



The Climate Atlas of Canada

Student Handbook

● Fort McMurray

● Grande Prairie

● Edmonton

● Saskatoon

● Calgary

● Regina

● Winnipeg

Vancouver

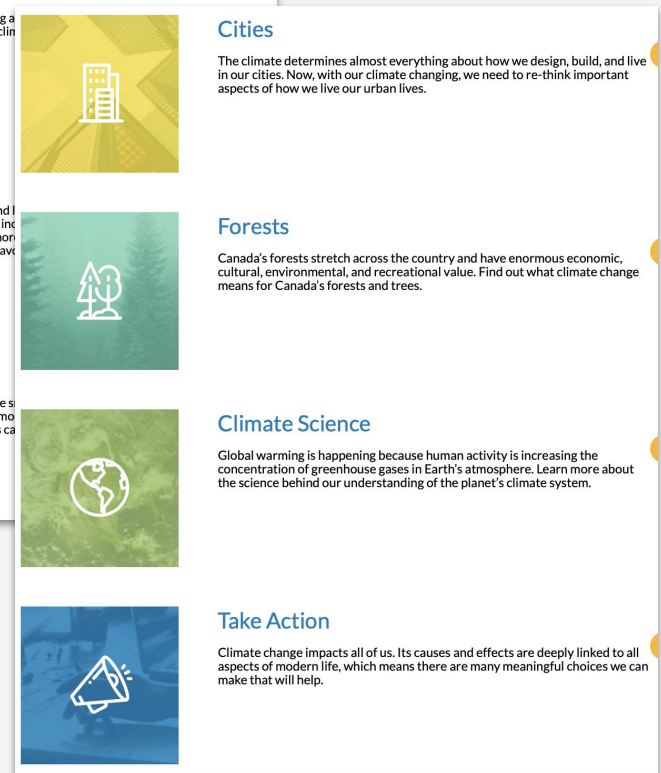
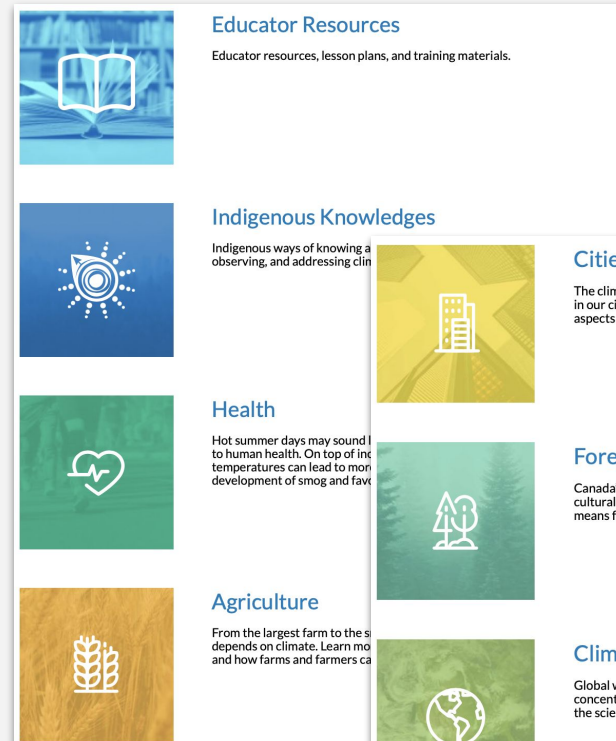
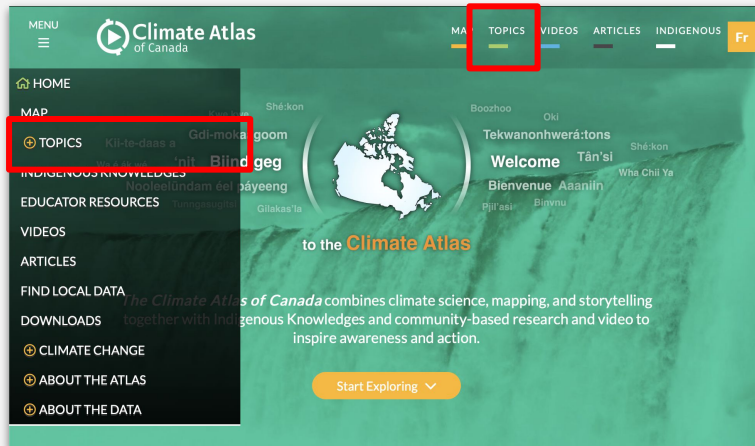


**Prairie
Climate Centre**

From Risk to Resilience

Climate Change Topics

The topics page allows users to narrow down the climate change content they want to see based on the listed topics they are interested in exploring



Climate Change Content

Articles and videos are available on numerous climate change topics that simplify complex scientific information.

