



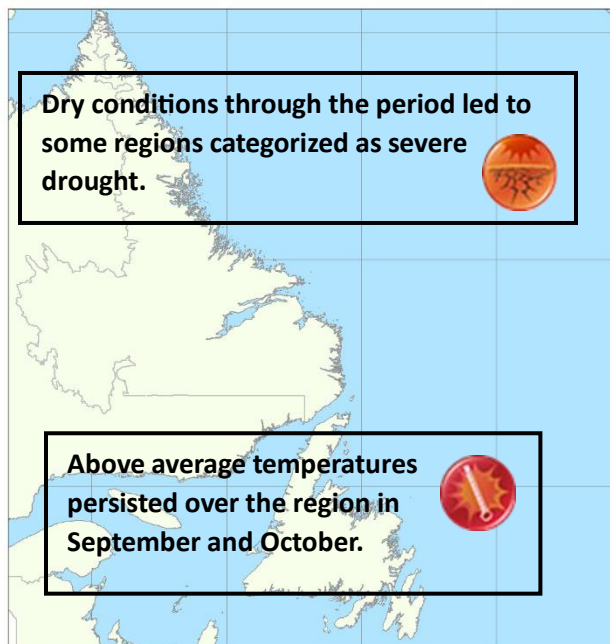
Environment and
Climate Change Canada

Environnement et
Changement climatique Canada

Newfoundland and Labrador

Quarterly Climate Summary: Fall 2023

Summary & significant weather events (September – November)



Anomalously warm temperatures in September and October outweighed the average or lower than average temperatures in November, leading to generally above average temperatures for the period. Several locations placed among their top five warmest Septembers and/or Octobers on record. Early September was especially hot and humid, with Happy Valley-Goose Bay area reporting 32°C and Wabush Lake area 29.5°C. In early October, some sites in Labrador also set new records for their highest temperatures ever observed in the month.

In addition, accompanying the warmth were widespread dry conditions leading to moderate drought developing and expanding in northern, central, and western Labrador, even severe drought in some areas by the end of November.

Natural Resources Canada indicated that while the number of fires burned in the province this fire season was near the 10-year average, the estimated area burned was more than twice the 10-year average.

