

POLAR DATA CATALOGUE

INFORMATION GUIDE FOR ARCTICNET STUDENTS

The wealth of knowledge and data generated by polar research must be managed, to ensure and maximize the exchange and accessibility of relevant data, and to leave a lasting legacy. The Polar Data Catalogue (PDC, www.polardata.ca) was developed as a collaborative effort between ArcticNet, the Canadian Cryospheric Information Network (CCIN), and the Department of Fisheries and Oceans Canada (DFO) to facilitate the exchange of information about the Canadian Arctic among researchers and other user groups, including northern communities and international programs. Several other organizations and agencies actively participated in its development including Environment Canada, Natural Resources Canada, the Canadian IPY-Federal program (IPY-Canada), Inuit Tapiriit Kanatami, Inuit Circumpolar Council, the Northern Contaminants Program (NCP), the ArcticNet Student Association and the Centre for Northern Studies (CEN). Since its online launch in the summer of 2007, it rapidly gained popularity and other programs such as IPY-Canada and NCP, have decided to use the PDC to archive their metadata. The management of the PDC is now coordinated by the inter-agency Polar Data Management Committee, which includes representatives from CCIN, ArcticNet, CEN, NCP, DFO, Environment Canada and Inuit Tapiriit Kanatami. The three co-chairs of this committee are Warwick Vincent, Ellsworth LeDrew and Leah Braithwaite. Julie Friddell is the Data Manager at CCIN and Josée Michaud is the Data Manager at ArcticNet.

The PDC is an online searchable database of metadata that describes, catalogues and identifies access points to the diverse data sets generated by polar researchers. There are growing numbers of data sets archived at the PDC that are available for downloading and use by other researchers and the public. The scope of the research covers a range of disciplines, from natural sciences and policy, to health and social sciences. Metadata is information about (What? Where? When? Whom?). Metadata facilitate data access, networking and collaboration, and management of data.

Searching the PDC

There are several methods to search the PDC, including using the geospatial map search tool, dates, keywords, or CCIN Reference Number. The keyword/key phrase search queries the text fields in the metadata: Title, Abstract, Purpose, Plain Language Summary, Study Site, Citation, Research Program, Responsible Parties, Data Originator, and Keywords.

To start searching the database:

- 1) Go to www.polardata.ca;
- 2) Click on the map on the first screen;
- 3) Choose the Polar Data Catalogue at “Choose a Data Collection to Search”;
- 4) Click “Agree” to the Terms of Use;
- 5) You are now in the “PDC Search” application. You can now click 4 points on the map if you wish to search within a defined location polygon. It is possible to zoom and reposition the map as needed using the tools on the top left of the map. You can also

search the database by entering 4 coordinates delimiting a polygon of interest, dates, or keywords. Every metadata is associated with a CCIN reference number. If you know this number, you can search for it in the “Quick Search” section at the bottom of this tab;

- 6) Click the Search button;
- 7) On the “Results” tab, you get a table listing all metadata (15 at a time) that contain your search criteria. You can click on the title to get the full metadata record (on the “Metadata” tab). The “Date” column indicates the begin date of the study, the “Show/Hide” column permits to visualize on the map the spatial coverage of the study, and the “Download” column indicates if data sets are available to be download (N/A or AVAILABLE). In the case that data are available, you just need to follow the instructions on the “Data” tab to access the data files.

Creating Metadata

Entering metadata is mandatory for all ArcticNet research projects and is a task that will often be done by students. Complete instructions for creating metadata, metadata input forms and a metadata example are available online in the [PDC Help section](#) (in the menu on the PDC Metadata and Data Entry portal). Here are a few key points.

