

Status of IWXXM implementation **including the use of extended AMHS**

ROC and RODB Pretoria

15 September 2020

Introduction

- ICAO Global Air Traffic Management Operational Concept (ATMOC Doc 9854)
- ICAO Global Air Navigation Plan (GANP) (Doc 9750) and its Aviation System Block Upgrades (ABSU) methodology
- Amendment 77 to ICAO Annex 3 – *Meteorological Service for International Civil Air Navigation* introduced the requirements for reporting and dissemination of meteorological data in digital format.
- APIRG/20,21,& 22 which adopted, the transition plan (AFI Transition Plan) for handling OPMET data in digital format. The plan called for the AFI States to progressively implement XML/GML based exchange format for OPMET information.

AMD76
Nov 2013

“... states in a position to do so ...” may exchange METAR, SPECI, TAF and SIGMET in XML

AMD77
Nov 2016

“ ... recommendation to issue ...” METAR, SPECI, TAF, SIGMET, AIRMET, VAA & TCA in XML/GML

AMD78
Nov 2019

“ ... recommendation to issue ...” SWA in IWXXM GML

AMD78
Nov 2020

“ ... standard to issue ...” METAR, SPECI, TAF, SIGMET, AIRMET, VAA, TCA & SWA in IWXXM GML

2024

TAC downgrade to recommendation

2026

TAC – The END

In Scope

- National OPMET Centre (NOC) functionalities:
 - Enable issuance of TAF/METAR/SIGMET/AIRMET in IWXXM format
 - by TAC to IWXXM translation in message switch
 - Enable the MET Message Switch to process IWXXM
 - reception, validation, routing, “bulletin” creation (WMO guidance), visualisation,...
 - Enable the Pretoria ATS Message Handling System to support exchange of XML-messages (XML bulletin Compression (gzip))
- Regional OPMET Databank (RODB) functionalities
 - receive and store OPMET data in IWXXM format
 - handle request/reply for data in IWXXM format (RQX interface and database Structure)

Out of Scope

- Generation of IWXXM at source (observing & forecasting systems)
- Processing of IWXXM by other ATM or MET systems
- Web/SWIM services built on the (I)WXXM data model
- these can (or should) be part of follow-up projects

IWXXM Status

- P3 AMHS connection with extended services between MET & COM switch
 - In operation since 2016
- Implementation of IWXXM v1.1 functionalities in MET switch
- TAF/METAR/SIGMET
 - IWXXM translation
 - Compilation of collections
 - IWXXM message transmission & reception via FTBP AMHS
- Implementation of IWXXM functionalities in COM workstations
 - Visualisation of IWXXM messages
 - RODB request/reply procedure from COM workstation
- Decommission AFTN and activate AMHS operationally between SAWS and ATNS(COMs Centre)

IWXXM Status

- Upgrade of IWXXM functionalities in MET Switch
 - Upgrade from IWXXM 1.1 to IWXXM 2.0 (done in Jan 2017)
 - Extra message types: AIRMET, VAA, TCA
- Implementation of IWXXM RODB functionalities
 - Message storage, decoding, ...
 - Request/reply functionality
 - RODB data availability and usage statistics
 - Access control
 - error/information replies

IWXXM Status

- IWXXM version 2.1 implemented April 2017
- ICAO Annex 3
 - November 2016, Amendment 77
 - Allows the exchange of IWXXM products as *'recommended'* practice
 - Products include:
 - TAF
 - METAR & SPECI
 - SIGMET
 - AIRMET
 - Volcanic Ash Advisory
 - Tropical Cyclone Advisory
 - *Space Wx

AMHS Testing

Test between **Pretoria RODB** and **ATNS COMs Centre**

- Uncompressed, individual IWXXM XML files in a single attachment;
- GZIP-compressed individual IWXXM XML files in a single attachment;
- A compressed 2MB, 4MB, and 6MB IWXXM XML files in a single attachment, and;
- Uncompressed, multiple IWXXM XML files in a single AMHS message, each file in a separate attachment.

