



INTRODUCTION TO THE CANADIAN CENTRE FOR CLIMATE SERVICES

Durham Region Natural Environment Climate Change Summit
March 7, 2019

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**CANADIAN
CENTRE FOR
CLIMATE
SERVICES**



CLIMATE CHANGE POSES SEVERAL RISKS TO MUNICIPALITIES

Health and safety impacts

Heat waves, cold snaps, changes in vector borne disease patterns, urban heat island effect

Buildings and infrastructure damage

Floods, hurricanes, ice storms, wildfires, degrading infrastructure, sea level rise

Storm water and wastewater management

Changing precipitation patterns, floods, damage to infrastructure

Energy, transportation and telecommunications

Changes in energy demand, damage to infrastructure, disruptions due to extreme weather

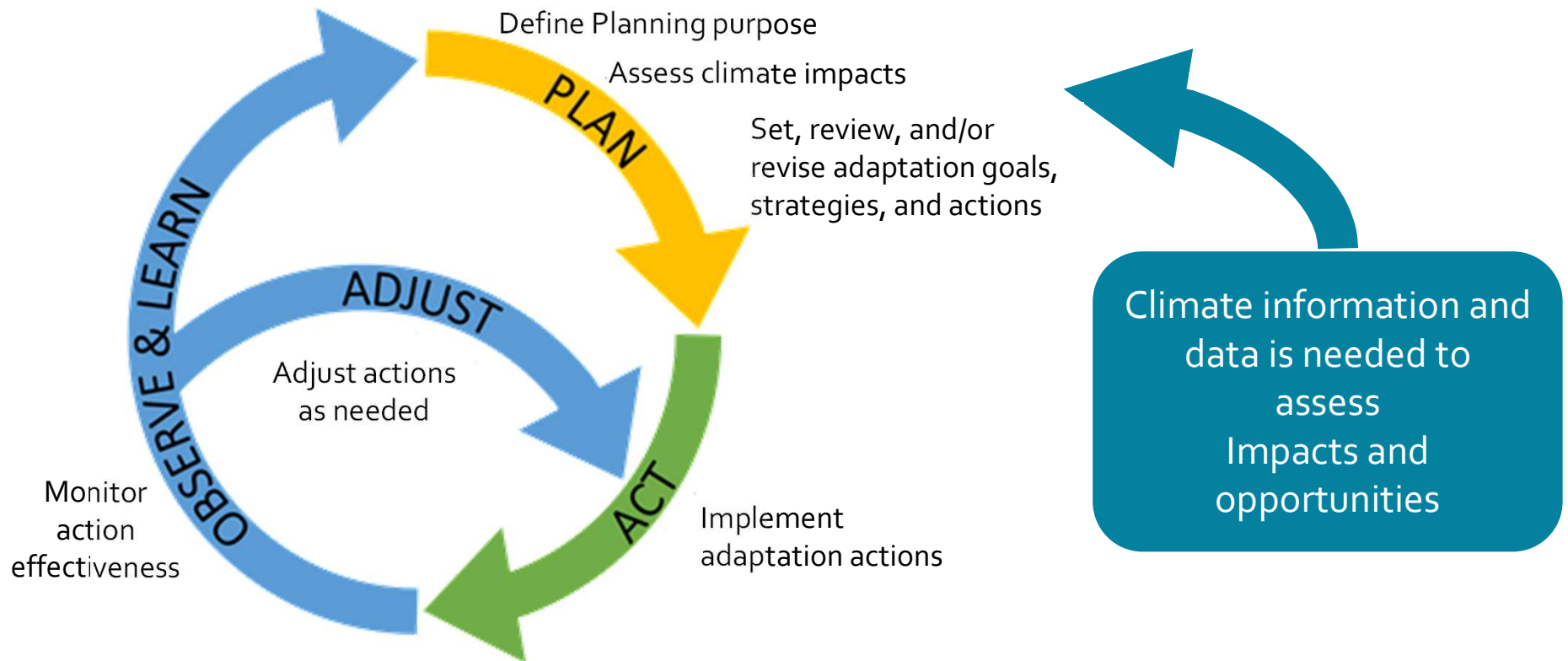
Changes to land use and development

Changing risks from climate-related disasters (e.g., floods, wildfires), coastal erosion, sea level rise, drought



