*International Civil Aviation Organization*

**Thirty-Fifth Meeting of the Asia/Pacific Air Navigation Planning and Implementation Regional Group (APANPIRG/35)**

*Bangkok, Thailand, 25 to 27 November 2024*

**Agenda Item 3:** **Performance Framework for Regional Air Navigation Planning and Implementation**

**3.2:** **ATM**

# ATM/SG/12 OUTCOMES

(Presented by Chairperson of ATM/SG)

**SUMMARY**

This paper provides a summary of the key outcomes from the Twelfth Meeting of the Air Traffic Management Sub-Group (ATM/SG/12) and its contributory bodies. Three Draft Conclusions are presented for consideration by APANPIRG/35.

*Strategic Objectives:*

- *A:* ***Safety*** *– Enhance global civil aviation safety*
- *B:* ***Air Navigation Capacity and Efficiency*** *— Increase the capacity and improve the efficiency of the global aviation system*
- *E:* ***Environmental Protection*** *— Minimize the adverse environment effects of civil aviation activities.*

## 1. INTRODUCTION

1.1 The Twelfth Meeting of the Air Traffic Management Sub-Group (ATM/SG/12) of the Asia/Pacific Air Navigation Planning and Implementation Regional Group (APANPIRG) was held from 23 to 27 September 2024 at the ICAO Asia and Pacific Regional Office, Bangkok, Thailand.

1.2 The meeting was attended by 105 registered participants from 23 States, two Special Administrative Regions of China and four International and Air Traffic Management-related Organizations, including Australia, Bhutan, Brunei Darussalam, Cambodia, China, Hong Kong China, Macao China, Fiji, France, India, Indonesia, Japan, Lao People's Democratic Republic (PDR), Malaysia, Maldives, Mongolia, New Zealand, Pakistan, Philippines, Republic of Korea (ROK), Singapore, Sri Lanka, Thailand, United States, Viet Nam, IATA, ICCAIA, IFALPA, and ICAO.

1.3 The ATM Sub-Group met as a plenary throughout the meeting. The working language of the meeting was English for all documentation and this Report. A total of 36 Working Papers (WPs), 14 Information Papers (IPs), two flimsies and four presentations were considered by the meeting.

1.4 The full ATM/SG/12 meeting report and all associated papers and presentations are available on the ICAO Asia/Pacific (APAC) Regional Office website at:

https://www.icao.int/APAC/Meetings/Pages/2024-ATM-SG-12.aspx

1.5 Mr. Kuah Kong Beng, Director (Special Project), Civil Aviation Authority of Singapore presided over the ATM/SG/12 meeting as Sub-Group Chair.

1.6 **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

High Level Recommendations Discussed at AN-Conf/14

2.1 The Meeting was informed of the high-level recommendations in the field of air navigation and safety discussed at the AN-Conf/14. These recommendations would be submitted for approval to the Council and, when applicable, for subsequent endorsement by the 42nd Session of the Assembly in 2025.

2.2 In reviewing AN-Conf/14-WP/75, Revision No. 1, the Committee noted that airspace disruptions had increased in recent years with airlines continuing to face challenges impacting efficient operations around airspace that were no longer available for civil aviation, sometimes for extended periods. As a result of the discussion, the Committee agreed on the following recommendation:

***Recommendation 1.1/2: Resilience of the air navigation system***

2.3 In considering the effects of global navigation satellite system (GNSS) radio frequency interference (RFI), the Committee:

a) expressed significant concerns with the recent escalation of harmful interference to GNSS, the risk it poses to civil aviation, and the critical impact this has had on global operations, particularly on areas surrounding conflict zones;

b) agreed on the importance of maintaining a sufficient network of conventional navigation aids, supported by very high frequency omnidirectional radio range (VOR), distance measuring equipment (DME) and instrument landing system (ILS) facilities, to ensure operational safety as well as sufficient airspace capacity during times of GNSS interference; and\

c) agreed on the following recommendation:

***Recommendation 2.2/2: Addressing global navigation satellite system interference and contingency planning***

2.4 The Committee reviewed AN-Conf/14-WP/10, regarding the proposed Project 30/10. This initiative aims to improve the operational efficiency of the global air navigation system by implementing longitudinal separations of 55.5 km (30 NM) or less in oceanic and remote airspace, and 19 km (10 NM) or less elsewhere. As a result of the discussion, the Committee approved the following recommendation:

***Recommendation 3.1/1: Project 30/10 – Optimised implementation of longitudinal separation minima***

2.5 In reviewing AN-Conf/14-WP/60, AN-Conf/14-WP/48 and AN-Conf/14-WP/70, the Committee noted the benefits of trajectory-based operations (TBO) in improving the predictability of aircraft movement and flight efficiency, as well as in increasing utilisation of available capacity and operator flexibility. As a result of the discussion, the Committee approved the following recommendation:

***Recommendation 3.1/3: Enabling successful deployment of trajectory-based operations***

2.6 The Committee, in recognising that expansion of free route airspace (FRA) initiatives across airspace boundaries should increase operational efficiency and contribute to reduced fuel consumption, agreed that the question of whether additional ICAO provisions and guidance material were necessary to facilitate harmonised FRA implementation should be referred to the appropriate expert group(s) for further consideration. The Committee approved the following recommendations:

***Recommendation 3.1/4: Free route airspace***

2.7 The Committee reviewed several working papers, including AN-Conf/14-WP/11, which outlined progress in developing global provisions for implementing Flight and Flow – Information for a Collaborative Environment (FF-ICE) services and proposed 2034 as the target date to cease FPL2012 operations. To support this, the importance of an inclusive, coordinated approach at national and regional levels were emphasised, along with collaboration among States and guidance from ICAO. As a result of the discussion, the Committee approved the following recommendations:

***Recommendation 3.2/2: Transition to flight and flow – information for a collaborative environment services and cessation of ICAO 2012 flight plan by 2034***

2.8 States/Administrations were strongly encouraged to proactively engage with the regional group related to the recommendation from AN-Conf/14.

ANS USOAP Update

2.9 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's safety oversight systems and provide an annual update of ANS USOAP status.

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

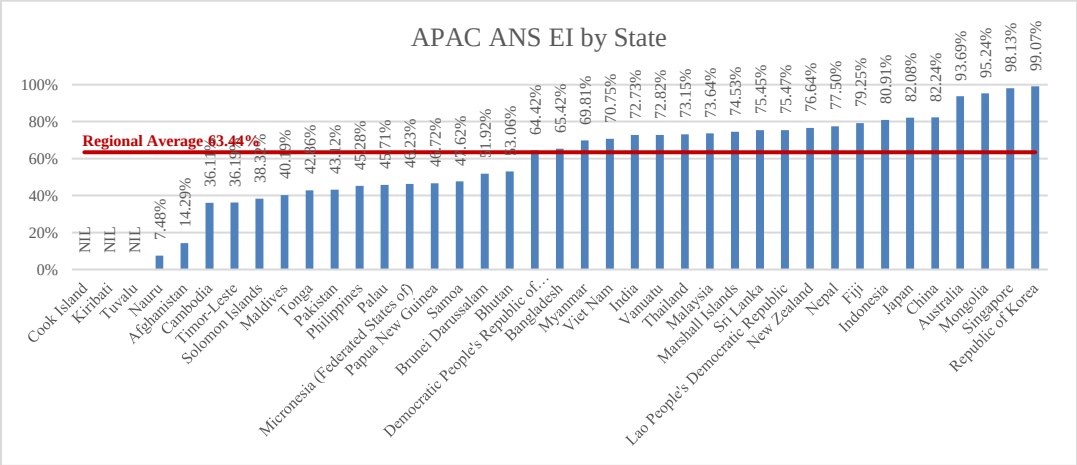


**Figure 1**: USOAP ANS EI Comparisons by State (September 2024)

2.11 The meeting 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).

2.12 The Secretariat informed the Meeting 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.

Updating the Asia/Pacific Seamless ANS Plan

2.13 ICAO presented the status of the Asia/Pacific Seamless ANS Plan, reporting, and implementation progress of air navigation improvements in the APAC region.

2.14 The guiding principles adopted by the ICAO Secretariat for updating the Seamless ANS Plan were:

a) refrain from introducing new regional elements, except where absolutely necessary;

b) focus on APAC Regional Prioritization of ASBUs; and

c) keep in mind the ICAO No Country Left Behind (NCLB) principle.

