

UPEI Canadian Centre for Climate Change and Adaptation (*Climate Centre*)

Prince Edward Island Climate Summary – August, 2023

Introduction

August of 2023 had normal temperatures and above normal precipitation with one station at White Sands reaching a total rainfall just over 200 mm for the month. Average wind speed was slightly higher than the previous month with the highest value of 17.9 km/h reported at Skinners Pond and only one station at North Lake reported a peak wind gust over 80 km/h



Figure 1: Hebrides & MacEwen's Island, New London Bay, 2023

Climate Data

Table 1 summarizes data from 84 climate stations across the province which reported in August of 2023. New stations at Tracadie Wharf and Stanley Bridge Wharf were installed in July and August in conjunction with Parks Canada. Tide gauges will also be installed at these locations in September or October of 2023.

Table 1: Instrumented Climate Data for August, 2023

Location	Owner	T _{mean} (°C)	T _{max} (°C)	T _{min} (°C)	Ppt total (mm)	Max Wind Gust (km/h)	Avg. Wind Speed (km/h)	Avg. Daily Solar Rad. (W/m ²)
Abney	UPEI	18.4	28.4	6.2	169.0	41	5.5	152.5
Abram's Village	UPEI	18.8	26.2	9.3	136.4	61	13.1	156.7
Albany	UPEI	18.0	27.0	5.9	18*	48	7.9	163.9
Alberry Plains	UPEI	18.0	27.5	5.1	145.8	57.7	8.8	162.2
Alliston	UPEI	17.7	25.9	7.2	123.4	40.2	3.7	
Annandale	UPEI	18.6	26.0	8.2	105.6	64	13	155.1

Location	Owner	T _{mean} (°C)	T _{max} (°C)	T _{min} (°C)	Ppt total (mm)	Max Wind Gust (km/h)	Avg. Wind Speed (km/h)	Avg. Daily Solar Rad. (W/m ²)
Arlington	UPEI	18.1	29.5	6.6	147.2	43.3	0.8	167.8
Baltic	UPEI	18.1	27.7	8.8	95.8	61.3	11.7	194.1
Belmont	UPEI	18.7	25.8	10.2	126.2	49.3	9.4	182.1
Bideford	MCPEI	18.1	26.2	7.9	128.4	48.3	5.8	128.0
Bothwell	UPEI	18.1	23.7	11.2	115.0	51.8	6.6	
Brockton	UPEI	17.7	26.3	7.2	129.4	33.8	2.2	
Brookvale	UPEI	17.8	25.9	9.6	10.4*	57	9.1	143.6
Brudenell	UPEI	18.1	27.9	6.3	157.2	48	5	156.0
Cable Head E	EC	17.8	26.8	10.3	114.7	58		
Cardigan Head	Private		27.2	7.6	41*			
Cavendish GG	UPEI	18.5	26.7	10.0	136.2	58	9.8	167.8
Ch town Air	NAV Can	18.0	25.9	7.8	154.6	64		
Ch town VK	Private	19.4	27.9	10.7	158.2	45.1	5.5	145.4
Ch town YC	UPEI	19.1	25.8	10.8	163.2	53	11	168.9
Darlington	UPEI	18.2	27.7	7.8	152.2	54	7.9	153.6
Dingwells	UPEI	17.9	27.7	5.4	108.5	53.1	6.3	
East Baltic	UPEI	18.0	27.1	8.2	175.2	46	6.5	179.6
East Point	EC	18.1	24.0	9.4	83.5	63		
Elmwood	Private	18.1	25.7	7.3	119.4	25.7	2.1	
Fanning Brook	UPEI	18.4	26.1	6.5	109.0	51.5	5.9	
Flat River	UPEI				109.0	43.5	5.1	
Fox Island	UPEI	18.7	28.6	9.9	105.8	54.1	7.3	183.1
Foxley River	UPEI	18.3	25.4	8.6	6.6*	54.7	6.9	
Georgetown Wharf	UPEI	18.8	26.7	11.3	62.6	69	13.9	152.7
Glen Valley	UPEI	17.8	25.9	7.9	176.2	49	6.6	127.6
Graham's Pond	UPEI	18.7	26.7	11.3	62.6	69	13.9	152.7
Graham's Road	UPEI	18.0	27.8	9.6	176.0	58	11.9	170.4
Grand Tracadie	UPEI	18.4	28.0	9.7	111.2	38	4.5	
Greenwich	PC	18.6	28.0	9.7	111.2	46	6.9	176.0
Hampton	UPEI	18.5	25.8	7.6	92.4	69	10.3	170.4
Harrington	EC	17.7	25.4	8.1	145.1	61		
Heatherdale	UPEI	18.2	29.5	6.5	157.4	47	4.8	153.5
Hog Island	MCPEI	19.1	27.9	11.8		59	10.8	167.4
Iona	UPEI	18.1	27.8	7.2	165.0	64	7	159
Johnstons R	UPEI	18.6	27.3	9.5	163.8	48	7.8	177.3
Lennox Island GH	MCPEI	18.8	26.5	8.3	142	49	8	180.7
Lennox Island Wharf	MCPEI	18.9	25.1	11.7	113.6	66	14.3	186.8
Little Sands	UPEI	18.5	28.1	9.3	153.2	46	8.1	158
Lower Freetown	UPEI	18.3	27.9	6.0	172.8	55.3	7.2	158.7

