

International Civil Aviation Organization

Twelfth Meeting of the Air Traffic Management Sub-Group (ATM/SG/12) of APANPIRG

Bangkok, Thailand, 23 – 27 September 2024

Agenda Item 5: ATM Systems (Modernization, Seamless ATM, CNS, ATFM)

AIR TRAFFIC FLOW MANAGEMENT STEERING GROUP OUTCOMES

(Presented by the Secretariat/ Chair of ATFM/SG)

SUMMARY

This paper presents the outcomes of the Fourteenth Meeting of the Air Traffic Flow Management Steering Group (ATFM/SG/14). The paper also presents subsequent updates on the work of ATFM/IR/SWG and sub-regional cross border ATFM programs.

1. INTRODUCTION

- 1.1 The Meteorology/Air Traffic Management (MET/ATM) Seminar and Fourteenth Meeting of Air Traffic Flow Management Steering Group (ATFM/SG/14) were held in Bangkok, Thailand from 22 to 26 April 2024. The meeting included a joint plenary session with the 13th Meeting of Meteorological Requirements Working Group (MET R/WG/13).
- 1.2 There were 18 working papers, six information papers, and one flimsy considered by the meeting. The meeting papers, presentation and report are available on the ATFM/SG/14 meeting webpage: https://www.icao.int/APAC/Meetings/Pages/2024-ATFM-SG-13.aspx.
- 1.3 The meeting agreed to the following draft Conclusion:

Draft Conclusion ATFM/SG/14-1: Asia/Pacific Regional FIXM 4.3: The FIXM Core 4.3.0 released by FIXM CCB be adopted as an agreed-upon version (referred to as "FIXM 4.3" in Asia/Pacific region) from Q3 2026 to support information exchange between cross-border operational ATFM systems in SWIM environment.

2. DISCUSSION

Outcome of the Plenary Session with MET/R WG/13

Survey of State Meteorological Information Supporting Air Traffic Management (Ad-hoc Group)

- 2.1 The meeting reviewed progress on the designated ad-hoc group's report of the 2021 survey of current and future MET information services provided by States to support ATM and ATFM.
- 2.2 The ad-hoc group recommended that the survey report should be finalised and published (along with the survey data) to share the outcomes with Member States and in relevant ATM and Airspace Forums.

- 2.3 Based on the ad-hoc group's recommendation, the meeting agreed that subject to final editorial and formatting improvements by the Secretariat, the survey report can be published on the ICAO APAC website and made available for States and stakeholders.
- 2.4 The meeting agreed to continue the work of the Ad-hoc group with the survey repeated every three years at the beginning of ASBU Blocks. The next expected survey is planned in 2025. The survey result will be cross-referenced with annual ATFM Implementation Status Report States/Administration were expected to submit by February 2025. The cross-referencing should assist in identifying gaps between the need and development of MET services supporting ATM operations, more specifically ATFM operations.

APAC Use Cases and User Requirements for SWIM Based MET Information Services Supporting ATFM (Ad-hoc Group)

- 2.5 The meeting reviewed progress on the designated ad-hoc group's draft reference document of use cases and user requirements for SWIM-based MET information services supporting ATM (in particular ATFM) in the APAC region.
- After reviews of the draft reference document by MET SG/27 and ATM/SG/11, the adhoc group proposed an additional "USE CASE 5: Use of Quantitative Volcanic Ash Concentration Information in Trajectory-based Operation" to be included in the document, along with editorial changes.
- 2.7 The ad-hoc group recommended the document be a living reference under regular review by the ad-hoc group, and the collection of use cases could be expanded and improved based on known events. The reference document is expected to assist in developing appropriate MET information services and the associated SWIM-enabled MET applications to meet the operational needs of ATFM in the APAC Region.
- 2.8 The meeting requested the ad-hoc group to present a paper to the upcoming MET/SG and ATM/SG meetings with proposals to publish the draft reference document on the ICAO website and include a procedure for updating the document as a living document.

