

Climate Research Lab Monthly Meteorological Summary-January, 2018

Background

This summary is produced by the UPEI Climate Lab for the month of January, 2018. Data is reported for 32 climate stations in the province as shown on Table 1. The annual summaries of PEI climate data for 2014, 2015, 2016 and 2017 and the monthly summaries are now posted on the UPEI Climate Lab Website. (<http://projects.upei.ca/climate/research/>).



Figure 1 –Climate Station at Glen Valley blown over – January 5, 2018

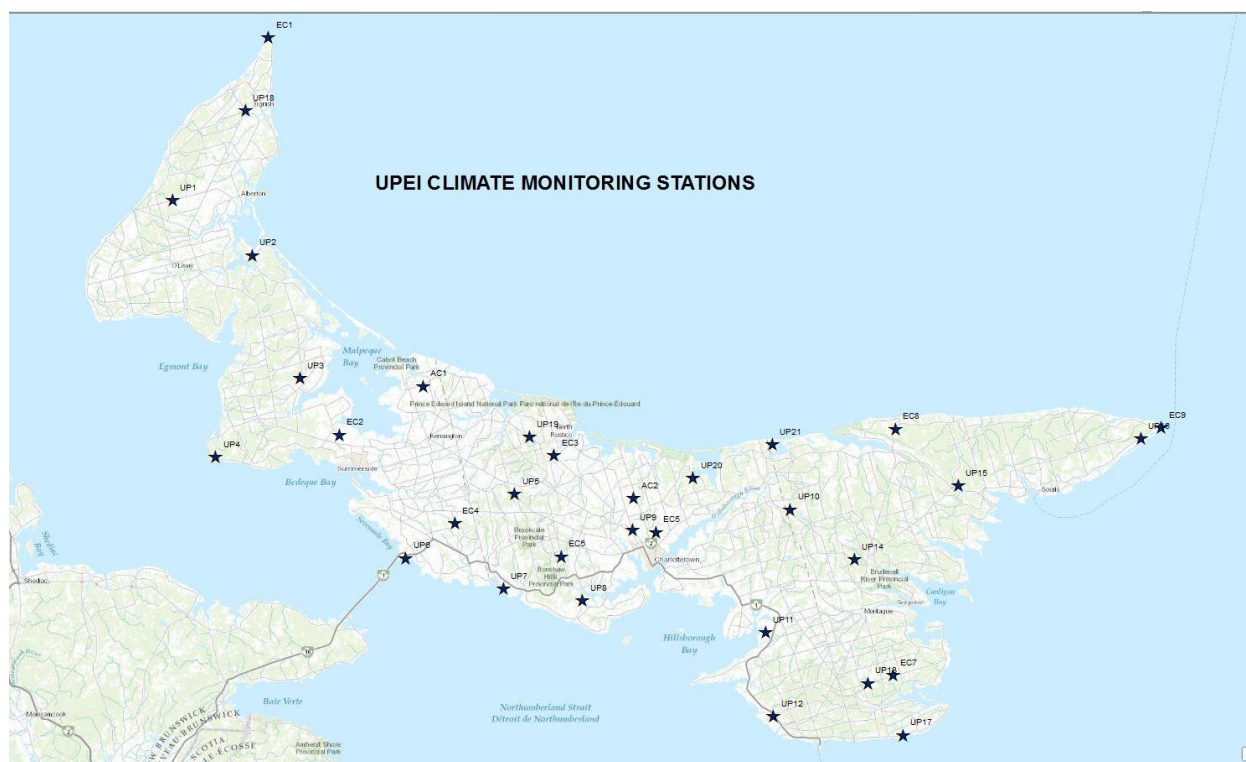


Figure 2 - Map showing climate station locations monitored by the UPEI Climate Research Lab

A listing of stations currently being monitored by UPEI Climate Research Lab is provided in Table 1. This includes Environment Canada, Agriculture Canada, Agriculture PEI, NAV Canada, UPEI and privately operated stations that operate on an annual basis.