2.15 The meeting was informed that ICAO Secretariat carried out the following tasks in 2024 for updating the Seamless ANS Plan.

a) circulation of Draft Seamless ANS Plan V3.2.2 to POC for feedback from States: April 2024;

b) deadline for feedback from States (by email): 10 June 2024 (feedback received from four States);

c) deadline for reporting of APAC Seamless ANS Plan V3.0 implementation by States through APAC Seamless ANS Reporting Tool Portal: 31 May 2024 (17 States provided either complete or partial status reports);

d) update draft Seamless ANS Plan to include feedback from States and analysis of Seamless ANS Plan implementation status and presentation to the Sub-groups of APANPIRG (AOP, CNS and MET): July 2024;

e) update draft Seamless ANS Plan V3.5 to be submitted to ATM/SG/12 for review and approval: September 2024; and

f) final draft of Seamless ANS Plan V4.0 submission to APANPIRG/35 for endorsement.

2.16 The meeting adopted the following Draft Conclusion to update the Seamless ANS Plan for APANPIRG/35's consideration. This matter will be further discussed in a separate working paper titled 'APAC SEAMLESS ANS PLAN UPDATE.'

**Draft Conclusion ATM/SG/12-1: Asia/Pacific Seamless ANS Plan**

That, given the urgency and priority of Air Navigation Service (ANS) planning and modernization, and the lack of progress in implementing the Aviation System Block Upgrade (ASBU) Block 0, Asia/Pacific States are urged to review Version 4.0 of the Asia/Pacific Seamless ANS Plan.

2.17 The meeting was also informed about the Seamless ANS Plan Reporting Tool. States and Administrations were required to submit the implementation status through the tool by 31 May 2024. A total of 17 States/Administrations (41.5% of the APAC States/Administrations) had submitted some form of reporting on the new APAC Seamless ANS Reporting Tool. Among those 17 States/Administrations, only 11 States had submitted a comprehensive report. Hence, there was insufficient information to carry out effective evaluation on the implementation progress.

2.18 States/Administrations that had not submitted the Seamless ANS Plan implementation status was urged to do so using the online reporting tool.

FIT-Asia and RASMAG Outcomes

2.19 The meeting was informed that the outcomes of the FANS Interoperability Team-Asia (FIT-Asia/14) and the Twenty-ninth Meeting of the Regional Airspace Safety Monitoring Advisory Group (RASMAG/29), which were held in Bangkok, Thailand, from 16 to 19 July 2024 and 19 to 22 August 2024 respectively, were discussed.

2.20 The details will be further discussed under Agenda Item 3.3, ensuring a comprehensive review of the outcomes.

Application of ATC Separation Standards

2.21 The Secretariat provided information on the Seamless ATM survey conducted to determine which Air Traffic Control (ATC) separation minima were being applied within the Asia/Pacific Region. The responses to the latest survey had decreased from 25 to 16 (compared to last reporting period). The survey measured the minimum horizontal separation applied within State/Administration's FIR in Category R, Category S and Category T airspace[1].

2.22 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. 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 APAC region.

2.23 The meeting was also highlighted the Project 30/10 presented during AN-Conf/14. 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.

Progress of the APAC Data Analytics Ad-Hoc Group

2.24 The ATM/SG Data Analytics Ad Hoc Group (DAG) was established at the ATM/SG/11. To date, the ATM/SG DAG had convened three meetings: two online; and one physical and had agreed on the terms of reference and framework for measuring and reporting of eight key performance indicators (KPIs) under the Global Air Navigation Plan (GANP). The meeting was informed that the group discussed and agreed on the Terms of Reference and Task List, Framework for Measuring and Reporting of KPIs, Meeting Modality and Role Assignment.

2.25 The group agreed to measure and benchmark the eight KPIs in **Table 1** which can be derived from six data elements (**Figure 2**). These KPIs were consistent with the KPIs previously agreed by the informal working group and were the same KPIs in stage one of the ATM/PMF endorsed by APANPIRG.

**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 |

[1] Asia/Pacific Seamless ANS Plan paragraph 1.4:

Category R: remote en-route airspace with Air Traffic Services (ATS) HF or CPDLC communications and outside the coverage of ground-based surveillance coverage; or

Category S: serviced (or potentially serviced) en-route airspace – by direct (not dependent on a Communication Service Provider (CSP) ATS communications and surveillance; or

Category T: terminal operations serviced by direct ATS communications and surveillance.

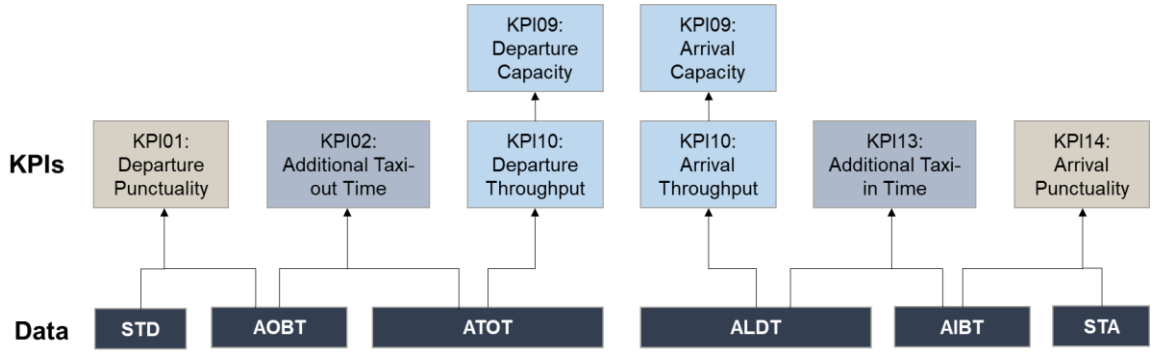


**Figure 2:** KPIs from Data Elements

2.26 The group agreed that data would only be shared within the ATM/SG DAG and that any ICAO information or working papers referencing this data would need approval from individual member States/Administrations. To facilitate sharing until a secure portal could be established, data was shared via email. The use of less sensitive commercial data for the DAG was also discussed and deemed a viable option for further exploration.

2.27 The group reviewed three key analyses:

a) Capacity Analysis: Most airports operated below peak capacities, though some were close. Arrival capacity relied on forecast criteria, while departure capacity depended on runway layout.

b) Efficiency Analysis: The advanced variant, which included departure gate and runway data, produced different taxi-in and taxi-out times than the basic variant. The group preferred the advanced variant for its ability to account for varying distances and provide a fairer comparison of taxi times at different gates.

c) Predictability Analysis: Arrival on-time performance was poorer than departures, with more early and late arrivals, while departures were rarely early. This highlighted areas for analysing the buffers in the ATM system to enhance efficiency.

<u>Proposed Regional Monitoring and Reporting Scheme for A-CDM Implementation</u>

2.28 The meeting was informed that the ATFM Information Requirements Small Working Group (ATFM/IR/SWG) agreed that the proposed scheme should include the following elements:

a) agreed basis for monitoring A-CDM implementation in the future;

b) traffic density for each particular reporting airport/ group of reporting airports; and

c) flexibility in reporting content where items could be categorised as “Required” or “Optional”, with choice of “Not Applicable” as reporting response to cater for various scales and local needs of different airports in the region.

<u>ATM and Airspace Safety Deficiencies List</u>

2.29 ICAO presented the list of APANPIRG Air Navigation Deficiencies in the ATM and Airspace Safety fields. The ATM/SG/12 meeting recommended the following change proposals for consideration by APANPIRG/35 under Agenda Item 4:

a) Non-compliance with Aeronautical Information Publication (AIP) format standards of ICAO Annex 15:

- Nauru's Deficiency deleted.

b) Non-implementation of AIS Quality Management System as required in Annex 15, Chapter 3:

- Philippines' Deficiency deleted.

c) Non-implementation of the Asia/Pacific Air Navigation Plan Vol II, Part I, Section 3 – Specific Regional Requirements for implementation of the Asia/Pacific Search and Rescue (SAR) Plan:

- Malaysia's and Philippines' Deficiencies deleted.

2.30 During the ATM/SG/12 meeting, ICAO APAC Office received supplementary evidence from Sri Lanka to support the application for Quality Management System Implementation Deficiency. After reviewing all the evidence, the ICAO APAC Office recommends APANPIRG/35 to consider the said Deficiency for Sri Lanka be deleted.

a) Non-implementation of AIS Quality Management System as required in Annex 15, Chapter 3:

- Sri Lanka's Deficiency deleted.