MET Information Needed to Support the Elements of the APAC Seamless ANS Plan (Adhoc Group)

- 2.9 The meeting reviewed progress on the designated ad-hoc group's identification of the MET requirements to support the elements of the APAC Seamless ANS Plan, including the ad-hoc group's mapping document, which maps APAC Seamless ANS Plan Priority 1 Elements to the GANP's ASBU AMET elements.
- 2.10 The ad-hoc group proposed integrating its mapping document (mentioned above) into appropriate existing regional guidance material and conducting a similar activity to map the APAC Seamless ANS Plan Priority 2 Elements to the GANP's ASBU AMET elements.
- 2.11 The meeting considered the above mapping document's value as a companion to the Seamless ANS Plan, as an appendix, and requested the Secretariat to publish the document accordingly.
- 2.12 The meeting noted that, under the MET/R WG work plan, the ad-hoc group would continue to review and propose future updates to the mapping document based on future updates of the Seamless ANS Plan and to map the APAC Seamless ANS Plan Priority 2 Elements to the GANP's ASBU AMET elements.

ATFM Global Update Presentation on ATFM Global Development

- 2.13 Mr. Elie El Khoury, Regional Coordinator from Air Navigation Bureau, ICAO HQ presented on the topic of "ATFM Global Development" to provide details on upcoming ATFM provisions and ICAO provisions in global manner.
- 2.14 The ICAO Long Term Global Aspirational Goal (LTAG) for international aviation steered the ICAO provisions including the ATFM provisions for more efficient conduct of air traffic to meet the goal of NET-ZERO 2050.
- 2.15 The meeting was updated with the new ATFM provisions made upon the new standards proposed in Annex 11 including the determination and declaration ATC capacity in the form of Strategic Capacity and Operational Capacity as well as Coordination and communication between ATFM units
- 2.16 The new recommendation in Annex 11 regarding ATFM should be implemented on the basis of multilateral agreements and where possible as a centralized ATFM organization was presented.
- 2.17 Consequent to the amendments to Annex 11, ATFM related procedures in PANS-ATM (Doc 4444) would be amended. The Manual on Collaborative ATFM (Doc 9971) would also be reviewed, including a potential addition of Part 4: Operational Handbook. These revisions were being developed by the ICAO ATM Operations Panel (ATMOPSP).
- 2.18 The presentation was concluded with the emphasis on objectives to achieve ATFM network for global collaboration and urged the meeting to collaborate more with MID or even EUR region for the development of inter-regional ATFM. It was highlighted that ATFM should be implemented to support the orderly flow of traffic, ensuring efficiency. Hence, ATFM measures should be imposed as a last resort to regulate traffic.

Regional ATFM Implementation Status

- 2.19 ICAO provided a summary of the ATFM implementation status of APAC Administrations, reported against the performance objectives of the Regional Framework for Collaborative ATFM.
- 2.20 Annual implementation status reports for 2024 were received from 27 APAC Administrations: Australia, Bangladesh, Bhutan, Cambodia, China, Hong Kong China, Macao China, Fiji, France French Polynesia, India, Indonesia, Japan, Malaysia, Maldives, Mongolia, Myanmar, Nepal, New Caledonia, New Zealand, Pakistan, Philippines, Republic of Korea, Singapore, Sri Lanka, Thailand, United States and Viet Nam.
- 2.21 Based on reports received States were assessed as having Robust (90-100%), Marginal (70-89%) or Incomplete (0-69%) implementation.
- 2.22 Australia, China, Hong Kong China, Japan, Republic of Korea, Singapore, Thailand and USA were assessed as having Robust implementation.
- 2.23 The following APAC States had never provided an implementation status report: Afghanistan, Brunei Darussalam, Cook Islands, DPR Korea, Kiribati, Lao PDR, Marshall Islands, Micronesia, Nauru, Palau, Papua New Guinea, Samoa, Solomon Islands, Timor Leste, Tonga, Tuvalu and Vanuatu.
- 2.24 **Table 1** summarized the updated Asia/Pacific Region ATFM Implementation Status as of 28 February 2024

 Table 1: Asia/Pacific Region ATFM Implementation Status (excluding Phase III)

