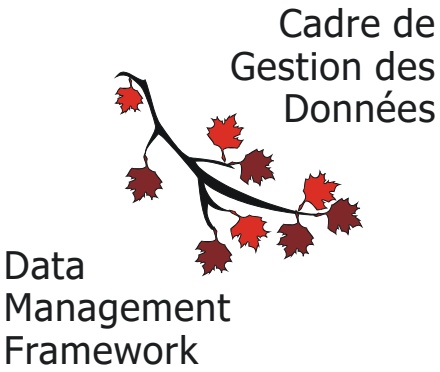

Encoder IWXXM TAF

Version 2.8
February 2026

Table of Contents

1 Document Information

1.1 History

Author(s)	Date	Ver	Remarks
Lilya Kopylov	May 01, 2020	0.1	Initial version
Lilya Kopylov	Jan 21, 2021	0.13	Added Extensions
Gilles Ratté	Nov 26 2021	2	Updated content
Lilya Kopylov	Feb 09, 2022	2-0.4	• Added example for new Canceled TAF format • Added taxonomies for TAF Bulletins • Added description for IWXXM bulletin "wrapper" including the new tag for bulletin identifier
Lilya Kopylov	Feb 11, 2022	2-0.5	• Updated input examples for NIL and CNL TAF reflecting the new format, deleted old format • Added example of encoding the SHPL weather • Created separate section for the Canadian specific TAF Elements - Extension
Gilles Ratté	April 7, 2022	2.1	• Update hyperlink for IC description
Gilles Ratté	December 17, 2024	2.2	• Update to Section 3: Taxonomy. • Removal of special case: SHPL.
Gilles Ratté	February 5, 2025	2.3	• Update to Section 4.1: Report Status
Gilles Ratté	March 4, 2025	2.4	• Update to section 3.1
Gilles Ratté	October 17, 2025	2.5	• Update to section 1.3, 4 and 8.4.1.
Gilles Ratté	October 21, 2025	2.6	• Update to section 4.
Gilles Ratté	December 18, 2025	2.7	• Updated content following IWXXM TAF validation against schematron.
Gilles Ratté	February 3, 2026	2.8	• Minor corrections and edits

1.2 Filename & Location

Tbd

1.3 Related Documents

Title	Version
Manual on Codes - International Codes VOLUME I.1 PART A – Alphanumeric Codes https://library.wmo.int/records/item/35713-manual-on-codes-volume-i-1-international-codes	
ICAO Annex 3 to the Convention on International Civil Aviation Meteorological Service for International Air Navigation https://portal.icao.int/icao-net/Annexes/an03_cons.pdf	AMD 82
ICAO PANS-MET Doc 10157 - Procedures for air navigation services - Meteorology https://portal.icao.int/icao-net/ICAO%20Documents/10157_1ed_en.pdf	1st edition
MANAIR – Manual of Standards and Procedures for Aviation Forecasts https://publications.gc.ca/site/eng/9.941904/publication.html	8th Edition

2 Quick Overview

ICAO Meteorological Information Exchange Model is a format for reporting weather information in XML/GML. IWXXM includes XML/GML-based representations for products standardized in International Civil Aviation Organization (ICAO) Annex 3 such as METAR/SPECI, TAF, SIGMET, AIRMET, Tropical Cyclone Advisory and Volcanic Ash Advisory. IWXXM products are used for operational exchanges of meteorological information for use in aviation.

Unlike the traditional forms of the ICAO Annex 3 products, IWXXM is not intended for direct human consumption. Instead IWXXM is designed to be ingested and manipulated by systems, for downstream human consumption such as display software.

Canadian IWXXM TAF is built on WMO schema version 3.0.0 found at
https://schemas.wmo.int/iwxxm/3.0.0/

This document is limited to translation into IWXXM of **TAF** TAC messages (**TAC** means **Traditional Alphanumeric Codes)**.

The aerodrome forecast (TAF) is the forecaster's best judgment of the most probable weather conditions expected to occur at an aerodrome together with their most probable time of occurrence. It is designed to meet the preflight and in-flight requirements of flight operations.

Please refer to MANAIR for more details on TAF (link in section 1.3 above).

2.1 Useful IWXXM links

WMO TAF IWXXM Schema and Class Diagrams:
https://schemas.wmo.int/iwxxm/3.0.0/taf.xsd
https://schemas.wmo.int/iwxxm/3.0.0/html/

TAF US IWXXM Schema
https://nws.weather.gov/schemas/iwxxm-us/3.0/taf.xsd

TAF to IWXXM Examples:
https://github.com/wmo-im/iwxxm/tree/master/IWXXM/examples

TAF to IWXXM translation examples:
https://github.com/wmo-im/iwxxm-translation/tree/master/Amd78-2018/taf

US Examples:
https://nws.weather.gov/schemas/iwxxm-us/3.0/examples/tafs/

Nil reasons Code Table
http://codes.wmo.int/common/nil

3 Taxonomy

3.1 Input Taxonomy for TAF bulletins

The input source is the TAC TAF bulletin that has been decoded to DMS XML.

Input taxonomy
msc/forecast/atmospheric/aviation/taf_bulletin-1.0-ascii/decoded-xml-2.1 identifiers: /<issue time>/<bulletin type>/<issuing office code>/<revision level> where <issue time> is a date and time when bulletin was issued <bulletin type> is a bulletin header (as per WMO Global Telecommunication System rules) <issuing office code> meteorological office issuing the bulletin, In Canada this is “CWAO” – code for Canadian Meteorological Centre <revision level> can be “orig”, “rra”, “rrb” etc for the initial TAF, or “aaa”, “aab” etc. for the bulletin amendments

3.2 Output Taxonomy for TAF bulletins

Output taxonomy
msc/forecast/atmospheric/aviation/taf_bulletin-1.0-ascii/product-iwxxm_xml-1.0 identifiers: /<issue time>/<bulletin type>/<issuing office code>/<revision level> Identifiers have the same description as for the Input Taxonomy.

4 Header portion of TAF IWXXM and Flag Values

4.1 Bulletin structure

IWXXM TAF files may carry the forecast for one or many aerodromes.
When the IWXXM file contains only 1 TAF, the bulletin structure will look like this:

```
<collect:MeteorologicalBulletin gml:id="uuid.....
        <collect:meteorologicalInformation>
                <iwxxm:TAF gml:id="uuid.....
                ...
                ...
                </iwxxm:TAF>
        </collect:meteorologicalInformation>

        ..........
        ..........
</collect:MeteorologicalBulletin>
```

When the IWXXM file contains more than 1 TAF, the structure will look like this:

```
<collect:MeteorologicalBulletin gml:id="uuid.....
        <collect:meteorologicalInformation>
                <iwxxm:TAF gml:id="uuid.....
                ...
                ...
                </iwxxm:TAF>
        </collect:meteorologicalInformation>
        <collect:meteorologicalInformation>
                <iwxxm:TAF gml:id="uuid.....
                ...
                ...
                </iwxxm:TAF>
        </collect:meteorologicalInformation>
        ..........
        ..........
</collect:MeteorologicalBulletin>
```

The collect: prefix is used whether the IWXXM file contains 1 or several TAFs.

