

Climate Research Lab Monthly Meteorological Summary-March, 2017

Background

This summary is produced by the UPEI Climate Lab for the month of March, 2017. Data is reported from 30 climate stations in the province as shown on Table 1. The annual summaries of PEI climate data for 2014, 2015 and 2016 are now posted on the UPEI Climate Lab Website.

(<http://projects.upei.ca/climate/about-us/>)



Figure 1 –Drifting snow, Winsloe South

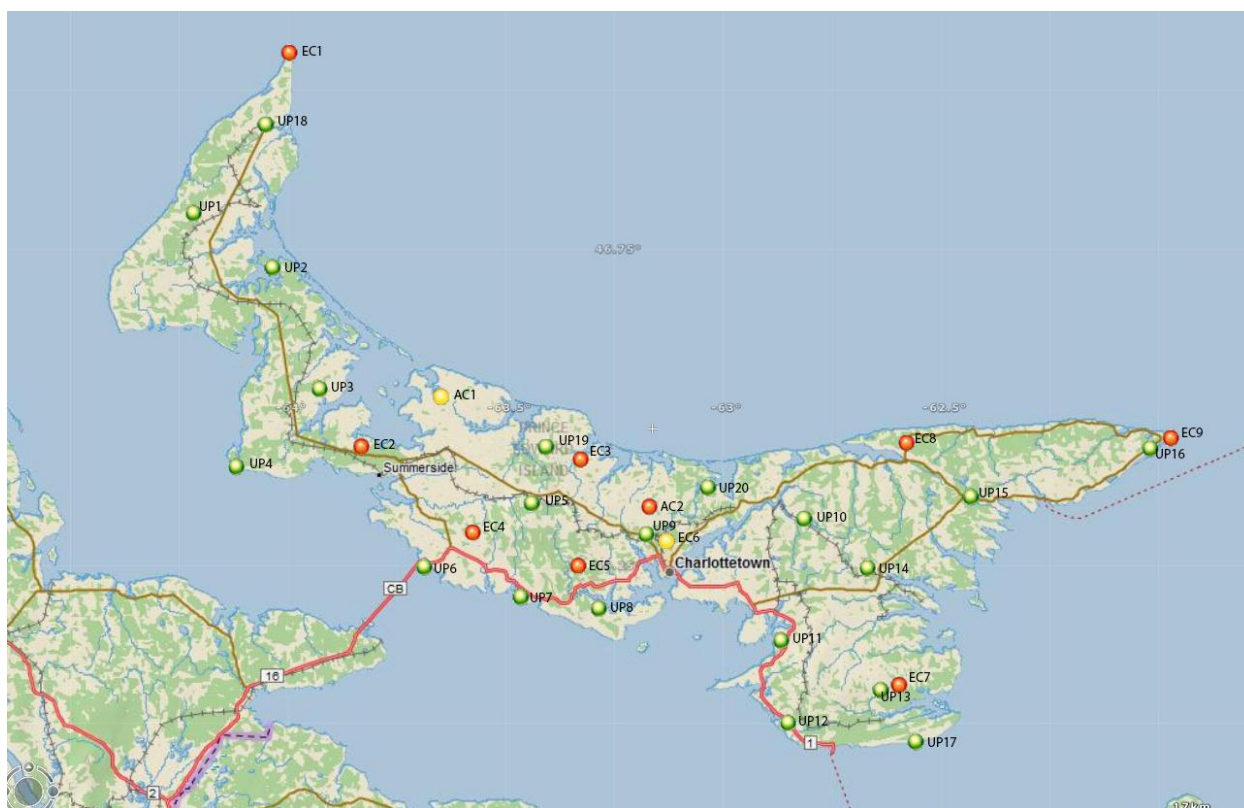


Figure 2 - Map showing climate station locations monitored by the UPEI Climate Research Lab

