Annual 2024

Climate Trends and Variations Bulletin

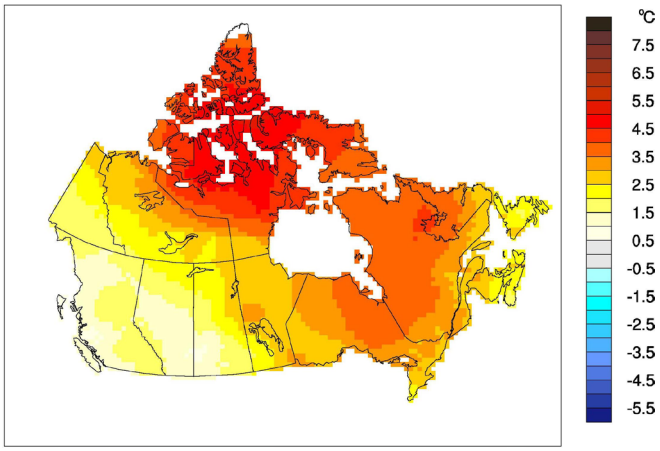
This bulletin summarizes recent climate data and presents it in a historical context. It first examines the national average temperature for the year and then highlights interesting regional temperature information.

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

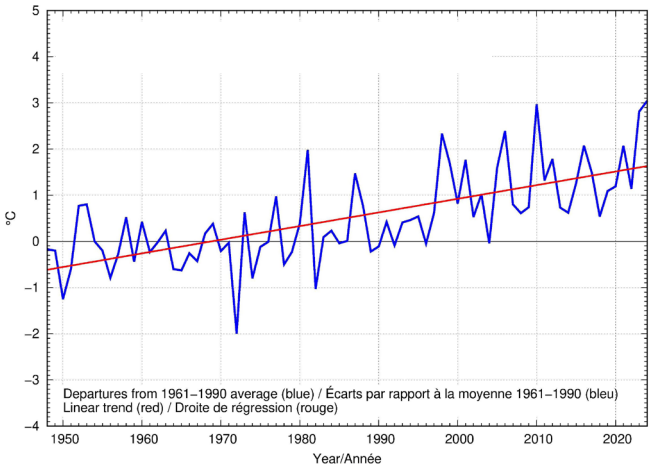
The national average temperature for the year 2024 (January – December) was 3.0°C above the baseline average (defined as the mean over the 1961–1990 reference period), based on preliminary data. This makes it tied as the warmest year since nationwide recording began in 1948, matching the previous record of 3.0°C set in 2010. The coldest 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 Canada experienced temperatures at least 1°C above the baseline average. Significant temperature departures greater than 3°C above the baseline average were recorded in Nunavut, most of Ontario, and Quebec. Meanwhile, the Maritime provinces, Newfoundland and Labrador, Manitoba, and the Yukon territory experienced temperature departures between 2°C and 3°C above the baseline. The western provinces including Alberta, Saskatchewan, and British Columbia observed temperature departures between 1°C and 2°C above the baseline average. There were no notable national observations of regional temperatures falling below the average of the 1961–1990 reference period.

Temperature Departures from the 1961–1990 Average – Annual 2024



The time series graph shows that average annual temperatures across the country have fluctuated annually over the 1948–2024 period. Apart from 1996 and 2004, temperature departures above the baseline average have been observed in the previous three decades. The linear trend indicates that average annual temperatures across the nation have warmed up by 2.1°C over the past 77 years.

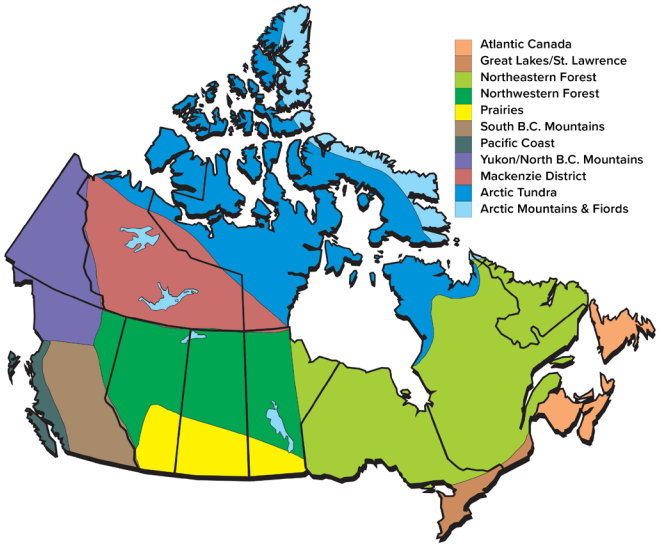
Annual National Temperature Departures and Long-term Trend, 1948–2024



Regional Temperature

Regionally, nine of the eleven climate regions experienced average annual temperatures which rank among the top 10 warmest since 1948. Three regions had their warmest year on record: the Great Lakes/ St. Lawrence (the warmest at 2.9°C above the baseline average); Northeastern Forest (the warmest at 3.4°C above the baseline average); and Atlantic Canada (the warmest at 2.3°C above the baseline average). The other high-ranking regions were: the Arctic Mountains and Fiords (the 2nd warmest at 4.2°C above the baseline average); Arctic Tundra (the 2nd warmest at 4.2°C above the baseline average); Northwestern Forest (the 4th warmest at 2.2°C above the baseline average); Mackenzie District (the 5th warmest at 2.8°C above the baseline average); the South B.C. Mountains (the 6th warmest at 1.6°C above the baseline average); and the Prairies (the 8th warmest at 1.7°C above the baseline average). None of the eleven climate regions recorded average annual temperatures in 2024 that ranked among the 10 coolest since 1948. All eleven climate regions exhibited positive trends for yearly temperatures over the past 77 years. The strongest trend is observed in the Mackenzie District (+2.9°C), while the weakest trend is observed in Atlantic Canada (+1.3°C). 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.

The map of Canadian Climate Regions



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