



Maritimes Monthly Weather & Climate Summary September 2024

Overview

It didn't feel like we were transitioning to Fall this month, with only two storms affecting the region and a persistent high-pressure system delivering warm, dry conditions. Some sites in western NB went 17 days without any measurable precipitation, and as temperatures climbed to near 30 degrees mid-month for all three provinces, daily temperature records were broken. The dominant high also suppressed convective showers and thunderstorms over the region, resulting in just 5% of normal lightning strikes over NB — continuing the lowest year-to-date level which is now at 39% of normal. While Atlantic hurricane activity increased, no storms impacted the region.

Temperature

Despite the sunny days and lack of storms as we started Fall this month, temperatures over the region were near to just slightly above normal. A warm airmass which moved over the whole region mid-month, bringing temperatures near 30 degrees in each province, was balanced out by several smaller below normal periods at the start of the month.

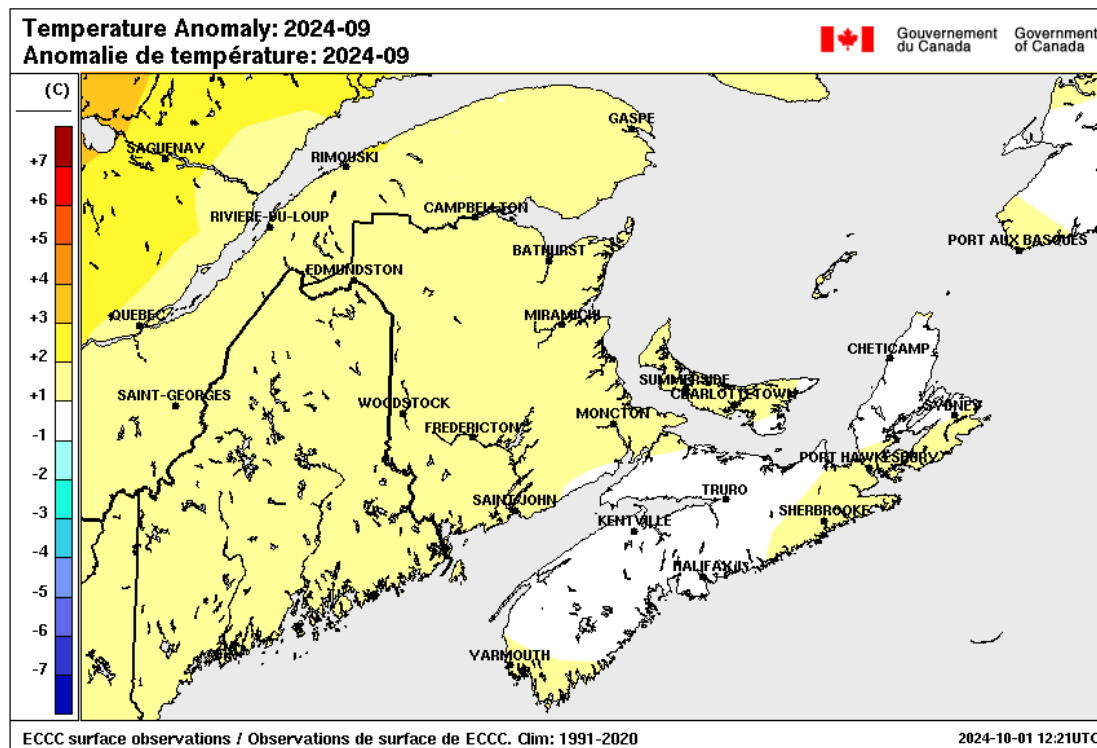


Figure 1. Monthly temperature anomaly map for September 2024 based on archived station data compared to 1991-2020 averages for the Maritimes.

Precipitation

The region saw a general high-pressure pattern most of the month, stopping any movement of storm systems over the region. Some areas of southwestern NB went 17 days without any measurable precipitation, and month end totals for western NB and parts of PEI and Cape Breton fall within the 0 to 25% of normal precipitation for the month. Eastern NB and southwestern NS had the most rainfall due to a storm system in the first week of the month, with amounts ranging from 30 to 109 mm. Woodstock had its 4th driest September on record, while Fredericton had its 6th driest.

