

*International Civil Aviation Organization***WORKING PAPER (WP/24)****ICAO****ICAO Asia and Pacific (APAC)
Twenty-Ninth Meeting of the Meteorology Sub-Group
(MET SG/29)**

Bangkok, Thailand, 18 - 22 August 2025

Agenda Item 6: Research, development and other initiatives**BUSINESS FUNCTIONALITY OF APAC COMMON SWIM INFORMATION SERVICES**

(Presented by SWIM TF Task Lead)

SUMMARY

This paper presents the outcomes from relevant meetings regarding the work of SWIM TF Task Team on Information Services to identify the business functionality to be supported by APAC Common SWIM Information Services for addressing the operational needs in APAC, particularly those related to meteorological information services.

1. INTRODUCTION

1.1 The 2022 APAC SWIM survey recommended developing a list of the common set of SWIM information services for the APAC Region. SWIM TF Task Team on Information Services, in coordination with relevant subject matter experts, identified the types of information to be exchanged via APAC SWIM and proposed the necessary business functionality to be supported by APAC Common SWIM Information Services for addressing the operational needs in the APAC Region.

1.2 The development of the list of business functionalities for APAC Common SWIM Information Services covers:

- APAC Common SWIM Flight Information Services
- APAC Common SWIM Aeronautical Information Services
- APAC Common SWIM Meteorological Information Services
- APAC Common SWIM Surveillance Information Services.

1.3 SWIM TF/9 held in 2024 agreed for SWIM TF Task 6 lead, the SWIM TF Secretariat and relevant experts to present the proposed list for consultation with expert groups, including AAITF, APSAR/WG, ATFM SG, FF-ICE Ad-hoc Group, MET/IE WG and SURICG.

2. DISCUSSION

2.1 MET/IE WG/23 held in March 2025 agreed to an action to propose updates to the draft list of “Business functionalities for APAC Common SWIM Meteorological Information Services” to reflect outcomes from the recent METP/6 meeting, to review the information service priorities, and to ensure consistent use of the term “information service” for further review and consideration by the SWIM TF/10.

2.2 SWIM TF/10 held in May 2025 recalled the information shared at SWIM TF/9 that IMP is working on an Information Service Definition (ISD) template for subject-matter-expert Panels, e.g., ATMRPP, METP, to develop domain-specific ISDs. It was suggested that the progress of these works in the IMP, ATMRPP, and METP is monitored to align regional descriptions with the global guidance. While considering the need to develop an APAC version of ISDs for some of the APAC Common SWIM Information Services, the SWIM TF Task 6 Team will assess whether the necessary ISDs are covered by the templates/guidance developed at the global-level Panels and indicate this information in the list.

2.3 SWIM TF/10 reviewed the proposed initial set of APAC Common SWIM Information Services, as previously reviewed and updated by MET SG/28, FF-ICE/2, MET/IE WG/23, SURICG/10 and the Ad-hoc Group of AAITF. The Meeting noted that the first version of the list of APAC Common SWIM Information Services will be incorporated into the future APAC SWIM Implementation Guidance Document being developed.

2.4 SWIM TF/10 discussed how to address the publication of services with incomplete fields. Several options were considered: creating a separate table for such services; excluding them from the first version of the list; or including all services with a footnote explaining the presence of “TBD” or “?”. After detailed deliberation, it was agreed that the first version of the APAC Common SWIM Information Services list will include only services with complete information. Services containing “TBD” or “?” fields will be excluded from the first publication, but retained as a working draft for further refinement and reviewed in the future SWIM TF meetings, following coordination with relevant expert groups. As a result, the following meteorological information services were removed:

APAC Common SWIM Meteorological Information Services	
Special Air Report (ARS) service	Provides reports of special observations made by aircraft when they encounter special weather phenomena, such as moderate/severe turbulence or icing. (Note: Currently there is no plan to implement this information service at MET Panel)
MET derived from Mode S DAPs service	Provides upper air winds and temperatures derived from Mode S Downlinked Aircraft Parameters (DAPs) (e.g. true airspeed, ground speed, magnetic heading, true track angle) and facilitates exchange of derived winds and temperatures among MET service providers.

2.5 Regarding a suggestion in [SWIM TF/10 – WP/19](#) to include a reference for each information service as part of the Task 6 activities, SWIM TF/10 discussed the value and potential benefits of the proposal. The Meeting agreed to the proposal and requested Task 6 leads to include reference(s) for each information service in the brief description column, where such information is available.