4.2 GML:ID

Special attention is required to the values of the GML IDs to ensure successful aggregation of IWXXM messages at national or international data aggregators. This is due to the fact, that all GML IDs defined within an XML/GML instance must be unique. As IWXXM messages are prepared by different originators, ensuring the global uniqueness of GML IDs is essential to ensure smooth aggregation of IWXXM messages from different originators.

The values of the "gml:id" can be defined in accordance with some rules related to the characteristics of the report. Another approach to creating globally unique strings is to use a Universally Unique IDentifier (UUID) generator. The latter technique relieves the burden on the originator to devise a custom-made algorithm to generate them. TT-AvXML team has chosen to make use of UUID generators to create values for gmi:ids in its IWXXM examples.

The rule for GML IDs requires a string starting with a letter, so a prefix beginning with one ensures this when using a UUID generator. Whichever technique you use, the GML ID value does not necessarily have to begin with 'uuid.'

Also, rule from the schema https://schemas.wmo.int/iwxxm/3.0.0/rule/iwxxm.sch

```
<sch:pattern id="Common.Report-5">
<sch:rule
context="//iwxxm:METAR|//iwxxm:SPECI|//iwxxm:TAF|//iwxxm:SIGMET|//iwxxm:VolcanicAshSIGMET|//iwxxm:TropicalCycloneSIGMET|//iwxxm:AIRMET|//iwxxm:TropicalCycloneAdvisory|//iwxxm:VolcanicAshAdvisory|//iwxxm:SpaceWeatherAdvisory">
<sch:assert test="( if( //@gml:id[not(matches(.,'uuid\.[a-z0-9]{8}-[a-z0-9]{4}-[a-z0-9]{4}-[a-z0-9]{4}-[a-z0-9]{12}'))] ) then( false() ) else( true() ) )">Common.Report-5: All gml:ids in IWXXM reports must be prefixed with 'uuid.' and must be UUID version 4</sch:assert>
</sch:rule>
</sch:pattern>
```

5 Content of <meteorologicalInformation> section

5.1 IWXXM-CA

The use of extensions will allow Canada to include additional meteorological parameters found in Canadian TAF which are not directly supported by the core XML schemas. A Canadian extension schema (iwxxm-ca) has been published and is available at
https://dd.meteo.gc.ca/today/aviation/iwxxm/schema
See section 5.13 for the details on encoding Canadian extension content.

5.2 Report Status

The attribute "reportStatus" for TAF shall be set to either "NORMAL" or "AMENDMENT".
In Canada we don't issue Correction for TAF, we simply Amend it.

```
<element name="correction_level" value="orig" uom="unitless" group="identification"/>
```

```
<element name="correction_level" value="rra" uom="unitless" group="identification"/>
```

```
<element name="correction_level" value="aaa" uom="unitless" group="identification"/>
```

Rule:
If element "**correction_level"** has value **"orig"**: **reportStatus**="NORMAL"
If element "**correction_level**" has value starting with "**rr[a-z]**" e.g. "**rra**", "**rrb**", etc.:
reportStatus="NORMAL"
If element "**correction_level"** has any other value e.g. "**aaa**", "**aab**", etc.:
reportStatus="AMENDMENT"

5.3 Permissible Usage

PermissibleUsage defines the restricted set of permitted usages of data.
There are two possible values to report: “OPERATIONAL” and “NON-OPERATIONAL”.
For TAF IWXXM, this field is always reported as below:
permissibleUsage="OPERATIONAL"

5.4 Cancelled attributes

If a TAF is cancelled, an additional attribute shall be reported:
isCancelReport="true"
Details on encoding cancelled TAF in section 7.

6 Ordering of <iwxxm:TAF> child elements

Child elements ordering of <iwxxm:TAF> is the following:

1. issueTime
2. aerodrome
3. validPeriod
4. cancelledReportValidPeriod
5. baseForecast
6. changeRequest
7. extension

6.1 Issue Time

Issue Time is a time when a TAF message was issued.

Input:

```
<om:samplingTime>
  <gml:TimeInstant>
     <gml:timePosition>2020-05-04T09:38:00.000Z</gml:timePosition>
  </gml:TimeInstant>
</om:samplingTime>
```

IWXXM Output:

```
<iwxxm:issueTime>
       <gml:TimeInstant gml:id="uuid.e5460ae4-98a4-48fa-bbfc-21799896f1f2">
         <gml:timePosition>2020-05-04T09:38:00Z</gml:timePosition>
       </gml:TimeInstant>
</iwxxm:issueTime>
```

6.2 Station/Aerodrome Metadata

This portion of IWXXM is using the Aeronautical Information Exchange Model (**AIXM**).
This is mapped to the <identification-elements> portion of the input point observation.

```
<iwxxm:aerodrome>
    <aixm:AirportHeliport gml:id="uuid.37efe759-6a92-4e72-8c07-2b43b517418c">
        <aixm:timeSlice>
          <aixm:AirportHeliportTimeSlice gml:id="uuid.38a17db4-aa96-4090-883d-
            e5631c18587c">
            <gml:validTime/>
            <aixm:interpretation>SNAPSHOT</aixm:interpretation>
            <aixm:name>GORE BAY-MANITOULIN</aixm:name>
           <aixm:locationIndicatorICAO>CYZE</aixm:locationIndicatorICAO>
           <aixm:ARP>
            <aixm:ElevatedPoint axisLabels="Lat Long" gml:id="uuid.73933736-6145-4e35-984a-
            0567e7ceb7ef" srsDimension="2"
            srsName=http://www.opengis.net/def/crs/EPSG/0/4326>
                <gml:pos>45.88166666666667 -82.56722222222223</gml:pos>
           </aixm:ElevatedPoint>
          </aixm:ARP>
        </aixm: TimeSlice>
      </aixm:AirportHeliport>
    </aixm:timeSlice>
  </aixm:AirportHeliport>
</iwxxm:aerodrome>
```

Example of aerodrome data found in an IWXXM TAF bulletin.

Inputs from the decoded TAF:

aixm:name

The DMS TAF decoder doesn't report the station name, only the ICAO ID. However, the DMS plans to have TAF decoder integrate aerodrome data from the Metadata Repository (i.e. MR) in 2026. For the time being, IWXXM TAF will be omitting <aixm:name/> since including <aixm:name/> without a value is invalid in IWXXM.

aixm:locationIndicatorICAO

```
<element name="icao_station_identifier" value="CYZE" uom="unitless"
group="identification"/>
```

aixm:ElevatedPoint

To populate this tag, we need to obtain latitude, longitude and station elevation. The DMS TAF decoder does not have a station_elevation among its <identification-elements>. However, the DMS plans to have TAF decoder integrate aerodrome data from the Metadata Repository (i.e. MR) in 2026. For the time being, IWXXM TAF will be omitting <aixm:ElevationPoint> will be omitted.