Long-time volunteer climate observer, Michael Radvanyi of Peters Road, PEI (EC7 on Figure 2) passed away on January 29, 2018 at the age of 82. He and his wife Rosa had been recording weather observations for Environment Canada from 1994 to the time of his death. He was resolved to keep the weather observations as accurate as possible and maintained his record keeping through extreme weather events such as deep snow and made many personal sacrifices during the years to obtain and record the data at his location.

Table 1 – PEI Climate Stations Monitored by UPEI

ID Code	Map ID	Community	Lat.	Long.	Date Installed	Operator
IPRINCEE22	UP13	Alliston	46.052032	-62.638389	25-Jun-15	CNP

8300100	EC7	Alliston/Peters Road	46.064393	-62.581808	01-Jan-36	M. Radvanyi
Remote	UP3	Arlington	46.52964	-63.927503	30-Jun-15	Arlington Orchard
KNW01	AC1	Baltic	46.517266	-63.648411	14-Aug-14	Kensington North
IPEBORDE2	UP6	Borden - Carleton	46.248346	-63.686935	26-Jan-95	G. Read
IPRINCEE28	UP1	Brockton	46.80649	-64.21685	23-Sep-15	UPEI
83000562	EC8	Cable Head	46.4503	-62.5758	14-Aug-03	EC
IPRINCEE26	UP4	Cape Egmont	46.4067	-64.118742	10-Sep-15	UPEI
IPRINCEE17	UP14	Cardigan Head	46.2461	-62.66833	01-Oct-14	R. Angus
8300300	EC5	Charlottetown	46.28917	-63.119167	14-Sep-12	NAV Canada
IPRINCEE16	UP15	Dingwells Mills	46.362154	-62.432651	14-Nov-13	UPEI
IPRINCEE31	UP16	East Point	46.43554	-62.018632	16-Jul-15	Newman
8300418	EC9	East Point	46.45227	-61.971635	8-Dec-92	EC
IPEIELMW2	EC5	Elmwood	46.2508	-63.3342	01-Sep-93	B. Jameson
IPRINCEE32	UP10	Fanning Brook	46.32419	-62.8141	05-Nov-15	UPEI
IPRINCEE13	UP12	Flat River	45.999949	-62.852033	06-Nov-13	UPEI
IPRINCEE15	UP2	Foxley River	46.7208	-64.0356	20-Nov-13	UPEI
IPRINCEE30	UP5	Glen Valley	46.34884	-63.439941	06-Oct-15	UPEI
IPRINCEE27	UP7	Hampton	46.2003	-63.4652	11-Sep-15	M. Cassidy
830P001	AC2	Harrington	46.342506	-63.169736	01-Jul-00	Agric. Canada
IPRINCEE 35	UP19	Hope River	46.43816	-63.40707	10-January-16	A.MacKay
8305500	EC4	Maple Plains	46.3028	-63.575567	21-Jun-01	BBEMA
IPRINCEE 4	UP20	Mill Cove	46.37400	-63.03508	24-Apr-12	P. Lawlor
8300497	EC3	New Glasgow	46.408911	-63.350289	01-Oct-71	H. Dingwell
8300516	EC1	North Cape	47.05806	-63.998611	18-Oct-02	EC
IPRINCEE14	UP11	Orwell Cove	46.13153	-62.869768	13-Nov-13	UPEI
IPRINCEE21	UP8	St. Catherine's	46.182023	-63.286157	25-Jun-15	Matos Winery
ISAVAGEH2	UP21	Savage Harbour	46.42587	-62.85565	June 27, 2018	Abegweit Conservation Society
8300700	EC2	Summerside	46.44111	-63.83806	19-Jul-99	EC
IPRINCEE36	UP18	Tignish	46.9453	-64.0516	02-January-16	UPEI
IPRINCEE19	UP17	White Sands	45.970	-62.558	25-Oct-14	M. Harwood
IPRINCEE11	UP9	Winsloe South	46.292358	-63.1727104	13-Sep-13	UPEI

Data Summary

Table 2 summarizes the climate data recorded during the month of January 2018 for all observation stations monitored by UPEI Climate Research Lab. Daily average solar radiation for stations which have solar radiation sensors is included to provide information for solar energy, crop production, and plant growth purposes. The Environment Canada Station at North Cape and a private station at Cardigan Head experienced some technical issues with their temperature sensors during January.

