Cadre de
Gestion des
Données

Data
Management
Framework

Meteorological Markup Language (Met-ML) Description

Environment Canada and Climate Change

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1. Document Information

1.1 History

Author	Date	Version	Remarks
Thinesh Sornalingam	December 21, 2009	1.0	Initial version
Connie Hamilton	March 10, 2010	2.0	
Thinesh Sornalingam	January 22, 2017	2.1	Various updates

1.2 Filename & Location

Met-ML Schema Description.doc

1.3 Referenced Documents

Document	Author	Version
Point Observation XML Description	Natalia Andrienko	1.0
DMS Data Architecture	Sule Alp	1.0

2. Meteorological Markup Language (Met-ML) Schema

2.1 Met-ML Overview

Meteorological Markup Language is ECCC's internally developed (based on OGC's global standards) data form for data exchange. It is the schema used to encode and disseminate processed meteorological data (observations, alerts, forecasts and metadata) internally and externally to the public.

Met-ML was primarily developed for exchanging meteorological point observation data. Prior to the development of this schema, a multitude of XML representations were in use to express the data at various phases between the ingestion and dissemination by DMS (Data Management System, MSC's business intelligence software). As the number of datasets and user demand increased, the number of XML representations grew exponentially. The lack of a standard schema resulted in management and synchronization issues. Thus Met-ML was developed to reduce the number of XML schemas and ensure the expressions of DMS data in XML format are more manageable.

DMS processes incoming observation data in various stages before it is propagated to data distribution channels. The data is ingested by the system in raw form, and then it is parsed, decoded, quality-controlled and finally it is converted into a product and disseminated.

In the raw phase the incoming message is as it is received. It is preserved in its original form. The raw message is then passed to the parser component where the message is tokenized into token name, value and unit (unit is optional). The parsed message is then pushed to the decoder component where it is translated in accordance with business logic. The same token names from the parsed level are still used at decoded level, along with the same value and unit if they meet business' precision requirements. Furthermore, quality control is also performed at the decoder level. Native and real-time quality checks are preserved at the decode level. The roll-up summary of presence and range categories will also be included in decoded phase. For traceability purposes the incoming data is preserved at each phase as outlined in the specification and requirement documents.

2.2 MET-ML Description

- General**:** version and encoding

-MET-ML is expressed in XML version 1.0 and it's encoded in UTF-8 (8 bit Unicode Transformation Format).

- Standards**:** MET-ML (namespaces) conforms to these following standards:

  The OpenGIS® Observations and Measurements Encoding Standard (O&M) defines an abstract model and an XML schema encoding for observations and it provides support for common sampling strategies. O&M also provides a general framework for systems that deal in technical measurements in science and engineering. This is one of the OGC Sensor Web Enablement (SWE) suite of standards.
  Additional information of O&M can be obtained from here: http://www.opengeospatial.org/standards/om

  The OpenGIS® Geography Markup Language Encoding Standard (GML) The Geography Markup Language (GML) is an XML grammar for expressing geographical features. GML serves as a modeling language for geographic systems as well as an open interchange format for geographic transactions on the Internet. As with most XML based grammars, there are two parts to the grammar – the schema that describes the document and the instance document that contains the actual data.
  A GML document is described using a GML Schema. This allows users and developers to describe generic geographic data sets that contain points, lines and polygons.
  Additional information of GML can be obtained from here: http://www.opengeospatial.org/standards/gml

3. Skeletal view of Phase Instances:

3.1 Parsed MET-ML XML

Here is a skeletal view of a parsed MET-ML instance:

<member>

```
<observation>
    <metadata>
        <set>
            <general>
                <author></author>
                <dataset></dataset>
                <phase></phase>
                <id></id>
                <parent></parent>
            </general>
        </set>
    </metadata>
    <om:samplingTime>
    <om:resultTime>
    <om:procedure>
    <om:observedProperty>
    <om:featureOfInterest>
    <om:result>
        <orig-headers></orig-headers>
        <orig-msg></orig-msg>
        <elements>
            <element group=*** name=*** uom=*** value=***></element>
                <remark> </remark>
            <element group=*** name=*** uom=*** value=***></element>
            •
            •
            •
            <element group=*** name=*** uom=*** value=***></element>
        </elements>
    </om:result>
</observation>
```

