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Climate Change Canada

Environnement et  
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Canada

# The Northern Climate Data Working Group (NCDWG)

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and

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CANADIAN CENTRE FOR  
CLIMATE SERVICES

CENTRE CANADIEN DES  
SERVICES CLIMATIQUES

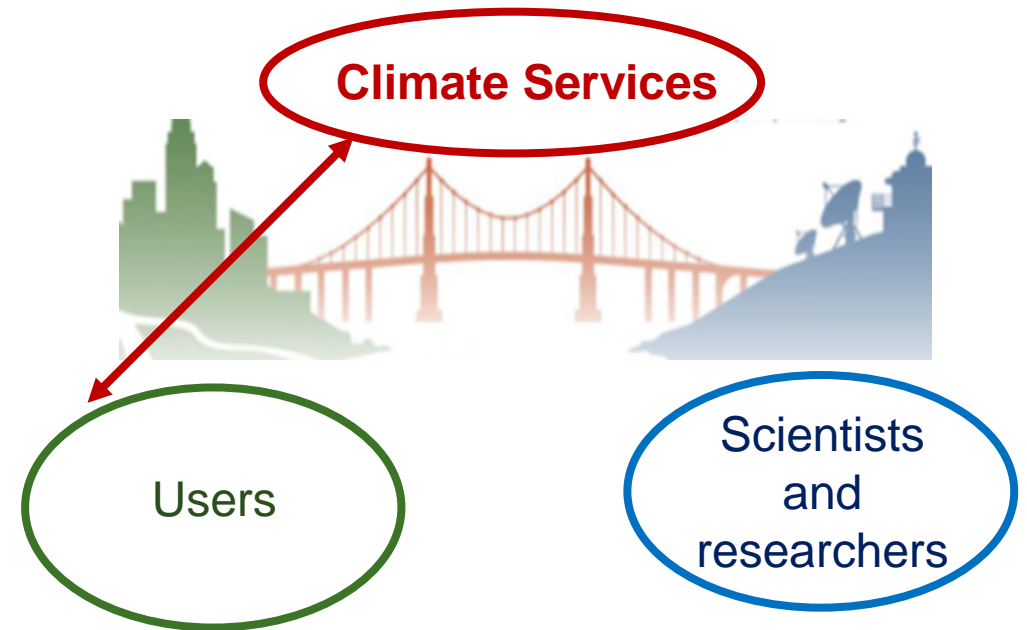
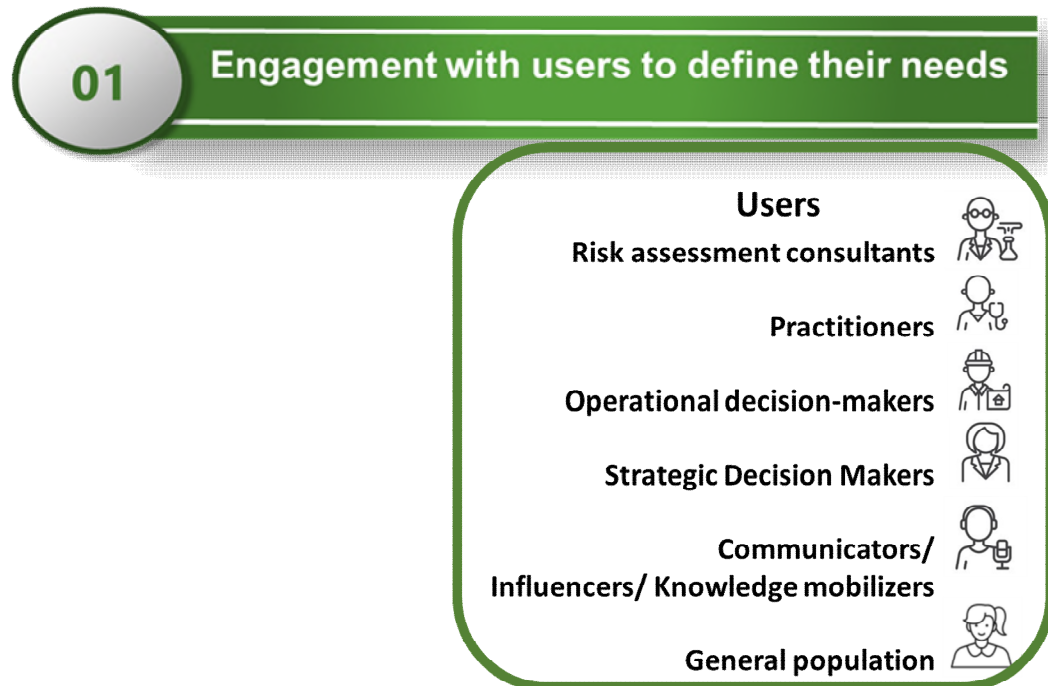
# Outline