Table 2 – UPEI January 2018 Climate Station Summary for 32 Stations across PEI

Climate Station Name	Map ID	Tmean °C	Tmax °C	Tmin °C	PPT (mm)	Snow (cm)	Avg. Wind Speed km/h	Max. Wind Speed km/h	Daily Avg. Solar Radiation (kWh/m ² /D)
Alliston / Peters Road	EC7	Inc	15.0	-20.0	59.2	22.0			
Alliston (CNP)	UP13	-5.8	14.8	-19.7	20.6		8.6	66.0	
Arlington	UP3	-6.8	14.7	-20.8	50.0		3.5	53.1	
Baltic	AC1	-6.6	15.4	-20.5			19.1	53.9	
Borden	UP6	-6.1	7.8	-19.6	83.8	16.5	21.1	70.8	1.07
Brockton	UP1	-7.1	12.8	-20.2			8.1	77.2	0.71
Cape Egmont	UP4	-6.6	11.3	-20.3	63.2		14.8	99.8	1.25
Cardigan Head	UP14	Inc.		-21.1	45.2		5.3	62.8	
Ch'town Airport	EC6	-6.5	14.5	-20.2	72.4	73.6		96.0	
Dingwells	UP15	-6.0	16.5	-20.4	37.6		9.7	64.4	
East Point	EC9	-4.1	11.4	-17.6	42.0			106.0	
East Point (N)	UP16	-5.3	9.1	-18.2	23.2		12.7	86.9	
Elmwood	EC5	-6.5	13.7	-19.9	48.8	54.4	11.5	53.1	
Fanning Brook	UP10	-5.8	16.4	-20.1	55.1		11.6	72.4	1.07
Flat River	UP12	-5.4	14.3	-19.1	29.0		12.2	85.3	
Foxley River	UP2	-6.2	13.9	-19.3	117.6		8.8	80.5	
Glen Valley	UP5	-6.6	14.5	-20.6	39.6		13.7	115.8	0.98
Hampton	UP7	-6.6	10.1	-19.6	17.0		18.3	96.5	1.23

Harrington	AC2	-6.5	15.5	-20.3				87.0	
Hope River	UP19	Inc.						100.4	
Maple Plains	EC4	-7.3	13.7	-21.4			16.0	53.7	
Mill Cove	UP20	-6.0	14.3	-20.4	32.5		6.6	56.3	
New Glasgow	EC3	6.1	16.0	-21.0	105.6	64.0			
North Cape	EC1	Inc.			110.4			104.0	
Orwell Cove	UP11	-4.9	16.2	-18.6	30.2		12.6	69.2	
St. Catherines	UP8	-4.2	14.7	-20.8	50.0		3.5	53.1	
St. Peter's	EC9	-6.0	17.8	-18.6	59.7			95.0	
Savage Harbour	UP21	-5.3	16.7	-19.2	28.4		17.0	88.5	0.93
Summerside	EC2	-7.1	13.8	-20.3	48.8			98.0	
Tignish	UP18	-6.8	13.7	-19.7	96.4		7.4	74.0	1.06
White Sands	UP17	-5.1	11.3	-18.2	10.7		19.7	92.5	1.04
Winsloe South	UP9	-5.8	15.2	-19.8	54.1	58.7	6.9	57.9	

? Reading maybe inaccurate.

Inc. Incomplete record, equipment malfunction

The measurements from ten (10) CoCoRaHS observers located on PEI are recorded in table 3. Some of the CoCoRaHS stations listed on table 3 are also climate stations listed on Table 2. This includes: UP6, EC5, and UP9.