2.6 During the detailed review by SWIM TF/10 of each service included in the list of APAC Common SWIM Information Services, it was observed that the services were described at varying levels of granularity. For instance, some services within a particular information domain appeared to be divisible into multiple distinct services. The Meeting also noted differing levels of understanding among expert groups regarding SWIM information services and the information required to be filled in the template. However, it was agreed that the review activity undertaken by the relevant expert groups has enhanced overall understanding and supported the groups in visualizing SWIM services in their respective future aviation concepts.

2.7 SWIM TF/10 recommended that States/Administrations submit suggestions regarding any information services to the relevant expert groups. Any subsequent modifications to services, if deemed necessary by the expert groups, could then be proposed to the SWIM TF for consideration at its future meetings.

2.8 SWIM TF/10 discussed a need for clear guidance to States/Administrations on the proposed first version of Common SWIM Information Services that it is considered as a guidance document for States/Administrations to support their SWIM development and implementation. This guidance was added as a purpose statement at the preamble of the list.

2.9 SWIM TF/10 discussed various proposals to improve the APAC Common SWIM Information Services list. Australia consolidated the key suggestions for enhancement for the next version of the list into [SWIM TF/10 – Flimsy/02](#). SWIM TF/10 suggested Task 6 Leads to consider information shared in the flimsy and draft guidance document to provide better instructions for other contributory bodies in reviewing and updating the list of APAC Common SWIM Information Services if deemed necessary. It was also suggested that other APANPIRG contributory bodies regularly review the APAC Common SWIM Information Services document and notify the SWIM TF of any new, or changes to existing, business requirements for APAC Common SWIM Information Services, as proposed by the flimsy. These suggestions were agreed to be communicated as part of the guidance document to be developed.

2.10 The list of APAC Common SWIM Information Services finalized by the SWIM TF/10 Meeting is provided in **Appendix** of this paper. Due to the need for clear guidance to States/Administrations on the proposed first version of Common SWIM Information Services, and the Common SWIM Information Services will involve various domains, such as ATM, CNS and MET etc., under the APANPIRG, the following Draft Decision was adopted by SWIM TF/10 and CNS SG/29, and will be submitted to APANPIRG/36 for consideration and adoption. After APANPIRG/36's adoption of the proposed Draft Decision, the list of APAC Common SWIM Information Services will be uploaded to the ICAO APAC e-document portal.

Draft Decision CNS SG/29/06 (SWIM TF/10/02) - Adoption of APAC Common SWIM Information Services, v1.0	
What: The first version of APAC Common SWIM Information Services, provided in Appendix F, be adopted for immediate use by APAC States/Administrations. The set of APAC Common SWIM Information Services and the associated performance of SWIM Technical Infrastructure underpinning these services are not specified to support the provision of aircraft separation.	Expected impact: <input type="checkbox"/> Political / Global <input type="checkbox"/> Inter-regional <input type="checkbox"/> Economic <input type="checkbox"/> Environmental <input checked="" type="checkbox"/> Ops/Technical
Why: To assist APAC States/Administrations in planning and implementing their SWIM information services.	Follow-up: <input type="checkbox"/> Required from States
When: 20-Jun-25	Status: Draft to be adopted by PIRG
Who: <input checked="" type="checkbox"/> Subgroups <input type="checkbox"/> APAC States <input checked="" type="checkbox"/> ICAO APAC RO <input type="checkbox"/> ICAO HQ <input type="checkbox"/> Other: MET SG, ATM SG, AOP SG	

3. ACTION BY THE MEETING

3.1 The meeting is invited to:

- a) note the information contained in this paper;
- b) review the list of APAC Common SWIM Meteorological Information Services in **Appendix** and provide any updates or comments for the development of the next version of the list; and
- c) discuss any relevant matters as appropriate.

