



The Canadian Centre for Climate Services & ClimateData.ca: Prairie Approaches to Climate Resilience

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Casey Clunas, Policy Analyst, Canadian Centre for
Climate Services

Environment and Climate Change Canada

What to expect

OUTLINE FOR TODAY

Climate data, hazards, and risk

Introduction to the CCCS

Introduction to ClimateData.ca

Climate data in action

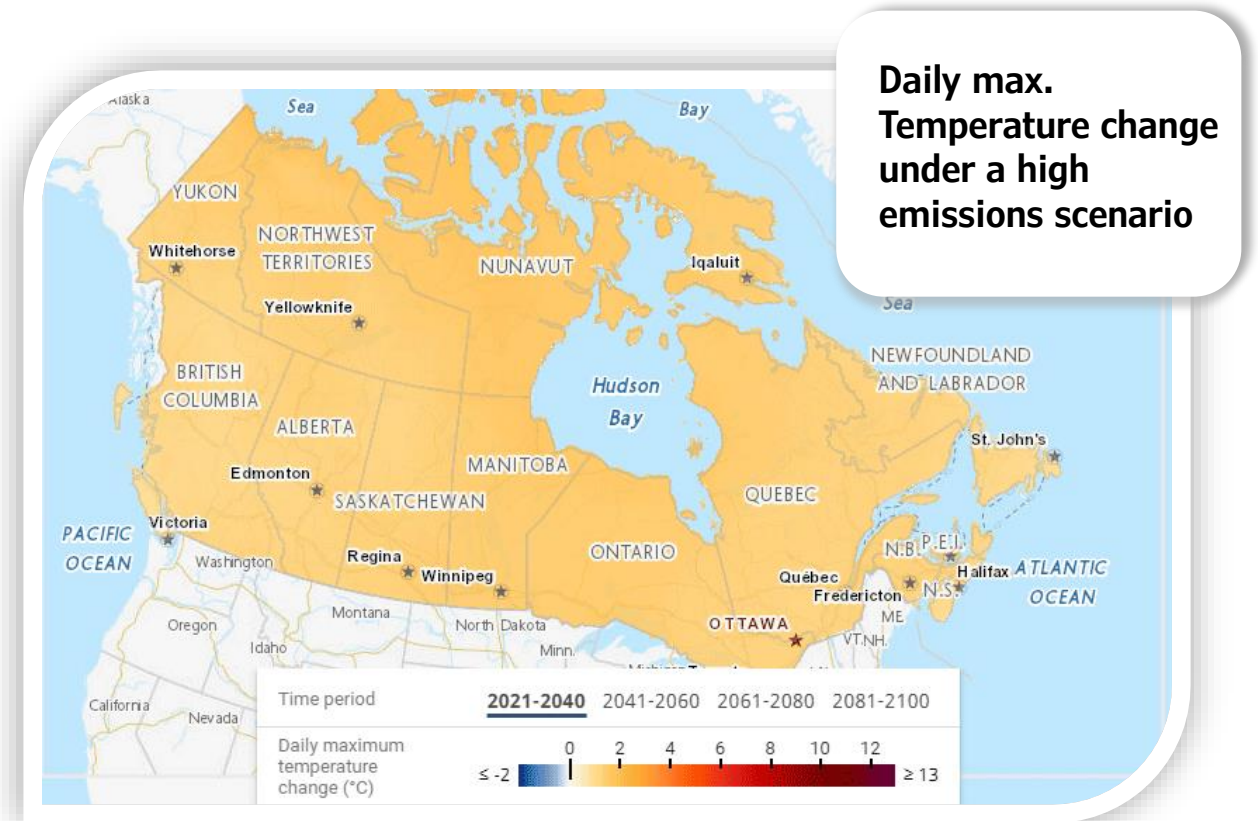
Data, hazards, and risk

HOW CLIMATE DATA CAN INCREASE RESILIENCE

Climate has already changed

AND THE FUTURE IS NOT CERTAIN

- Climate variables like precipitation and temperature are changing, and will continue to change into the future
- Climate hazards relate to increasing risk and the need for climate-informed risk management
- Climate data tools and services are on hand to support you along the journey to increased resilience

