



Maritimes Monthly Weather & Climate Summary November 2022

Overview

November was warm with variable precipitation. The month began fairly calm and as a continuation of October with much above normal temperatures which resulted in many daily and even monthly temperature records. The weather pattern shifted for the second half of the month with the passage of the remnants of Tropical Storm Nicole. Precipitation events became more frequent as the active storm track set up across western areas and temperatures cooled to more near or below normal.

Temperature – Anomaly

Temperatures were 1 to 2 degrees above normal across the Maritimes in November. Halifax (Shearwater), NS had its third warmest November on record since records began in 1871. The first half of the month was much above normal before the temperature pattern shifted to near or below normal for the second half of month.

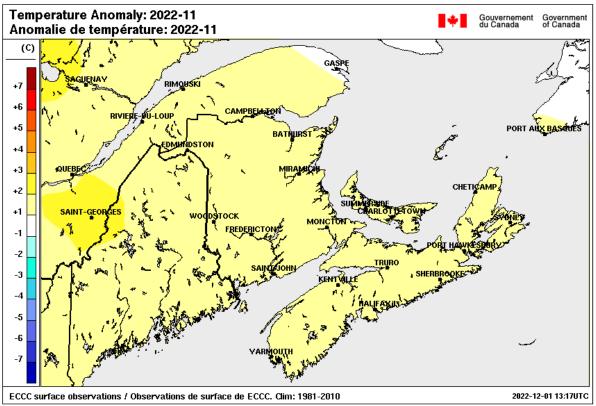


Figure 1: Monthly temperature anomaly map for November 2022 based on archived station data compared to 1981-2010 normals for the Maritimes.

Precipitation – Anomaly

Precipitation in November ranged from above normal in NB to below normal in parts of eastern mainland NS. All other areas were near normal. Bas-Caraquet, NB reported its 4th wettest November on record since records began in 1964 and Woodstock, NB reported its 5th wettest on record since records began in 1886.

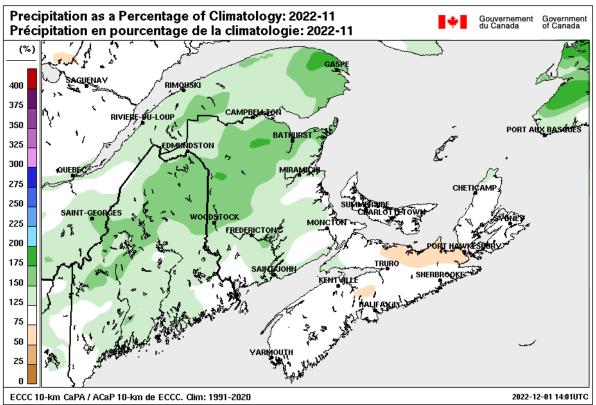


Figure 2: Monthly precipitation anomaly for November 2022 based on ECCC Canadian Precipitation Analysis (CaPA) a gridded blend of model, radar, and station data, compared to 1991-2020 normals for the Maritimes. (Anomaly: Precipitation as a percentage of the average).

Table 1: Monthly average temperature and total precipitation for November 2022 for selected locations in the Maritimes compared to 1981-2010 Canadian Climate Normals (for the same or a nearby station). Temperature difference from normal: cells shaded pink if \geq 1 °C, blue if \leq -1° C. Precipitation as a percent of normal: cells shaded green if \geq 125% of normal, yellow if \leq 75% of normal. Rank (if included) provides a ranking of mean temperature (eg. 1 warmest, 2 second warmest etc.) for the month against long-term data for the month).

