



# CANADIAN CENTRE FOR CLIMATE SERVICES

2018 CLIMATE CHANGE FORUM AND CHARRETTE  
YELLOWKNIFE, OCT 29-31, 2018

**CANADIAN  
CENTRE FOR  
CLIMATE  
SERVICES**



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CCCS-ECCC

# CANADIAN CENTRE FOR CLIMATE SERVICES

Recommendation from the *Pan-Canadian Framework on Clean Growth and Climate Change* - developed with Provinces & Territories in consultation with Indigenous peoples

- To improve access to climate science
- To serve as the authoritative federal source for credible, useful and timely climate information, data, and tools
- To strengthen national and regional capacity to incorporate climate change considerations in decision-making

# WHAT ARE CLIMATE SERVICES?

Climate services help people, communities, and economic sectors plan for climate change

Will the expansion of the tree-line impact the availability of berries at my local spot?



What plans do we need to implement to protect important species?



Should I plan to design and construct infrastructure differently?



# WHY ARE CLIMATE SERVICES NEEDED?

- Canadians need to understand current and future climate vulnerabilities, risks, opportunities
  - Can no longer only use the past historical conditions as a predictor for future climate
- CCCS aims to help Canadians make climate-smart decisions when planning for the future, targeting:
  - General population
  - Decision makers (community planners, health authorities, engineers, etc)
  - Climate science experts / academics

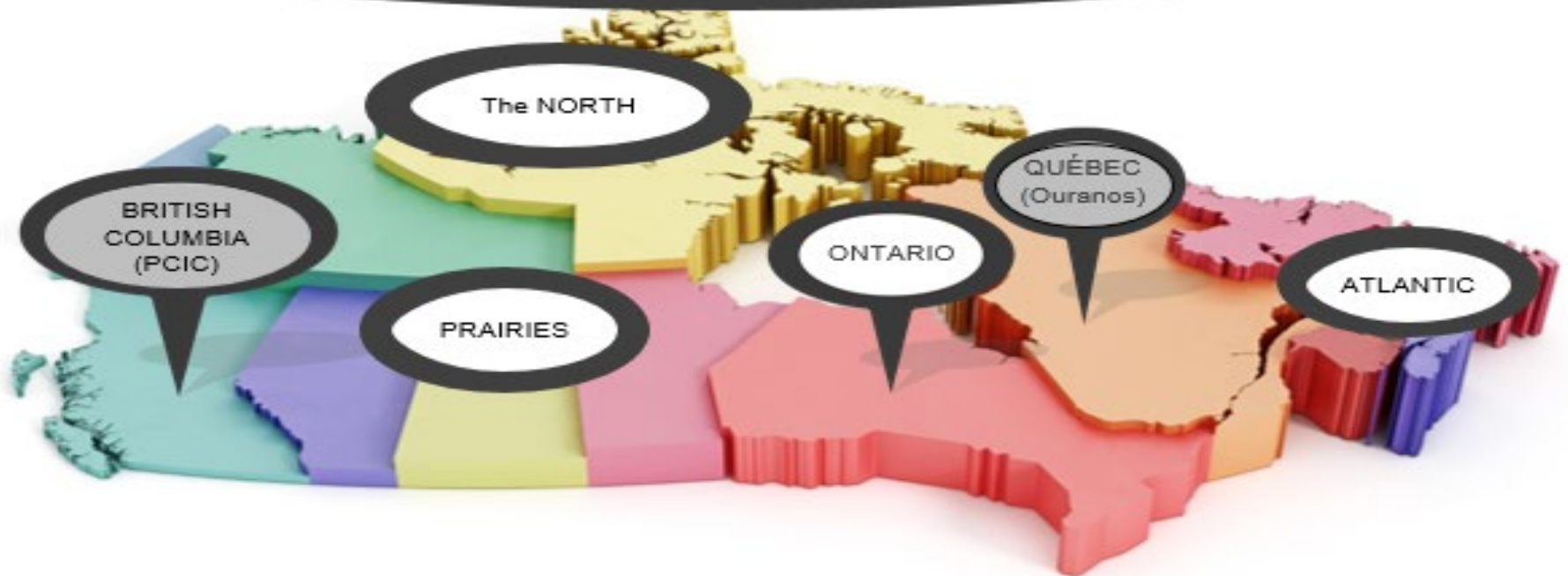


# ABOUT THE CCCS

- The CCCS is a multi-disciplinary team with expertise across a broad range of climate-related disciplines
- We work with partners and stakeholders to help Canadians understand, and become more resilient to climate change by:
  1. building local capacity
  2. providing access to climate information
  3. offering training and support
  4. delivering climate services driven by user needs