Business Functionality of APAC Common SWIM Information Services
(Updated by MET SG/28, FF-ICE/2, MET/IE WG/23, SURICG/10, AAITF/19 and ATFM SG/15)

First Version (May 2025)

*(Editorial note – changes arising from MET SG/28, FF-ICE/2, MET/IE WG/23, SURICG/10, AAITF/19 and ATFM SG/15 are indicated with ~~strikethrough~~ and **highlighted** text.)*

Purpose. – *This list of APAC Common SWIM Information Services, including associated priorities, provides States/Administrations with guidance on anticipated services to support their planning and implementation of SWIM.*

Notes. – *Priority of Recommended ~~s~~Services in ~~i~~Initial APAC Common SWIM Information Service (IS) ((1)/(2)/(3)):*

- **Priority (1):** Recommended for region-wide implementation for region-wide benefits
- **Priority (2):** Recommended for implementation as much as practicable
- **Priority (3):** Additional information services without common regional requirements and not included as a part of common regional information services

Business functionality of the information service	Brief description of the service	Type of information to be exchanged	Information exchange model / Message type	Message exchange pattern	Priority of Recommended sService in iInitial APAC Common SWIM IS (1) / (2) / (3)
APAC Common SWIM Aeronautical Information Services					
Airspace management service	Exchanges of airspace status information between ASM Support System and Air Traffic Control (ATC) System. The sharing of airspace availability and airspace structure in real-time will contribute to a more efficient execution of the flight as information impacting the trajectory will be exchanged.	Airspace availability, Availability or activation/deactivation or temporarily change of airspace, restricted area, danger area, search and rescue regions	AIXM	Pub/Sub or Req Reply	2

MET SG/29
Appendix to WP/24

Business functionality of the information service	Brief description of the service	Type of information to be exchanged	Information exchange model / Message type	Message exchange pattern	Priority of Recommended Service in Initial APAC Common SWIM-IS (1) / (2) / (3)
Airspace feature service	Provides the characteristics of the three-dimensional airspace, described as horizontal projection with vertical limits, and their relevance to air traffic.	FIR/UIR boundaries, waypoints, enroute ATS routes, SIDs and STARs, nav aids, procedures, and other airspace not limited to restricted area, prohibited area, danger area, search and rescue regions (Remarks – Other data published in the AIP may be included)	AIXM	Pub/Sub or Req Reply	2
Aerodrome feature service	Provides current and/or planned airport layout features, such as aerodrome mapping data, runway, taxiway, passenger facilities.	Runways, movement areas, aerodrome services, nav aids, instrument landing systems, Aerodrome location, communication facilities (frequencies)	AIXM	Pub/Sub or Req Reply	2
Runway Condition Report service	Provides runway surface conditions and contaminants (least to most slippery) that are directly correlated to aircraft take-off and landing performance.	Global Reporting Format (GRF) for runway surface conditions	AIXM	Pub/Sub or Req/Reply	2
Digital NOTAM distribution service	Provides aeronautical information in accordance with the Digital NOTAM Specification, such as runway closure.	Digital NOTAM (e.g. Special activity airspace (SAA) NOTAMs, or other types of NOTAMs)	AIXM	Pub/Sub or Req Reply	2
APAC Common SWIM Flight Information Services					
GUFI service	GUFI (Globally Unique Flight Identifier) generation and provision	GUFI	FIXM	Req/Reply	1
ATFM/A-CDM integrated service	Allows exchanges of flight plans and A-CDM milestone parameters among different stakeholders (such as arrival/departure ATFM units, airlines and airport operators) to connect A-CDM process to ATFM operations.	CLDT, TOBT, CTOT, CTO, TTOT, TSAT, etc.	FIXM	Pub/Sub Req/Reply	4

MET SG/29
Appendix to WP/24

Business functionality of the information service	Brief description of the service	Type of information to be exchanged	Information exchange model / Message type	Message exchange pattern	Priority of Recommended Service in Initial APAC Common SWIM-IS (1) / (2) / (3)
FF-ICE filing service	Provides a means to submit, update or cancel flight plans through a SWIM-based interface using FIXM.	Flight plan for registration, update or cancellation	FIXM	Req/Reply Pub/Sub	1
FF-ICE data-publication service	Provides harmonised sharing of flight plan information in a global standard supporting common situation awareness.	Flight plan information for publication	FIXM	Pub/Sub	2
FF-ICE trial service	Allows operators to test the effect of a potential change in a flight plan prior to committing to the change.	Proposed changes in a flight plan	FIXM	Req/Reply	2
FF-ICE flight data request service	Allows an operator to request the current status of a flight plan, or an ANSP can request an operator to submit the latest version of their flight plan.	Current status of a flight plan, a copy of flight plan or supplementary plan	FIXM	Req/Reply	1
FF-ICE notification service	Provides notification of a change in flight state, such as Departure (DEP) and Arrival (ARR) Air Traffic Service (ATS) messages.	ARR, DEP messages	FIXM	Pub/Sub Req/Reply	1
FF-ICE planning service	Allows operators to submit preliminary flight plans for early Air Traffic Flow Management (ATFM) planning and to obtain feedback regarding restrictions/constraints affecting the flight.	Preliminary flight plan for early ATFM planning	FIXM	Req/Reply Pub/Sub	2
Flight-Specific ATFM Measure Service	Supports <i>notification</i> of information related to “flight-specific” ATFM measures, i.e. measures whose control mechanisms apply to a single flight. An example is the Ground Delay Program (GDP), whose	CTOT, CTO, CLDT, and fields currently included in APAC AFTN/AMHS-Based ICD for ATFM ¹	FIXM	Pub/Sub Req/Reply	1