	% of Implementation			
Administration (Tier)	2022	2023	2024	Implementation Status
Afghanistan (B)	no report	no report	no report	Did Not Report
Australia (A)	no report	no report	98	Robust
Bangladesh (B)	13	no report	6	Incomplete
Bhutan (A)	no report	21	21	Incomplete
Brunei Darussalam (B)	no report	no report	no report	Did Not Report
Cambodia (A)	82	95	89	Marginal
China (A)	no report	97	99	Robust
Hong Kong, China (A)	89	95	95	Robust
Macao, China (B)	no report	39	47	Incomplete
Cook Islands (B)	no report	no report	no report	Did Not Report
Fiji (B)	no report	0	16	Incomplete
France (French Polynesia) (B)	no report	40	40	Incomplete
DPR Korea (B)	no report	no report	no report	Did Not Report
India (A)	84	85	88	Marginal
Indonesia (A)	63	54	57	Incomplete
Japan (A)	no report	91	93	Robust
Kiribati (B)	no report	no report	no report	Did Not Report
Lao PDR (A)	no report	no report	no report	Did Not Report
Malaysia (A)	no report	36	37	Incomplete
Maldives (B)	no report	no report	20	Incomplete
Marshall Islands (B)	no report	no report	no report	Did Not Report
Micronesia (B)	no report	no report	no report	Did Not Report
Mongolia (A)	40	28	28	Incomplete
Myanmar (B)	no report	no report	30	Incomplete

Administration (Tier)	% of Implementation			Implementation Status
Aummstration (Tiet)	2022	2023	2024	implementation status
Nauru (B)	no report	no report	no report	Did Not Report
Nepal (B)	no report	no report	39	Incomplete
New Caledonia (B)	no report	no report	43	Incomplete
New Zealand (A)	67	78	78	Marginal
Pakistan (B)	80	59	65	Incomplete
Palau (B)	no report	no report	no report	Did Not Report
Papua New Guinea (A)	no report	no report	no report	Did Not Report
Philippines (A)	no report	59	64	Incomplete
Republic of Korea (A)	87	93	97	Robust
Samoa (B)	no report	no report	no report	Did Not Report
Singapore (A)	97	99	99	Robust
Solomon Islands (B)	no report	no report	no report	Did Not Report
Sri Lanka (B)	no report	no report	25	Incomplete
Timor Leste (B)	no report	no report	no report	Did Not Report
Tonga (B)	no report	no report	no report	Did Not Report
Thailand (A)	90	91	91	Robust
Tuvalu (B)	no report	no report	no report	Did Not Report
United States (A)	no report	96	96	Robust
Vanuatu (B)	no report	no report	no report	Did Not Report
Viet Nam (A)	34	71	71	Marginal

^{2.25} The Regional ATFM Monitoring and Reporting Form was available on the ICAO Asia/Pacific Regional Office eDocuments (ATM) webpage at: https://www.icao.int/APAC/Pages/eDocs.aspx

^{2.26} Administrations that had not yet submitted reports were requested to submit their ATFM implementation status using the Regional ATFM Monitoring and Reporting Form, to the ICAO APAC office for inclusion in the final report of the meeting.

Optimising Air Traffic Flow over the Bay of Bengal

- 2.27 The meeting was provided with route capacity constraints in Bay of Bengal towards Europe and the proposal to collaborate on developing ATFM solutions to improve predictability as well as optimize traffic regulation in the region.
- 2.28 The meeting was presented with the knock-on effect on the for ANSPs to apply extended spacing on routes through the Bay of Bengal area due to the constraint in overflying Kabul FIR and Ukraine resulting in severe reduction in capacity. (**Figure 1**).

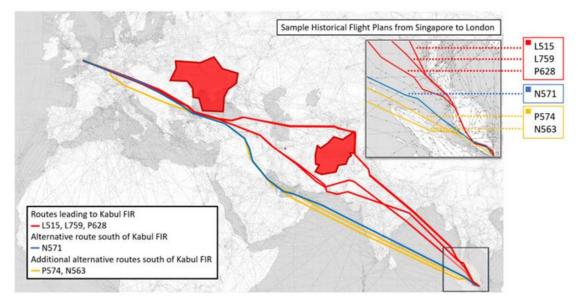


Figure 1: ATS routes utilization to avoid Kabul and Ukraine

2.29 Despite the availability of alternate routes such as P574 and N563 majority of operators opted for delays on ground for N571 due to cost consideration of longer flying time and extra fuel burn. The meeting was informed that Singapore had been monitoring the westbound European departures by monthly delay statistics and the percentage of delay attributed to en-route separation. (**Figure 2**)

