International Civil Aviation Organization

Twenty Ninth Meeting of the Communications/ Navigation and Surveillance Sub-group (CNS SG/29) of APANPIRG

Bangkok, Thailand, 16-20 June 2025

Agenda Item 3: Review outcomes of APANPIRG, APAC ANSP Committee, ATM Sub-group, MET Sub-group and other meetings and global CNS updates

OUTCOMES OF THE TWELFTH MEETING OF THE AIR TRAFFIC MANAGEMENT SUB-GROUP (ATM/SG/12) OF APANPIRG AND OTHER RELEVANT OUTCOMES

(Presented by the Secretariat)

SUMMARY

This paper highlights recent discussions and outcomes from ATM/SG/12 related to Communication, Navigation and Surveillance (CNS), Global Navigation Satellite System (GNSS), and System-Wide Information Management (SWIM) developments. It outlines the status of implementation, challenges, and proposed actions relevant to these domains within the Asia/Pacific Region.

1. INTRODUCTION

1.1 The Twelfth Meeting of the Air Traffic Management Sub-Group (ATM/SG/12) of APANPIRG was held from 23 to 27 September 2024.

1.2 The ATM/SG/12 reviewed multiple agenda items relating to the continued development and implementation of CNS, GNSS interference, and the operationalization of SWIM across Asia/Pacific States and Administrations. These elements are critical enablers for modern ATM systems and align with the goals of the Asia/Pacific Seamless ANS Plan.

1.3 **DISCLAIMER:** The presentation of material in this report does not imply the expression of any opinion whatsoever on the part of ICAO, APANPIRG or the ATM Sub-Group of APANPIRG concerning the legal status of any country, territory, city or area of its authorities, or concerning the delimitation of its frontiers or boundaries.

2. DISCUSSION

Application of ATC Separation Standards

2.1 The Secretariat provided information on the results of the annual APAC Regional Survey of Air Traffic Control (ATC) separation minima being applied within the Asia/Pacific Region. The survey measured the minimum horizontal separation standard within State/Administration's Flight Information Region (FIR) in Category R (remote), Category S (surveillance) and Category T (terminal) airspaces.

2.2 The analysis of Q1 of the survey were presented separately for the three categories of airspaces namely Category R, Category S and Category T. The criteria used the analysis of Q2 were as follows:

a) Category R - Acceptable standard: ≤ 50 NM

b) Category S - Acceptable standard: 5 NM

c) Category T - Acceptable standard: 5 NM

2.3 In the analysis, there were 11 States that utilised more than 5 NM in Category S airspace and three States that utilised more than 5 NM in Category T airspace.

2.4 The analysis of Q2 of the survey looked at three categories of separations at inbound FIR transfer of control (TOC) points shown below. After a review in 2023, the criteria for Category R → S TOC had been revised from 10 NM to 50 NM. The criteria used the analysis of Q2 were as follows:

a) Category R/S → R TOC - Acceptable standard: ≤ 50 NM

b) Category R → S TOC - Acceptable standard: ≤ 50 NM

c) Category S → S TOC - Acceptable standard: ≤ 10 NM

2.5 The highest non-compliant TOC points, belong to Category S → Category S TOC points. Even with surveillance coverage, the separation minimum of more than 10 NM was currently implemented at TOC points in the Asia/Pacific Region.

2.6 It was also highlighted the Project 30/10, which was presented during the Fourteenth Air Navigation Conference (AN-Conf/14, Montreal, Canada, 26 August – 06 September 2024). ICAO proposed Project 30/10 (AN-Conf/14 WP/10) as an initiative to focus attention and encourage implementation of longitudinal separations of 55.5 km (30 NM) or less in oceanic and remote airspace, and 19 km (10 NM) or less elsewhere. It was expected to be a regionally based, coordinated effort for seamless reduction of excessive separation minima where this has not already been achieved.

ANS USOAP Update

2.7 The Secretariat provided information on the ICAO Universal Safety Oversight Audit Programme (USOAP) Continuous Monitoring Approach (CMA). The paper discussed the Protocol Questions (PQs) used to assess State safety oversight systems and provide an annual update of ANS USOAP status.

