





Environment and Climate Change Canada

# Newfoundland and Labrador Quarterly Climate Summary: Spring 2023

Summary & significant weather events (March—May):

A milder-than-normal Spring season was driven mainly by a very mild March in Labrador and on the Northern Peninsula. Elsewhere in Newfoundland, it was a fairly typical Spring temperature-wise. Despite the usual run of March storms, precipitation was lower than normal across the majority of Newfoundland and Labrador.

March did have its typical run of snowstorms across the province. But overall, the most noteworthy weather event of the month was a mild, rainy spell in Labrador early on. This contributed to the <u>delay</u> and eventual <u>cancellation of the Cain's Quest snowmobile race</u>, and ushered in a relatively early start to the spring season in Labrador.

While April wasn't particularly noteworthy for temperatures, it certainly was for

precipitation, or lack thereof. Large swaths of the province ended up receiving half or less of their typical precipitation for the month. April ended with an extended period of cool, moist northerly flow, which persisted into spring for much of eastern and northeastern Newfoundland.

Finally, it wouldn't be May in the province without a snowfall or two. This May was no exception, as several systems produced <u>snow and</u> <u>strong winds</u> in parts of Newfoundland and, particularly, Labrador. While cooler conditions were the story for the island, these conditions didn't last all month long in Labrador. A significant mild spell concluded the month for western Labrador, with a record-tying high temperature in the Wabush area on the final day. In terms of precipitation, overall conditions weren't as dry in May as they were the previous month. However, they were dry enough to allow for an early start to wildfire season in parts of Newfoundland.

# **Provincial Climate Overview (March-May):**

# **Temperature (Departure from Normal):**

Temperatures for this Spring (averaged over March, April, May) were near normal for most of Newfoundland, except 1-2 degrees C above normal on the Northern Peninsula. In Labrador, temperatures were above normal by 1-2 degrees C.

# **Highlights**:

- 6th warmest Spring on record for L'Anse au Loup
- 5th warmest March on record for L'Anse au Loup



Above: Temperature anomalies for Newfoundland and Labrador for March-May combined.



Above left to right: Temperature anomalies for Newfoundland and Labrador for March, April, May

# Precipitation (Percent of 1991-2020 average):

Precipitation this Spring (totaled over March, April, May) was near normal to above normal across a portion of southeastern Labrador. Elsewhere in the province, precipitation was below normal; well below for areas of southern and western Newfoundland, and part of the Labrador Strait.

# **Highlights:**

- Preliminary results indicate that some areas had one of their five driest springs on record including: Port aux Basques (driest), St. Lawrence (2<sup>nd</sup> driest), Deer Lake (3<sup>rd</sup> driest), and Corner Brook and L'Anse au Loup (5<sup>th</sup> driest)
- Port aux Basques and Gander each received less than half their normal precipitation for the season
- Driest April on record for Gander, 2nd driest for Happy Valley-Goose Bay



Above: Precipitation as a percentage of 1991-2020 average for Newfoundland and Labrador for March-May combined.



Above left to right: Precipitation anomalies for Newfoundland and Labrador for March, April, May

# **Seasonal Temperature and Precipitation Tables:**

Seasonal temperature averages and precipitation totals compared to seasonal normal (1981-2010) for March to May 2023, for selected locations in Newfoundland and Labrador