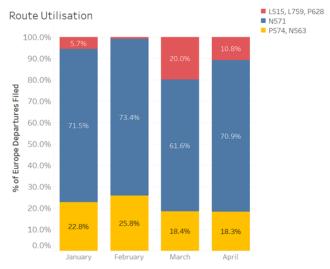


Figure 2: Chart illustrating high utilization of ATS route N571

2.30 Efforts have been made to enhance capacity on ATS routes over the Bay of Bengal, including new designs for directional routes and the implementation of 50NM separation for suitably

equipped aircraft with RNP10 approval under the series of steps within the ICAO Bay of Bengal Traffic Flow Review Group. However, airlines are still reporting the need for increased capacity and reduced waiting times. Despite these efforts and plans to further reduce the longitudinal separation minima to 30NM between PBCS capable aircraft, the burgeoning traffic growth may outpace capacity enhancements, necessitating ATFM collaboration in unexpected capacity reduction situations.

- 2.31 IATA informed the meeting about the progress made on this matter in the recently concluded SAIOSEACG/3 meeting and shared a tentative timeline of activities to be carried out by concerned States. The chair reminded the meeting that the first principle of meeting the demand is to optimize and increase airspace capacity.
- IATA informed the meeting on efforts towards reducing horizontal separation and PBCS trials in Bay of Bengal. Malaysia shared the information about the immediate steps such as update of LOA between Malaysia and India, application of (50NM and 30 NM) horizontal separation without CPDLC and PBCS trials. India provided supplemental information on the same. Chair proposed that the States' concerned and IATA work together to submit a working paper on the subject in the ATM/SG/12 meeting in September mentioning the extent of possible ATFM delay due to nonapplication of reduced horizontal separation. ICAO also reminded the meeting about the coming amendment in PANS-ATM regarding global mandate campaign for 30/10 NM separation standards. expected to be launched during ICAO Air Navigation Conference (AN-Conf/14) with expectations for States/Administration to implement 10NM spacing or closer at FIR boundaries with full ATS surveillance and VHF communications, and 30NM spacing or closer at FIR boundaries without VHF communications.
- 2.33 The meeting was encouraged to consider incorporating the scope of work of this paper into its work programme for relevant States/ Administrations and stakeholders to develop a viable collaborative solution for the Bay of Bengal.

BOBCAT Operational Updates

- 2.34 The meeting was provided with an operational update on the Bay of Bengal Cooperative ATFM (BOBCAT) system, normally used for night-time westbound flights through the Kabul FIR.
- 2.35 The BOBCAT ATFM service remained suspended. The system continued to be maintained by Thailand, and the service could be resumed when traffic demand over the Kabul FIR once again exceeded the airspace's capacity.
- 2.36 In order to resume the service, several important preparatory actions including preactivation maintenance of the BOBCAT system, training or re-training for related personnel, adjustment to the ATFM Unit's manpower and the publication of AIP/AIP Supplement would be needed. The lead time for the resumption of BOBCAT service was estimated to be three to four months to complete all the preparatory actions required.

<u>Progress Update from Asia/Pacific Cross-Border Multi-Nodal ATFM Collaboration</u> (AMNAC)

- 2.37 The meeting was provided with the progress update of the Asia-Pacific Cross-Border Multi-Nodal ATFM Collaboration (AMNAC), a collaborative effort by Air Navigation Service Providers (ANSPs) from States/Administrations in the Asia/Pacific region to implement cross-border ATFM.
- 2.38 The AMNAC expanded the network to welcome Republic of Korea (ROK) as a Level-3 Member starting 1 January 2024 and to include India in the ATFM Daily Plan (ADP) Exchange to chart the path toward the implementation of cross-border ATFM capability in India.