Experiences with the use of IWXXM

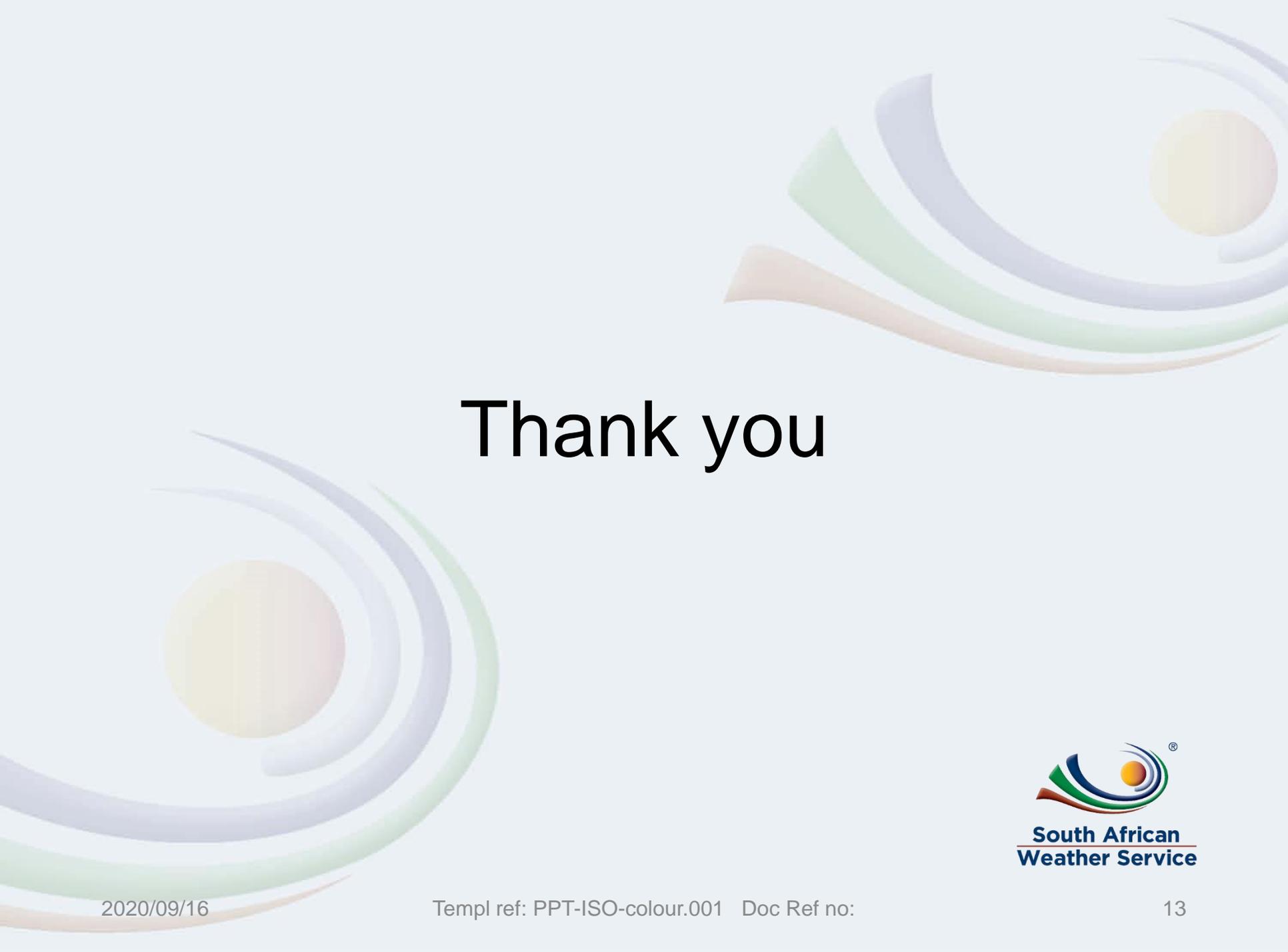
- Interoperability requirements (Within the AFI Region)
 - Not really clear for MET systems; AMHS IWXXM profile not yet published
- IWXXM version
 - We've upgraded to version IWXXM 2.0
- Schematron validation
 - Only WMO offline tool available
 - Real-time schematron validation to be considered in future

Experiences with the use of IWXXM

- Database catalogue
 - No separate IWXXM catalogue
 - Use TAC OPMET requirements and issue information reply if no IWXXM data available
- AMHS issues - non-delivery report handling
 - RQX requests from a user without extended AMHS capabilities cannot be serviced and will result in a non-delivery report (NDR) sent by COM switch to RODB

Advice for States

- The need to develop to develop capabilities for exchange of OPMET data in digital format (is urgent)
- Encourage State to enter into bilateral/multilateral agreements for testing the interoperability of AMHS system for readiness by November 2020.
- Consider entering into TAC to IWXXM Translation Agreement (with states that have already developed the capability)



Thank you