Location	Owner	T _{mean} (°C)	T _{max} (°C)	T _{min} (°C)	Ppt total (mm)	Max Wind Gust (km/h)	Avg. Wind Speed (km/h)	Avg. Daily Solar Rad. (W/m ²)
Maple Plains	EC	17.2	26.5	4.7		57		
Mt. Vernon	UPEI	18.2	27.7	7.8	158.2	47	8.1	170.8
Naufrage	Private		27.9	9.0	116.0	59.5		
Naufrage Harbour	UPEI	18.5	27.2	8.7	112.0	55	10.6	165.4
New Glasgow	UPEI	18.1	27.2	10.8	148.6	55	4.9	162.6
New Zealand	UPEI	17.6	27.1	5.2	113.4	52	8.9	165.2
Newton Rd	UPEI	18.1	26.0	5.9	186.6	58	9.4	185.8
North Cape	EC	18.1	26.2	9.7	134.0	73		
North Lake	PEIEMO	18.7	23.7	7.4	184.6	89	10.5	
North Milton	UPEI	18.3	27.1	7.8	58.2	45.7	7.3	
North Rustico	PC	18.6	26.2	9.4	115.8	57	10.3	172.3
Norway Onset	UPEI	18.3	27.1	7.8	128.2	54	10.9	151.7
Norway VP	UPEI	18.1	26.1	8.3	131.2	57.9	11.1	
Norway VV	UPEI	18.1	26.1	8.3	105.6	51.5	10.3	
O'Leary	UPEI	17.8	28.4	6.2	28.2	55	7.6	158.2
Orwell	UPEI	18.7	28.8	9.5	158.2	55	7.0	179.4
Pt Prim	UPEI	18.9	28.3	8.2	168.8	44	5.9	173.3
Riverdale	UPEI	18.2	27.2	7.5	162.0	42	5.4	171.5
Rocky Pt	MCPEI	18.6	26.3	9.5		32.2	3.4	
Savage Harbour	ACS	18.0	26.0	9.1	122.0	64.4	8.8	
Scotchfort	MCPEI	18.2	26.7	7.9	92.5	51.5	4.5	
Shamrock	UPEI	17.9	26.4	8.7	180.0	54.1	12.4	180.1
Skidders Pond	UPEI	18.5	26.0	8.6	137.0	53	17.9	156.3
Souris	PEIEMO	18.8	25.5	11.2	96.2	57	9	
South Rustico	UPEI	18.1	26.8	7.3	120.4	46.7	2.8	
SSide Airport	EC	18.0	25.0	6.6	142.9	59		
SSide Wharf	PEIEMO	19.2	26.6	12.7	109.8	56.5	6.1	157.6
St. Catherine's	UPEI	18.4	25.1	8.7	153.7	45.1	5.5	
St. Peters CS	UPEI	18.3	28.2	9.2	99.6	58	7.6	178.4
Stanhope	EC	18.1	26.3	8.3	124			
Stanley Bridge	UPEI	18.8	26.4	9.2	184.8	50	10.3	158.6
Stratford	UPEI	18.5	27.1	9.9	153.4	50	4.3	188.1
Sturgeon	UPEI	18.1	28.9	6.0	175.4	38	4.3	152.1
Tignish Acadian	UPEI	17.7	26.3	6.4	*	38.6	3.2	
Tignish Wharf	PEIEMO	18.2	27.2	9.4	145.0	48.1	9.7	
Tracadie Wharf	UPEI	18.8	26.8	12.2	117.2	58	13.7	172.4
Upton	UPEI	17.6	30.3	4.5	129.4	35	1.8	194.5
Victoria Visser	UPEI	18.4	26.4	6.5	144.2	48.1	9.8	174.8
Victoria Wharf	UPEI	18.8	27.2	9.2	137.4	60	11.2	159.6
Warren Grove	UPEI	18.3	28.0	6.1		49	5.1	156.4
Waterside	UPEI	18.4	27.7	8.2	51.6*			149.6



