Poll Everywhere – Where are you joining us from today?

WE WILL BE USING POLL EVERYWHERE DURING TODAY'S WEBINAR

Go to **pollev.com/cccs**

Click on the interactive map to drop a pin.

CANADIAN CENTRE FOR CLIMATE SERVICES | CENTRE CANADIEN DES SERVICES CLIMATIQUES

Environment and Climate Change Canada | Environnement et Changement climatique Canada

Canada

Climate data demystified: Climate science for public health professionals

Rachel Malena-Chan and Ryan Smith

Canadian Centre for Climate Services

February 27th, 2025

National Collaborating Centre for Environmental Health

What to expect

OUTLINE FOR TODAY

- How did ‘climate’ become ‘my story’
- Challenges, Barriers & Myths
- Climate data and tools
- What’s next?

Our role

THE CANADIAN CENTRE FOR CLIMATE SERVICES

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

CANADIAN CENTRE FOR CLIMATE SERVICES | CENTRE CANADIEN DES SERVICES CLIMATIQUES

We make climate science actionable.

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

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1

Climate = My Story

HOW DID WE GET HERE?

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Turning points

HOW DID CLIMATE CHANGE BECOME PART OF "YOUR STORY"?

Childhood

- "Indoor kid"

Teen/Youth

- Arts and culture
- Interest in social justice

Early Adulthood

- Working "upstream"

Within Career Years

- Climate communication through a narrative lens
- Outreach about climate data and climate services

Turning points

HOW DID CLIMATE CHANGE BECOME PART OF "YOUR WORK"?

TURNING POINT:

- Climate change is a human problem, it's a health problem
- Climate change is going to impact the health of the next generation, and it's part of my story
- I'm part of a transition generation

Early Adulthood

Working "upstream"

Within Career Years

Climate communication through a narrative lens

Outreach about climate data and climate services

Turning points

HOW DID CLIMATE CHANGE BECOME PART OF "YOUR STORY"?

Childhood

- Loved being outdoors

Teen/Youth

- Aptitude for science and math
- One-on-one climatology course

Early Adulthood

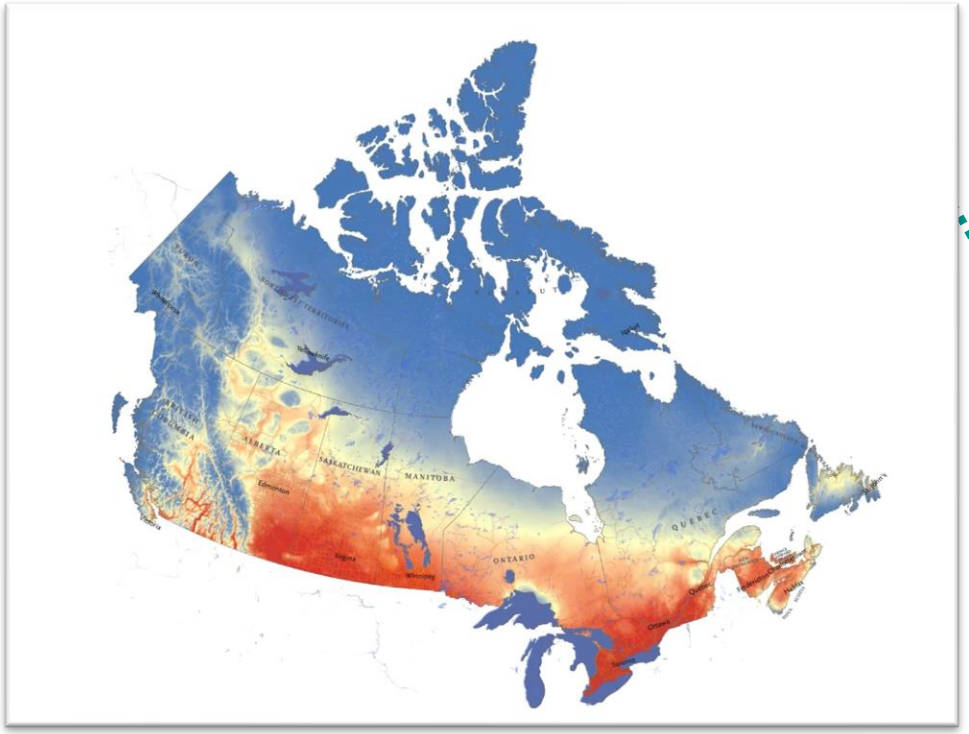
- Bootstrapping climate data and celebrating small wins in data visualization

Within Career Years

- Making meaningful data tools that tell a story
- Outside the science 'sandbox'

Turning points

HOW DID CLIMATE CHANGE BECOME PART OF "YOUR WORK"?



Early Adulthood

Bootstrapping climate data and celebrating small wins in data visualization

Within Career Years

Making meaningful data tools that tell a story

Outside the science 'sandbox'

Poll Everywhere #1

WHEN DID YOU REALIZE CLIMATE CHANGE WAS GOING TO BE AN IMPORTANT PART OF YOUR STORY?

Go to pollev.com/cccs

Drop a pin when **climate change** entered your story

Share a **turning point** in the chat

Not sure/Not yet

2

Challenges, Barriers & Myths

WHAT MAKES YOU FEEL STUCK IN THIS WORK?

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Challenges: Public Health Perspective

WHAT MAKES YOU FEEL STUCK IN THIS WORK?

GOALS	STUCK	
Framing human impacts	Lack of confidence	"I know this matters, but what if I get challenged on the science?"
Informed public health decisions	Lack of training	"The technical jargon is overwhelming"
Confidence among public health professionals	Lack of tools to communicate	"How do I help others find their role?"

