

## Climate Research Lab Monthly Meteorological Summary-October, 2017

### Background

This summary is produced by the UPEI Climate Lab for the month of October, 2017. Data is reported for 31 climate stations in the province as shown on Table 1. One station at Peters Road did not report during the month. The annual summaries of PEI climate data for 2014, 2015 and 2016 and the monthly summaries for 2017 are now posted on the UPEI Climate Lab Website.

(<http://projects.upei.ca/climate/research/>).



Figure 1 –Brae Harbour Road and Wharf Abandoned due to Coastal Erosion

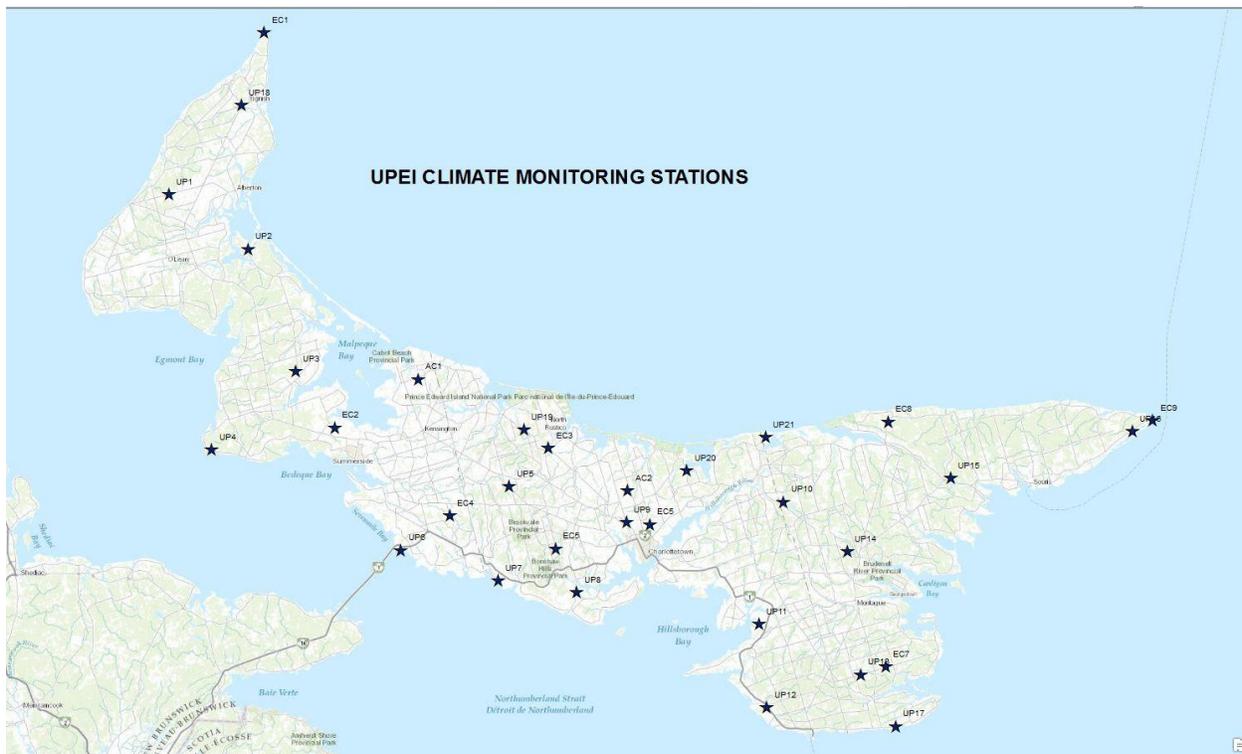


Figure 2 - Map showing climate station locations monitored by the UPEI Climate Research Lab

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
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

