



Environment and  
Climate Change Canada

Environnement et  
Changement climatique Canada

---

# **Environment and Climate Change Canada Meteorological Service of Canada**

## **ICAO Meteorological Information Exchange Model (IWXXM)**

### **Canadian Codes and Phenomena Registry**

Version 1A

---

## Table of Contents

1.	Purpose of document .....	3
2.	Canadian codes and phenomena in METAR and SPECI .....	3
3.	Canadian codes and phenomena in TAF .....	4
4.	Canadian phenomena in SIGMET .....	5
5.	Canadian phenomena in AIRMET .....	7
6.	VAA .....	9
7.	QVA .....	9
8.	History of document .....	9



---

## 1. Purpose of document

The purpose of this document is to provide information on the Canadian codes and phenomena used in IWXXM files. These codes and phenomena can be found in Canadian METAR/SPECI, TAF and SIGMET in IWXXM format and are provided via extensions to the core IWXXM file. IWXXM schemas for these extensions have been developed and are available at:

<https://dd.weather.gc.ca/today/aviation/iwxxm/schema/>

## 2. Canadian codes and phenomena in METAR and SPECI

The following codes and phenomena may be found in Canadian METAR and SPECI:

### Code (IC)

Ice Crystals: A fall of non-branched ice crystals, in the form of needles, columns or plates, often so tiny that they seem to be suspended in the air. These crystals may fall from cloud or from a cloudless sky. The crystals are visible mainly when they glitter in the sunshine; they may then produce a luminous pillar or other halo. This hydrometeor, which is frequent in Polar Regions, occurs only at very low temperatures and in stable air masses. In WMO terminology, ice crystals are referred to as “diamond dust.”

URI: [https://dd.weather.gc.ca/today/aviation/iwxxm/code-ca/present\\_and\\_forecast\\_weather/IC](https://dd.weather.gc.ca/today/aviation/iwxxm/code-ca/present_and_forecast_weather/IC)

Reference: MANOBS Section 6.6.2.8 / Section 11.2.2.13

<https://www.canada.ca/en/environment-climate-change/services/weather-manuals-documentation.html>

*Other codes and phenomena to be added when analysing the METAR/SPECI production of NAV CANADA.*

---

### 3. Canadian codes and phenomena in TAF

The following codea and phenomena may be found in Canadian TAF:

#### **Code (IC)**

Ice Crystals: A fall of non-branched ice crystals, in the form of needles, columns or plates, often so tiny that they seem to be suspended in the air. These crystals may fall from cloud or from a cloudless sky. The crystals are visible mainly when they glitter in the sunshine; they may then produce a luminous pillar or other halo. This hydrometeor, which is frequent in Polar Regions, occurs only at very low temperatures and in stable air masses. In WMO terminology, ice crystals are referred to as “diamond dust.”

URI: [https://dd.weather.gc.ca/today/aviation/iwxxm/code-ca/present\\_and\\_forecast\\_weather/IC](https://dd.weather.gc.ca/today/aviation/iwxxm/code-ca/present_and_forecast_weather/IC)

Reference: MANAIR 2.6.11

Reference: MANOBS Section 6.6.2.8 / Section 11.2.2.13

<https://www.canada.ca/en/environment-climate-change/services/weather-manuals-documentation.html>

#### **Phenomenon (WS)**

Any cases of non-convective low level wind shear within 1,500 feet AGL will be labeled as WS in the TAF. The low level wind shear group shall be included in a TAF whenever the forecaster has strong evidence to expect significant, non-convective wind shear which could adversely affect aircraft operation within 1,500 feet AGL.

URI: [https://dd.weather.gc.ca/today/aviation/iwxxm/code-ca/present\\_and\\_forecast\\_weather/WS](https://dd.weather.gc.ca/today/aviation/iwxxm/code-ca/present_and_forecast_weather/WS)

Reference : MANAIR section 2.6.9

<https://www.canada.ca/en/environment-climate-change/services/weather-manuals-documentation.html>

---

## 4. Canadian phenomena in SIGMET

The following phenomena may be found in Canadian:

### **Phenomenon (L LVL WS)**

A Canadian SIGMET can be issued for low level wind shear (L LVL WS). Whenever the forecaster has strong evidence to expect significant, non-convective wind shear over an area which could adversely affect aircraft operation.

