

# Q&A: British Columbia set for a warm summer, but repeat of 2021 heat wave unlikely

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B.C. is unlikely to see another heat wave on the scale of the devastating

2021 event this summer, but it is likely to be warmer than average.

That's according to Dr. Rachel White, an assistant professor in the department of earth, ocean and atmospheric sciences. In this Q&A, she discusses the [forecast](#) for the summer, the difficulty of predicting extreme weather events, and how [climate change](#) is affecting our seasons.

## **What do you think is in store weather-wise this summer?**

Predicting the weather on seasonal time scales is incredibly difficult. Weather forecasts are accurate out to around 10 days. Beyond that, forecasts are based on the probability of something happening relative to average. There are aspects of the climate system we can observe now that we can use to estimate whether upcoming seasons will be hotter or colder than average.

Thinking about the coming summer, we can look at the underlying change in [global temperature](#). The world and B.C. are getting warmer, so there's more chance of a warmer summer, and therefore heat waves, now than there was 50 years ago. Forecast models are also predicting a shift away from the La Niña conditions of the past three years and into El Niño conditions, which feature warmer waters in the tropical Pacific. That typically means [warmer temperatures](#) globally, and often here in B.C. too, although in B.C. we see most of the El Niño impact in our colder months.

Chances are high that we'll have a warmer than average summer—that's currently what the seasonal forecasts are showing. In turn, this means the chance of a [heat wave](#) is higher than average.

However, it's important to remember these things are still dictated by the weather, which is a chaotic system where tiny changes can grow to enormous differences, like the tale of a butterfly flapping its wings and causing a storm to develop. It's essentially impossible to know what weather we'll definitely have this summer.

## **How is climate change affecting heat waves and wildfires?**

The main way is the thermodynamic effect—humans have warmed the world, so all temperatures are warmer, including the warmest temperatures. We have a lot of certainty around this, including recorded [surface temperatures](#) going back hundreds of years. Warmer temperatures mean heat waves will happen more frequently, and our hottest temperatures will also increase. When things are hotter, that also makes conditions worse for wildfires, although other factors play into wildfire risk as well, including rainfall and winds, as well as [human factors](#) including forest management.

A second way climate change might be affecting [heat waves](#) is through atmospheric dynamics, or how the atmosphere flows. As we're warming the globe, not all parts are warming at the same rate. For example, land is warming faster than oceans. These differences affect the development of weather systems—but exactly how, and by how much, is still uncertain. Some of this uncertainty is because we only have about 40 years of atmospheric flow data gathered by satellites.

The [worst case scenario](#) is that, in addition to the thermodynamic effect, changes in dynamics also make [extreme weather events](#) more frequent and intense, making this change even larger. Whether we should expect this is something we're currently investigating.

## Are we likely to see a heat wave like the one in 2021 again?

I think it's very unlikely we'll see an event of that magnitude again in the next few decades. That was a very rare event, expected to occur somewhere between once every 1,000 years and once every 100,000 years. That doesn't mean it can't happen again soon, but the probability is low. Heat waves less extreme than that event are likely though, and will still have significant impacts.

Provided by University of British Columbia

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