CLIMATE INFORMATION AND DATA INFORMS ADAPTION MEASURES

Climate Change Adaptation Cycle



CLIMATE DATA AND INFORMATION HELPS CITIES INCREASE THEIR RESILIENCE

Climate data and information can improve:

- Infrastructure design
- Emergency response
- Business continuity
- Municipal planning
- Human health programs



CANADIAN CENTRE FOR CLIMATE SERVICES

WHAT ARE CLIMATE SERVICES?

- Developed based on **users' needs**
- Provide climate information to **help people, communities, and economic sectors plan for climate change**
- Help answers questions like:

What climate projections are available for my needs?

What do the trends and projections say for my region?

Should I plan to design and construct infrastructure differently?



OUR CLIMATE SERVICES INCLUDE...

- Easy **access to reliable historical and future climate data** and information to help understand climate change and its impacts
- **Translation of science into information and tools** that are clear, meaningful and easy to apply
- **Collaboration with experts and users** to develop new products
- Training and guidance on **how to incorporate climate considerations into decisions**



CCCS WEBSITE

LAUNCHED SEPT 2018

- **Facilitate access** to existing climate data, tools and related resources through **consolidation** and provision of links
- **Build capacity** to understand and use climate information by providing:
 - ✓ Guidance and contextual information on climate data, its interpretation, and use
 - ✓ Interactive access to main ECCC climate historical and future datasets, with ability to download
 - ✓ Library of climate resources from federal, provincial and territorial governments, national professional organizations, climate consortia

www.canada.ca/climate-services/

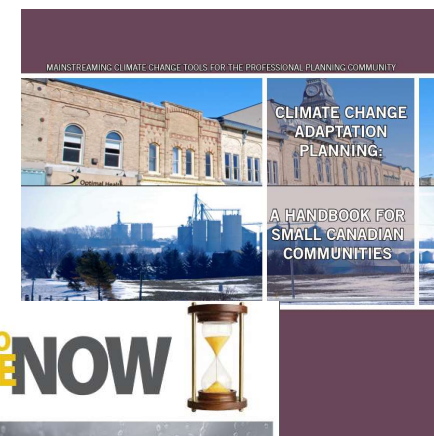
CCCS WEBSITE LIBRARY OF CLIMATE RESOURCES

Collection of additional resources with an easy to use searchable database and includes:

- Other datasets
- Guidance documents
- Regional climate studies

Filters include:

- Sector
- Hazard/impact
- Regions
- Type (guidance, data, adaptation planning)
- And more!



CLIMATE SERVICES SUPPORT DESK

- **Climate Services Support Desk officers are available to assist users** in finding, understanding and using climate data, information and tools to consider climate change in planning and decision-making
- Support desk activities are coordinated with experts from regional climate consortia and federal departments



1-833-517-0376



info.cccs-ccsc@canada.ca



THE CLIMATE SERVICES SUPPORT DESK ASSISTS MUNICIPALITIES



Support desk

Ontario waste water treatment plant needed **historical precipitation data** to determine potential sources of increased wastewater flow

Provided **historical annual precipitation data** for the relevant years

SK municipal government looking for **data and information** for adaptation plans

Provided **regional climate data reports, general guidance on climate projections** and **regional adaptation guides**

Regional municipality in Ontario looking for information on **storm events and rainfall**

Confirmed data needed was not available yet and provided other useful resources

Small county in Nova Scotia looking for a **template for community action** with respect to climate change adaptation

Provided **regional climate change adaptation guidance** references

CANADIAN CLIMATE DATA PORTAL COMING SOON

- **Easy to use online climate analytics system** to better disseminate climate and impact-related datasets
- A general interface to provide **interactive access to climate data and tools with data analytic functionality**
- **Sectoral Modules** with information tailored to specific sectors
- Phased approach with **continual enhancements**