Latitude and longitude are mapped as below:

```
<gml:Point>
<gml:pos>45.88166666666667 -82.56722222222223</gml:pos>
</gml:Point>
```

6.3 TAF Valid Period

The next portion of IWXXM TAF is the Forecast Elements and change groups within the time frame identified.
Time periods are located between the open/closed tags <iwxxm:validPeriod>, and describes the valid period of the TAF. In the example above it is presented by the tocken 0410/0422, which means that we are encoding IWXXM for 12 hours forecast.

This group is inserted for all TAF bulletins **except for nil TAFs**. The cancelled TAF also has a different syntax for beginning and end time.
For most TAFs, the period of validity will begin at the current or upcoming hour.
For cancelled TAFs, the beginning of the period of validity will correspond to the beginning of the period of validity of the last issued valid TAF, which means that the valid period may start prior to the current hour.
Input mapping (not applicable for nil and cancelled TAF):

INPUT (example: 0410/0422)

```
<element name="valid_start_date_time" value="2020-05-04T10:00:00.000Z" uom="datetime"
group="identification" orig-value="0410"/>
<element name="valid_end_date_time" value="2020-05-04T22:00:00.000Z" uom="datetime"
group="identification" orig-value="0422"/>
</element>
```

OUTPUT

```
<iwxxm:validPeriod>
    <gml:TimePeriod gml:id="uuid.64f4359e-34a2-4a6f-ba19-aa0117539ac8">
        <gml:beginPosition>2020-05-04T10:00:00Z</gml:beginPosition>
        <gml:endPosition>2020-05-04T22:00:00Z</gml:endPosition>
    </gml:TimePeriod>
</iwxxm:validPeriod>
```

6.4 Base Forecast, Change Forecast and Forecast Elements

The **<iwxxm:baseForecast>** section represents the Elements of the first line of the TAF ASCII message starting after valid forecast time token and ending with one of the change group indicators (FM, BECMG, TEMPO or PROB) or with the word RMK.

If TAF has the change groups FM, BECMG, TEMPO or PROB, then **<iwxxm:changeForecast>** block will be used for each of these groups for their encoding.

Both Forecasts have the attribute cloudAndVisibilityOK inside the <iwxxm:MeteorologicalAerodromeForecast> tag.

In Canada it will be always cloudAndVisibilityOK="**false**"

The format of baseForecast and changeForecast IWXXM blocks are identical and consists from <iwxxm:phenomenonTime> block that represents the start and end time of the base/change group that immediately followed by the meteorological forecasted Elements for that time period.

Here is a **phenomenonTime definition**:

The time at which the reported phenomena or change of phenomena occur. For change indicators of FROM, PROB 30/40, and TEMPO this is the period of time at which reported meteorological conditions occur. For BECOMING conditions this represents the time over which conditions are changing. This is equivalent to how time information is reported in the TAC codes.

6.5 Base Forecast header

Base Forecast refers to the prevailing conditions. It is mandatory in all cases except missing or cancelled reports.
There are two scenarios that are identified in the "original" change group: normal valid TAF and cancelled TAF or nil TAF.
If decoded TAF has a change group "original" with the Element named "**no_taf**", then this TAF represents a Cancelled TAF or NIL TAF and should be encoded as described in sections 7 or 8.

Otherwise, all the enclosed Elements listed in change group "original" should be **listed under** the iwxxm:baseForecast tag.

In the following example of ASCII TAF, the Base Forecast is presented as 36010G20KT P6SM OVC020 and the start time is the start of TAF time (i.e. 04 1000Z) and the end time is a time of the next FM (04 1400Z). If TAF has only one Part Period (no FM), then the end time is the end of forecast time (in this case it would be 04 2200Z).

TAF CYZE 040938Z 0410/0422 36010G20KT P6SM OVC020 TEMPO 0410/0414
SCT020 BKN070
FM041400 36010G20KT P6SM SKC
……..

The input for the baseForecast portion of IWXXM is located in TAF decoder under the change_group with the name "**original**".

INPUT for Base Forecast phenomenon time and elements
<element name="**change_group**" value="**original**" uom="**unitless**"> …… …… </element >

<phenomenonTime> is the time at which the reported phenomena (base forecast) occurs.

The "**original**" group of TAF Decoder has two qualifiers:

- **change_end_date_time** that is mapped to the <gml:endPosition> of the base forecast
- <om:samplingTime> is mapped to the <gml:beginPosition> of the base forecast (see mapping in section 6 "Issue Time")

INPUT

```
<element name="change_group" value="original" uom="unitless">
    <qualifier name="change_end_date_time" value="2020-05-04T14:00:00.000Z" uom="datetime"
group="element" orig-value="041400"/>
    <qualifier name="change_start_date_time" value="2020-05-04T10:00:00.000Z"
uom="datetime" group="element" orig-value="0410"/>
.....
.
</element >
```

OUTPUT

```
<iwxxm:baseForecast>
    <iwxxm:MeteorologicalAerodromeForecast gml:id="uuid.13048235-8f8a-4587-a6be-
          e8ce99f4525c" cloudAndVisibilityOK="false">
       <iwxxm:phenomenonTime>
          <gml:TimePeriod gml:id="uuid.769ffc9f-2194-46ab-89c9-7ae9c15ef961">
             <gml:beginPosition>2020-0504T09:38:00Z  </gml:beginPosition>
             <gml:endPosition>2020-05-04T14:00:00Z</gml:endPosition>
          </gml:TimePeriod>
       </iwxxm:phenomenonTime>

<!-- Forecast Elements for the base Forecast group -->

</iwxxm:baseForecast>
```

In IWXXM Encoder the **gml:beginPosition** of **baseForecast** will **NOT** be mapped to "change_start_date_time" of "original"group of TAF decoder, but to the forecast issue time (same mapping that described in section 5).

For the regular forecast this time is about 20 minutes before the scheduled forecast time, but condition of based forecast are valid at issue time.

For the amended forecast this time will be after the scheduled forecast time, but, again, reflects the time when new conditions became valid.

Reference:

1. IWXXM-US example
   https://nws.weather.gov/schemas/iwxxm-us/3.0/examples/tafs/PAYA-041728Z.xml
2. Mantis http://nadm-mantis-dmf.ontario.int.ec.gc.ca/view.php?id=24622

6.6 Change Forecast header

Change Forecast is a Forecast that modifies the base forecast or previous change forecast.