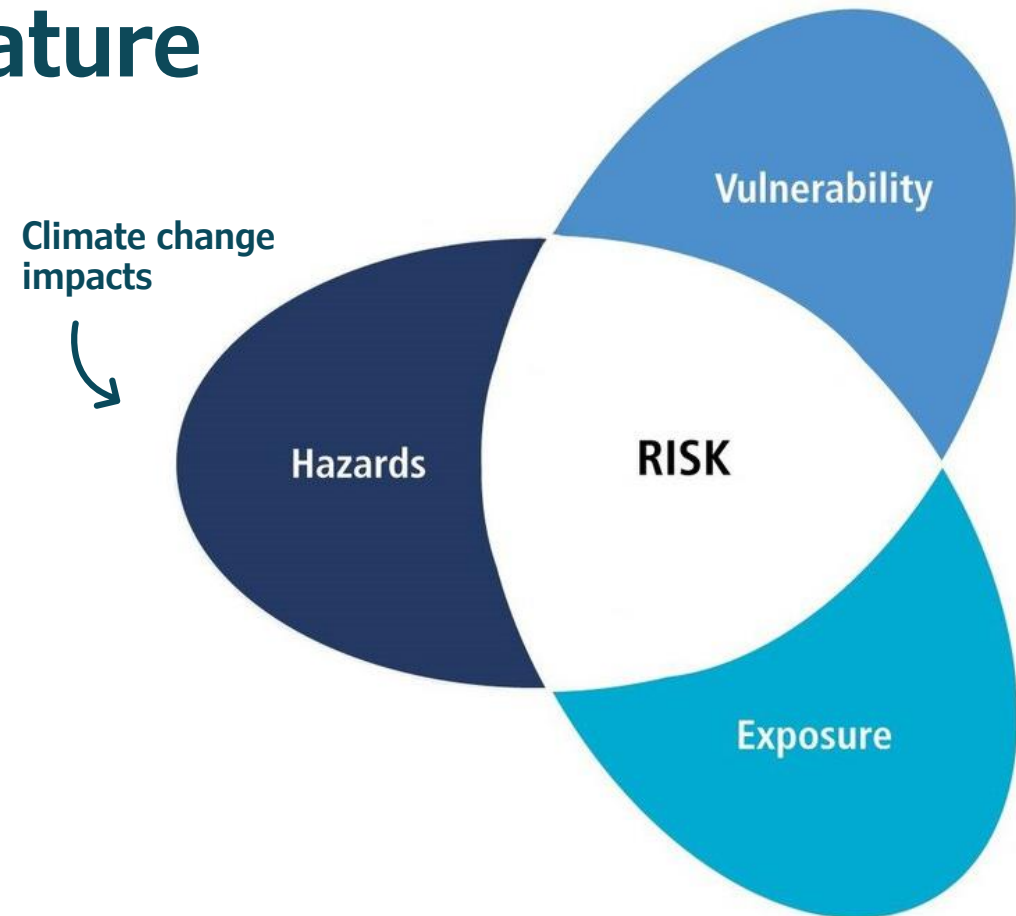


Source: climate-viewer.canada.ca

Precipitation and temperature

CLIMATE VARIABLES – HAZARDS - RISK

- Risk is made up of multiple factors
- Climate change is one factor impacting hazards
- Understanding how variables like precipitation and temperature have changed, and how they could change in the future, is key to assessing vulnerability, exposure, and ultimately risk