- 2.39 Core Team had developed a network post-operations analysis portal to track the impact of and compliance with Ground Delay Programmes (GDPs) activated over time as part of the AMNAC initiative. The aim of the portal was to identify problem areas to be addressed quantitatively. The data was shared with the meeting.
- 2.40 The meeting noted the large amount of ATFM delay in accumulative manner of 5 years and suggested that such data to be presented in yearly format in future report for more detailed comparison. Chair suggested that, while GDP should be implemented in order to ensure orderly management of disruptions reducing capacity below demand, Post-Operations Analysis should be conducted to explore reasons behind implementation of GDP with the goal to reduce ATFM delay impact over time.
- 2.41 The meeting was informed of analysis from the AMNAC/20 and AMNAC/21 meetings regarding the possible causes for CTOT non-compliance, including Out-of-Date Points of Contact information, late delivery of CTOTs, late flight plan submission/ distribution and lack of awareness or ATFM/SG/14 Report on Agenda Items 12 local procedure to facilitate compliance. The corresponding rectifications were presented.
- 2.42 The meeting was informed of the current APAC Bi-Weekly ATFM Web Conference procedure, which requires States to submit ATM/ATFM Status Update through a Google Form prior to each round of the web conference conducted every alternate Thursday at 0800 UTC.
- 2.43 The meeting was also informed of the plan to trial a new consolidated platform for ATM/ATFM Status Update submission and APAC Bi-Weekly ATFM Web Conference, in order to address challenges faced by several States with respect to the use of Google Forms. The detail about this trial was discussed in ATFM/SG/14/WP/11.
- 2.44 The meeting was informed of the operational trial between China, Hong Kong China and the Republic of Korea would be conducted based on the One CTOT Solution to tackle the issue of conflicting ATFM measures along the Southeast Asia Northeast Asia traffic flow.

Further Update after ATFM/SG/14 provided by Chair of ATFM/SG

- 2.45 Following APAC Bi-Weekly ATFM Web Conference trial using Microsoft Teams platform between May July 2024, participants of the ATFM Web Conference agreed to permanently move the APAC Bi-Weekly ATFM Web Conference on Microsoft Teams starting on 1 Aug 2024. The APAC ATFM Web Conference is held every two weeks at 0800UTC.
- 2.46 Hosting of the bi-weekly web conference are currently on rotation basis among Bangkok ATFMU, Hong Kong ATFMU and Singapore ATFMU. The APAC ATFM Web Conference discussed expected demand-capacity imbalance events including runway maintenance, expected large scale weather situation along with planned ATFM solution & ATFM measures. Updates provided between APAC ATFM Web Conferences by APAC States/Administrations are presented by representatives from ATFM service providers.
- 2.47 Since transition to Microsoft Teams, the web conference was participated by representatives from twelve (12) APAC States/Administrations, namely China, Hong Kong China, Indonesia, Japan, Malaysia, Myanmar, the Philippines, Republic of Korea, Singapore, Thailand, United States and Viet Nam, as well as airspace users via IATA. Apart from active participation in the web conferences, ATFM Updates were also provided by Cambodia and India since January 2024.

Common CDM Platform to Facilitate APAC Bi-Weekly ATFM Web Conference and ATFM Operations

- 2.48 The meeting was provided with the information regarding the APAC Bi-Weekly ATFM Web Conference which served as a platform to enable regular updates by ANSPs on ATM resource status, traffic demand and expected ATFM measures.
- 2.49 The AMNAC Core Team shared the difficulties and limitation encountered under current environment and decided to move forward to establish an integrated collaboration platform which enable the conduct of harmonized web conference, provide a common information repository, scalable capacity and functionalities, and provide a common CDM Platform.
- 2.50 The meeting noted the changes in the platform to support APAC Bi-Weekly ATFM Web Conference process and collaboration among AMNAC members. The meeting discussed on participation of airspace user in the trials and possibility of exploring other platforms such as CADENCE OIS for information repository. Necessity of common rules of engagement and clearly defined roles of stakeholders during collaboration process was highlighted.

NARAHG Update

- 2.51 The paper presented by China, Japan, and Republic of Korea, provided updates regarding the collaboration process of North Asia Regional ATFM Harmonization Group (NARAHG).
- 2.52 The meeting was informed about the data connection trails between China and Japan and shared the plans to shift the trials on CRV platform. It was noted that all cross-border traffic management data from China and Japan will be transmitted through the CRV network by June 2024. NARAHG will start CTO based ATFM measure trials after successful completion of data sharing. The paper also informed that from April 8th to 29th 2024, a new CDN trial will be started between Shanghai ATCC and Daegu ATCC for functional verification of CRACP new version.
- 2.53 The meeting noted the developments being made by the NARAHG members in real time collaboration. It was suggested to provide more visibility to the causes of ATFM measures for the benefit of airspace users.
- 2.54 The paper discussed the challenges of using CTO in cross border ATFM and considerations of compliance window. NARAHG will continue to optimize the CTO based ATFM procedure through trial operations and invited ICAO ATFM/SG meeting, Asia-Pacific States and Administrations to provide opinions and suggestions.