# WORKING TO STRENGTHEN NATIONAL & REGIONAL CAPACITY

**The Canadian Centre for Climate Services**



Climate services will be jointly delivered using a coordinated national and regional approach

# NORTHERN CLIMATE SERVICES LIAISON

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New northern capacity focused on:

- 1) enhancing delivery of climate services in Northern Canada
- 2) Gaining a better understanding the needs of Canadians in the north
- 3) supporting formation of a climate organization (hub) in the North

# OPEN FOR BUSINESS – OCT 2018

## Our website is now live!

- Facilitates access to existing climate data, tools and related resources through consolidation and provision of links
- Builds capacity to understand and use climate information by providing:
  - ✓ Guidance and contextual information on climate data, its interpretation, and use
  - ✓ Data viewer and data query tool for main ECCC climate datasets
  - ✓ Library of climate resources with search and filter functionality: sources include federal, provincial and territorial governments, national professional organizations, climate consortia

## Climate Services Support desk

- Assist users in finding, understanding and using climate data, information and tools to consider climate change in planning and decision-making
- In addition to the Climate Services Support Desk officers, experts from across federal departments and regional climate consortia are prepared to help respond to user requests



1-833-517-0376



[info.ccsc-cccs@canada.ca](mailto:info.ccsc-cccs@canada.ca)



[www.canada.ca/climate-services](http://www.canada.ca/climate-services)

CANADIAN  
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# USER DRIVEN SERVICES

- Engagement, outreach, training
- Projects to assess needs of key user groups: sectors, regions, etc.
- Feedback



## ... examples of CCCS Support Services

Problem	Climate services solution
Want to know what the climate is projected to look like in your hometown in the future?	Suggest resources and visuals based on climate data and information to help you understand the changing climate you may face
Need to incorporate future climate change considerations in the plans for a new drainage system for your community?	Can help you select the appropriate dataset(s) to inform design of your system
How to download the data for the last 20 years?	Can guide you to extract and download the data

# MERCI / THANK YOU

For more information, please contact

<b>Brian Sieben</b> Northern Climate Services Liaison <a href="mailto:brian.sieben@canada.ca">brian.sieben@canada.ca</a>  (867) 446-3062	<b>CCCS Support Desk</b>  <a href="mailto:info.ccsc-cccs@canada.ca">info.ccsc-cccs@canada.ca</a>  1-833-517-0376
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Check out our website

[www.canada.ca/climate-services](http://www.canada.ca/climate-services)





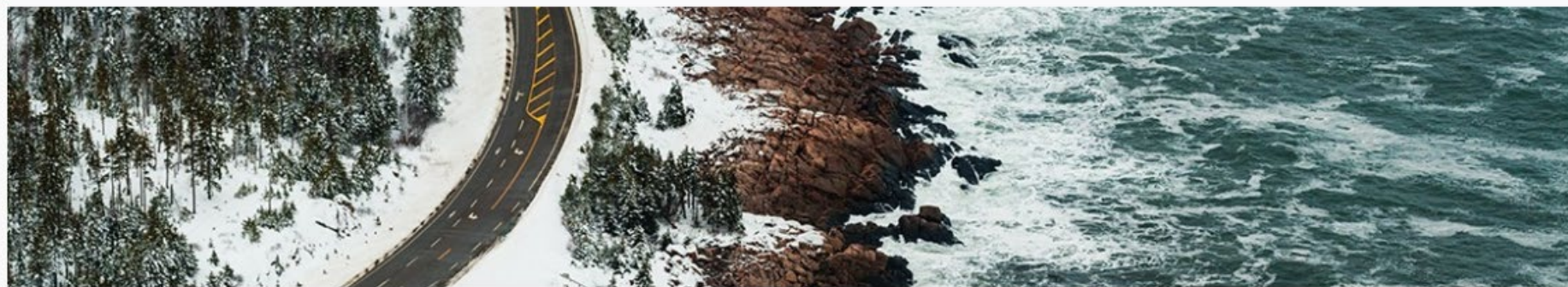
# ADDITIONAL SLIDES

**CANADIAN  
CENTRE FOR  
CLIMATE  
SERVICES**



[Home](#) → [Environment and natural resources](#) → [Weather, climate and hazards](#) → [Climate change](#) → [Canada's climate plan](#)  
→ [Adapting to climate change in Canada](#)

## Canadian Centre for Climate Services



### Library of climate resources

Datasets, tools, guidance and related resources




### Climate information basics

Climate change concepts, trends and role of climate information in decision-making



### Climate Services Support Desk

1-833-517-0376 

Get help from our climate experts to find, understand and use climate information



### Display and download climate data

View selected climate datasets on maps or download data

The Climate Services Support Desk



### Featuring: changing temperature

- Learn more about [trends and projections in temperature change](#).
- View maps of [Ten Years of Drought in Canada](#) from Agriculture and Agri-Food Canada.