Location	Owner	T _{mean} (°C)	T _{max} (°C)	T _{min} (°C)	Ppt total (mm)	Max Wind Gust (km/h)	Avg. Wind Speed (km/h)	Avg. Daily Solar Rad. (W/m ²)
West Cape	UPEI	18.1	26.0	7.7	149.6	52	11.4	245.3
White Sands	Private	18.2	25.8	8.9	202.4	61.2	11.8	
Winsloe South	UPEI	18.1	27.0	7.7	163.0	32.2	1.4	
York	UPEI	18.5	28.6	9.0	158.6	31	3.1	157.3

*Partial data

m = data missing (typically measured by the station but not available for this period)

n = not available/ or measured by the station

Temperature

The average monthly temperatures ranged from 17.2°C at Maple Plains to 19.4°C at a station at VanKampen's Greenhouses in Charlottetown and these were near the 30-year climate normal, which ranged from 18.0°C at East Baltic to 18.6°C at Summerside, Alberton and New Glasgow for the 1981 to 2010 period.

Figure 2 plots the mean monthly temperature for 82 stations across the province using QGIS. The highest mean monthly temperatures were observed in the dark orange areas which are concentrated in the central area of Prince County and some areas near Charlottetown in Queens County and along the eastern shoreline in Kings County as shown on Figure 2. The coldest monthly temperatures shown in blue and blue green areas scattered in inland areas at several locations across the province.

The highest daily temperature for the month was recorded at the UPEI Climate Station at Upton on the Midgell River with a reading of 30.3°C, measured on August 3rd. The extreme low temperature of 4.5°C was observed on August 23rd also at Upton in Kings County.