In the case of Change Forecast the tag <**iwxxm:MeteorologicalAerodromeForecast**> has an additional attribute **changeIndicator** that reports a type of the change (FROM, BECOMING, PROBABILITY_40 (30), TEMPORARY_FLUCTUATIONS).

A change indicator is required for all MeteorologicalAerodromeForecasts excepting reported base conditions.

<phenomenonTime> for the change Forecast is the time at which the change of phenomena occurs. For change indicators of **FROM, PROB30/40**, and **TEMPO** this is the period of time at which reported meteorological conditions occur. For **BECMG** conditions this represents the time over which conditions are changing. This is equivalent to how time information is reported in the TAC codes

In the incoming XML (from TAF decoder) the start and end times of the group are the qualifiers for the change_group element with the name other than “original”. The possible names of a change_group element mapped to changeForecast are “fm”, “becmg”, “tempo”, prob30 and prob40.

Change forecast translation table:

TAF Change Group Name	IWXXM changeIndicator
FM	FROM
TEMPO	TEMPORARY_FLUCTUATIONS
BECMG	BECOMING
PROB30	PROBABILITY_30
PROB40	PROBABILITY_40

INPUT for Change Forecast type and phenomenon time

```
<element name="change_group" value="tempo" uom="unitless">
<qualifier name="change_end_date_time" value="2020-05-04T14:00:00.000Z" uom="datetime"
group="element" orig-value="0414"/>
<qualifier name="change_start_date_time" value="2020-05-04T10:00:00.000Z" uom="datetime"
group="element" orig-value="0410"/>
……..
……

</element >
```

OUTPUT for Change Forecast type and phenomenon time

```
<iwxxm:changeForecast>
    <iwxxm:MeteorologicalAerodromeForecast changeIndicator="TEMPORARY_FLUCTUATIONS"
cloudAndVisibilityOK="false" gml:id="uuid.be0b6501-fe05-4ed8-b1e1-f1481b21745d">
      <iwxxm:phenomenonTime>
         <gml:TimePeriod gml:id="uuid.f9f2793e-6d94-4d66-bc0a-56701945d4c4">
               <gml:beginPosition>2020-05-04T10:00:00Z </gml:beginPosition>
               <gml:endPosition>2020-05-04T14:00:00Z 0Z</gml:endPosition>
         </gml:TimePeriod>
      </iwxxm:phenomenonTime>

<!-- Forecast Elements for the change group -->

  </iwxxm:MeteorologicalAerodromeForecast>
</iwxxm:changeForecast>
```

Example of PROB change group:

In the ASCII TAF the Probability group is presented as PROB30 or PROB40. In the incoming mapping PROB is presented as an element with the name “change_group” and value equal to “prob”. The percentage number (30 or 40) comes as a value of qualifier with the name “probability”.

INPUT for Change Forecast type PROB30/40 and phenomenon time

```
<element name="change_group" value="prob" uom="unitless">
<qualifier name="change_end_date_time" value="2020-06-25T16:00:00.000Z" uom="datetime"
group="element" orig-value="2516"/>
<qualifier name="change_start_date_time" value="2020-06-25T12:00:00.000Z" uom="datetime"
group="element" orig-value="2512"/>
<qualifier name="probability" value="30" uom="%" group="element"/>
……..
……

</element >
```

OUTPUT for Change Forecast PROB30 and phenomenon time

```
<iwxxm:changeForecast>
<iwxxm:MeteorologicalAerodromeForecast changeIndicator="PROBABILITY_30"
cloudAndVisibilityOK="false" gml:id="uuid.0c70c69d-87f9-4c2d-8d07-09486c3895de">
        <iwxxm:phenomenonTime>
  <iwxxm:phenomenonTime>
          <gml:TimePeriod gml:id="uuid.f9f2793e-6d94-4d66-bc0a-56701945d4c4">
                <gml:beginPosition>2020-06-25T12:00:00Z </gml:beginPosition>
                <gml:endPosition>2020-06-25T16:00:00Z 0Z</gml:endPosition>
          </gml:TimePeriod>
      </iwxxm:phenomenonTime>

<!-- Forecast Elements for the change group -->

  </iwxxm:MeteorologicalAerodromeForecast>
</iwxxm:changeForecast>
```

6.7 Standard (WMO) Forecast Elements

Each baseForecast and changeForecast can have the following elements: wind, visibility, weather (if present) and sky conditions.

Change groups TEMPO, PROB and BECMG usually have less elements, FM and base forecast have all the elements from the list above.

Missing Elements handling:

We'll report all mandatory elements (wind [direction and speed], visibility and sky conditions) precisely as "**missing**" for the **base forecast** and change forecast with changeIndicator="**FM**":

```
<iwxxm:ElementName uom="N/A" xsi:nil="true"
                                nilReason="http://codes.wmo.int/common/nil/missing"/>
```

For change forecast other than FM – do not report missing elements.

The input mappings below is based on the elements of the decoded TAF that are enclosed into the "**change_group**" element after the "**change_end_date_time"** and **"change_start_date_time"** qualifiers.

6.7.1 Wind speed, direction and gust

INPUT (ASCII TAF: 36010G20KT)

```
<element name="wind_direction" value="360" uom="°" group="wind" orig-name="ddd">
<qualifier name="statistical_significance" value="vectoral_average" uom="unitless"
group="element"/>
</element>
<element name="wind_speed" value="10" uom="kn" group="wind" orig-name="ff">
<qualifier name="statistical_significance" value="average" uom="unitless" group="element"/>
</element>
<element name="wind_gust_speed" value="20" uom="kn" group="wind" orig-name="Gfmfm">
<qualifier name="statistical_significance" value="maximum" uom="unitless" group="element"/>
```

```
</element>
```

OUTPUT

```
<iwxxm:surfaceWind>
        <iwxxm:AerodromeSurfaceWindForecast variableWindDirection="false">
                <iwxxm:meanWindDirection uom="deg">360</iwxxm:meanWindDirection>
                <iwxxm:meanWindSpeed uom="[kn_i]">10</iwxxm:meanWindSpeed>
                <iwxxm:windGustSpeed uom="[kn_i]">20</iwxxm:windGustSpeed>
         </iwxxm:AerodromeSurfaceWindForecast>
</iwxxm:surfaceWind>
```

6.7.2 Wind Direction Variable (VRB)

Under some conditions (wind_speed <= 3kt or a gusty wind in case of a thunderstorm) TAF reports wind_direction as VRB.

In this case IWXXM flag variableWindDirectionshould be set to "true" and iwxxm:meanWindDirection should not be reported.

