

Climate Research Lab Monthly Meteorological Summary-February, 2017

Background

The UPEI Climate Research Lab is beginning its fourth year of collecting, monitoring and compiling climate data from stations on Prince Edward Island. This data enables the Lab to observe changes in climate and to determine geographic regions of the province where micro-climates may exist and to track isolated extreme weather events which can result in damage to crops and infrastructure. The Lab has been producing monthly summaries since September of 2014. This report provides a summary of climate data across the entire province for February, 2017.

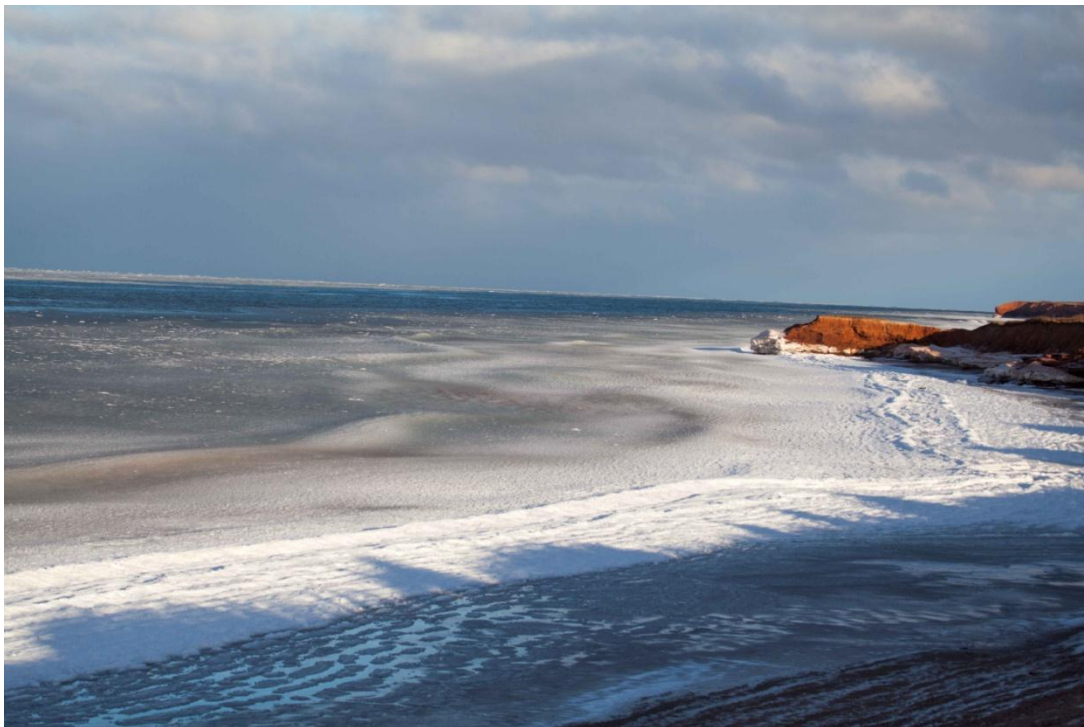


Figure 1 –Cavendish Shoreline Winter 2017

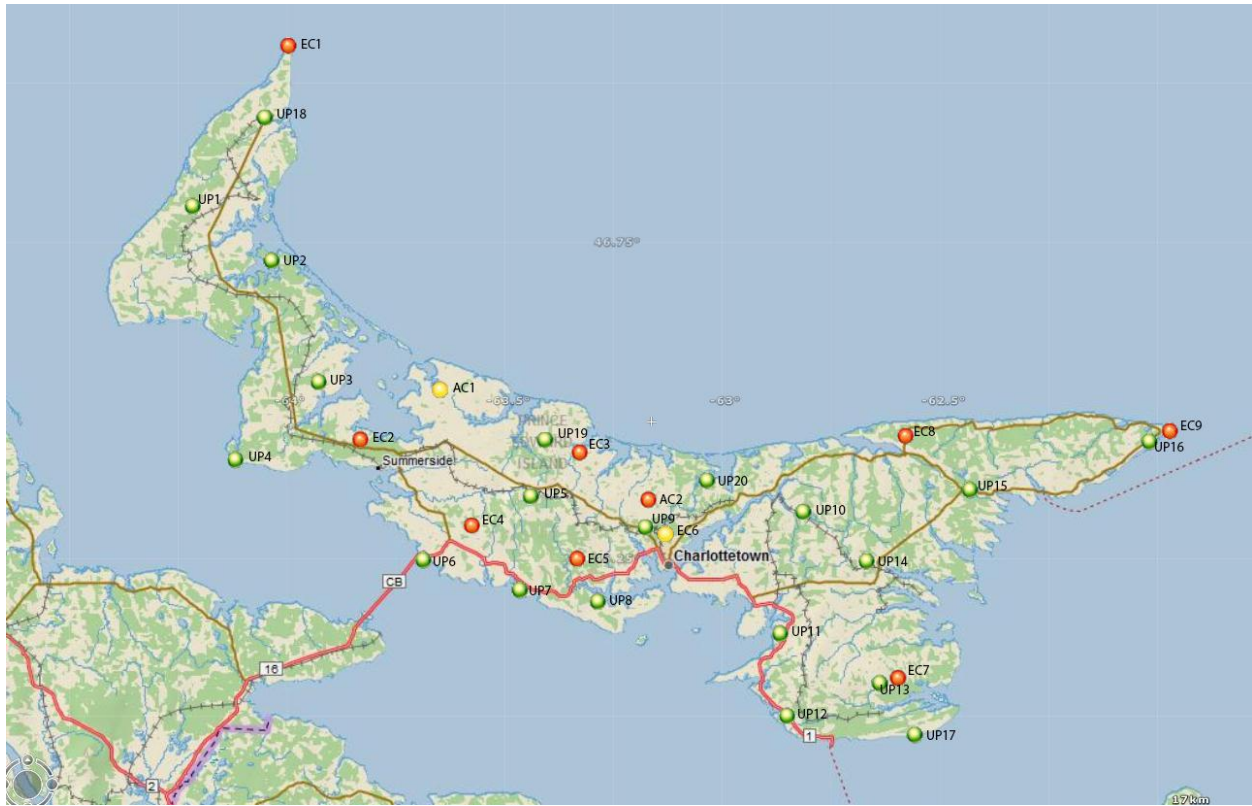


Figure 2 - Map showing climate station locations monitored by the UPEI Climate Research Lab

A listing of stations currently being monitored by UPEI 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.

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-May-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
8300700	EC2	Summerside	46.44111	-63.83806	19-Jul-99	EC
IPRINCEE36	UP18	Tignish	46.9453	-64.0516	02-May-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 February 2017 for 31 stations being observed by UPEI Climate Research Lab. Some of the stations are not equipped to measure precipitation during the winter season and as a consequence have inaccurate precipitation data from December to March. Snowfall amounts are