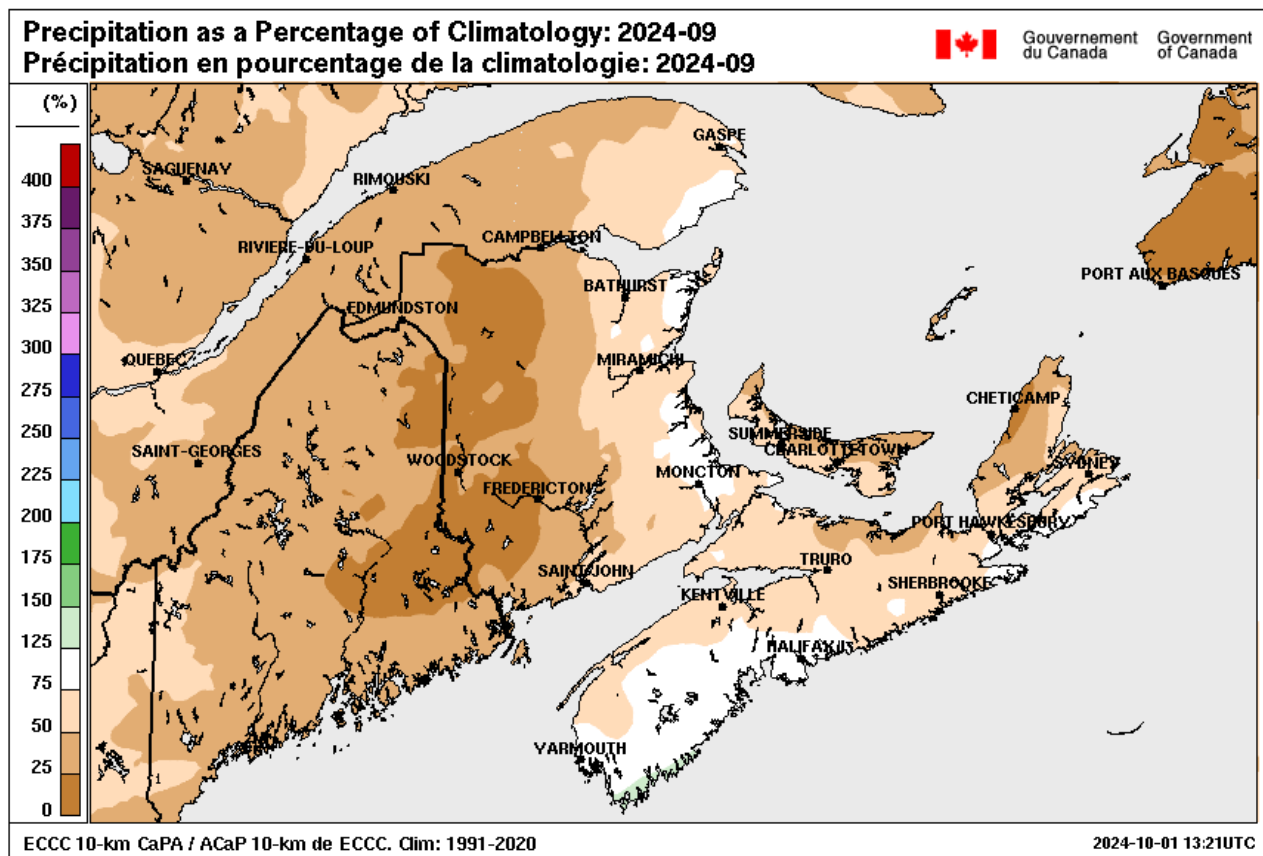


Figure 2. Monthly precipitation as a percentage of climatology for September 2024 based on ECCC [Canadian Precipitation Analysis](#) (CaPA) a gridded blend of model, radar, and station data, compared to 1991-2020 averages for the Maritimes.

Observations compared to 1981-2010 normals for September 2024

Table 1. Monthly average temperature and total precipitation for September 2024 for selected locations¹ in the Maritimes compared to 1981-2010 Canadian Climate Normals (for the same or a nearby station).

Location	Mean Temperature (°C)					Total Precipitation (mm)		
	Monthly Mean	Normal Mean	Diff. from Normal ²	Rank ³ (Warmest)	Data Start Year	Monthly Total	Normal Total	Total as % of Normal ²
Bas-Caraquet	15.6	14.2	1.4	6*	1964	90.2	73.8	122
Charlo	15.0	12.1	3.0	4	1966	69.1	79.3	87
Fredericton	16.1	14.0	2.1	7	1871	29.7	94.7	31
Moncton	15.7	13.6	2.1	7*	1881	85.9	93.5	92
Saint John	14.2	13.0	1.3	>10	1871	72.0	105.6	68
Woodstock	15.2	13.2	2.0	10*	1886	21.8	95.7	23
Amherst (Nappan)	14.8	14.2	0.6	>10	1913	57.0	102.1	56
Greenwood	15.4	14.5	0.9	>10	1914	67.8	96.2	70
Halifax (Airport)	15.8	14.6	1.2	>10	1953	91.4	102.0	90
Halifax (Shearwater)	16.5	15.1	1.3	>10	1871	113.4	103.0	110
Sydney	15.7	14.0	1.7	>10	1870	58.7	118.7	49
Truro (Debert)	14.3	13.7	0.6	>10	1873	67.6	109.1	62
Yarmouth	15.5	14.1	1.4	>10	1879	92.2	94.9	97
Charlottetown	15.8	14.1	1.6	>10	1872	41.5	95.9	43
Summerside	16.4	14.1	2.3	6	1898	54.5	96.7	56

¹Station metadata for each location available in the Appendix, Table A1

²Temperature difference from normal: cells shaded pink if ≥ 1 °C, blue if ≤ -1 °C. Precipitation as a percent of normal: cells shaded green if $\geq 125\%$ of normal, yellow if $\leq 75\%$ of normal.