	Ŋ	Mean Ten	nperature (°	Total Precipitation (mm)			
Location	Monthly Mean	Normal Mean	Diff. from Normal	Rank (Warmest)	Monthly Total	Normal Total	Total as % of Normal
Bas Caraquet	2.6	1.3	1.3	>10	160.2	102.4	156
Charlo	0.9	-0.7	1.7	>10	121.1	92.3	131
Fredericton	3.2	1.8	1.4	>10	128.6	109.9	117
Moncton	N/A		N/A	N/A	N/A		N/A
Saint John	3.8	2.3	1.5	>10	144.6	134.1	108
Woodstock	2.7	0.3	2.5	>10	163.6	103.2	159
Amherst (Nappan)	4.6	3.0	1.6	>10	97.9	110.8	88
Greenwood	5.7	4.0	1.7	>10	82.6	116.5	71
Halifax (Airport)	5.4	3.5	1.9	7	98.5	154.2	64
Halifax (Shearwater)	6.8	4.5	2.2	3	102.1	139.4	73
Sydney	4.9	3.8	1.1	>10	162.7	156.0	104
Truro (Debert)	4.3	3.0	1.4	>10	79.7	111.9	71
Yarmouth	6.6	5.2	1.4	>10	85.1	139.3	61
Charlottetown	4.8	2.9	1.9	9	129.4	112.5	115
Summerside	4.7	2.6	2.1	>10	105.6	97.7	108

Snowfall

Total snowfall amounts for November were highest in parts of northern NB (40-90cm) and northern Cape Breton (40-60+cm - modelled). Snowsqualls in the last two weeks of the month contributed significantly to the snowfall amount in Cape Breton. Little snow fell (<10 cm) in parts of central and southern NB, PEI, and mainland NS. Snowfall totals compared to 1981-2010 normals ranged from 125 to 250 % of normal across northwestern NB and near 0 to 75 % of normal for all other areas.

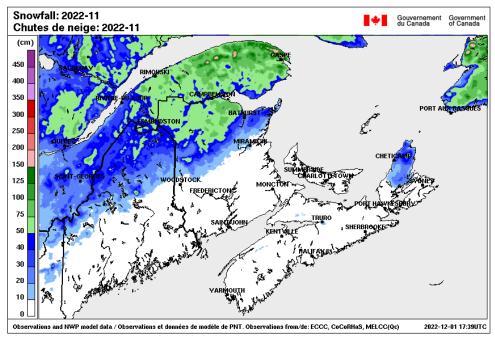


Figure 3: Monthly total snowfall for November 2022 based on a blend of observations and modelled data.

Snow Depth

According to a combination of observations and modeled data, snow depth at the end of the month was up to 30+ cm in parts of northwestern NB and up to 20 cm in northern Cape Breton. Heavy rain at the end of the month caused snowmelt in Cape Breton leaving bare ground in some areas. Snow depths elsewhere were virtually non-existent. In terms of end of month snow depth in comparison to climate normals, northwestern NB was 125 to 250 % above normal with all other locations having snow depths that were well-below normal for the end of November.

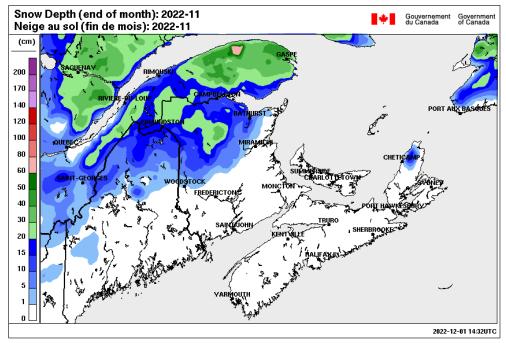


Figure 4: Month-end snow depth for November 2022 based on a blend of observations and modelled data.

Significant Weather Events & Impacts

November 4-7 – A tropical-like air mass brought record warmth conditions to the region making it feel like the first weekend in September rather than November. Numerous daily maximum temperatures were broken during the period with maximum temperatures reaching the 18 to 24°C range. Seven sites total in NB and NS recorded their all-time daily maximum temperature in November. St. Stephen, NB was the warmest at 24.1°C and daily maximum temperature anomalies were 8 to 16 degrees above average on the 6th.

Table 2: All-time warmest daily maximum temperature for November. New record values were established on November 6th, 2022.