¹ Based on the conclusion from ATFM/SG/15, an amendment to this ICD will be proposed in which a more structured use of REGUL and REGCAUSE fields will be introduced. This proposal is expected to be tabled at the upcoming CNS/SG meeting.

MET SG/29
Appendix to WP/24

Business functionality of the information service	Brief description of the service	Type of information to be exchanged	Information exchange model / Message type	Message exchange pattern	Priority of Recommended Service in Initial APAC Common SWIM-IS (1) / (2) / (3)
	control mechanism is a Calculated Take-Off Time (CTOT), or an ATFM measure for airborne flight, whose control mechanism is a Calculated Time Over (CTO). Recipients of this information should take actions to comply with the ATFM measure contained herein.				
ATFM/A-CDM Integration Service	Supports exchanges of flight-specific ATFM measure information and A-CDM milestone parameters among stakeholders, including arrival/departure ATFM units, airspace users, and airport operators, to integrate A-CDM process with ATFM operations.	ATFM measure information: CTOT A-CDM departure planning information: TOBT, TTOT, TSAT	FIXM	Pub/Sub Req/Reply	1
APAC Common SWIM Meteorological Information Services					
FOR AERODROME					
METAR/SPECI information service	Provides of IWXXM-formatted METAR/SPECI product specified in ICAO Annex 3.	Provision of the existing Annex 3 product via an information service in Annex 3. Information service will be enabled through Amendment 81 to Annex 3 as recommended practice with applicability from Nov 2024.	IWXXM	Pub/Sub Req/Reply	1
TAF information service	Provides of IWXXM-formatted TAF product specified in ICAO Annex 3.		IWXXM	Pub/Sub Req/Reply	1
Aerodrome Meteorological Observation Information Service observation information service	Provides continuous observations of weather parameters at an aerodrome. Advanced meteorological SWIM (MET-SWIM) service being developed by MET Panel.	To be introduced as recommended practice in Annex 3 (Amd 8483) in Nov 2030 ²⁰²⁷ tentatively (Note: Level of standardisation needs to be considered, as different	IWXXM	Pub/Sub or Req/Reply	2*

* Will become Priority (1) when it is introduced as recommended practice in Annex 3 tentatively in Nov 2030

MET SG/29
Appendix to WP/24

Business functionality of the information service	Brief description of the service	Type of information to be exchanged	Information exchange model / Message type	Message exchange pattern	Priority of Recommended Service in Initial APAC Common SWIM-IS (1) / (2) / (3)
Aerodrome Meteorological Forecast Information Service forecast information service	Provides information of the expected meteorological conditions, including probability, at an airport during a specified period. Advanced meteorological SWIM (MET-SWIM) service being developed by MET Panel.	aerodrome information services may be required for different use cases.)	IWXXM	Pub/Sub or Req/Reply	2*
FOR ENROUTE					
SIGMET information service	Provides of IWXXM-formatted SIGMET product specified in ICAO Annex 3.	SIGMETs for thunderstorm, tropical cyclone, turbulence, icing, mountain wave, duststorm, sandstorm, volcanic ash and radioactive cloud	IWXXM	Pub/Sub Req/Reply	1
AIRMET information service	Provides of IWXXM-formatted AIRMET product specified in ICAO Annex 3.	Provision of the existing Annex 3 product via an information service	IWXXM	Pub/Sub Req/Reply	42
Tropical Cyclone Advisory information service	Provides of IWXXM-formatted Tropical Cyclone Advisory product specified in ICAO Annex 3. (Designated provider: States with Tropical Cyclone Advisory Centre)		IWXXM	Pub/Sub Req/Reply	1
Volcanic Ash Advisory information service	Provides of IWXXM-formatted Volcanic Ash Advisory product specified in ICAO Annex 3. (Designated provider: States with Volcanic Ash Advisory Centre)		IWXXM	Pub/Sub Req/Reply	1
Space Weather Advisory information service	Provides of IWXXM-formatted Space Weather Advisory product specified in ICAO Annex 3. (Designated provider: States with Space Weather Advisory Centre)		IWXXM	Pub/Sub Req/Reply	1
Volcano Observatory Notice for Aviation	Provides of IWXXM-formatted VONA specified in ICAO Annex 3. Provision of VONA will become the		IWXXM	Pub/Sub Req/Reply	2