1. CCCS - Introduction
2. NCDWG
3. Phase I results



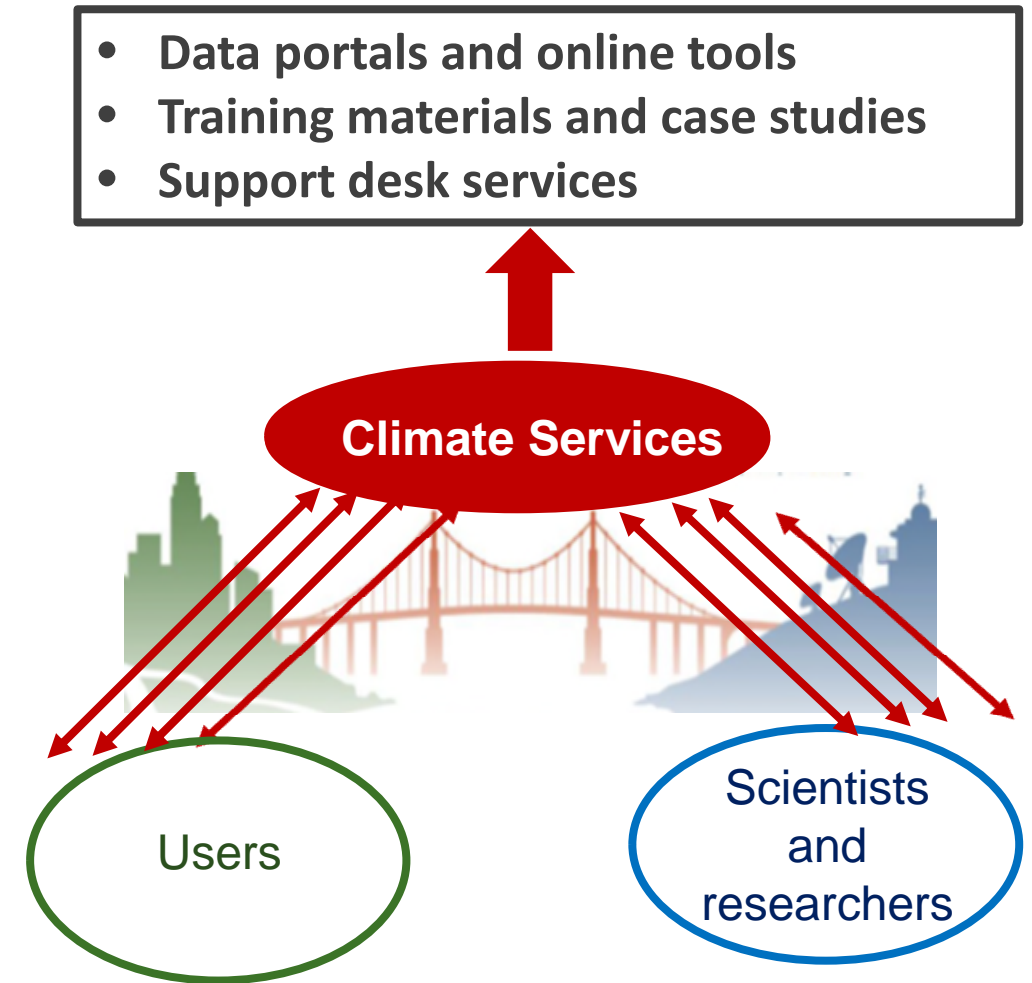
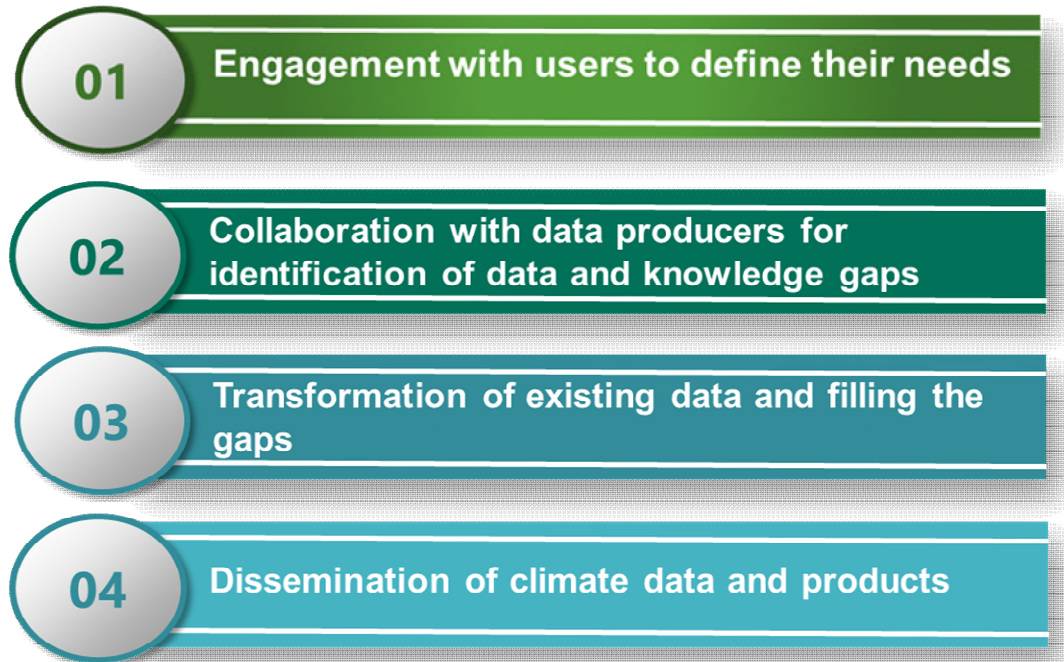
# Canadian Center for Climate Services