Table 3 CoCoRaHS Precipitation Amounts from Eleven Locations on PEI, January, 2018

CoCoRaHS Station	Total Precipitation in mm	Total Snowfall in cm
CAN-PE-1 Stratford	57.2	39.1
CAN-PE-3 Wellington	74.9	45.0
CAN-PE-7 Morell	56.6	23.9
CAN-PE-10 New London	69.6	43.2
CAN-PE-13 Bedeque	49.0	24.9
CAN-PE-19 Winsloe South	54.1	58.7
CAN-PE-20 Bonshaw	48.8	54.4
CAN-PE-23 Borden-Carleton	83.8	16.5
CAN-PE-25 – Caledonia	95.2	46.7
CAN-PE-26 – Grand Tracadie	51.1	6.6

Table 4 provides thirty year climate normal values for the 1981 to 2010 period for seven (7) climate stations in the province for the month of January.

Table 4 January Climate Normal for PEI Stations 1981 to 2010

Parameter	Ch'town A	New Glasgow	Summerside A	O'Leary	Alberton	Monticello	East Baltic
Mean Monthly T in C	-7.7	-7.7	-7.7	-8.6	-8.2	-6.9	-6.8
Mean Monthly Ppt. in mm	101.0	120.0	96.2	99.0	96.4	100.9	116.1
Mean Monthly Snow cm	73.3	79.5	78.5	68.3	73.6	68.3	76.1

Discussion

January temperatures were above normal across the province with the station at Matos Winery in St. Catherines reporting 3.5⁰C above normal. The highest monthly mean for the province was -4.1⁰C which was observed at East Point possibly due to the continued buffering effect of coastal water in the Gulf of St. Lawrence and Northumberland Strait. The low monthly mean was -7.3⁰C at Maple Plains. The maximum temperature for the month was 17.8⁰C at St. Peters on January 13th. The coldest temperature reported during the month for all stations listed in this summary was -21.4⁰C which was recorded at Maple Plains on January 22nd.

Table 5 – Variation of January 2018 Monthly Mean Temperature from 1981-2010 Climate Normal

Climate Station	January 2018 Mean C	30 Year Normal C 1981-2010	Variation from Normal C
Alliston / Peters Rd			0.50
Alliston CNP	-5.8	-7.7	1.90
Arlington	-6.8	-8.6	1.80
Baltic	-6.6	-7.7	1.10
Borden - Carleton	-6.1	-7.7	1.60
Brockton	-7.1	-8.2	1.10
Cape Egmont	-6.6	-7.7	1.10
Cardigan Head			Inc
Charlottetown A	-6.5	-7.7	1.20
Dingwells	-6.0	-6.9	0.90
East Point	-4.1	-6.8	2.70
East Point – UP16	-5.3	-6.8	1.50
Elmwood	-6.5	-7.7	1.20
Fanning Brook	-5.8	-7.7	1.90
Flat River	-5.4	-7.7	2.30

Foxley River	-6.2	-8.6	2.40
Glen Valley	-6.6	-7.7	1.10
Hampton	-6.6	-7.7	1.10
Harrington	-6.5	-7.7	1.20
Hope River			Inc
Maple Plains	-7.3	-7.7	0.40
Mill Cove	-6.0	-7.7	1.70
New Glasgow	-6.1	-7.7	1.60
North Cape			Inc
Orwell	-4.9	-7.7	2.80
St. Catherine's	-4.2	-7.7	3.50
St. Peters	-6.0	-6.9	0.90
Savage Harbour	-5.3	-7.7	2.40
Summerside A	-7.1	-7.7	0.60
Tignish	-6.8	-8.2	1.40
White Sands	-5.1	-7.7	2.60
Winsloe South	-5.8	-7.7	1.90

Readings in red may not be accurate.

