Agenda Item 4: Transition plan and associated timelines for implementing aeronautical meteorological (MET) information in SWIM (MET-SWIM)

DP 4.1 – MET SWIM Implementation Transition Plan and Associated Timelines

(Presented by the Secretariat)

SUMMARY
This paper provides an update on the Transition for implementing aeronautical meteorological (MET) information in SWIM. Action by the Meeting **is provided in paragraph 3**
REFERENCES ▪ Global air Navigation Plan (GANP) ▪ Roadmap for Aeronautical Meteorological Information in System-Wide Information Management (METP/5) ▪ Plan for Aeronautical Meteorological (MET) Information in System-Wide Information Management (SWIM) (METP/5) ▪ AFI eANP Vol III

Strategic Objectives	*A – Safety, B – Air Navigation Capacity and Efficiency*

1 INTRODUCTION

1.1 The Meteorology Panel (METP) at its fifth meeting agreed on the Decision 6/4 endorsing the Versions 2.3 of the MET-SWIM Plan and MET-SWIM Roadmap as final versions for the implementation of IWXXM as a Standard in the ICAO Annex 3; and inviting the Secretariat to circulate them to PIRGs.

1.2 MET-SWIM implementation and transition will proceed based upon the Aviation System Block Upgrade (ASBU) schedule outlined in ICAO Global Air Navigation Plan (GANP).

1.3 This paper provides an updated on the transition plan for implementing the MET-SWIM related elements.

2   DISCUSSIONS

2.1. The Transition to MET in a SWIM environment can be summarized as including the following components:

   a) Provision of meteorological information in **ICAO Meteorological Information Exchange Model (IWXXM) format;**

   b) Provision of meteorological information via **MET-SWIM information services**, including Web Feature Service (WFS), Web Coverage Service (WCS) and Web Map Service (WMS), over HTTP;

   c) **Additional data types beyond** IWXXM, including gridded data and objects; and,

   d) **Replacement** of Aeronautical Fixed Telecommunications Network (AFTN) and Aeronautical Message Handling System (AMHS) "messages push" communication **with Advanced Message Queuing Protocol (AMQP)**

2.2. Several components of the MET-SWIM transition include **physical network connectivity**, **communications protocols**, **information exchange services** and **data types** exchanged.

   2.2.1.**Communications protocols** include AFTN, AMHS Basic, AMHS File Transfer Body Part (FTBP), AMQP and HTTP in various ASBU Blocks.

   2.2.2.As indicated in Table 2, **AFTN is only applicable to traditional alphanumeric code (TAC)**, and AMHS is applicable to the exchange of MET information in TAC format where "Basic' is noted.

   2.2.3. For the exchange of MET information in IWXXM format in Block 1 and beyond, **AMHS FTBP and AMQP/HTTP are applicable.**

   2.2.4.AMQP/HTTP is denoted as optional in Block 1 as the early adoption of SWIM communications prior to Block 2 is encouraged.

Note 1: AMHS with FTBP capability shall be implemented by Block 1 to enable the exchange of messages in IWXXM and should fully replace AFTN by Block 2. Therefore, when AMHS is available, it is not advised to continue usage of AFTN. It is understandable that there will be cases in which AFTN must continue to be used leading up to Block 2

   2.2.5.**Information exchange services** include Regional Operational Meteorological (OPMET) Databanks **(RODB) TAC request/reply**, **RODB IWXXM request/reply,** WFS, WCS, WMS and other web services in various ASBU blocks.

   2.2.6.Much like for communication protocols, **RODB TAC request/reply is applicable only for the exchange of MET information in TAC format.**

   2.2.7.For the exchange of MET information in IWXXM format, **RODB IWXXM request/reply, RODB IWXXM notification, WFS, WCS and WMS are applicable**.

   2.2.8.RODB IWXXM notification is denoted as optional for Blocks 1 and 2, as it may be utilized but is not required.

   2.2.9.Table 1 summarizes the MET-SWIM implementation timeline for these components.

Table 1 Components of MET-SWIM Transition

	Block 0 2013-2018	Block 1 2019-2024	Block 2 2025-2030	Block 3 and Beyond >2031
Communication Protocols	AFTN AMHS Basic	AFTN AMHS Basic AMHS FTBP AMQP/HTTP (**optional**)	AMHS FTBP AMQP/HTTP	AMQP/HTTP
Information Exchange Services	RODB TAC request/reply RODB IWXXM request/reply	RODB TAC request/reply RODB IWXXM request/reply RODB IWXXM notification (**optional**) WFS, WCS, WMS (**optional**)	RODB IWXXM request/reply RODB IWXXM notification (**optional**) WFS, WCS, WMS	WFS, WCS, WMS, Other web services
Data Types	Gridded Objects	Gridded Objects	Gridded Objects	Gridded Objects
Data Addressing	AFS Addressing	AFS Addressing IP (**optional**) SWIM Registry (**optional**)	AFS Addressing IP SWIM Registry	IP SWIM Registry

2.3. MET-SWIM Roles

2.3.1. A transition to MET-SWIM **will also result in modifications to the organizational roles involved in MET information exchanges**. The most significant changes are:

a) **IP communications and the SWIM Registry** will greatly reduce the need for data aggregation.

b) More organizations (especially States) **will offer web services and data directly to data consumers.**

2.3.2. Table 2 summarize the MET entities/bodies involved in the MET-SWIM

Table 2 MET-SWIM Roles.

Function/Role	Block 0 2013-2018	Block 1 2019-2024	Block 2 2025-2030	Block 3 and Beyond >2031
Data Provider	MWO, AMO, AMS, VAAC, TCAC, WAFC	MWO, AMO, AMS, VAAC, TCAC, WAFC, SWXC	MWO, AMO, AMS, VAAC, TCAC, WAFC, SWXC, HWIS	Accredited MET Information Service Provider
Data Aggregator and Validator	NOC, ROC, RODB, IROG	NOC, ROC, RODB, IROG	NOC, ROC, RODB, IROG SWIM Broker	SWIM Broker
Data Repository	WAFC, RODB, State/NOC	WAFC, RODB, State/NOC	WAFC, RODB, State/NOC Accredited MET Information Service Provider	Accredited MET Information Service Provider

3   ACTION BY THE WORKSHOP

3.1. To review the content of this paper and provides comments as needed.

END