INPUT (ASCII TAF: VRB03KT)

```
<element name="wind_direction" value="VRB" uom="°" group="wind" orig-name="ddd">
   <qualifier name="statistical_significance" value="vectoral_average" uom="unitless"
group="element"/>
</element>
<element name="wind_speed" value="03" uom="kn" group="wind" orig-name="ff">
    <qualifier name="statistical_significance" value="average" uom="unitless" group="element"/>
</element>
```

OUTPUT

```
<iwxxm:surfaceWind>
    <iwxxm:AerodromeSurfaceWindForecast variableWindDirection="true">
        <iwxxm:meanWindSpeed uom="[kn_i]">03</iwxxm:meanWindSpeed>
    </iwxxm:AerodromeSurfaceWindForecast>
</iwxxm:surfaceWind>
```

Missing wind speed and (or) wind direction example:

```
<iwxxm:surfaceWind>
    <iwxxm:AerodromeSurfaceWindForecast variableWindDirection="false">
        <iwxxm:meanWindDirection uom="N/A" xsi:nil="true"
                nilReason="http://codes.wmo.int/common/nil/missing"/>
       <iwxxm:meanWindSpeed uom="N/A" xsi:nil="true"
                nilReason="http://codes.wmo.int/common/nil/missing"/>
   </iwxxm:AerodromeSurfaceWindForecast>
</iwxxm:surfaceWind>
```

6.7.3 Visibility

In Canada, the UOM for visibility in TAF is the statue mile (SM). However, in IWXXM, the schema only supports meters (M).
In TAF IWXXM Encoder we will be using the following conversion table to convert original TAF value of Visibility in SM to Meters.

Visibility Conversion Table:

Vis. in SM	Vis. In M
0	0
1/8	200
1/4	400
3/8	600
1/2	800
5/8	1000
3/4	1200
1	1600
1 1/4	2000
1 1/2	2400
1 3/4	2800
2	3200
2 1/4	3600
2 1/2	4000
3	4800
4	6400
5	8000
6	9600
P6	Above 10000

From the taf.xsd documentation:
The prevailing horizontal visibility, mandatory except when ceiling and visibility is reported as OK (cloudAndVisibilityOK="true"). This is not applicable to Canadian TAF.

Prevailing horizontal visibility shall be reported in meters ("m").

The prevailingVisibilityOperator is a reported relational operator for the prevailing horizontal visibility. When reported, this operator is reported in conjunction with prevailing visibility.
To report a prevailing visibility of at least 10000 meters, prevailing visibility is reported as 10000 meters and the operator is reported as "above".
When no operator is reported, prevailing visibility represents an exact value with identical semantics to other measured quantities

Note: if orig-value of visibility is P6SM, then we report it as 10000 meter with the operator ABOVE. In all other cases we'll report prevailingVisibility as a converted value (from miles to meters) without the operator.

INPUT (P6SM)

```
<element name="horizontal_visibility" value="6.0" uom="mi" group="visibility" orig-value="P6"
orig-name="VVVV">
<qualifier name="instrument_limits" value="2" uom="code" group="instrument_metadata" code-
type="attribute_following_value" code-src="std_code_src"/>
</element>
```

OUTPUT

```
<iwxxm:prevailingVisibility uom="m">10000</iwxxm:prevailingVisibility>
<iwxxm:prevailingVisibilityOperator>ABOVE</iwxxm:prevailingVisibilityOperator>
```

INPUT (1/2 SM)

```
<element name="horizontal_visibility" value="0.5" uom="mi" group="visibility" orig-value="1/2"
orig-name="VVVV">
   <qualifier name="accuracy" value="0" uom="code" group="value" code-type="033041" code-
src="wmo_bufr"/>
</element>
```

OUTPUT

```
<iwxxm:prevailingVisibility uom="m"> 800 </iwxxm:prevailingVisibility>
```

Case when the Horizontal Visibility not explicitely stated:
Do not report Visibility in IWXXM if not reported in ASCII TAF (decoded)
Visibility is mandatory in the Base and “FM”, but not always reported in TEMPO, PROB, BECMG.
Encode in IWXXM only if present.

6.7.4 Forecast of weather phenomena

INPUT

```
<element name="present_weather" value="-RASN" uom="code" group="weather" orig-name="ww"
code-type="004677" code-src="wmo_tac">
<qualifier name="index" value="1" uom="unitless" group="element"/>
</element>
```

OUTPUT

```
<iwxxm:weather xlink:href="http://codes.wmo.int/306/4678/-RASN"/>
```

We need to consult http://codes.wmo.int/306/4678 for allowable combinations of precipitation.

Special case No Significant Weather (NSW)

The NSW can be present in TEMPO and PROB when there was precipitation in main (FM), but weather improved for the short period of time.

If NSW is reported, no index qualifier is required.

FTCN32 CWAO 020500
TAF CYSF 020538Z 0206/0218 26006KT 2SM BR OVC004 TEMPO 0206/0216 P6SM
NSW SCT004 BKN200 PROB30 0206/0216 1/2SM FZFG VV002
FM021600 28010KT P6SM FEW006 SCT060 PROB30 0216/0218 BKN006
RMK FCST BASED ON AUTO OBS. NXT FCST BY 021200Z=

For example,
FM151500 03008KT 3SM -SN OVC012 TEMPO 1422/1507 P6SM **NSW** BKN080

INPUT
<element name="**present_weather**" value="**NSW**" uom="**code**" group="**weather**" orig-name="**ww**" code-type="**004677**" code-src="**wmo_tac**"> <qualifier name="**index**" value="**1**" uom="**unitless**" group="**element**"/> </element>
OUTPUT
<iwxxm:weather nilReason="http://codes.wmo.int/common/nil/nothingOfOperationalSignificance/>

According to MANAIR, TAF cannot have more than 3 weather tokens:

As per MANAIR 2.6.11.2.1: *When more than one significant weather phenomenon other than a precipitation combination mentioned above is forecast, separate w'w' groups, but not more than three, shall be included in the forecast in accordance with Table 2 (e.g. -FZDZ -SGSN BR, etc.).*

6.7.5 AerodromeCloudForecast

Forecast cloud conditions, including predicted vertical visibility and cloud layers.

A single vertical visibility may be reported, but cannot be reported with cloud layers.
Each cloud layer consists of Cloud Amount and Cloud Height.
Measured cloud bases shall be reported in meters ("m") or feet ("[ft_i]").
There can be up to three layers of cloud.