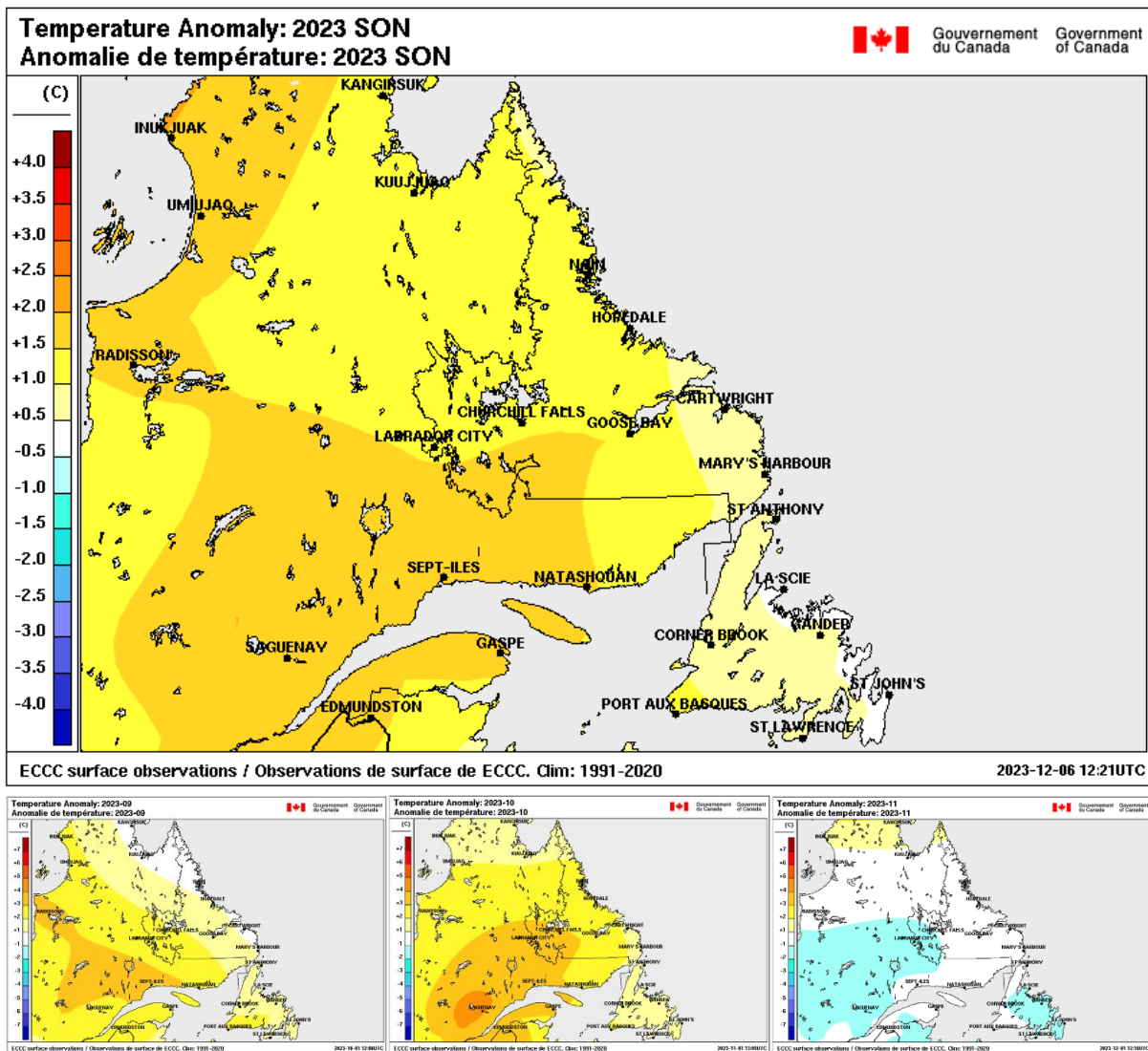
The region was impacted by two tropical originating storms, Lee and Philippe, with Lee providing some areas of eastern Labrador with much needed rain. A powerful low-pressure system and cold front crossed the region in late October, bringing a dramatic change to the weather pattern after the unseasonable warmth earlier in the fall. This storm gave a taste of winter to the region and the first snowfall to some areas.

With an unprecedented wildfire season across the country, smoke from western wildfires made its way over the province, leading to air quality advisories due to the reduced air quality at times over many locations in September.

Regional Climate Overview (September – November)

Temperature

Temperatures averaged over September to November were warmer than the long-term average in most of the province, due to the anomalously warm months of September and October, even though November was near or colder than average. September placed among the five warmest Septembers on record at several locations. Happy Valley-Goose Bay, Nain, and Channel-Port aux Basques areas had their warmest Octobers on record. For the east coast of Newfoundland, above average temperatures in September and October were balanced by below average temperatures in November.