- Officially launched October 2018
- Mandate to provide Canadians with authoritative information and support to consider climate change in their decisions
- Acts as a bridge between users and producers of climate data:



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# Dissemination of products:

- 1. CCCS website
- 2. Products developed in collaboration with regional climate providers
- 3. Products developed in collaboration with other government departments

## Canadian Centre for Climate Services



- Library of climate resources**  
Datasets, tools, guidance and related resources
- Climate information**  
Climate change concepts, applications, and the 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



# On the road to provide Climate Services for Northern Canada

- A challenging road with many gaps and needs
- NCDWG: our first large-scale collaboration with scientists and researchers to identify which climate data exist and how can be used.

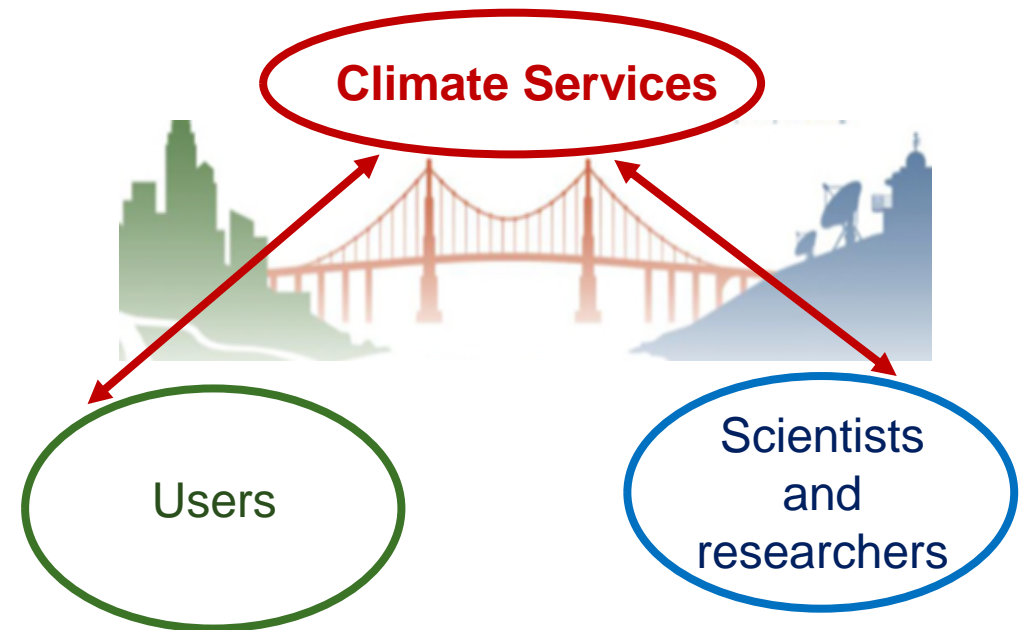
*Which data I should use to model how climate change will affect the winter roads?*