Example: Single Layer of Cloud

INPUT OVC020

```
<element name="total_cloud_amount" value="OVC" uom="code" group="sky_condition" orig-
name="NsNsNs" code-type="SPEC15.9.1.1" code-src="local_tac">
<qualifier name="cloud_layer_index" value="1" uom="unitless" group="element"/>
</element>
<element name="cloud_height" value="020" uom="code" group="sky_condition" orig-name="hshshs"
code-type="020013" code-src="wmo_tac">
<qualifier name="cloud_layer_index" value="1" uom="unitless" group="element"/>
</element>
```

OUTPUT

```
<iwxxm:cloud>
  <iwxxm:AerodromeCloudForecast gml:id="uuid.cbd88f13-e806-4ab9-857f-b82a66cc2854">
    <iwxxm:layer>
      <iwxxm:CloudLayer>
        <iwxxm:amount xlink:href="http://codes.wmo.int/49-
          2/CloudAmountReportedAtAerodrome/OVC"/>
        <iwxxm:base uom="[ft_i]">2000</iwxxm:base>
      </iwxxm:CloudLayer>
    </iwxxm:layer>
  </iwxxm:AerodromeCloudForecast>
</iwxxm:cloud>
```

Example: Two Layers of Cloud

INPUT SCT007 OVC025

```
<element name="total_cloud_amount" value="SCT" uom="code" group="sky_condition" orig-
name="NsNsNs" code-type="SPEC15.9.1.1" code-src="local_tac">
<qualifier name="cloud_layer_index" value="1" uom="unitless" group="element"/>
</element>
<element name="cloud_height" value="007" uom="code" group="sky_condition" orig-name="hshshs"
code-type="020013" code-src="wmo_tac">
<qualifier name="cloud_layer_index" value="1" uom="unitless" group="element"/>
</element>
<element name="total_cloud_amount" value="OVC" uom="code" group="sky_condition" orig-
name="NsNsNs" code-type="SPEC15.9.1.1" code-src="local_tac">
<qualifier name="cloud_layer_index" value="2" uom="unitless" group="element"/>
</element>
<element name="cloud_height" value="025" uom="code" group="sky_condition" orig-name="hshshs"
code-type="020013" code-src="wmo_tac">
<qualifier name="cloud_layer_index" value="2" uom="unitless" group="element"/>
</element>
```

OUTPUT

```
<iwxxm:cloud>
  <iwxxm:AerodromeCloudForecast gml:id="uuid.cbd88f13-e806-4ab9-857f-b82a66cc2854">
    <iwxxm:layer>
      <iwxxm:CloudLayer>
        <iwxxm:amount xlink:href="http://codes.wmo.int/49-
          2/CloudAmountReportedAtAerodrome/SCT"/>
```

```
                    <iwxxm:base uom="[ft_i]">700</iwxxm:base>
                </iwxxm:CloudLayer>
            </iwxxm:layer>
            <iwxxm:layer>
                <iwxxm:CloudLayer>
                    <iwxxm:amount xlink:href="http://codes.wmo.int/49-
                        2/CloudAmountReportedAtAerodrome/OVC"/>
                    <iwxxm:base uom="[ft_i]">2500</iwxxm:base>
                </iwxxm:CloudLayer>
            </iwxxm:layer>
        </iwxxm:AerodromeCloudForecast>
    </iwxxm:cloud>
```

Example: Sky Clear (SKC)

INPUT SKC

```
<element name="total_cloud_amount" value="SKC" uom="code" group="sky_condition" orig-
name="NsNsNs" code-type="SPEC15.9.1.1" code-src="local_tac"/>
```

OUTPUT

```
<iwxxm:cloud>
    <iwxxm:AerodromeCloudForecast gml:id="uuid.cbd88f13-e806-4ab9-857f-b82a66cc2854">
        <iwxxm:layer>
            <iwxxm:CloudLayer>
                <iwxxm:amount xlink:href="http://codes.wmo.int/49-
                    2/CloudAmountReportedAtAerodrome/SKC"/>
                <iwxxm:base uom="N/A" xsi:nil="true"
                nilReason="http://codes.wmo.int/common/nil/inapplicable"/>
            </iwxxm:CloudLayer>
        </iwxxm:layer>
    </iwxxm:AerodromeCloudForecast>
</iwxxm:cloud>
```

Example: Vertical Visibility (VV)

Vertical visibility is defined as the vertical visual range into an obscuring medium.
Vertical visibility shall be reported either in meters ("m") or feet ("[ft_i]").

A single vertical visibility may be reported, **but cannot be reported with cloud layers**.

INPUT VV006

```
<element name="vertical_visibility" value="006" uom="code" group="visibility" orig-name="VVhshshs" code-type="001690" code-src="wmo_tac">
<qualifier name="accuracy" value="0" uom="code" group="value" code-type="033041" code-src="wmo_bufr"/>
</element>
```

OUTPUT

```
<iwxxm:cloud>
        <iwxxm:AerodromeCloudForecast>
                <iwxxm:verticalVisibility uom="[ft_i]">600</iwxxm:verticalVisibility>
        </iwxxm:AerodromeCloudForecast>
</iwxxm:cloud>
```

Example: Convective Clouds

Presence of a Thunderstorm always associated with a presence of convective clouds (CB), or TAF could can have the CB clouds without the thunderstorm

a) Single cloud Layer present at a time of Thunderstorm

FTCN35 CWAO 241900 AAA
TAF AMD CYMO 241928Z 2419/2506 29005KT 2SM TSRA BR **OVC006CB** TEMPO
2419/2421 P6SM -RA OVC012

INPUT OVC006CB

```
<element name="total_cloud_amount" value="OVC" uom="code" group="sky_condition" orig-name="NsNsNs" code-type="SPEC15.9.1.1" code-src="local_tac">

<qualifier name="cloud_layer_index" value="1" uom="unitless" group="element"/>

</element>

<element name="cloud_height" value="006" uom="code" group="sky_condition" orig-name="hshshs" code-type="020013" code-src="wmo_tac">

<qualifier name="cloud_layer_index" value="1" uom="unitless" group="element"/>

</element>
```

```
<element name="coded_cloud_type_obscuring_phenomena" value="CB" uom="code"
group="sky_condition" orig-name="CLOUD_TYPE" code-type="020197" code-src="local_tac">

<qualifier name="cloud_layer_index" value="1" uom="unitless" group="element"/>

</element>
```

OUTPUT

```
<iwxxm:cloud>
<iwxxm:AerodromeCloudForecast gml:id="uuid.3b8e5f69-2224-4310-be75-b9dd55e61cf0">
<iwxxm:layer>
<iwxxm:CloudLayer>
<iwxxm:amount xlink:href="http://codes.wmo.int/49-2/CloudAmountReportedAtAerodrome/OVC"/>
<iwxxm:base uom="[ft_i]">600</iwxxm:base>
<iwxxm:cloudType xlink:href="http://codes.wmo.int/49-2/SigConvectiveCloudType/CB"/>
</iwxxm:CloudLayer>
</iwxxm:layer>
</iwxxm:AerodromeCloudForecast>
</iwxxm:cloud>
```

b) Multiple cloud Layers present at a time of Thunderstorm

If more than one cloud layer is present in the TAF, “CB” will be attached to only one layer (not necessarily the first one). We need to look at **cloud_layer_index** to make sure that CB reported together with the proper cloud layer.