Challenges: Public Health Perspective

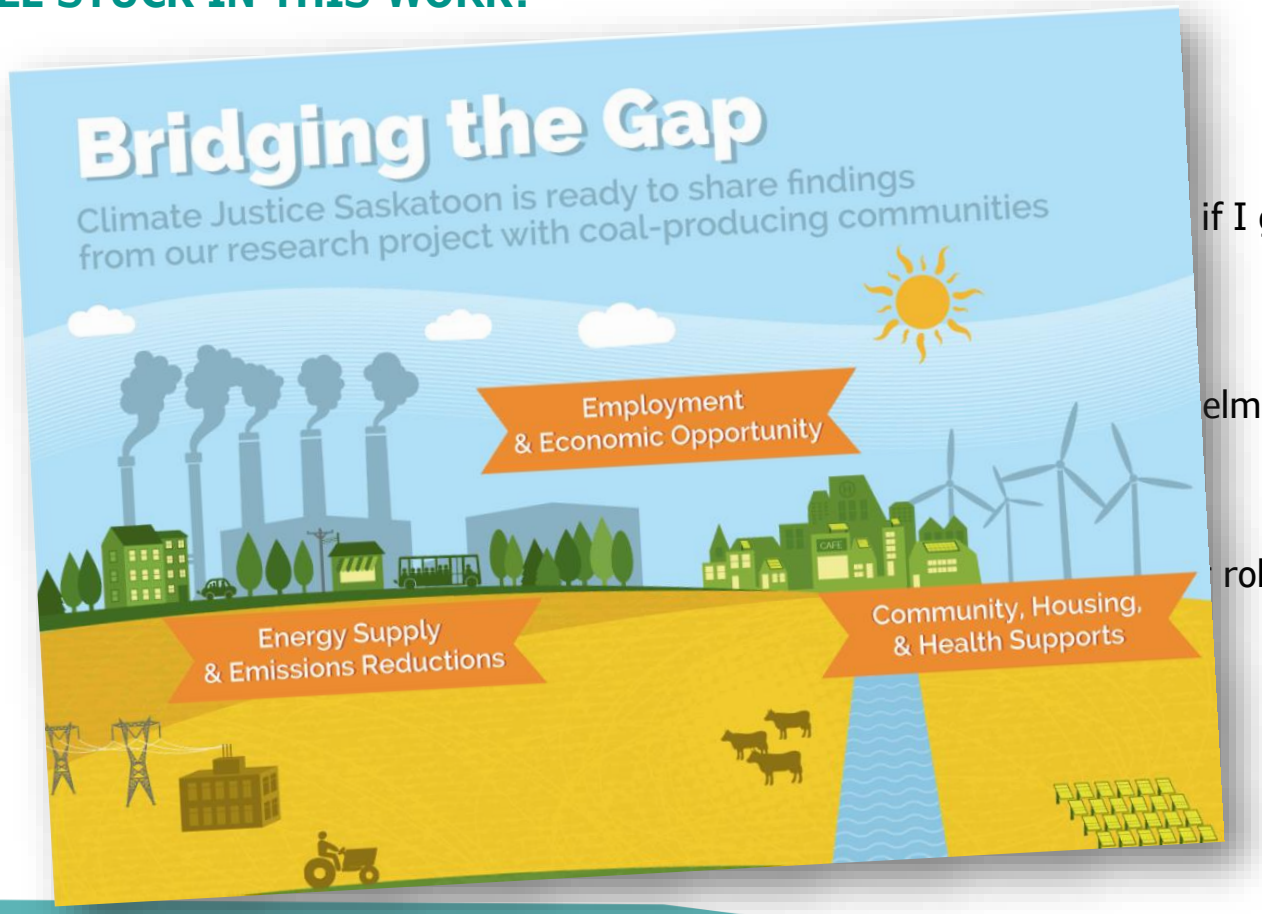
WHAT MAKES YOU FEEL STUCK IN THIS WORK?

GOALS

Framing human impacts

Informed public health decisions

Confidence among public health professionals



if I get

elming”

role?”

Challenges: Climate Data Perspective

WHAT MAKES YOU FEEL STUCK IN THIS WORK?

GOALS

Products and services useful for other sectors

Readiness to engage with climate uncertainty

Communicating and working with the data in an actionable way

STUCK

Silos across our work

"I'm a climate scientist, not a public health expert"

Uncertainty about the future

"Unable (or willing) to ascribe probability to the future"

Connecting data with action

"How useful is the data?"
"Does it solve a problem?"

Connecting data to action

CHALLENGES AND MYTHS CASE STUDY

Rising temperatures driving tick spread:

- Package on ticks and Lyme disease
- Map of temperature, degree days, tick spread and diseases that may be impacted
- But it wasn't enough
- *How can we overcome challenges when applying data in practice?*

PLOS ONE

RESEARCH ARTICLE

Evidence-based communication on climate change and health: Testin… maps on climate change a… Manitoba, Canada

Laura Cameron*, Rhéa Rocque, Kailey Penner,

Prairie Climate Centre, University of Winnipeg, Winnipeg, M…

* lp.cameron@uwinnipeg.ca

OPEN ACCESS

Citation: Cameron L, Rocque R, Penner K, Mauro I (2021) Evidence-based communication on climate change and health: Testing videos, text, and maps on climate change and Lyme disease in Manitoba, Canada. PLoS ONE 16(6): e0252952. https://doi.org/10.1371/journal.pone.0252952

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Data Availability Statement: Data cannot be shared publicly because of the ethics protocol under the University of Winnipeg Human Research Ethics Board. Inquiries about data can be directed to the University of Winnipeg Human Research Ethics Committee (contact via ethics@uwinnipeg.ca).

Funding: This research was funded by the Public Health Agency of Canada, grant number 1819-HQ-000156. The funders were involved in supporting the research question development, but were not

Abstract

Given the climate crisis and its cumulative impacts… tion strategies that engage the public in adaptation… argued that a health frame increases engagement,… online and interactive platforms, yet to date there h… responses to health messaging using visual interve… tudes regarding communication tools focused on c… disease through six focus groups (n = 61) in rural a… The results add to the growing evidence of the effic… climate communications and argues for a continuu… to maps. Findings underscore the importance of tai… and mediums to increase uptake of adaptive health… some audiences bridging health and climate chang… them.

Introduction

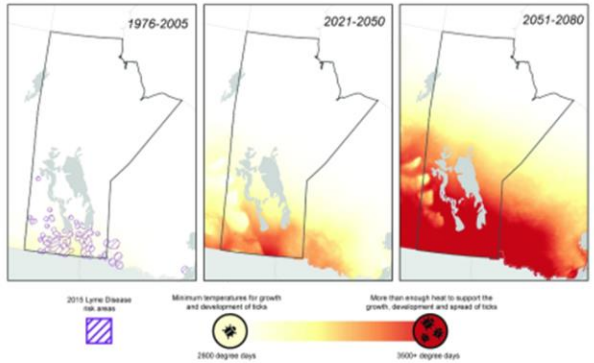
The study of climate communications has become i… decades [1], which is important given that research … robust than strategies for how best to engage people … munications research unpacks the challenges for rea… ity of climate messages and lack of public scientific li… climate impacts are felt elsewhere, known as psychol… importance of uncertainty in climate science versus … [2,3]). There is a growing need to emotionally conne… cific audiences.

One climate communications approach is to fram… of the audience, such as health. A public health fram… shift the issue from being overly complex and distan…

Prairie Climate Centre

Climate Change, Ticks, and Lyme Disease Risk in Manitoba

These maps show where temperatures are suitable for the growth and development of blacklegged ticks.*



* **Blacklegged ticks can carry Lyme disease.** These maps show regions where temperatures are projected to be sufficient for the growth and development of blacklegged ticks (at least 2800 degree days above 0 °C). However, it is important to remember that these ticks only live in wooded areas. Therefore, if you live, work, or play in wooded areas with temperatures suitable for blacklegged ticks, you may be at risk of encountering a tick carrying Lyme disease. Climate projections were made using 24 climate models running the "high carbon" emissions scenario (RCP8.5). Climate model data was downscaled and made available by the Pacific Climate Impacts Consortium (PCIC).