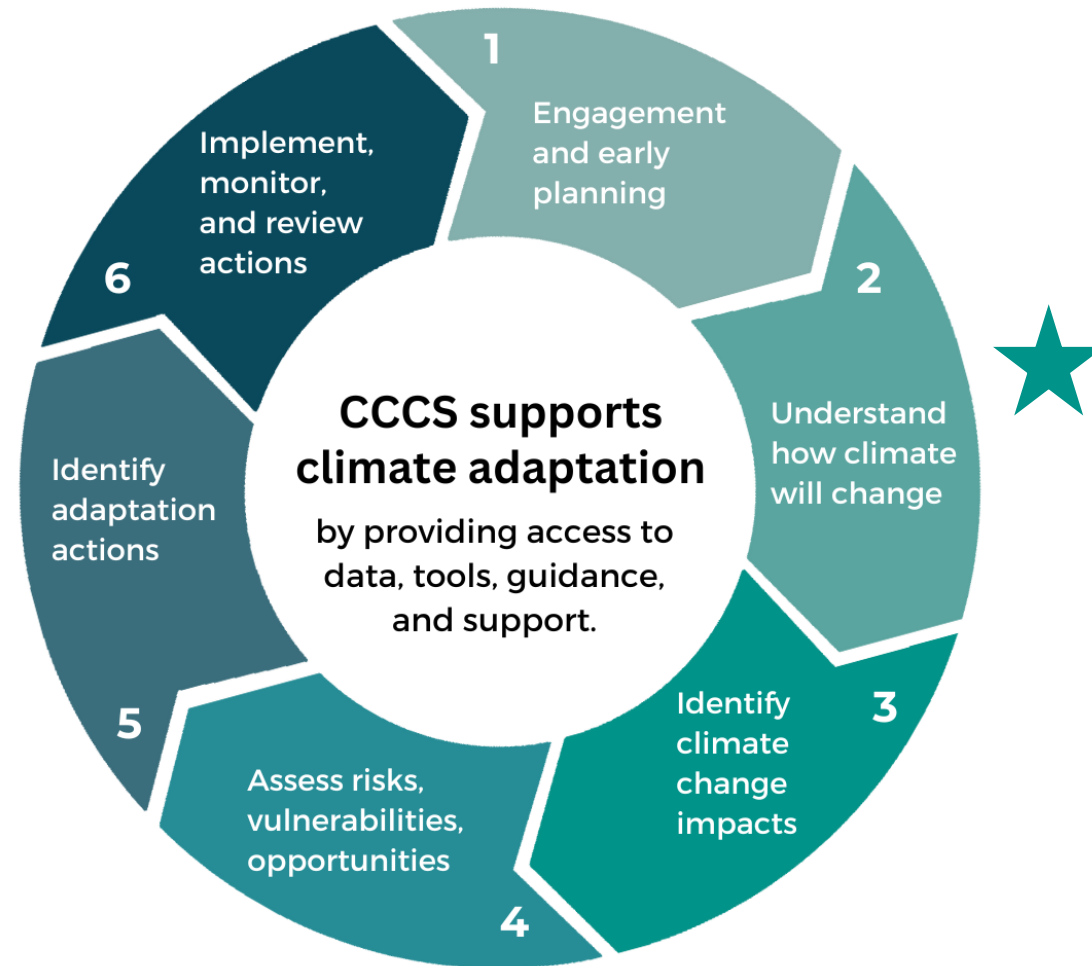


Source: IPCC 2018

Climate data informs adaptation

KEY TAKE-AWAYS

- Climate change is here, and it is accelerating
- Risks far out-pacing our systems' natural ability to adjust
- Adaptation isn't just an issue for the future, but for practitioners today
- You're not alone in moving forward along the adaptation cycle – act now!



Intro to the CCCS

HOW WE CAN HELP

“

The Canadian Centre for Climate Services (CCCS) provides Canadians with information and support to consider climate change in their decisions.

MISSION OF THE CCCS

”

Introduction to the CCCS

OUR ROLE

Who we are:



We provide Canadians with information and support to consider climate change in their decisions



ccsc-cccs@eg.gc.ca
www.canada.ca/climate-services

What we do:



- Increasing **awareness** and access to climate data
- Providing training and **guidance**
- **Engaging** with users to understand needs
- Developing **new products** collaboratively



National network

CLIMATE SERVICES IN CANADA

- Provide national leadership toward the **development and delivery of country-wide downscaled, sector-specific data products**
- Coordinate with regional climate hubs



