Annual 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.

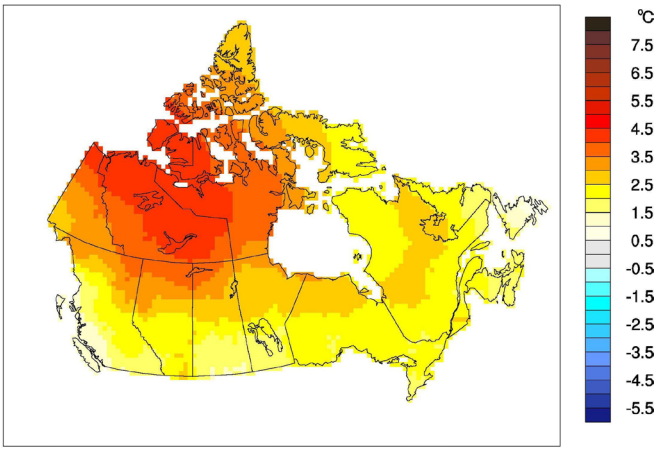
Over the past decade, precipitation monitoring technology has evolved and Environment and Climate Change Canada (ECCC) and its partners implemented a transition from manual observations to using automatic precipitation gauges. Extensive data integration is required to link the current precipitation observations 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 year 2023 (January to December) was 2.8°C above the baseline average (defined as the mean over the 1961–1990 reference period), based on preliminary data, which ranked the 2nd warmest observed since nationwide recording began in 1948. The warmest year occurred in 2010, when the national average temperature was 3.0°C above the baseline average. The coolest year occurred in 1972, when the national average temperature was 2.0°C below the baseline average. The temperature departures map shows that most of the Northwest Territories and western Nunavut experienced noticeably warmer temperatures by at least 4.0°C above the baseline average, while the surrounding region experienced warmer temperatures between 2.5°C – 4.0°C above the average.

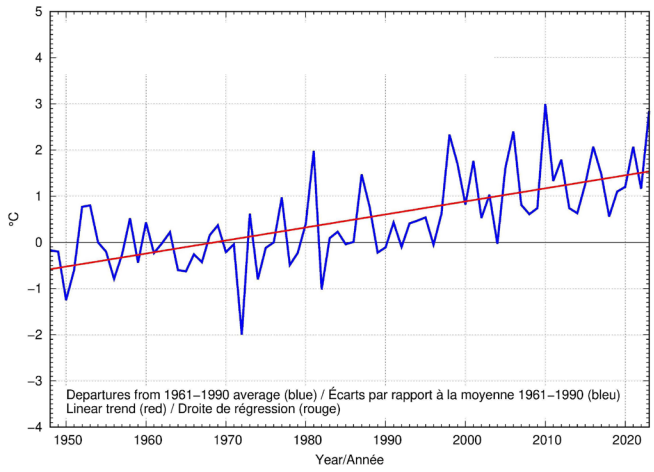
The rest of the country experienced temperatures more than 1.5°C above the average, except for the temperature in areas in eastern Newfoundland and Labrador and western British Columbia exceeded 0.5°C above the baseline average.

Temperature Departures from the 1961–1990 Average – Annual 2023

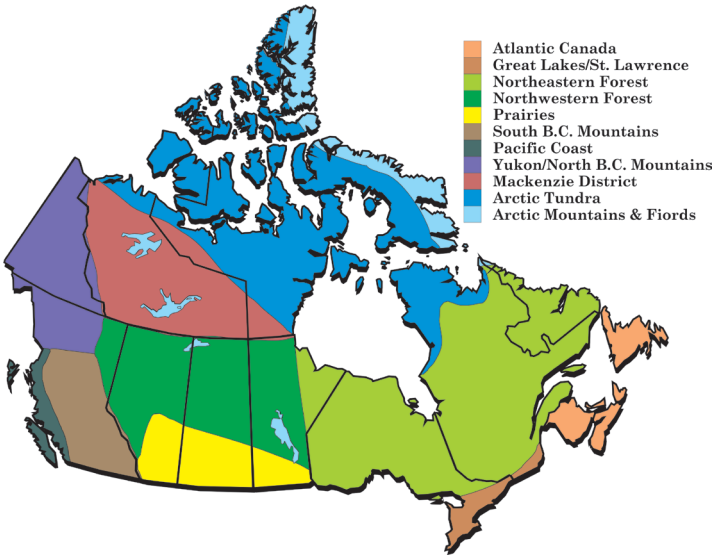


The time series graph shows that annual temperatures averaged across the country have fluctuated from year to year over the 1948–2023 period. Since 2005, average annual temperatures have remained above the baseline average. The linear trend indicates that annual temperatures averaged across the nation have warmed by 2°C over the past 76 years.

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



The map of Canadian Climate Regions



Regional Temperature

When examined on a regional basis, the average annual temperature for 2023 was ranked among the 10 warmest on record for every climate region since 1948: Mackenzie District (warmest at 4.0°C above the baseline average); Yukon/North B.C. Mountains (warmest at 3.3 °C above the baseline average); Northwestern Forest (warmest at 2.9°C above the baseline average); South B.C. Mountains (warmest at 2.1°C above the baseline average); Arctic Tundra (2nd warmest at 3.5°C above the baseline average); Great Lakes/St. Lawrence (3rd warmest at 2.1°C above the baseline average); Arctic Mountain and Fiords (4th warmest at 2.7°C above the baseline average); Northeastern Forest (4th warmest at 2.4°C above the baseline average); Prairies (4th warmest at 2.0°C above the baseline average); Pacific Coast (4th warmest at 1.4°C above the baseline average); Atlantic Canada (7th warmest at 1.6°C above the baseline average). Average annual temperatures for all 11 climate regions exhibit positive trends over the 76 yearsof record. The strongest regional trend (+2.8°C) was observed in the Mackenzie District region, while the weakest trends (+1.2°C) were found in the Atlantic Canada. 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.

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