</member>

- The **metadata block** contains descriptive information about the xml file. Such as the processing coMet-MLnent's designation (ex: MSC-DMS NC-AWOS Parser), the encoded dataset (ex: nav_canada/observation/atmospheric/surface_weather/awos-1.0-binary3.2.1), the phase (ex: parsed), id and parent.
- The **samplingTime block** encloses teMet-MLral information about the observation. It is recorded in accordance with the GML standard in UTC (Coordinated Universal Time) time. For example:

```
<om:samplingTime>
    <!-- This is the obs time. -->
        <gml:TimeInstant>
            <gml:timePosition>2009-03-02T00:00:00.000Z</gml:timePosition>
        </gml:TimeInstant>
</om:samplingTime>
```

- The **resultTime block** contains information about the coMet-MLnent's processing date and time of the xml. It is also recorded in UTC in accordance with GML. For example:

```
<om:resultTime>
    <!-- This is the coMet-MLnent's processing time. -->
        <gml:TimeInstant>
            <gml:timePosition>2009-03-02T00:01:19.000Z</gml:timePosition>
        </gml:TimeInstant>
</om:resultTime>
```

- The **procedure block** contains a link to the station and its metadata where the observation was recorded. For example:

```
<om:procedure xlink:href="/station/icao/egmd"/>
```

- The **observedProperty block** references the schema that will be used to validate the XML file. In another words it defines the data types and elements that are required to be present in the XML file.
- **featureOfInterest block** contains spatial information about the observation. The latitude and longitude coordinates can be found here expressed using the GML standard (separated by a space). For example:

```
<gml:FeatureCollection>
    <gml:location>
        <gml:Point>
            <gml:pos>51.39 -56.08</gml:pos>
        </gml:Point>
    </gml:location>
```

</gml:FeatureCollection>

- The **result block** contains the original header and message blocks, along with all the element blocks associated with this dataset. The initial bulletin header of the message is stored in the orig-headers block, while the original content is stored in the orig-msg block.
- The **elements block** contains at least one element definition belonging to the dataset represented by the XML. An element definition includes the element's name, unit of measurement and value. Each element block also contains a remark block that contains comments or notes about that element. A derived element would have a remark block such as:

  *<remark>**Derived from 9SpSpspsp with an SpSp value of 07 - Section 3**</remark>*

  The above **remark block** contains the name of the element it was derived from, the value, and section.

3.2 Decoded MET-ML XML

Here is a skeletal view of a decoded MET-ML instance:

```
<member>
    <observation>
        <metadata>
            <set>
                <general>
                    <author></author>
                    <dataset></dataset>
                    <phase></phase>
                    <id></id>
                    <parent></parent>
                </general>
                <identification-elements>
                    <element group=*** name=*** uom=*** value=*** orig-name=***/>
                    •
                    •
```

```
                    •
                    <element group=*** name=*** uom=*** value=*** orig-name=***/>
                </identification-elements>
        </set>
</metadata>
<om:samplingTime>
<om:resultTime>
<om:procedure>
<om:observedProperty>
<om:featureOfInterest>
<om:result>
        <orig-headers></orig-headers>
        <orig-msg></orig-msg>
        <elements>
                <element group=*** name=*** uom=*** value=*** orig-name=***></element>
                    <qualifier group=*** name=*** uom=*** value=*** orig-name=***/>
                    •
                    •
                    •
                    <qualifier group=*** name=*** uom=*** value=*** orig-name=***/>
                    <quality-controlled>
                        <native></native>
                    </quality-controlled>
                <element group=*** name=*** uom=*** value=*** orig-name=***></element>
                •
                •
                •
                <element group=*** name=*** uom=*** value=*** orig-name=***></element>
        </elements>
```

```
            </om:result>
        </observation>
</member>
```

In addition to the blocks found in a parsed xml file, the decoded instance contains identification, quality-controlled and qualifier blocks.

