

Winter 2023/2024



Climate Trends and Variations Bulletin

This bulletin summarizes recent climate data and presents it in a historical context. It first examines the national average temperature for the season and then highlights interesting regional temperature information.

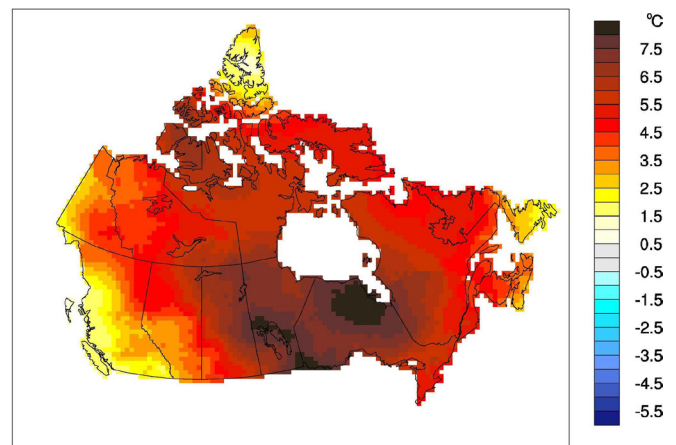
Over the past decade, precipitation monitoring technology has evolved and Environment and Climate Change Canada (ECCC) and its partners implemented a transition from manual observations to using automatic precipitation gauges. Extensive data integration is required to link the current precipitation observations to the long-term historical manual observations. The update and reporting of historical adjusted precipitation trends and variations will be on temporary hiatus pending the extensive data reconciliation, and will resume thereafter. ECCC remains committed to providing credible climate data to inform adaptation decision making, while ensuring the necessary data reconciliation occurs as monitoring technology evolves.

National Temperature

The national average temperature for the winter (December-February) of 2023/2024 was 5.2°C above the baseline average (defined as the mean over the 1961-1990 reference period), based on preliminary data, which is the warmest winter has on nationwide record since 1948 and 1.1°C higher than the previous warmest winter occurred in 2009/2010. The coolest winter occurred in 1971/1972 when the national average temperature was 3.6°C below the baseline average. The temperature departures map for the winter of 2023/2024 shows most of Canada experienced temperatures 4.0°C above the baseline average, most noticeably northern Ontario, central Manitoba (more specifically, the area around Lake Winnipeg), and

the southern border between Ontario and Manitoba experienced temperature departures at least 6.5°C significantly above the baseline average. The northern Nunavut, western Yukon, eastern Newfoundland and Labrador, and the majority of British Columbia experienced temperature departure between 2.5°C and 1.5°C above the baseline. Only a small area in northern Nunavut experienced temperature departures of less than 1.5°C.

Temperature Departures from the 1961–1990 Average – Winter 2023/2024

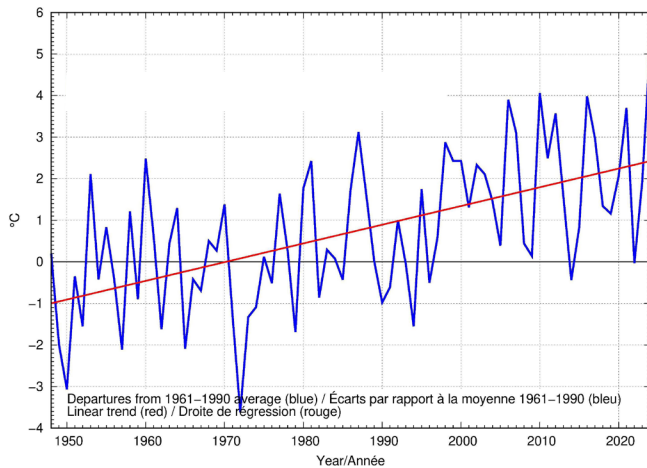


The time series graph shows that averaged winter temperatures across the country have fluctuated from year to year over the 1948–2024 period.



With the exceptions of 2014 and 2022, average winter temperatures have remained above the baseline average since 1996. The linear trend indicates that winter temperatures averaged across the nation have warmed by 3.6°C over the past 77 years, increased by 0.2°C compared to the last winter.

Winter National Temperature Departures and Long-term Trend, 1948–2024



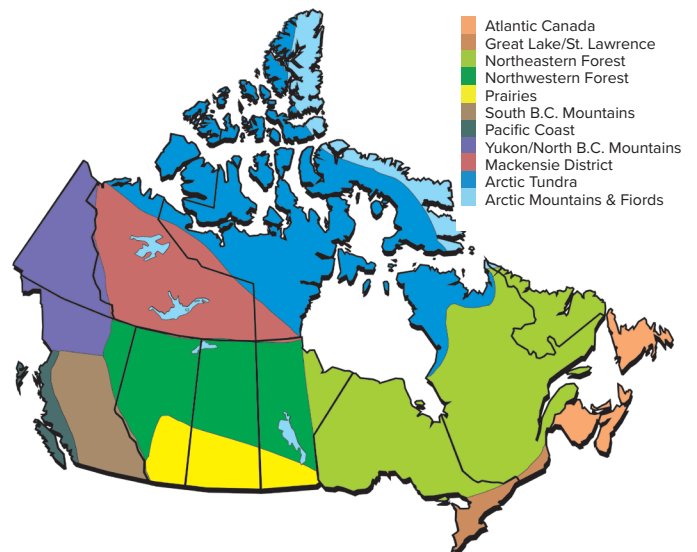
Regional Temperature

When examined on a regional basis, the average winter temperature for 2023/2024 were ranked as the warmest on record, since 1948, for two of the eleven climate regions, they were the Great Lake/St. Lawrence (at 5.4°C above the baseline average), and Northeastern Forest (at 6.3°C above the baseline average). Of the remaining nine climate regions, seven were ranked among the 10 warmest on record, which includes Northwestern Forest (2nd warmest at 6.2°C above the baseline average), Arctic Tundra (2nd warmest at 5.4°C above the baseline average), Atlantic Canada (4th warmest, at 3.4°C above the baseline average), Mackenzie District (4th warmest at 5.2°C above the baseline average), Arctic Mountain and Fjords (5th warmest at 3.8°C above the baseline average), Prairies

Region (5th warmest at 5.3°C above the baseline average) and South B.C. Mountains (10th warmest at 2.8°C above the baseline average). Average winter temperatures for all eleven climate regions exhibit positive trends over the 77 years of record. The strongest regional trend (+5.4°C) was observed in the Yukon/North B.C. Mountains region, while the weakest trend (+1.5°C) was found in the Atlantic Canada region. A table listing the regional and national temperature departures and rankings from 1948 to 2024 and another table summarizing regional and national trends and extremes summaries are available upon request at btvc-ctvb@ec.gc.ca.

Please note that the latest generation of CANGRD has now been adopted in the analyses of the Climate Trends and Variations Bulletin (CTVB). For more information, please visit the CTVB homepage.

The Map of Canadian Climate Regions



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