*The network of meteorological stations is sparse in Northern Canada, is there any other data I can use for the historical climate.*

*I need to better understand the future impacts climate change will have on my community.*

*How climate change will affect permafrost conditions?*

Image taken in Kangiqsualujjuaq





# The Northern Climate Data Working Group

In late 2020, CCCS convened a working group of scientists with expertise in climate data in the Canadian North:

- Objective: identify, inventory, and characterize existing and publicly available climate datasets covering the Canadian North.
- An important early step to inform development of future climate products and services to support climate change adaptation decision-making in the Canadian North.

**Period:** December 2020 – December 2021

**Secretariat:** Paul Steenhof (CSA Group)

Members and contributors worked on a volunteer base.

Member Name	Organization
Alex Crawford	University of Manitoba
Brian Horton	Yukon University Research Centre
Brian Sieben	Government of Northwest Territories
Elaine Barrow	CCCS/ECCC
Emilia Diaconescu	CCCS/ECCC
David Atkinson	University of Victoria
Jennifer Lukovich	University of Manitoba
Lawrence Mudryk	Climate Research Division / ECCC
Lindsay Matthews	CCCS/ECCC
Marco Braun	Ouranos Consortium on Regional Climatology and Adaptation to Climate Change
Michael Allchin	University of Calgary
Paul Kushner	University of Toronto
Rajesh Shrestha	WHERD/ECCC
Ryan Hennessey	CCCS/ECCC
Silvie Harder	CCCS/ECCC
Stephan Gruber	Carleton University
Stephen Déry	University of Northern British Columbia
Stephen Howell	Climate Research Division / ECCC

+ many contributors

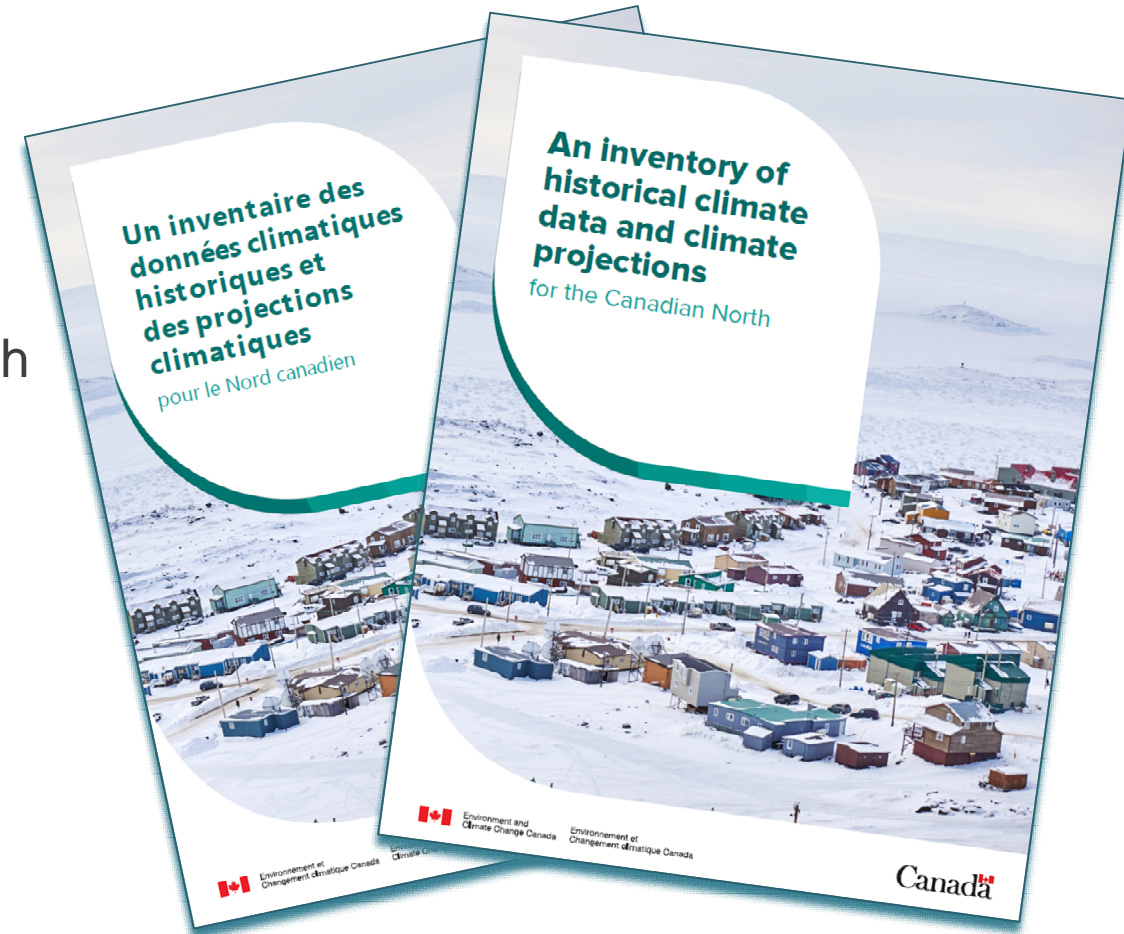
# The Northern Climate Data Working Group