Location	New	Old Record	Date (Nov/DD/YYYY)	Records
	Record (°C)	(°C)		began
Grand Manan, NB	20.6	18.5	10/2020	1962
Miscou Island, NB	20.5	19.1	10/2020	1957
St. Stephen, NB	24.1	23.9	10/2020	1951
Halifax (Airport), NS	21.5	20.9	10/2020	1953
Kentville, NS	23.7	23.5	10/2020	1898
Shelburne, NS	22.1	21.7	5/1961	1955
Truro, NS	22.8	21.7	6/1959 & 5/1961	1873

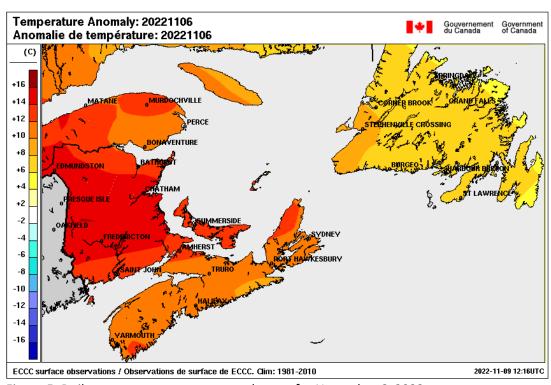


Figure 5: Daily mean temperature anomaly map for November 6, 2022.

November 10-12 – Another tropical-like air mass brought more record warmth to the region, a benefit for outdoor Remembrance Day ceremonies. Several daily maximum temperatures were broken during the period and daily temperature anomalies were 4 to 10 degrees above average. The warmest reported temperature was 21.7°C in Greenwood, NS on the 12th.

Wind warnings follow record weekend temperatures on P.E.I. | CBC News

November 12-13 – The remnants of Tropical Storm Nicole brought moderate to heavy rainfall to all areas. Rainfall amounts were most abundant in NB where generally, 40 to 60 mm fell; 25 to 50 mm fell across PEI and varied from 15 to 40 mm across NS with localized higher amounts. Fundy Park, NB reported an extreme amount of 103 mm.

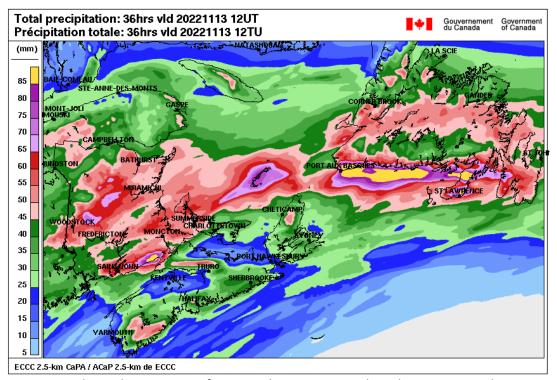


Figure 6: Daily total precipitation for November 12-13, 2022 based on ECCC Canadian Precipitation Analysis (CaPA) a gridded blend of model, radar, and station data

Concerning winds, although they were not overly strong, weakened trees left behind by Fiona in September caused thousands of customers to lose power in NS. Wind gusts were recorded between 60 and 87 km/h along coastal areas of all three provinces.

Power back on for most Nova Scotians after widespread outages | CBC News

The remnants of Nicole also caused higher than normal water levels mainly along eastern NB. Water levels reached their second highest ever in Lower Escuminac, NB however; no major coastal flooding was reported. The combination of wind and waves washed away a popular coastal landmark on PEI.

Weakened by Fiona, iconic P.E.I. rock formation brought down by Nicole | CBC News

November 13-14 – A system developed over Maine and quickly intensified to bring the first accumulating snowfall to parts of northern NB. Snow was heavy and wet and caused some power outages in northwestern NB. Snowfall amounts varied from 5 to 15 cm with the Saint-Quentin area reporting up to 25 cm.

