

Climate Research Lab Monthly Meteorological Summary-June, 2018

Background

This summary is produced by the UPEI Climate Lab for the month of June, 2018. Data is reported for 31 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 First Feed of New Potatoes

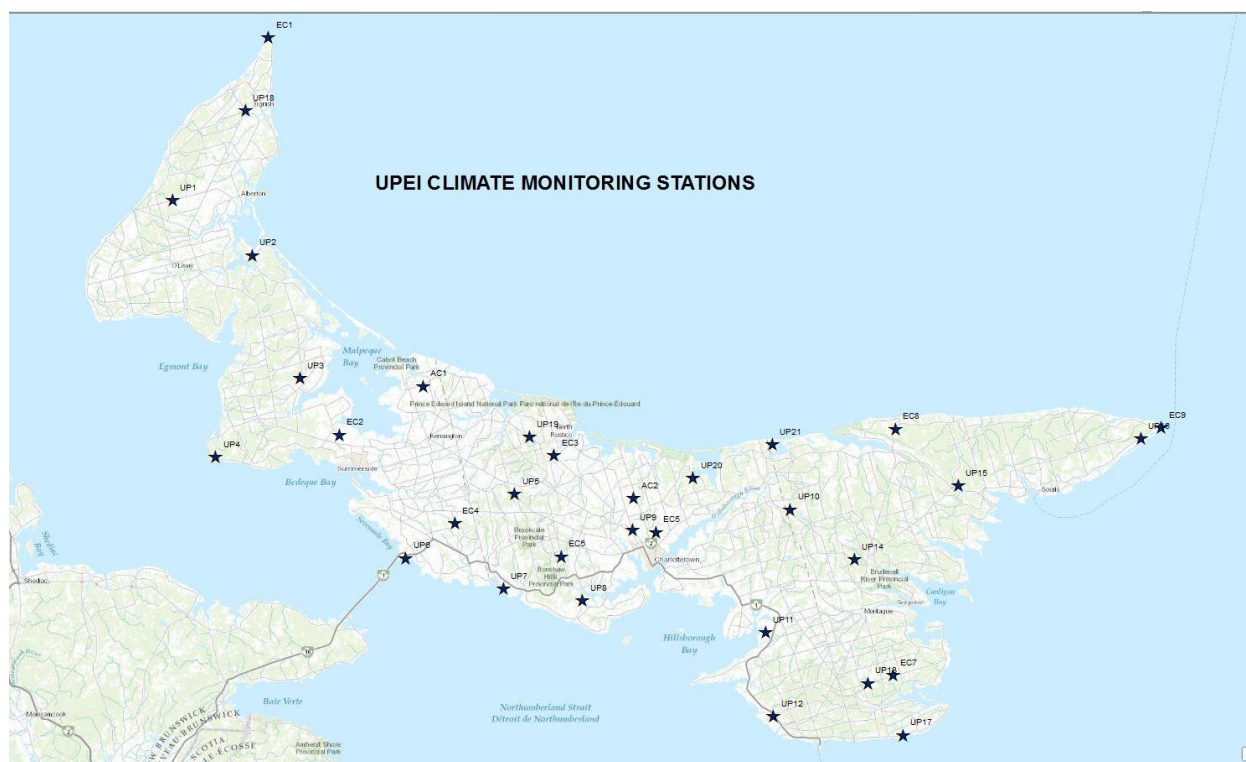


Figure 2 - Map showing climate station locations monitored by the UPEI Climate Research Lab

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.

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
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-June-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
8300562	EC8	St. Peter's	46.4503	-62.5758	15-Aug-03	Airport CZSP
ISAVAGEH2	UP21	Savage Harbour	46.42587	-62.85565	June 27, 2017	Abegweit Conservation Society
8300700	EC2	Summerside	46.44111	-63.83806	19-Jul-99	EC
IPRINCEE36	UP18	Tignish	46.9453	-64.0516	02-June-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 June 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.

Table 2 – UPEI June 2018 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 (CNP)	UP13	12.5	30.0	-1.8	137.4		5.9	43.4	