|                            |               | Mean Temperatu | Total Precipitation (mm) |           |          |          |               |
|----------------------------|---------------|----------------|--------------------------|-----------|----------|----------|---------------|
|                            |               | Average of     |                          |           |          | Total of | Seasonal      |
| Location                   |               | Monthly        |                          | Rank      | Seasonal | Monthly  | Total as % of |
|                            | Seasonal Mean | Normal Means   | Diff.                    | (Warmest) | Total    | Normals  | Normal        |
| Bonavista                  | 1.4           | 1.3            | 0.0                      | >10       | 160.3    | 262.2    | 61            |
| Channel-Port aux Basques   | 2.4           | 1.2            | 1.2                      | >10       | 108.7    | 365.3    | 30            |
| Corner Brook               | 2.9           | 2.5            | 0.4                      | >10       | 144.8    | 260.0    | 56            |
| Gander                     | 1.5           | 1.5            | -0.1                     | >10       | 141.0    | 297.2    | 47            |
| St. John's                 | 1.4           | 1.9            | -0.5                     | >10       | 235.4    | 367.7    | 64            |
| St. Lawrence               | 2.9           | 1.8            | 1.1                      | >10       | 203.8    | 373.7    | 55            |
| Stephenville               | 2.7           | 2.2            | 0.5                      | >10       | 142.0    | 261.3    | 54            |
| Terra Nova Nat Park        | 1.9           | 2.1            | -0.2                     | >10       | N/A      | N/A      | N/A           |
| Cartwright                 | -1.0          | -2.4           | 1.4                      | >10       | N/A      | N/A      | N/A           |
| Happy Valley-Goose Bay     |               |                |                          |           |          |          |               |
| (Goose A)                  | 0.1           | -1.7           | 1.8                      | >10       | 155.5    | 198.2    | 78            |
| Hopedale                   | -2.6          | -4.1           | 1.5                      | 10        | N/A      | N/A      | N/A           |
| L'anse au Loup (Lourdes de |               |                |                          |           |          |          |               |
| Blanc Sablon)              | 0.3           | -1.5           | 1.8                      | 6         | 139.2    | 199.4    | 70            |
| Nain                       | -3.8          | -5.2           | 1.3                      | 9         | N/A      | N/A      | N/A           |
| Wabush                     | -2.8          | -4.5           | 1.7                      | 8         | N/A      | N/A      | N/A           |

Above: Temperature difference: 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

# **Significant Weather events:**

# March

**March 4-6:** A system moving toward the province from the east brought heavy snowfall followed by heavy rainfall to portions of Labrador. Rainfall totals across coastal Labrador & a few inland areas ranged from 22 to 91 mm, with Rigolet receiving 110 mm.

Weather summary: Labrador

**March 10-11:** A low pressure system slowly meandering east of the island produced heavy snowfall and strong northerly winds across northeastern Newfoundland. Two observations in Gander reported 29 and 26 cm, while St. John's received 20 cm.

**March 15-17:** Another slow moving system brought <u>more heavy, wet snow to the island</u>. New snowfall accumulations of 10-20 cm were observed or estimated in parts of eastern, southern, and central Newfoundland. Wreckhouse wind gusts peaked at 130 km/h.

**March 18-21:** A deepening storm tracked slowly off the south Labrador coast, resulting in blizzard conditions in northern Labrador. Significant snowfall and blowing snow also occurred in central and southeastern Labrador, along with western Newfoundland. Snowfall totals of 50 cm, 47 cm and 27 cm were reported at Makkovik, Goose Bay and L'Anse au Loup respectively. Blanc Sablon also picked up 22 cm of fresh snowfall, and Deer Lake received 21 cm. Peak wind gusts across most of Newfoundland were in the 90-130 km/h range.

**March 24-25:** <u>More snow fell on eastern</u> and southern Newfoundland due to a deepening storm tracking slowly south of the island. Snowfall amounts in eastern Newfoundland were highly variable, ranging from 11 to 33 cm, with the <u>highest amounts falling on the northeast Avalon</u> Peninsula. Wind gusts at Wreckhouse peaked at 117 km/h.

# **Significant Weather events:**

# April

**April 1-3:** A system tracked near the Strait of Belle Isle, bringing more snow to Labrador and snow followed by rain to Newfoundland. Wabush Lake reported 22 cm of snow, while snowfall amounts along the Labrador Strait were 11-18 cm. Wreckhouse wind gusts peaked at 132 km/h.

**April 11:** A warm southwesterly flow across Atlantic Canada produced record high temperatures for parts of Newfoundland and Labrador. Day-time highs were generally in the 9 to 15 degree range.

Weather summaries for April 11, 2023: <u>Newfoundland</u> Labrador

**April 20-25:** A persistent northerly flow gave rise to a <u>prolonged episode of fog</u>, along with drizzle, freezing drizzle, and flurries, across portions of eastern & northeastern Newfoundland.

# **Significant Weather events:**

#### May

**May 8-10:** A deepening low tracking across the island brought some late season snowfall and strong winds to parts of western and northern Newfoundland, as well as southeastern Labrador. Wind gusts in southeastern Labrador peaked in the 80-105 km/h range, with Red Bay peaking at 117 km/h.

**May 13-14:** More May snowfall occurred in parts of Labrador due to a low pressure system tracking slowly south then east of the region. Happy Valley-Goose Bay received 10 cm of snow.