Fig 1. A map showing the projected spread of Lyme disease, one of the communications materials on Lyme disease and climate change that was tested in the focus groups.

https://doi.org/10.1371/journal.pone.0252952.g001

two parts: (1) to explore participants' perceptions of each of the three communications materials (video, map, and article); and (2) to allow for comparison of the materials. In the first part, the facilitator presented one material at a time and allowed participants to become familiar with it. Afterwards, the facilitator prompted participants to discuss their impressions of this first material (e.g. *"What's the key message of this material?"*, *"What did you like or dislike*

Table 1. Overview of focus group composition (n = 61). Full sociodemographic information of focus groups can be found in [33].

Group		Level of climate concern	Number of Participants	Education (attended college/uni)	Age (range, avg)
Winnipeg	W1	High concern	11	8	24–68, 49.3
	W2	Low concern	10	9	33–80, 56.3
Brandon	B1	High concern	10	7	21–65, 48.2
	B2	Low concern	8	6	42–71, 59.6
Morden- Winkler	M1	High concern	11	9	33–70, 51.8
	M2	Low concern	11	5	25–68, 43.5

https://doi.org/10.1371/journal.pone.0252952.t001

group, someone declared that the article was "propaganda," and in another someone noticed that amongst the peer-reviewed literature there were also news articles and grey literature …ed, and said that the article was not credible because of its sources. Among those in the high …mate concern groups, some people wanted more information on the implications of the …nnection between action on climate change and Lyme disease. As one participant in Winni… stated: "Do you think reducing emissions–which I agree is needed and a must–do you …ink it's going to change anything about Lyme disease? Even if we stop producing any emis… …ns tomorrow, [the ticks] are here."

Video. Many participants across groups reported enjoying the video and finding it engag… A key message identified was that blacklegged ticks and Lyme disease are not abating and …s people must learn to adapt and take preventative measures. Other key information …ported was how Lyme disease is spreading, how ticks survive in warmer weather, and the …creasing risk in Manitoba. As one Winnipeg participant described their key takeaway: …yme disease is growing a lot faster than I thought. It's going to become more and more of a …reat." People found the visuals particularly helpful, such as the images of the bullseye rash …mmon after a tick bite, the blacklegged ticks themselves, and researchers sampling for ticks …suitable habitat. People in several groups also commented that they liked the story element; …one Brandon participant described, "It was good how they went from. . . a personal story …d then kind of backing it up with some of the research." The preferred messengers from the …deo were the community member who had contracted Lyme disease, the medical doctor …o actively sees Lyme patients, and the field researcher who sampled ticks, as opposed to the …ientists in labs and offices.

People in four groups reported having more of an emotional reaction to the video, while …e participant said the video had a more positive valence and "wasn't as much doom and …oom." When asked whether the video was about Lyme disease, climate change or both, gen… …ally the consensus was that it was more about Lyme disease. Only one group had several peo… …e comment on the link between the spreading of Lyme disease and climate change.

Many of the same skeptical critiques were brought up for the video as with the article …ongst the three low climate concern groups. Many people across all three groups mentioned …at there was not sufficient proof that the tick spread was related to climate change, though …ople were not able to articulate the additional information they would require. Many people …tated their original views, saying things such as "animals are just moving," "the weather …sn't changed that much" or "it is a cycle." A few people admitted that they would not watch …e video if they came across it because they did not find it interesting or informative.

Maps. Participants had a more negative reaction to the maps overall. Across all six groups, …ople identified the key message of the maps was that temperatures are getting warmer and …ings are going to get worse. Some people pointed out that this will lead to an increase in the …read of ticks and Lyme disease, but for many that was not immediately clear. Generally, peo… …e agreed that the main message of the map was that climate change is getting worse, while …veral said it was the link between climate change and Lyme disease. People in several groups …mmented on the intensity of the red colouring, with one participant commenting, "When …u make the province of Manitoba look like it's wearing a Calgary Flames [hockey] jersey, it …oks scary."

There were many criticisms of the maps, with people in every group saying that the lan… …age used in the map caption was too complex and technical for an average person. Partici… …nts expressed not understanding climate models and projections, degree days, high carbon …issions scenarios (RCP 8.5), and down-scaled climate data. Another point of confusion was …e timeframes of the past, near future, and far future used on the maps; many people in five of …e groups wanted to see the present represented (i.e. 2019). People in two of the groups

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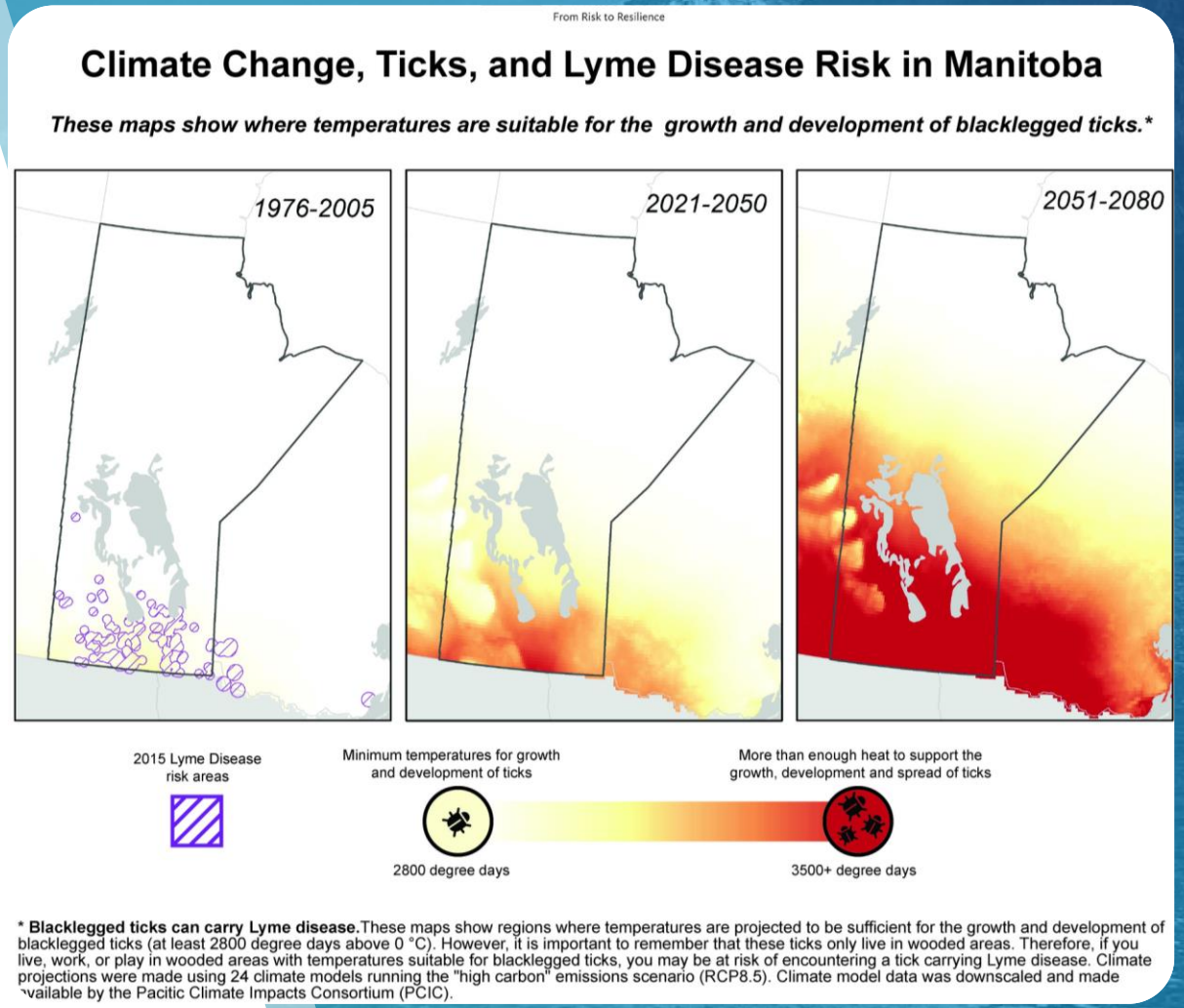
Reaction to the Map