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 March 2017 for 31 stations being observed by UPEI Climate Research Lab. The station at Mill Cove was not reporting during the month. 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 March 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	-2.5	9.0	-17.5	65.5	59.0			
Alliston (CNP)	UP13	-3.6	8.4	-19.2	16.8		9.2	67.6	
Arlington	UP3	-3.8	8.2	-19.3	25.4		5.4	53.1	
Baltic	AC1	-3.8	9.3	-19.0	-		18.9	53.9	
Borden	UP6	-3.4	6.8	-17.9	46.7	0.0	16.5	93.3	3.38
Brockton	UP1	-4.2	7.1	-19.0	34.8		8.4	69.2	2.71
Cape Egmont	UP4	-4.0	6.6	-18.8	14.0		14.5	75.6	3.38
Cardigan Head	UP14	-4.3	7.4	-18.8	61.0	29.7			
Ch'town Airport	EC6	-4.3	8.4	-19.2	62.8	66.7		87.0	
Dingwells	UP15	-3.2	9.3	-18.2	36.3		10.1	69.2	
East Point	EC9	-2.8	6.5	-19.4	18.9		20.0	87.0	
East Point (N)	UP16	-3.5	5.6	-20.2	18.0		11.6	70.8	
Elmwood	EC5	-3.8	8.6	-18.7	48.3	39.9	10.7	46.7	
Fanning Brook	UP10	-3.3	9.6	-17.8	30.2		12.0	66.0	3.12
Flat River	UP12	-2.6	8.9	-17.2	15.7		11.0	78.8	
Foxley River	UP2	-3.3	9.3	-18.1	45.2		11.4	93.3	
Glen Valley	UP5	-4.1	8.6	-19.2	18.5		17.8	85.3	3.09
Hampton	UP7	-3.8	6.5	-18.7	17.8		17.1	91.7	3.18
Harrington	AC2	-4.1	7.7	-19.0	37.6			135	
Hope River	UP19	?	?	-18.9	17.8		15.3	?	
Maple Plains	EC4	-4.4	7.5	-19.1			15.0	53.5	
Mill Cove	UP20	Nr	Nr	Nr	Nr	Nr	Nr	Nr	Nr
New Glasgow	EC3	-3.8	8.0	-19.0	69.8	43.0			
North Cape	EC1	-4.4	8.2	-18.8	55.9		18.1	102	

Orwell Cove	UP11	-2.6	8.9	-17.3	18.8		14.6	69.2	
St. Catherines	UP8	-3.5	7.8	-19.0	14.5		9.9	64.4	
St. Peter's	EC9	-3.8	8.8	-18.7	43.6		14.3	69	
Summerside	EC2	-4.6	7.6	-18.9	24.8		18.4	93.0	
Tignish	UP18	-3.9	8.1	-18.6	33.6		6.7	51.5	4.35
White Sands	UP17	-3.0	7.8	-17.7	16.5		17.8	77.7	3.01
Winsloe South	UP9	-3.5	7.7	-18.7	43.9	58.4	5.0	54.7	

? Reading may be inaccurate.

Nr- Station not reporting

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, March, 2017

CoCoRaHS Station	Total Precipitation in mm	Total Snowfall in cm
CAN-PE-1 Stratford	40.1	8.6
CAN-PE-3 Welling0ton	31.0	21.8
CAN-PE-7 Morell	37.1	0.0
CAN-PE-10 New London	38.6	22.1
CAN-PE-13 Bedeque	31.0	1.8
CAN-PE-19 Winsloe South	43.7	58.4
CAN-PE-20 Bonshaw	48.3	39.9
CAN-PE-23 Borden-Carleton	46.7	0.0
CAN-PE-25 – Caledonia	42.9	67.3
CAN-PE-26 – Grand Tracadie	37.6	47.5
CAN-PE-27 – Cardigan Head	61.0	29.7

Table 4 provides thirty year climate normal values for seven (7) climate stations in the province for the month of March.

Table 4 March 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	-3.1	-2.8	-2.9	-3.2	-3.3	-2.8	-2.9
Mean	86.3	95.6	79.4	89.4	80.9	87.0	95.7

Monthly Ppt. in mm							
Mean Monthly Snow cm	44.1	50.5	47.4	51.7	48.3	44.8	47.3

Discussion

The monthly mean temperatures for March as shown on table 5 were generally below normal across the entire province and ranged from -1.7°C cooler at Summerside to 0.6°C above normal at Peters Road. The highest monthly mean of -2.5°C was observed at Peters Road with the lowest monthly mean of -4.6°C recorded at Summerside, representing a 2.1 degree difference between these locations. The maximum temperature for the month was 9.6°C at Fanning Brook on March 1st. The coldest temperature reported during the month for all stations listed in this summary was -20.2°C which was recorded at the Newman Winery site at East Point on March 12th

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

Climate Station	March 2017 Mean C	30 Year Normal C 1981-2010	Variation from Normal C
Alliston / Peters Rd	-2.5	-3.1	0.60
Alliston CNP	-3.6	-3.1	-0.50
Arlington	-3.8	-3.2	-0.60
Baltic	-3.8	-2.9	-0.90
Borden - Carleton	-3.4	-2.9	-0.50
Brockton	-4.2	-3.3	-0.90
Cape Egmont	-4.0	-2.9	-1.10
Cardigan Head	-4.0	-2.8	-1.20
Charlottetown A	-4.3	-3.1	-1.20
Dingwells	-3.2	-2.8	-0.40
East Point	-2.8	-2.9	0.10
East Point – UP16	-3.5	-2.9	-0.60
Elmwood	-3.8	-2.8	-1.00
Fanning Brook	-3.3	-3.1	-0.20
Flat River	-2.6	-3.1	0.50
Foxley River	-3.3	-3.2	-0.10
Glen Valley	-4.1	-2.8	-1.30
Hampton	-3.8	-2.9	-0.90
Harrington	-4.1	-3.1	-1.00
Hope River	?	-2.8	
Maple Plains	-4.4	-2.9	-1.50
Mill Cove	Nr	Nr	
New Glasgow	-3.8	-2.8	-1.00