MAP

TOPICS

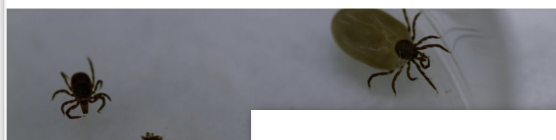
VIDEOS

ARTICLES

INDIGENOUS

Articles

Lyme Disease Under Climate Change



When the three hottest months of the high-summer season arrive, with pests - be it those pesky mosquitoes when they bite or ticks in the forest. But in a warming world, these pests are also becoming more of a problem.

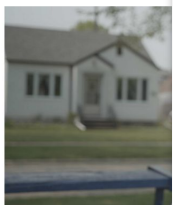
Infectious diseases carried by insect vectors are also becoming more of a problem in part to climate change.

One tick-borne disease of particular importance is Lyme disease, commonly spread by blacklegged ticks (also known as deer ticks).

Read more: What is Lyme Disease?

Though he spends his summers out cutting wood, Rick thought much about Lyme disease. But one day he was feeling sick.

"I was just achey and inflamed all over. I had it over my back..." Rick explained. "It wasn't real time." After receiving tests at several hospitals, he was diagnosed with Lyme disease.



Manitoba Rick Holmes contracted Lyme disease after gathering wood.

Read more: What does a blacklegged tick look like?

Climate change is increasing the risk of Lyme disease.

Greenhouse Gases



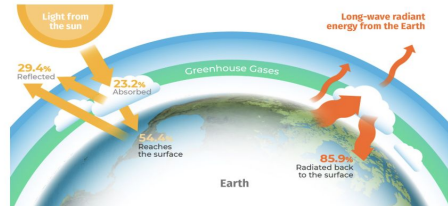
Earth's atmosphere is made up of many different gases, some of which are "greenhouse" gases. They are called that because they effectively act like a greenhouse or a layer of insulation for Earth: they trap heat and warm the planet.

For the past couple of hundred years, human activities (such as burning coal to generate electricity and fuelling our vehicles with gas and diesel) have been changing the atmosphere by adding a huge volume of greenhouse gases. This has caused the greenhouse effect to become stronger, and is making the planet warmer.

The "greenhouse effect"

Sunlight warms the planet. This heat naturally tries to escape back to space. But because our planet has an atmosphere containing greenhouse gases—especially carbon dioxide, methane and water vapour—some of that heat is trapped by the atmosphere.

This effect has a huge influence on our planet. Earth's average overall temperature is about 15 °C. If our planet didn't have its atmosphere to retain some of the sun's energy, Earth's average temperature would be more like -18 °C, which is much too cold to sustain life as we know it. [1]



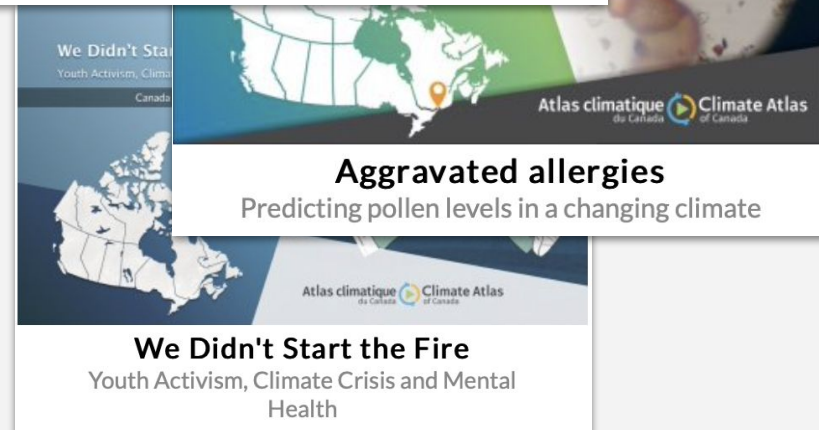
One way to understand how the greenhouse effect works is to think of the atmosphere as a bathtub, where the water pouring in from the tap is like the energy coming in from the sun, and water going down the drain is like heat radiating out into space again. If the same amount of water goes down the drain as comes in from the tap, then the water level stays the same. However, if the drain is closed or blocked, more water will come into the tub than drains out, and the tub fills more and more, until it overflows. As we add