Eco-system of portals

SERVING A RANGE OF USER TYPES

Each portal brings together different data sets and tools

Different portals cater to different kinds of users



PACIFIC CLIMATE IMPACTS CONSORTIUM



ClimEX *And more*



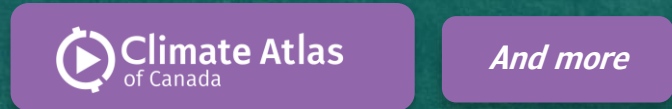
DESIGN VALUE EXPLORER



ClimateData.ca



Prairie Climate Centre



Climate Atlas of Canada *And more*



Environment and Climate Change Canada



Climate Viewer

And more



OURANOS



CLIMATE PORTRAITS

And more



PAVICS

ClimateData.ca

DATA AND TOOLS



ClimateData.ca

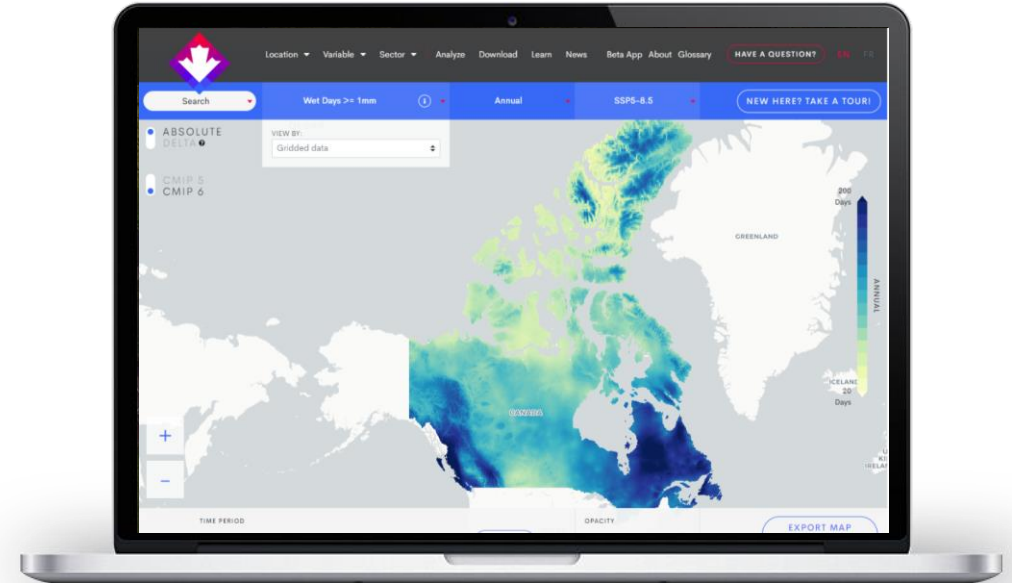
Delivered in partnership with regional climate organizations and a research institute specialized in information technology

- **Explore** Canada-wide historical and future climate data
- **Customize** raw data analysis quickly and efficiently
- **Learn** about how to understand and interpret future projections
- **Get inspired** by sectors who are already applying climate data to adaptation efforts

HIGH-RESOLUTION DATA

LEARNING ZONE

NEWS & UPDATES





- Select a variable, including historical station data and IDF curves
- Select Annual, seasonal or month time steps
- Select emission scenario
- Download data
- Download chart image
- Adjust time scale to customize output