Example of multiple cloud layers with “CB”:

FTCN34 CWAO 241200 AAA
TAF AMD CZMD 241223Z 2412/2422 VRB03KT 5SM -TSRA BR **BKN002 OVC060CB**
TEMPO 2412/2414 P6SM NSW BKN020 OVC060
FM241400 VRB03KT 5SM -SHRA BR OVC005 TEMPO 2414/2417 P6SM NSW
BKN010
FM241700 34006KT P6SM BKN025 TEMPO 2417/2422 5SM -SHRA BR BKN007
OVC010
RMK FCST BASED ON AUTO OBS. NXT FCST BY 241600Z=

INPUT BKN002 OVC060CB

```
<element name="total_cloud_amount" value="BKN" uom="code" group="sky_condition" orig-
name="NsNsNs" code-type="SPEC15.9.1.1" code-src="local_tac">

<qualifier name="cloud_layer_index" value="1" uom="unitless" group="element"/>

</element>

<element name="cloud_height" value="002" uom="code" group="sky_condition" orig-
name="hshshs" code-type="020013" code-src="wmo_tac">

<qualifier name="cloud_layer_index" value="1" uom="unitless" group="element"/>

</element>

<element name="total_cloud_amount" value="OVC" uom="code" group="sky_condition" orig-
name="NsNsNs" code-type="SPEC15.9.1.1" code-src="local_tac">

<qualifier name="cloud_layer_index" value="2" uom="unitless" group="element"/>

</element>

<element name="cloud_height" value="060" uom="code" group="sky_condition" orig-
name="hshshs" code-type="020013" code-src="wmo_tac">

<qualifier name="cloud_layer_index" value="2" uom="unitless" group="element"/>

</element>

<element name="coded_cloud_type_obscuring_phenomena" value="CB" uom="code"
group="sky_condition" orig-name="CLOUD_TYPE" code-type="020197" code-src="local_tac">

<qualifier name="cloud_layer_index" value="2" uom="unitless" group="element"/>

</element>
```

OUTPUT

```
<iwxxm:cloud>
    <iwxxm:AerodromeCloudForecast gml:id="uuid.cbd88f13-e806-4ab9-857f-b82a66cc2854">
     <iwxxm:layer>
            <iwxxm:CloudLayer>
              <iwxxm:amount xlink:href="http://codes.wmo.int/49-
                2/CloudAmountReportedAtAerodrome/BKN"/>
               <iwxxm:base uom="[ft_i]">200</iwxxm:base>
          </iwxxm:CloudLayer>
       </iwxxm:layer>
        <iwxxm:layer>
            <iwxxm:CloudLayer>
              <iwxxm:amount xlink:href="http://codes.wmo.int/49-
                2/CloudAmountReportedAtAerodrome/OVC"/>
               <iwxxm:base uom="[ft_i]">6000</iwxxm:base>
               <iwxxm:cloudType xlink:href="http://codes.wmo.int/49-
                  2/SigConvectiveCloudType/CB"/>
          </iwxxm:CloudLayer>
       </iwxxm:layer>
      </iwxxm:AerodromeCloudForecast>
 </iwxxm:cloud>
```

If there were **no cloud reported** in the base or FM forecast, then IWXXM encoding will be the following:

```
<iwxxm:cloud>
        < iwxxm:AerodromeCloudForecast gml:id="uuid.cbd88f13-e806-4ab9-857f-b82a66cc2854">
            <iwxxm:layer>
                <iwxxm:CloudLayer>
                    <iwxxm:amount uom="N/A" xsi:nil="true"
                      nilReason="http://codes.wmo.int/common/nil/missing"/>
                     <iwxxm:base uom="N/A" xsi:nil="true"
                      nilReason="http://codes.wmo.int/common/nil/missing"/>
                </iwxxm:CloudLayer>
            </iwxxm:layer>
        </iwxxm:AerodromeCloudForecast>
    </iwxxm:cloud>
```

6.8 Canadian specific TAF Elements - Extension

6.8.1 Ice Crystals Weather (IC)

Canada will continue to report and forecast IC. Therefore, the strategy will be to encode UP as present wx element in the core part of the IWXXM and use and extension to define IC and point to a Canadian Code Registry (https://dd.meteo.gc.ca/today/aviation/iwxxm/code-ca/present_and_forecast_weather/IC/)

INPUT (two types of weather, one of them requires use of Canadian extension)

```
<element name="present_weather" value="-SN" uom="code" group="weather" orig-name="ww" code-type="004677" code-src="wmo_tac">
   <qualifier name="index" value="1" uom="unitless" group="element"/>
</element>
<element name="present_weather" value="IC" uom="code" group="weather" orig-name="ww" code-type="004677" code-src="wmo_tac">
    <qualifier name="index" value="2" uom="unitless" group="element"/>
</element>
```

OUTPUT

```
<iwxxm:weather xlink:href="http://codes.wmo.int/306/4678/-SN"/>
<iwxxm:weather xlink:href="http://codes.wmo.int/306/4678/UP"/>
<iwxxm:extension>
    <iwxxm-ca:weather xlink: href="https://dd.meteo.gc.ca/today/aviation/iwxxm/code-ca/present_and_forecast_weather/ic"/>
</iwxxm:extension>
```

Note: the lines highlighted in yellow are used to represent IC weather type

6.8.2 Low Level Wind Shear

INPUT WS005/15032KT

```
<element name="wind_shear_direction" value="150" uom="°" group="wind" orig-name="wsddd">
        <qualifier name="statistical_significance" value="vectoral_average" uom="unitless"
        group="element"/>
</element>
<element name="wind_shear_speed" value="32" uom="kn" group="wind" orig-name="wsff">
        <qualifier name="statistical_significance" value="average" uom="unitless"
        group="element"/>
</element>
<element name="wind_shear_height" value="005" uom="100ft" group="wind" orig-
name="wshxhxhx"/>
```

OUTPUT

```
<iwxxm:extension>
      <iwxxm-ca:NonConvectiveLowLevelWindShear>
            <iwxxm-ca:windDirection uom="deg">150</iwxxm-ca:windDirection>
            <iwxxm-ca:windSpeed uom="[kn_i]">32</iwxxm-ca:windSpeed>
            <iwxxm-ca:layerAboveAerodrome>
                  <iwxxm-ca:lowerLimit uom="[ft_i]">0</iwxxm-ca:lowerLimit>
                  <iwxxm-ca:upperLimit uom="[ft_i]">500</iwxxm-ca:upperLimit>
          </iwxxm-ca:layerAboveAerodrome>
    </iwxxm-ca:NonConvectiveLowLevelWindShear>
</iwxxm:extension>
```

See US example https://nws.weather.gov/schemas/iwxxm-us/3.0/examples/tafs/KART-112334Z.xml

In the US example the iwxxm-ca:lowerLimit is set to 0 ft. We will have an identical application and will not input station Elevation instead.