**May 20-23:** A <u>strong cold front</u> crossed the region on the May long weekend, bringing 20 to 40 mm of rain to the Avalon Peninsula and lower amounts elsewhere on the Island. Precipitation amounts in central and southeastern Labrador ranged from 25 to 45 mm (mostly in the form of rain) with lower amounts elsewhere. Makkovik reported about 10 cm of snow. Winds gusted to 113 km/h at Wreckhouse, and up to about 95 km/h at other exposed sites.

**May 30-31:** A warm airmass brought much warmer than normal temperatures to Labrador and western Newfoundland. Daytime highs were observed mostly in the mid-20's, and Wabush's maximum temperature of 28.8 degrees C on May 31 tied for the warmest temperature on record for the month of May.

Weather summaries: Labrador - May 30, 31

# **Total Snowfall and Snow Depth:**

In general, total snowfall for the spring season was in the 60-150 cm range across Labrador and over the Long Range Mountains, with a few localized areas receiving an estimated 200 cm or more. Elsewhere on the island, snowfall amounts were highly variable, ranging from 20 cm over some southern areas up to 120 cm over higher elevation areas on the northern Avalon Peninsula. Snowfall amounts were generally below normal across the province, except near normal for parts of central and eastern Newfoundland.

Aside from a few isolated higher terrain areas in western Newfoundland, all snow over the island had melted by the end of May. Portions of Labrador still had estimated snow depths of 10-35 cm by the end of the spring.



Left: Total snowfall (estimated) for March, April, May 2023 combined. Right: Snow depth (estimated) for Newfoundland and Labrador at the end of May 2023

# Sea Surface Temperature (SST) (Departure from Normal—last week of each month):

# March

- \* Most SST warmer than normal by 2-5 C
- Area of near normal off east coast of Newfoundland

# April

- SST colder than normal by 1-2 C off east & south coasts of Newfoundland, as well as eastern Labrador Sea
- SST warmer than normal by 1-4 C elsewhere

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#### May

SST warmer than normal by 1-3 C off west & southwest coasts of Newfoundland

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- SST warmer than normal by 2-4 C over Labrador Sea
- SST near normal or colder than normal by 1-3 C for other NL waters



Degrees C / degrés C

NOAA weekly mean SST anomoly map for the last week of March (left), April (middle), and May (right) 2023 https://www.nnvl.noaa.gov/view/globaldata.html#SSTA

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Note: Grey areas along much of the coast may represent either gaps in data or presence of sea ice.

#### Sea Ice Coverage: (Analysis / Concentration departure from normal/seasonal coverage charts)

May saw thicker and thus longer lasting ice finally melt first from Newfoundland in the first week of June and then from the South Labrador Coast, leaving areas northeast of Cartwright as the only remaining area with anomalous ice remaining at this point. This ice was longer lasting than normal as it is ice that had formed about 5 weeks earlier than normal in Davis Strait at the start of the season and had drifted south. Ice that had formed in place such as that in Lake Melville was thinner than normal and melted off earlier than normal. This is because the ice formed late and was thinner than normal due to persistent warm temperatures this year.

Below normal amounts of ice formed this season. However, with thicker ice taking longer to melt, the ice season lasted longer than normal in Newfoundland as well as the South Labrador Coast and the Strait of Belle Isle.





Sea ice analysis charts June 19, 2023: Concentration of ice (left) and departure from normal concentration (right)

# **River Flows:**

Relatively dry conditions in **March** lead to below-normal flow rates for Newfoundland rivers, with Isle aux Morts and Rocky Rivers reporting deficient monthly flow. In Labrador, flow rates in Eagle River were closer to median values.

Dry conditions continued into **April**, leading again to flow rates which were below median values at all locations. Isle aux Morts and Rocky Rivers had deficient flow for the second straight month, and deficient flow rates were also observed at Gander River.

While precipitation rebounded somewhat in terms of normal for **May**, river flow rates remained by and large below median values. Isle aux Morts River reported deficient flow for the month.