MET SG/29
Appendix to WP/24

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(VONA) information service	is a recommended practice in Annex 3 (Amd 82) in 2025. (Designated provider: States with a designated State Volcano Observatory)				
Quantitative volcanic ash (QVA) concentration information (QVA) service	Provides detailed information of significant volcanic ash in the atmosphere, including probabilities of ash concentration thresholds over space and time. Advanced meteorological SWIM (MET-SWIM) service being developed by MET Panel. (Designated provider: States with VAAC Volcanic Ash Advisory Centre (VAAC))	QVA grids grid point gridded forecasts including probabilities, and IWXXM QVA objects. To be introduced as A recommended practice for significant ash clouds in Annex 3 (Amd 82) in Nov 2025 tentatively for VAACs in a position to do so from Nov 2025, and for all VAACs from Nov 2026.	Gridded data (e.g. NetCDF), IWXXM	Pub/Sub or Req/Reply	12 [#]
WAFc (World Area Forecast Centres) gridded grid point forecast service	Provides global gridded weather forecasts. (Designated provider: WAFcs (UK and US))	Global gridded forecasts of CB, icing, turbulence, upper winds, upper-air temperatures and humidity, flight level and temperature of tropopause, and direction, speed and flight level of maximum wind	Gridded data in GRIB2	Pub/Sub or Req/Reply	1
WAFc significant weather (SIGWX) forecast service	Provides global WAFc SIGWX data sets with coverage expressed in polygons. (Designated provider: WAFcs (UK and US))	Significant weather forecast such as tropical cyclone, severe squall lines, turbulence, icing, etc.	IWXXM	Pub/Sub or Req/Reply	1
Satellite image service	Provides satellite observational information.	Satellite derived MET information (e.g. significant convection)	Gridded format (e.g. NetCDF) and image format	Req/Reply	2

[#] Will become Priority (1) from Nov 2026

MET SG/29
Appendix to WP/24

Business functionality of the information service	Brief description of the service	Type of information to be exchanged	Information exchange model / Message type	Message exchange pattern	Priority of Recommended Service in Initial APAC Common SWIM-IS (1) / (2) / (3)
Weather radar image service	Provides two- or three-dimensional radar observational information.	Weather radar reflectivity to visualise the intensity of convection	Gridded format (e.g. NetCDF) and image format	Req/Reply	2
APAC Common SWIM Surveillance Information Services					
Surveillance data only sharing service	Provides surveillance data of aircraft. Provides three dimensional position, time and identification of aircraft and other data as appropriate.	Position latitude, longitude, altitude, flight level, ground speed (optional), track angle , magnetic heading (optional), call sign , Mode S address, target identification, target address, mode 3/A code (optional), date , time of message reception for position, data quality , quality indicators, Mode S DAP , SAC, SIC	ASTERIX Cat 21 (payload in JSON or RAW format)	Pub/Sub	21
Surveillance data with flight plan information sharing service	Provides surveillance data of aircraft with flight plan information.	globally unique flight identifier, aircraft identification, departure aerodrome, destination aerodrome, aircraft type (optional), wake turbulence category (optional) latitude, longitude, flight level, ground speed (optional), magnetic heading (optional), target identification, target address, mode 3/A code (optional), date, time of message reception for position,	ASTERIX Cat 21+FPL (payload in JSON or RAW format)	Pub/Sub	2

MET SG/29
Appendix to WP/24

Business functionality of the information service	Brief description of the service	Type of information to be exchanged	Information exchange model / Message type	Message exchange pattern	Priority of Recommended Service in Initial APAC Common SWIM-IS (1) / (2) / (3)
		quality indicators, SAC, SIC			