³Rank (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, based on a selection of stations reporting through the period of record, not adjusted or homogenized.

*Tied with an earlier year.

Note: station data preliminary, archived values may change subject to further review (see Notes on [Data Quality](#))

Significant Weather Events & Impacts

September 6-7 – A moisture-laden system approached the region from the south and brought heavy downpours to eastern NB and the western half of NS. The much welcome rainfall brought amounts of 30-56 mm in NB while NS saw 40-109 mm. Rainfall rates exceeded 20 mm/h in Port Mouton, NS. Les suetes wind gusts peaked at over 100 km/h on the west coast of Cape Breton Island.

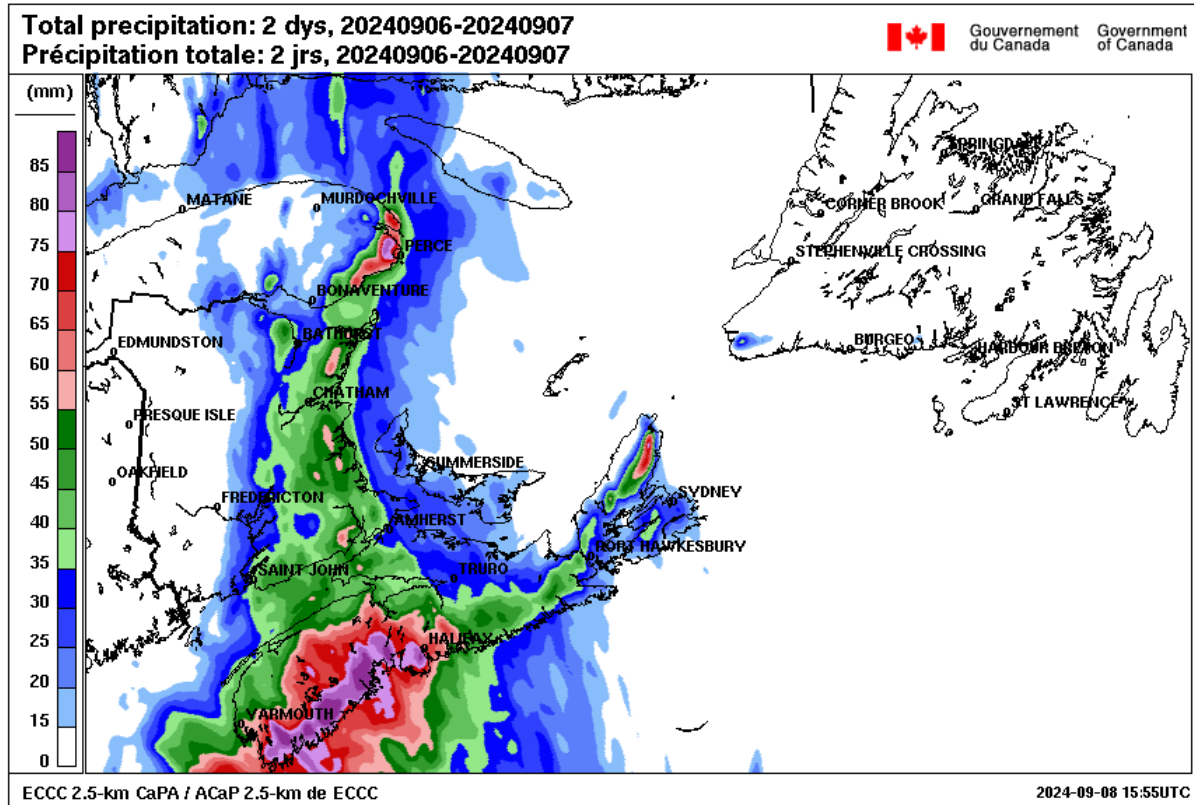


Figure 3. Map showing two-day total precipitation for September 6-7, 2024 – ECCC 2.5-km CaPa analysis

September 16-18 – An abnormally warm air mass settled over the region bringing several new maximum daily temperature records over the three-day period. Temperatures climbed to 31.1°C in Miramichi, NB, 30.1°C in Malay Falls, NS, and 29.0°C in both St. Peter’s & Summerside, PEI. Bathurst, NB reached $\geq 30^\circ\text{C}$ for both the 17th & 18th making it the second latest date for such an event since records began in 1872.