Regional Air Navigation Plan Update

2.31 ICAO presented an update on the progress of incorporating coordinate data for Asia/Pacific Flight Information Regions (FIRs) and Search and Rescue Regions (SRRs) in the Regional Air Navigation Plan (ANP) Volume I. States were reminded that Doc 9673 did not provide a legal description of the FIRs in the first place, it was very important for States to understand that this process of checking, alignment and validation is crucial if they would like a formal basis for their FIRs.

2.32 The exercise to review the ANP with FIR and SRR coordinates was based on ICAO historical records and not new proposals for change. The Proposal for Amendment (PfA) process for FIRs and SRRs were the same process of approval in the ANP Volume I (approval of the Council). Some States had submitted major amendments to their FIRs during the review process. These would only be considered if that the proposed change only affected national airspace and not the neighbouring airspace, or if all parties agreed with the change proposal before submission to ICAO.

2.33 The meeting noted that there were issues in some areas affecting the resolution of FIRs/SRRs, which in turn impacted progress. States that had not resolved FIRs/SRRs were encouraged to address these issues through bilateral or multilateral meetings.

Air Traffic Flow Management Steering Group Outcomes

2.34 The meeting was informed of the outcomes of the Meteorology/Air Traffic Management (MET/ATM) Seminar and the Fourteenth Meeting of the Air Traffic Flow Management Steering Group (ATFM/SG/14, Bangkok, Thailand, 22 to 26 April 2024). The meeting included a joint plenary session with the Thirteenth Meeting of the Meteorological Requirements Working Group (MET/R WG/13).

2.35 Updates were provided on progress in the Bay of Bengal Cooperative ATFM (BOBCAT) operational status, the Asia/Pacific Cross-Border Multi-Nodal ATFM Collaboration (AMNAC), and the Northeast Asia Regional ATFM Harmonization Group (NARAHG).

2.36 Based on reports received, States were assessed as having *Robust* (90-100%), *Marginal* (70-89%) or Incomplete (0-69%) implementation. Australia, China, Hong Kong China, Japan, Republic of Korea, Singapore, Thailand and USA were assessed as having Robust implementation.

2.37 The Meeting was informed that ATFM/SG/14 had agreed with the recommendation for FIXM Version 4.3.0 be used in cross-border ATFM-related information exchange.

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

2.38 The ICAO APAC FF-ICE Ad hoc Group recommended adopting FIXM Version 4.3.0 as the standard format for FF-ICE/R1 services in 2026 to achieve regional harmonization among APAC States/Administrations. ATM/SG addressed the lack of collaboration between operational and technical domains, along with insufficient representation of airspace users. Participants emphasized the need for cross-expertise collaboration in ICAO forums on topics such as SWIM, FF-ICE, TBO, and ATFM to ensure effective implementation.

2.39 ATM/SG/12 agreed to the following draft conclusion, which was merged from two separate draft conclusions from the ATFM/SG and the FF-ICE Ad Hoc Group, respectively, for consideration by APANPIRG/35.

**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;

2) Cross-border ATFM operations.

Regional Supplementary Procedures Doc 7030 Update

2.40 The Secretariat informed the meeting that when New Zealand, jointly with several States, submitted a PfA to SUPPS for implementing ADS-B ITP and ADS-C CDP, ICAO Headquarters deemed parts of these proposals unnecessary. The Conclusion (*Conclusion APANPIRG/33/5*) had been agreed upon and referred to ICAO Headquarters (HQ) for technical review.

2.41 To provide clear direction on which separation minima require publication in Doc 7030 Regional SUPPS, the meeting was informed that an amendment to the SUPPS was not required to support the implementation of any provisions in Annex 11 or any procedures or separation minima contained in the PANS-ATM, unless it specified that implementation was based on a regional air navigation agreement.

2.42 The meeting was also informed that the Regional Office issued a State Letter clarifying which SARPs and PANS require SUPPs for implementation, ensuring that all regional offices have a common understanding.

2.43 The progress of the 6th Edition of the Regional Supplementary Procedures (Doc 7030) was presented by the secretariat. The initial task involved aligning the areas of applicability of the air navigation plans (ANP) with the regional supplementary procedures. For the APAC region, the MID/ASIA and PACIFIC areas would be consolidated into one, and MID information would be removed to reflect the current extent of the Regional Office. To proceed, the proposed amendment would be reviewed by ICAO ANB and the Council once the 6th Edition of Doc 7030 became available.

Reporting of Global Navigation Satellite System (GNSS) Interference and Rationalization of Navigation Infrastructure

2.44 The meeting discussed the increased occurrences of GNSS interference globally and emphasized the importance of States/Administrations establishing procedures for pilots to report these events to air traffic services (ATS) units as soon as possible. This would allow for quick notification to other airspace users through the publication of NOTAMs and the suspension of GNSS-dependent procedures and applications.

2.45 The meeting was informed that ICAO through State Letter Ref. T 8/5.10 – AP052/24(CNS) had provided the GNSS Interference Reporting Form for APAC, which could also be accessed at: https://www.icao.int/APAC/Meetings/Pages/2024-SRWG8.aspx.

2.46 The meeting supported a proposal for the reporting procedures information to be published in the AIP; however, further consultation was required to determine the relevant section of the AIP. The meeting agreed that this subject would be discussed by the ICAO Aeronautical Information Services – Aeronautical Information Management Implementation Task Force (AAITF).

2.47 IATA proposed that States and ANSPs consider current and future GNSS RFI risks when planning the decommissioning of conventional navigation aids. They should re-evaluate existing ground-based navigation aids (GBNA) and establish a minimum operating network (MON) to ensure flight safety if GNSS is unreliable. This includes retaining essential GBNA beyond 2030 and collaborating with airspace users to mitigate GNSS RFI risks.

2.48 The Chair acknowledged the significance of GNSS interference and its major impact on 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.

Towards Harmonised Realisation of the ICAO Global Trajectory based Operations (TBO) Concept in the Asia and Pacific Regions

2.49 The paper provided an update on the APAC TBO Pathfinder Project, initiated by the Asia Pacific Air Navigation Service Provider (ANSP) Committee (AAC[2]), which aimed to harmonize implementation planning for the ICAO global TBO concept in the APAC region. The project sought to accelerate the development of key TBO components like SWIM and FF-ICE/R1 and to advance future FF-ICE releases and the Connected Aircraft concept through methods such as tabletop exercises, laboratory demonstrations, and trials.

2.50 In the APAC region, varying readiness levels were anticipated, with a focus on managing air traffic in a mixed-mode environment. States and regions prioritized accelerating the planning and implementation of mature TBO technical enablers, while ICAO worked on harmonizing these efforts at regional and global levels. Participants emphasized the urgent need for a comprehensive regional roadmap for TBO, advocating for its integration into the 2026 update of the Seamless ANS Plan to ensure cohesive and efficient implementation across the region.

[2] The APAC ANSP Committee is a collaborative group of ANSPs formed from discussion at the 57th Conference of Asia/Pacific Directors General of Civil Aviation (DGCA/57, Incheon, Republic of Korea, 04 to 08 July 2022)

Cross-Border Direct Routing Operations (DRO) between Indonesia and Singapore

2.51 The meeting was informed about the collaboration between Indonesia and Singapore in implementing cross-border Dynamic Route Optimization (DRO) based on the Free Route Operations (FRTO) concept, which aimed to enhance flight efficiency and allow airspace users to select preferred routes, marking a move towards Traffic Based Operations (TBO). This initiative sought to facilitate flexible flight trajectories and was timely, as FF-ICE/R1 services were set to start in November 2024 and regional SWIM implementation was expected by 2030.

2.52 A trial operation on ATS route G579, conducted from March to September 2024, demonstrated significant benefits, including reduced operational costs, shorter flight times, and lower emissions. Following the successful trial, the cross-border DRO was officially implemented on September 5, 2024. Both States planned to enhance engagement with operators and explore additional DRO opportunities, contributing to improved regional air traffic management and supporting ICAO's vision for TBO and net-zero carbon emissions by 2050.

2.53 The Chair advocated for enhanced collaboration with neighbouring FIRs and emphasized the importance of learning from successful cross-border initiatives, particularly citing the cooperation between Indonesia and Singapore. This example served as a powerful reminder of the benefits that could be achieved through effective partnership and coordination across borders.