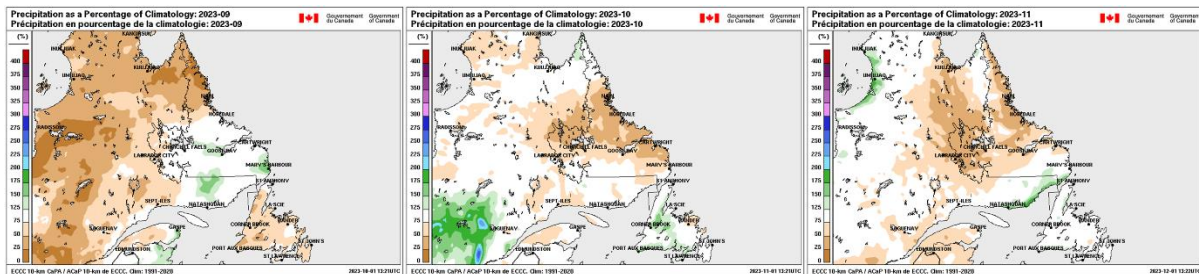
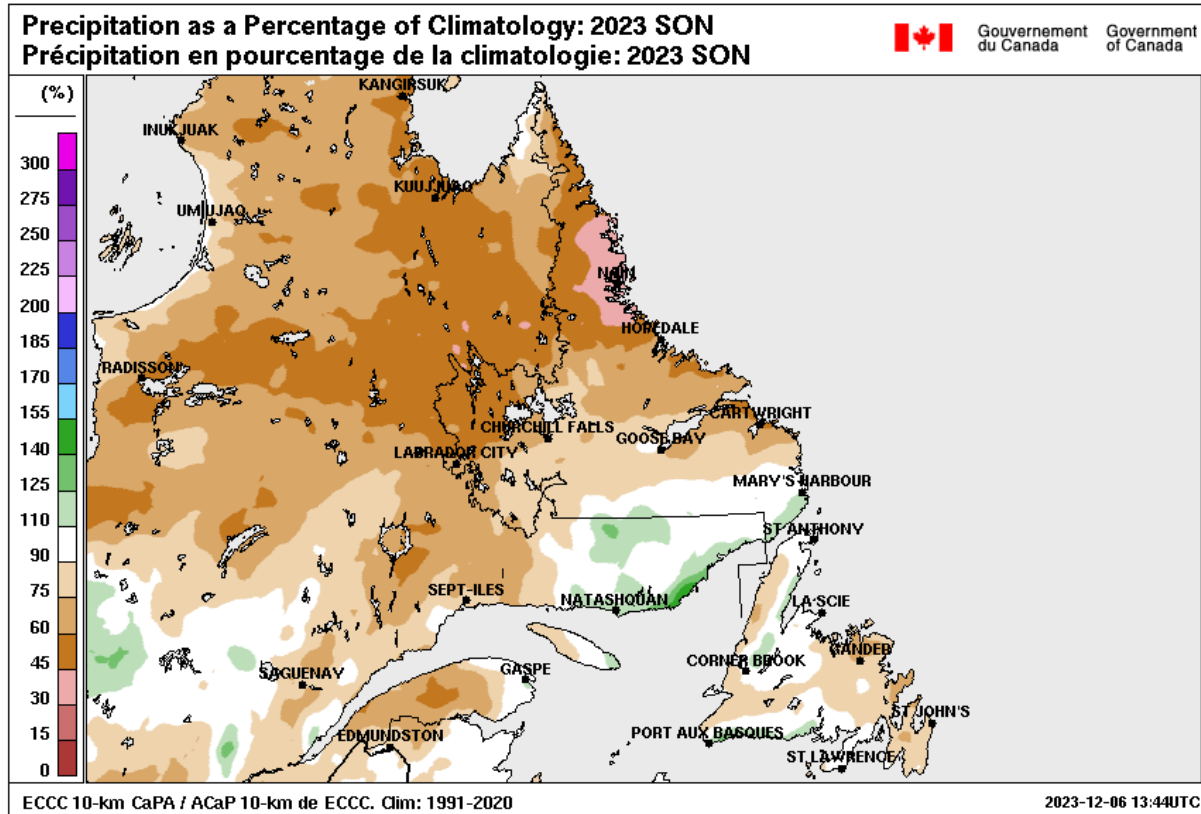


Above top: Temperature anomalies for Newfoundland and Labrador for Sept.– Nov. combined.

Above bottom, left to right: Temperature anomalies for Newfoundland and Labrador for September, October, and November.

Precipitation

The dry conditions continued for Labrador after a dry summer, as all three fall months finished with below average precipitation over most of the region. Post-tropical storm Lee gave some relief from the dry conditions for central and southeastern Labrador in September. For Newfoundland, several systems in October and November produced precipitation values near 60 mm or more, allowing most areas to be near or above the monthly average precipitation. This helped to compensate for a drier than average September. However, autumn precipitation totals remained below average in some areas.



Above top: Precipitation as a percentage of 1991-2020 average for Newfoundland and Labrador for Sept.– Nov. combined.

Above bottom, left to right: Precipitation anomalies for Newfoundland and Labrador for September, October, and November.

Seasonal Temperature and Precipitation Table

Seasonal temperature averages and precipitation totals compared to seasonal normals (1981 - 2010) for September to November 2023 for selected locations in Newfoundland and Labrador.