# CLIMATE BASICS: TRENDS & PROJECTIONS

## *Temperature, Precipitation, Sea Ice, Snow Depth*

### Patterns of temperature change in Canada

The mean (average) annual temperature in Canada increased by 1.7°C from 1948 to 2016. Warming has been even stronger in the North, particularly in winter. The mean annual temperature in northern Canada has risen by 2.3°C over this same period.

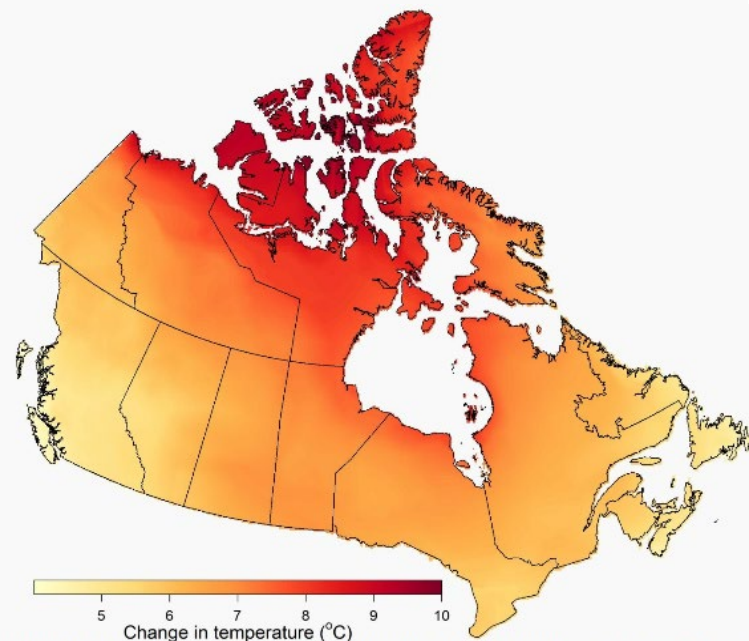
Future changes in temperature will be determined mainly by the amount of GHGs emitted. There is a large range of possible futures, which are described by different emissions scenarios. In general, higher global emissions scenarios project greater warming.

Compared to the recent past (1986 to 2005), mean annual temperature in Canada is projected to increase by 1.8°C to 6.3°C<sup>1</sup> by the end of the century. During the same period, summer temperature in Canada is projected to increase by 1.4°C to 5.4°C. Mean winter temperature is projected to increase by 2.4°C to 8.2°C<sup>1</sup>.

Find temperature data in the library of climate resources.

#### Includes:

- Key concepts
- Patterns over time
- Impacts of change
- Adapting to change
- Other resources



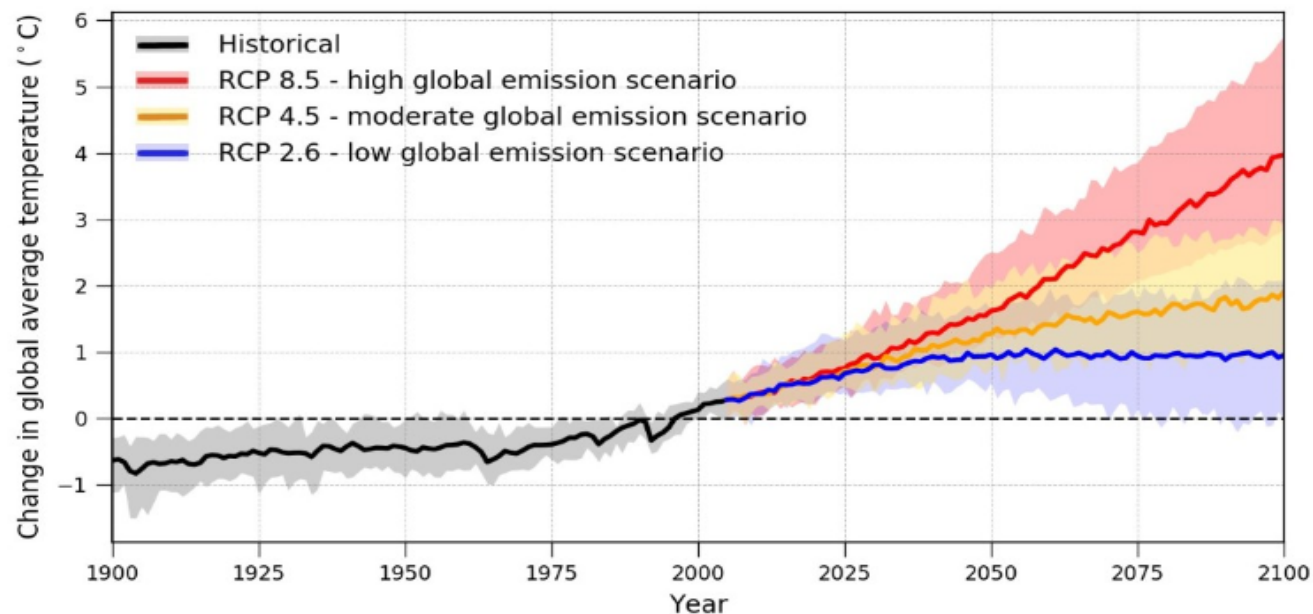
This figure is a map of projected changes in annual temperature by the end of the 21st century across the Canadian landmass. Changes in annual temperature are relative to the 1986-2005 reference period. The dataset used here is a statistically downscaled dataset, based on the Bias Correction/Constructed Analogues with Quantile mapping reordering (BCCAQ) version 2. The emission scenario used here is the Representative Concentration Pathway 8.5.





