Sorel, QC Pluvio2 Precipitation Gauge Data [ECCC]

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1. Data Set Description

1.1. Introduction: This dataset contains the raw data from the OTT Pluvio2 precipitation gauge sited at Sorel-Tracy, QC for the Winter Precipitation Type Research Mult-Scale Experiment (WINTRE-MIX). Data was collected between October 20, 2021 and May 03, 2022. The Pluvio2 is a meteorological instrument that is used for automatic determination of the intensity and amount of precipitation. Sorel-Tracy is located at the northern end of the Champlain Valley, on the southern shore of the St. Lawrence River northeast of Montreal. The site was in a small park to the east of the Richelieu River. Several other instruments were also stationed at the site and will be available from the WINTRE-MIX data archive (https://data.eol.ucar.edu/master_lists/generated/wintre-mix/).

1.2. Data version number: 1.0

1.3. Data version date: 2022-03-16

1.4. Data Status: Final

1.5. Time period covered by data: 00:00 UTC October 22, 2021 to 12:00 UTC May 03, 2022

1.6. Latitude: 46.030222°N

1.7. Longitude: -73.110337°E

1.8. Elevation: 19.0 m (http://geogratis.gc.ca/services/elevation/cdem/altitude?lat=46.030222&lon=-73.110337); 13.3m (http://geogratis.gc.ca/services/elevation/cdsm/altitude?lat=46.030222&lon=-73.11033)

1.9. Other (address): Sorel-Tracy, QC, Canada (approximately behind 66 Rue de la Comtesse)

1.10. Data Frequency - Frequency of data collection: 1 minute

1.11. Data source: High Impact Weather Research, Environment and Climate Change Canada

1.12. Web address references: https://www.eol.ucar.edu/field_projects/wintre-mix

1.13. Data set restrictions: Please refer to the WINTRE-MIX data policy (https://www.eol.ucar.edu/content/wintre-mixdata-policy) as well as the WINTRE-MIX data management plan (https://www.eol.ucar.edu/system/files/Data_Management_Plan-1Dec2021.pdf) for more information regarding dataset restrictions and dissemination.

2. Instrument Description

2.1. Description: The OTT Pluvio2 precipitation gauge determines the weight of the collecting bucket including its contents every 6 seconds with a resolution of 0.1 mm (raw data). Every 6

minutes the OTT Pluvio2 calculates the bucket value using multiple raw weight values. The difference between the current bucket value and the previous one gives the precipitation intensity in mm/min or mm/h and alternatively in/min or in/h. These 6-second values for the precipitation intensity are added to the accumulated precipitation amount.

The measurement values are available as both real-time (RT – the Pluvio2 outputs the measurement within a minute) and non-real-time values (NRT – the Pluvio2 outputs the measurements 5 minutes after the precipitation event occurs), each with their own filter algorithms.

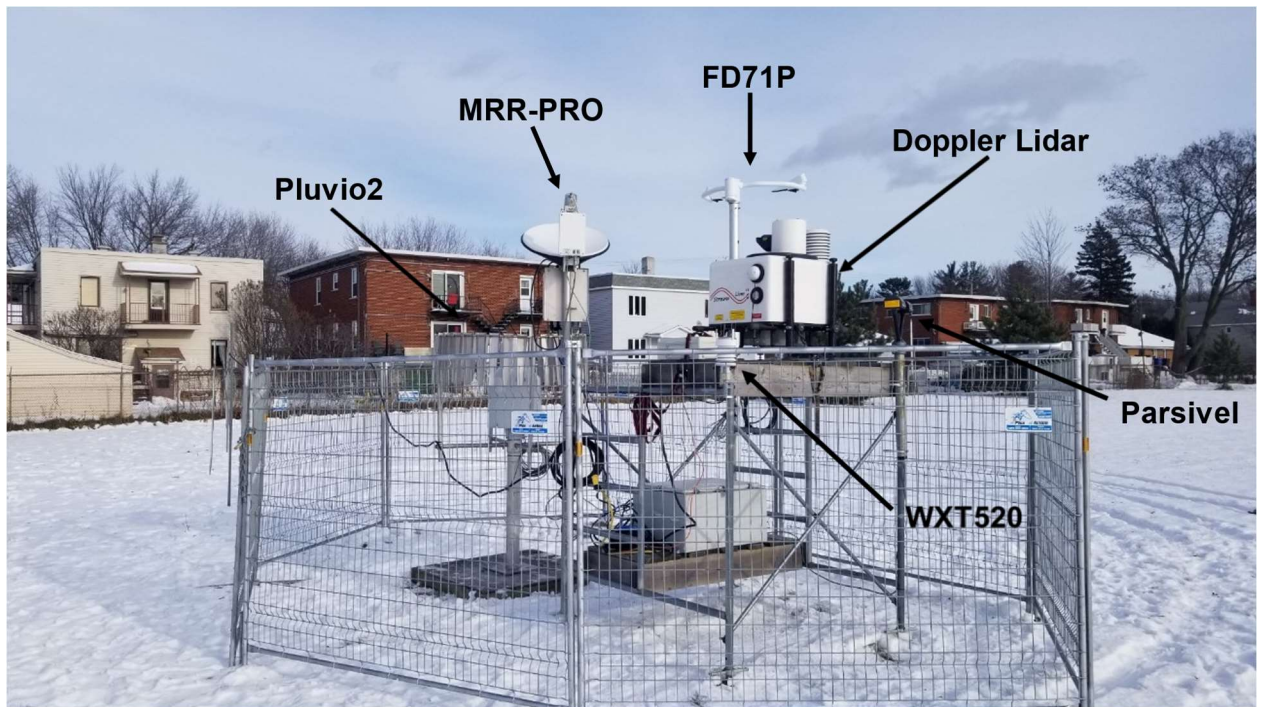For these datasets, the Pluvio2 was located in Sorel-Tracy, Quebec, Canada..