Videos



Quality Control
Contrôle de la qualité
Ottawa, Ontario

Atlas climatique du Canada
Climate Atlas of Canada

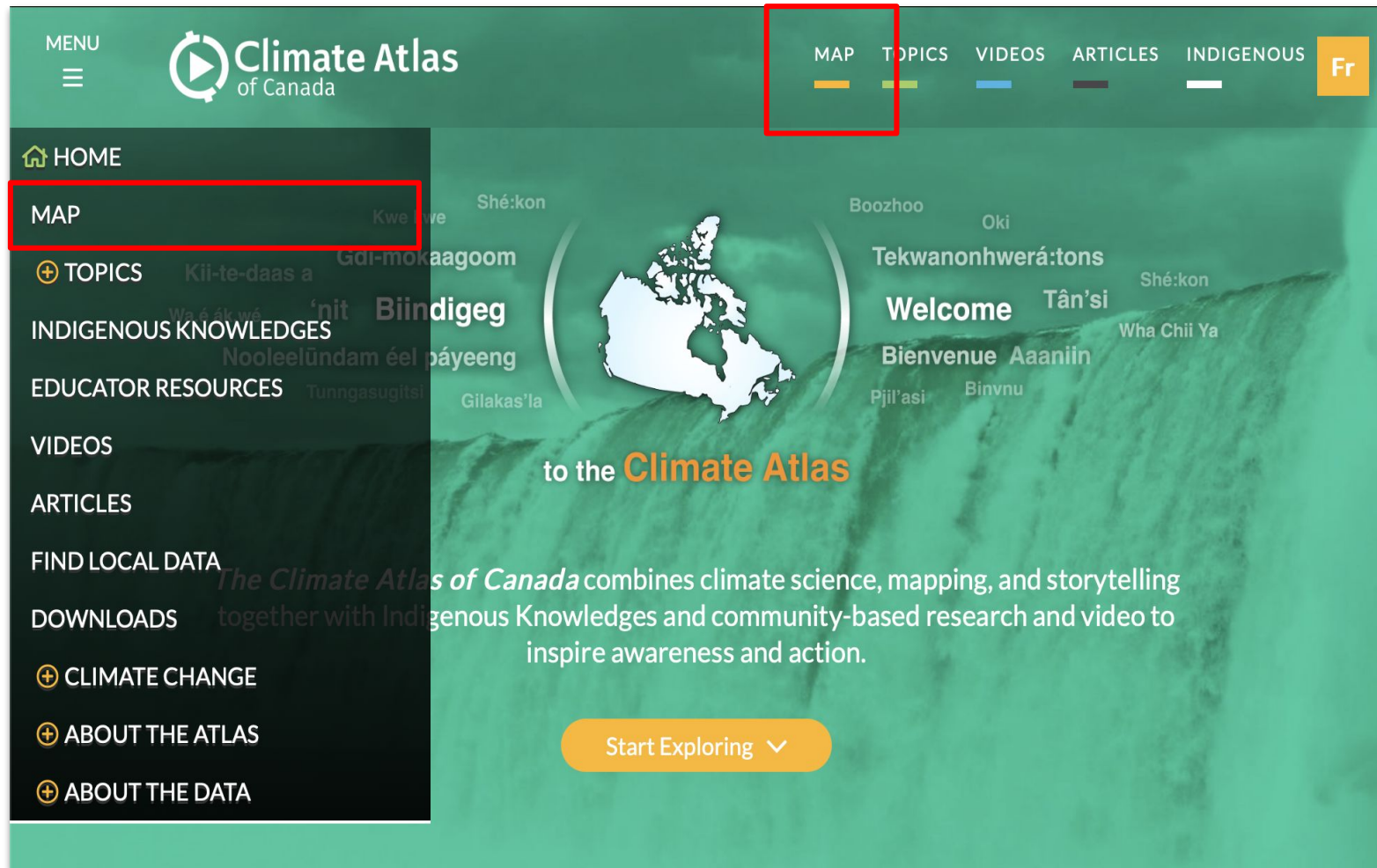


We Didn't Start the Fire
Youth Activism, Climate Crisis and Mental Health
Canada

Atlas climatique du Canada