# CLIMATE BASICS: SCENARIOS & MODELS

Figure 1: Change in global average temperature relative to the 1986-2005 reference period



This figure shows changes in global average temperature, relative to the 1986 to 2005 reference period, simulated by 29 global climate models from the Coupled Model Intercomparison Project, Phase 5 (CMIP5).

## Describes:

- Emission scenarios
- Models & projections
- Uncertainty
- Other resources

# Climate data viewer

Use the data viewer tool to view climate data on the map below. Begin by choosing one of the available datasets. There is a detailed description of the selected dataset below the map. You can zoom to a specific geographic location or click on the data for additional information. You can specify date ranges, variables and other options using the drop-down menus at the top of the map.

For help, see the [help file](#) or click the '?' icon in the bottom right corner of the map.



## Key Points:

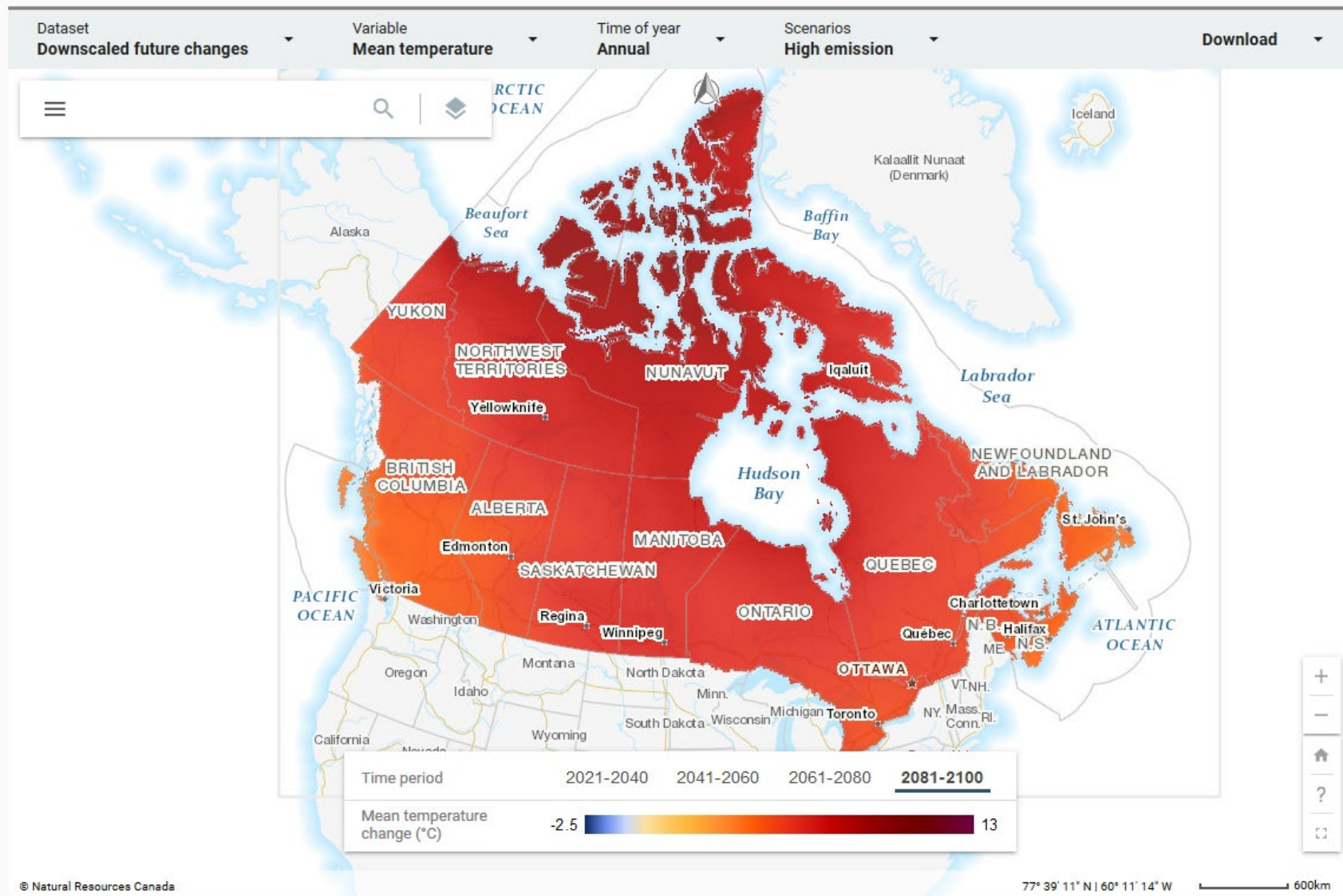
- Intermediate users
- View national datasets
- Location search
- Zoom in/out
- Create maps and images:
  - .PNG and .JPEG