## Phase I Report:

- Tables with the inventory of **historical climate data**
- Tables with the inventory of **climate projections**
- Descriptions of data and links to download the data
- Present understanding of available datasets, challenges and limitations of use in the Canadian North
- English and French versions available by email

## Types of data:

- Stations' observations
- Gridded observations
- Reanalyses
- Remote sensing data
- Modelled data





# The Northern Climate Data Working Group - Phase I report

## Historical data

### Meteorological data

- Introduction
- 2-m air temperature (29)
- Total Precipitation (36)
- Surface Humidity (19)
- Surface Wind Speed (22)
- Supplementary data (9)

63 Annexes

### Snow data

- Introduction
- Snow depth (30)
- Snow water equiv. (27)
- Snow cover (9)
- Appropriate use of snow data

25 Annexes

### Hydrology data

- River Discharge (12)

8 Annexes

### Sea ice data

- Introduction
- Sea ice concentration (4)
- Sea Ice Thickness (8)
- Sea Ice Drift (4)
- Other Data Portals

### Permafrost data

- Introduction
- Ground Temperature (7)
- Subsurface Ice Content (7)
- Permafrost extent (5)
- Landform Inventories (9)
- Ground Subsidence and Active-Layer Thickness

## Climate projections

### Table with ensembles of models

- 11 ensembles (e.g. CMIP6; CMIP5; CMIP5 1° x 1° gridded data; CORDEX; Bias-adjusted ensembles)

### Considerations:

- Meteorological variables
- Snow variables
- Hydrology variables
- Sea ice
- Permafrost

# Phase II : the Northern Climate Data Inventory and Report (NCDRI)

- **Phase 2 of the Northern Climate Data Working Group**
- **Led by the University of Toronto with support from the CCCS**

## Objective:

- Transform the Phase I report into a flexible and searchable online database.
- Develop supplementary materials on remote sensing data and description for wind data.

Home Online Report Historical Observations Model Data Feedback English (en) Go

## Northern Climate Data Report and Inventory (NCDRI)

Welcome to the NCDRI, which is Phase 2 of the Northern Climate Data Working Group (NCDWG) Project

The purpose of the NCDWG Phase 1 was to “identify, inventory, and characterize existing datasets for future development of products for various local and regional applications related to climate-change adaptation decision-making in the Canadian North”. Phase 1 work and results are summarized in a report (Diaconescu et al., 2022), a document that can be found [here](#).