Climate Atlas of Canada

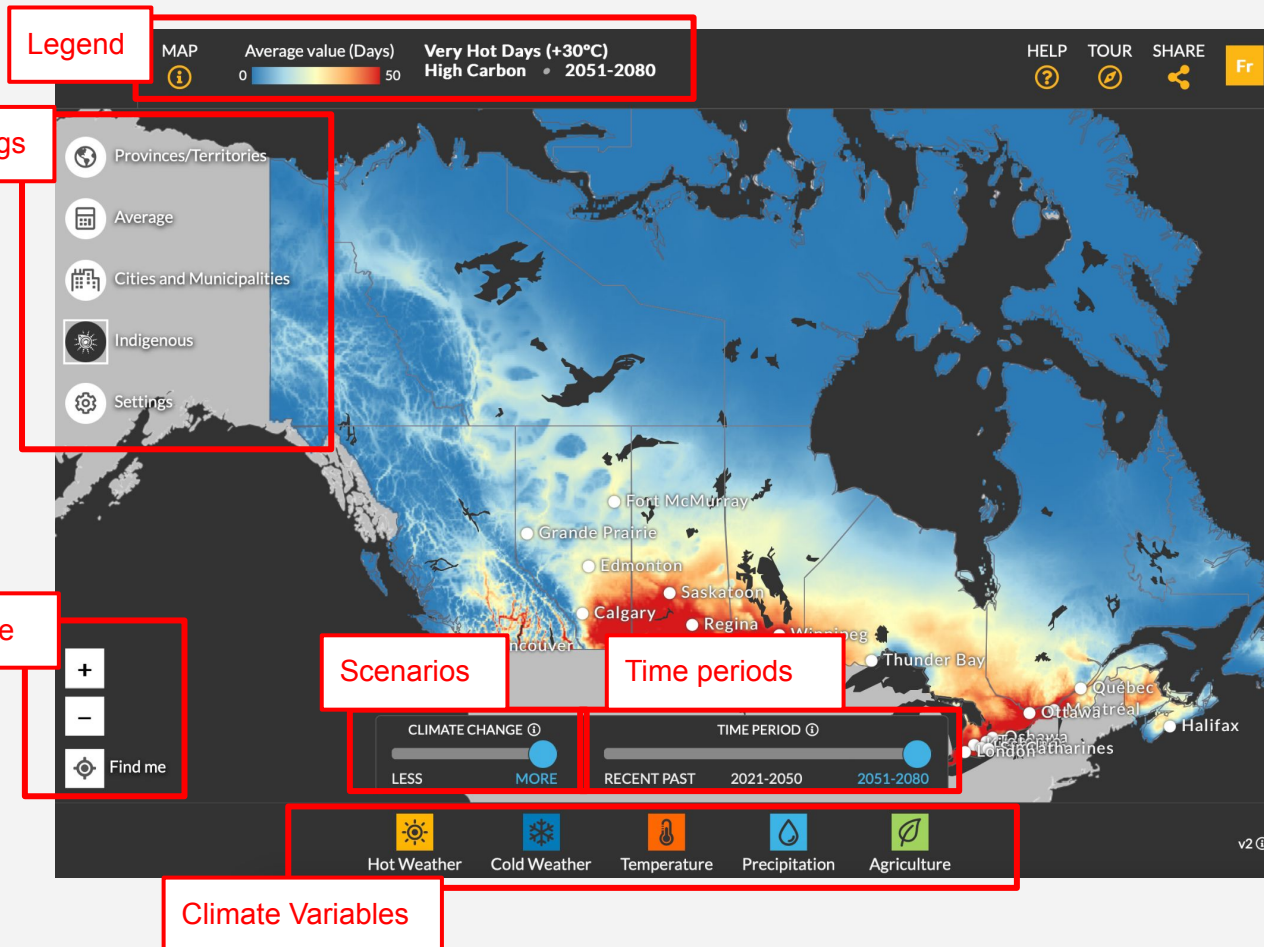
Navigating the Atlas

How to get to the interactive map



Navigating the Atlas

The Climate Atlas is an interactive map that allows users to see how the climate is projected to change through time across Canada