Regional ATM Contingency Planning and Contingency Operations Update

2.54 The secretariat presented information on ATM contingency planning in the Asia/Pacific Region, including an update of State-reported implementation of the performance expectations of the Asia/Pacific Regional ATM Contingency Plan. A brief outline of ATM contingency operations in the APAC Region since the last report to ATM/SG/11 was also provided.

2.55 Implementation status was assessed as robust (90 – 100% of expectations implemented), marginal (70 – 89%) or incomplete (0 – 69%). Only Australia, China, Hong Kong China, Indonesia, New Zealand, Singapore and Thailand had reported robust implementation.

2.56 The current Kabul FIR Contingency Operations was introduced by the ICAO Secretariat. Recognising that ATS routes through the Kabul FIR were integral to major traffic flows between South Asia/Southeast Asia and Europe, and that most airspace users who would typically transit the Kabul FIR had chosen to reroute, ICAO acknowledged the efforts of States that managed the increased traffic on alternative routes through their FIRs, especially India, Pakistan, and the Middle East (MID) region States.

2.57 The meeting was informed that the ICAO APAC/MID ATM Contingency Planning Workshop took place in June 2024, where ICAO and subject matter experts provided an overview of relevant provisions, examined the current regional ATM Contingency Framework, and discussed case studies related to ATM contingency planning. The workshop facilitated discussions on enhancing contingency management and improving regional plans based on the draft APAC Regional Contingency Framework, which was tentatively adopted with updates to the Regional ATM Contingency Plan. ICAO recognized the significant progress made by the AAC Work Stream 3, and the framework was under review for harmonization. The meeting agreed to the ICAO Secretariat's proposed process for updating the framework and plan, noting that any delays could hinder overall progress. The framework was to be reviewed by ICAO ANB and Regional Offices for a harmonized global framework, while the Regional Plan was to be amended accordingly, with both documents scheduled for discussion at ATM/SG/13 and proposed at APANPIRG/36.

SAIOSEACG Meeting Outcomes

2.58 ICAO presented the outcomes of the Third Meeting of the South Asia, Indian Ocean, and Southeast Asia ATM Coordination Group (SAIOSEACG/3), which took place in Bangkok from 16 to 19 April 2024. The meeting also highlighted key outcomes from two Small Working Groups under the SAIOSEACG: the South China Sea Traffic Flow Review Group (SCSTFRG) and the Bay of Bengal Traffic Flow Review Group (BOBTFRG).

2.59 Regarding the SCSTFRG, it was emphasized that Priority 4 (optimization of FLAS/FLOS operation) could not be treated as an isolated project due to its interconnectivity with Priorities 1, 2, and 3 (reduction of longitudinal separation on primary routes), which would enhance route capacity and improve airspace efficiency. For the BOBTFRG, the meeting noted that some States/Administrations continued to apply conservative separation standards, contributing to congestion. The group prioritized implementation timelines for improved horizontal separation standards based on demonstrated performance capabilities.

Asia Pacific Region ATS Route Catalogue

2.60 ICAO shared the latest review of the Asia/Pacific Region ATS Route Catalogue, emphasising key developments in regional airspace management. Version 23.2 currently included 41 ATS routes, with two new proposals and eight routes classified as archived. Notably, the BOB01 route, now designated as RNP10 route P632, had benefited from strong collaboration among stakeholders and showcased significant environmental benefits, including a reduction in carbon emissions.

2.61 The meeting reaffirmed that enhancing coordination, addressing airspace constraints, and exploring alternative variations for partial benefits remained crucial. Future discussions focused on routes passing through restricted areas to ensure continued progress in airspace management across the APAC region.

Progress Update of the Space Vehicle Launch and Re-Entry Coordination Small Working Group (SVLRC SWG)

2.62 The Space Vehicle Launch and Re-entry Coordination Small Working Group (SVLRC SWG) was formed by Decision *ATM/SG/10-8* to:

a) study global practices and procedures for the coordination of space vehicle launch and re-entry activities, with a view to making recommendations for best practices to be adopted in the Asia/Pacific Region;

b) consolidate and update Asia/Pacific regional guidance material on space vehicle launch and re-entry coordination and response; and

c) recommend consolidated guidance and performance expectations for inclusion in the 2023 update of the Asia/Pacific Seamless ANS Plan.

2.63 The Final Draft Version 1.0 of the Asia/Pacific Regional Guidance for Space Object Launch and Re-entry Activities Coordination (enclosed in **Appendix A**) was presented, which was intended to replace the current Asia/Pacific Planning Checklist for Space Launch and Space Re-Entry Operations published on the ICAO APAC eDocument webpage, for review by the meeting.

2.64 The meeting adopted the following Draft Conclusion for consideration by APNPIRG/35.

**Draft Conclusion ATM/SG/12-2: Regional Guidance for Space Object Launch and Re-Entry Coordination**

1. That, the Asia/Pacific Regional Guidance for Space Object Launch and Re-Entry Activities at Appendix D to the Report:
   a) be uploaded to the Asia/Pacific Regional Office website, to replace the existing Asia/Pacific Planning Checklist for Ballistic Launch and Space Re-entry;
   b) be referenced in the Asia/Pacific Seamless ANS Plan; and
2. the related ballistic launch and space re-entry guidance and performance expectations in the Asia/Pacific Seamless ANS Plan be updated accordingly.

2.65 As the SVLRC SWG had completed its tasks, the meeting agreed on the dissolution of the SVLRC SWG.

***Decision ATM/SG/12-7: Dissolution of the Space Vehicle Launch and Re-entry Coordination Small Working Group (SVLRC SWG)***

*That, the Space Vehicle Launch and Re-entry Coordination Small Working Group (SVLRC SWG), having completed all tasks as per the Decision ATM/SG/10-8, be dissolved.*

North Pacific (NOPAC) Route System Redesign

2.66 This working paper was a testament to the joint effort of JCAB, FAA, and IATA in the NOPAC Redesign Project, which aimed at improving efficiency in the NOPAC Route System. The new ATS routes, with 23 NM lateral separation minima, were a result of this collaborative effort. In Phase 2, ATS routes were compressed into smaller airspace, allowing more UPRs (**Figure 3**). Despite the benefits, controllers faced challenges with data link outages. The paper also called for contingency procedures for lateral PBCS minima during connectivity issues.

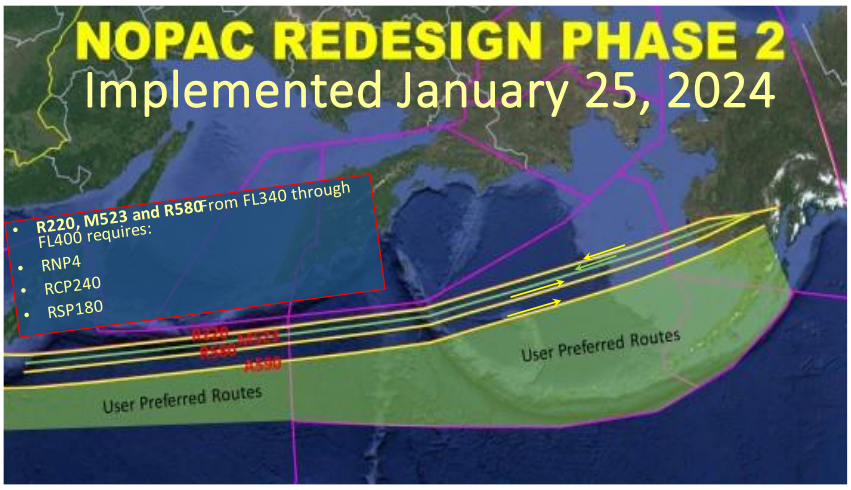


**Figure 3:** NOPAC Redesign Phase 2

2.67 When data link connectivity was lost, controllers had to revert to larger separation minima, which posed challenges for aircraft on parallel routes with 23 NM lateral separation and increased risks due to multiple altitude and route changes. In the Northern Atlantic, some FIRs had contingency procedures that allowed the continuation of 23 NM separation during outages, as reverting to larger minima was considered riskier. No new aircraft pairs were permitted to enter oceanic airspace with reduced minima during these outages. A significant connectivity problem arose from VHF Data Link (VDL) to Satellite (SAT) transition issues, particularly in Anchorage's oceanic FIR, where frequent transitions contributed to poor performance and connectivity problems. The NOPAC Redesign Project faced challenges but demonstrated that collaboration was essential for enhancing airspace capacity in the APAC region, with JCAB and the FAA working together to implement reduced separation minima and improve ATS routes, sharing their progress to boost airspace efficiency.

