International Civil Aviation Organization

WORKING PAPER

Asia and Pacific (APAC)
Twenty-second Meeting of the Meteorological Information Exchange Working Group (MET/IE WG/22)

Bangkok, Thailand, 18 to 21 March 2024

Agenda Item 4: Meteorological information exchange in IWXXM form

PROVISION OF ADDITIONAL AVIATION OBSERVATIONS IN IWXXM FORMAT

(Presented by Australia)

SUMMARY

This paper provides an update on how Australia is providing access to IWXXM format METAR/SPECI observations for weather stations that are not contained within the ROBEX handbook. It invites discussion on how other States are handling the distribution of observations that are important to the Aviation Industry that are from observation equipment that are not the primary aerodrome observation.

1. INTRODUCTION

1.1 Aerodrome observations are internationally exchanged via METAR/SPECI bulletins for specific aerodromes as defined in the ROBEX handbook.

1.2 Australia exchanges observations internationally from 44 aerodromes, as defined in the ROBEX Handbook. In addition, Australia produces METARs for another ~200 locations, where the vast majority are located at aerodromes.

1.3 To increase situational awareness and improve pilot decision making, Australia also provides observations from weather stations that are not a primary aerodrome observation site to the aviation industry in METAR/SPECI format.

1.4 To improve system integration, aviation customers would prefer that all observations they consume are in the same format. Thus, Australia would like to provide all observation from automatic weather stations that are important to the aviation industry in IWXXM format.

1.5 When Australia attempted to create IWXXM for these non-aerodrome observations (beyond Annex 3 requirements), an issue was identified.

2. DISCUSSION

Australia's observation network

2.1 Automatic weather stations in Australia are divided into the following 3 location categories.

2.1.1 The primary weather station at the aerodrome, in some cases these also have the ability for manual input. These contain an ICAO ID.

2.1.2 Other weather stations at, or near, the aerodrome that are used to supplement the primary weather station's observations. These are located within 8 km of the primary weather station and can consist of a secondary AWS with full reporting, or anemometers around the aerodrome that show local fluctuations in wind for help with runway operations and reporting of windshear.

2.1.3 Weather stations at critical locations for air traffic movements. These are not located at aerodromes and typically observe QNH and/or cloud and visibility that are used to navigate terrain or assist with vertical separation of aircraft. Some of these sites contain a full set of observations.

How Australia provides data to industry

2.2 Australia provides TAC form of all observation types listed above to industry over pre-existing distribution channels. Australia converts the TAC form of these observations into IWXXM and has a project currently being implemented that will provide this data through a SWIM capable messaging service. However, Australia is currently facing issues for location types outlined in section 2.1.2 and 2.1.3 as per below discussion.

2.3 The location identifier for IWXXM METAR/SPECI observations is defined in:

https://schemas.wmo.int/iwxxm/2023-1/metarSpeci.xsd

This states the location to be of type AirportHeliportPropertyType as per below:

```
<element name="aerodrome" type="iwxxm:AirportHeliportPropertyType">
          <annotation>
             <documentation>The aerodrome location for this report</documentation>
          </annotation>
</element>
```

2.4 The properties of AirportHeliportPropertyType are defined in:

https://schemas.wmo.int/iwxxm/2023-1/common.xsd

This states that AirportHeliportPropertyType is of type aixm:AirportHeliport as per below:

```
<complexType name="AirportHeliportPropertyType">
              <sequence minOccurs="0">
                     <element ref="aixm:AirportHeliport"/>
              </sequence>
              <attributeGroup ref="gml:AssociationAttributeGroup"/>
              <attributeGroup ref="gml:OwnershipAttributeGroup"/>
</complexType>
```

2.5 The information presented in sections 2.3 and 2.4 show that only locations that are included as an AiportHeliport in the AIXM database are permitted to be used for IWXXM METAR/SPECI

observations. This means we are currently unable to fully provide all METAR/SPECI observations to the Aviation Industry that we currently provide in TAC form.

Discussion points

2.6 Australia would be interested to hear whether other States provide data other than the primary aerodrome observation to the Aviation Industry (e.g. anemometers, other observations at, near or away from the aerodrome). If so, how do you make this data available to the aviation industry (e.g. data feed, API, web page).

2.7 Further, Australia would like to know whether you feel it would be beneficial for IWXXM and future SWIM services to support the provision of this information to the aviation industry.

3. ACTION BY THE MEETING

3.1 The meeting is invited to:

a) Note the information contained in this paper; and

b) Respond to discussion points in para's 2.6 and 2.7.

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