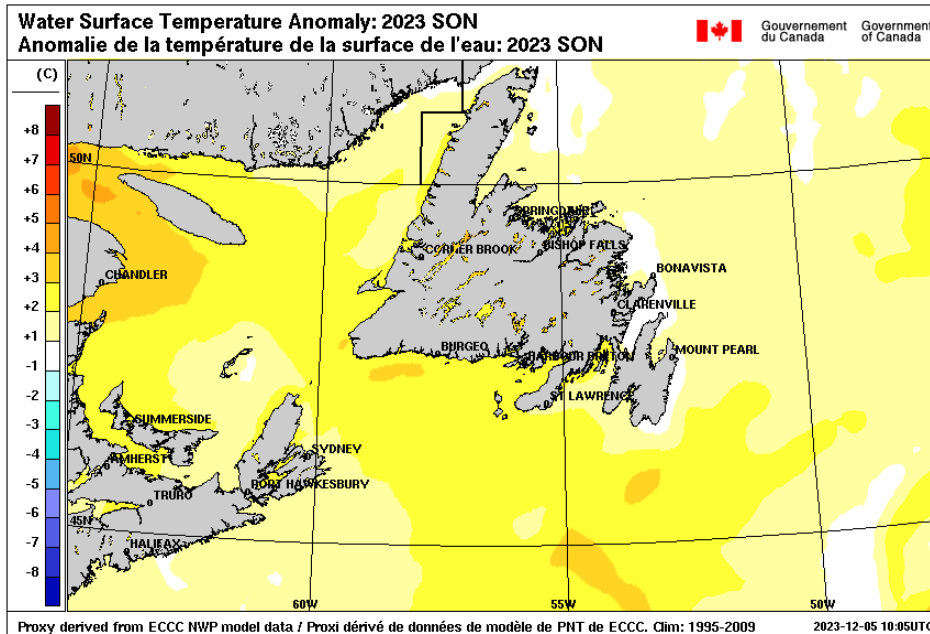
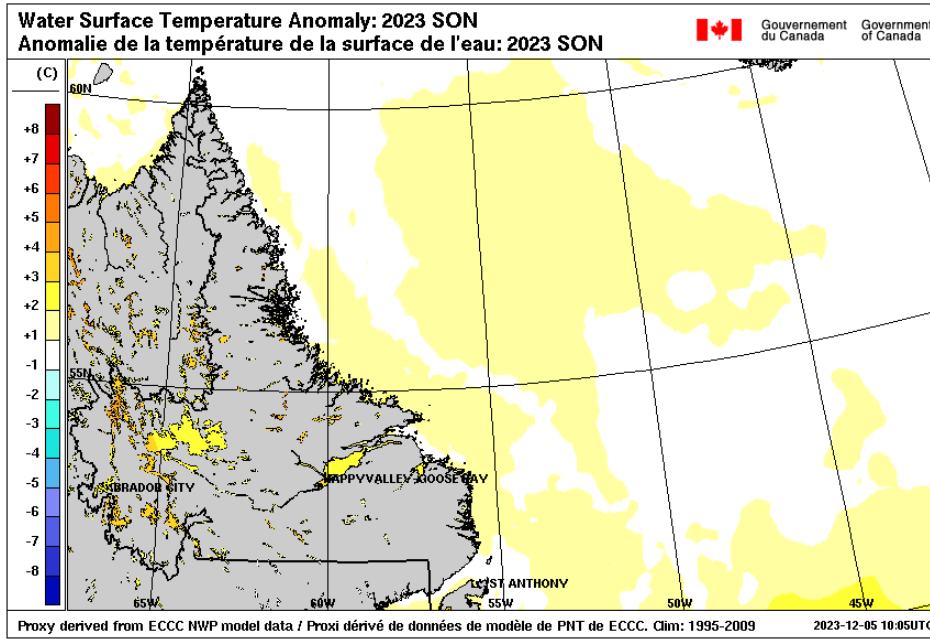
Location	Mean Temperature (°C)				Total Precipitation (mm)		
	Seasonal Mean	Average of Monthly Normal Means	Diff.	Rank (Warmest)	Seasonal Total	Total of Monthly Normals	Seasonal Total as % of Normal
Bonavista	8.6	7.3	1.2	>10	205.2	327.4	63
Channel-Port aux Basques	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Corner Brook	8.9	7.6	1.3	9	340.6	340.2	100
Gander	7.5	6.5	0.9	>10	254.7	341.9	75
St. John's	8.3	7.6	0.7	>10	386.3	433.8	89
St. Lawrence	9.4	7.6	1.8	6	440.8	487.1	90
Stephenville	9.1	7.6	1.5	8	354.3	373.0	95
Terra Nova Nat Park	7.4	6.8	0.7	>10	294.1	322.2	91
Cartwright	4.5	3.6	0.9	>10	N/A	N/A	N/A
Happy Valley-Goose Bay (Goose A)	4.9	3.1	1.8	4	246.2	244.4	101
Hopedale	3.9	2.9	1.1	7	N/A	N/A	N/A
L'anse au Loup (Lourdes de Blanc Sablon)	5.1	3.7	1.4	6	266.0	251.4	106
Nain	3.2	1.7	1.5	8	N/A	N/A	N/A
Labrador City (Wabush)	2.0	0.0	2.0	3	N/A	N/A	N/A