[Late-summer heat breaks P.E.I. temperature records | CBC News](#)
[Maritimes saw hottest temperatures in Canada on Tuesday | CTV News](#)

September 26-27 – A weak system moved through Atlantic Canada from west to east, bring much needed rain to all three maritime provinces. Maximum rainfall amounts were in southeastern NB, northern NS, and eastern PEI. Amounts varied widely across the region with maximum precipitation amounts in NB of 33 mm, NS of 44mm, and PEI of 41mm.

Fire Weather

After some much-needed rainfall late in the month, the daily fire danger risk over the much of the region by the end of the month mostly fell within the moderate classification. The fire danger was classed as low for some areas of northwestern NB, eastern NB, and northern Cape Breton, but high over small pockets of western PEI and central NB.

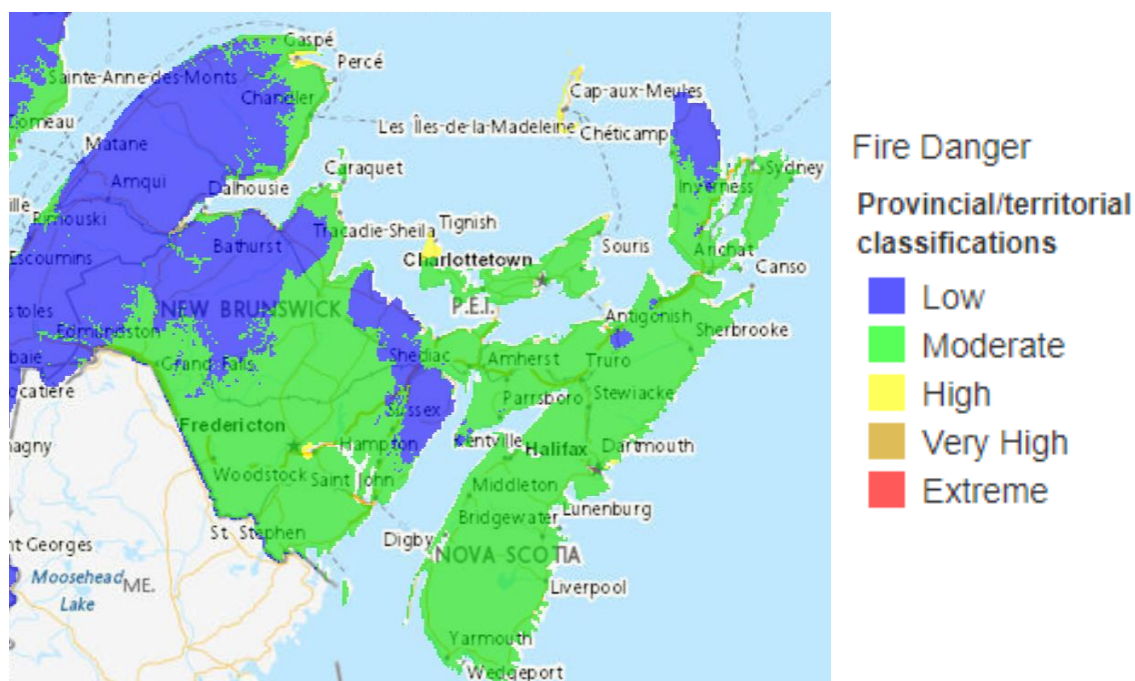


Figure 4: Natural Resources Canada Daily Fire Danger analysis for Oct 1., 2024.

Source: <https://cwfis.cfs.nrcan.gc.ca/interactive-map>

Lightning

The peak of the Canadian lightning season is in July and August. Lightning stroke numbers in the Maritimes were well below normal, with only 5% of the normal amount observed in New Brunswick this month. This can be explained by the lack of significant rainfall and convection as can be seen by the below normal precipitation amounts in September. Across Canada numbers continue to be at their lowest value year-to-date with 73% of the normal.

Table 2: Monthly Cloud-to-ground lightning strokes for September 2024

Province	September 2024 Observed	September Average	% of Normal	September 2024 Rank	Year-to-Date Observed	Year-to-Date Average	Year-to-Date % of Normal	Year-to-Date Rank
NB	154	2,966	5%	5th lowest	18,973	49,267	39%	LOWEST
NS	291	1,090	27%	median	16,022	24,310	66%	
PEI	122	165	74%	10 th highest	1,729	3,125	55%	10th lowest

Record keeping began in 2002

Data is for cloud-ground lightning strokes

Daily Temperature and Precipitation Time Series

Precipitation this month followed a consistent pattern across all three capitals, with two distinct weather systems accounting for all rainfall. While the timing was similar, the amounts varied significantly. The first system brought the heaviest precipitation to Nova Scotia as it approached from the south, while the second delivered the most rainfall to New Brunswick and Prince Edward Island as it moved from west to east. Temperatures were also comparable, with all regions experiencing a cool to near-normal start of the month followed by a mid- to late-month return to summer-like temperatures.