CLIMATE SERVICES IS WORKING TOWARDS A NETWORK OF REGIONAL HUBS



EXAMPLES CLIMATE DATA AND INFORMATION AVAILABLE

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HISTORICAL LOCAL CLIMATE CHANGE AJAX REGION

The local climate is already changing

Trend	Annual	Winter	Spring	Summer	Autumn
Mean temp (°C) (1948-2016)	+0.9	+1.0	+1.2	+1.1	+0.6
Total Precipitation (%) (1948-2012)	+10.7	+2.0	+4.8	+11.3	+23.2

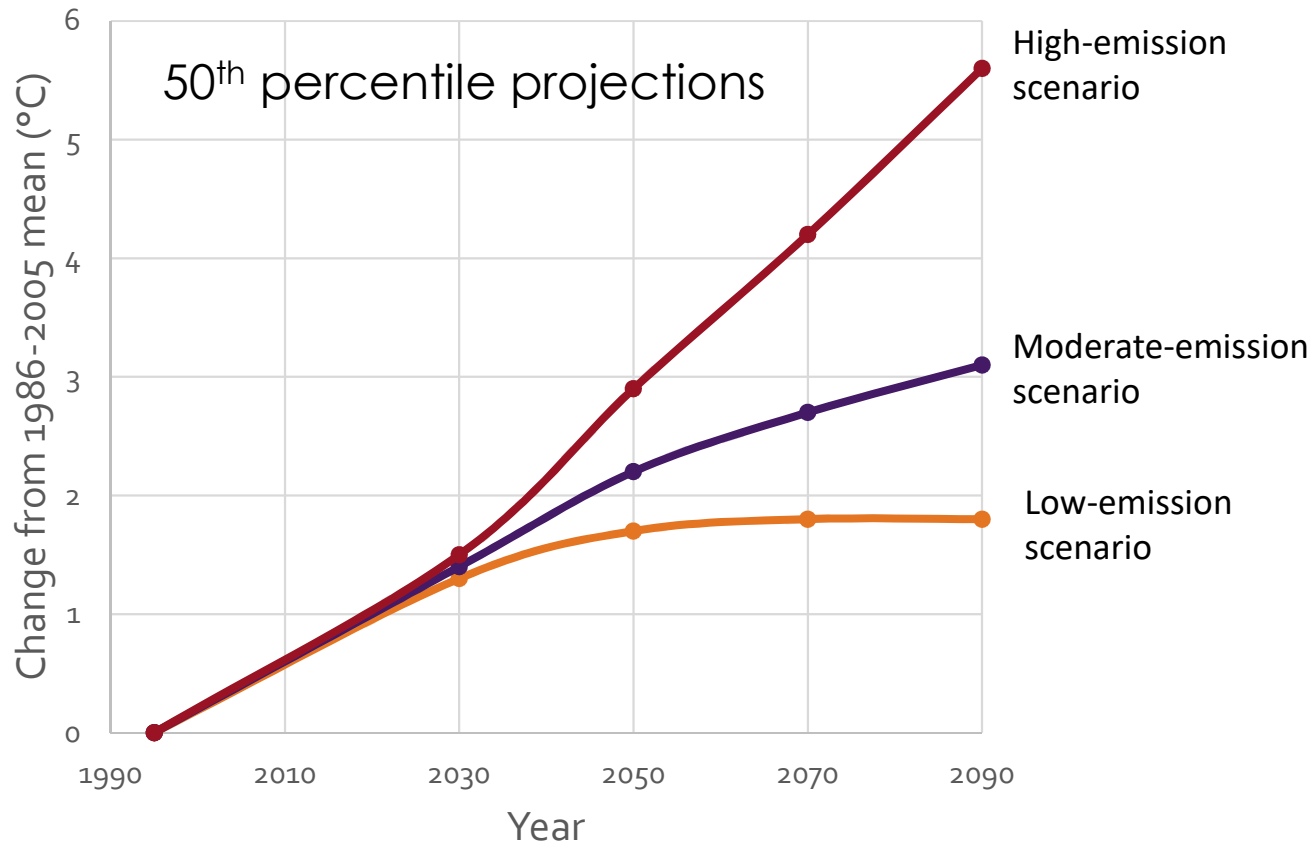


CCCS Data viewer

Annual mean temperature change for Ajax region between 1948 – 2016 (Gridded data)