measured at a few locations and this data is included where available. Daily average solar radiation for stations which have solar radiation sensors is included to provide information on the potential for solar energy and for crop production.

Table 2 – UPEI February 2017 Climate Station Summary for 31 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	-4.4	11.0	-18.0	115.6	111.0			
Alliston (CNP)	UP13	-4.4	12.4	-19.4	13.2		7.7	62.8	
Arlington	UP3	-5.3	14.0	-22.8	25.4		4.6	51.5	
Baltic	AC1	-5.1	10.3	-20.5			16.7	51.6	
Borden	UP6	-4.7	9.3	-18.3	21.6	72.6	15.4	66.0	2.57
Brockton	UP1	-5.9	10.4	-23.1	47		6.8	61.1	1.54
Cape Egmont	UP4	-5.4	9.2	-20.8	18.3		12.7	72.4	2.42
Cardigan Head	UP14	-5.5	11.5	-24.5	44.4	91.7			
Ch'town Airport	EC6	-5.5	9.3	-23.9	113.1	101.8		98.0	
Dingwells	UP15	-4.4	11.1	-24.1	62.7		8.9	72.4	
East Point	EC9	-3.4	11.0	-15.1	36.7		26.2	95.0	
East Point (N)	UP16	-4.2	9.7	-16.2	10.0		11.5	72.4	
Elmwood	EC5	-5.0	11.2	-22.8	29.0	100.1	9.9	56.3	
Fanning Brook	UP10	-4.5	10.8	-24.8	42.7		10.0	66.0	2.47
Flat River	UP12	-3.7	12.3	-17.9	42.4		10.1	70.8	
Foxley River	UP2	-5.0	11.1	-24.4	57.2		8.5	80.5	
Glen Valley	UP5	-5.1	9.9	-18.3	21.6		15.7	82.1	2.33
Hampton	UP7	-5.2	9.8	-20.7	18.3		15.7	69.2	2.40
Harrington	AC2	-5.3	9.5	-17.7	62.9		17.1	82.0	
Hope River	UP19	-3.5	18.8	-20.8	24.9		13.8	88.5	
Maple Plains	EC4	-5.8	9.7	-28.9			13.5	38.4	
Mill Cove	UP20	-5.0	12.1	-24.8	22.6		4.3	35.4	
New Glasgow	EC3	-5.2	10.5	-28.0	104.4	82.0			
North Cape	EC1	-5.2	7.4	-17.3	66.5		26.8	85	