Temperature difference: 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

Rank provides a ranking of mean temperature (eg. 1 warmest, 2 second warmest etc.) for the season against long-term data for the season, based on a selection of stations reporting daily data through the period of record, not adjusted or homogenized.

Sea Surface Temperature

Sea surface temperatures averaged over September to November were near to slightly above the long-term average in the Labrador Sea, and along the northern coast of Newfoundland. SSTs were warmer than average to the south and west of Newfoundland, with some areas being 2 to 3°C warmer than average.



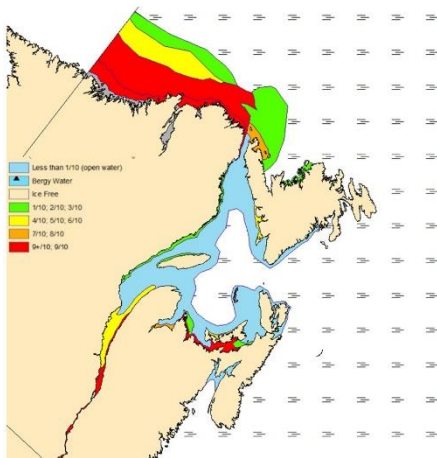
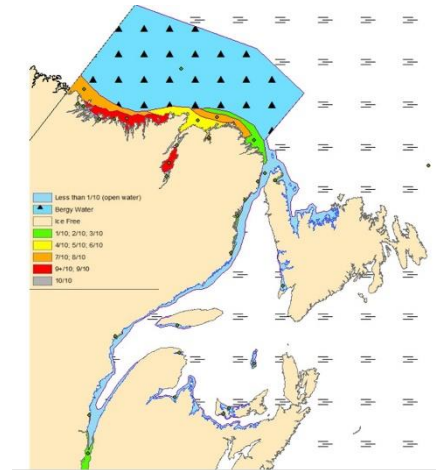
Water surface temperature anomaly (departure from average) maps for Sept. – Nov. 2023 combined, based on ECCC numerical weather prediction (NWP) model data, with climatology based on 1995 to 2009, for Labrador (top) and Newfoundland (bottom) marine areas.

Sea Ice Outlook

Near to below normal ice conditions are forecast due to the expected above normal air temperatures this winter.

December:

- Ice to expand and thicken along the Labrador Coast
- Lake Melville will be ice covered in mid-December
- Ice to form in the Strait of Belle Isle in mid-December and nearly ice covered by the end of the month.
- Ice forming in sheltered bays and inlets along the Northern Peninsula and Northeast Coast near the end of the month.

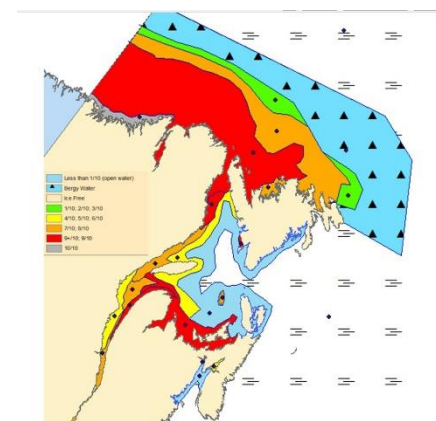


January:

- Ice to expand quickly offshore from the Labrador Coast
- Lake Melville will consolidate and become completely fast by the end of January.
- Ice will continue to form and thicken along the northern and western coasts of Newfoundland

February:

- Sea ice to expand and thicken to cover the Labrador coast, Strait of Belle Isle, Northeast Gulf, Northeast Coast and along the East Coast of Newfoundland down to the northern Avalon Peninsula.