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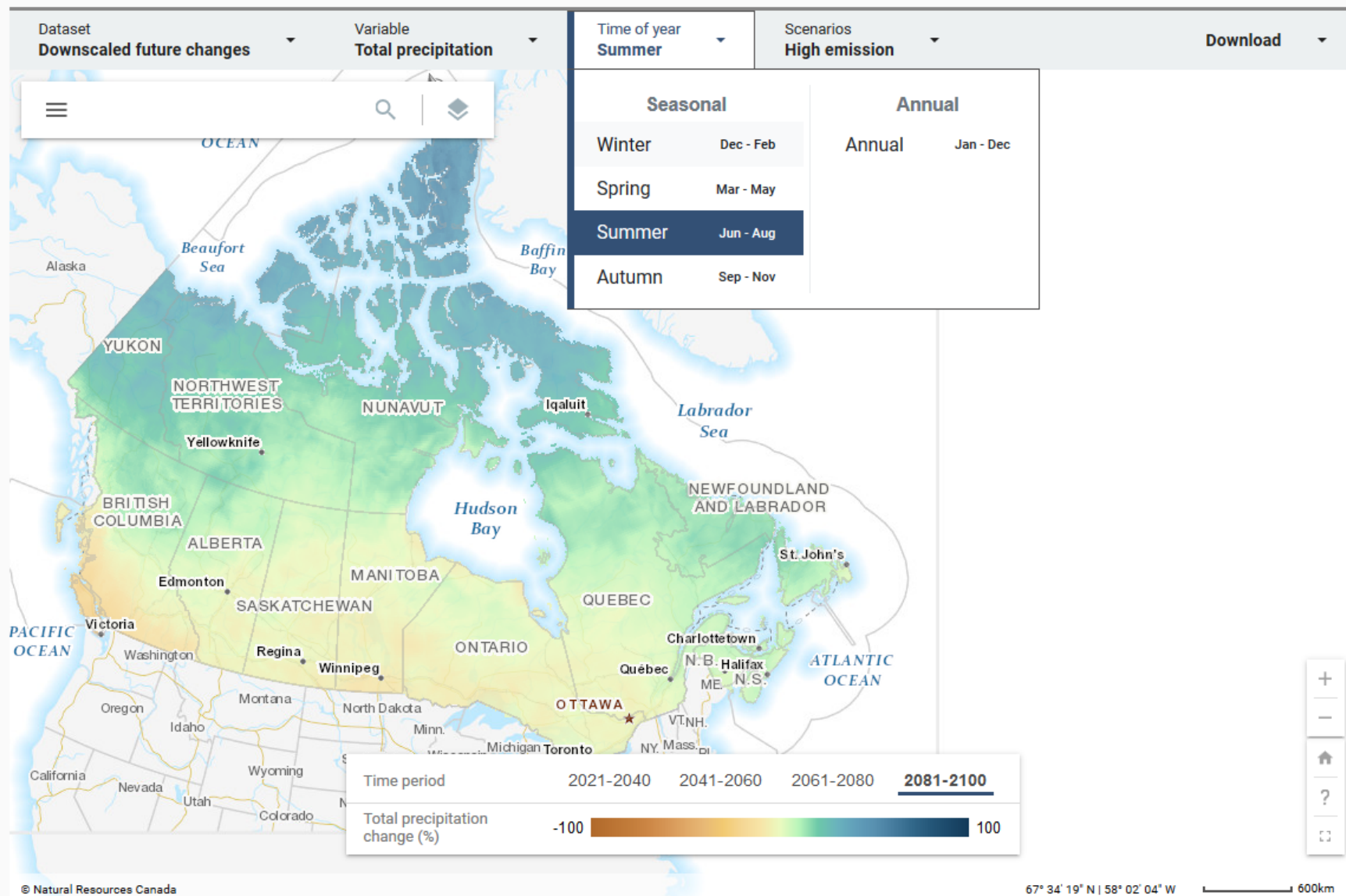