CHALLENGES AND MYTHS CASE STUDY

Maps. Participants had a more negative reaction to the maps overall. Across all six groups, people identified the key message of the maps was that temperatures are getting warmer and things are going to get worse. Some people pointed out that this will lead to an increase in the spread of ticks and Lyme disease, but for many that was not immediately clear. Generally, people agreed that the main message of the map was that climate change is getting worse, while several said it was the link between climate change and Lyme disease. People in several groups commented on the intensity of the red colouring, with one participant commenting, "When you make the province of Manitoba look like it's wearing a Calgary Flames [hockey] jersey, it looks scary." There were many criticisms of the maps, with people in every group saying that the language used in the map caption was too complex and technical for an average person.



Reaction to the Video

CHALLENGES AND MYTHS CASE STUDY

Video. Many participants across groups reported enjoying the video and finding it engaging. A key message identified was that blacklegged ticks and Lyme disease are not abating and thus people must learn to adapt and take preventative measures. Other key information reported was how Lyme disease is spreading, how ticks survive in warmer weather, and the increasing risk in Manitoba. As one Winnipeg participant described their key takeaway: "Lyme disease is growing a lot faster than I thought. It's going to become more and more of a threat." People in several groups also commented that they liked the story element; as one Brandon participant described, "It was good how they went from. . . a personal story and then kind of backing it up with some of the research." The preferred messengers from the video were the community member who had contracted Lyme disease, the medical doctor who actively sees Lyme patients, and the field researcher who sampled ticks, as opposed to the scientists in labs and offices

Addressing Challenges and Myths

KEY MESSAGES

**Climate information is important,
but it's not the only thing that's missing.**

- Our role is to point you to what data are available
- Guide your use of authoritative climate change information
- We do the expensive, 'upstream' work to gather the data and make it actionable
- Trusted messengers?
- Collaboration across sectors, silos, networks is key

Poll Everywhere #2

WHAT CHALLENGES/BARRIERS DO YOU FEEL WHEN YOU TRY TO INCORPORATE CLIMATE CHANGE IN YOUR WORK?

Go to
pollev.com/cccs

Share a **challenge** you face bringing climate change into public health work

Upvote challenges you relate to

Where do I start learning about climate basics?

I don't know where to bring climate change into the conversation

Hard to decide what future scenario to use for risk assessments

3

Climate data and tools

CLIMATEDATA.CA

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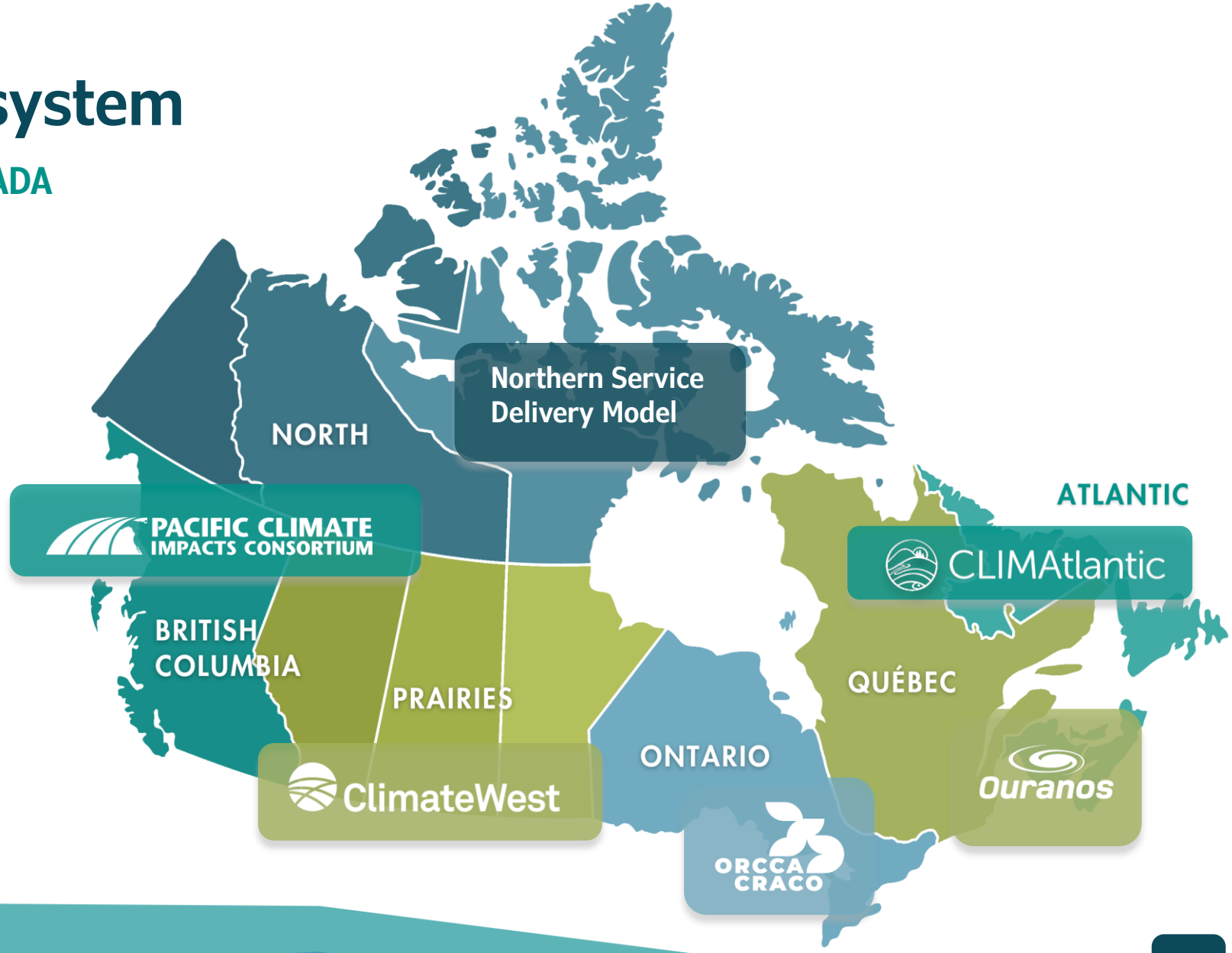
Climate data eco-system