2.68 Recognizing the necessity for a comparable mechanism, as highlighted in two GNSS interference working papers, the Chair suggested forming an ad hoc group. Consequently, a decision by ATM/SG to establish procedures for the GNSS and Data Link Disruption Ad Hoc Group was reached during the meeting. The meeting also agreed that the terms of reference and task list should be discussed at the first meeting of the Ad Hoc Group.

***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:*

*a) collect data on GNSS and data link disruption in APAC region; and*

*b) develop the procedures for GNSS and data link disruption that include (but not limited to) the need for:*

- *reporting process by airspace users to ATS units; and*
- *sharing of information between stakeholders.*

Offset Climb/Descent Procedures in Oceanic Airspace of Fukuoka FIR

2.69 The meeting was informed that Japan implemented reduced separation minima in oceanic airspace, with 30 NM longitudinal, 15 NM during climb/descent, and 23 NM lateral separations. To enhance safety and efficiency, they introduced an offset climb/descent procedure to resolve altitude conflicts and began a trial of a 12 NM lateral separation using ATS data link services in June 2024.

2.70 The offset climb/descent procedure allowed aircraft to achieve the desired altitude by deviating from the initially cleared route, following controller instructions. Pilots could request this procedure when a substantial altitude change was not approved, and controllers could also recommend it. This procedure was applicable in Fukuoka for both CPDLC and HF voice communication. Japan also presented the anticipated benefits of implementing the 12 NM offset method in the oceanic sector, which included enhancing airspace capacity and boosting operational efficiency.

Capacity Optimisation of Air Routes between Hong Kong and her Neighbouring FIRs

2.71 The meeting was presented with the progress update on the enhancement of longitudinal spacing on ATS routes L642 and M771 with Sanya FIR and ATS routes A461, M501 and A583 with Manila FIR.

2.72 An operational trial was conducted between all concerned States and Administrations to adopt 20 NM minimum longitudinal spacing for L642 and M771 between 0200 and 1200 UTC on daily basis for aircraft pair cruising at or above FL290; equipped with serviceable ADS-B; and with constant or increasing longitudinal spacing. Aircraft without serviceable ADS-B shall cruise at FL280 or below unless prior approval was sought from the receiving ATCC/ACC.

2.73 30 NM minimum longitudinal spacing was applicable to traffic pair on ATS routes A461 and M501with RNP 4 capability at FL290 or above under constant or increasing longitudinal spacing as Phase 1 and Phase 2 implementation was completed in February 2023 between Hong Kong and Manila FIR.

2.74 In Phase 3 implementation, 30 NM minimum longitudinal spacing would be applicable to traffic pair on ATS route A583 with RNP 4 capability, CPDLC and ADS-C equipage at FL290 or above under constant or increasing longitudinal spacing. New LOA between Hong Kong ATCC and Manila ACC was signed in September 2024 to officiate the enhancement.

Space Weather Advisories via Flight Information Services

2.75 The meeting noted the inconsistent approach to sharing space weather (SWX) advisory information to aircraft in flight across the APAC region, namely:

a) there was no equivalent SIGMET issued for SWX, nor NOTAM required. This was due to the often-global nature of the SWX advisories (e.g. “daylight side”) and the potential for information overload if identical SIGMET and NOTAM were issued for every FIR;

b) another crucial difference from SIGMETs was that a SWX advisory was not FIR-based. This could be challenging for ANSPs to determine whether an advisory was relevant for the FIR they were responsible for; and

c) the inconsistent approach by States meant that a long-haul flight might receive information on SWX advisories that could impact its operation only during parts of its journey.

2.76 The meeting confirmed that PANS – ATM para 9.1.3.8 contained the requirement on the transmission of information concerning space weather activity and means of transmission.

> *Information on space weather phenomena that have an impact on high frequency radio communications, communications via satellite, GNSS-based navigation and surveillance systems, and/or pose a radiation risk to aircraft occupants at flight levels within the area of responsibility of the ATS unit, shall be transmitted to the affected aircraft by one or more of the means specified in 9.1.3.1.1.*

2.77 The meeting was requested to discuss the need to develop guidance for the dissemination of relevant SWX information by ANSPs to operators via FIS for the APAC region. The meeting also discussed the need for closer coordination between MET and ATM in understanding the impact of such advisories.

NOTAM ASHTAM for Volcanic Unrest

2.78 ICAO presented the safety issue identified by the Meteorology Sub-group in relation to the lack of awareness by international aviation of elevated pre-eruptive unrest of many Asia and Pacific volcanoes and invited the meeting to consider options for addressing the problem as follows:

a) States with responsibility for FIRs that contain active or potentially active volcanoes should ensure that information was shared with the responsible ACC/FIC by all relevant volcano observatories contained within the FIR (potentially associated with more than one State). States should take steps to ensure there was clear understanding of any volcanic activity alert level system used; and

b) States that do not have FIR responsibilities should develop procedures and agreement with States who were the relevant FIR authorities for volcanic information dissemination based on ICAO requirements, so that necessary actions were taken to ensure safety.

2.79 A new recommended practice would be included in Amendment 82 to Annex 3 Meteorological Services for International Air Navigation for State Volcano Observatories (SVOs) to provide volcanic activity information in the form of volcano observatory notice to aviation (VONA), however, until this was enabled in each applicable State, there would continue to be a need for the provision of NOTAM on volcanic unrest.

AIS – AIM Implementation Task Force Outcomes

2.80 Outcomes from the Nineteenth Meeting of the ICAO AIS – AIM Implementation Task Force (AAITF/19, Bangkok, Thailand, 10 to 14 June 2024) were provided to the meeting.

2.81 An update was provided on the implementation status of the performance expectations outlined in the APAC Regional Plan for Collaborative AIM, which was structured into three phases: Phase I (immediate), Phase II (due by 07 November 2019), and Phase III (due by 27 November 2025). By the time of the report, Hong Kong China, Japan, and Singapore had successfully implemented all elements of Phase I, while only Singapore had completed all elements of Phase II. Overall regional implementation was reported at approximately 60% for Phase I and 42% for Phase II, translating to a combined progress of 53%. These results indicated slow regional progress, particularly given that Phase I expectations are based on ICAO Standards and Recommended Practices that have been established for several decades.

2.82 IFAIMA, in collaboration with the Secretariat, provided a regional analysis of NOTAM proliferation, reminding the meeting of the relevant ICAO provisions outlined in Annex 15 Aeronautical Information Services and ICAO Doc 10066 Procedures for Air Navigation Services – Aeronautical Information Management (PANS-AIM). As of 01 May 2024, a total of 6,057 NOTAMs were active in the APAC Region, with 294 (5%) categorized as old (more than three months but less than one year) and 179 (3%) classified as very old (one year or more).

2.83 IATA presented airline feedback on NOTAM quality, noting issues in the APAC region and elsewhere. Some States had not moved PERM NOTAMs into appropriate aeronautical products as per ICAO Doc 8126. An airline reported 38 different formats for date and time in Item D) of NOTAMs in one day, causing confusion and hindering automation. Additionally, late delivery of NOTAMs after their effective date continued to be a problem, highlighting the need for reliable and timely aeronautical data delivery.

2.84 The meeting reported that from January 2021 to May 2024, a total of 7,483 ICARD requests were processed, resulting in 6,753 approvals and 730 rejections, with common reasons for rejections being shared. Additionally, the challenges faced by the ICARD Planner and Regional Manager were highlighted, including the complexity of reviewing State requests and managing large batches during this period.

2.85 The meeting agreed to ICAO's proposal to amend the Regional Plan for Collaborative AIM, which included updates on Aviation System Block Upgrades (ASBU), the Asia/Pacific AIM Compliance Analysis related to the USOAP Audit, and the structure of the Performance Improvement Plan.