2.8 The average ANS Effective Implementation (EI) of APAC region was 63.44%, as of September 2024. **Figure 1** illustrated the EI scores for ANS-related PQs of the 37 Asia/Pacific States that had been audited or received USOAP activity:

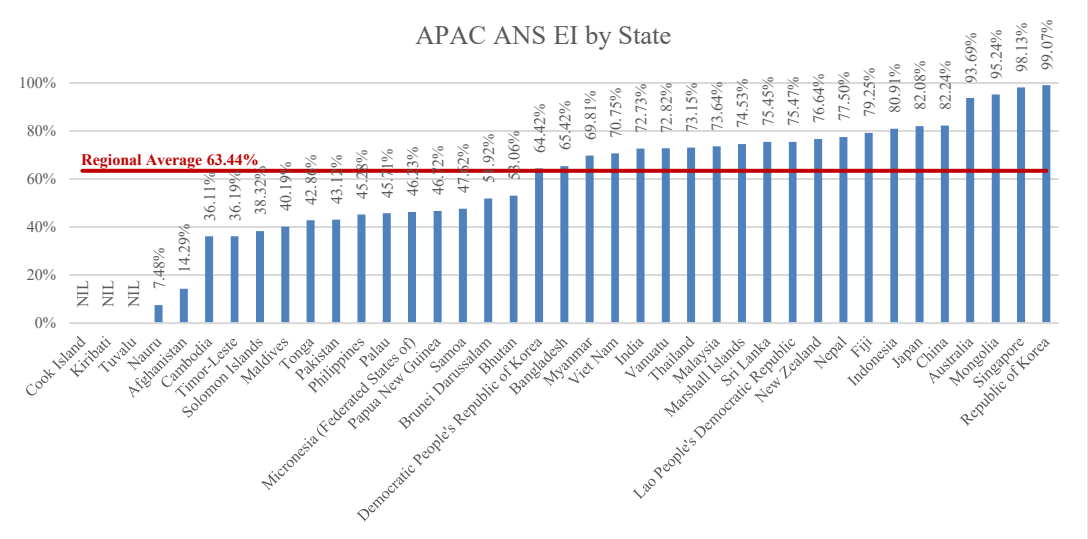

Figure 1: USOAP ANS EI Scores by State (September 2024)

2.9 The ATM/SG/12 was informed that the data source was the USOAP Continuous Monitoring Approach (CMA) Online Framework (OLF), which reflected the 2020 version of PQs and recent USOAP activities such as CMA Audit (CMAA), ICAO Coordinated Validation Mission (ICVM), and Off-Site Validation Activity (OSVA).

2.10 The ATM/SG/12 noted that the APAC ANS EI scores was lower than the global average according to the summary of the global average level of ANS-related EI for the 187 States that had been audited or received a USOAP activity.

2.11 The ATM/SG/12 was informed that one of the AN-Conf/14 information sessions was about *USOAP CMA evolution update – an outlook for this triennium and beyond* (https://www.icao.int/Meetings/anconf14/Documents/Information%20Sessions/PPT05.pdf), which provided information on 2024 PQ amendment and integration of State Safety Programme Implementation Assessment (SSPIA) into traditional activities.

Progress of the APAC Data Analytics Ad-Hoc Group

2.12 The ATM/SG/12 noted that the ATM/SG Data Analytics Ad Hoc Group (DAG), established at ATM/SG/11, had held three meetings consisting of two virtual sessions and one physical meeting. The ad hoc group agreed on its Terms of Reference, task list, and a framework for measuring and reporting eight key performance indicators (KPIs) aligned with the Global Air Navigation Plan (GANP). The first physical meeting, held in May 2024 with participation from ten States, finalized the meeting modalities and role assignments. The ad hoc group Members agreed to conduct one physical and two virtual meetings annually, with additional meetings as needed.

2.13 Responsibilities for data collation, analysis, and reporting were distributed among member States, and data sharing was initiated. The eight selected KPIs, covering Capacity, Efficiency, and Predictability, were based on six core data elements and aligned with the ATM Performance Measurement Framework endorsed by APANPIRG. A data collection guide was made available, and States were encouraged to report on major airports, particularly those experiencing high traffic volumes or integrated into regional flows.

Table 1: KPIs to be Reported by ATM/SG DAG

KPA	KPI	Variant	GANP KPI Code
Capacity	Airport peak capacity	Departure	KPI09-D
		Arrival	KPI09-A
Capacity	Airport peak throughput	Departure	KPI10-1D
		Arrival	KPI10-1A
Efficiency	Additional taxi-out time	Advanced	KPI02-2
Efficiency	Additional taxi-in time	Advanced	KPI13-2
Predictability	Departure punctuality	± 15 mins	KPI01-2A
Predictability	Arrival punctuality	± 15 mins	KPI14-2A

2.14 A data collation exercise was also conducted, with the ad hoc group Members selecting which airports to report on, emphasizing the value of including high-traffic airports affected by capacity constraints and regional flow integration.