PARTNER PORTALS ACROSS CANADA

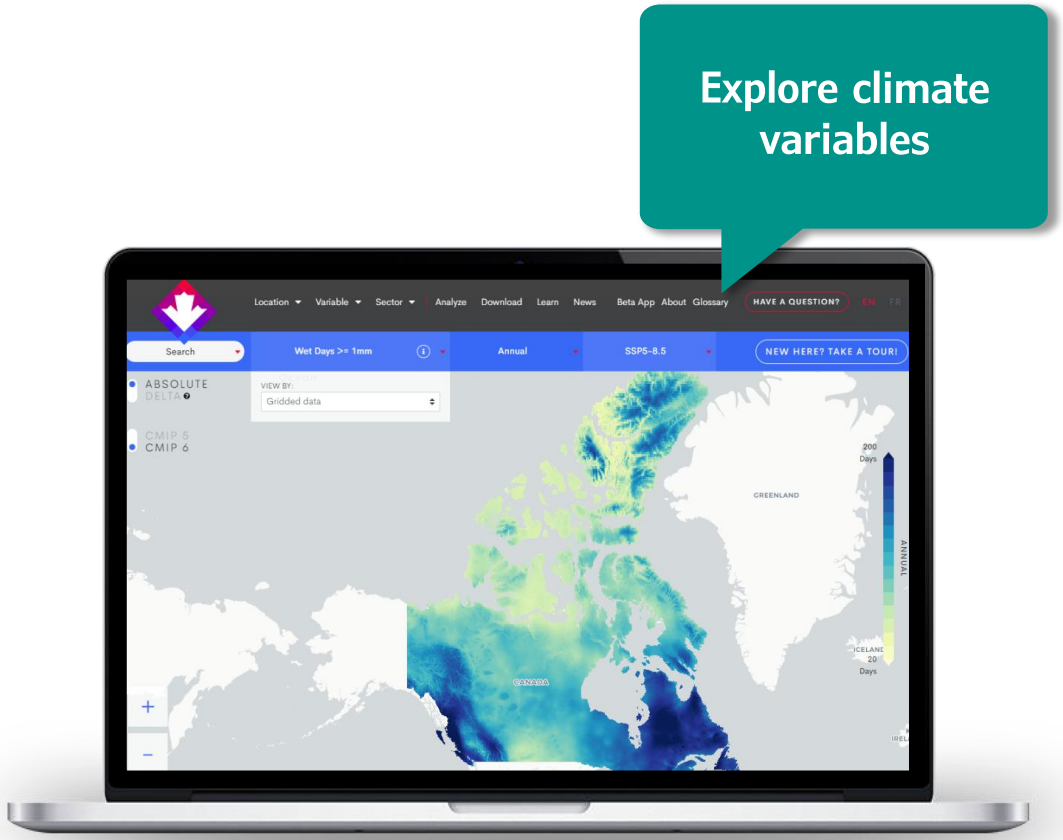
- Coordinated national and regional approach
- Together, this network of climate service providers helps reach a range of practitioners and users with the climate data



ClimateData.ca

BUILDING A MORE RESILIENT CANADA

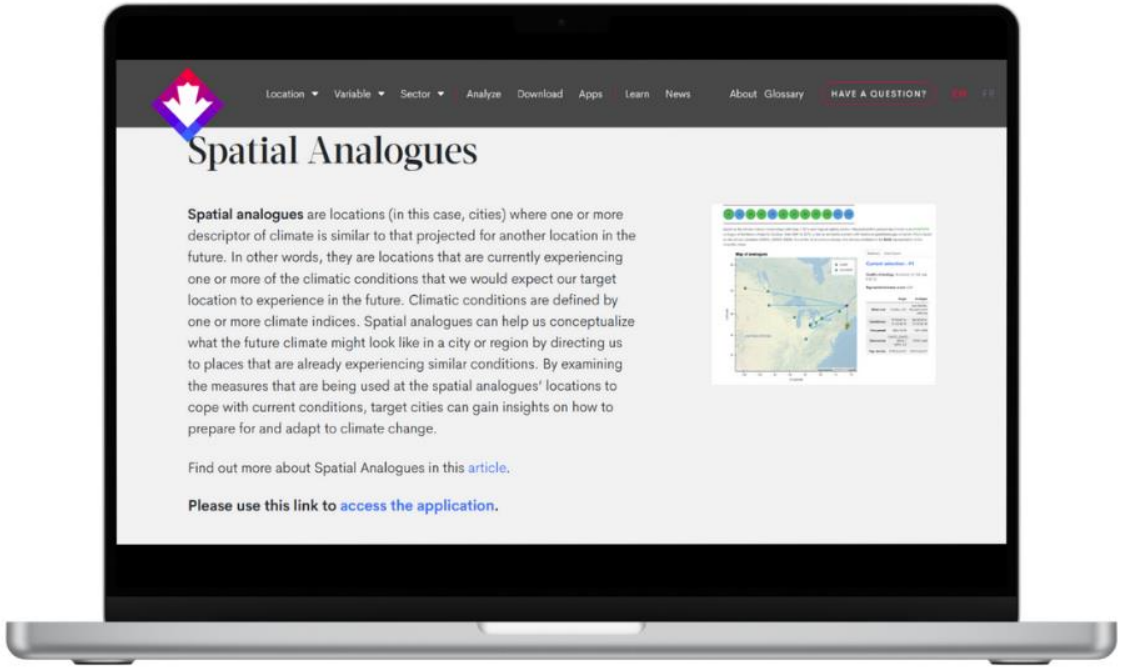
- **Explore** Canada-wide historical and future climate data
- **Customize** raw data analysis quickly and efficiently
- **Learn** about how to understanding and interpret future projections
- **Get inspired** by sectors who are already applying climate data to adaptation efforts



Live demo: Spatial Analogues Tool

WHAT PLACE EXISTS NOW THAT IS A GOOD MATCH FOR MY COMMUNITY'S FUTURE CLIMATE?