FIND LOCAL DATA

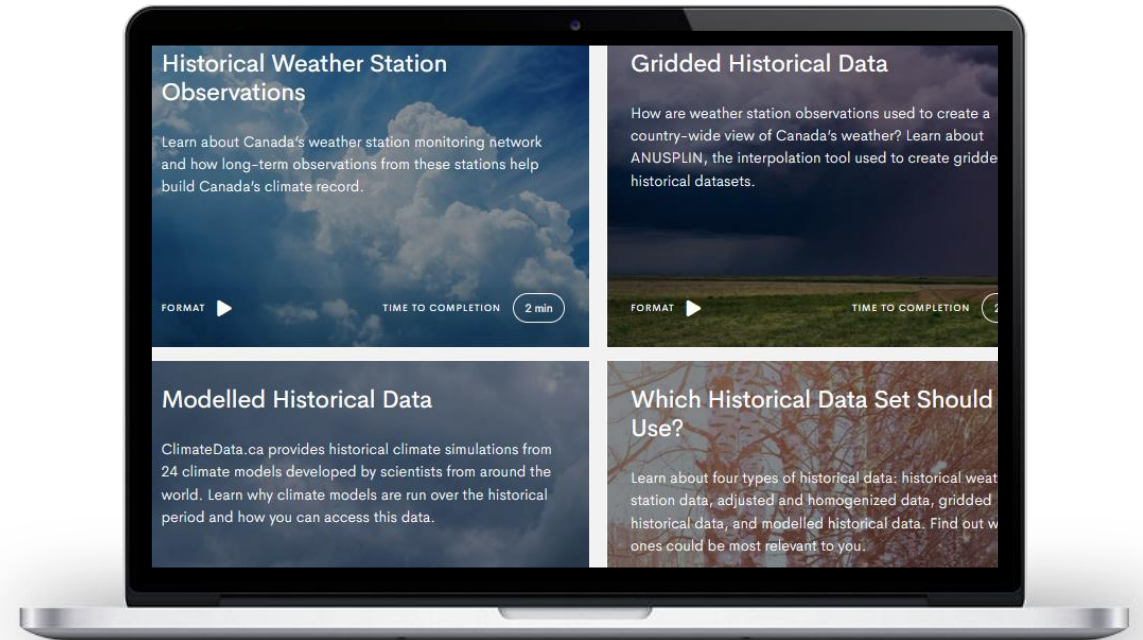




ClimateData.ca

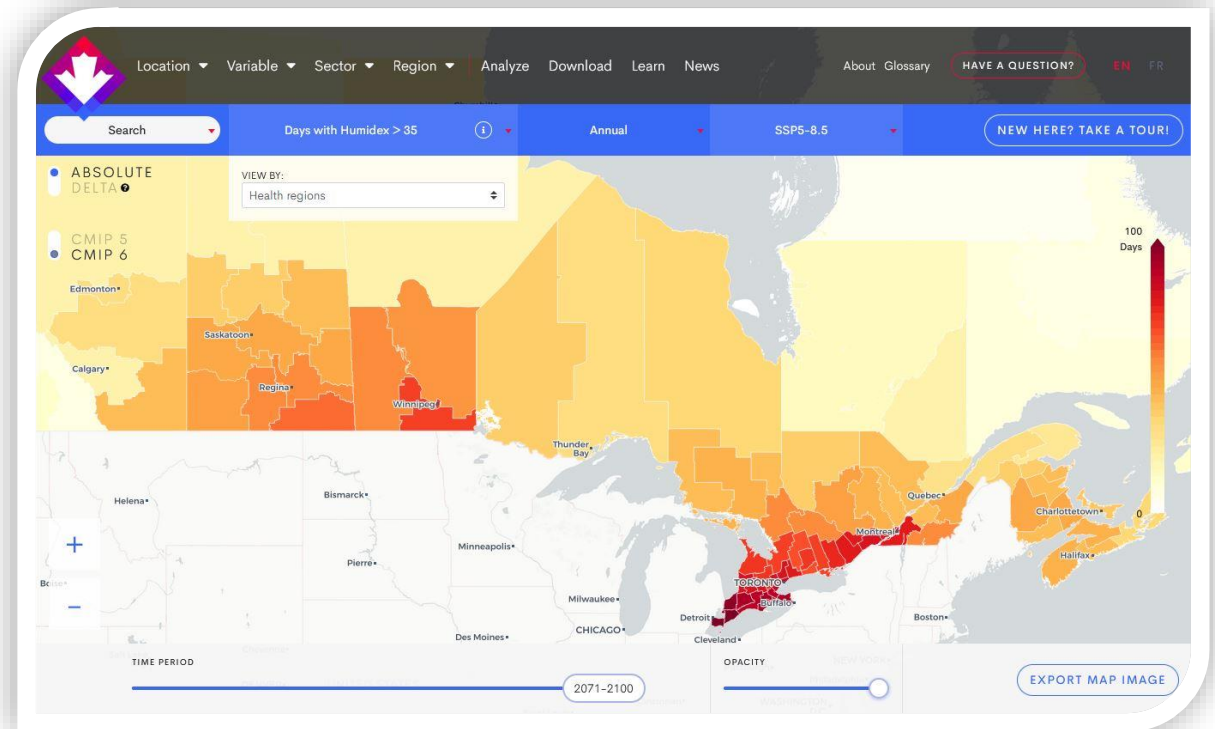
- Introduction to climate information for decision making
- Understanding historical data
- Understanding future projections
- Climate science 101
- How to use ClimateData.ca
- Downloadable training materials
- More coming soon!

BUILD CLIMATE LITERACY



Humidex projections

- Humidex is used to understand how summer weather can impact human health
- New dataset shows how often people are likely to experience discomfort, caution, or extreme caution days due to hot and humid weather

