Winter 2022/2023

Climate Trends and Variations Bulletin

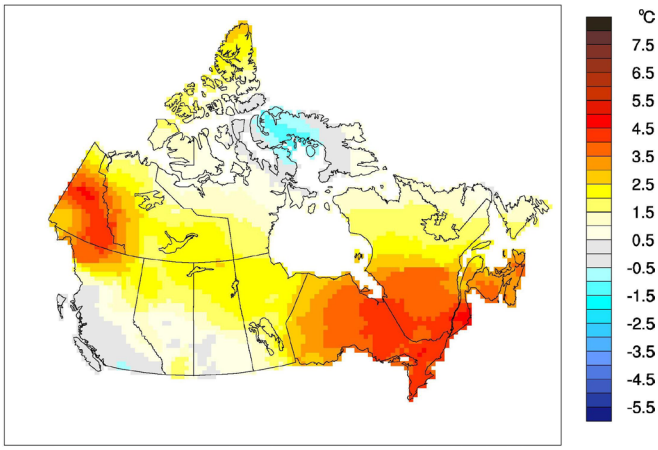
This bulletin summarizes recent climate data and presents it in a historical context. It first examines the national average temperature for the season and then highlights interesting regional temperature information.

Over the past decade, precipitation monitoring technology has evolved and Environment and Climate Change Canada 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

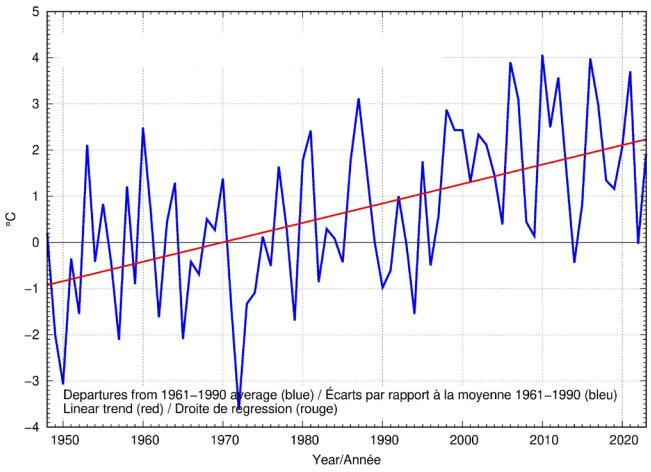
The national average temperature for the winter (December-February) of 2022/2023 was 1.9°C above the baseline average (defined as the mean over the 1961–1990 reference period), based on preliminary data, which has ranked the 19th warmest observed since nationwide recording began in 1948. The warmest winter occurred in 2009/2010, when the national average temperature was 4.1°C above the baseline average. 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 2022/2023 shows that most of Canada experienced temperatures at least 1.0°C above the baseline average. Areas in most of Yukon, western Northwest Territories, small regions of northern Nunavut, northern British Columbia, most of Ontario, central and southern Quebec, most of New Brunswick, Prince Edward Island and Nova Scotia experienced temperature departures more than 2.5°C above the baseline average. Most notably, temperatures more than 4°C above the baseline average were recorded in central and southern Yukon, eastern and southern Ontario, and southern Quebec. Conversely, northeastern Nunavut and small regions of southern British Columbia experienced temperatures at least 0.5°C below the baseline average. Temperatures were close to the baseline average in the southwestern British Columbia, small regions of central Alberta, parts of southern Saskatchewan, and northeastern Nunavut.

Temperature Departures from the 1961–1990 Average – Winter 2022/2023



The time series graph shows that averaged winter temperatures across the country have fluctuated from year to year over the 1948–2023 period. With the exception 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 3.4 °C over the past 76 years, increased by 0.1°C compared to the last winter.

Winter National Temperature Departures and Long-term Trend, 1948–2023



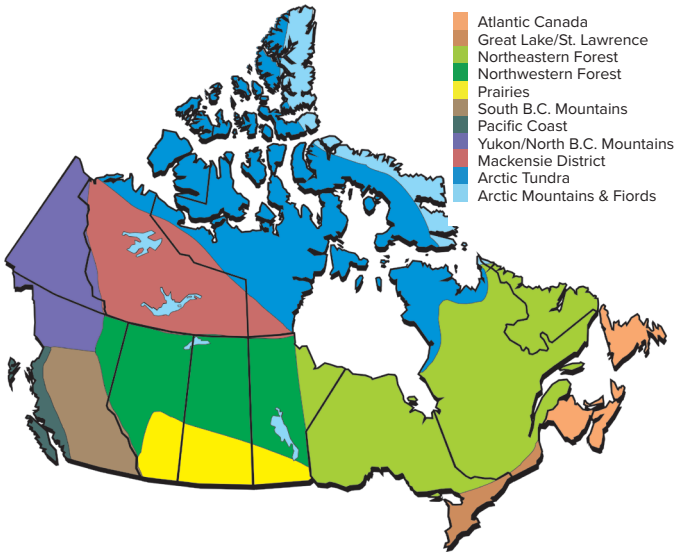
Regional Temperature

When examined on a regional basis, the average winter temperature for 2022/2023 was ranked among the 10 warmest on record, since 1948, for three of the eleven climate regions, which were Great Lakes/St. Lawrence (3rd warmest at 4.2 °C above the baseline average), Atlantic Canada (10th warmest at 2.5 °C above the baseline average), and Northeastern Forest (10th warmest at 2.9 °C above the baseline average). None of the eleven climate regions experienced a winter average temperature for 2022/2023 that was among the 10 coolest since 1948.

Average winter temperatures for all eleven climate regions exhibit positive trends over the 76 years of record. The strongest regional trend (+5.2 °C) was observed in the Yukon/North B.C. Mountains region, while the weakest trend (+1.3 °C) was found in the Atlantic Canada region. A table listing the regional and national temperature departures and rankings from 1948 to 2023 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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