Figure 1 - Photograph of the Sorel-Tracy meteorological instrument site.

Figure 2 - Google Maps map of the location of the Sorel-Tracy site.

3. **Data Collection and Processing**
   3.1. **Description of data collection:** The Pluvio2 was configured to collect data every 60 seconds, using the E;<cr> command. The data was logged on a Windows PC using a RubberDAQy data logging program. This program prepended a UTC date/time stamp to the message output. Messages were collected into daily text files. No quality control has been done beyond the internal OTT processing.
   3.2. **Description of derived parameters/processing techniques:** See OTT Pluvio2 manual.
   3.3. **Description of quality assurance/control procedures:** See OTT Pluvio2 manual.

4. **Data format**
   4.1. **Data file structure and file naming conventions:** Measurements are collected minutely as semi-colon delimited ASCII messages (generated via the E;<cr> command (RS-485)) into daily files. File names are of the form: Pluvio2YYMMDD.txt where YY=year(e.g. 22), MM=month(02 or 03), DD=day
   4.2. **Data format and layout:** Daily data files with single header line.
   4.3. **List of parameters:** Pluvio2 message generated via E;<cr> command prepended with UTC Datetime in format: YYY/MM/DD hh:mm:ss

Table 1: List of Parameters

Description	Form	Units
Intensity RT	+0000.00	mm/h
Accumulated RT/NRT	+0000.00	Mm
Accumulated NRT	+0000.00	Mm
Accumulated total NRT	+0000.00	Mm
Bucket RT	+0000.00	Mm
Bucket NRT	+0000.00	Mm
Temperature load cell	+00.0	°C
Heating status	+000	#
Status	+000	#
Temperature electronics unit	+00.0	°C
Supply voltage	+00.0	V
Temperature orifice ring rim	+00.0	°C

5. **Data Remarks**
   No significant (> 1h) missing data periods except:

Table 2: List of Data Gaps

Gap Start	Gap End	Length
2021/10/20 09:00	2021/10/21 13:56	01d 04h 56m
2021/11/10 12:35	2021/11/24 13:56	14d 01h 21m
2021/11/24 17:50	2021/12/07 16:55	12d 23h 05m
2021/12/15 17:30	2021/12/17 16:48	01d 23h 18m

Note: No missing data periods during the WINTRE-MIX campaign

6. Acknowledgment

This README was inspired by [CFI Climate Sentinels Gault MRR-2 Processed Data](#) (Lachapelle *et. al.,* 2022).

7. References

Lachapelle *et. al.*. 2022: CFI Climate Sentinels Gault MRR-2 Processed Data. Version 1.0. UCAR/NCAR - Earth Observing Laboratory. https://doi.org/10.26023/AKWD-BRV8-R80D. Accessed 20 April 2023.

OTT Hydromet, n.d.: Operating instructions Precipitation Gauge OTT Pluvio2. OTT Hydromet GmbH. Document number 70.020.000.B.E 04-0515. https://www.ott.com/download/operating-instructions-precipitation-gauge-ott-pluvio2-1/. Accessed 20 April 2023.

8. Appendix

Suggested GCMD keywords (no particular order):

- Solid precipitation
- Frozen precipitation
- Rain
- Freezing rain
- Drizzle
- Freezing drizzle
- Ice pellets
- Snow
- Ice storms
- Snow storms
- Extratropical cyclones