Schools closed, power out as northwestern N.B. gets first big snowfall | CBC News

November 16-17 – A system moved up the US eastern seaboard and brought mixed precipitation to the region. Snow and freezing precipitation fell in most of NB, while southeast NB, PEI and NS saw rain. Snowfall amounts varied from a few centimetres up to 20 cm in northern areas of NB. The Doyleville, NB area registered 31 cm. In terms of rainfall, generally 5 to 15 mm fell except 15 to 30 mm fell along the Atlantic coast of NS and Cape Breton.

November 25-26 – An elongated trough of low pressure brought heavy rain, strong winds and elevated water levels to eastern PEI, eastern NS, and Cape Breton. Rainfall amounts varied across the area but were generally in the range of 15 to 40 mm with as much as 120 mm reported at Ingonish Beach on Cape Breton. The significant rain cause some flooding and three road washouts in Cape Breton. Northerly winds gusted from 70 to 93 km/h with the strongest winds occurring over exposed coastlines. Although sea water levels in the area were higher than high astronomical tides along coastal areas that faced north, no major issues were reported as many of these areas were also impacted much more significantly in September during Fiona.

High winds lead to power outages, ferry cancellations across Maritimes | CBC News

November 30-December 1 – A system affected the region but the details will be provided in the December summary.

Daily Temperature and Precipitation Time Series

The precipitation time series below for the three provincial capitals indicate very little precipitation up until about mid-month for all sites then a series of systems passed through the region which included the remnants of Tropical Storm Nicole. Precipitation totals were above normal at Fredericton and near normal at Halifax and Charlottetown for the month. The temperature time series are similar for all three sites with above to much above normal temperatures for the first half of the month then generally near to below normal for the second half of the month.

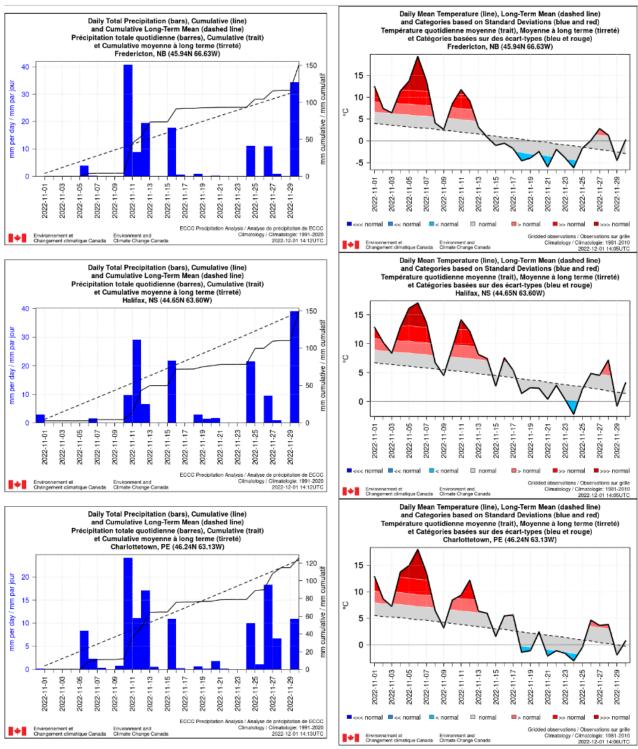


Figure 7: Daily total precipitation (Canadian Precipitation Analysis (CaPA) data) and mean temperature for Fredericton, NB (top), Halifax, NS (middle), and Charlottetown, PEI (bottom), for November 2022 based on gridded data, compared to long-term means (Canadian Precipitation Analysis (CaPA) data, 1991-2020, and temperature data, 1981 to 2010).

Sea Surface Temperature - Departure from Normal

The sea surface temperature (SST) departure from normal map during the week of November 21 to 27, 2022 indicates near or above normal conditions across the region. SST anomalies of near zero to two degrees above normal have been reported through most of the Gulf of St. Lawrence, of one to three degrees above normal along most of the Atlantic NS coast. Meanwhile, areas in eastern NB waters, Northumberland Strait and eastern Bay of Fundy indicate the warmest anomalies at 5 degrees or more above normal.