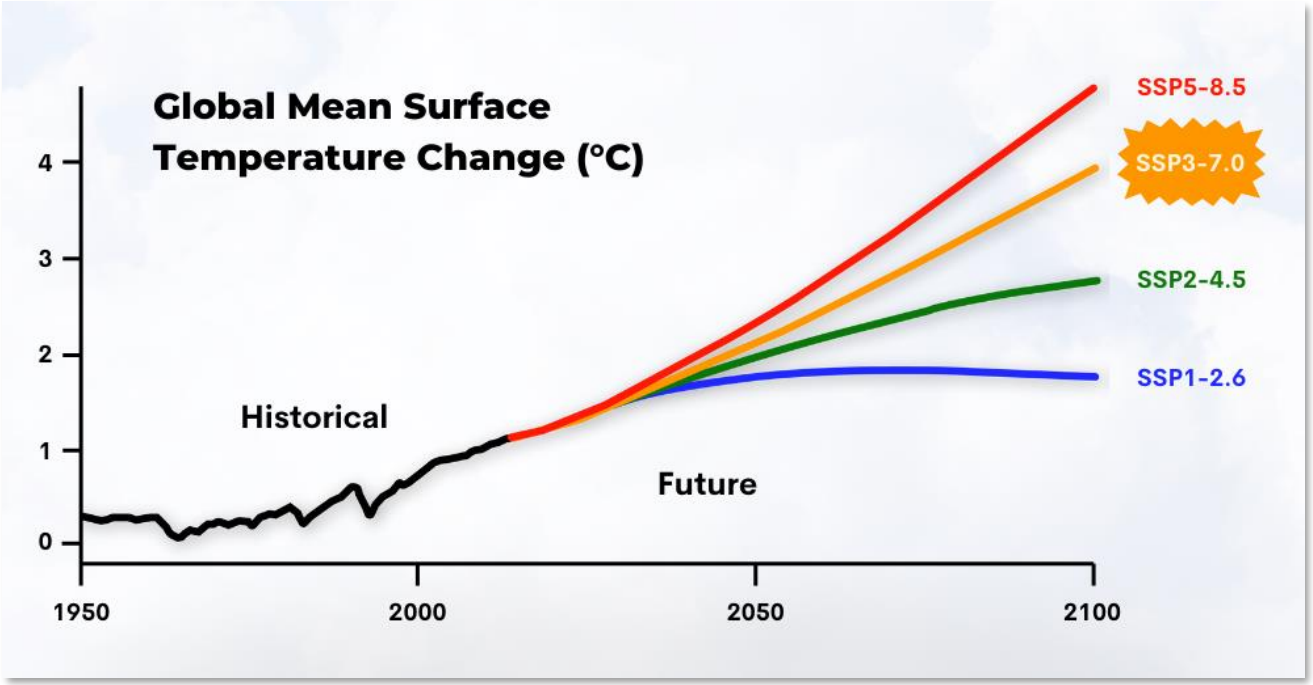
- Visit ClimateData.ca
- Find "Apps" in the main menu
- Click "**Access the application**"



Using climate data

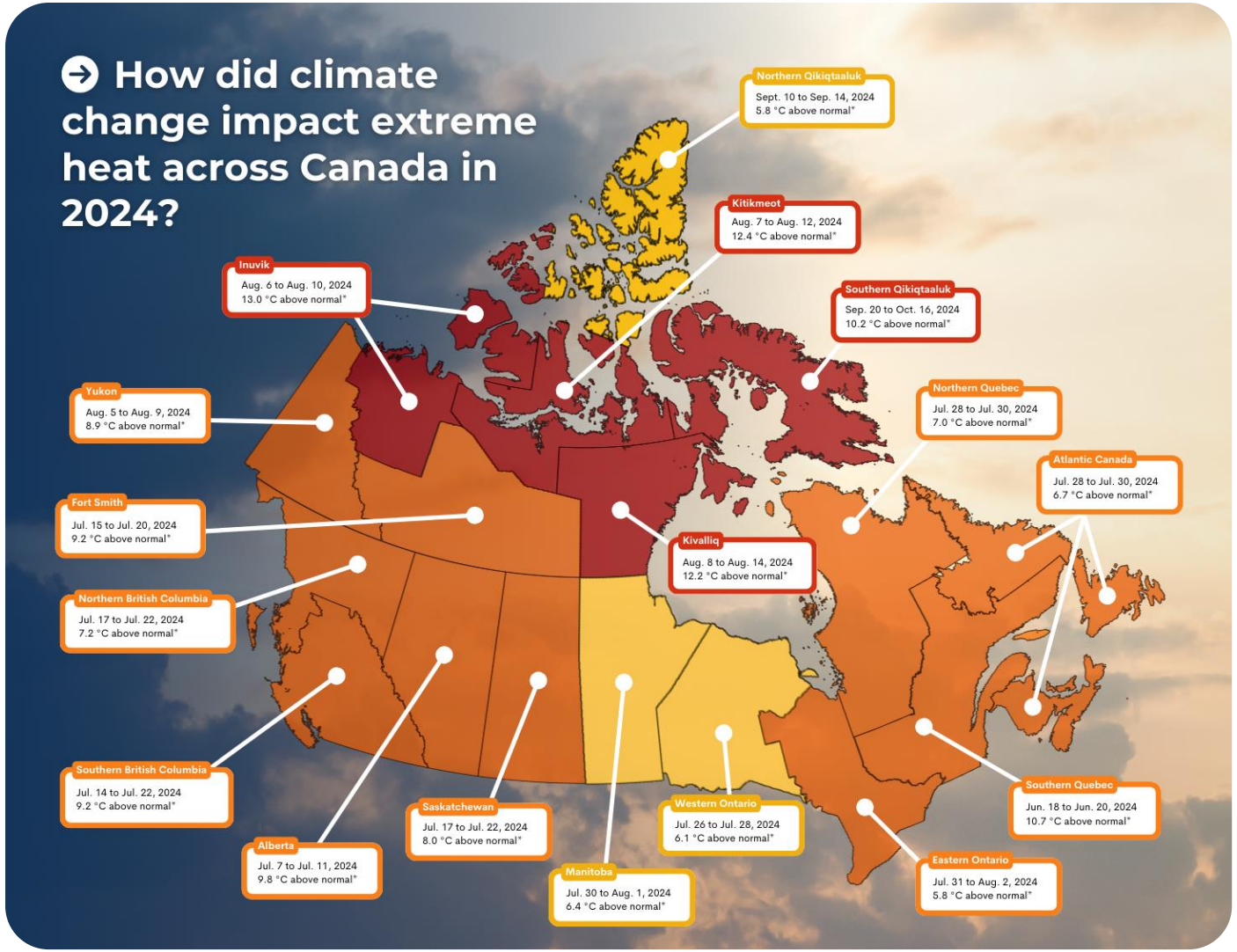
FUTURE SCENARIOS

- The extent of future climate change depends on human action
- Shared socio-economic paths
    - SSP1-2.6
    - SSP2-4.5
    - SSP3-7.0
    - SSP5-8.5



EXTREME WEATHER EVENT ATTRIBUTION

- By modelling a pre-industrial climate and comparing it to today's climate, scientists can calculate the influence of human activity on extreme events
- This map shows observed heat events in 2024 that had the largest departures from normal
- Read more at ClimateData.ca