URI: [https://dd.weather.gc.ca/today/aviation/iwxxm/code-ca/sigmet\\_weather\\_phenomena/L\\_LVL\\_WS](https://dd.weather.gc.ca/today/aviation/iwxxm/code-ca/sigmet_weather_phenomena/L_LVL_WS)

Reference : MANAIR section 5.8.3.2

<https://www.canada.ca/en/environment-climate-change/services/weather-manuals-documentation.html>

### **Phenomenon / Phénomène (FRQ TSGR POSS +FC)**

A Canadian SIGMET can be issued for FRQ TSGR POSS +FC.

URI: [https://dd.weather.gc.ca/today/aviation/iwxxm/code-ca/sigmet\\_weather\\_phenomena/FRQ\\_TSGR\\_POSS\\_+FC/](https://dd.weather.gc.ca/today/aviation/iwxxm/code-ca/sigmet_weather_phenomena/FRQ_TSGR_POSS_+FC/)

Reference : MANAIR section 5.8.3.2

<https://www.canada.ca/en/environment-climate-change/services/weather-manuals-documentation.html>

### **Phenomenon / Phénomène (FRQ TSGR +FC)**

A Canadian SIGMET can be issued for FRQ TSGR +FC.

URI: [https://dd.weather.gc.ca/today/aviation/iwxxm/code-ca/sigmet\\_weather\\_phenomena/FRQ\\_TSGR\\_+FC/](https://dd.weather.gc.ca/today/aviation/iwxxm/code-ca/sigmet_weather_phenomena/FRQ_TSGR_+FC/)

Reference : MANAIR section 5.8.3.2

<https://www.canada.ca/en/environment-climate-change/services/weather-manuals-documentation.html>

### **Phenomenon / Phénomène (SQL TSGR POSS +FC)**

A Canadian SIGMET can be issued for SQL TSGR POSS +FC.

URI: [https://dd.weather.gc.ca/today/aviation/iwxxm/code-ca/sigmet\\_weather\\_phenomena/SQL\\_TSGR\\_POSS\\_+FC/](https://dd.weather.gc.ca/today/aviation/iwxxm/code-ca/sigmet_weather_phenomena/SQL_TSGR_POSS_+FC/)

Reference : MANAIR section 5.8.3.2

<https://www.canada.ca/en/environment-climate-change/services/weather-manuals-documentation.html>

---

**Phenomenon / Phénomène (SQL TSGR +FC)**

A Canadian SIGMET can be issued for SQL TSGR +FC.

URI: [https://dd.weather.gc.ca/today/aviation/iwxxm/code-ca/sigmet\\_weather\\_phenomena/SQL\\_TSGR\\_+FC/](https://dd.weather.gc.ca/today/aviation/iwxxm/code-ca/sigmet_weather_phenomena/SQL_TSGR_+FC/)

Reference : MANAIR section 5.8.3.2

<https://www.canada.ca/en/environment-climate-change/services/weather-manuals-documentation.html>

---

## 5. Canadian phenomena in AIRMET

The following code and phenomena may be found in Canadian AIRMET:

### Code (IC)

Ice Crystals: A fall of non-branched ice crystals, in the form of needles, columns or plates, often so tiny that they seem to be suspended in the air. These crystals may fall from cloud or from a cloudless sky. The crystals are visible mainly when they glitter in the sunshine; they may then produce a luminous pillar or other halo. This hydrometeor, which is frequent in Polar Regions, occurs only at very low temperatures and in stable air masses. In WMO terminology, ice crystals are referred to as “diamond dust.”

URI: [https://dd.weather.gc.ca/today/aviation/iwxxm/code-ca/present\\_and\\_forecast\\_weather/IC](https://dd.weather.gc.ca/today/aviation/iwxxm/code-ca/present_and_forecast_weather/IC)

Reference: MANAIR 6.8.3.2 subsection 2)

Reference: MANOBS Section 6.6.2.8 / Section 11.2.2.13

<https://www.canada.ca/en/environment-climate-change/services/weather-manuals-documentation.html>

### Phenomenon (SFC VIS and BKN CLD)

Canadian AIRMET may include both SFC VIS and BKN CLD information in the same message.

URI: [https://dd.weather.gc.ca/today/aviation/iwxxm/code-ca/airmet\\_weather\\_phenomena/SFC\\_VIS\\_and\\_BKN\\_CLD/](https://dd.weather.gc.ca/today/aviation/iwxxm/code-ca/airmet_weather_phenomena/SFC_VIS_and_BKN_CLD/)

Reference : MANAIR section 6.8.3.2

<https://www.canada.ca/en/environment-climate-change/services/weather-manuals-documentation.html>

### Phenomenon (SFC VIS and OVC CLD)

Canadian AIRMET may include both SFC VIS and OVC CLD information in the same message.