Owing to the overall dry conditions through Spring, all rivers had cumulative run-off values slightly below the median. The only exception was in the Rocky River, where cumulative run-off was almost exactly at median value.

| River Flow Station   |  | March 2023                       |                | April 2023                       |                | May 2023                         |                | Cumulative<br>Run-off<br>from Oct 1 | Atlantic Region River Flow Stations<br>Stations découlement fluvial de la région de L'Atlantique |  |
|--|--|----------------------------------|----------------|----------------------------------|----------------|----------------------------------|----------------|-------------------------------------|--|--|
| Station Number   | Drainage<br>Area<br>(km <sup>2</sup> ) | Mean Flow<br>(m <sup>3</sup> /s) | % of<br>Median | Mean Flow<br>(m <sup>3</sup> /s) | % of<br>Median | Mean Flow<br>(m <sup>3</sup> /s) | % of<br>Median | % of<br>Median                      | EAGLE RIVER ABOVE FALLS 030C001  |  |
| EAGLE RIVER ABOVE FALLS  |  | 29.8                             | 89             | 42                               | 88             | 601                              | 74             | 76                                  | LE TE TE Provi   |  |
| 03QC001  | 10900                                  |                                  |                |                                  |                |                                  |                |                                     | 13 3 3 2 1 June 5  |  |
| GANDER RIVER AT BIG CHUTE  |  | 58.7                             | 54             | 155                              | 58             | 164                              | 69             | 86                                  | D S S & S And Z O O  |  |
| 02YQ001  | 4400                                   |                                  |                | D                                |                |                                  |                |                                     | UPPERHUMBER RIVER NEAR REIDVILLE 02YL001   |  |
| ISLE AUX MORTS RIVER BELOW HIGHWA                                | Y BRIDGE                               | 2.32                             | 44             | 11.1                             | 46             | 7.47                             | 25             | 80                                  |  |  |
| 02ZB001  | 205                                    | D                                |                | D                                |                | D                                |                |                                     | GANDER RIVER AT BIG CHUTE 02/0001  |  |
| ROCKY RIVER NEAR COLINET   |  | 8.07                             | 56             | 9.34                             | 57             | 6.79                             | 77             | 99                                  | Star Bar Bar   |  |
| 02ZK001  | 301                                    | D                                |                | D                                |                |                                  |                |                                     | ISLE AUX MORTS RIVER BELOW HIGHWAY BRIDGE 02ZB001  |  |
| UPPER HUMBER RIVER NEAR REIDVILLE                                |  | 18.4                             | 58             | 81                               | 81             | 228                              | 91             | 80                                  | A B B CALL   |  |
| 02YL001  | 2110                                   |                                  |                |                                  |                |                                  |                |                                     | C C C C C C C C C C C C C C C C C C C  |  |
|  |  |                                  |                |                                  |                |                                  |                |                                     | Preliminary monthly runoff summary for selected  |  |
| * Runoff accumulates from October 1st                            |  |                                  |                |                                  |                |                                  |                |                                     | River sites in Newfoundland and Labrador   |  |
|  |  |                                  |                |                                  |                |                                  |                |                                     | (location map above) for March. April. May cour-   |  |
| E - Excessive (> 75th percentile (based on 30-years, 1981-2010)) |  |                                  |                |                                  |                |                                  |                |                                     | tesy of ECCC Water Survey of Canada Note: Rec-   |  |
| D - Deficient (< 25th percentile (based on 30-years, 1981-2010)) |  |                                  |                |                                  |                |                                  |                |                                     | tesy of Leee water Survey of Callada. Note. Rec-   |  |
| R - Record (provisional new extreme (preli                       | minary data s                          | ubject to rev                    | iew), com      | pared to perio                   | od of reco     | rd up to 2010                    | ))             |                                     | ord values provisional and may change after the data is reviewed.                                |  |

# **Canadian Drought Monitor (produced by Agriculture and Agri-Food Canada):**

#### March

- Abnormally dry conditions across much of eastern & central Labrador, and locally in northeastern Newfoundland & the Northern Peninsula
- \* No drought conditions elsewhere



# April

- Abnormally dry conditions continuing across much of eastern & central Labrador, expanding slightly further west and north
- Abnormally dry conditions continuing locally in northeastern Newfoundland & the Northern Peninsula, developed across southern Newfoundland

# Labrador Sea NEWFOUNDLAND AND LABRADOR St. John's Charlottetown

#### May

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- Abnormally dry conditions across Newfoundland, with areas of moderate drought across most of the south and the White Bay area, severe drought over extreme southwest
- Abnormally dry conditions continuing across eastern & central Labrador, expanding slightly further west