Arlington	UP3	13.3	30.2	-2.8	124.5		2.8	51.5	
Baltic	AC1	12.8	28.5	-0.8	150.3		15.1	39.6	
Borden	UP6	13.8	25.7	0.8	148.0		12.1	70.8	5.73
Brockton	UP1	13.1	28.6	-2.4	60.2		6.7	61.2	5.24
Cape Egmont	UP4	13.2	26.1	-1.0	134.9		11.0	56.3	5.44
Cardigan Head	UP14	13.1	30.9	-3.4	123.0		2.8	37.0	
Ch'town Airport	EC5	12.7	28.6	-1.0	154.0			69.0	
Dingwells	UP15	12.2	27.9	-2.9	149.4		6.9	57.9	
East Point	EC9	11.8	27.5	3.2	125.5		21.5	58.3	
East Point (N)	UP16	11.4	27.6	-0.1	119.4		*	*	
Elmwood	EC5	*	27.9	0.6	120.6		6.8	51.5	
Fanning Brook	UP10	13.0	29.6	-1.7	106.7		6.8	45.1	5.07
Flat River	UP12	12.5	28.9	-2.2	98.8		6.8	43.4	
Foxley River	UP2	13.7	30.4	-0.6	90.4		10.1	67.6	
Glen Valley	UP5	12.8	27.8	-1.8	94.2		13.7	64.4	4.38
Hampton	UP7	12.0	23.6	-1.3	166.6		9.8	57.9	5.07
Harrington	AC2	12.5	28.9	-0.3	151.1		15.6	40.8	
Hope River	UP19	13.6	28.2	-0.4	80.5		12.6	72.4	
Maple Plains	EC4	12.5	27.8	-3.8	146.2		11.7	32.4	
Mill Cove	UP20	12.6	29.8	-1.9	129.8		4.4	33.8	
New Glasgow	EC3	12.8	28.4	-0.2	174.2				
North Cape	EC1	12.3	24.2	0.3	75.8		22.6	66.4	
Orwell Cove	UP11	13.0	28.8	-0.7	156.0		5.2	41.8	
St. Catherines	UP8	13.1	27.3	-0.9	124.0		8.8	54.7	
St. Peter's	EC8	12.4	29.2	-0.6	142.3		15.4	36.1	
Savage Harbour	UP21	12.6	29.7	-0.7	80.4		11.3	59.5	4.91
Summerside	EC2	13.0	27.1	-1.9	123.2		20.6	54.9	
Tignish	UP18	13.4	29.9	-3.0	55.0		5.2	53.1	5.29
White Sands	UP17	*	*	-0.2	*		*	*	5.55*
Winsloe	UP9	12.3	28.6	-1.4	106.4		3.3	30.6	

South									
-------	--	--	--	--	--	--	--	--	--

*Data incomplete

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 Ten Locations on PEI, June, 2018

CoCoRaHS Station	Total Precipitation in mm	Total Snowfall in cm
CAN-PE-1 Stratford	150.6	0
CAN-PE-3 Wellington	147.6	0
CAN-PE-7 Morell	138.2	0
CAN-PE-10 New London	133.6	0
CAN-PE-13 Bedeque	inc	0
CAN-PE-19 Winsloe South	149.9	0
CAN-PE-20 Bonshaw	160.5	0
CAN-PE-23 Borden-Carleton	118.6	0
CAN-PE-25 – Caledonia	181.4	0
CAN-PE-26 – Grand Tracadie	inc	0
CAN-PE-28 – Peakes	140.7	0
CAN-PE-29- Souris West	inc	0

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 June.

Table 4 June 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	14.5	14.6	14.7	14.8	14.5	14.0	13.6
Mean Monthly Ppt. in mm	98.8	98.3	91.3	84.8	82.1	90.7	100.9
Mean Monthly Snow cm	0	0	0	0	0	0	0

Discussion

June temperatures were below normal across the province with the station at Hampton reporting 2.7°C below normal and the highest monthly mean temperature of 13.8°C recorded at Borden-Carleton. The

low monthly mean was 11.4⁰C at the Newman Estate location in East Point. The maximum temperature for the month was 30.9⁰C at Cardigan Head on June 1st. The coldest temperature reported during the month for all stations listed in this summary was -3.8⁰C which was recorded at Maple Plains on June 4th. On June 4th there was a severe frost which caused substantial damage to some fruit crops. Matt Compton a strawberry farmer from St. Eleanor's reported that the frost on June 4th "this is the biggest in June frost since I began farming. It damaged about 7 acres of our early strawberry crop." (Guardian, June 5, 2018). The frost also damaged blueberry and apple crops. A farmer from Norway, PEI, John Gavin reported that his 10 acre blueberry field was not hit by the frost and he was expecting his yield would have a substantial increase. (Journal Pioneer, August 28, 2018). The June 4th frost may not have hit his crop due to the location on the western tip of the province which tends to have a longer frost free period than most of the province. (see Figure 5, Prince Edward Island Annual Climate Summary 2017). Some apple and other tree fruit varieties at the Arlington Orchard and other PEI orchards were also affected by the early frost. (Barry Balsom, personal communication, 2018)