URI: [https://dd.weather.gc.ca/today/aviation/iwxxm/code-ca/airmet\\_weather\\_phenomena/SFC\\_VIS\\_and\\_OVC\\_CLD/](https://dd.weather.gc.ca/today/aviation/iwxxm/code-ca/airmet_weather_phenomena/SFC_VIS_and_OVC_CLD/)

Reference : MANAIR section 6.8.3.2

<https://www.canada.ca/en/environment-climate-change/services/weather-manuals-documentation.html>

### Phenomenon (OCNL TCU ISOL TS)

Canadian AIRMET may be issued for occasional towering cumulus and isolated thunderstorms (OCNL TCU ISOL TS).

URI: [https://dd.weather.gc.ca/today/aviation/iwxxm/code-ca/airmet\\_weather\\_phenomena/OCNL\\_TCU\\_ISOL\\_TS/](https://dd.weather.gc.ca/today/aviation/iwxxm/code-ca/airmet_weather_phenomena/OCNL_TCU_ISOL_TS/)

---

Reference : MANAIR section 6.8.3.2

<https://www.canada.ca/en/environment-climate-change/services/weather-manuals-documentation.html>

**Phenomenon (FRQ TCU ISOL TS)**

Canadian AIRMET may be issued for frequent towering cumulus and isolated thunderstorms (FRQ TCU ISOL TS).

URI: [https://dd.weather.gc.ca/today/aviation/iwxxm/code-ca/airmet\\_weather\\_phenomena/FRQ\\_TCU\\_ISOL\\_TS/](https://dd.weather.gc.ca/today/aviation/iwxxm/code-ca/airmet_weather_phenomena/FRQ_TCU_ISOL_TS/)

Reference : MANAIR section 6.8.3.2

<https://www.canada.ca/en/environment-climate-change/services/weather-manuals-documentation.html>

**Phenomenon (OCNL TCU – ISOL TSGR)**

Canadian AIRMET may be issued for occasional towering cumulus and isolated thunderstorms with hail (ONCL TCU ISOL TSGR).

URI: [https://dd.weather.gc.ca/aviation/iwxxm/code-ca/airmet\\_weather\\_phenomena/OCNL\\_TCU\\_ISOL\\_TSGR](https://dd.weather.gc.ca/aviation/iwxxm/code-ca/airmet_weather_phenomena/OCNL_TCU_ISOL_TSGR)

Reference : MANAIR section 6.8.3.2

<https://www.canada.ca/en/environment-climate-change/services/weather-manuals-documentation.html>

**Phenomenon (FRQ TCU ISOL TSGR)**

Canadian AIRMET may be issued for frequent towering cumulus and isolated thunderstorms with hail (FRQ TCU ISOL TSGR).

URI: [https://dd.weather.gc.ca/today/aviation/iwxxm/code-ca/airmet\\_weather\\_phenomena/FRQ\\_TCU\\_ISOL\\_TSGR/](https://dd.weather.gc.ca/today/aviation/iwxxm/code-ca/airmet_weather_phenomena/FRQ_TCU_ISOL_TSGR/)

Reference : MANAIR section 6.8.3.2

<https://www.canada.ca/en/environment-climate-change/services/weather-manuals-documentation.html>

---

## 6. VAA

The Volcanic Ash Advisory (VAA) issued by the Canadian Volcanic Ash Advisory Centre (VAAC) is fully supported by the core IWXXM schema as published by WMO and does not contain Canadian unique codes or phenomena.

## 7. QVA

The Canadian Volcanic Ash Advisory Centre (VAAC) is expected to begin issuing the quantitative volcanic ash concentration information (QVA) in the latter part of 2026. QVA is fully supported by the core IWXXM schema as published by WMO and does not contain Canadian unique codes or phenomena.

## 8. History of document

Rev#	Date	State	Initials	Description of Changes
1Dv01	April 13 2022	Draft	GR	Document created.
1Dv02	Dec 10 2024	Draft	GR	Updated document.
1Dv03	Fev 19 2025	Draft	GR	Updated document.
1Dv04	April 2 2025	Draft	GR	Updated document.
1Dv05	May 6 2026	Draft	GR	Updated document
1A	May 11 2026	Approved	GR	