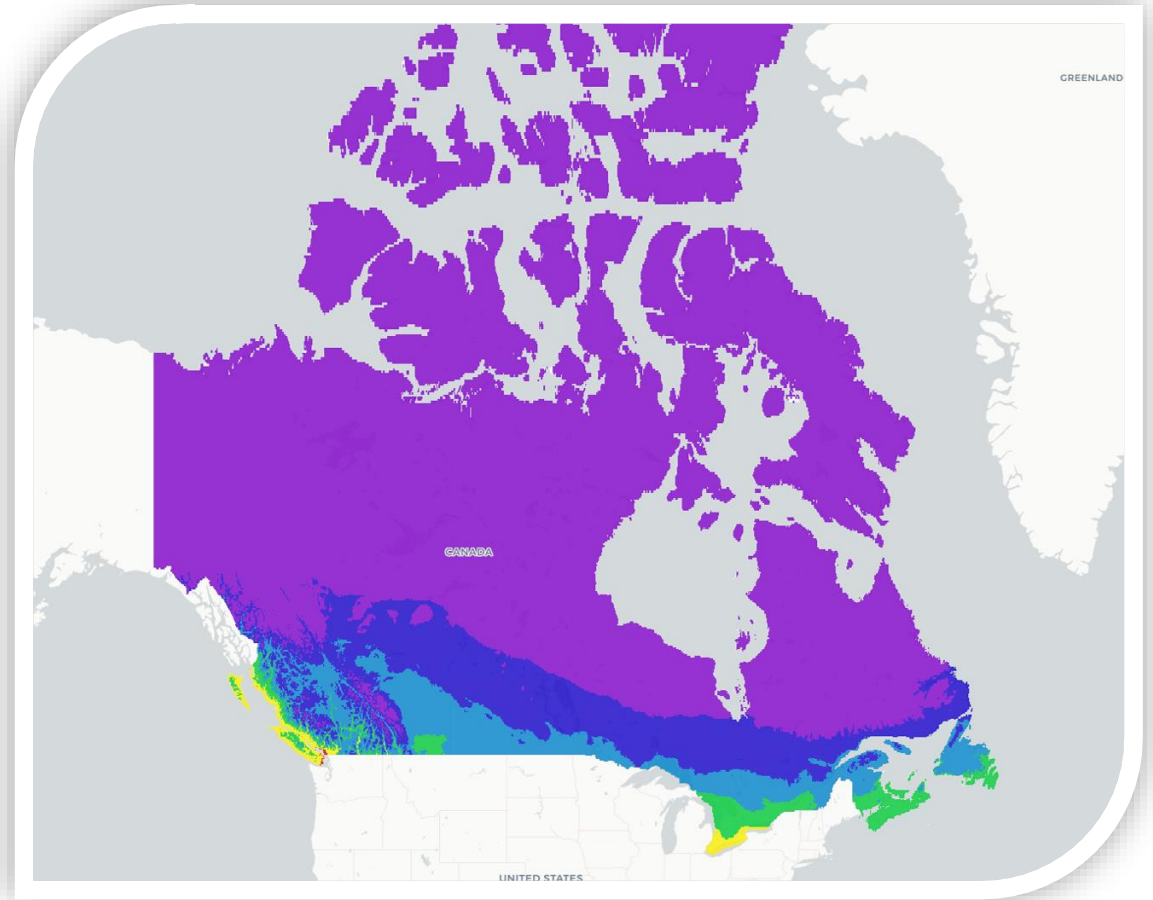




ClimateData.ca

BUILDING CLIMATE ZONES

- Climate has a major impact on a building's design and energy performance
- New projected Buildings Climate Zones data offer glimpse of the scale of climatic changes expected and impacts these changes will have on energy demands



SPATIAL ANALOGUES

- Envision and prepare for your city's future climate
- Explore cities that are already experiencing one or more climatic conditions of concern (e.g. number of days above 30 degrees)



Which North American locations currently have a similar number of...

Tropical nights

and

Days with Tmax > 30°C

as

ON: Toronto

is projected to

experience between

2041-2070

under a

High (SSP5-8.5)

emission scenario?