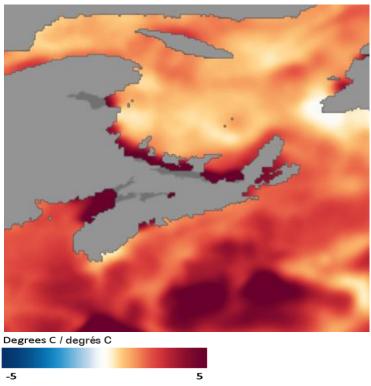


Figure 8: Sea surface temperature (SST) anomaly map for November 21-27, 2022. Data based on 1981-present. Source: https://www.nnvl.noaa.gov/view/#SSTA

Atlantic Hurricane Season Review

Atlantic Canada saw two significant tropical systems affect the region this season. The first was Earl which entered the Grand Banks as a hurricane and then became post-tropical as it slowly tracked south of Newfoundland. Earl dumped up to 200 mm of rain to parts of the Avalon Peninsula causing widespread flooding and water damage. The second was Fiona which severely impacted all four Atlantic Provinces in late September. Fiona approached Atlantic Canada as a hurricane and made landfall in Nova Scotia as a severe post-tropical storm. It caused historic damage from wind and storm surge. A final third system, the remnants of Hurricane Nicole, affected the region to a lesser extent in mid-November. Accounting for the entire Atlantic basin as a whole, there were 14 named storms this season, with eight of them becoming hurricanes and two reaching major hurricane status. The hurricane season officially ended November 30.

Other Climate Related Information

New-to-the-Maritimes moth finds its way to N.B. in hurricane season | CBC News

How a tower near Fredericton is helping scientists track climate change in Maritime forests | CBC News

Canada stands to lose up to 14,400 km of sandy beach by the end of the century | CBC News

Temperature & Precipitation Outlook

The four-week outlook for temperature and precipitation from the Canadian Global Ensemble Prediction System (GEPS) for December 5, 2022 to January 2, 2023 indicates there is no definitive signal for temperature for most areas with a weak possibility of above normal for mainly areas adjacent to the Gulf of St. Lawrence. In terms of precipitation, a weak to moderate probability of below normal precipitation is forecast for eastern PEI and most of mainland NS with all other areas indicating no signal in relation to normal.

The four-week outlook from October 27th performed well for temperatures with all areas reporting above normal temperatures. The precipitation outlook did not perform as well as areas in northern NB received above normal precipitation and southern NB, PEI and Cape Breton experienced near normal precipitation when below normal precipitation was forecast across the Maritimes.

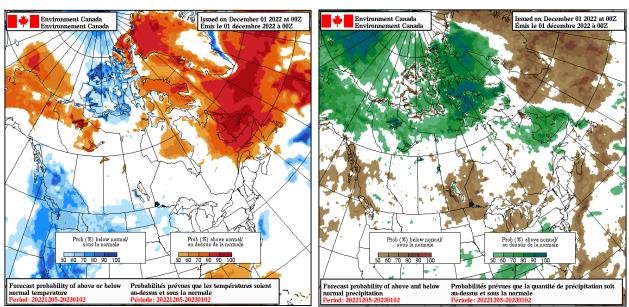


Figure 9: Temperature and Precipitation Anomaly Forecasts from the MSC Global Ensemble Prediction System issued December 1, 2022 for December 5, 2022 to January 2, 2023.

Source: http://collaboration.cmc.ec.gc.ca/cmc/ensemble/monthly/prev mens geps.html

Contact

Environment and Climate Change Canada, Meteorological Service of Canada, Prediction Services Operations – Atlantic and Ice, Applied Climatology Services Email address: climatatlantique-climateatlantic@ec.gc.ca

Appendix

Table A1: Station metadata for the selected locations in Table 1.