Common Flight Information Exchange Model (FIXM) Version for Asia/Pacific Cross Border Operational ATFM System-to-System Data Exchange in System Wide Information Management (SWIM)

- 2.55 This paper presented by Hong Kong China, Singapore and Thailand, highlighted the necessity to agree on the FIXM version for the implementation of operational ATFM system in Asia/Pacific region.
- 2.56 Asia/Pacific Regional Framework for Collaborative ATFM was based on a network of ATFM Nodes responsible for demand-capacity balancing within their area of responsibility while being connected to the network's information exchange infrastructure. The ATFM operations in each node would be based on regionally agreed principles and high-level operating procedures, with local adaptations as necessary.

- 2.57 It was informed the meeting that current ATFM-on-SWIM trial in APAC region was using the FIXM version v4.1 with APAC extension whereas the FIXM version v4.2 with APAC extension had been adopted by APANPIRG/34 in December 2023 as the recommended version. Globally, the FIXM Core v4.3.0 has been released by the FIXM Change Control Board to support the FF-ICE/R1 requirements. There would be a need to establish a common FIXM version for cross-border information exchange between operational ATFM systems in the Asia/Pacific region.
- 2.58 The paper recommended the FIXM v4.1 with APAC Extension to be the version and used for the ATFM-on-SWIM trial until Q2/2025. It recommended revising the version used for the ATFM on-SWIM trial from the FIXM v4.1 to the FIXM v4.3 from Q2/2025 and onward. The meeting agreed with the recommendation for the proposed version be used in cross-border ATFM-related information exchange which will also facilitate FF-ICE implementation and adopted the following conclusion.

Draft Conclusion ATM/SG/12-X: Asia/Pacific Regional FIXM 4.3

That, The FIXM Core 4.3.0 released by FIXM CCB be adopted as an agreed-upon version (referred to as "FIXM 4.3" in Asia/Pacific region) from Q3 2026 to support information exchange between cross-border operational ATFM systems in SWIM environment

2.59 The paper informed that there was a need for a change process for the revision of the common FIXM version to support the information exchange among operational ATFM systems and the ATFM-on-SWIM trial. AMNAC Technical Sub-Group would be taking on developing this process by submitting a working paper for ATFM/SG's consideration.

<u>Progress Update on Development of the Regional Monitoring and Reporting Scheme for A-CDM Implementation in the Asia Pacific Region</u>

- 2.60 The meeting was provided with progress update on the development of the Regional Monitoring and Reporting Scheme for A-CDM Implementation in the Asia Pacific Region by ATFM/IR/SWG under the conclusion agreed in ATFM/SG/13.
- 2.61 Hong Kong China as the rapporteur of ATFM/IR/SWG drafted the Monitoring and Reporting Scheme with the group members and hosted an online meeting in March to kick-off the development work. The tentative roll out date was targeted in Q1 2025.
- 2.62 The meeting was informed about the progress of the task of developing APAC regional ACDM implementation reporting mechanism. The meeting asked the ATFM/IR/SWG to consider completing the task and submit to ATM/SG/12.
- 2.63 A further update on this subject was provided to this meeting in WP/08.

3. ACTION BY THE MEETING

- 3.1 The meeting is invited to:
 - a) note the information contained in this paper;
 - b) note the progress of:
 - i) AMNAC;
 - ii) NARAHG; and
 - iv) BOBCAT.
 - c) note the continued slow regional progress in implementation of the performance expectations of the Regional Framework for Collaborative ATFM; and

Draft Conclusion ATM/SG/12-X: Asia/Pacific Regional FIXM 4.3							
What: That the FIXM Core 4.3.0 release be adopted as an agreed-upon version (referred to a Asia/Pacific region) from Q3 2026 to support infor between cross-border operational ATFM systems is environment	Expected impact: ☐ Political / Global ☐ Inter-regional ☐ Economic ☐ Environmental ☒ Ops/Technical						
Why: to support the FF-ICE/R1 requirements to establish a common FIXM version for cross-border information exchange between operational ATFM systems in the Asia/Pacific region	Follow-up:	□Required from States					
When: 27-Sep-24	Status:	Draft to be adopted by Subgroup					
Who: ⊠Sub groups ⊠APAC States ⊠ICAO APAC RO □ICAO HQ □Other:							

discuss any relevant matters as appropriate.

d)