Spatial Analogues
on ClimateData.ca

Climate data in action

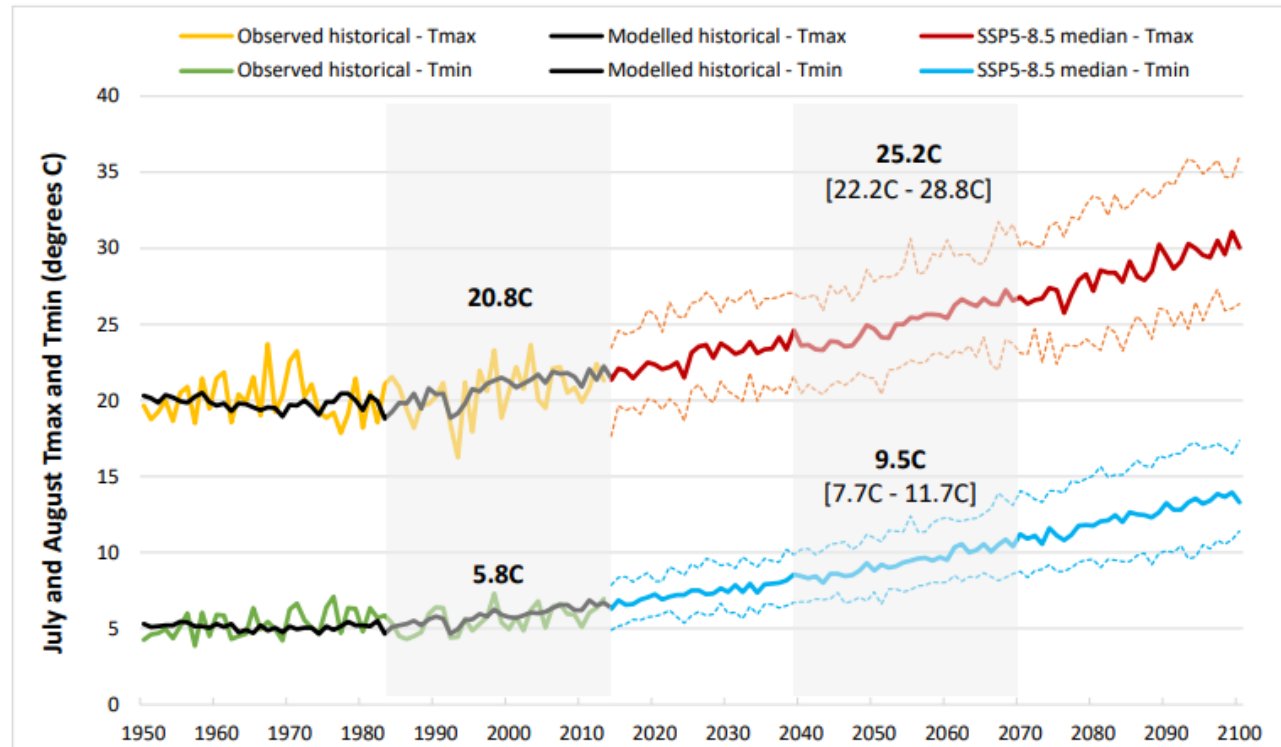
EXAMPLE FROM THE PRAIRIES

CANMORE EMERGENCY RESPONSE PLAN

- “Adapting to the Risks of Extreme Heat and Wildfire Smoke in Canmore” 2023
- Using temperature data from ClimateData.ca, the Canmore team found that daily extreme temperatures are expected to increase in the future with further climate change

Climate data in action

Figure 9: Observed and modelled historical and projected daily highs (Tmax) and daily lows (Tmin) for Canmore 1950-2100 under a high emissions pathway



Source: Climate Data Canada (www.climatedata.ca/)

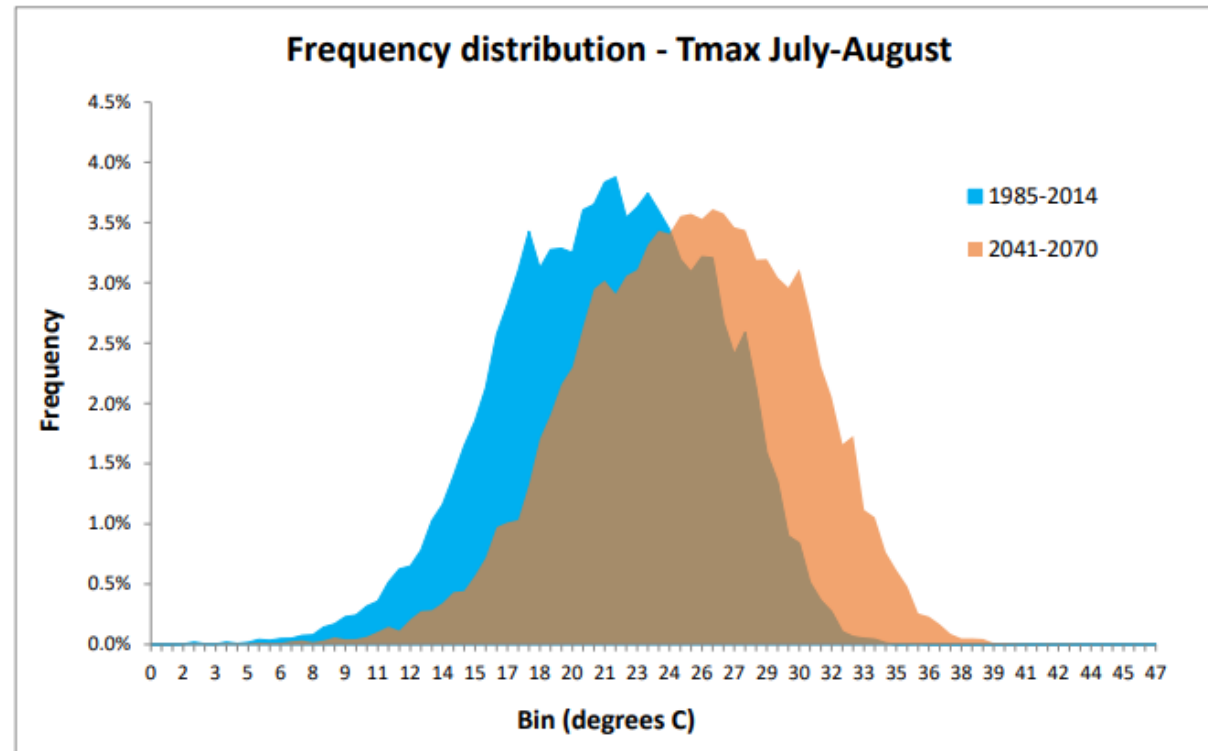
Note: The lighter dashed lines bounding the median projected values (solid thick lines) show the 10th and 90th percentiles across all GCMs