Forecast ice concentrations based on current long-range seasonal guidance of ice coverage for the midpoint in of December 2023 (top), January 2024 (middle) and February 2024 (bottom), as per Canadian Ice Service. A full report can be accessed at [20231201_OTLKGUE_WINTER2023.pdf](https://www.cis.gc.ca/20231201_OTLKGUE_WINTER2023.pdf)

Regional Impacts

River Flows

In September, the monthly mean flow on the Eagle River (near Cartwright) was more than twice the median flow based on the long-term data. This was a marked change from the past several months which had been below the median. In contrast, the monthly mean flow on the Gander River at Big Chute was less than half the long-term median flow for September. The other three sites analyzed on the island had near or above normal mean flows for the month. The cumulative run-off values over the hydrological year, from Oct. 1, 2022 to Sept. 30, 2023, ranged from 81% to 103% of the median at these sites.



Preliminary monthly runoff summary for selected river sites in Newfoundland and Labrador for September 2023 (the last available month for this analysis period), courtesy of ECCC Water Survey of Canada. Record values are provisional and may change after review.

River Flow Station		September 2023		Cumulative Run-off from Oct. 1 to Sept. 30
Station Number	Drainage Area (km ²)	Mean Flow (m ³ /s)	% of Median	% of Median
EAGLE RIVER ABOVE FALLS 03QC001	10900	437 E	232	81
GANDER RIVER AT BIG CHUTE 02YQ001	4400	34.9 D	43	88
ISLE AUX MORTS RIVER BELOW HIGHWAY BRIDGE 02ZB001	205	11.9	106	103
ROCKY RIVER NEAR COLINET 02ZK001	301	8.91	132	99
UPPER HUMBER RIVER NEAR REIDVILLE 02YL001	2110	61.4	123	95

E - Excessive (> 75th percentile (based on 30-years, 1981-2010))

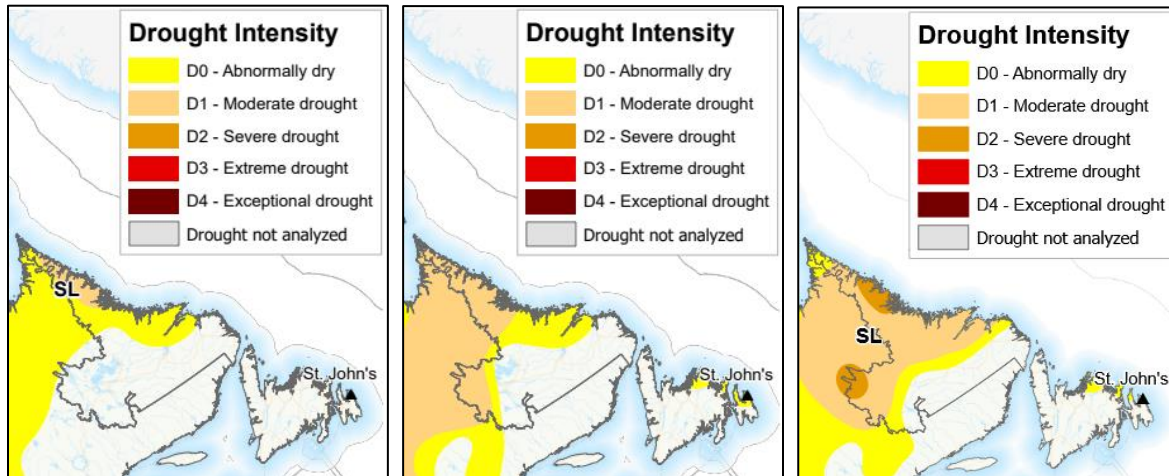
D - Deficient (< 25th percentile (based on 30-years, 1981-2010))

R - Record (provisional new extreme (preliminary data subject to review), compared to period of record up to 2010)

Forestry/Wildland Fires

The Natural Resources Canada Canadian Wildland Forestry Information Service (CWFIS) weekly [Fire Situation Report](#) covering the 2023 fire season, as of the final report November 2, 2023, indicated that the number of fires in the province was near the 10-year average, but the estimated area burned was more than twice the 10-year average.