<b>IPRINCEE28</b>	UP1	Brockton	46.80649	-64.21685	23-Sep-15	UPEI
<b>83000562</b>	EC8	Cable Head	46.4503	-62.5758	14-Aug-03	EC
<b>IPRINCEE26</b>	UP4	Cape Egmont	46.4067	-64.118742	10-Sep-15	UPEI
<b>IPRINCEE17</b>	UP14	Cardigan Head	46.2461	-62.66833	01-Oct-14	R. Angus
<b>8300300</b>	EC5	Charlottetown	46.28917	-63.119167	14-Sep-12	NAV Canada
<b>IPRINCEE16</b>	UP15	Dingwells Mills	46.362154	-62.432651	14-Nov-13	UPEI
<b>IPRINCEE31</b>	UP16	East Point	46.43554	-62.018632	16-Jul-15	Newman
<b>8300418</b>	EC9	East Point	46.45227	-61.971635	8-Dec-92	EC
<b>IPEIELMW2</b>	EC5	Elmwood	46.2508	-63.3342	01-Sep-93	B. Jameson
<b>IPRINCEE32</b>	UP10	Fanning Brook	46.32419	-62.8141	05-Nov-15	UPEI
<b>IPRINCEE13</b>	UP12	Flat River	45.999949	-62.852033	06-Nov-13	UPEI
<b>IPRINCEE15</b>	UP2	Foxley River	46.7208	-64.0356	20-Nov-13	UPEI
<b>IPRINCEE30</b>	UP5	Glen Valley	46.34884	-63.439941	06-Oct-15	UPEI
<b>IPRINCEE27</b>	UP7	Hampton	46.2003	-63.4652	11-Sep-15	M. Cassidy
<b>830P001</b>	AC2	Harrington	46.342506	-63.169736	01-Jul-00	Agric. Canada
<b>IPRINCEE 35</b>	UP19	Hope River	46.43816	-63.40707	10-October-16	A.MacKay
<b>8305500</b>	EC4	Maple Plains	46.3028	-63.575567	21-Jun-01	BBEMA
<b>IPRINCEE 4</b>	UP20	Mill Cove	46.37400	-63.03508	24-Apr-12	P. Lawlor
<b>8300497</b>	EC3	New Glasgow	46.408911	-63.350289	01-Oct-71	H. Dingwell
<b>8300516</b>	EC1	North Cape	47.05806	-63.998611	18-Oct-02	EC
<b>IPRINCEE14</b>	UP11	Orwell Cove	46.13153	-62.869768	13-Nov-13	UPEI
<b>IPRINCEE21</b>	UP8	St. Catherine's	46.182023	-63.286157	25-Jun-15	Matos Winery
<b>ISAVAGEH2</b>	UP21	Savage Harbour	46.42587	-62.85565	June 27, 2017	Abegweit Conservation Society
<b>8300700</b>	EC2	Summerside	46.44111	-63.83806	19-Jul-99	EC
<b>IPRINCEE36</b>	UP18	Tignish	46.9453	-64.0516	02-October-16	UPEI
<b>IPRINCEE19</b>	UP17	White Sands	45.970	-62.558	25-Oct-14	M. Harwood
<b>IPRINCEE11</b>	UP9	Winsloe South	46.292358	-63.1727104	13-Sep-13	UPEI

## Data Summary

Table 2 summarizes the climate data recorded during the month of October 2017 for all observation stations monitored by UPEI Climate Research Lab. October of 2017 had temperatures which ranged from 2 to 4 degrees Celsius above normal with below normal rainfall across the province. Daily average solar radiation for stations which have solar radiation sensors is included to provide information on the solar energy, photovoltaic energy and crop production.

**Table 2 – UPEI October 2017 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	Days with Frost	Daily Avg. Solar Radiation (kWh/m <sup>2</sup> /D)
Alliston / Peters Road	EC7	na	na	na	na	na	na	na	na	na
Alliston (CNP)	UP13	11.6	23.3	-2.6	40.6		5.0	45.1		
Arlington	UP3	11.3	23.4	-2.6	52.6		1.0	32.2		
Baltic	AC1	12.3	24.4	-1.1	39.6		12.4	35.2		
Borden	UP6	12.1	21.9	1.2	45.2	0	14.0	69.2	0	2.83
Brockton	UP1	11.5	22.5	-0.9	40.1		6.1	53.1		1.57
Cape Egmont	UP4	12.0	21.7	-1.2	46.5		13.6	67.6		
Cardigan Head	UP14	10.6	23.8	-6.3	41.4		3.6	49.9		
Ch'town Airport	EC6	11.5	22.5	-3.4	37.8			80.0		
Dingwells	UP15	10.7	23.4	-4.4	32.3	0	2.7	48.3		
East Point	EC9	12.3	20.8	-0.8	30.1			69.0		
East Point (N)	UP16	12.0	21.7	-1.5	25.8		9.6	61.2		
Elmwood	EC5	11.5	22.1	-2.3	36.8		7.6	51.5		
Fanning Brook	UP10	11.7	23.7	-3.1	29.5		8.9	61.1		
Flat River	UP12	11.7	22.6	-3.4	33.0		8.8	62.8		
Foxley River	UP2	12.3	23.2	0.6	45.2		9.7	82.1	0	
Glen Valley	UP5	11.7	21.7	0.2	42.4		15.5	88.5	0	
Hampton	UP7	11.3	20.4	-1.2	43.7		15.2	69.2		
Harrington	AC2	11.6	22.9	-1.8	34.8		15.7	76.0		
Hope River	UP19	13.1	25.6	-0.4	42.2		12.6	92.5		
Maple Plains	EC4	10.9	22.2	-5.2	41.6		11.9	42.5		
Mill Cove	UP20	12.0	23.1	-3.7	35.3		5.3	43.4		
New Glasgow	EC3	12.0	23.1	-2.2	47.2					
North Cape	EC1	11.5	21.2	1.3	80.1		26.0	74.0	0	