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

Climate Station	June 2018 Mean C	30 Year Normal C 1981-2010	Variation from Normal C
Alliston CNP	12.5	14.5	-2.00
Arlington	13.3	14.8	-1.50
Baltic	12.8	14.7	-1.90
Borden - Carleton	13.8	14.7	-0.90
Brockton	13.1	14.5	-1.40
Cape Egmont	13.2	14.7	-1.50
Cardigan Head	13.1	14.0	-0.90
Charlottetown A	12.7	14.5	-1.80
Dingwells	12.2	14.0	-1.80
East Point	11.8	13.6	-1.80
East Point – UP16	11.4	13.6	-2.20
Elmwood	Inc.		-1.10
Fanning Brook	13.0	14.5	-1.50
Flat River	12.5	14.5	-2.00
Foxley River	13.7	14.8	-1.10
Glen Valley	12.8	14.6	-1.80
Hampton	12.0	14.7	-2.70
Harrington	12.5	14.5	-2.00
Hope River	13.6	14.6	-1.00
Maple Plains	12.5	14.7	-2.20
Mill Cove	12.6	14.5	-1.90
New Glasgow	12.8	14.6	-1.80
North Cape	12.3	14.5	-2.20
Orwell	13.0	14.5	-1.50
St. Catherine's	13.1	14.5	-1.40

St. Peters	12.4	14.0	-1.60
Savage Harbour	12.6	14.5	-1.90
Summerside A	13.0	14.7	-1.70
Tignish	13.4	14.5	-1.10
White Sands	inc		-0.10
Winsloe South	12.3	14.5	-2.20

Readings in red June not be accurate.

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

Climate Station	Total PPT in mm June 2018	30 Year Normal mm 1981-2010	Variation from Normal mm
Alliston CNP	137.4	98.8	38.60
Arlington	124.5	84.8	39.70
Baltic	150.3	91.3	59.00
Borden – Carleton (CoCo Can-PE-23)	148.0	91.3	56.70
Brockton	60.2	82.1	-21.90
Cape Egmont	134.9	91.3	43.60
Cardigan Head (CoCo Can-PE-27)	123.0	90.7	32.30
Charlottetown A	154.0	98.8	55.20
Dingwells	149.4	90.7	58.70
East Point - EC	125.5	100.9	24.60
East Point – UP16	119.4	100.9	18.50
Elmwood (CoCo- Can-PE-20)	160.5	98.3	62.20
Fanning Brook	106.7	98.8	7.90
Flat River	98.8	98.8	0.00
Foxley River	90.4	84.8	5.60
Glen Valley	94.2	98.3	-4.10
Hampton	166.6	91.3	75.30
Harrington	151.1	98.8	52.30
Hope River	80.5	98.3	-17.80
Maple Plains	146.2	91.3	54.90
Mill Cove	129.8	98.8	31.00
New Glasgow	174.2	98.3	75.90
North Cape	75.8	82.1	-6.30
Orwell	156.0	98.8	57.20
St. Catherine's	124.0	98.8	25.20
St. Peters	142.3	90.7	51.60
Savage Harbour	80.4	98.8	-18.40
Summerside A	123.2	91.3	31.90

Tignish	55.0	82.1	-27.10
White Sands	inc		-inc
Winsloe South (CoCo-Can-PE-19)	149.9	98.8	51.10

Readings in red June not be accurate due to gauge malfunction.

Precipitation was above normal across most of the province with 6 monitoring locations reporting below normal amounts. Three of the below normal readings were from the western tip of the province at North Cape, Tignish and Brockton. The highest precipitation total for June was 174.2 mm at New Glasgow and the lowest total was 55.0 mm at Tignish.

Average wind speeds across the province ranged from 2.8 km/h at Arlington and Cardigan Head to 22.6 km/h at North Cape. The maximum gust for the month was 72.4 km/h reported at Hope River on June 3rd.

The solar radiation values ranged from 4.38 kWh/m²/D at Glen Valley to 5.73 kWh/m²/D at Borden-Carleton. These readings were lower than those reported for the same month in the previous year.

Closure

- Temperatures were below normal across the province.
- A heavy frost with freezing did substantial damage to fruit crops on June 4th.
- Precipitation was above normal for most reporting stations with below normal quantities in western tip of the province.
- See Table 7 for some weather and phenological observations

Table 7–June Weather or Phenological Events 2018

Date	Location	Type of Event	Comments
June 2, 2018	Entire province	Heavy rainfall of over 30 mm in some areas.	
June 4, 2018	Entire province	Severe frost , with ice in some areas	The frost was accompanied by freezing temperatures in some areas and significant damage to fruit crops was reported.
June 6, 2018	Several areas	Some wet snow flurries	Slight accumulation in some areas
June 25, 2018	Several areas	Rainfall 24.7 mm at Charlottetown	
June 29, 2018	Several areas	Heavy rainfall with 47.5 mm at Hampton	



Figure 3- Type B Rain Gauge

Sources:

Environment Canada Climate Data Archives and associated websites

WUnderground.com

CoCoRaHS.org/Canada

AgraWeather Atlantic Website

PEIStormChaser

CBC News

The Guardian newspaper

Journal Pioneer newspaper

PEI Annual Climate Summary 2017.

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