PROJECTED CHANGE IN AJAX: ANNUAL MEAN TEMPERATURE



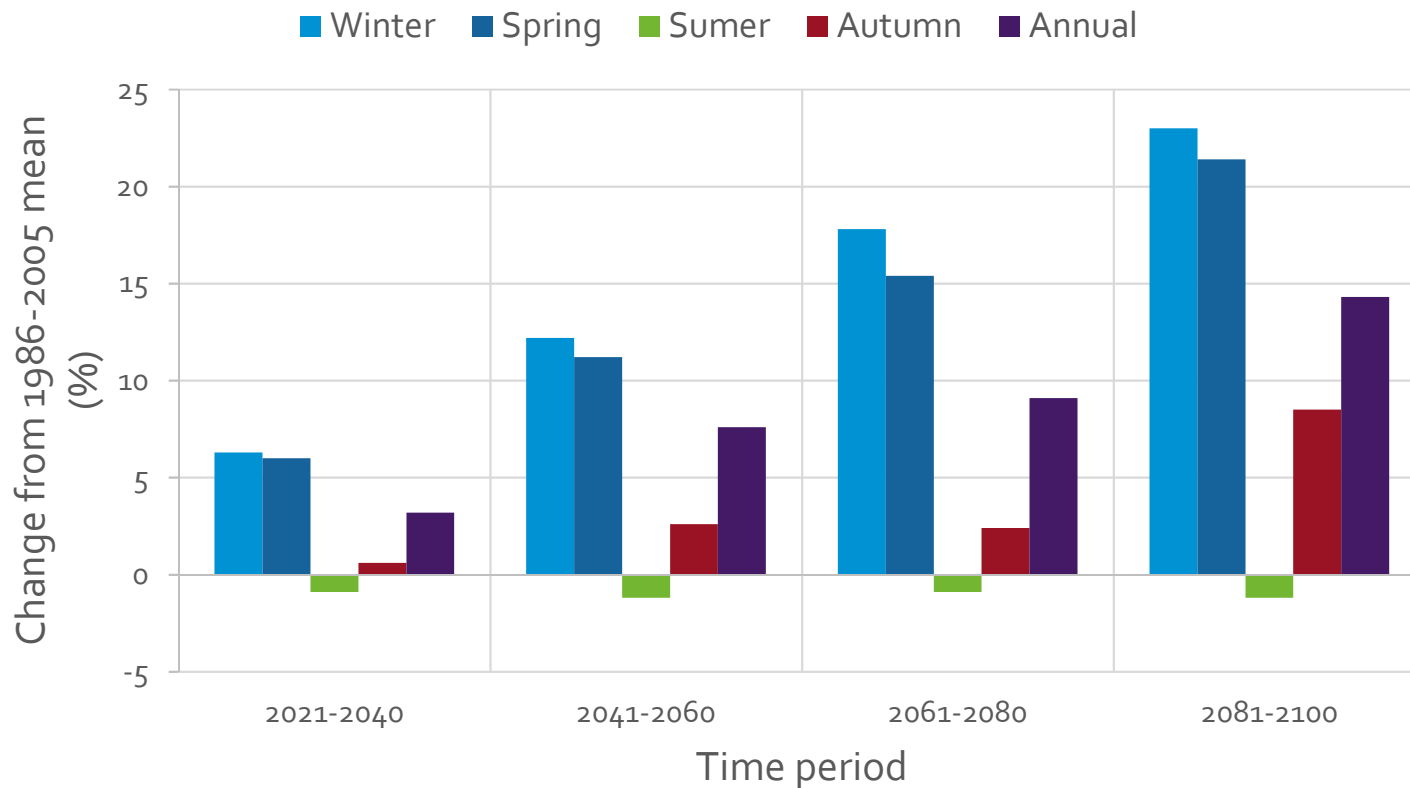
The projected annual mean temperature change for Ajax by the end of the century is between 1.8 and 5.6 °C