Orwell Cove	UP11	11.9	23.9	-2.1	28.2		8.1	61.1		
St. Catherines	UP8	12.1	21.9	-1.5	40.1		7.2	51.5		
St. Peter's	EC9	11.7	23.0	-2.7	29.5		17.5	72.0		
Savage Harbour	UP21	12.5	23.2	-2.2	26.4		13.5	70.8		2.31
Summerside	EC2	11.5	22.8	-0.8	45.4		20.2	76.0		
Tignish	UP18	11.4	22.7	-2.6	72.2		5.9	54.7		2.30
White Sands	UP17	12.3	20.9	-0.6	30.7		15.2	69.2		
Winsloe South	UP9	12.0	22.8	-0.1	26.9		3.6	35.4		

? October reading maybe inaccurate.

NR- Not recording wind speed

Inc. Incomplete record

Na- Station did not report in October

The measurements from twelve (12) 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, October, 2017**

CoCoRaHS Station	Total Precipitation in mm	Total Snowfall in cm
CAN-PE-1 Stratford	38.4	0
CAN-PE-3 Wellington	10.9	0
CAN-PE-7 Morell	35.1	0
CAN-PE-10 New London	49.0	0
CAN-PE-13 Bedeque	37.1	0
CAN-PE-19 Winsloe South	37.6	0
CAN-PE-20 Bonshaw	46.7	0
CAN-PE-23 Borden-Carleton	57.2	0
CAN-PE-25 – Caledonia	53.3	0
CAN-PE-26 – Grand Tracadie	36.6	0
CAN-PE-27 – Cardigan Head	47.0	0
CAN-PE-28 – Peakes	1.8	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 October.

**Table 4 October 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	8.3	8.5	8.4	8.2	8.4	8.6	8.4
Mean Monthly Ppt. in mm	112.2	121.7	87.7	99.6	96.1	115.0	122.5
Mean Monthly Snow cm	1.7	1.2	0.7	0.6	0.1	0.2	1.5

## Discussion

October temperatures were well above normal across the province with some locations over four (4) degrees higher than normal. The mean monthly temperature at Charlottetown was the second highest for a Charlottetown Station going back to 1873. The previous high for the mean or average temperature in October was set in 1913 at the CDA station in Charlottetown at 12.9<sup>o</sup>C. The highest monthly mean in 2017 for the province was 12.5<sup>o</sup>C which was observed at Savage Harbour. The low monthly mean was 10.6<sup>o</sup>C at Cardigan Head. The maximum temperature for the month was 24.4<sup>o</sup>C at Baltic on October 26<sup>th</sup> which set a new extreme daily high for this date for the entire province. The coldest temperature reported during the month for all stations listed in this summary was -6.3<sup>o</sup>C which was recorded at Cardigan Head on October 23<sup>rd</sup>.

A search on the Government of Canada Almanac Averages and Extremes Website for the extreme highs in October for all PEI reporting stations revealed new extreme daily high records was set for five (5) days in October as shown on table 7. This confirms that October temperatures were indeed well above normal values during the month.

There were four stations that didn't report frost during October of 2017. These were Borden-Carleton, Foxley River, North Cape and Glen Valley.

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

Climate Station	October 2017 Mean C	30 Year Normal C 1981-2010	Variation from Normal C
<b>Alliston / Peters Rd</b>			2.60
<b>Alliston CNP</b>	11.6	8.3	3.30
<b>Arlington</b>	11.3	8.2	3.10
<b>Baltic</b>	12.3	8.4	3.90
<b>Borden - Carleton</b>	12.5	8.4	4.10
<b>Brockton</b>	11.5	8.6	2.90

Cape Egmont	12.0	8.4	3.60
Cardigan Head	10.6	8.6	2.00
Charlottetown A	11.5	8.3	3.20
Dingwells	10.7	8.6	2.10
East Point	12.3	8.4	3.90
East Point – UP16	12.0	8.4	3.60
Elmwood	11.5	8.5	3.00
Fanning Brook	11.7	8.3	3.40
Flat River	11.7	8.3	3.40
Foxley River	12.3	8.2	4.10
Glen Valley	11.7	8.5	3.20
Hampton	11.3	8.4	2.90
Harrington	11.6	8.3	3.30
Hope River	13.1	8.5	4.60
Maple Plains	10.9	8.4	2.50
Mill Cove	12.0	8.3	3.70
New Glasgow	12.0	8.5	3.50
North Cape	11.5	8.6	2.90
Orwell	11.9	8.3	3.60
St. Catherine's	12.1	8.3	3.80
St. Peters	11.7	8.6	3.10
Savage Harbour	12.5	8.3	4.20
Summerside A	11.5	8.4	3.10
Tignish	11.4	8.6	2.80
White Sands	12.3	8.3	4.00
Winsloe South	12.0	8.3	3.70

Readings in red may not be accurate.