- The **identification block** contains one or more metadata elements regarding the observation represented by the xml. The elements describe the standard translation of the observation. For example: station name, WMO region, etc.
- **Quality-controlled block** at the decoded level contains native quality checks that arrive attached to the incoming observations.
- A **qualifier block** contains additional information about the element it's enclosed within. An element can have zero or more qualifiers.
- In future revisions of the MET-ML schema, the original name of the element is planned to be represented in each element block.

3.3 Quality controlled MET-ML XML

Here is a skeletal view of a quality controlled MET-ML instance:

```
<member>
        <observation>
            <metadata>
                <set>
                    <general>
                        <author></author>
                        <dataset></dataset>
                        <phase></phase>
                        <id></id>
                        <parent></parent>
                    </general>
                    <identification-elements>
```

<element group=*** name=*** uom=*** value=*** orig-name=***/>

•

•

•

<element group=*** name=*** uom=*** value=*** orig-name=***/>

</identification-elements>

</set>

</metadata>

<om:samplingTime>

<om:resultTime>

<om:procedure>

<om:observedProperty>

<om:featureOfInterest>

<om:result>

<orig-headers></orig-headers>

<orig-msg></orig-msg>

<elements>

<element group=*** name=*** uom=*** value=*** orig-name=***></element>

• **<quality-controlled>**

• <native></native>

• <standardized></standardized>

• <real-time>

• <qc-tests>

• <qc-rule>

• •

```
                                    .       .   .
                                    .       .   .
                                    .       .   </qc-rule>
                                    .       .
                                    .       .
                                    .       .
                                    .   </qc-tests>
                                .   <quality-controlled>
                                .
                                .
                                .
                                .   <element group=*** name=*** uom=*** value=*** orig-name=***></element>
                        </elements>
                </om:result>
        </observation>
</member>
```

In comparison to the decoded xml, the quality controlled file contains additional quality checks that validate the observation.

- Complement to the native quality checks, in-house checks are also conducted on the incoming observations. These include standardization and real-time quality checks. A real-time check can consist of one or more tests which in turn can include one or more qc-rules. This is illustrated in the skeletal view above.

4. Detailed Description of MET-ML schema elements and attributes

The following table provides a description of each tag found in MET-ML schema:

TAGS	REQUIRED?	DESCRIPTION
<om:ObservationCollection>	Yes	
<om:member>	Yes	
<om:Observation>	Yes	
<om:metadata>	Yes	
<set>	Yes	
<general>	Yes	
<author>	Yes	
@name	Yes	Value - Name of coMet-MLnent that created point observation XML
@version	Yes	Value - Version of coMet-MLnent that created point observation XML
<dataset>	Yes	
@name	Yes	Value - Name of dataset represented in point observation XML
<phase>	Yes	
@name	Yes	Value - Name of phase of dataset in point observation XML
<id>	Yes	
@xlink:href	Yes	Link - References 'this' point observation
<parent>	Yes	
@xlink:href	Yes	Link - References point observation's parent
<identification-elements>	No	0 or 1 tag allowed
<element>	Yes	1 or more identification elements allowed that describe observation
@group	Yes	Value - Metadata element's standard group
@orig-name	No	Value - Original (incoming) name of the element
@name	No	Value - Metadata element's standard name
@code-src	No	Value - Metadata element's incoming code source
@code-type	No	Value - Metadata element's incoming code type

@uom	Yes	Value - Metadata element's incoming unit of measure
@value	Yes	Value - Metadata element's incoming value
<remarks>	No	0 or more tag allowed. Content - comments/description
<qualifier>	No	0 or more qualifiers allowed
@group	Yes	Value - Qualifier's standard group
@orig-name	No	Value - Original (incoming) name of the element
@name	Yes	Value - Qualifier's standard name
@code-src	No	Value - Qualifier's incoming code source, required if uom="code"
@code-type	No	Value - Qualifier's incoming code type, required if uom="code"
@uom	Yes	Value - Qualifier's incoming unit of measure
@value	Yes	Value - Qualifier's incoming value
<om:samplingTime>	Yes	
<gml:TimeInstant>	Yes	
<gml:timePosition>	Yes	Content - Observation date/time (UTC TimeZone)
<om:resultTime>	Yes	
<gml:TimeInstant>	Yes	
<gml:timePosition>	Yes	Content - CoMet-MLnent's processing date/time (UTC TimeZone)
<om:procedure>	Yes	
@xlink:href	Yes	Link - References the station and its metadata
<om:observedProperty>	Yes	
@gml:remoteSchema	Yes	Link - References the schema used for validating format
<om:featureOfInterest>	Yes	
<gml:FeatureCollection>	Yes	
<gml:location>	Yes	
<gml:Point>	Yes	