See next pages for breakdown of map features

Navigating the Atlas

1

Legend & Title

The **legend** shows what the colours mean & the **title** explains what variable is being viewed

2

Map settings

Select the scale you want for regions shown on the map

Choose between average values or the amount of change between recent past and a future time period



Navigating the Atlas

3 Climate Scenarios

More Climate Change, or "High Carbon" Scenario

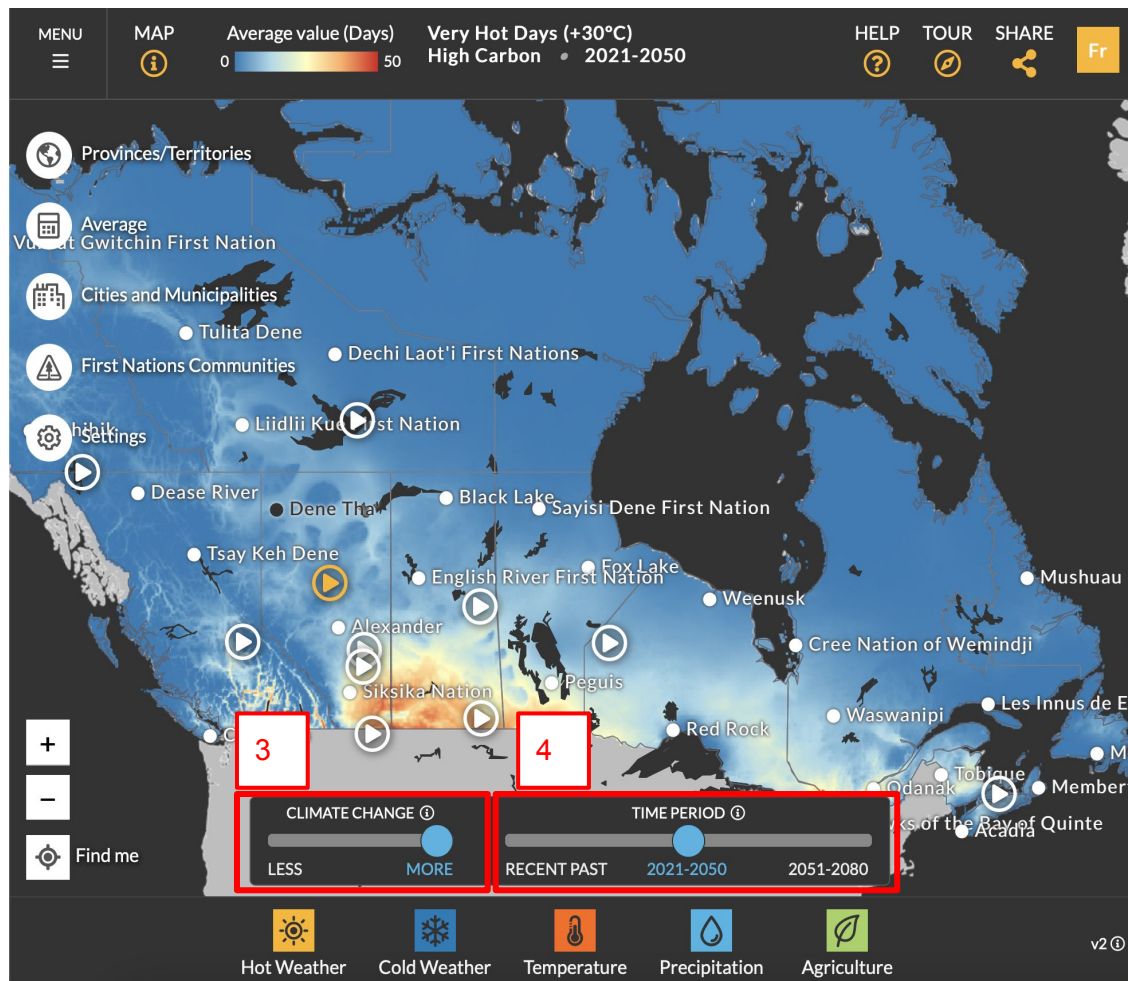
Less/Reduced Climate Change, or "Low Carbon" Scenario

4 Time Periods

The Recent Past (1976-2005) - Maps and data describe climate conditions in the recent past.