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

Climate Station	Total PPT in mm October 2017	30 Year Normal mm 1981-2010	Variation from Normal mm
Alliston / Peters Rd		112.2	
Alliston CNP	40.6	112.2	-71.60
Arlington	52.6	99.6	-47.00
Baltic	39.6	87.7	-48.10
Borden – Carleton (CoCo Can-PE-23)	40.1	87.7	-47.60
Brockton	40.1	96.1	-56.00
Cape Egmont	46.5	87.7	-41.20
Cardigan Head (CoCo Can-PE-27)	41.4	115.0	-73.60
Charlottetown A	37.8	112.2	-74.40
Dingwells	32.3	115.0	-82.70

<b>East Point - EC</b>	30.1	122.5	-92.40
<b>East Point – UP16</b>	25.8	122.5	-96.70
<b>Elmwood (CoCo- Can-PE-20)</b>	36.8	121.7	-84.90
<b>Fanning Brook</b>	29.5	112.2	-82.70
<b>Flat River</b>	28.2	112.2	-84.00
<b>Foxley River</b>	45.2	99.6	-54.40
<b>Glen Valley</b>	42.4	121.7	-79.30
<b>Hampton</b>	43.7	87.7	-44.00
<b>Harrington</b>	34.8	112.2	-77.40
<b>Hope River</b>	42.2	121.7	-79.50
<b>Maple Plains</b>	34.8	87.7	-52.90
<b>Mill Cove</b>	35.3	112.2	-76.90
<b>New Glasgow</b>	41.6	121.7	-80.10
<b>North Cape</b>	80.1	96.1	-16.00
<b>Orwell</b>	28.2	112.2	-84.00
<b>St. Catherine’s</b>	40.1	112.2	-72.10
<b>St. Peters</b>	29.5	115.0	-85.50
<b>Savage Harbour</b>	26.4	112.2	-85.80
<b>Summerside A</b>	45.4	87.7	-42.30
<b>Tignish</b>	72.2	96.1	-23.90
<b>White Sands</b>	30.7	112.2	-81.50
<b>Winsloe South (CoCo-Can-PE-19)</b>	26.9	112.2	-85.30

All reporting stations had below normal precipitation during the month. The highest rainfall total was 80.1 mm at North Cape and the lowest total was 25.8 mm at East Point. This continued the dry trend for the year. Snowfall was not reported at any of the stations in the province during the month thus another confirmation of the higher than normal temperatures.

Average wind speeds across the province ranged from 1.0 km/h at Arlington to 26.0 km/h at North Cape. The maximum gust for the month was 92.5 km/h reported at Hope River on October 16th.

The solar radiation values ranged from 1.57 kWh/m<sup>2</sup>/D at Brockton to 2.83 kWh/m<sup>2</sup>/D at Borden-Carleton. These readings were similar to those reported for the same month in the previous year. Some solar radiation values could not be obtained due to technical difficulties downloading these from the Weather Underground website.

## Closure

- Temperatures were above normal across the province with extreme daily highs set on October 8<sup>th</sup>, 23<sup>rd</sup>, 24<sup>th</sup>, 25<sup>th</sup> and 26<sup>th</sup> as shown on table 7.
- Precipitation was below normal for all reporting stations with no snowfall reported
- There were no major storm events during the month.
- The maximum wind gust recorded was 92.5 km/h at Hope River on October 16h.

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

**Table 7–October Weather or Phenological Events 2017**

<b>Date</b>	<b>Location</b>	<b>Type of Event</b>	<b>Comments</b>
October 1, 2017	Winsloe South	Widespread frost	Temperature of 3.5 C at 08:00
October 8, 2017	New Glasgow	Extreme daily high record set for PEI at 24.0 C.	Previous daily high was 23.5 C at North Cape in 2016
October 22, 2017	Several areas	Widespread frost	Temperature of 0.2 C at 06:00
October 23, 2017	New Glasgow	Extreme daily high record set for PEI at 23.0 C	
October 24, 2017	Summerside	Extreme daily high record set for PEI at 22.2 C.	
October 25, 2017	Summerside	Extreme daily high record set for PEI at 22.8 C.	
October 26, 2017	Baltic	Extreme daily high record set for PEI at 24.4 C.	4 <sup>th</sup> consecutive day of above normal temperatures



Figure 3- Seawall for cottages at Maximeville

Sources:

Environment Canada Climate Data Archives and associated websites

WUnderground.com

CoCoRaHS.org/Canada

AgraWeather Atlantic Website

Michael Radvanyi

PEIStormChaser

CBC News

D. Jardine, UPEI Climate Research Lab, February 6, 2018.