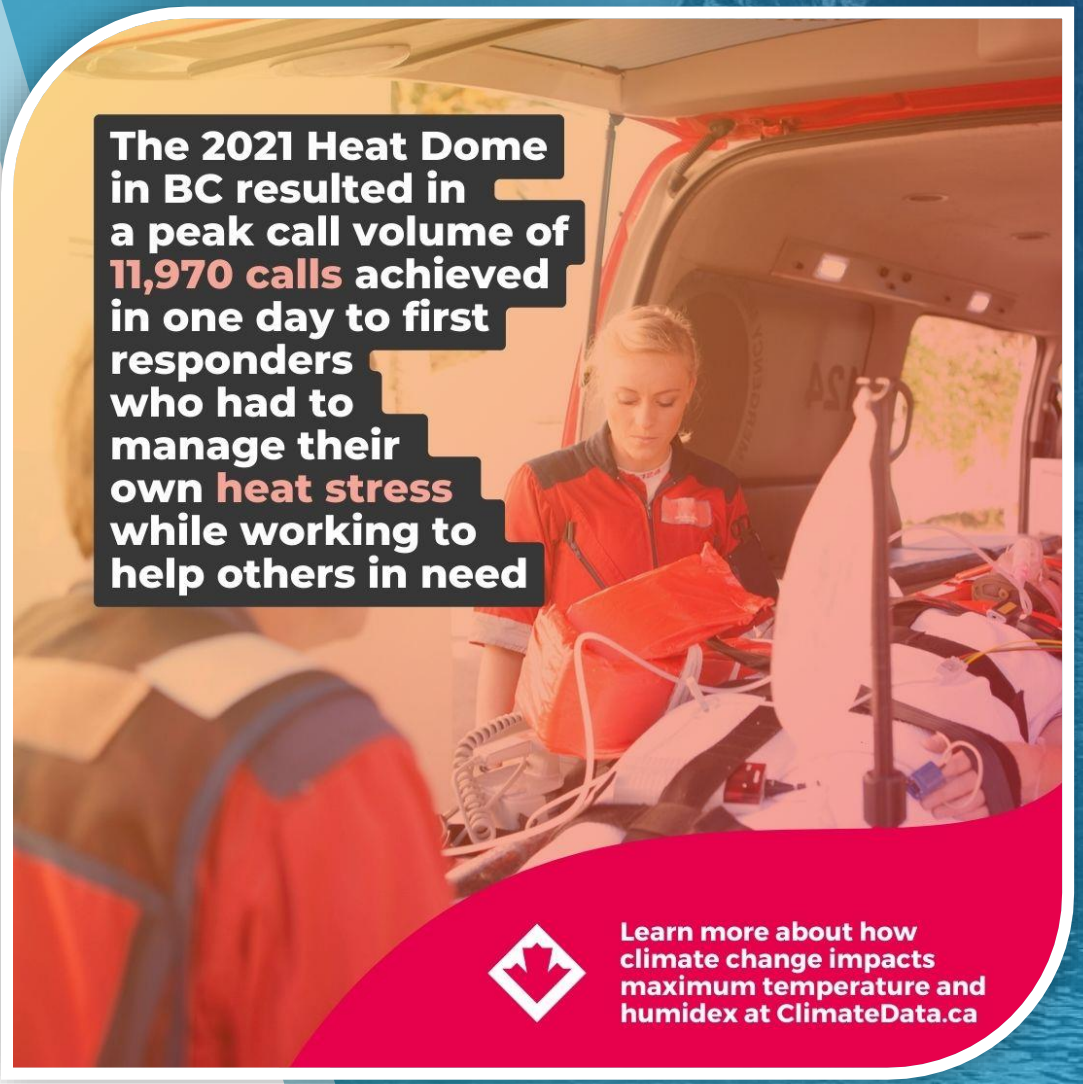
Rapid Extreme Weather Event Attribution system: top heat events of 2024, ClimateData.ca, Jan 7, 2025

Impacts and risks

EXTREME HEAT EVENTS

- 2021 Heat Dome in BC: approx. once in a thousand years in today's climate
- In a future world, with global average temperatures 2 °C above preindustrial levels, such an event could occur once every 5 to 10 years

Philip, S.Y. (2022)

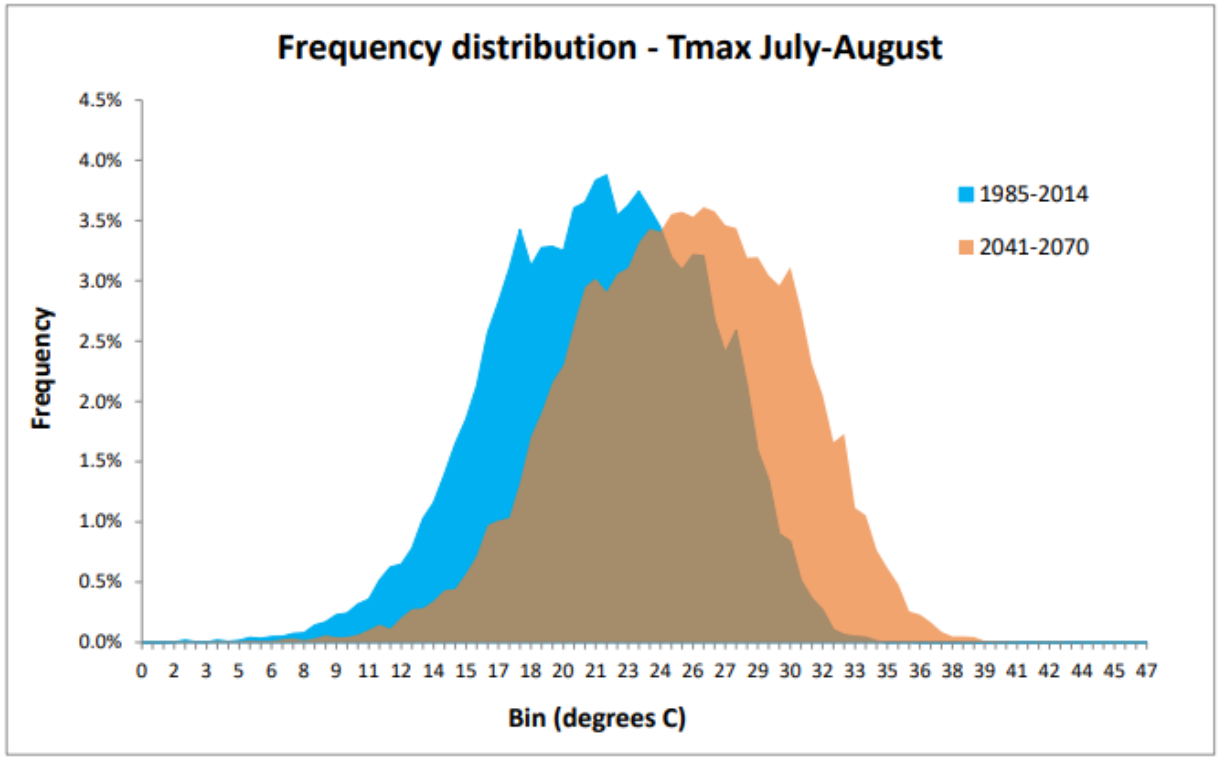


CANMORE EXTREME HEAT RESPONSE

- **"warm temperatures are expected to become more frequent and more intense, increasing the severity of extreme heat events"**
- Compared historical weather data with future climate projections to make the case for adaptation measures
- Spatial Analogue for Calgary, AB = Chicago, IL

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 smoke from forest fires in Canmore" 2023

Poll Everywhere #3

WHAT IF VANCOUVER'S SUMMER TEMPERATURE WERE MORE LIKE WINNIPEG'S?

