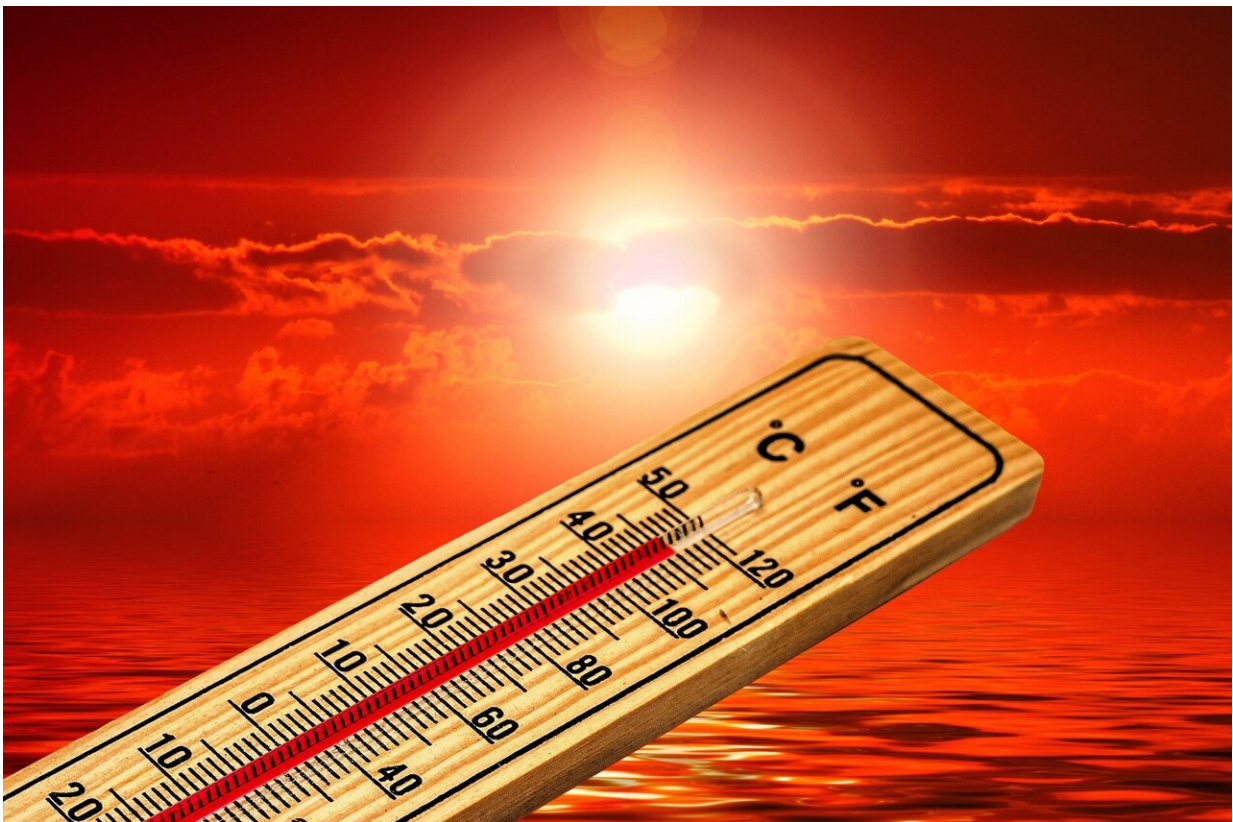


# Attributing Canada's June heat wave to climate change is an important step in adapting to a warmer world

July 17 2024, by Gordon McBean

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This June saw major heat waves across Canada with peak temperatures—measured over a three-day period—of [7.4°C in eastern](#)

[Ontario, 10.7°C in southern Québec, 7.2°C in northern Québec and 10.6°C in Atlantic Canada](#). On June 19, more than 100 locations across Canada set new heat records for that day, with Bathurst, N.B., being the hottest at 37.6°C. The year 2023 was the globally hottest year on record.

The [2021 Intergovernmental Panel on Climate Change Assessment Report](#) states: "Human activities, principally through emissions of greenhouse gases, have unequivocally caused global warming" and that "human-caused [climate change](#) is already affecting many weather and [climate extremes](#) in every region across the globe."

However, just what are the scientific, policy and societal links between the June 2024 heat waves and climate change? Was the heat wave just a normal climatic variation, or something which can be attributed to human-caused climate change?

For the first time Environment and Climate Change Canada (ECCC) has [drawn a clear link between heat waves and climate change](#) using this June heat wave as a key data set. These findings, and how they were made, have the potential to fundamentally shift how we best adapt to a warming world.

## **Finding attribution**

The ECCC's Rapid Extreme Event Attribution system is designed to examine the links between human-caused climate change and the increased risk of heat waves and [extreme cold](#) and precipitation events. However, attribution is not an easy task.

The ECCC uses robust climate models to simulate both the ["climate of the 1800s, based on levels of atmospheric gases that existed before the Industrial Revolution"](#) and the climate of today with present greenhouse gas concentrations. Comparing these two models allows researchers to

understand how climate change "has changed the chances of such a heat wave occurring" from the 1800s to the present day.

This system allows near-instant attribution in the event of extreme weather events. Indeed, the European research group World Weather Attribution has said that "[Canada appears to be the first nation to commit to doing so on an ongoing basis.](#)"

The ECCC attribution analyses for the June 2024 heat waves concludes that "[the event was made much more likely by the human influence on the climate.](#)" It is clear evidence of the connections between climate change and extreme weather events.

By learning how much human-caused climate change affects extreme weather events, the ECCC will enable better preparation for changing weather patterns while also aiding adaptation efforts.

Actions to prepare Canadians for [extreme weather events](#), like heat, and taking the best steps to reduce their climate vulnerability will only become more important in the coming decades. The impacts of climate change will be felt by all, however [extreme heat has a particularly acute impact upon those aged 65 and older](#) and those who work in the service sector.

## Addressing the impacts

[Over the past 12 months, human-caused climate change added, on average, 26 more days of extreme heat across the globe](#), according to an International Federation of Red Cross and Red Crescent Societies report. It is further estimated that 6.8 billion people experienced at least 31 days of extreme heat, with tens of thousands of people dying. The real number may be much higher, because unlike sudden "event" weather disasters, [heat waves](#) kill more slowly and less obviously, depending on

pre-existing health conditions. Extreme heat can also affect mental health.

The European Court of Human Rights confirmed that climate change is intimately linked to human rights. Moreover, the court also ruled that all European governments are accountable to adopt more rigorous measures to combat climate change, and that citizens have a right to sue their governments to hold them to account.

Climate change is impacting every aspect of human life and the risks will continue to grow with increasing frequency and severity. A 2021 [synthesis report](#) on Building Climate Resilient Communities shows that, while some communities in Canada have prepared high level adaptation plans, very few have detailed implementation strategies with established funding frameworks and Canada is lagging in climate change adaptation.

The climate crisis needs to be reviewed from all perspectives, including that of social scientists. The attribution program can help provide needed information in real time, which will help the public and climate experts design and implement more effective action.

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