However, changes are seasonally variable



PROJECTED CHANGE IN AJAX: SEASONAL PRECIPITATION

Looking only at the high-emission scenario (RCP 8.5)

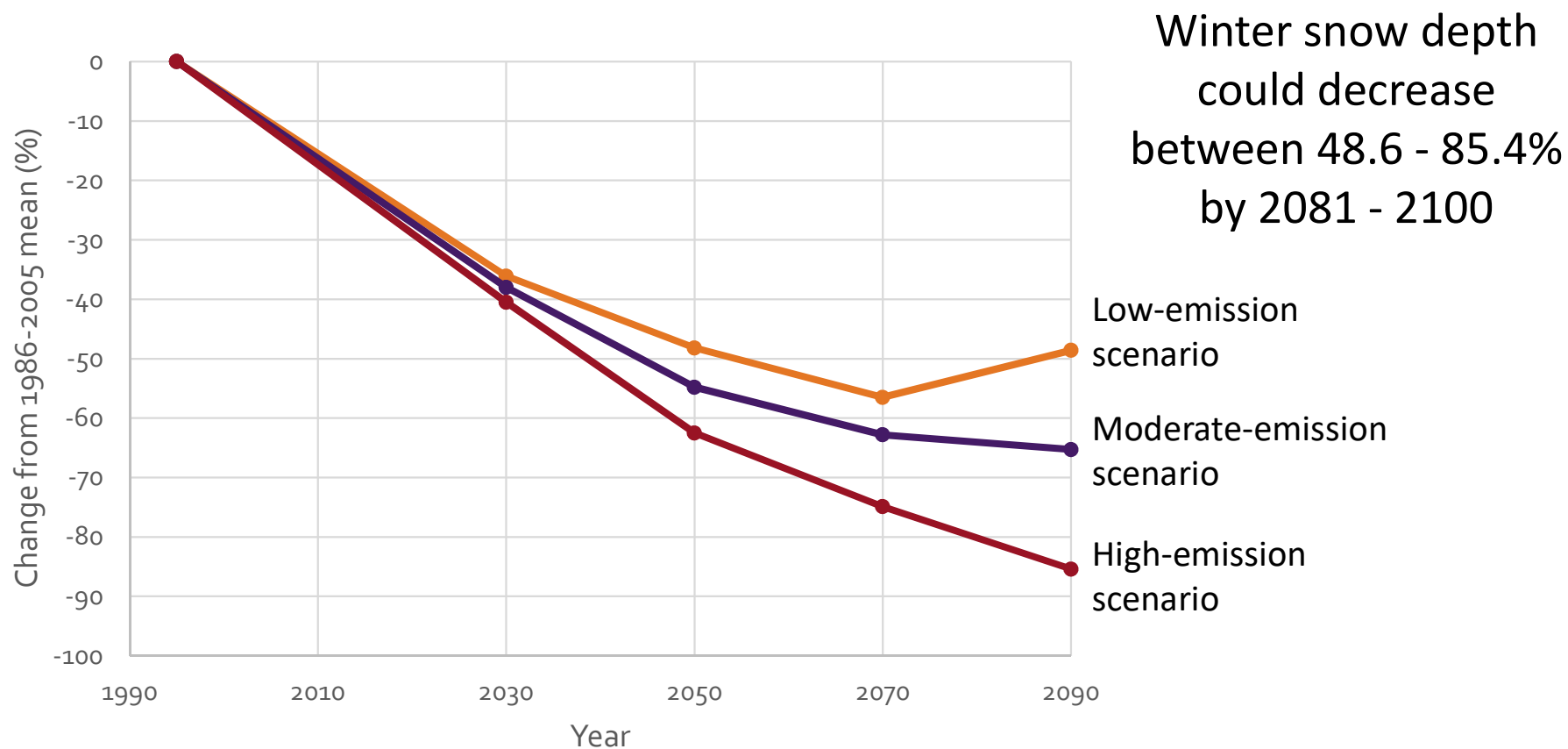


Generally more
projected
precipitation

But varies
significantly by
season



PROJECTED CHANGE IN AJAX: WINTER SNOW DEPTH



CCCS WEBSITE

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



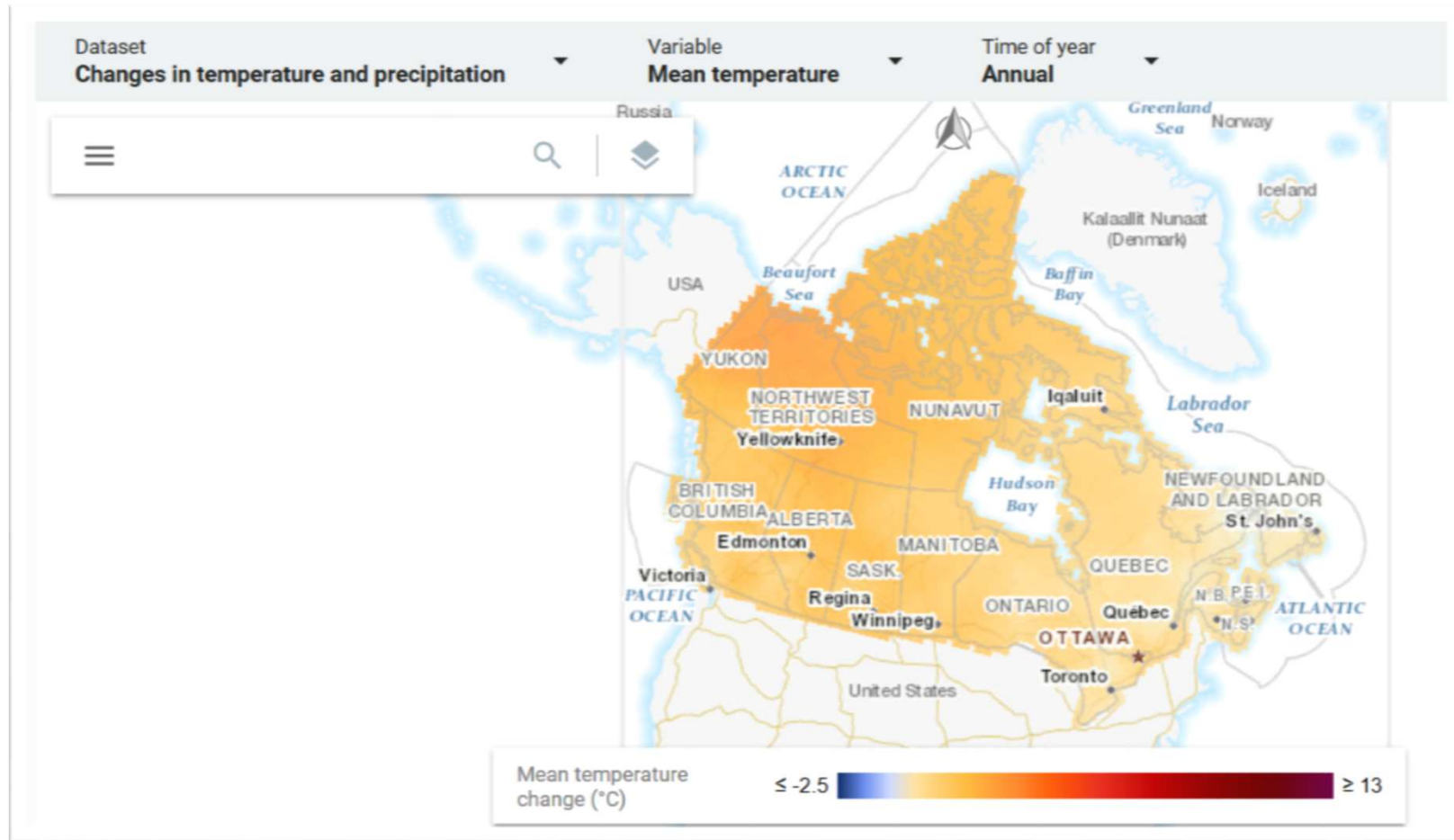
Display and download climate data

View selected climate datasets on maps or download data

www.canada.ca/climate-services/



DISPLAY CLIMATE DATA



DOWNLOAD CLIMATE DATA

ata
ometric

* Value type (Required)
Anomaly values

* Variable (Required)
Mean temperature

* Time interval / Time of year (Required)
Annual

Date range

Start date (YYYY)
1948

End date (YYYY)
2017

Clear dates

* Data download format (Required)
[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: 1948 - 2017

LIBRARY OF CLIMATE RESOURCES

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](#).

► Explanation of the different resource types

Search records

Search ...



Showing 1 - 10 of 325 results

Order by Name ascending

[7 Steps to Assess Climate Change Vulnerability in Your Community](#)

Guidance

This workbook helps communities plan for climate change by assessing vulnerability to identified hazards.