***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 Attachment D to the Working Paper (WP/29) be adopted, and the amended Plan be posted on the ICAO Asia/Pacific Regional Office eDocuments webpage.*

2.86 ICAO introduced the latest guidance published in December 2020 on the issuance of SNOWTAMs used in the Asia/Pacific Region. The ICAO APAC Regional Office would consult with HQ and other regional offices on how they address EUR Doc 041 and any plans for the global guidance document. The meeting agreed to the following conclusion:

***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 Attachment E to the Working Paper (WP/29) be uploaded on the ICAO Asia/Pacific Regional Office eDocuments webpage, to replace the existing.*

2.87 The ICAO APAC SWIM Task Team on Information Services updated the meeting on efforts to identify the business functionalities needed to support APAC Common SWIM Information Services for operational needs in the region. Recognizing the necessity for further discussion on the recommended services in the initial framework, the meeting agreed to form an ad hoc group to explore both the technical and operational aspects of this topic, rather than reaching a consensus at AAITF/19.

2.88 A Quality Management System (QMS) seminar session was conducted on 14 June 2024, following the AAITF meeting. The seminar aimed to enhance States' understanding of QMS implementation to facilitate their removal from the ANS Deficiency List due to previous failures in implementing such systems. Six presentations were delivered by representatives from two States and two international organizations.

Asia/Pacific Search and Rescue Update

2.89 The Ninth Meeting of the Asia/Pacific Regional Search and Rescue Work Group (APSAR/WG/9) was held in Bangkok, Thailand, from 7 to 10 May 2024. 61 participants from 21 States/ Administrations and two international organizations attended the meeting.

2.90 An overview of the outcomes from the Thirtieth Meeting of the ICAO/International Maritime Organization (IMO) Joint Working Group on Harmonization of Aeronautical and Maritime Search and Rescue, held in Cape Town, South Africa, from 06 to 10 November 2023, was provided. The meeting included a status report on the Cospas-Sarsat system, covering system operations, significant developments, and reporting by Rescue Coordination Centres (RCCs) on distress alert data. Cospas-Sarsat also presented information on the deployment of Emergency Locator Transmitter – Distress Tracking (ELT [DT]) systems, which support the Global Aeronautical Distress and Safety System (GADSS). While the ICAO requirement for Autonomous Distress Tracking (ADT) equipage was postponed to 01 January 2025, the meeting noted that Cospas-Sarsat had declared full operational capability for first-generation ELT (DT)s as of 01 January 2023 and for second-generation systems as of 01 January 2024.

2.91 The meeting presented the results of a revised survey on Asia/Pacific regional readiness for Autonomous Distress Tracking (ADT), as agreed at the APSAR/WG/8 meeting. ICAO planned to circulate a State Letter (ICAO APAC Regional Office AP143/23 (ATM), 24 October 2023) to inform ATM and SPOCs, broadening the survey's reach. Most APAC Administrations had yet to develop response procedures for ADT notifications or ELT (DT) alerts, had not trained relevant personnel, and had not registered with the ICAO OPS CTRL Directory.

2.92 The differences in notification processes for alerts received by RCCs for Autonomous Distress Tracking (ADT) and the only known ADT device, the ELT (DT) were provided. It was emphasized that for ELT (DT) activations, the RCC would be notified through the MCCs as outlined in Annex 12. The meeting was reminded to consider actions needed to clarify the distinctions between receiving multiple ELT (DT) notifications, including alert data from the Cospas-Sarsat Programme, and receiving a single ADT activation notification from the Location of an Aircraft in Distress Repository (LADR).

2.93 The meeting provided an update on the APAC Seamless ANS Plan and its subsidiary plans, including the Asia/Pacific SAR Plan, which was scheduled for review in 2025 due to a one-year delay. The Asia/Pacific SAR Plan would consider proposals on cooperation between the SAR Service and the Accident Investigation Authority and on entry into a State's territory for SAR, both aimed at enhancing SAR operations. The meeting agreed to the following Conclusion:

***Conclusion ATM/SG/12-6: Proposal for Annual Submission of Changes to Asia/Pacific Search and Rescue (SAR) Plan***

*That, States and Administrations are invited, if necessary, to submit proposals to APSAR/WG to incorporate amendments of related documents such as International Aeronautical and Maritime Search and Rescue (IAMSAR) Manual into the Asia/Pacific Search and Rescue (SAR) plan where appropriate instead of waiting for the three years cycle.*

Need for Proper Guidance to Establish Visual Approach Application Specifications for Parallel Runways

2.94 The meeting discussed the need for clearer guidelines on visual approach specifications for parallel runways due to rapid air traffic growth, emphasizing the importance of enhancing safety and efficiency. Participants noted that existing ICAO documentation lacked clarity on certain aspects. The ICAO Secretariat reported that this issue was addressed at the SASP-WG/39 meeting, where it was agreed that visual approaches to parallel runways should not be classified as Simultaneous Operations on Parallel or Near-Parallel Instrument Runways (SOIR). It was also deemed beneficial to include lessons learned in the next edition of ICAO Doc 9643. The meeting concluded that the ICAO Secretariat should seek clarification from ICAO HQ regarding challenges faced by some APAC States and IFALPA.

State of Aviation Economics

2.95 IATA emphasized the importance of adopting the "Equilibrium" strategy to balance the needs of airspace users and ANSPs. This approach called for collaboration on safety, regulations, investment plans, and capacity planning to enhance aviation efficiency and sustainability, supporting economic growth and global connectivity.

2.96 The Chair reminded APAC States/Administration to adhere to *APANPIRG Conclusion 34/15 – Adherence to ICAO Principles and Recommendations for Setting Air Navigation Charges* where States are urged to:

a) incorporate the four key charging principles from ICAO Docs 9082 and 9161 into national legislation, regulation or policies, and air services agreements; and

b) provide direction to ANSPs, airport operators and other service provider entities to comply with the Docs 9082 and 9161 guidance and intent, particularly the provisions relating to consultation with airspace users.

## 3. ACTION BY THE MEETING

3.1 The Meeting is invited to:

a) note the information in this paper;

b) discuss and agree to **Draft Conclusion ATM/SG/12-2: Regional Guidance for Space Object Launch and Re-Entry Coordination**;

c) discuss and agree to **Draft Conclusion ATM/SG/12-3: Agree on the adoption of FIXM Ver. 4.3.0 in Asia/Pacific Region as the standard format**;

d) note the current status of the update of FIR boundary descriptions in the APAC ANP;

e) note the current issue of GNSS RFI;

f) note the current, ongoing ATM Contingency events in the APAC region;

g) note the technical Conclusions:

- ***Conclusion ATM/SG/12-4: Amendment to the Asia/Pacific Regional Plan for Collaborative AIM;***
- ***Conclusion ATM/SG/12-5: Revised Guidance on the Issuance of SNOWTAM;***
- ***Conclusion ATM/SG/12-6: Proposal for annual Submission of changes to Asia/Pacific Search and Rescue (SAR) Plan;***

h) note the Decisions:

- ***Decision ATM/SG/12-7: Dissolution of the Space Vehicle Launch and Re-entry Coordination Small Working Group (SVLRC SWG);***
- ***Decision ATM/SG/12-8: Establish Procedures for GNSS and Data Link Disruption Ad Hoc Group***; and

i) discuss any relevant matters, as appropriate.

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<table>
<tr><td colspan="3">Conclusion APANPIRG/35-X: Regional Guidance for Space Object Launch and Re-Entry Coordination</td></tr>
<tr><td colspan="2">What: That,<br>1) the Asia/Pacific Regional Guidance for Space Object Launch and Re-Entry Activities at appended as Appendix X to the Report on Agenda Item 3.2:<br>a. be uploaded to the Asia/Pacific Regional Office website, to replace the existing Asia/Pacific Planning Checklist for Ballistic Launch and Space Re-entry;<br>b. be referenced in the Asia/Pacific Seamless ANS Plan; and<br><br>2) the related ballistic launch and space re-entry guidance and performance expectations in the Asia/Pacific Seamless ANS Plan be updated accordingly.</td><td>Expected impact:<br>☐ Political / Global<br>☒ Inter-regional<br>☐ Economic<br>☐ Environmental<br>☒ Ops/Technical</td></tr>
<tr><td>Why: To revise guidance to APAC States/Administration to outline consistent and repeatable coordination procedures to achieve timely and efficient collection and dissemination of space object launch and re-entry information that will assist with avoiding hazards to civil aircraft and minimise interference with the normal operation of such aircraft</td><td colspan="2">Follow-up: ☒Required from States</td></tr>
<tr><td>When: 27-Nov-24</td><td colspan="2">Status: Draft to be adopted by PIRG</td></tr>
<tr><td colspan="3">Who: ☒Sub groups ☒APAC States ☒ICAO APAC RO ☐ICAO HQ ☐Other:</td></tr>
</table>