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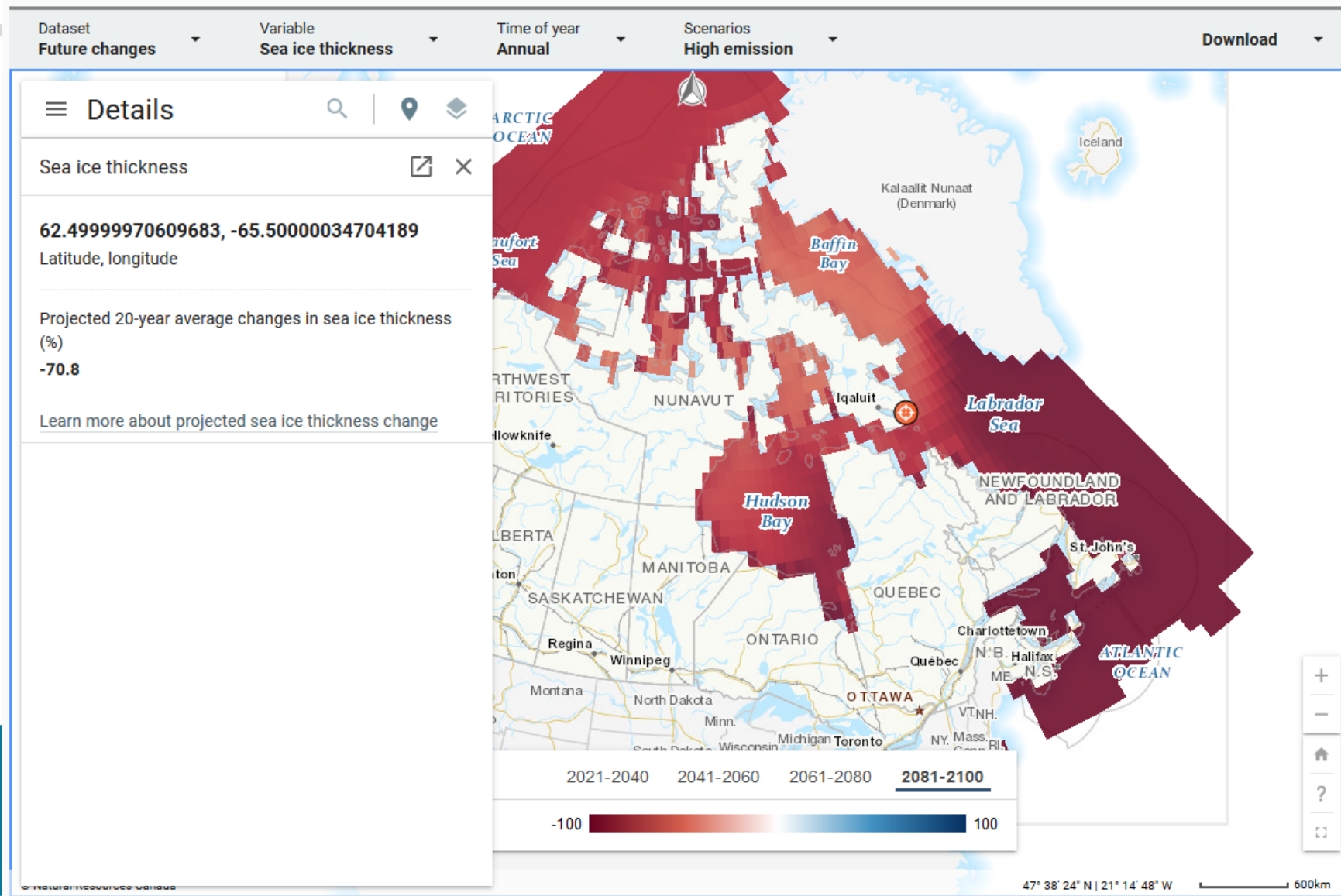