Location/ Emplacement	Station Name/ Nom de la station	Climate ID/ID climat	Station Operator/ Opérateur de station ¹	Type ²	
Bas Caraquet	BAS CARAQUET (CCN for precip, ECCC-MSC for temps)	8100468	CCN	Н	
Charlo	CHARLO AUTO	8100885	ECCC-MSC	Α	
Fredericton	FREDERICTON CDA CS	8101605	ECCC-MSC	Α	
Moncton	MONCTON/GREATER MONCTON ROMEO LEBLANC INTL A	8103201	NavCan	Н	
Saint John	SAINT JOHN A	8104901	NavCan	Н	
Woodstock	WOODSTOCK NEWBRIDGE	8105603	ECCC-MSC	Α	
Amherst (Nappan)	NAPPAN AUTO	8203702	ECCC-MSC	Α	
Greenwood	GREENWOOD A	8202000	DND	Н	
Halifax (Airport)	HALIFAX STANFIELD INT'L A	8202251	NavCan	Н	
Halifax (Shearwater)	SHEARWATER RCS	8205092	ECCC-MSC	Α	
Sydney	SYDNEY A	8205701	NavCan	Н	
Truro (Debert)	DEBERT	8201390	ECCC-MSC	Α	
Yarmouth	YARMOUTH A	8206495	NavCan	Н	
Charlottetown	CHARLOTTETOWN A	8300301	NavCan	Н	
Summerside	SUMMERSIDE	8300596	ECCC-MSC	Α	

¹ Station Operator: CCN = Cooperative Climate Network, ECCC-MSC = Environment and Climate Change Canada, Meteorological Service of Canada, DND = Department of National Defence, NavCan = Nav Canada

²Type: A = Automatic observation, H = Human observation

Table A2: Monthly totals for November 2022 for New Brunswick stations compared to 1981-2010 Canadian Climate Normals (if available for same or nearby station). Temperature difference from normal: cells shaded pink if \geq 1 °C, blue if \leq -1° C. Precipitation as a percent of normal: cells shaded green if \geq 125% of normal, yellow if \leq 75% of normal.

	<u> </u>			Mean Temp	perature / T	empérature	Total Precipitation / Précipitations			
				moyenne (°C)			totales (mm)			
		TC ID /	Station Type /	Monthly Mean /	Normal Mean /	Diff from Normal /	Monthly Total /	Normal Total /	Total as % of Normal / Total	
Station Name / Nom de la		ID de	Type de		Moyenne	Écart avec	Total	Total	en % de la	
station	Prov	TC	station	mensuelle		la normale	mensuel	normal	normale	
AROOSTOOK	NB		DAILY	1.7		1.6	158.6	93.5	170	
BAS CARAQUET	NB	WXS	AU8	2.6	1.3	1.3	450.0		4-0	
BAS CARAQUET	NB		DAILY				160.2	102.4	156	
BATHURST A	NB	ZBF	NCA	1.2		0.5	_			
CHARLO AUTO	NB	ZCR	AU8	0.9		1.7	121.1	92.3		
DOAKTOWN AUTO RCS	NB	ADN	AU8	1.9		1.2	136.1	112.1		
EDMUNDSTON	NB	ERM	AU8	-0.4			137.7	91.2		
FREDERICTON CDA CS	NB	AFC	AU8	3.2		1.4	128.6	109.9	117	
FREDERICTON INTL A	NB	YFC	NCA	3.2		1.7				
FUNDY PARK (ALMA) CS	NB	AFY	AU8	4.4	3.0	1.4	196.9	158.9	124	
GAGETOWN A	NB	YCX	WOD							
GARNETT SETTLEMENT	NB	AJH	AU8	4.1		1.8	144.9	134.1	108	
GRAND MANAN SAR CS	NB	XGM	AU8	4.9			110.7			
KOUCHIBOUGUAC	NB	AKC	AU8	2.3		1.1	119.6	120.6	99	
MECHANIC SETTLEMENT	NB	AMS	AU8	2.3			174.5			
MIRAMICHI RCS	NB	ACQ	AU8	2.5	0.7	1.8	109.3	100.6	109	
MISCOU ISLAND (AUT)	NB	WMI	AU8	2.8			146.2			
MONCTON/GREATER										
MONCTON ROMEO LEBLANC	NB	YQM	NCH							
INTL A										
OAK POINT	NB		DAILY	4.6	2.5	2.1	162.4	101.8	160	
POINT LEPREAU CS	NB	WPE	AU8	5.4	2.7	2.7	113.9	140.4	81	
RED PINES	NB	ARP	AU8	0.6	-0.1	0.7	139.2	89.4	156	
SAINT JOHN A	NB	YSJ	NCH	3.8	2.3	1.5	144.6	134.1	108	
ST. STEPHEN	NB	WSS	AU8	4.0			144.3			
SUSSEX FOUR CORNERS	NB	ASF	AU8	3.8	2.4	1.5	114.2	110.0	104	
WOODSTOCK NEWBRIDGE	NB	EWD	AU8	2.7	0.3	2.5	163.6	103.2	159	
Average				2.8	1.3	1.5	141.3	112.1	128	
Max				5.4	3.0	2.7	196.9	158.9	170	
Min				-0.4	-0.7	0.5	109.3	89.4	81	