Canadian Drought Monitor (Agriculture and Agri-Food Canada)



Canadian Drought Monitor Map for Sept. 30 (left), Oct. 31 (middle) and Nov. 30 (right), 2023. S = Short-Term, impacts typically less than 6 months (e.g. agriculture, grasslands); L = Long-Term, impacts typically greater than 6 months (e.g. hydrology, ecology) Source: <https://agriculture.canada.ca/en/agricultural-production/weather/canadian-drought-monitor>

By the end of **September**, areas of drought or abnormally dry conditions in Labrador had diminished compared to the end of August. Northern Labrador had moderate drought.

By the end of **October**, the area of moderate drought over northern Labrador had expanded to include western Labrador as well. Abnormally dry conditions developed along the northeast coast of Newfoundland.

By the end of **November**, drought severity had increased again with the central coast and inland sections of Labrador experiencing moderate drought and some sections over western and northern Labrador entering severe drought. Abnormally dry conditions continued along the northeast Newfoundland coast.

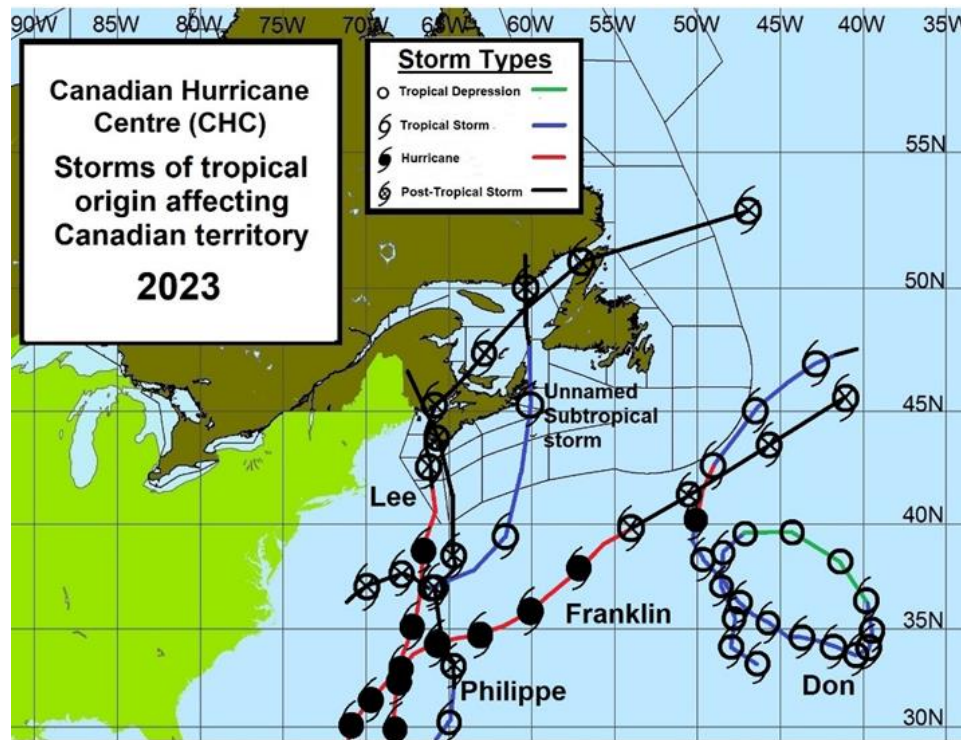
Atlantic Hurricane Season Summary

Overall, the 2023 hurricane season was above normal in terms of the number of named storms, with 20 named across the Atlantic basin (normal being 14). However, the season was near normal in terms of number of hurricanes (seven), and above normal in terms of the total energetics (20% above), which accounts for the intensity, size, and age of the storms. A summary can be found [here](#). Five storms of tropical origin affected Canadian territory during the season. A map showing the tracks of these storms is shown in Figure 5. The season started with an extremely rare unnamed subtropical storm in mid-January that made landfall near Louisbourg, NS with sustained winds near 80 km/h. Damage was minimal from this storm. This storm was not assessed as a subtropical storm operationally but was reassessed by the National Hurricane Center in Miami as a subtropical storm as part of their post-operational review of the data (included in the 20 named storms number).