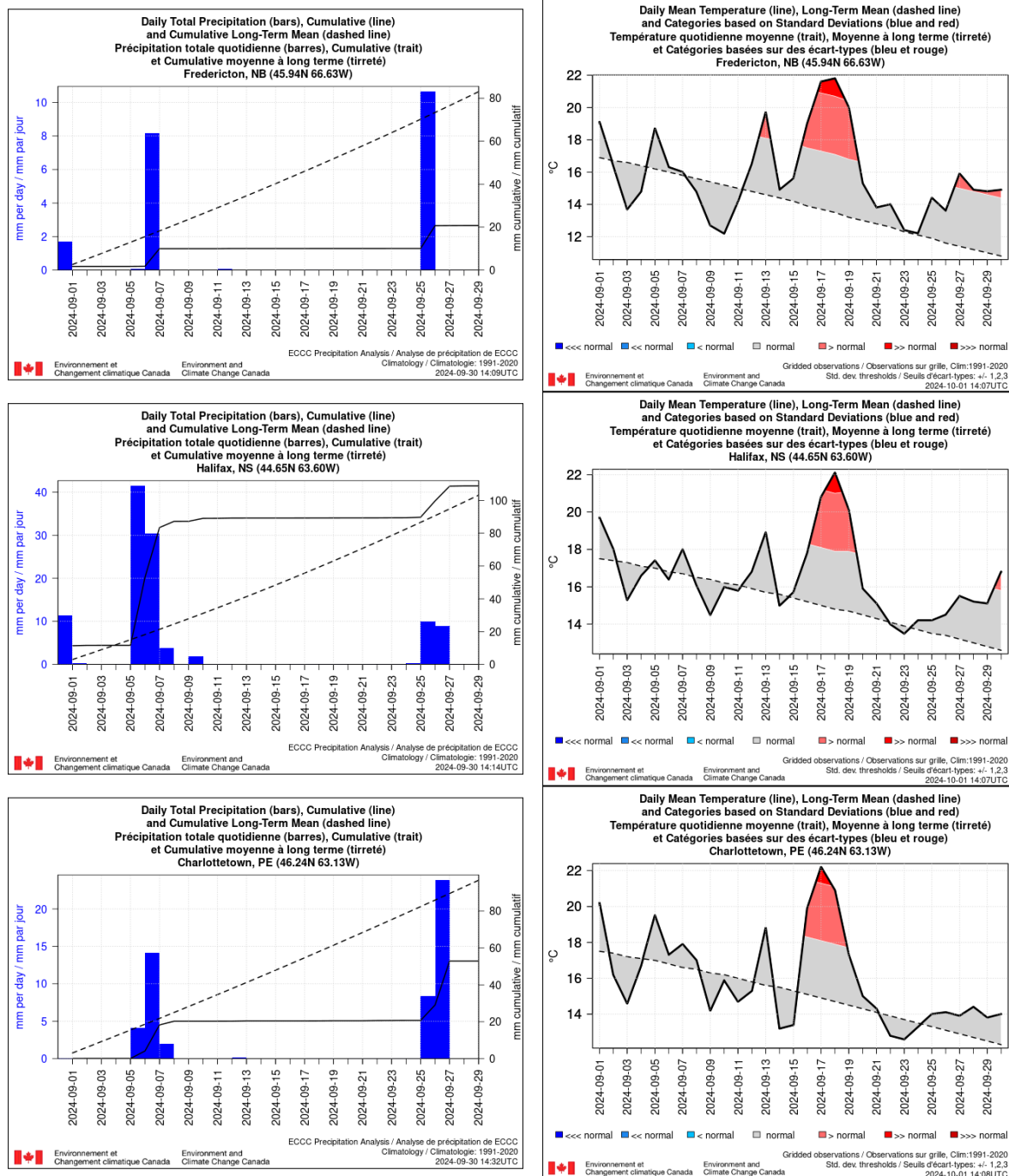


Figure 5. Daily total precipitation (Canadian Precipitation Analysis (CaPA) data) and mean temperature for Fredericton, NB (top), Halifax, NS (middle), and Charlottetown, PEI (bottom), for September 2024 based on gridded data, compared to long-term means (1991 to 2020).

Sea Surface Temperature

Sea surface temperatures were above normal for most locations this month, with the Bay de Chaleur having the highest anomaly near 3 degrees above normal. Elsewhere in the Gulf and around Cape Breton, temperatures were 1 to 2 degrees above normal, and around southwestern NB and the Bay of Fundy, temperatures were near to 1 degree above normal.