The Immediate Future (2021-2050) - Most Canadians will see these changes come to pass.

The Near Future (2051-2080) - Younger Canadians will likely experience all of these changes,



Navigating the Atlas

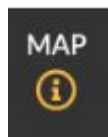
5

Climate Variables

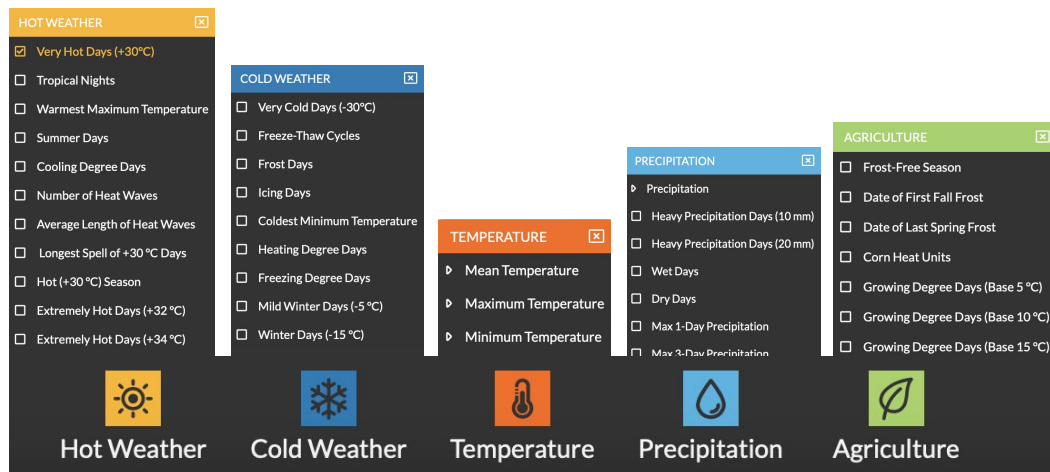
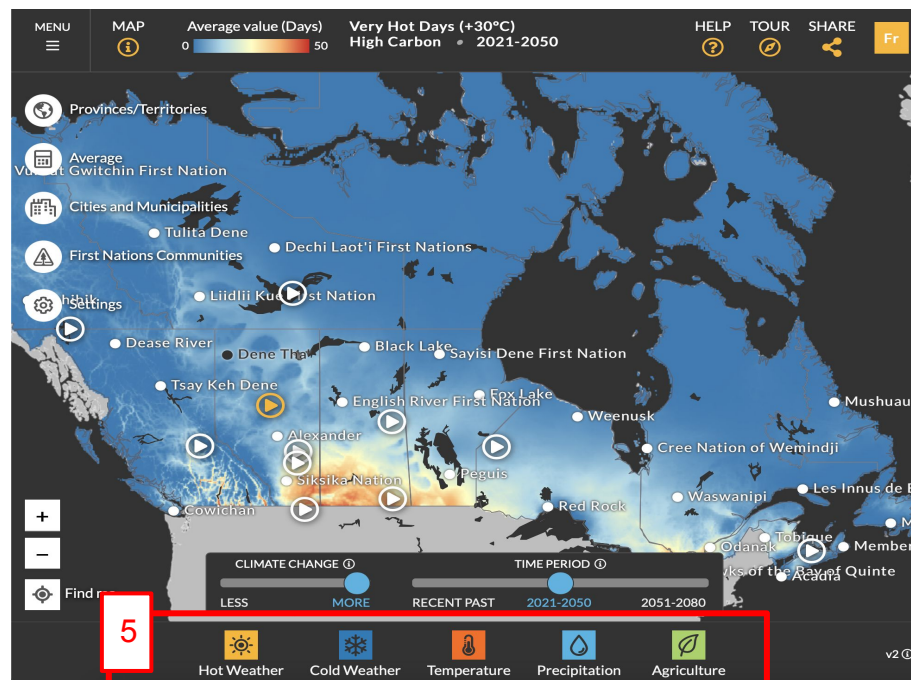
Variables are broken down into 5 categories:

- Hot weather
- Cold weather
- Temperature
- Precipitation
- Agriculture

Tip:

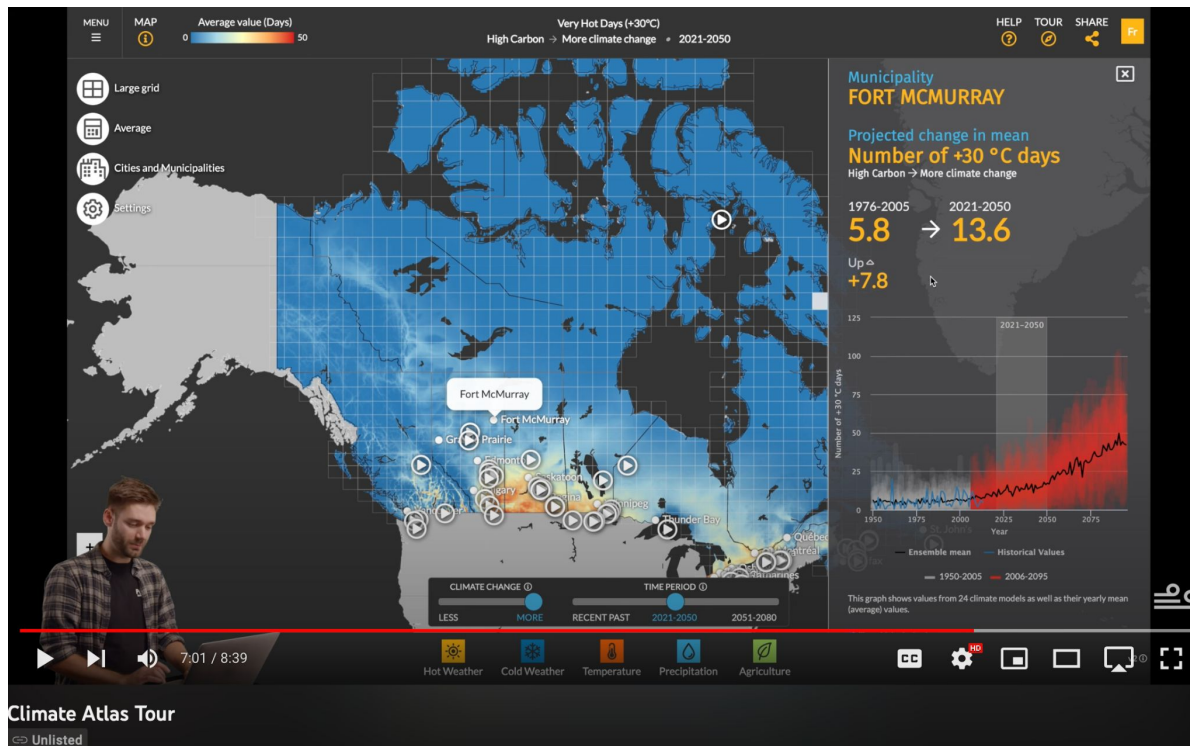


Use the map info icon (top left) to learn more about the variable you have selected




Watch

The Climate Atlas of Canada Tour




Practice

Example: TROPICAL NIGHTS in OTTAWA, ON under MORE CLIMATE CHANGE

Variable Category	Variable	Time Period			Difference between recent past (1976 - 2005) and near future (2052 - 2080)
		Recent past (1976 - 2005)	Immediate future (2021 - 2050)	Near future (2052 - 2080)	
 Hot Weather	Tropical Nights				

Practice - Answers

Example: **TROPICAL NIGHTS** in **OTTAWA, ON** under **MORE CLIMATE CHANGE**

Variable Category	Variable	Time Period			Difference between recent past (1976 - 2005) and near future (2052 - 2080)
		Recent past (1976 - 2005)	Immediate future (2021 - 2050)	Near future (2052 - 2080)	
 Hot Weather	Tropical Nights	4.5 nights	15.2 nights	35.1 nights	30.6 nights

Why does this matter?

Hot summer days are physiologically stressful, especially if overnight temperatures do not provide cooling relief. Many people are at risk from suffering heat exhaustion or heat stroke when nighttime temperatures fail to drop below 20 °C.

Elderly people, the homeless, and those who live in houses or apartments without air conditioning are especially vulnerable during these heat events, particularly if they last for more than a few days.