<gml:pos>	Yes	Content - latitude SPACE longitude of where observations was taken
<om:result>	Yes	
<orig-header>	Yes	Content - Original message's bulletin header
<orig-msg>	No	Content - Original message's content
@xlink:href	Yes	Link - References original message
<elements>	No	0 or 1 tag allowed
<element>	Yes	1 or more elements allowed
@group	Yes	Value - Element's standard group
@orig-name	No	Value - Original (incoming) name of the element
@name	No	Value - Element's standard name
@code-src	No	Value - Element's incoming code source, required if uom="code"
@code-type	No	Value - Element's incoming code type, required if uom="code"
@uom	Yes	Value - Element's incoming unit of measure
@value	Yes	Value - Element's incoming value
<**remarks**>	No	0 or more tag allowed. Content - comments/description
<qualifier>	No	0 or more qualifiers allowed
@group	Yes	Value - Qualifier's standard group
@orig-name	No	Value - Original (incoming) name of the element
@name	Yes	Value - Qualifier's standard name
@code-src	No	Value - Qualifier's incoming code source, required if uom="code"
@code-type	No	Value - Qualifier's incoming code type, required if uom="code"
@uom	Yes	Value - Qualifier's incoming unit of measure
@value	Yes	Value - Qualifier's incoming value
<quality-controlled>	No	0 or 1 tag allowed
<native>	No	0 or 1 tag allowed
<qualifier>	Yes	1 or more qualifiers allowed
@group	Yes	Value - Qualifier's standard group
@orig-name	No	Value - Original (incoming) name of the element
@name	Yes	Value - Qualifier's standard name

	@code-src	No	Value - Qualifier's incoming code source, required if uom="code"
	@code-type	No	Value - Qualifier's incoming code type, required if uom="code"
	@uom	Yes	Value - Qualifier's incoming unit of measure
	@value	Yes	Value - Qualifier's incoming value
<standardized>		No	0 or 1 tag allowed
	@resultFlag	Yes	Value - Result flag number after standardization stage
	@resultValue	Yes	Value - Result value/meaning of result flag number
<real-time>		No	0 or 1 tag allowed
	@resultFlag	Yes	Value - Result flag number after real-time tests all completed
	@resultValue	Yes	Value - Result value/meaning of result flag number
	@xlink:href	No	Link - References quality-control info about element
	<qc-tests>	Yes	Only 1 tag allowed
	@type	Yes	Value - Type of qc tests being tested
	@resultFlag	Yes	Value - Result flag number after qc-tests completed per test type
	@resultValue	Yes	Value - Result value/meaning of result flag number
	<qc-rule>	Yes	1 or more qc-rules allowed
	@id	Yes	Value - unique id for qc-rule test
	@xlink:href	Yes	Link - References qc-rule location
	@resultFlag	Yes	Value - Result flag number after qc-rule tested
	@resultValue	Yes	Value - Result value/meaning of result flag number

5. Variations of MET-ML:

5.1 Meteorological Service of Canada's XML observations

One of the reasons for the development of MET-ML was to unify all MSC data exchange services using a common standard. In order for DMS to feed data to the weather office media site, a variation of MET-ML was created. This new schema was created by taking the original MET-ML schema and making some minor amendments. The overall structure of the schema remained the same, but the content and cardinality were slightly modified. The Meteorological Service of Canada's XML observations required a schema that will accommodate multiple observation from different stations located within any Canadian province/territory. In order to achieve this multiplicity, the member block which encloses the metadata and result blocks was repeated for each observation/station. The original MET-ML schema was developed using the Observation and Measurement (O&M) ObservationCollection definition, thus it was easily transferable to weather office needs. The first member block contains the observational elements that are common to the entire province, while the preceding member blocks are dedicated for each meteorological station in that province/territory. Other minor changes include the addition of a desc (description/comments) attribute to the element type definition and making the DMS general tag optional. The following is a skeletal view a weather office media site xml containing two observations:

5.2 Skeletal view of Meteorological Service of Canada's XML observation:

```
<ObservationCollection>
<!--Observation 1-->
  <member>
    <observation>
      <metadata>
        <set>
          <general>
            <author></author>
            <dataset></dataset>
            <phase></phase>
            <id></id>
            <parent></parent>
```

```
                    </general>
                    <identification-elements>
                        <element name=*** uom=*** value=*** desc=***/>
                        •
                        •
                        •
                        <element name=*** uom=*** value=*** desc=***/>
                    </identification-elements>
                </set>
            </metadata>
            <om:samplingTime>
            <om:resultTime>
            <om:procedure>
            <om:observedProperty>
            <om:featureOfInterest>
            <om:result>
                <orig-headers></orig-headers>
                <elements>
                    <element name=*** uom=*** value=*** desc=***></element>
            •
                    •
                    •
                    <element name=*** uom=*** value=*** desc=***></element>
                </elements>
            </om:result>
        </observation>
</member>
```

```
<!--Observation 2-->
 <member>
        <observation>
                <metadata>
                        <set>
                                <general>
                                        <author></author>
                                        <dataset></dataset>
                                        <phase></phase>
                                        <id></id>
                                        <parent></parent>
                                </general>
                                <identification-elements>
                                        <element name=*** uom=*** value=*** desc=***/>
                                        •
                                        •
                                        •
                                        <element name=*** uom=*** value=*** desc=***/>
                                </identification-elements>
                        </set>
                </metadata>
                <om:samplingTime>
                <om:resultTime>
                <om:procedure>
                <om:observedProperty>
                <om:featureOfInterest>
                <om:result>
                        <orig-headers></orig-headers>
```

```
                    <elements>
                        <element name=*** uom=*** value=*** desc=***></element>
                •
                        •
                        •
                        <element name=*** uom=*** value=*** desc=***></element>
                    </elements>
                </om:result>
            </observation>
        </member>
</ObservationCollection>
```

Please refer to the Appendix for a sample of Meteorological Service of Canada's xml observation.

6. Appendix:

6.1 XML and XML Schemas Overview:

Extensible Mark-up Language (XML) is simply a meta-language that can be utilized to encode data in a highly structured form. This enables increased interoperability between data sources. It is also human readable. The structure and content of an XML document is dictated and validated by a schema definition.

XML schema definition (XSD) is an XML-based language used to create XML files and data models. An XML schema defines element and attribute names for a class of XML documents. The schema also specifies the structure that those documents must adhere to and the type of content that each element can hold. Documents that attempt to adhere to an XML schema are said to be instances of that schema. If they correctly adhere to the schema, then they are valid instances. This is not the same as being well formed. A well-formed XML document follows all the syntax rules of XML, but it does necessarily adhere to any particular schema. So, an XML document can be well formed without being valid, but it cannot be valid unless it is well formed. Further elaboration on XML and XML schemas definitions can be attained from here:

http://www.w3schools.com/xml/default.asp

http://www.w3schools.com/Schema/

6.2 Sample instances of MET-ML

The following are examples of parsed, decoded and quality controlled xml files which conform to MET-ML schema:

- **SWOB (Surface weather observation) instance:**

```
<om:ObservationCollection>
        <om:member>
                <om:Observation>
                        <om:metadata>
                                <set>
                                        <general>
```

```
                                        <author build="build.4290" name="MSC-DMS-PG-External-XML" version="1.0"/>
                                        <dataset name="msc/observation/atmospheric/surface_weather/ca-1.0-ascii"/>
                                        <phase name="product_swob-xml-2.0"/>
                                        <id xlink:href="/data/msc/observation/atmospheric/surface_weather/ca-1.0-ascii/product_swob-
        xml-2.0/201701230200/8205092/aaw/orig"/>
                                        <parent xlink:href="/data/msc/observation/atmospheric/surface_weather/ca-1.0-
ascii/decoded_enhanced-xml-2.0/201701230200/8205092/aaw/11/orig"/>
                                    </general>
                                    <identification-elements>
                                        <element name="date_tm" uom="datetime" value="2017-01-23T02:00:00.000Z"/>
                                        <element name="stn_nam" uom="unitless" value="SHEARWATER RCS NS"/>
                                        <element name="tc_id" uom="unitless" value="AAW"/>
                                        <element name="wmo_synop_id" uom="unitless" value="71264"/>
                                        <element name="stn_elev" uom="m" value="25.5"/>
                                        <element name="data_pvdr" uom="unitless" value="MSC"/>
                                        <element name="clim_id" uom="unitless" value="8205092"/>
                                        <element name="msc_id" uom="unitless" value="8205092"/>
                                        <element name="lat" uom="°" value="44.633333"/>
                                        <element name="long" uom="°" value="-63.516667"/>
                                    </identification-elements>
                                </set>
                            </om:metadata>
                            <om:samplingTime>
                                <gml:TimeInstant>
                                    <gml:timePosition>2017-01-23T02:00:00.000Z</gml:timePosition>
                                </gml:TimeInstant>
                            </om:samplingTime>
                            <om:resultTime>
                                <gml:TimeInstant>
                                    <gml:timePosition>2017-01-23T02:17:01.847Z</gml:timePosition>
                                </gml:TimeInstant>
                            </om:resultTime>
                            <om:procedure xlink:href="/data/msc/metadata/station/surface_weather/metadata_instance-2.0-xml/product-jicc_xml-
1.0/201610311609/aaw"/>
                            <om:observedProperty gml:remoteSchema="/schema/point-observation/2.0.xsd"/>
                            <om:featureOfInterest>
                                <gml:FeatureCollection>
                                    <gml:location>
                                        <gml:Point>
                                            <gml:pos>44.633333 -63.516667</gml:pos>
```

```
                        </gml:Point>
                    </gml:location>
                </gml:FeatureCollection>
            </om:featureOfInterest>
            <om:result>
                <elements>
                    <element name="data_avail" uom="%" value="100">
                        <qualifier name="qa_summary" uom="unitless" value="100"/>
                    </element>
                    <element name="max_batry_volt_pst1hr" uom="V" value="12.55">
                        <qualifier name="qa_summary" uom="unitless" value="100"/>
                    </element>
                    <element name="min_batry_volt_pst1hr" uom="V" value="12.43">
                        <qualifier name="qa_summary" uom="unitless" value="100"/>
                    </element>
                    <element name="logr_panl_temp" uom="°C" value="-1.2">
                        <qualifier name="qa_summary" uom="unitless" value="100"/>
                    </element>
                    <element name="air_temp" uom="°C" value="-1.7">
                        <qualifier name="qa_summary" uom="unitless" value="100"/>
                    </element>
                    <element name="rel_hum" uom="%" value="71">
                        <qualifier name="qa_summary" uom="unitless" value="100"/>
                    </element>
                    <element name="avg_air_temp_pst1hr" uom="°C" value="-1.7">
                        <qualifier name="qa_summary" uom="unitless" value="100"/>
                    </element>
                    <element name="max_air_temp_pst1hr" uom="°C" value="-1.7">
                        <qualifier name="qa_summary" uom="unitless" value="100"/>
                    </element>
                    <element name="max_rel_hum_pst1hr" uom="%" value="73">
                        <qualifier name="qa_summary" uom="unitless" value="100"/>
                    </element>
                    <element name="min_air_temp_pst1hr" uom="°C" value="-1.8">
                        <qualifier name="qa_summary" uom="unitless" value="100"/>
                    </element>
                    <element name="min_rel_hum_pst1hr" uom="%" value="70">
                        <qualifier name="qa_summary" uom="unitless" value="100"/>
                    </element>
                    <element name="avg_wnd_spd_10m_mt50-60" uom="km/h" value="17.5">
```

```
            <qualifier name="qa_summary" uom="unitless" value="100"/>
</element>
<element name="avg_wnd_dir_10m_mt50-60" uom="°" value="7">
            <qualifier name="qa_summary" uom="unitless" value="100"/>
</element>
<element name="avg_wnd_spd_10m_pst1hr" uom="km/h" value="20.8">
            <qualifier name="qa_summary" uom="unitless" value="100"/>
</element>
<element name="avg_wnd_dir_10m_pst1hr" uom="°" value="358">
            <qualifier name="qa_summary" uom="unitless" value="100"/>
</element>
<element name="max_wnd_spd_10m_pst1hr" uom="km/h" value="37.5">
            <qualifier name="qa_summary" uom="unitless" value="100"/>
</element>
<element name="max_wnd_spd_10m_pst1hr_tm" uom="hhmm" value="0111">
            <qualifier name="qa_summary" uom="unitless" value="100"/>
</element>
<element name="wnd_dir_10m_pst1hr_max_spd" uom="°" value="346">
            <qualifier name="qa_summary" uom="unitless" value="100"/>
</element>
<element name="max_wnd_spd_10m_mt50-60" uom="km/h" value="24.3">
            <qualifier name="qa_summary" uom="unitless" value="100"/>
</element>
<element name="wnd_dir_10m_mt50-60_max_spd" uom="°" value="11">
            <qualifier name="qa_summary" uom="unitless" value="100"/>
</element>
<element name="avg_wnd_spd_10m_mt58-60" uom="km/h" value="20.5">
            <qualifier name="qa_summary" uom="unitless" value="100"/>
</element>
<element name="avg_wnd_dir_10m_mt58-60" uom="°" value="7">
            <qualifier name="qa_summary" uom="unitless" value="100"/>
</element>
<element name="stn_pres" uom="hPa" value="1013.9">
            <qualifier name="qa_summary" uom="unitless" value="100"/>
</element>
<element name="avg_cum_pcpn_gag_wt_fltrd_mt55-60" uom="kg/m²" value="212.2">
            <qualifier name="qa_summary" uom="unitless" value="100"/>
</element>
<element name="pcpn_amt_pst1hr" uom="mm" value="0">
            <qualifier name="qa_summary" uom="unitless" value="100"/>
```