Canadian Drought Monitor Map for March (left), April (middle), and May 2023 (right). Drought maps courtesy of Agriculture and Agri-Food Canada-<u>https://</u> agriculture.canada.ca/en/agricultural-production/weather/canadian-drought-monitor

# Provincial Impacts (March-May):

#### Mild start to spring, especially for Labrador

Usually March in Newfoundland and Labrador is associated with continued wintry weather. And for the most part, this proved to be the case in 2023. But one noteworthy storm early in the month produced a taste of early-spring mild temperatures and rain for parts of Labrador. Significant rainfall and well-above normal temperatures for several days caused dangerous snowmobiling conditions, and hence the eventual <u>cancellation of the Cain's Quest snowmobile race</u>. Mild conditions lingering from much of the winter meant very difficult ice conditions for much of coastal Labrador as well.

#### Difficult travel conditions through the season

Difficult ice conditions didn't just hamper travel in northern Labrador. Ice in the Strait of Belle Isle caused <u>numerous ferry delays and can-</u> <u>cellations</u> during the spring, some quite lengthy in duration. Sea ice wasn't the only problem for travel to and from the province though. While spring typically includes its share of days with fog in Newfoundland, a few prolonged spells caused significant travel disruptions, particularly in the St. John's area where <u>Growlers playoff games had to be postponed</u> due to these disruptions.

#### Early start to wildfire season

Wildfire season got off to an early and blistering start all across the country. While Newfoundland and Labrador had escaped much of the impact of this early start, there were a few fires which started on the island during the month of May. These were quickly contained, but considering the <u>wildfire situation still gripping the country</u>, it is an ominous sign of the potential for this year's fire season.

# Spring Season (Period: March-April-May) Temperature Outlook Performance:

The spring temperature forecast called for a low to moderate probability of warmer than normal temperatures for Labrador. In Newfoundland, near normal temperatures were forecast, but with a low probability.



Left: Probability of above, below and near normal: Produced February 28, 2023 – Right: Forecast Temperature Anomaly: Produced February 28, 2023

The temperature forecast worked out very well across the province. The only real "misses" occurred on the Northern Peninsula and southern Avalon Peninsula, where near normal temperatures were forecast, but above normal and below normal temperatures were observed, respectively.



Above: Observed Temperature Anomaly – Issued on June 1, 2023.

# Summer Season (Period: June-July-August) Temperature / Precipitation Outlook:

For the Summer season, warmer than normal temperatures are forecast for most of the province. For Labrador, there is a moderate to high probability of these conditions, while the probability is in the low to moderate range for most of the island. Most of eastern Newfoundland is the exception for this outlook. Near normal temperatures are forecast for this region, albeit with a low probability.

With regards to precipitation, guidance shows a low to moderate chance of below normal precipitation in western and northern Labrador. Elsewhere in the province, there is no clear signal in terms of precipitation. Once again, we are excluding the precipitation maps as they typically verify less than 40% of the time.



Left: Probability of above, below and near normal temperature: Produced May 31, 2023 – Right: Temperature Anomaly Outlook: Produced May 31, 2023

https://weather.gc.ca/saisons/index\_e.html

# **Atlantic Hurricane Season Outlook**

For the 2023 Atlantic Hurricane Season (June 1-November 30), NOAA is predicting a near-normal season (40% probability) for Tropical Storm formation in the Atlantic. On average about 35% of tropical storms in the Atlantic, enter the Canadian Response Zone. A rare subtropical storm formed in mid-January 2023 off the northeastern U.S. coast, but was short-lived and was not named. After seven consecutive seasons (2015-2021) with a named storm forming in May, this was the second season in a row without a named tropical storm forming prior to the official start of the hurricane season.



Summary infographic Summary infographic showing hurricane season probability and numbers of named storms predicted from NOAA's 2023 Atlantic Hurricane Season outlook

Source: NOAA/Canadian Hurricane Centre

# **Contact Information:**

David Neil - Warning Preparedness Meteorologist Email: David.Neil@ec.gc.ca Phone: (Office) 709-256-6631

# MSC PSO-Atlantic Ice:

Email: <a href="mailto:climateatlantic@ec.gc.ca">climateatlantic@ec.gc.ca</a>

Twitter: @ECCCWeatherNL

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