Orwell Cove	UP11	-3.4	10.3	-17.2	21.3		12.5	61.1	
St. Catherines	UP8	-4.6	11.8	-19.8	17.5		8.7	67.6	
St. Peter's	EC9	-4.5	11.3	-18.2	84.6		18.4	78.0	
Summerside	EC2	-6.1	9.3	-26.6	45.8		20.7	85.0	
Tignish	UP18	-5.4	11.0	-28.2	49.4		5.6	53.1	0.93
White Sands	UP17	-3.8	10.7	-16.8	9.7		17.1	85.3	2.28
Winsloe South	UP9	-4.4	12.3	-17.7	58.7	89.7	5.2	51.5	

? Temperature reading may be inaccurate.

Precipitation is also recorded at a number of Community Collaborative Rain, Hail & Snow Network (CoCoRaHS) sites on PEI. The observers at these sites use manual type B rain gauges, snow boards and rulers for precipitation measurement. The measurements from eleven (11) 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, UP14 and UP9.

Table 3 CoCoRaHS Precipitation Amounts from Eleven Locations on PEI, February, 2017

CoCoRaHS Station	Total Precipitation in mm	Total Snowfall in cm
CAN-PE-1 Stratford	66.8	60.7
CAN-PE-3 Welling0ton	79.0	68.1
CAN-PE-7 Morell	27.9	2.8
CAN-PE-10 New London	73.2	67.1
CAN-PE-13 Bedeque	77.0	4.1
CAN-PE-19 Winsloe South	89.7	97.5
CAN-PE-20 Bonshaw	100.1	92.7
CAN-PE-23 Borden-Carleton	113.5	72.6
CAN-PE-25 – Caledonia	98.0	87.1
CAN-PE-26 – Grand Tracadie	56.4	122.4
CAN-PE-27 – Cardigan Head	91.7	27.7

Table 4 provides thirty year climate normal values for several climate stations in the province for the month of February.

Table 4 February Climate Normal for PEI Stations 1981 to 2010

Parameter	Ch'town A	New Glasgow	Summerside A	O'Leary	Alberton	Monticello	East Baltic
Mean	-7.3	-7.3	-6.9	-7.7	-7.7	-7.0	-6.8

Monthly T in C							
Mean Monthly Ppt. in mm	83.2	86.8	74.9	81.6	74.5	81.7	91.3
Mean Monthly Snow cm	58.3	56.9	53.4	55.2	56.0	52.9	62.6

Discussion

The monthly mean temperatures for February as shown on table 5 were all above normal across the entire province and ranged from 3.9⁰C warmer at the Orwell Cove location to 0.8⁰C above normal at Summerside. The highest monthly mean of -3.4⁰C was observed at East Point (EC) and at Orwell with the lowest monthly mean of -6.1⁰C recorded at Summerside, representing a 2.7 degree difference between these locations. The maximum temperature for the month was 14.0⁰C at Arlington on February 24th. The coldest temperature reported during the month for all stations listed in this summary was -28.9⁰C which was recorded at Maple Plains on February 12th.

Table 5 – Variation of February 2017 Monthly Mean Temperature from 1981-2010 Climate Normal

Climate Station	February 2017 Mean C	30 Year Normal C 1981-2010	Variation from Normal C
Alliston / Peters Rd	-4.4	-7.3	2.90
Alliston CNP	-4.4	-7.3	2.90
Arlington	-5.3	-7.7	2.40
Baltic	-5.1	-6.9	1.80
Borden - Carleton	-4.7	-6.9	2.20
Brockton	-5.9	-7.7	1.80
Cape Egmont	-5.4	-6.9	1.50
Cardigan Head	-5.5	-7.0	1.50
Charlottetown A	-5.5	-7.3	1.80
Dingwells	-4.4	-7.8	3.40
East Point	-3.4	-6.8	3.40
East Point – UP16	-4.2	-6.8	2.60
Elmwood	-5.0	-7.3	2.30
Fanning Brook	-4.5	-7.3	2.80
Flat River	-3.7	-7.3	3.60
Foxley River	-5.0	-7.7	2.70
Glen Valley	-5.1	-7.3	2.20
Hampton	-5.2	-6.9	1.70
Harrington	-5.3	-7.3	2.00
Hope River	-3.5	-7.3	3.80

