



**Agenda Item 5: Operational implementation of new ATM automated systems and integration of the existing systems**

**IMPLEMENTATION OF THE IWXXM FORMAT IN THE SAM REGION**

(Presented by the Secretariat)

**SUMMARY**

This working paper presents information on the activities carried out since the SAM/IG/23 Meeting to date for the exchange of OPMET information using the new IWXXM format.

**References**

- Annex 3, Meteorological Services for international air navigation.
- ICAO Doc 10003, Manual on digital exchange of aeronautical meteorological information.
- Letter to the States AN10/1-17/41.
- Twenty Third Workshop/Meeting of the SAM Implementation Group (SAM/IG/23) Lima, Peru, May 20-24, 2019.
- Final Report of the Thirteenth Meeting of the Project Coordination Committee RLA/06/901 (RCC/13) (Lima, Peru, June 27-28, 2019)

**ICAO Strategic Objectives:**

*A – Safety*

*B – Air navigation capacity and efficiency*

**1 Background**

1.1 Amendment 76 to ICAO Annex 3 introduced the exchange of OPMET messages in XML/GML format for States that were able to do so.

1.2 Amendment 77 to the same Annex introduces the exchange of OPMET messages in XML/GML format as a recommendation for all States.

1.3 The ICAO General Secretariat, sent to the States, the SL with reference AN 10/1-17/41, dated April 7, 2017, through which comments were requested for the Proposal of Amendment to ICAO Annex 3.

1.4 The proposal for amendment 78 to ICAO Annex 3 was approved on 7 March 2018, effective 16 July 2018, and introduces, among other points, the IWXXM (ICAO Meteorological Information Exchange Model)

1.5 In the Manual on digital exchange of aeronautical meteorological information (Doc 10003), a guidance on the application of the IWXXM.2 is shown.

## 2 Analysis

2.1 During SAM/IG/23, the need to adapt AMHS terminals of meteorological users to transmit and receive AMHS messages with content (meteorological information) in the new IWXXM GML format was discussed. In relation to it, the OPMET Data Bank of Brasilia, has reported that its system is in a position to receive OPMET messages in IWXXM Version 2.1 format, but the meteorological information must be routed as an attachment to the AMHS message.

2.2 Venezuela has reported the implementation of an OPMET message conversion web tool (METAR, TAF and SPECI) from the TAC format to the new IWXXM format (XML/GML).

2.3 In accordance with paragraph c) of **Conclusion SAM/IG/23-3 - Adaptation of the AMHS terminals of the users of Aeronautical Meteorology**, Brazil and Venezuela have carried out tests for the exchange of OPMET messages in the IWXXM format, between an AMHS MET user of Venezuela and the OPMET Regional Bank of Brasilia.

2.4 The tests consisted of two parts:

- 1) the sending of AMHS messages with the attached meteorological information, in the IWXXM format, addressed to the AMHS address C=XX, A=ICAO, P=SB, O=SBBR, OU=SBBR and CN= SBBRWXXM of the Regional OPMET Bank from Brasilia, and
- 2) the request (RQM/RQX) of the meteorological information entered in the OPMET Regional Bank of Brasilia.

2.5 The tests carried out on October 16, 2019, showed that the messages sent from the AMHS terminal of Venezuela (C=XX, A=ICAO, P=SV, O=SVZM, OU=SVMR and CN= SVMRYMYX), entered properly at the OPMET Regional Bank. However, the information request messages (RQM / RQX) presented format errors.

2.6 After solving the question of the format of the RQM/RQX messages by the Venezuelan team, tests were carried out on October 30, 2019, which were successful.

2.7 Brazil has informed that it is developing a web application (via the Internet), so that registered MET users can enter OPMET information in the Regional Bank of Brasilia, using forms specific to each OPMET message. The web application will criticize incorrect or not allowed values. The information entered through the web application will be stored in the OPMET Regional Bank of Brasilia in the TAC and IWXXM formats.

2.8 Likewise, through the web application it will be possible to request the existing meteorological information in the OPMET Regional Bank of Brasilia.

2.9 It is estimated that this web application will be available from the second half of 2020 and users from other States may register for use of the application.

2.10 Venezuela has informed the intention to provide the conversion of the TAC to IWXXM format free of charge to the states that express interest. In this way, the States that do not achieve the update of the AMHS terminals of the MET users for generating OPMET messages in the new format, will be able to use the tool to generate an XML file with the meteorological information, which will continue as an attachment to a message AMHS, which will route the information.

## SCENARIOS FOR THE EXCHANGE OF OPMET MESSAGES IN THE IWXXM FORMAT

### *AMHS terminal with the ability to automatically generate messages in the IWXXM format*

2.11 Three scenarios are envisioned for the exchange of messages in the IWXXM format in the future:

2.12 A MET user using an updated AMHS terminal with an HMI interface that generates an AMHS message with the weather information attached in a file with XML extension. This user must enter the meteorological information in the OPMET Regional Bank of Brasilia, sending to the address AMHS C=XX, A=ICAO, P=SB, O=SBBR, OU=SBBR y CN=SBBRWXXM. Likewise, it is possible to request the information stored in the OPMET Regional Bank through RQM messages (for the TAC format) and RQX (for the IWXXM format).

### *AMHS terminal without the ability to automatically generate messages in the IWXXM format*

2.13 A MET user using an AMHS terminal without the ability to automatically generate the AMHS OPMET message in the new format, must use an application (external to the AMHS terminal software), to convert the weather information from the TAC format to the IWXXM format, generating a file with an XML extension that should be routed as an attachment of an AMHS message. The web tool developed by Venezuela is an example of a converter that can be used to generate the file (XML) with the MET information encoded in the IWXXM format.

### *Use of a web application (via Internet)*

2.14 A registered MET user may access the web application developed by Brazil, via the Internet, to enter meteorological information through specific forms, which will be added to the OPMET Regional Bank of Brasilia. Likewise, the user may request the meteorological information stored in the OPMET Regional Bank. This possibility can be used as redundancy to the way of accessing by the ATN application (AMHS).

## **3. Suggested actions**

3.1 The Meeting is invited to:

- a) Take note of the information presented; and
- b) analyze the possibilities of implementing the exchange of OPMET messages in the new IWXXM format.