CANMORE EMERGENCY RESPONSE PLAN

- “Hot temperatures are projected to become more frequent and intense, increasing the severity of extreme heat events”
- By comparing historical weather information with future climate projections, Canmore’s team made a strong case for adaptation actions

Climate data in action

Figure 10: Frequency distributions for mean daily highs (Tmax) and lows (Tmin)—comparing modelled historical values (1985-2014) with projected future values (2041-2071) under a high emissions pathway



“Adapting to the Risks of Extreme Heat and Wildfire Smoke in Canmore” 2023

CANMORE EMERGENCY RESPONSE PLAN

- Preparation for an increase in the frequency of hot days = **cooling centres** during extreme heat emergencies
- Recommendations re: **partnerships** to prepare for emergencies and help mitigate the health impacts of extreme heat

Climate data in action

Table 3 Town Building Appropriateness for Cooling Centres During Extreme Heat Emergencies

Town Facility	Description
Canmore Recreation Centre BEST	<i>Building Requirements:</i> AC for increased capacity, meet accessibility standards, does NOT have backup power. <i>Services Available:</i> Activities for all ages (gym), seating & tables, quiet spaces, sleeping, and pets. <i>Programming:</i> Summer camps are supporting children so try not to prevent cool spaces for summer camps.
Elevation Place, Library BEST	<i>Building Requirements:</i> AC for increased capacity, meet accessibility standards, does NOT have backup power. <i>Services Available:</i> Activities for all ages (fitness, swimming, climbing), seating & tables, quiet spaces, sleeping, pets. <i>Programming:</i> May have more limited capacity if already heavily used by public during extreme heat.
Civic Centre BEST	<i>Building Requirements:</i> AC for increased capacity, meet accessibility standards, only facility with backup power. <i>Services Available:</i> Limited activities available but could provide quiet spaces for people to work, read or rest. <i>Programming:</i> Impact Town staff regular activities if making spaces (lobby, board rooms) available for public.

"Adapting to the Risks of Extreme Heat and Wildfire Smoke in Canmore" 2023

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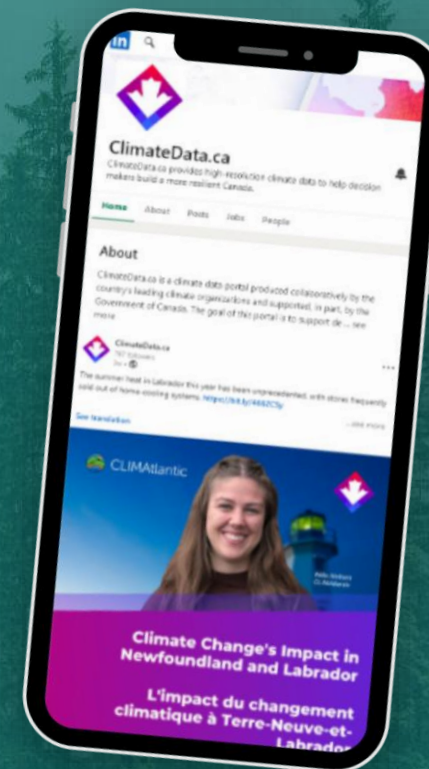


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