<table>
<tr><td colspan="3">Conclusion APANPIRG/35-X: Agree on the adoption of FIXM Ver. 4.3.0 in Asia/Pacific Region as the standard format</td></tr>
<tr><td colspan="2">What: That, from Q3 2026 FIXM ver. 4.3.0 would be adopted to support information exchange for:<br>1) FF-ICE/R1 services implementation;<br>2) Cross-border ATFM operations</td><td>Expected impact:<br>☐ Political / Global<br>☒ Inter-regional<br>☐ Economic<br>☐ Environmental<br>☒ Ops/Technical</td></tr>
<tr><td>Why: To support the FF-ICE/R1 requirements to establish a common FIXM version for cross-border information exchange in the Asia/Pacific region</td><td colspan="2">Follow-up: ☒Required from States</td></tr>
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— END —

**INTERNATIONAL CIVIL AVIATION ORGANIZATION**

# ASIA/PACIFIC REGIONAL GUIDANCE

# FOR

# SPACE OBJECT LAUNCH AND RE-ENTRY ACTIVITIES COORDINATION

Version 1.0, September 2024

Approved by ATM/SG/12 and published by the
ICAO Asia and Pacific Office, Bangkok

# Contents

## 1: SCOPE OF THE PLAN

This guidance document was created by the Space Vehicle Launch and Re-entry Coordination Small Working Group (SVLRC SWG) formed through a decision of the 10th Meeting of the Air Traffic Management Sub-Group of APANPIRG in October 2022. The document builds upon and replaces the regional guidance provided in the Asia/Pacific Seamless ANS Plan Version 3.0, and in the Asia/Pacific Planning Checklist for Ballistic Launch and Space Re-Entry, approved by the 29th APANPIRG and is in keeping with the provisions of UN Resolution 2222 (XXI) as amended.

Participants of the SWG consisted of representatives from Australia, China, Hong Kong China, India, Japan, New Zealand, Papua New Guinea, Republic of Korea, Singapore, Sri Lanka, Thailand, the United States, Viet Nam, and IATA.

This guidance applies to all forms of space object launch and re-entry activities (hereinafter referred to as activities), and includes commercial, State, ballistic launch, or any other space object activities that can pose a hazard to civil aviation.

The goal of this guidance is to achieve timely and efficient collection, coordination and dissemination of space object launch and re-entry information that will assist with avoiding hazards to civil aircraft and minimize interference with the normal operation of such aircraft.

This guidance should be harmonized with other ICAO regions who are working on similar efforts so that there is consistency across the globe on how space object launch and re-entry activities are coordinated and disseminated.

While space object launch and re-entry activities have existed for decades within the region, not all States and/or stakeholders are equally affected. The collection, coordination and dissemination of space object launch and re-entry activity information mainly include the following stakeholders:

- Launching State
- Launching State Appropriate ATS Authority
- Affected Appropriate ATS Authority
- Launch and Re-entry Operator
- Airspace user

To facilitate timely and orderly information dissemination, all APAC States are encouraged to identify and provide contact information for space object launch and re-entry activity coordination. These will be added to the regional Asia/Pacific Space Object Launch and Re-Entry Points of Contact list, maintained by the ATM/SG Secretariat.

1.1 Launching State Appropriate ATS Authorities should make efforts to collaborate with affected appropriate ATS authorities, operators, and other affected stakeholders to minimise potential impacts to the airspace system.

1.2 Generally, space object launch and re-entry activities take place from pre-defined locations, including States facilities or private spaceports. Launch locations should be positioned with consideration for minimal disruption to the safety and efficiency of airspace system.

The procedures below are intended to improve regional coordination efforts by complementing well-established and proven processes compliant with ICAO Annex 11 (Air Traffic Services), Doc 10088

(Manual on Civil-Military Cooperation in Air Traffic Management), Doc 9554 (Manual Concerning Safety Measures Relating to Military Activities Potentially Hazardous to Civil Aircraft Operations), and replacing existing ICAO APAC regional guidance. States conducting space object launch and re-entry activities, or managing airspace affected by said activities are encouraged to create, test, and refine practices and procedures that fit their needs. The ***State*** is responsible for coordination of activities potentially hazardous to civil aircraft, regardless of whether they're conducted by its space launch agencies, its military, or any other organization.

States defining consistent coordination procedures allows sufficient time for airspace managers to assess the operational impact and airspace users to plan around hazardous activity. States routinely conducting space object launch and re-entry activities and States managing affected airspace, are encouraged to dedicate adequate resources to this planning and coordination effort to assure the continued safe operation of all airspace users.

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## 2: DEFINITIONS, ABBREVIATIONS AND ACRONYMS

### 2.1 DEFINITIONS

***Affected Appropriate ATS Authority*** – the relevant authority responsible for providing air traffic services in the airspace affected by space object launch and re-entry activities conducted by the Launching State.

***Airspace user*** – Organisations or individuals operating flights using aircraft and/or vehicles in the airspace.

***Air traffic services unit.*** A generic term meaning variously, air traffic control unit, flight information centre or air traffic services reporting office.

***Appropriate ATS authority –*** the relevant authority designated by the State who is responsible for providing air traffic services in the airspace concerned. This is commonly referred to as the Air Navigation Service Provider or Air Traffic Services Provider.

***Launch State*** – a State which launches or procures the launching of a space object or a State from whose territory or facility a space object is launched. This includes any space object launch and re-entry activities.

***Launch Window*** – the span of time during which a launch or re-entry may take place while satisfying the constraints imposed by safety and mission objectives.

***NOTAM*** – A notice distributed by means of telecommunication containing information concerning the establishment, condition or change in any aeronautical facility, service, procedure or hazard, the timely knowledge of which is essential to personnel concerned with flight operations.

***Launch and Re-entry Operator*** – an entity who conducts or will conduct the launch and/or re-entry of a space object and any payload.

***Space object*** – includes component parts of a space object as well as its launch vehicle and parts thereof.

*NOTE: The definitions listed above are to aid readers in understanding and applying the principles outlined in this document. They may not be universally agreed upon outside of the APANPIRG.*

### 2.2 ACRONYMS AND ABBREVIATIONS

| | |
|---|---|
| AFTN | Aeronautical Fixed Telecommunication Network |
| AIS | Aeronautical Information Service |
| AMHS | ATS Message Handling System |
| ATC | Air Traffic Control |
| ATS | Air Traffic Service |
| ATSU | Air Traffic Service Unit |
| FIR | Flight Information Region |
| NOF | International NOTAM Office |
| POC | Point of Contact |

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## 3: PROCEDURES FOR COORDINATING SPACE OBJECT LAUNCH AND RE-ENTRY ACTIVITIES

3.1 This section provides an overview of the general responsibilities of the Launching State, Launching State Appropriate ATS authority, Affected Appropriate ATS authority, Operator and Airspace User. All entities must coordinate to ensure the safe and efficient integration of activities into airspace systems. It is important to consider the responsibilities of each organization within their States.

### 3.1.1 Launching State

- Regulates space object launch and re-entry activities.
- Develops and enacts regulations ensuring that the space object launch and re-entry operator and the Launching State appropriate ATS Authority comply with the requirements in ICAO Annexe 11 for the coordination of activities potentially hazardous to civil aircraft.
- Identifies the appropriate ATS authority responsible for coordination of space activities, including identifying the proper entity to initiate NOTAM request for space object launch and re-entry activities within the FIR/s assigned to the launching State in accordance to Annex 15, Section 2.1.
- Validates the launch window and the coordinates of the extent of the airspace affected by the space object launch and re-entry activities.

  *Note: There are various responsible authorities within individual Launching States as far as space object coordination activities.*

### 3.1.2 Launching State Appropriate ATS Authority

- Serve as the focal point for collecting, coordinating, and disseminating all available information relevant to space object launch or re-entry activities to affected appropriate ATS authorities and/or other affected stakeholders.
- Identify and assess potential impacts or constraints to airspace where the State is responsible for the provision of air traffic services, to ensure the compliance of the requirements in ICAO Annex 11, Section 2.19.