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                                        </element>
                                        <element name="snw_dpth" uom="cm" value="1">
                                                <qualifier name="qa_summary" uom="unitless" value="100"/>
                                        </element>
                                        <element name="rnfl_amt_pst1hr" uom="mm" value="0">
                                                <qualifier name="qa_summary" uom="unitless" value="100"/>
                                        </element>
                                        <element name="dwpt_temp" uom="°C" value="-6.3"/>
                                        <element name="max_pk_wnd_spd_10m_pst1hr" uom="km/h" value="37.5"/>
                                        <element name="wnd_dir_10m_pst1hr_pk_spd" uom="°" value="346"/>
                                        <element code-src="std_code_src" code-type="tendency_characteristic"
name="pres_tend_char_pst3hrs" uom="code" value="1"/>
                                        <element name="pres_tend_amt_pst3hrs" uom="hPa" value="2.3"/>
                                        <element name="min_air_temp_pst6hrs" uom="°C" value="-1.8"/>
                                        <element name="max_air_temp_pst6hrs" uom="°C" value="-0"/>
                                        <element name="min_air_temp_pst24hrs" uom="°C" value="-1.8"/>
                                        <element name="max_air_temp_pst24hrs" uom="°C" value="2.7"/>
                                        <element name="pcpn_amt_pst3hrs" uom="mm" value="0.0"/>
                                        <element name="pcpn_amt_pst6hrs" uom="mm" value="0.0"/>
                                        <element name="pcpn_amt_pst24hrs" uom="mm" value="0.2"/>
                                        <element name="pcpn_snc_last_syno_hr" uom="mm" value="0.0"/>
                                        <element name="pk_wnd_rmk" uom="unitless" value="PK WND 3520 0111Z"/>
                                        <element name="mslp" uom="hPa" value="1017.1"/>
                                        <element name="snw_dpth_1" uom="cm" value="0.78"/>
                                        <element name="snw_dpth_2" uom="cm" value="-0.29"/>
                                        <element name="snw_dpth_3" uom="cm" value="0.39"/>
                                </elements>
                        </om:result>
                </om:Observation>
        </om:member>
</om:ObservationCollection>
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