Maple Plains	-5.8	-6.9	1.10
Mill Cove	-5.0	-7.3	2.30
New Glasgow	-5.2	-7.3	2.10
North Cape	-5.2	-7.7	2.50
Orwell	-3.4	-7.3	3.90
St. Catherine's	-4.6	-7.3	2.70
St. Peters	-4.5	-7.0	2.50
Summerside A	-6.1	-6.9	0.80
Tignish	-5.4	-7.7	2.30
White Sands	-3.8	-7.3	3.50
Winsloe South	-4.4	-7.3	2.90

Table 6 – Variation of February 2017 Total Precipitation Amounts from 1981-2010 Climate Normal

Climate Station	Total PPT in mm February 2017	30 Year Normal C 1981-2010	Variation from Normal mm
Alliston / Peters Rd	115.6	83.2	32.40
Alliston CNP	13.2	83.2	-70.00*
Arlington	25.4	81.8	-56.40*
Baltic	-	74.9	---*
Borden – Carleton (CoCo Can-PE-23)	21.6	74.9	-53.30
Brockton	47.0	74.5	-27.50
Cape Egmont	18.8	74.9	-56.10*
Cardigan Head (CoCo Can-PE-27)	91.7	81.7	10.00
Charlottetown A	113.1	83.2	29.90
Dingwells	62.7	81.7	-19.00
East Point - EC	36.7	91.3	-54.60
East Point – UP16	10.0	91.3	-81.30*
Elmwood (CoCo- Can-PE-20)	100.1	86.8	13.30
Fanning Brook	42.7	83.2	-40.50
Flat River	42.4	83.2	-40.80
Foxley River	57.2	81.8	-24.60
Glen Valley	21.6	86.8	-65.20
Hampton	18.3	74.9	-56.60*
Harrington	62.9	83.2	-20.30
Hope River	24.9	86.8	-61.90*
Maple Plains	-	74.9	---*
Mill Cove	22.6	83.2	-60.60*
New Glasgow	104.4	86.8	17.60
North Cape	66.6	74.5	-7.90
Orwell	21.3	83.2	-61.90
St. Catherine's	17.5	83.2	-65.70*

St. Peters	84.6	81.7	2.90
Summerside A	45.8	74.9	-29.10
Tignish	49.4	74.5	-25.10
White Sands	9.7	83.2	-73.50*
Winsloe South (CoCo-Can-PE-19)	89.7	83.2	6.50

* No rain collector heater on unit. Values are not accurate.

The precipitation amounts reported reveal a wide range across the province during the month. The CoCoRaHS stations using volunteer observers reported total precipitation amounts ranging from 29.4 to 113.5 mm and this may indicate some issues with measuring the water equivalent of snowfall amounts. The maximum precipitation for the month was at Peters Road where 115.6 mm was recorded which included 111 cm of snow. Snowfall during February was above normal at the majority of reporting stations with at least 4 locations reporting double the normal amount.

Average wind speeds across the province ranged from 4.3 km/h at Mill Cove to 26.8 km/h at North Cape. The maximum gust for the month was 98.0 km/h reported at Charlottetown Airport on February 13th.

As expected the solar radiation values for the month of February increased from January values ranging from 0.93 kWh/m²/D at Tignish to 2.57 kWh/m²/D at Borden-Carleton.

Closure

- Temperatures were generally 2 degrees above normal across most of the province.
- Precipitation was variable with some stations slightly above normal and others slightly below normal
- Snowfall amounts were above normal with some locations twice the normal
- The maximum wind gust recorded was 98 km/h at Charlottetown Airport.

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

Table 7–February Weather or Phenological Events 2017

Date	Location	Type of Event	Comments
February 13, 2017	Entire province	Snow storm and blizzard with over 20 cms of now and winds gusting over 80 km/h	Schools, UPEI, Holland College closed for the day.
February 16, 2017	Entire province	Snow storm and blizzard with winds gusting up to 82 km/h at North Cape.	Schools, UPEI, Holland College and many businesses closed for the day.
February 25, 2017	Charlottetown Area	Heavy fog causing vehicle traffic to slow down	Accompanied by mild temperatures



Figure 3- East Point Cliff February 2017, PEI

Sources:

Environment Canada Climate Data Archives

WUnderground.com

CoCoRaHS.org/Canada

AgraWeather Atlantic Website

Michael Radvanyi

PEIStormChaser

CBC News

D. Jardine, UPEI Climate Research Lab, April 4, 2017.