  *Note: This includes the determination for the need to establish any special use airspace (SUA), airspace restrictions or temporary withdrawal of established ATS routes to avoid hazards to civil aircraft and inform affected ATSU accordingly.*
- Plot area using validated coordinates and provide a graphical representation of the polygon to affected appropriate ATS authorities for reference.
- Ensure the safe and efficient integration of space object launch and re-entry activities into the airspace system.

### 3.1.3 Affected Appropriate ATS Authority

- Receive and coordinate information relevant to space object launch or re-entry activities from launching state appropriate ATS authorities with other affected stakeholders.

- Identify and assess potential impacts or constraints to airspace where the State is responsible for the provision of air traffic services, to ensure the compliance of the requirements in ICAO Annex 11, Section 2.19.

  *Note: This includes the determination for the need to establish any special use airspace (SUA), airspace restrictions or temporary withdrawal of established ATS routes to avoid hazards to civil aircraft and inform affected ATSU accordingly.*

- Plot Hazard/Danger Area

- Ensure the issuance and update of any NOTAM promulgating information on the activity.

- Ensure the safe and efficient integration of space object launch and re-entry activities into the airspace system.

3.1.4 **Operator**

- Provide tentative launch window commencement time and duration (primary and, if any, backup timing and dates), and extent of airspace affected (latitude/longitude coordinates), and any other necessary supporting information to the Launching State Appropriate ATS Authority.

  *Note: Once the Launching State approves an operation, the operator works with the Appropriate ATS Authority to determine the necessary steps for coordination of airspace and operations.*

3.1.5 **Airspace User**

- Undertake safety risk assessments in accordance with standard operating procedures;

- Comply with promulgated airspace and ATS restrictions.

## 3.2 PRE-LAUNCH PLANNING AND COORDINATION

3.2.1 Operational coordination to the Appropriate ATS Authority of affected airspace should be accomplished using Aeronautical Fixed Telecommunication Network (AFTN) or ATS Message Handling System (AMHS), while supplemental material should be provided via email. Ideally a conference call or some other form of positive coordination should also be accomplished by the Appropriate ATS Authority responsible for the airspace over the State where the activity planning organization is located. States should provide group mailboxes for operational coordination.

*Note: This may include a list for advanced planning, including additional POCs for situational awareness, and one for tactical event updates, such as removal once an activity is complete to reopen the airspace. Ideally, each State has a single group email box forwarding information internally to appropriate parties.*

3.2.2 The Launching State Appropriate ATS Authority responsible for coordinating space object launch and re-entry activity should begin coordinating with affected appropriate ATS authorities at **least 10 days (ideally 14 days)** prior to the proposed activity. The following information should be included in the coordination:

- Tentative launch window commencement time and duration (primary and, if any, backup timing and dates).

- Activity time of day and extent of airspace affected (latitude/longitude coordinates).

*Note: In cases where extent of airspace affected crosses multiple FIRs, individual requests should be developed and sent to each impacted FIR. The appropriate ATS authority developing requests should ensure there are shared points for airspace affected spanning across multiple FIRs to ensure safety.*

- Identification of POC in the Affected Appropriate ATS Authority.

- Any other necessary supporting information

3.2.3 The Appropriate ATS authority for affected airspace should ensure planning and notification are in place for all stages of the activity to include any re-entry/debris possibility, and in accordance with ICAO Doc 10066. Publication of the NOTAM for all affected FIRs will be completed at least seven days in advance and include the following items of information:

- Activity window duration

- Activity time of day and extent of proposed danger or restricted area (latitude/longitude coordinates)

*Note: For ease of implementation, each danger area should be plotted with the minimum number of coordinates to present a polygon (please refer to PANS AIM for exacts on how the danger area is formulated). Publication of the danger area coordinates is crucial to ensure the safety of air traffic, especially in the event of an emergency. It is therefore vital for ATC and flight crew to have precise awareness of danger areas while managing any inflight contingencies.*

- Any other necessary supporting information, such as affected airways, alternate routings, direct routings, etc. (please see attachment A)

## 3.3 TACTICAL LAUNCH COORDINATION

3.3.1 Launching State Appropriate ATS authority should provide notice of **three days** prior to the requested launch window via AMHS/AFTN to all affected appropriate ATS authorities.

3.3.2 Positive coordination between affected Appropriate ATS authority and Launching State Appropriate ATS authority should be executed to confirm and manage the requested dates of the activity **within three days, but not less than 24 hours**, of the proposed start. The definitive information should be shared externally to ensure maximum efficiency of affected airspace.

3.3.3 After confirming coordination via AMHS/AFTN, the affected Appropriate ATS authority should publish a NOTAM for the **launch "Window" with three days' notice**, **but not less than 24 hours.**

*Note: NOTAM are published by the NOF serving the affected FIR in response to the request/direction of the appropriate ATS authority for that FIR.*

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## 4: RE-ESTABLISHING NORMAL AIRSPACE OPERATIONS FOLLOWING THE END OF ACTIVITIES

4.1 When confirmation from the operator of the end of activities potentially hazardous to civil aircraft occurs prior to the end of the coordinated launch window, the Launching State Appropriate ATS Authority should notify affected appropriate ATS authorities to enable timely cessation of mitigations and withdrawal of NOTAMs for all affected FIRs. Otherwise, the NOTAMs will expire as published.

4.2 Cancellations of launch activities at any point of time needs to be disseminated by the Launching State Appropriate ATS Authority as soon as possible to all affected FIRs.

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## 5: POST-LAUNCH ASSESSMENT

5.1 It is recommended for the Launching State to designate the Appropriate ATS Authority to conduct a post-activity assessment which helps in improving the maturity of launch-related airspace management processes. It is recommended that the affected State and the affected appropriate ATS authority conduct a similar assessment. All stakeholders may provide comments to improve future activities. POCs may exchange suggestions on improving coordination and reducing impacts on civil air traffic flow.

5.2 States should share lessons learned and proposed revisions to this regional guidance with APANPIRG, through its ATM Sub-Group.

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## APPENDIX A: Space Object CHECKLIST

- Launch required by:
- Proposed Temporary Danger Area:
- Proposed Launch Window, including backup dates:
- Date: DD/MM/YYYY to DD/MM/YYYY Time: XX:XX to YY:YY UTC
- Proposed Definitive launch window:
- Date: DD/MM/YYYY to DD/MM/YYYY Time: XX:XX to YY:YY UTC
- Expected exact date of launch: DD/MM/YYYY

| *Affected FIR* | *Affected AWYs* | *Affected Flights in requested Time window* | *Option 1: Suggested revised time and date* | *Option 1: Affected flights in revised time and date* | *Option 2: Suggested revised time and date* | *Option 2: Affected flights in revised time and date* |
|---|---|---|---|---|---|---|
| | | | | | | |
| | | | | | | |

1. With this information, airspace managers and other State authorities are expected to assess the impact of the proposed launch or re-entry details and determine if the activities can be conducted safely. This assessment includes airspace and airways affected as well as expected traffic density during the event. Potential mitigations include rerouting of traffic around the danger area or delay of traffic to avoid the event window.

2. If adequate mitigations are available, the airspace manager, State, or designated competent authority should reply to the requester noting support. However, if adequate mitigations are not available, timely feedback to the requestor clarifying the issue and potential solutions is required. Note space missions require specific timing to meet orbital requirements. Options for modification may be limited. If needed, establishing a planning call to address concerns or clarify mission parameters is highly effective.

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## APPENDIX B: LIST OF REFERENCES

- Doc 10088 – Manual on Civil-Military Cooperation in Air Traffic Management
- Doc 9554 – Manual Concerning Safety Measures Relating to Military Activities Potentially Hazardous to Civil Aircraft Operations
- Asia/Pacific Seamless ANS Plan V3.0
- Doc 10066 Procedures for Air Navigation Services Aeronautical Information Management (PANS AIM)
- Asia/Pacific Regional Air Navigation Plan
- Doc 9750 Global Air Navigation Plan
- Doc 9854 Global Air Traffic Management Operational Concept
- Doc 10004 Global Aviation Safety Plan
- Annex 11 Air Traffic Services
- Annex 15 Aeronautical Information Services
- Doc 4444 Procedures for Air Navigation Services Air Traffic Management (PANS ATM)
- FAA Joint Order 7400.2P – Procedures for Handling Airspace Matters
- Basics of Space Flight Section III. Space Flight Operations (nasa.gov)

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