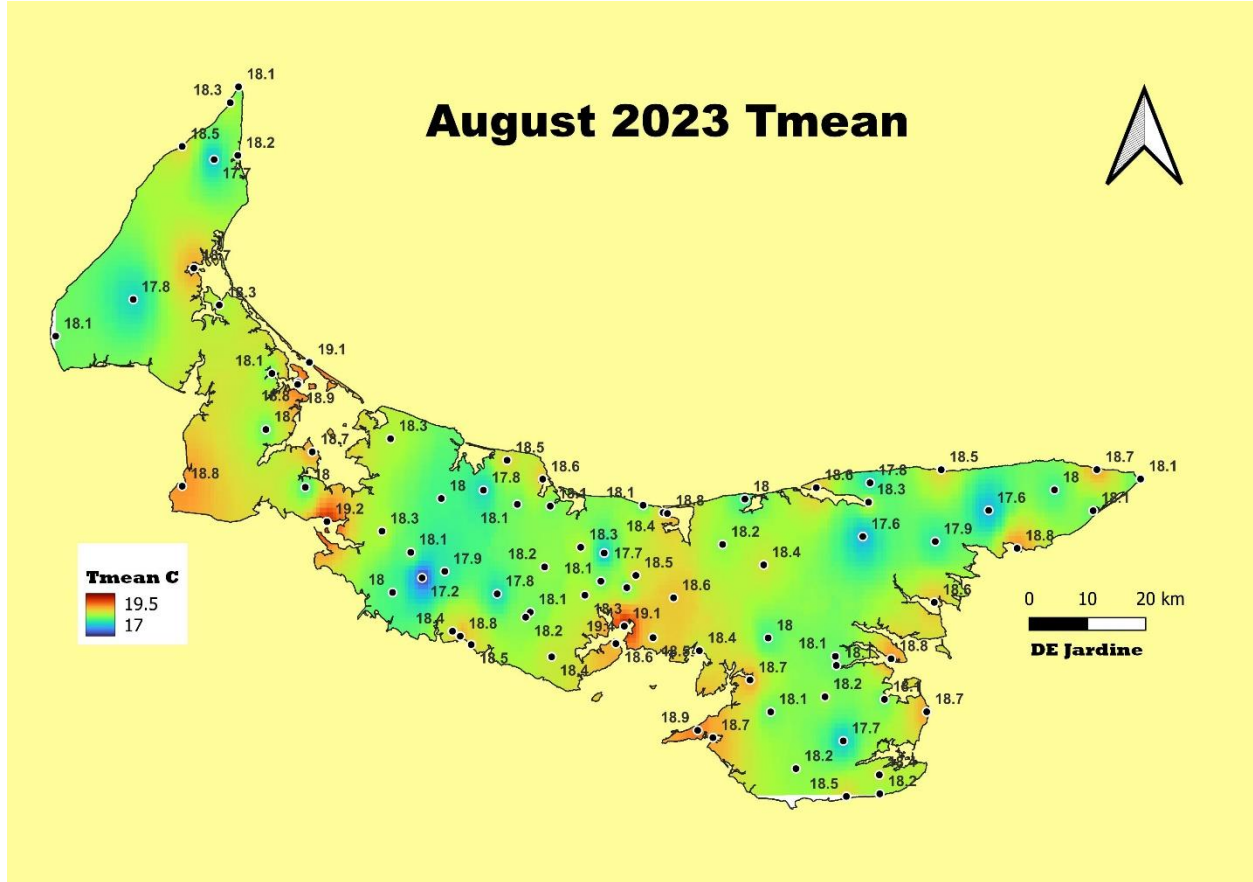


Figure 2: Interpolated Average Monthly Temperature, August, 2023

Precipitation

Monthly total precipitation is mapped in Figure 3, using data from 92 selected stations, including manual volunteer measurements made by CoCoRaHS observers detailed in Table 3. Thirty-year normal total precipitation for August during the 1981 and 2010 period ranges from 79.7 mm at Alberton to 103.6 mm at East Baltic. August rainfall was above normal across the province with the exception of a few locations.

The highest precipitation total was reported at a privately owned station at White Sands in southern Kings County with a total of 202.4 mm for the month. This was the only location reporting a monthly total in excess of 200 mm.