Table 6 – Variation of January 2018 Total Precipitation Amounts from 1981-2010 Climate Normal

Climate Station	Total PPT in mm January 2018	30 Year Normal mm 1981-2010	Variation from Normal mm
Alliston / Peters Rd			-17.10
Alliston CNP	20.6	101.0	-80.40
Arlington	50.0	99.0	-49.00
Baltic			
Borden – Carleton (CoCo Can-PE-23)	83.8	96.2	-12.40
Brockton	0.4	96.4	
Cape Egmont	63.2	96.2	-33.00
Cardigan Head (CoCo Can-PE-27)	45.2	101.9	-56.70
Charlottetown A	72.4	101.0	-28.60
Dingwells	37.6	101.9	-64.30
East Point - EC	64.0	116.1	-52.10
East Point – UP16	50.0	116.1	-66.10
Elmwood (CoCo- Can-PE-20)	48.8	120.0	-71.20
Fanning Brook	55.1	101.0	-45.90
Flat River	29.0	101.0	-72.00
Foxley River	117.6	99.0	18.60
Glen Valley	39.6	120.0	-80.40
Hampton	17.0	96.2	-79.20
Harrington			

Hope River			
Maple Plains			
Mill Cove	32.5	101.0	-68.50
New Glasgow	105.6	120.0	-14.40
North Cape	110.4	96.4	14.00
Orwell	30.2	101.0	-70.80
St. Catherine's	50.0	101.0	-51.00
St. Peters	59.7	101.9	-42.20
Savage Harbour	28.4	101.0	-72.60
Summerside A	48.8	96.2	-47.40
Tignish	96.4	96.4	0.00
White Sands	10.7	101.0	-90.30
Winsloe South (CoCo-Can-PE-19)	54.1	101.0	-46.90

Readings in red may not be accurate due to no rain collector heater or gauge malfunction.

Precipitation was below normal with the exception of stations at Foxley River, Tignish and North Cape in West Prince. As indicated on table 6 some stations did not accurately record precipitation due to lack of a heater unit to enable determination of the water equivalent or due to equipment malfunction. The highest precipitation total for January was 117.6 mm at Gulf Island Peat Moss in Foxley River and the lowest total was 29.0 mm at Flat River.

Snowfall was below normal during January with a highest total snowfall recorded of 73.6 cm at the Charlottetown Airport.

Average wind speeds across the province ranged from 3.5 km/h at Arlington and St. Catherines to 21.1 km/h at Borden-Carleton. The stations at North Cape and East Point did not report for several days in January. The maximum gust for the month was 115.8 km/h reported at Glen Valley on January 5th, just before the anemometer meter post blew down (see figure 1).

The solar radiation values ranged from 0.71 kWh/m²/D at Brockton to 1.25 kWh/m²/D at Cape Egmont. These readings were slightly lower than those reported for the same month in the previous year.

Closure

- Temperatures were above normal across the province.
- Precipitation was generally below normal for all reporting stations with below normal snowfall reported
- A major wind storm with some snow occurred on January 5th with a peak gust of 115.8 km/h at Glen Valley.
- Ice rafting occurred at several locations on the south shore of the province with ice stacked 3 metres above the cliff at Bell's Point in Cape Traverse (see figure 3).

Some phenological and weather events during the month are recorded on Table 7.

Table 7–January Weather or Phenological Events 2018

Date	Location	Type of Event	Comments
January 5, 2018	Entire province	Winter storm with high winds gusting over 115 km / h at Glen Valley	Weather station at Glen Valley (UP5) blew down. Many trees blown down. Ice rafting at several locations along South shore of PEI. Many power outages.
January 13, 2018	St. Peter's and elsewhere	Warm day with a high temperature of 17.8 °C	Daily high temperature extreme for this date for all reporting stations in the province dating back to 1873.
January 30, 2018	Entire province but worse in West Prince	Snow, freezing rain, ice pellets	



Figure 3- Ice rafting, Bell's Point, Cape Traverse, January 2018

Sources:

Environment Canada Climate Data Archives and associated websites

WUnderground.com

CoCoRaHS.org/Canada

AgraWeather Atlantic Website

Rosa Radvanyi

PEIStormChaser

CBC News

The Guardian newspaper

D. Jardine, UPEI Climate Research Lab, April 27, 2018.