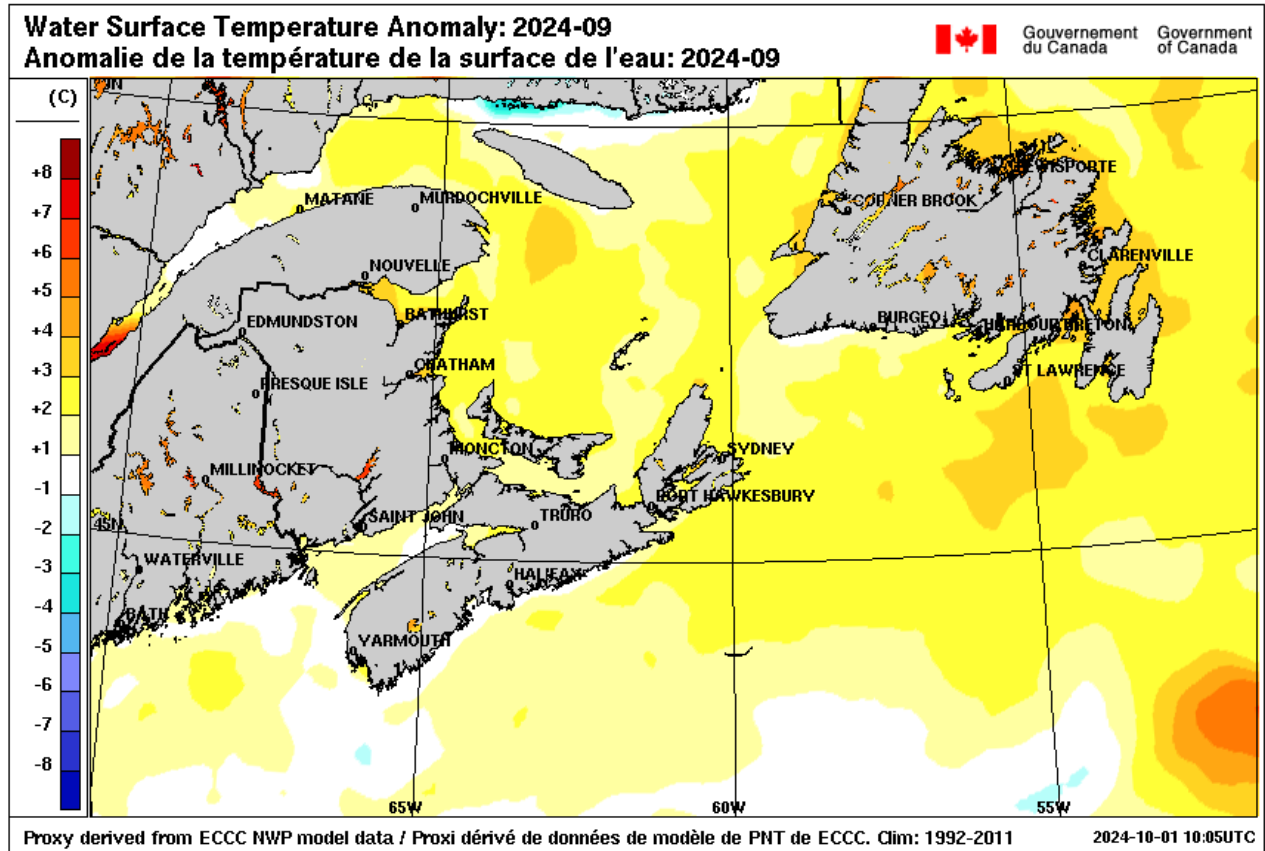


Figure 6. Water surface temperature (WST) anomaly (departure from average) map for September 2024, based on ECCC numerical weather prediction (NWP) model data, with climatology based on 1992 to 2011.

Hurricane Season Update

There were 6 named tropical cyclones during September in the Atlantic Basin, none impacted Canada in any direct way. After a 3-week drought of storms, Hurricane Francine formed in the western Gulf of Mexico and made landfall southwest of New Orleans as a high-end category-one hurricane. Around the time of Francine’s landfall, weak Tropical Storm Gordon tracked through the eastern tropical Atlantic then dissipated with no land impacts. A short-lived but very impactful Hurricane Helene formed in the western Caribbean Sea then made a bee-line for northern Florida. Damaging storm surge and extreme inland flooding were the primary impacts from Helene which was entirely confined to the U.S. side of the border. Only a few areas of heavy showers fell near the Erie lakeshore in far southwestern Ontario. Also during the time of Helene, high-latitude Hurricane Isaac formed from a cutoff low over the Gulf Stream well south of Newfoundland. Isaac was category-2 strength at 40N. There were no impacts in Canadian waters. Tropical storm Joyce formed during this time period over the eastern tropical Atlantic, only attaining a peak strength of 45 knots. Finally, Kirk was intensifying during the last two days of September.

