also agreed to review availability of restricted areas to the air operations for prompt implementation of the flexible use of airspace (FUA)
- All CAR States are committed to achieve the PBN implementation targets as established in the Assembly Resolution A 37-11 and the Port of Spain Declaration.
- Special consideration will be given by States to increase implementation of Continuous Climb Operations (CCO) and Continuous Descent Operations (CDO) criteria in all SIDS and STARs linked to the upper airspace to the greatest extent possible to obtain the most operational benefits.
- The regional PBN implementation project will be coordinated between points of Contact (PoCs) of Central American States, Eastern Caribbean and Central Caribbean States to ensure completion and monitoring of all implementation activities as depicted in the Appendix D to this report. This will also facilitate harmonized implementation based on traffic flows and homogenous areas.

**CAR/SAM Radar
Coverage**



Follow-up actions:

- Draft of proposal for amendment (PFA) to ICAO Doc 7030 and DOC 8733 will be developed for the implementation of new PBN route network, which includes realignment and deletion of some ATS routes, not later than April 22, 2016 for submission to States and International Organizations.
- Regional implementation date will be 30 November 2016, which includes AIP publication based on 3 AIRAC cycles.
- States will coordinate with ICAO NACC Regional Office the assessment of the reduced track miles and CO₂, gas emission mitigation, as needed.
- The ICAO NACC Regional Office will also carry out timely coordination with all States, Territories and International organizations of CAR/SAM Region to ensure timely of the new PBN route network in CAR Region.
- ICAO will follow deficient use of PBN routes, procedures and constraints

Schedule CAR Seamless Airspace

	March	April	May	June	July	August	September	October	November	December
28 March - 1 April	PBN Meeting									
5 - 6 April	→	ANI/WG/3 Meeting - Regional agreements of the implementation of the PBN route network - Regional agreement towards separation minima between adjacent FIR's in the CAR region								
May	→		NACC DG Meeting -Endorse of agreements from the ANI/WG/3 meeting -Endorse proposal for amendment to ICAO Doc 8733							
July	→				Expected approval for PBN implementation route network in the CAR region					
10 - 14 October	→							Implementation of the new PBN route network for the CAR region Implementation of regional ATC separation minima between adjacent FIRs for the CAR region		
November										
6 - 9 December	→									Tentative Next PBN CAR Seamless Airspace Meeting