North Cape	-4.4	-3.3	-1.10
Orwell	-2.6	-3.1	0.50
St. Catherine's	-3.5	-3.1	-0.40
St. Peters	-3.8	-2.8	-1.00
Summerside A	-4.6	-2.9	-1.70
Tignish	-3.9	-3.3	-0.60
White Sands	-3.0	-3.1	0.10
Winsloe South	-3.5	-3.1	-0.40

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

Climate Station	Total PPT in mm March 2017	30 Year Normal C 1981-2010	Variation from Normal mm
Alliston / Peters Rd	59.0	86.3	-27.30
Alliston CNP	16.9	86.3	-69.40*
Arlington	15.0	89.4	-74.40*
Baltic	36.1	84.2	-48.10*
Borden – Carleton (CoCo Can-PE-23)	46.7	79.4	-32.70
Brockton	34.8	80.9	-46.10
Cape Egmont	40.1	84.2	-44.10*
Cardigan Head (CoCo Can-PE-27)	61.0	87.0	-26.00
Charlottetown A	66.7	86.3	-19.60
Dingwells	41.4	87.0	-45.60
East Point - EC	18.9	95.7	-76.80
East Point – UP16	18.0	95.7	-77.70
Elmwood (CoCo- Can-PE-20)	48.3	95.6	-47.30
Fanning Brook	38.4	83.7	-45.30
Flat River	30.2	86.3	-56.10
Foxley River	45.2	89.4	-44.20
Glen Valley	37.1	95.6	-58.50
Hampton	17.8	84.2	-66.40*
Harrington	37.6	86.3	-48.70
Hope River	17.8	95.6	-61.90*
Maple Plains	37.4	84.2	-46.80
Mill Cove	Nr		Nr
New Glasgow	69.8	95.6	-25.80
North Cape	55.9	80.9	-25.00
Orwell	18.8	86.3	-67.50
St. Catherine's	14.5	86.3	-71.80*
St. Peters	43.6	87.0	-43.40
Summerside A	24.8	79.4	-54.60
Tignish	33.6	80.9	-47.30
White Sands	16.5	86.3	-73.50*

Winsloe South (CoCo-Can-PE-19)	43.9	86.3	-42.40
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* No rain collector heater on unit. Values are not accurate.

Nr – Not reporting

Total precipitation was below normal across the province with the two stations at East Point reporting 77 mm below normal. The CoCoRaHS stations using volunteer observers reported total precipitation amounts ranging from 31.0 to 61.0 mm which were all well below normal values. The maximum precipitation for the month was at New Glasgow where 69.8 mm was recorded. The maximum snowfall for the month was at the CoCoRaHS station in Caledonia where 67.3 cm was measured. Snowfall during March was generally in the normal range however two CoCoRaHS stations at Morell and Borden-Carleton reported no snowfall during the month.

Average wind speeds across the province ranged from 5.0 km/h at Winsloe South to 20.0 km/h at East Point. The maximum gust for the month was 102.0 km/h reported at North Cape on March 14th.

As expected the solar radiation values for the month of March increased from the previous month ranging from 2.71 kWh/m²/D at Brockton to 4.35 kWh/m²/D at Tignish.

Closure

- Temperatures were generally slightly below normal across most of the province.
- Precipitation was significantly below normal across the province with some locations reporting 77 mm below normal amounts.
- Snowfall amounts were normal but two stations reported no snow.
- The maximum wind gust recorded was 102.0 km/h at North Cape.

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

Table 7–March Weather or Phenological Events 2017

Date	Location	Type of Event	Comments
March 14-15, 2017	All of PEI	12 cms of snow fell at Charlottetown airport then the snow changed to rain. The precipitation was over by 6:00 am.	Maritime Electric reported that 100 customers had lost power. The storm was forecast to be worse but PEI was spared most of the event.
March 22-23, 2017	All of PEI	Storm and Blizzard with 20 cm of snow. This was a record amount for some areas on this date.	Schools, UPEI and Holland College all closed. Maritime Electric had 3900 customers without power but these were restored by 10:30 am on the 23 rd .



Figure 3- Well casing on beach at Kildare due to coastal erosion

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, May 3, 2017.