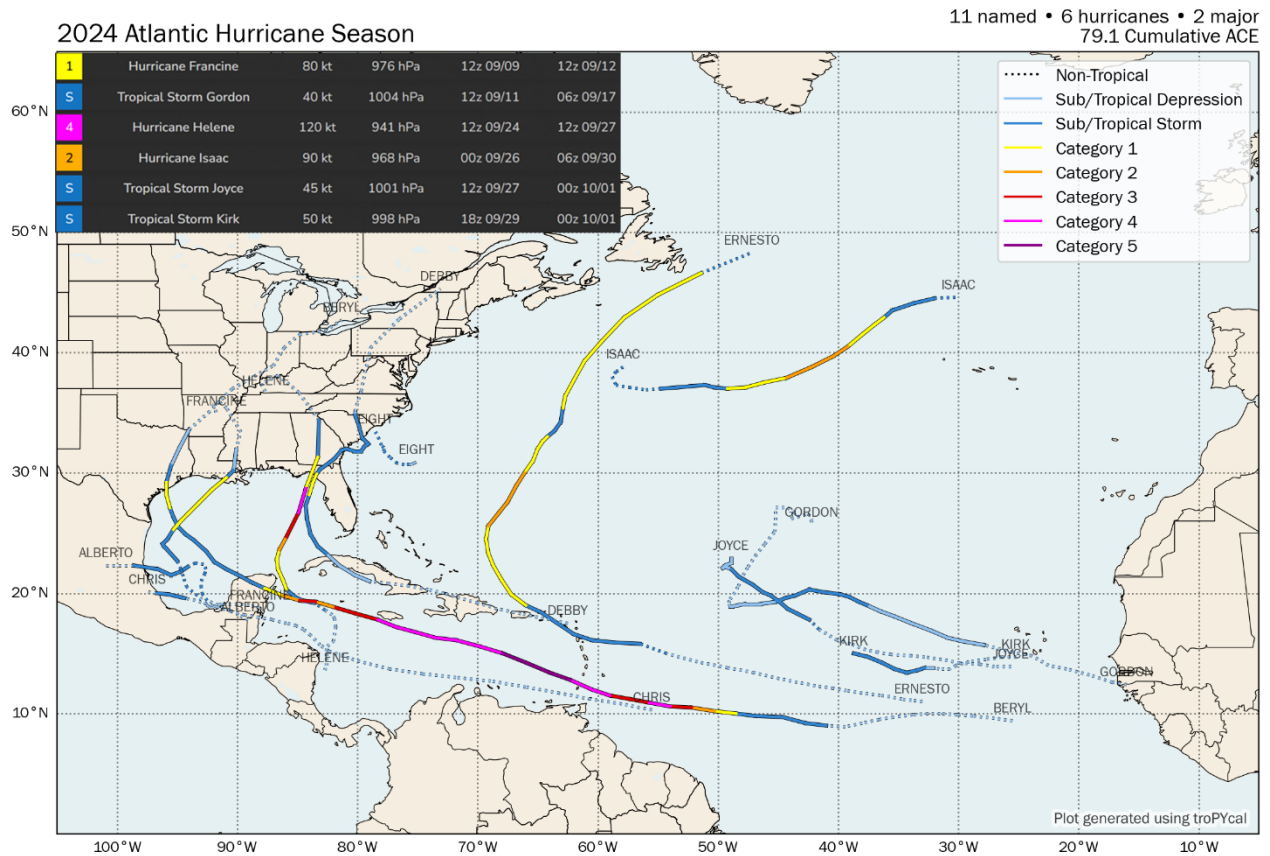


Figure 7: 2024 Atlantic Hurricane Season September storms

Other Climate-Related Information

[Island potato growers worried about lack of rain in August | CBC News](#)

[Post-Fiona, prepping for extreme weather in P.E.I. is both physical and mental | CBC News](#)

[Climate change is hard on our lungs. New research aims to help Nova Scotians prepare | CBC News](#)

['Very frustrating': High winds continue to disrupt P.E.I.-N.S. ferry schedule | CBC News](#)

[Apple and pear crops looking good but growers still feeling effects of Fiona | CBC News](#)

[Expert says warm September in Maritimes could cause higher aggression in bees and wasps | CTV News](#)

[It may be autumn but burn bans are still in place on P.E.I. | CBC News](#)

Monthly Temperature & Precipitation Forecasts for October 2024

The four-week outlook for September 30 to October 28 shows a weak signal of above normal temperatures for southern, western, and northern NB, and strong signal of above normal for PEI and Cape Breton. Over eastern NB and mainland NS, no strong signal is present. For precipitation, there is a weak signal of below normal over most of the region, with the exception of the centre of NB which shows no strong signal.