Go to
pollev.com/cccs

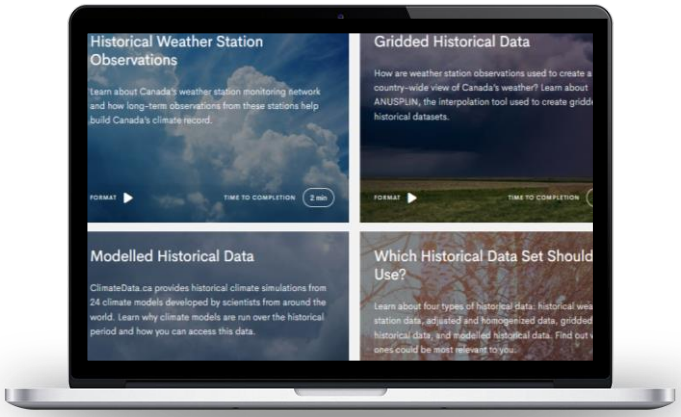
Share an **impact to environmental health** that you think this would have

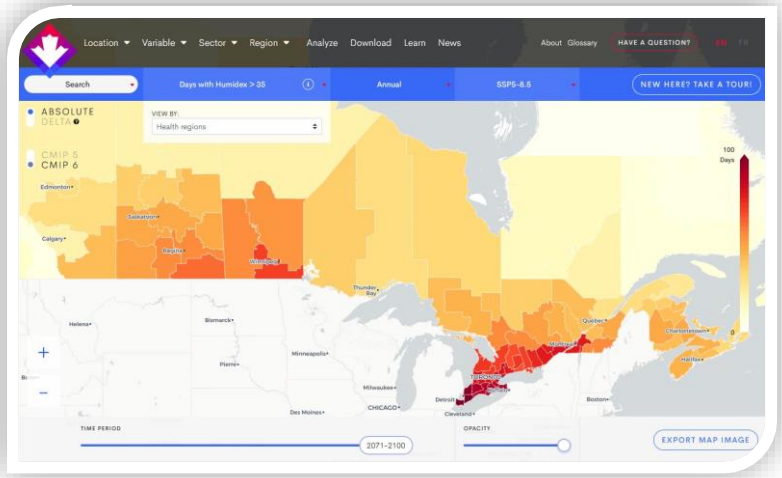
Upvote challenges you relate to

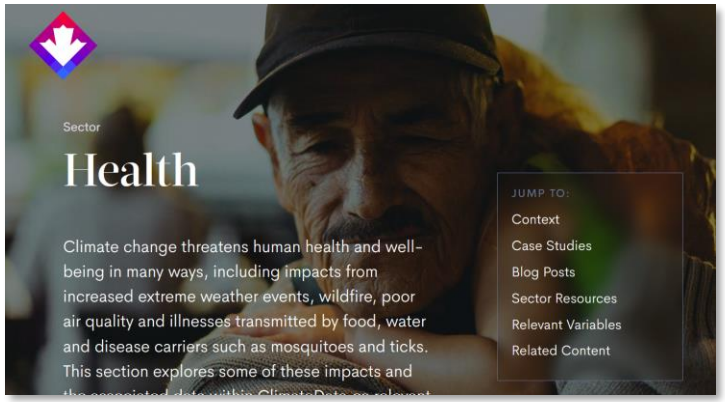
More cooling centres needed

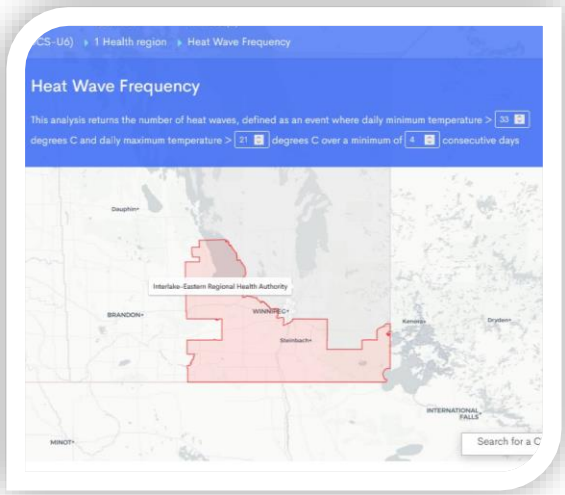
Change in building standards for insulation/cooling

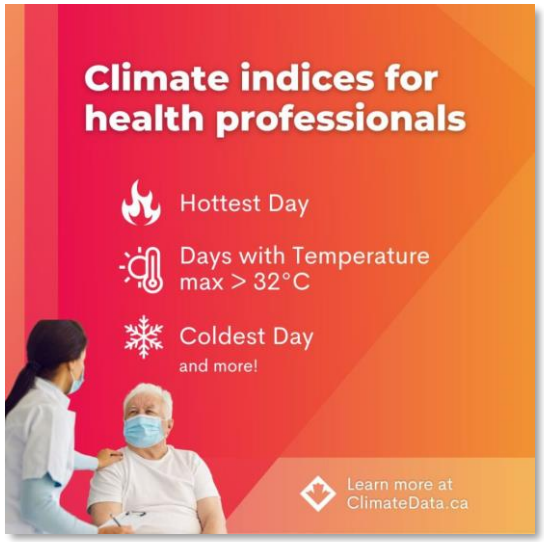
More community checks needed

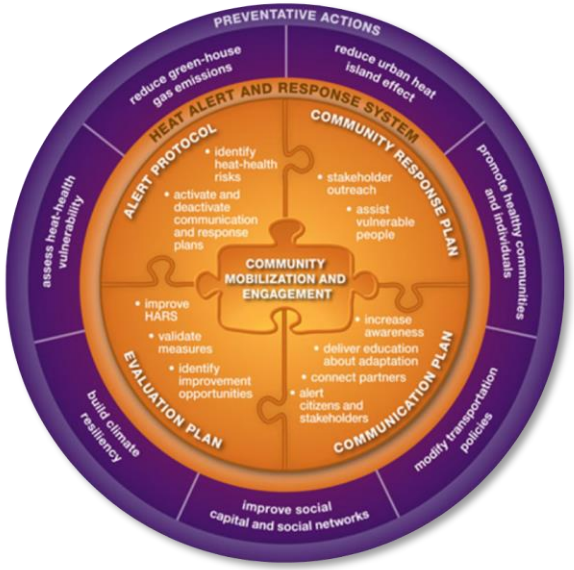












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Take-Aways for Environmental Public Health

GAINING CONFIDENCE WITH CLIMATE DATA

Climate change is already impacting your work, and climate data can support:

- **Planning and preparing for changing risk conditions**
    - Multiple lenses needed (equity lens on exposure to risk)
    - E.g. Humidex, extreme temperature variables
- **Communicating change and the potential impacts to health**
    - Trusted messengers speaking to present and future change
    - E.g. Spatial analogues, maps

Join the conversation

/climate-data-Canada

@ClimateData.ca

/ClimateData.ca.Donneesclimatiques.ca

@ClimateData_ca // @Donneesclimatiques.ca

Thank you

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Canada.ca/climate-services
Canada.ca/services-climatiques