Table A3: Same as Table A2, for Nova Scotia

				Mean Temr	erature / T	empérature	Total Pred	initation /	Précinitations	
				Mean Temperature / Température moyenne (°C)			Total Precipitation / Précipitations totales (mm)			
			Station	Monthly	Normal	Diff from	Monthly	Normal	Total as % of	
		TC ID /	Type /	Mean /	Mean /	Normal /	Total /	Total /	Normal / Total	
Station Name / Nom de la		ID de	Type de	Moyenne	Moyenne	Écart avec	Total	Total	en % de la	
station	Prov	TC	station	mensuelle	Normale	la normale	mensuel	normal	normale	
ALDERSVILLE	NS	ANR	AU8	4.8	3.4	1.4	106.4	148.0	72	
	NS	ACP	AU8	7.5			83.6	129.9	64	
BEAVER ISLAND (AUT)	NS	WBV	AU8	6.7						
BEDFORD BASIN	NS	ABB	AU7	7.2	4.8	2.4				
BEDFORD RANGE	NS	ABR	AU7	5.9	3.3	2.6				
BRIER ISLAND	NS	WVU	AU8	7.6			74.7			
CARIBOU POINT (AUT)	NS	WBK	AU8	6.4	3.7	2.7	68.9	135.1	51	
CHETICAMP (C.B. HIGHLANDS	NS	ΛUT	A 1 10	6.0	4.2	1 7	100.1	140 E	78	
NATL PARK)	N2	AHT	AU8	6.0	4.3	1.7	109.1	140.5	/8	
COLLEGEVILLE AUTO	NS	AGL	AU8	4.5	3.2	1.3	96.2	140.2	69	
DEBERT	NS	ZDB	AU8	4.3	3.0	1.4	79.7	111.9	71	
EMERGENCY WEATHER	NC	- FDLI	A 1 10	4.0	2.4	1.4	10C F	140.0	70	
STATION #2 (NEW ROSS)	NS	ERU	AU8	4.9	3.4	1.4	106.5	148.0	72	
ESKASONI FIRST NATION	NS	AEI	AU8	5.8	3.8	2.0	126.3	155.0	81	
GRAND ETANG	NS	WZQ	AU8	6.6	4.3	2.3				
GREENWOOD A	NS	YZX	WOD	5.7	4.0	1.7	82.6	116.5	71	
		AHD	AU7	7.5	4.8	2.7				
HALIFAX KOOTENAY	NS	AHK	AU7	6.5	4.5	2.0				
HALIFAX STANFIELD INT'L A	NS	YHZ	NCH	5.4	3.5	1.9	98.5	154.2	64	
HALIFAX WINDSOR PARK		AHW	AU7	6.5	4.8	1.7				
		WRN	AU8	6.9						
\ /		XIB	AU7	5.4	3.8	1.6	248.7	189.7	131	
	NS	WKG	AU8	5.4	3.4	2.1	114.2	152.3		
		XKT	AU7	5.6	4.1	1.6	75.3	121.5		
		XLB	AU8	7.2	3.9					
		XMY	AU8	4.7	3.2		133.7	177.0	76	
		XMI	AU8	7.3	4.5	2.8				
. ,		XNP	AU8	4.6	3.0		97.9	110.8	88	
		XNM	AU7	2.3	2.3					
NORTHEAST MARGAREE (AUT)		WNS	AU7	4.7	3.8		132.2	150.8	88	
OSBORNE HEAD DND		AOS	AU7	6.3	4.5	1.7	202.12	200.0		
PARRSBORO	NS	APR	AU8	5.0	3.5	1.4	130.5	120.4	108	
		YPD	NCA	5.5			200.0		100	
		ASB	AU8	8.9			76.9	150.7	51	
		WSA	NCA	8.9	7.3		7 0.0	200		
		WZU	AU7	7.0						
	NS	AAW	AU8	6.8			102.1	139.4	73	
	NS	ESB	AU8	6.6		۷.۷	126.6	133.4	/3	
		WEF	AU8	5.6			120.0			
	NS	YQY	NCH	4.9		1.1	162.7	156.0	104	
		AQY	AU8	5.4			132.0	156.0		
		XTD	AU8	5.6			65.5	140.2		
		AOH	AU8	4.7	3.3		84.4	135.9		
	NS		DAILY	6.0			103.7	119.1		
WESTERN HEAD		WWE	AU8	6.5	7.0	2.0	116.2	117.1	87	
YARMOUTH A	NS	YQI	NCH	6.6	5.2	1.4	85.1	139.3	61	
YARMOUTH RCS	NS	EQI	AU8	6.7			86.6	139.3		
Average	.43	ـر،	, 100	6.0			107.1	141.5		
•										
Max				8.9	7.3 2.3		248.7	189.7	131	