Progress Update of the ICAO Asia/Pacific Flight and Flow Information for a Collaborative Environment (FF-ICE) Ad Hoc Group

2.15 The ATM/SG/12 was informed that the ICAO APAC FF-ICE Ad Hoc Group conducted its inaugural workshop, including a tabletop exercise (TTX), from 18 to 21 June 2024 at the ICAO Asia/Pacific Regional Office in Bangkok, Thailand. The workshop marked the first step in delivering the group's objectives through presentations, discussions, and hands-on exercises. Participating ANSPs shared their phased implementation plans for FF-ICE Release 1 (FF-ICE/R1), with many targeting initial service rollout between 2025 and 2030, while other States were still in the planning phase and sought guidance.

2.16 Building on the outcomes of the first workshop, the group proposed a second workshop in early 2025 to further explore regional operational requirements and procedures, and to establish a documentation framework for the APAC FF-ICE/R1 implementation plan. It was emphasized that the participation of both operational and technical personnel would be essential to deepen understanding of FF-ICE requirements from a systems and operational standpoint. As FF-ICE/R1 was a foundational element of Trajectory-Based Operations (TBO), the second workshop was expected to play a key role in supporting future developments within the Asia/Pacific Seamless ANS Plan.

2.17 To promote regional harmonization, the ad hoc group recommended the adoption of FIXM Version 4.3.0 as the standard data format for FF-ICE/R1 services starting from Q3 of 2026. The ATM/SG/12 also noted concerns regarding the disconnect between operational and technical domains and the limited involvement of airspace users. It was agreed that future workshops should include discussions on technical requirements and procedures, and that States and airspace users be encouraged to participate.

2.18 Participants stressed the importance of cross-disciplinary collaboration across ICAO forums addressing SWIM, FF-ICE, TBO, and ATFM to ensure effective implementation. Suggestions included breaking major tasks into manageable components, ensuring joint participation of operational and technical experts in meetings, fostering collaboration between ATM/CNS groups, developing national FF-ICE transition roadmaps, and evolving ad hoc groups into implementation-focused bodies.

2.19 ATM/SG/12 agreed to the following Draft Conclusion:

Draft Conclusion ATM/SG/12-3: Agree on the adoption of FIXM Ver. 4.3.0 in Asia Pacific Region as the standard format

That, from Q3 2026 FIXM ver. 4.3.0 would be adopted to support information exchange for:

1. *FF-ICE/R1 services implementation; and*
2. *Cross-border ATFM operations.*

2.20 The ad hoc group holds the Second Asia/Pacific FF-ICE Ad Hoc Group Meeting and Workshop, in Bangkok, Thailand, from 18 to 20 March 2025. It was noted that the ad hoc group was drafting the Regional FF-ICE Implementation Framework, which was expected to be presented for endorsement at the ATM/SG/14 in 2026.

Reporting of GNSS Interference

2.21 The ATM/SG/12 acknowledged the significance of GNSS interference and its major impact on Air Traffic Services (ATS) and airspace users. As a result, it was advised that States/Administrations develop standard operating procedures for air traffic controllers to manage GNSS interference, as well as reporting processes for airspace users to the relevant ATS.

2.22 Recognising the necessity for a comparable mechanism, the ATM/SG/12 Chairperson suggested forming an ad hoc group. Consequently, the following Decision was reached during the meeting:

Decision ATM/SG/12-8: Establish Procedures for GNSS and Data Link Disruption Ad Hoc Group

That, ATM/SG establishes the Procedures for GNSS and Data Link Disruption Ad Hoc Group, to:

1. *collect data on GNSS and data link disruption in APAC region; and*
2. *develop the procedures for GNSS and data link disruption that include (but not limited to) the need for:*
   a) *reporting process by airspace users to ATS units; and*
   b) *sharing of information between stakeholders.*

North Pacific (NOPAC) Route System Redesign

2.23 The ATM/SG/12 was informed of the joint efforts by JCAB, FAA, and IATA in the NOPAC Redesign Project, which introduced new ATS routes with 23 NM lateral separation to improve efficiency. In Phase 2, routes were compressed to allow more User Preferred Routes (UPRs). While most aircraft met Performance-based Communications and Surveillance (PBCS) and RNP 4 requirements, data link outages remained a challenge. The group emphasized the need for contingency procedures to maintain reduced separation during connectivity disruptions.