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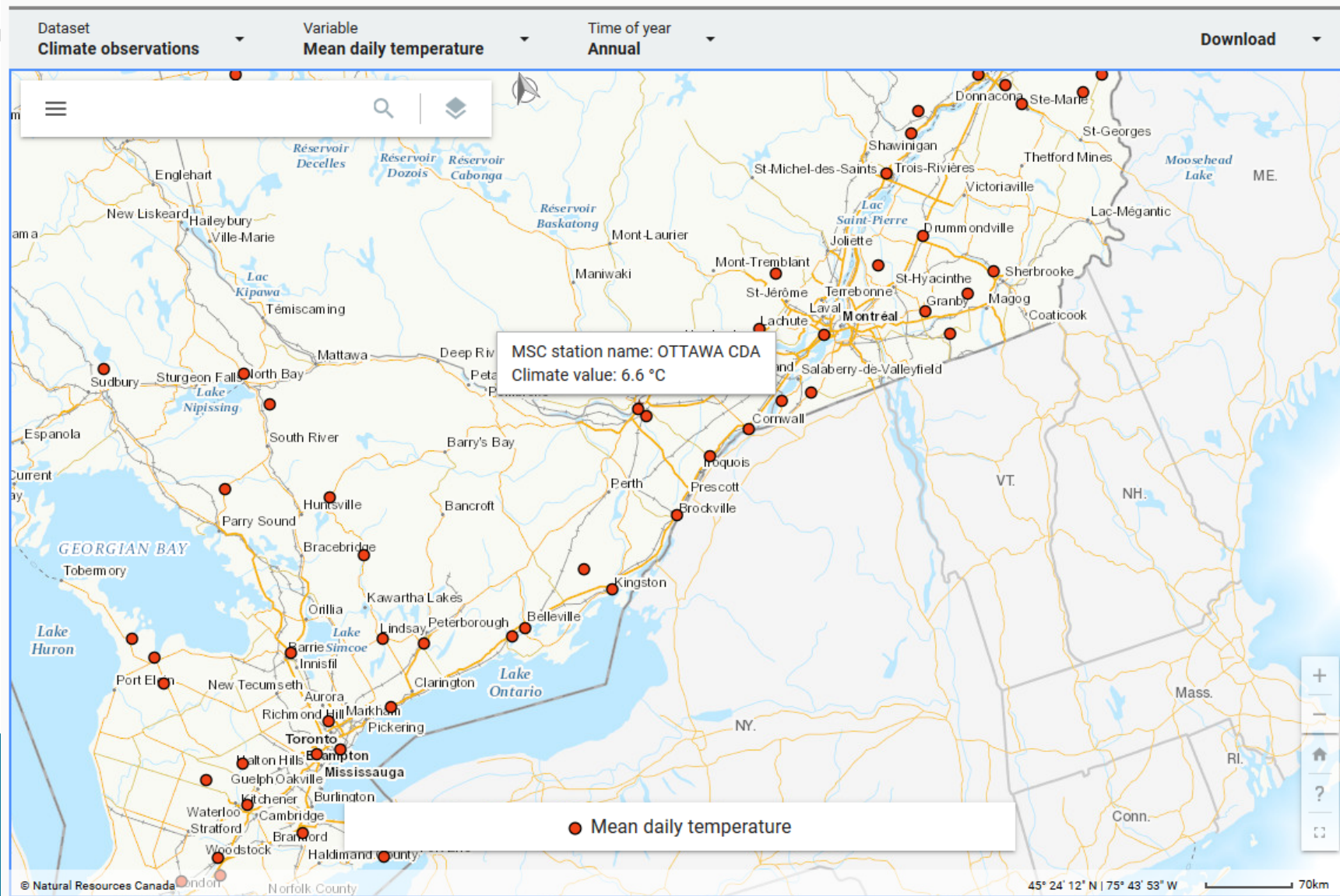