The purpose of Phase 2 is to put this report into a flexible and accessible format. Making this information more accessible is intended to help service organizations, researchers, community planners, and consultants more effectively use available northern climate data, for their work in adaptation, planning, and analysis

Please watch the video on this home page for additional information on how to use the NCDRI. Share your comments and impressions through the feedback links; we look forward to hearing from you!

Feedback  
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Search NCDRI report  
Search Historical Observations  
Phase 1 Report (pdf download)  
Acronyms  
Team

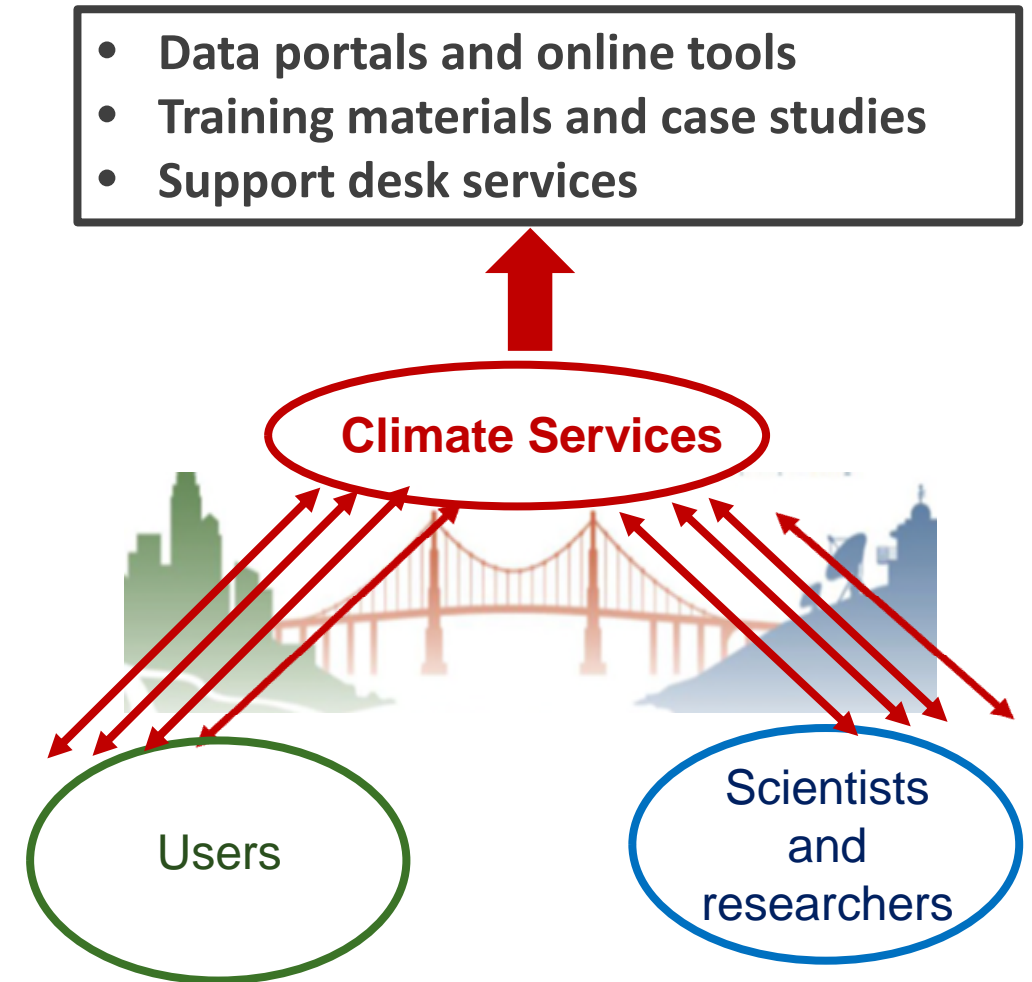
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<https://nordata.physics.utoronto.ca/en/>



# What is available vs What is needed?

- **NCDWG**: our first collaboration with scientists and researchers to identify which data exist and how can be used as "ingredients" for the development of climate products and services.
- What types of climate products and tools *should* be developed?
  - Responding to this question requires many discussions with Northerners, so that those future developments respond to the priorities and the decision-making of northern communities.





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# Thank you!

## Website

English:

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

Français:

[canada.ca/services-climatiques](https://canada.ca/services-climatiques)



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