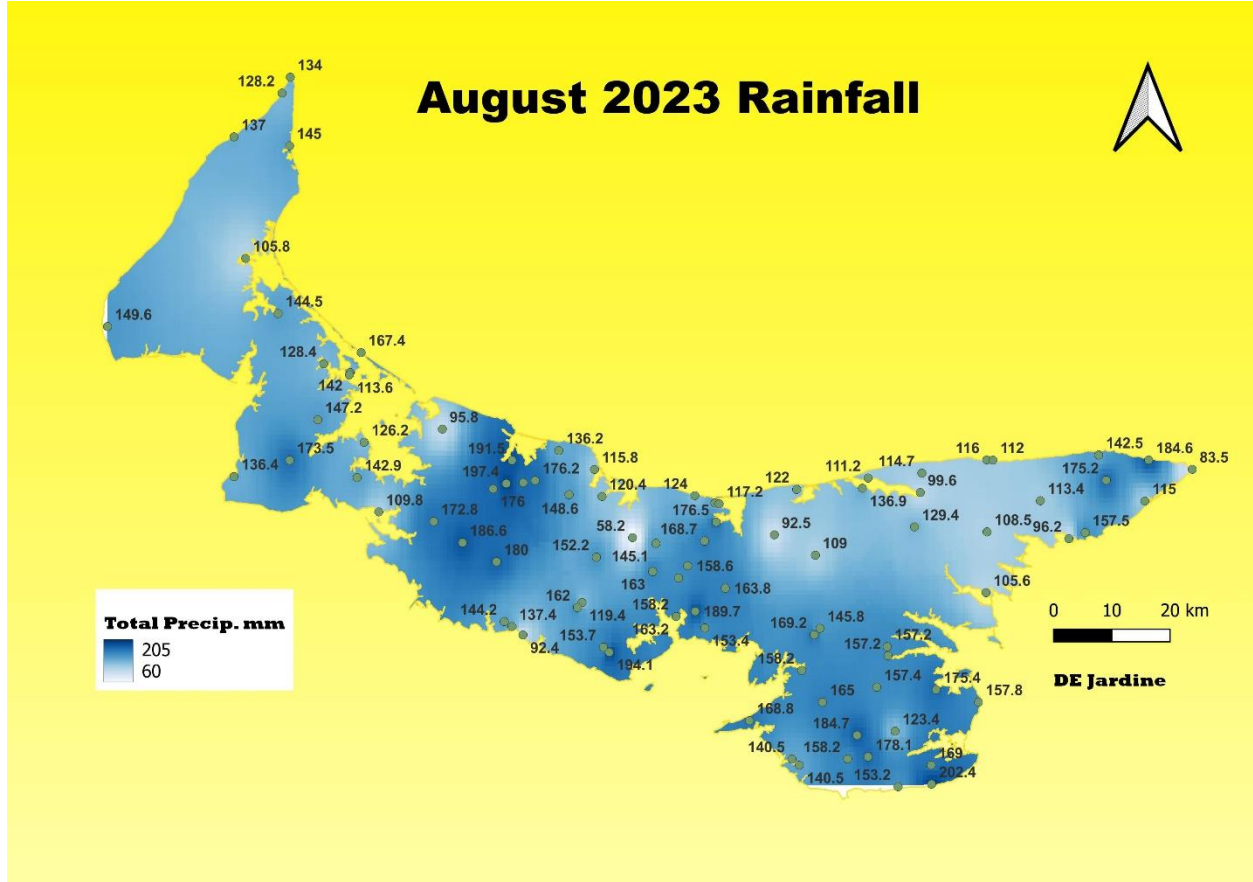


Figure 3: August Rainfall, PEI Stations

The highest daily rainfall amount was observed at the White Sands station on August 30th when 59.2 mm was measured.

Volunteer Observer Precipitation Data

Precipitation data from 22 CoCoRaHS (stands for “Community Collaborative Rain, Hail and Snow Network”) volunteer observers plus one other private volunteer observer using manual rain gauges is compiled in table 2 and is included in the data presented in Figure 4. These volunteers take measurements once daily usually at 7:00 or 8:00 am at most locations.

The most rainfall recorded at a CoCoRaHS station was 197.4 mm at the Wigmore Road near North Granville. This was the second highest total recorded at all reporting stations in August.

Table 2: CoCoRaHS Volunteer Observed Precipitation Amounts for August 2023

CoCoRaHS Station	Total Precipitation (mm)
CAN-PE-1 Stratford	189.7
CAN-PE-3 Wellington	173.5

CAN-PE-7 Morell	136.9
CAN-PE-10 New London	191.5
CAN-PE-19 Winsloe South	146.6
CAN-PE-20 Bonshaw	178.6
CAN-PE-25 – Caledonia	184.7
CAN-PE-26 – Grand Tracadie	147.1
CAN-PE-38 - Chepstow	157.5
CAN-PE-42 Vernon Bridge	175.8
CAN-PE-43 Glencoe	169.2
CAN-PE-46 Iris	178.1
CAN-PE-47 Long Creek	194.1
CAN-PE-48 North Granville	176.5
CAN-PE-50 Bedford Corner	168.7
CAN-PE-54 Foxley River	144.5
CAN-PE-66 Wigmore Road	197.4
CAN-PE-70 – Flat River	140.5
CAN-PE-74-St. Georges	55.4*
CAN-PE-75 – Fox Island	131.3
CAN-PE-77-Norway	132.1
CAN-PE-78- Bayfield	142.5
Private Station - Montague	159.6

* : some data missing

Wind Data

The average wind speeds at 84 stations during August were slightly higher than the previous month at many locations. The highest average wind speed of 17.9 km/h was reported from the UPEI station at Skinner's Pond. There were only 5 other stations reporting an average wind speed over 12.0 km/h. These were located at Lennox Island Wharf, Georgetown Wharf, Graham's Pond Wharf, Tracadie Wharf and Shamrock.