2.24 It was noted that data link failures required reverting to larger separation minima, increasing operational complexity and risk. Frequent VHF Data Link (VDL) to satellite transitions, particularly in the Anchorage FIR, were identified as a major source of connectivity issues. Despite these challenges, the project showed the value of collaboration in enhancing airspace capacity in the Asia/Pacific Region.

Offset Climb/Descent Procedures in Oceanic Airspace of Fukuoka FIR

2.25 The ATM/SG/12 was informed that Japan had implemented reduced separation minima in oceanic airspace, including 30 NM longitudinal, 15 NM during climb/descent, and 23 NM lateral separation. To improve safety and efficiency, JCAB introduced an offset climb/descent procedure to resolve altitude conflicts and began trialling a 12 NM lateral separation using ATS data link services in June 2024. The offset climb/descent procedure allowed aircraft to reach desired altitudes by deviating from the cleared route, under controller instruction. Pilots could request this when significant altitude changes were not approved, and controllers could also initiate it. The procedure was applied in the Fukuoka FIR and supported both Controller-pilot Data Link Communications (CPDLC) and HF voice communications.

2.26 The 12 NM lateral separation minimum, added to ICAO Doc 4444 (PANS-ATM) in 2020, was applied in airspace where Strategic Lateral Offset Procedures (SLOP) of up to 2 NM were authorised. It was used during level changes when one aircraft climbed or descended through another's altitude. Both aircraft were required to have RNP 4, RCP 240, and RSP 180 approvals. Japan presented the expected benefits of this implementation, which included increased airspace capacity and improved operational efficiency in the oceanic sector.

Amendment to the Asia/Pacific Regional Plan for Collaborative Aeronautical Information Management

2.27 The ATM/SG/12 agreed to the following Conclusions:

Conclusion ATM/SG/12-4: Amendment to the Asia/Pacific Regional Plan for Collaborative AIM

That, the amendment to the Regional Plan for Collaborative AIM at ***ATM/SG/12 WP/29 Attachment D*** *be adopted, and the amended Plan be posted on the ICAO Asia/Pacific Regional Office eDocuments webpage.*

Conclusion ATM/SG/12-5: Revised Guidance on the Issuance of SNOWTAM

That, the revised EUR Doc 041 – Guidance on the Issuance of SNOWTAM (V.1.1) at ***ATM/SG/12 WP/29 Attachment E*** *be uploaded on the ICAO Asia/Pacific Regional Office eDocuments webpage to replace the existing.*

Proposed Business Functionality of APAC Common SWIM Information Services

2.28 The ATM/SG/12 was updated by the ICAO APAC SWIM TF Task Team on Information Services regarding ongoing work to identify business functions supported by APAC Common SWIM Information Services to meet regional operational needs. Recognizing the need for further discussion on the initial list of recommended services, the ATM/SG/12 agreed to establish an ad hoc group to address both technical and operational aspects.

2.29 The ATM/SG/12 agreed to the following Decision:

Decision AAITF/19-3: Establish APAC Common SWIM Aeronautical Information Services Ad hoc Group

2.30 Following its establishment, the APAC Common SWIM Aeronautical Information Services Ad hoc Group convened five meetings to review and discuss the message sets proposed by the System Wide Information Management Task Force (SWIM/TF). As a result of these discussions, the ad hoc group proposed to SWIM/TF the following changes as highlighted in yellow in **Figure 2**, covering six of the message sets, excluding SAR service.