6.8.3 TAF REMARKS and other text Encoding

TAF remarks and texts in the TAF body (e.g. “ADVISORY OFFSITE”, “NOT AVBL DUE…”, “FCST CNCLD DUE…”) should be encoded in IWXXM via Canadian extensions.

Example:
TAF CYEU 221038Z 2211/2223 VRB03KT P6SM SKC
RMK ADVISORY OFFSITE. FCST BASED ON OBS OBTAINED FM OTHER SRCS. NXT FCST BY 221800Z=

All RMK content goes into a unique Element called HumanReadableText.

At the moment we are going to have one tag <iwxxm-ca:humanReadableText> that has a full TAF remak with combination of other text that can occure inside TAF body (currently only “Advisory Offsite”)’

The humanReadableText belongs to whole TAF and not to any of change group. This is why the extension with the humanReadableText should be reported after all change forecast group just before the closing tag </iwxxm:TAF>.

Example:

<iwxxm:extension>
<**iwxxm-ca:humanReadableText**> ADVISORY OFFSITE. FCST BASED ON OBS OBTAINED FM OTHER SRCS. NXT FCST BY 221800Z</**iwxxm-ca:humanReadableText**>
</iwxxm:extension>

7 TAF Cancelation

There is a special case in IWXXM representation for the cancelled TAF.

See Example https://github.com/wmo-im/iwxxm/blob/master/IWXXM/examples/taf-A5-2.xml for the reference of IWXXM presentation of Cancelled Report.

Cancelled TAF Format:
TAF AMD CYTL 152330Z 1521/1608 CNL
RMK CLD HGT SENSOR INOP. NXT FCST BY 160200Z=

Input:
The decoded TAF input for the cancelled TAF has the same <om:metadata> section as a regular TAF, but the <elements> section is different. It still has a change group "original" with a **change_start_date_time** and **change_end_date_time**, but there are no meteorological Elements. Instead there is an Element with a name "**no_taf".** This "**no_taf"** Element applies to both Cancelled TAF and NIL TAF.

IWXXM Output:
If Element **"no_taf"** is present in the "original" change group and the value of "no_taf" Element has a word "**CNL**" in it, then the IWXXM encoder should have the following sections the same as for regular TAF: header portion, <iwxxm:issueTime> and <iwxxm:aerodrome>. However instead of <iwxxm:baseForecast> and <iwxxm:changeForecast> there will be a <iwxxm:cancelledReportValidPeriod> section with the enclosed <iwxxm:validPeriod> tag that consists of a start and stop time of the cancelled forecast.

The attribute **isCancelReport="true"** should be placed in an initial part of IWXXM where all other attributes are listed: reportStatus="NORMAL" (or "Amendment"), **isCancelReport="true"** and permissibleUsage="OPERATIONAL"

INPUT

```
<om:result>
<orig-header>FTCN23 CWAO 071800 AAA</orig-header>
<orig-msg>TAF AMD CYOC 072305Z 0719/0801 CNL RMK NO OBS. NXT FCST BY 081500Z=</orig-msg>
 <elements>
   <element name="change_group" value="original" uom="unitless">
        <qualifier name="change_end_date_time" value="2022-02-08T01:00:00.000Z" uom="datetime"
          group="element" orig-value="0801"/>
```

```
        <qualifier name="change_start_date_time" value="2022-02-07T19:00:00.000Z" uom="datetime"
          group="element" orig-value="0719"/>
      <element name="no_taf" value="CNL" uom="unitless" group="generic" orig-
        name="CANCELLED_FORECASTS"/>
      <element name="remark" value="NO OBS. NXT FCST BY 081500Z=" uom="unitless" group="generic"
        orig-name="RMK">
        <element name="next_forecast_datetime" value="2022-02-08T15:00:00.000Z" uom="datetime"
        group="generic" orig-value="081500Z" orig-name="NXT_FCST"/>
       </element>
      </element>
    </elements>
</om:result>
```

OUTPUT

```
<iwxxm:cancelledReportValidPeriod>
   <gml:TimePeriod gml:id="uuid.b171a7e2-7fdf-496c-ada8-6cbc6c606291">
          <gml:beginPosition>2022-02-07T19:00:00Z</gml:beginPosition>
          <gml:endPosition>2022-02-08T01:00:00Z</gml:endPosition>
   </gml:TimePeriod>
</iwxxm:cancelledReportValidPeriod>
```

8 NIL TAF

NIL TAF report usually happens if a TAF was previously cancelled and still unavailable (we can have only one cancellation, subsequent TAF being a NIL TAF).

The NIL IWXXM TAF should report only <iwxxm:issueTime>, <iwxxm:aerodrome> and <iwxxm:baseForecast>. See example https://github.com/wmo-im/iwxxm/blob/master/IWXXM/examples/taf-NIL-collect.xml for the reference.

Rules for NIL TAF encoding into IWXXM are the following:
If Element **"no_taf"** is present in the "original" change group and the value of "no_taf" Element **does not have** the word "**CNL**" in it, then the IWXXM encoder should have the following sections the same as for regular TAF: header portion, <iwxxm:issueTime>, <iwxxm:aerodrome> and a <iwxxm:baseForecast>. The <iwxxm:baseForecast>should report a nilReason only.

INPUT

```
    <om:result>
     <orig-header>FTCN23 CWAO 111600</orig-header>
     <orig-msg>TAF CYHI 111640Z NIL RMK INSUFFICIENT OBS. NXT FCST BY 111900Z=</orig-msg>
     <elements>
       <element name="change_group" uom="unitless" value="original">
         <qualifier group="element" name="change_end_date_time" orig-value="112000"
             uom="datetime" value="2022-02-11T20:00:00.000Z" />
         <qualifier group="element" name="change_start_date_time" orig-value="1117"
             uom="datetime" value="2022-02-11T17:00:00.000Z" />
```

```
        <element group="generic" name="no_taf" orig-name="CANCELLED_FORECASTS"
            uom="unitless" value="NIL" />
        <element group="generic" name="remark" orig-name="RMK" uom="unitless"
          value="INSUFFICIENT OBS. NXT FCST BY 111900Z=">
        <element group="generic" name="next_forecast_datetime" orig-name="NXT_FCST" orig-
            value="111900Z" uom="datetime" value="2022-02-11T19:00:00.000Z" />
       </element>
      </element>
    </elements>
   </om:result>
```

OUTPUT

```
<iwxxm:baseForecast nilReason="http://codes.wmo.int/common/nil/missing"/>
```

9 Bulletin Identifier

The IWXXM TAF file should close with a line that specifies the IWXXM bulletin identifier.

……

……

```
 <collect:bulletinIdentifier>A_LTCN24CWAO090900_C_CWAO_20220209090000.xml</collect:bulletinIdentifier>
</collect:MeteorologicalBulletin>
```