The highest impacting storm of the 2023 tropical cyclone season was Hurricane Lee, which impacted the Maritimes on September 16. Lee made landfall in Long Island, Digby County, NS with sustained winds of 110 km/h. Hurricane force gusts were reported at many stations and damage, mostly from downed trees, was widespread but generally minimal. The storm resulted in 277,000 customers in NS and more than 90,000 customers in NB losing power. In addition, very large waves and storm surge caused significant damage to coastal infrastructure and beach erosion. Lee marks the 5th year in a row of a high impact landfalling storm in Atlantic Canada.

Hurricanes Franklin and Don caused minimal impact to Canadian territory but produced strong winds and high sea states to the Grand Banks. Post-Tropical Storm Philippe tracked northwestward near Yarmouth, Nova Scotia on October 7. The storm caused strong winds and rough seas to western Nova Scotia and southwestern New Brunswick. Thousands of customers in the Maritimes lost power. Although the same areas were affected by Lee, the impact was much less than Lee.

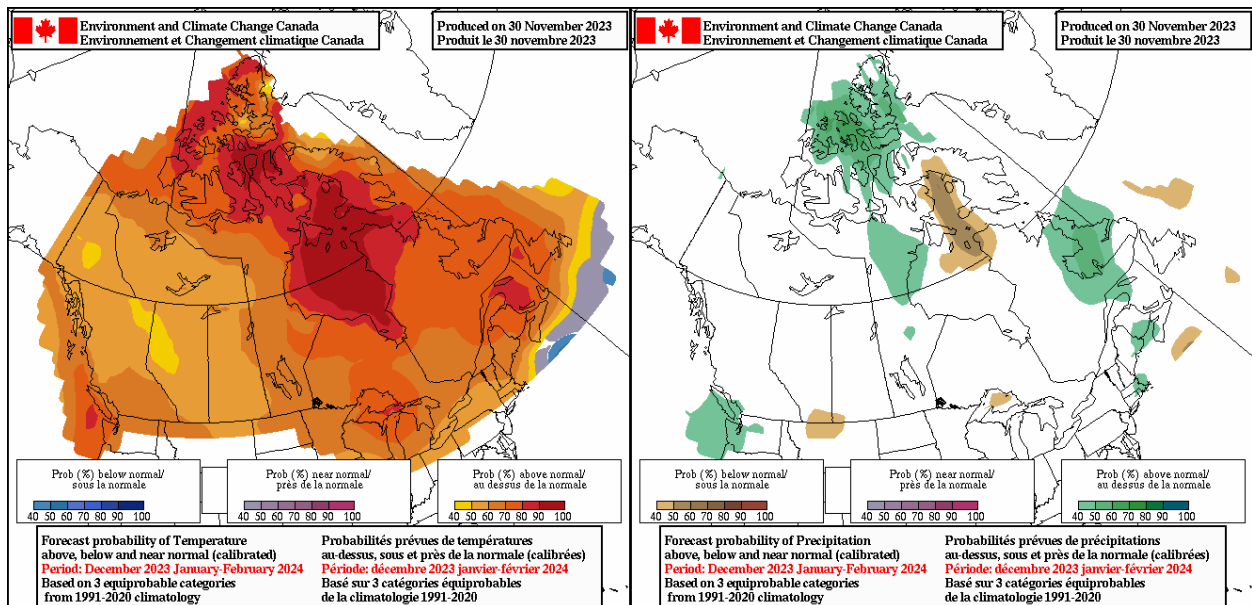
[2023 Atlantic hurricane season ends; finishes 4th for most-named storms | CTV News](#)



Summary of tropical origin storm tracks affecting Canadian territory for the 2023 Atlantic Hurricane Season.

Temperature & Precipitation Seasonal Forecast

The seasonal forecast shows above average temperatures for the winter across the whole country, with much of Newfoundland and Labrador with a 70 – 80 % chance of above average temperatures. For precipitation, interior and northern sections of Labrador have a 50 – 60 % chance of above average precipitation with other areas in the province showing no signal of above or below normal.



Probability of above, below and near normal temperature (left) and precipitation (right) for Winter (Dec 2023 – Feb 2024). Produced Dec 8, 2023. Source: [Seasonal forecasts for Canada](https://www.ec.gc.ca/seasonal-forecasts-for-canada)

Contact Information

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Previous summaries can be found here: <https://www.arctic-rcc.org/>