International Civil Aviation Organization

THIRTEENTH MEETING OF THE AERONAUTICAL COMMUNICATION SERVICES IMPLEMENTATION COORDINATION GROUP (ACSICG/13)

Nadi, Fiji, 21-24 April 2026

Agenda Item 5: AMHS to SWIM Transition Roadmap
5.5 Use of IWXXM in AMHS and SWIM environments*

USE OF IWXXM IN AMHS AND SWIM ENVIRONMENTS DURING THE AMHS–SWIM TRANSITION

(Presented by ATSCG Chairperson)

SUMMARY

This paper presents ATSCG observations and questions concerning the use of IWXXM in AMHS and SWIM environments during the AMHS–SWIM transition period. It highlights the expected prolonged mixed-mode operations in the Asia and Pacific Region and seeks clarification from ICAO MET IE on bridging needs, differences between IWXXM exchanged via AMHS and SWIM, and anticipated transition timelines for MET services.

1. INTRODUCTION

1.1 The Asia and Pacific (APAC) AMHS to SWIM Transition Correspondence Group (ATSCG), operating under the Aeronautical Communication Services Implementation Coordination Group (ACSICG), continues to examine regional challenges associated with the transition from AMHS to SWIM-enabled information exchange.

1.2 Recent ATSCG discussions, outcomes, and working papers have confirmed that the APAC Region will operate in a mixed AMHS–SWIM environment for an extended period, with uneven readiness across States, service domains, and stakeholders.

1.3 Within this context, ATSCG has identified a need for clarification from the ICAO Meteorological Information Exchange (MET IE) community regarding the transition of MET messages, particularly IWXXM-based products between AMHS and SWIM environments.

1.4 This paper consolidates ATSCG observations, questions raised during ATSCG meetings, and the agreed Phase-based AMHS–SWIM transition model, with the objective of facilitating focused discussion with MET IE on MET-specific transition considerations.

2. DISCUSSION

2.1 *Background and Context*

2.1.1 AMHS currently remains the global and regional baseline for international operational MET message exchange, including the carriage of IWXXM MET products.

2.1.2 In parallel, SWIM is being progressively introduced by some States for information-centric exchanges, potentially including MET information services.

2.1.3 ATSCG observes that MET services are expected to be among the earliest candidates for structured data and SWIM-based distribution, yet international exchange requirements, fallback expectations, and States readiness continue to vary widely.

2.1.4 In this context, ATSCG notes that any transition of MET messages from AMHS to SWIM would benefit from appropriate coordination to mitigate potential interoperability and service continuity considerations in a multinational operational environment.

2.2 *Phase-Based AMHS–SWIM Transition Model (Phase 0–Phase 3)*

2.2.1 ATSCG has agreed to adopt a Phase-based AMHS–SWIM mixed-mode transition model, which provides a structured, non-prescriptive framework for understanding and coordinating the progressive coexistence of AMHS and SWIM.

2.2.2 Each phase represents an operationally stable state that may persist for a prolonged period. Movement between phases should be treated as a controlled transition rather than a single milestone.

2.2.2.1 Phase 0 — AMHS Baseline (Messaging-Only Operational Backbone)

a) AMHS provides the exclusive operational backbone for international ATS, AIM, and MET message exchange;
b) MET messages, including IWXXM-encoded products, are exchanged via AMHS;
c) SWIM activities are limited to planning, development, or non-operational trials; and
d) No operational dependency on SWIM exists.

Relevance to MET:

Phase 0 represents the current baseline, establishing the reference level for continuity, reliability, and operational performance.

2.2.2.2 Phase 1 — SWIM Introduction (Early-Adopting States)

a) Early-adopting States introduce SWIM for limited, information-centric exchanges;
b) Other States remain AMHS-only;
c) AMHS remains the baseline for international operational MET exchange; and
d) A mixed AMHS–SWIM environment begins.

Relevance to MET: Phase 1 gives rise to several considerations, including:

a) Whether MET information published via SWIM would also need to remain available via AMHS;
b) Is a SWIM-AMHS bridge needed for IWXXM messages?

2.2.2.3 Phase 2 — Mixed-Mode Operations (Most States Support AMHS and SWIM)

a) Most States support both AMHS and SWIM concurrently;

b) Selected information exchanges may become operationally relied upon via SWIM; and
c) AMHS continues to support messaging and fallback.

Relevance to MET: Phase 2 introduces heightened complexity for MET exchange, including:

a) Potential parallel distribution of IWXXM via both AMHS and SWIM;
b) Increased reliance on governance, channel selection rules, and fallback arrangements; and
c) The need to avoid ambiguity regarding authoritative sources and operational responsibility.

2.2.2.4 Phase 3 — SWIM-Enabled Predominance

a) SWIM becomes the primary mechanism for information-centric exchanges where globally and regionally supported;
b) Residual AMHS usage may remain for specific message categories or contingency; and
c) Reduction of AMHS services occurs only when globally agreed and operationally validated.

Relevance to MET: Phase 3 raises strategic questions regarding:

a) The conditions under which AMHS carriage of MET messages may be reduced or withdrawn; and
b) Long-term expectations for international MET exchange in a SWIM-predominant environment.

2.3 *MET-Specific Transition Issues Requiring Clarification*

2.3.1 Need for Bridging IWXXM Between AMHS and SWIM

ATSCG seeks clarification from MET IE on whether, during Phases 1 and 2:

a) Bridging mechanisms are expected or recommended to ensure uninterrupted international exchange of IWXXM messages between SWIM-capable and AMHS-only partners;
b) MET services distributed via SWIM must be mirrored via AMHS for international (inter-region) interoperability; and
c) Bridging is considered a transitional necessity or an implementation choice.

2.3.2 Differences Between IWXXM in AMHS and IWXXM in SWIM

ATSCG seeks clarification from MET IE on whether any conceptual or operational differences are envisaged between IWXXM information exchanged via AMHS and IWXXM information provided via SWIM services. In particular, ATSCG would welcome clarification on whether such differences, if any, have implications for international interoperability, operational use, or transition arrangements during mixed-mode operations.

2.3.3 Timeline and Transition Planning for MET Messages

ATSCG seeks MET IE's perspective on:

a) Whether there is an expected global or regional timeline for MET messages transitioning from AMHS to SWIM;
b) Whether MET IE envisages a prolonged mixed-mode period; and

c) Whether MET IE has established or is it currently evaluating the implementation of transition phases similar to the Phase 0 to Phase 3 framework?

2.4 *ATSCG Observations*

2.4.1 ATSCG observes that mixed-mode operations for MET exchange are anticipated to persist for a considerable period in the APAC Region due to asynchronous readiness.

2.4.2 Differences in current interpretations and expectations regarding MET bridging and exchange arrangements may increase the risk of fragmented implementation, inconsistent operational behaviour, and interoperability challenges at international boundaries.

2.4.3 ATSCG emphasises that its role is not to mandate solutions, but to facilitate shared understanding, minimum safeguards, and regional coordination during the transition period.

3. ACTION BY THE MEETING

3.1 The meeting is invited to:

a) note the information contained in this paper; and

b) discuss any relevant matter as appropriate

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