Only one station at North Lake reported a peak wind speed in excess of 80 km/h and this was 89 km/h on August 30th.

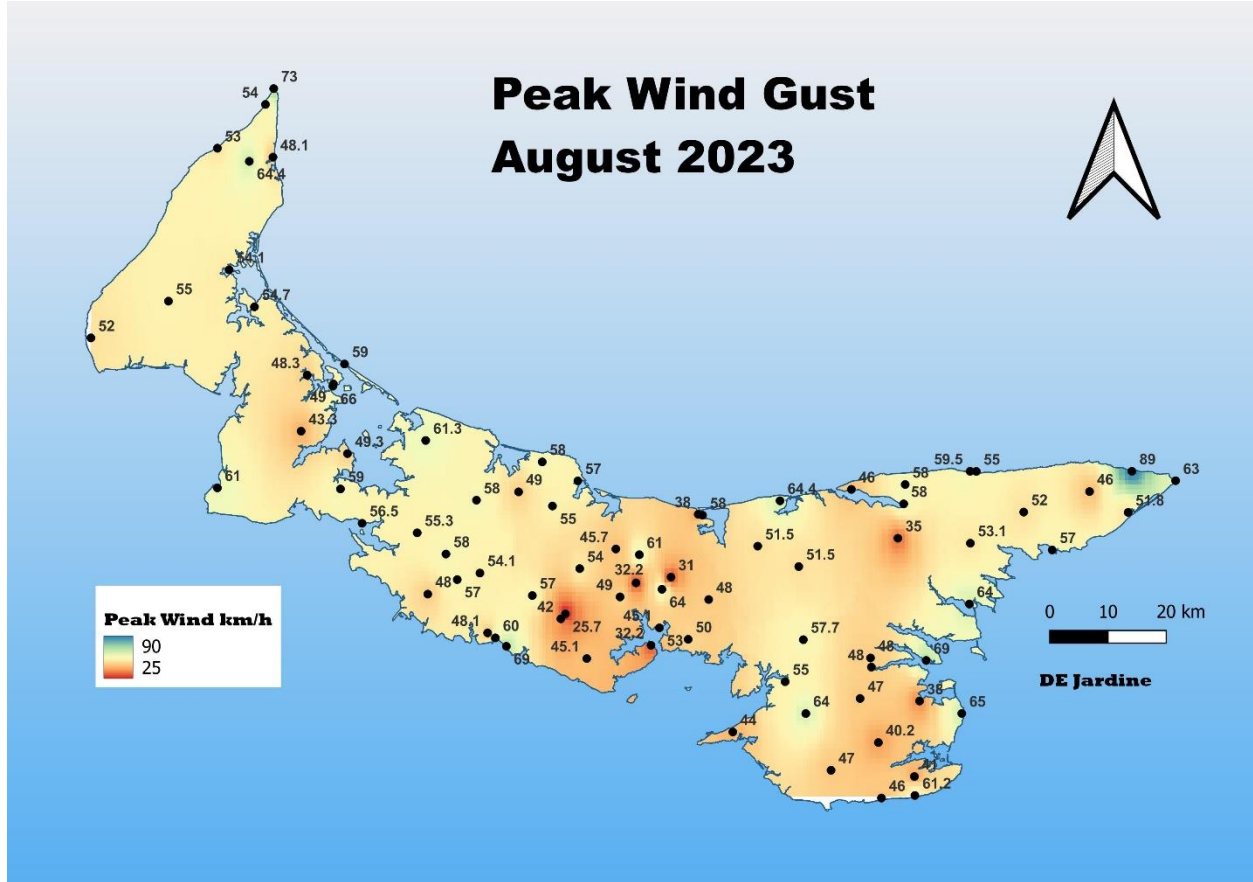


Figure 3: Peak Wind Gust, August 2023

Seawater and Tidal Data

A summary of tide gauge data for the month at all active reporting locations is provided in table 3. The water level and temperature sensors at the wharf locations are located inside a stilling well attached to the side of the wharf and the sensors placed so there is at least 0.5 m of water at low tide.

Table 3: Tidal gauge sensor data for August 2023 (water levels CGVD).