Organization:

Government of Newfoundland and Labrador, Memorial University

Sub-organization:

Search filters [Clear all](#)

▼ Sector

- Agriculture (26)
- Coastal management (30)
- Ecosystems and biodiversity

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THANK YOU

Questions?

<u>Website:</u>	<u>Contact:</u>
English: www.canada.ca/climate-services	 1-833-517-0376
Français: www.canada.ca/services-climatiques	 info.cccs-ccsc@canada.ca

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APPENDIX

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CCS WEBSITE DATASETS AVAILABLE

Historical Data

- **Climate normal* (1981-2010) at weather stations (values)**
 - Variables: Mean temp, daily min temp, daily max temp
 - Timescales: Annual, monthly
 - Formats for download: CSV, GeoJSON
- **Adjusted historical climate data at weather stations (trends)**
 - Variables: (Dependent on the station) Mean temp, daily min temp, daily max temp, total precipitation, wind speed, sea level pressure, station pressure
 - Timescales: (Dependent on the station) Annual, seasonal, monthly
 - Formats for download: CSV, GeoJSON
- **Canadian Gridded Temperature and Precipitation Anomalies (CANGRD)**
 - Resolution: 50 Km
 - Variables: Min temp, max temp, and mean temp, total precipitation
 - Timescales: Annual, seasonal
 - Formats for download: GeoTIFF, NetCDF
- **Changes in Temperature and Precipitation (trends) – Gridded data**
 - Resolution: 50 Km
 - Variables: Mean temp, total precipitation
 - Timescales: Annual, seasonal
 - Formats for download: GeoTIFF, NetCDF



CCS WEBSITE DATASETS AVAILABLE

Future Projections

Time periods: 2021-2040 / 2041-2060 / 2061-2080 / 2081-2100

- **Future climate simulations (global climate models) – Gridded Data**
 - Resolution: 100 Km
 - Variables: Mean temp, total precipitation, surface wind speed, sea ice concentration, sea ice thickness, snow depth
 - Timescales: Annual, seasonal
 - Scenarios: High Emissions, Moderate Emissions and Low Emissions
 - Formats for download: NetCDF, GeoTIFF
- **High resolution future climate simulations (downscaled) – Gridded Data**
 - Resolution: 10 Km
 - Variables: Daily max temp, daily min temp, mean temp and total precipitation
 - Timescales: Annual, seasonal
 - Scenarios: High Emissions, Moderate Emissions and Low Emissions
 - Formats for download: NetCDF, GeoTIFF





Durham Region Natural Environment Climate Change Summit

Brought to you by: the Natural Environment
Climate Change Collaborative, with support from
the Region of Durham and Enbridge

thank you

thank you