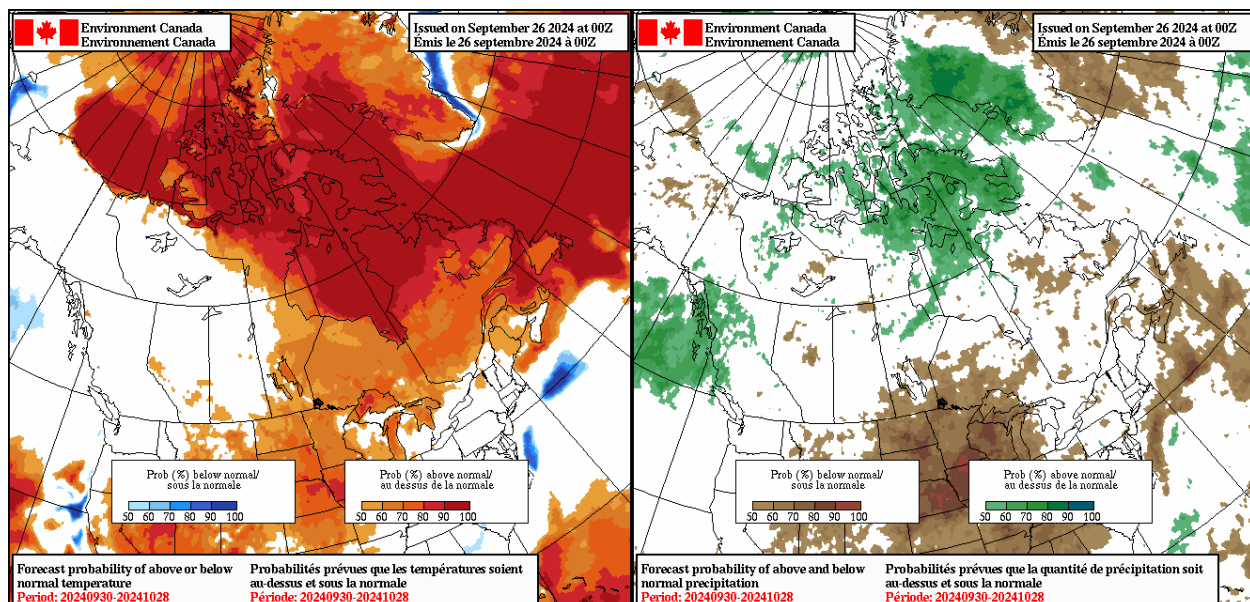


Figure 8: Forecast probabilities of above and below normal temperatures (left) and precipitation (right) from the [MSC Global Ensemble Prediction System \(GEPS\)](#) issued Sep 26 2024, for Sep 30 - Oct. 28 2024.

Contact

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Appendix

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

Location	Station Name	Climate ID	Station Operator ¹	Type ²	Normals Station Name	Normals Station Climate ID
Bas-Caraquet	BAS CARAQUET (temperature)	8100467	ECCC-MSC	A	BAS CARAQUET	8100468
	BAS CARAQUET (precipitation)	8100468	CCN	H		
Charlo	CHARLO AUTO	8100885	ECCC-MSC	A	CHARLO A	8100880
Fredericton	FREDERICTON CDA CS	8101605	ECCC-MSC	A	FREDERICTON CDA	8101600
Moncton	MONCTON/GREATER MONCTON	8103201	NavCan	H	MONCTON A	8103200
	ROMEO LEBLANC INTL A					
Saint John	SAINT JOHN A	8104901	NavCan	H	SAINT JOHN A	8104900
Woodstock	WOODSTOCK NEWBRIDGE	8105603	ECCC-MSC	A	WOODSTOCK	8105600
Amherst	NAPPAN AUTO	8203702	ECCC-MSC	A	NAPPAN CDA	8203700
Greenwood	GREENWOOD A	8202000	DND	H	GREENWOOD A	8202000
Halifax (Airport)	HALIFAX STANFIELD INT'L A	8202251	NavCan	H	HALIFAX STANFIELD INT'L A	8202250
Halifax (Shearwater)	SHEARWATER RCS	8205092	ECCC-MSC	A	SHEARWATER A	8205090
Sydney	SYDNEY A	8205701	NavCan	H	SYDNEY A	8205700
Truro (Debert)	DEBERT	8201390	ECCC-MSC	A	DEBERT	8201380
Yarmouth	YARMOUTH A	8206495	NavCan	H	YARMOUTH A	8206500
Charlottetown	CHARLOTTETOWN A	8300301	NavCan	H	CHARLOTTETOWN A	8300300
Summerside	SUMMERSIDE	8300596	ECCC-MSC	A	SUMMERSIDE A	8300700

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

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

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