Table A4: Same as Table A2, for Prince Edward Island.

				•	perature / T	empérature C)	Total Pred	ipitation / totales (n	n / Précipitations s (mm)	
Station Name / Nom de la		TC ID / ID de	Station Type / Type de	Monthly Mean / Moyenne	Normal Mean / Moyenne	Diff from Normal / Écart avec	Monthly Total / Total	Normal Total / Total	Total as % of Normal / Total en % de la	
station	Prov	TC	station	mensuelle	Normale	la normale	mensuel	normal	normale	
CHARLOTTETOWN A	PEI	YYG	NCH	4.8	2.9	1.9	129.4	112.5	115	
EAST POINT (AUT)	PEI	WEP	AU8	5.9	3.2	2.7	114.5	126.0	91	
HARRINGTON CDA CS	PEI	AHR	AU8	4.6	2.9	1.7	119.9	112.5	107	
MAPLE PLAINS	PEI	XMP	AU8	4.2	3.0	1.2				
NORTH CAPE	PEI	WNE	AU8	5.1			111.9			
ST. PETERS	PEI	ZSP	AU8	5.5	3.4	2.1	127.5	124.1	103	
STANHOPE	PEI	ANH	AU8	5.6			112.4			
SUMMERSIDE	PEI	WSD	AU8	4.7	2.6	2.1	105.6	97.7	108	
Average				5.1	3.0	2.0	117.3	114.6	105	
Max				5.9	3.4	2.7	129.4	126.0	115	
Min				4.2	2.6	1.2	105.6	97.7	91	

Glossary

CaPA: The Canadian Precipitation Analysis. Full details available here.

Standard Deviation: A statistical measure of how data compares to the mean (average) value. The standard deviation referenced in these monthly summaries is relative to the Canadian Climate Normals data set. The higher the standard deviation value, the further the data is from the normal value.

Temperature Anomaly: The deviation of temperature in a given region over a specified period from the long-term average value for the same region.

A more extensive glossary for weather and climate related terminology can be found here.

Disclaimer:

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