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For help, see the [help file](#) or click the '?' icon in the bottom right corner of the map.



# CLIMATE DATA EXTRACTION TOOL

- Advanced users
- Can find, map and download:
  - Historical and future climate projections
  - Historical station data (e.g. climate normals 1981 - 2010)
  - Historical gridded data
- Download formats depends on dataset:
  - .CSV files for spreadsheets
  - .GeoTIFF for GIS
  - .NetCDF
  - ... and more

# Statistically downscaled climate scenarios

Use the climate data extraction tool to download climate data from the selected Environment and Climate Change Canada' datasets.

\* **Emissions scenario (Required)**

[i Learn more about emissions scenarios](#)

Low emissions scenario (RCP 2.6)

\* **Time interval / Time of year (Required)**

[i Contact the Climate Services Support Desk if you're interested in daily data](#)

Annual

\* **Value type (Required)**

Anomaly values

\* **Ensemble percentile (Required)**

[i Contact the Climate Services Support Desk if you're interested in individual model output](#)

[i Learn more about percentiles](#)

50th percentile

## Date range

☒ 20-Year average ☐ User defined range

\* **20-Year average range (Required)**

2081-2100

\* **Data download format (Required)**

[i Contact the Climate Services Support Desk if you'd like data for a single grid point only](#)

► Explanation of data formats

GeoTIFF

► Advanced options

## ✔ Data download link

[Download: Statistically downscaled climate scenarios](#)

# Library of climate resources

This is a collection of links to climate datasets, tools, guidance and related resources. The sources include the federal government, provincial and territorial governments, national professional organizations, climate consortia and established international organizations. It can be useful for impact, vulnerability and risk assessments, and for adaptation planning.

Refine your search using the search filters. You can also type up to 5 keywords in the search bar.

**i** If you have questions, contact the [Climate Services Support Desk](#).

If you are looking for other datasets, explore the Government of Canada [Open Government Portal](#).

► Explanation of the different resource types

## Search records



18 records found

Order by Name ascending ▼

Drought ✕

## Search filters Clear all

### ▼ Sector

- ☐ Agriculture (14)
- ☐ Coastal management (2)
- ☐ Ecosystems and biodiversity (8)
- ☐ Energy (1)
- ☐ Forests (5)

▼ Show more  
✕ Clear all

### ▼ Hazard / Impact

- ☒ Drought (18)
- ☐ Erosion (1)
- ☐ Extreme weather (2)
- ☐ Flooding (2)
- ☐ Freezing rain (3)

▼ Show more

## Search filters Clear all

### ▼ Sector

- ☐ Agriculture (14)
- ☐ Coastal management (2)
- ☐ Ecosystems and biodiversity (8)
- ☐ Energy (1)
- ☐ Forests (5)

▼ Show more  
✕ Clear all

### ▼ Region

- ☐ Alberta (2)
- ☐ British Columbia (9)
- ☒ Manitoba (4)
- ☐ New Brunswick (1)
- ☐ Newfoundland (1)

▼ Show more  
✕ Clear all

### ▼ Resource type

- ☐ Additional resources (1)
- ☐ Data product (14)
- ☐ Guidance (4)
- ☐ Tool (14)

✕ Clear all

### ▼ Hazard / Impact

- ☐ Air quality (5)
- ☐ Drought (18)
- ☐ Erosion (12)
- ☐ Extreme weather (9)
- ☒ Fire (12)

▼ Show more  
✕ Clear all

### ▼ Historical / Future

- ☐ Future (7)
- ☐ Historical (16)

✕ Clear all

### ▼ Variables

- ☐ Cooling degree days (2)
- ☐ Dew point (2)
- ☐ Drought (6)
- ☐ Extremes (1)
- ☐ Flood (1)

▼ Show more  
✕ Clear all

## Search records



2 records found

Order by Name ascending ▼

Fire ✕

Manitoba ✕

### Fire Information

Guidance Tool Data product

The Fire Information database contains current and archived fire information. Current information includes current fire situation and update reports and a forecast fire hazard map. Archived information includes fire hazard maps, historical fire status information, fire status/situation/update reports, and fire status displays. Data are available in tabular, report, and mapped formats.

Organization: Government of Manitoba

Sub-organization: Sustainable Development

Resource formats: **Data files** **Graphical** **Mapped**

### Fire Mapping

Guidance Tool Data product

The Manitoba Fire Mapping Program provides an interactive map, as well as fire location maps formatted for viewing in Google Earth and as ESRI shapefiles. These operational map products are a compilation of data from various sources including the crews who suppress the fires, satellites, and hand rendered maps. The fire shapes and sizes may differ from the actual fire occurrence due to changing weather conditions and a variety of natural, electronic, and human factors beyond the control of Manitoba Conservation.

Organization: Government of Manitoba

Sub-organization: Sustainable Development

Resource formats: **Mapped**

## Key Points:

- A searchable collection of links to climate datasets, tools, guidance and related resources
- Sources include federal, provincial and territorial governments, national professional organizations, climate consortia
- Useful for impact, vulnerability and risk assessments, and for adaptation planning