Location	Water T _{mean} (°C)	Avg. Monthly Water Level (m)	Peak Water Level (m)	Min. Water Level (m)	Tidal Range (m)
Abram's Village Wharf	20.3	-0.51	0.12	-1.39	1.51
Charlottetown Yacht Club	19.2	-0.19	1.03	-1.52	2.55
Georgetown Wharf	m	m	m	m	-

Graham's Pond Wharf	18.8	0.29	1.15	-0.70	1.85
Lennox Island	m	m	m	m	-
MacAulay's Wharf	m	m	m	m	
Naufrage Harbour	18.8	0.14	0.88	-0.39	1.27
North Lake Harbour	18.3	0.20	0.99	-0.40	1.39
North Rustico Harbour	18.9	0.28	1.06	-0.12	1.18
Skinner's Pond	22.2	0.06	0.59	-0.31	0.9
Souris Harbour	18.8	0.38	1.23	-0.50	1.73
Summerside	20.5	-0.02	0.95	-1.30	2.25
Tignish Harbour	18.4	0.24	1.0	-0.40	1.4
Victoria Harbour	19.8	-0.22	0.94	-1.8	2.74

m – missing data

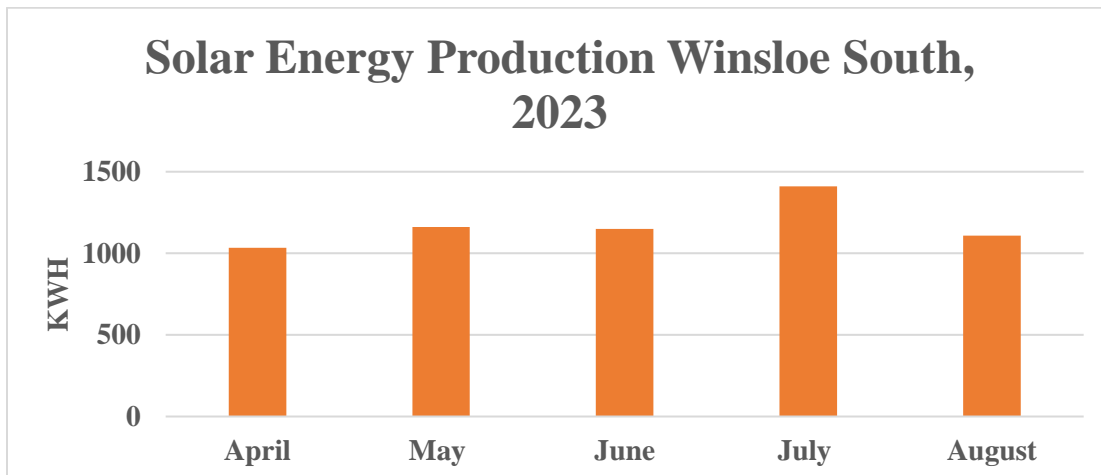
The average seawater temperature for the month ranged from a high of 22.2 °C at Skinners Pond to a low of 18.3°C at North Lake in Kings County.

The tidal range varied from 0.90 m at Skinners Pond to 2.74 m at Victoria Harbour. There were no major storm surges during the month with only some slightly elevated water levels.

Summary

August continued the trend of above normal precipitation which was experienced during the 2 previous months. This trend created some concerns about the conditions for harvesting of crops. Excessive rain, especially in fields where the soil contains a high proportion of clay particles and with low slope could lead to difficulty in accessing some areas with heavy equipment due to poor drainage .

The temperature in August being close to normal and combined with more than sufficient precipitation led to excellent growing conditions for most crops. The average solar radiation in W/m^2 and solar energy production was below that of the 3 previous months.





For additional information on the growing season for 2023 up to the end of August check out the post called, “PEI Growing Season Update to August 31, 2023 on “Our Island Climate” website. <https://peiclimate.wordpress.com/2023/09/13/pei-growing-season-update-to-august-31-2023/>

Sources:

Environment and Climate Change Canada Climate Data, 2023; UPEI Climate Data, 2023; MCPEI Climate Data, 2023; PEIEMO Climate Data, 2023; CoCoRaHS data, Cocorahs.org, 2023; Our Island Climate website, September 13, 2023.

September , 2023

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