Business functionality of the service	Brief description of the service	Type of information to be exchanged	Information exchange model / Message type	Message exchange pattern	Recommended service in initial APAC Common SWIM IS (1) / (2) / (3)
APAC Common SWIM Aeronautical Information Services					
Airspace management service	Exchanges of airspace status information between ASM Support System and Air Traffic Control (ATC) System. The sharing of airspace availability and airspace structure in real-time will contribute to a more efficient execution of the flight as information impacting the trajectory will be exchanged.	~~Airspace availability~~ Availability or activation/deactivation or temporarily change of airspace, restricted area, danger area, search and rescue regions	AIXM	Pub/Sub or Req/Reply	2
Airspace feature service	Provides the characteristics of the three-dimensional airspace, described as horizontal projection with vertical limits, and their relevance to air traffic.	FIR/UIR boundaries, waypoints, enroute ATS routes, SIDs and STARs, navaids, procedures, and other airspace not limited to restricted area, prohibited area, danger area, search and rescue regions (Remarks - Other data published in the AIP may be included)	AIXM	Pub/Sub or Req Reply	2
Aerodrome feature service	Provides current and/or planned airport layout features, such as aerodrome mapping data, runway, taxiway, passenger facilities.	Runways, movement areas, aerodrome services, navaids, instrument landing systems, Aerodrome location, communication facilities (frequencies)	AIXM	Pub/Sub or Req/Reply	2
Runway Condition Report service	Provides runway surface conditions and contaminants (least to most slippery) that are directly correlated to aircraft take-off and landing performance.	Global Reporting Format (GRF) for runway surface conditions	AIXM	Pub/Sub or Req/Reply	2
Digital NOTAM distribution service	Provides aeronautical information in accordance with the Digital NOTAM Specification, such as runway closure.	Digital NOTAM (e.g. Special activity airspace (SAA) NOTAMs, or other types of NOTAMs)	AIXM	Pub/Sub or Req/Reply	2
ATIS distribution service	Provides continuous and automated broadcast of recorded aeronautical information in airport and terminal areas.	Current weather conditions, runway in use, available approaches, and other data relevant to arriving and departing aircraft, specific ATC procedures, and any airport construction activity that could affect taxi planning	TBD	Pub/Sub	~~2~~ 3

Figure 2: Proposed Initial Set of APAC Common SWIM Aeronautical Information Services

2.31 **Figure 3** provides the SAR service message set defined under APAC Common SWIM Aeronautical Information Services, as proposed by SWIM/TF.

Business functionality of the service	Brief description of the service	Type of information to be exchanged	Information exchange model / Message type	Message exchange pattern	Recommended service in initial APAC Common SWIM IS (1) / (2) / (3)
APAC Common SWIM Aeronautical Information Services					
Search and rescue service	Allows Rescue Coordination Centres (RCCs) to exchange information with neighbouring RCCs and ATS units for coordination during SAR operations.	Search and rescue regions, Registered aircraft operator details and contacts, ICAO Autonomous Distress Tracking (ADT) data, Location of Aircraft in Distress Repository (LADR) data, ICAO OPS CTRL database contact information, SAR Unit (SRU) location and capability data	TBD	Pub/Sub	3

Figure 3: SAR Service Message Set

2.32 The APAC Common SWIM Aeronautical Information Services Ad hoc Group discussed and concluded that the implementation of SAR service should be considered in the future phase, as the information exchange model and message types had yet to be defined, currently marked as “TBD”.

2.33 In view of the meeting schedules, the initial set of outcomes developed by the APAC Common SWIM Aeronautical Information Services Ad hoc Group was submitted in advance to the Tenth Meeting of the System Wide Information Management Task Force (SWIM TF/10, Bangkok, Thailand, 20 – 23 May 2025), as a working paper, in order to ensure timely input and alignment with their ongoing work.

2.34 The outcomes from the APAC Common SWIM Aeronautical Information Services Ad hoc Group were also presented at the Tenth Meeting of the Asia/Pacific Search and Rescue Workgroup (APSAR/WG/10, Siem Reap, Cambodia, 27 – 30 May 2025). The APSAR/WG was encouraged to actively engage with the APAC Common SWIM Aeronautical Information Services Ad hoc Group and SWIM TF from an early stage, particularly regarding the SAR service message set once further details became available.

2.35 Noting concerns raised by some States at APSAR/WG/10 regarding limited understanding and expertise within the SAR community on SWIM implementation and its impact on SAR services, the APSAR/WG agreed that the ICAO Secretariat arranged a dedicated session with the SWIM TF Co-Chairs and/or experts from the APAC Common SWIM Aeronautical Information Services Ad hoc Group at the next APSAR/WG meeting (tentatively in the first or second week of May 2026). This session is expected to provide a detailed presentation on expectations and the impact of SWIM on SAR services.

3. ACTION BY THE MEETING

3.1 The meeting is invited to:

a) note the information contained in this paper; and

b) discuss any relevant matters as appropriate.

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