- 1) Sign in (or register for first time users) by clicking on “Sign in” on the first screen. Use your supervisor’s email address (and password) as this is the main link to a laboratory’s records and thus remains the most reliable and constant login name for years to come;
- 2) Click “Agree” to the Terms of Use;
- 3) New metadata are created by clicking on “Submit Metadata”. The fillable Metadata Input Form (available on the Help page) allows you to completely fill in the form offline and then to copy into the online form. Once all fields of the online form are completed, click on “Validate Info” for your record to be saved;

A FEW GENERAL SUGGESTIONS FOR METADATA (see examples at the end of this document):

- **Title:** Use a catchy and self-explanatory title. A title such as “Hudson Bay data” for example is not very useful for someone searching the catalogue.
- **Abstract:** Properly describe the variables sampled during the project. The important variables should also be in the keywords section.
- **Responsible Parties:** Your supervisor should be the “Principal Investigator”, the “Originator” is the equivalent of “first author” (often the person who is writing and submitting the metadata), and the others involved with this data set are either “Collaborator” or “Point of Contact”. Everyone should be associated with a role.
- **Link to Data:** If there is no available web link to data, provide the email of your supervisor, not yours (you will probably have moved on in a few years!). However, you can also notify that you want to be contacted by the data users. When the data files are submitted, this link will change to the PDC web address where the data files can be accessed.
- **Keywords:** Include overarching keywords, especially when only sector-specific keywords have been used. For example, studies examining certain bird species will have the species’ name as keywords, but the keyword “bird” should also be added.

- Please make sure that your supervisor is in the loop, and ask him/her to verify the metadata before submitting it; he/she may identify problems, errors and important corrections, including legal, confidentiality and liability issues that are not obvious to you. This is important, because once online, these metadata will be an internationally and publicly visible output of your supervisor's laboratory.
- 4) Once you are both satisfied with the metadata, select it from the list in “**My Metadata**” page and click “**Submit**” at the bottom of the record. An automatic email will be sent to your supervisor and your research program approver (i.e. Josée Michaud for ArcticNet). This approval process is to further ensure good quality, standardization and accuracy of metadata found in the PDC;
 - 5) The approver can approve, edit (minor errors) or send back (major changes) the record. An automatic email will be sent once the record is “Sent back” or “Approved”. The record will not be available to the public (i.e. on the online search) until it has been approved;
 - 6) It is important to know to include extra years, a key citation for the data, or additional variables), you will need to resubmit it for reapproval. This updated record will replace the original record.

Uploading Data Sets

In accordance with the [ArcticNet Data Policy](#), all researchers must address the issue of long-term archiving according to the type of data they are generating. As stated in the policy, **exclusive access to ArcticNet data by project members is limited to a period of three years after the end of an individual project**. This three year period should give sufficient time to complete the analysis of data and the publication of scientific manuscripts. After this three-year period, ArcticNet data must be made available, fully, freely, openly, and within the shortest feasible timescale. Researchers must comply with these terms unless negotiated otherwise with the Polar Data Management Committee (and accepted by the ArcticNet Research Management Committee), with compelling justification.

This implies that students must make their data freely available three years after the final deposit of their thesis. However, we recommend uploading data sets in the PDC as soon as they are ready to be submitted under “Limited” access (drop-down selection available under Security/Data Access at the bottom of the Metadata Entry Form). This is to ensure the preservation of data. The access to data is then protected until public access is appropriate.

Full and summary “Best Practices” documents for data archiving can be found in the Help section of the PDC website. Here are some guidelines:

- 1) ArcticNet Network Investigators (or students, or persons in charge of data) will upload their data on the CCIN servers by logging in the PDC web portal (www.polardata.ca), **using the same user profile as for their metadata**, and clicking on the “Submit Data” link. Each data set must be linked to a metadata record to ensure access. If needed, the ArcticNet Data Manager (Josée Michaud) will assist NIs and students in preparing data

sets and ensuring that they conform to established guidelines of the PDC best practices for data archiving. The ArcticNet Data Manager will also establish the liaison between NIs and CCIN when needed.

- 2) Once uploaded, the ArcticNet Data Manager will verify files, modify file format, file names and directory structure when needed, and finally approve data sets to be linked to corresponding PDC metadata records. The files will then be published online, when applicable, and under the appropriate conditions of access to data (access constraints). The ArcticNet Data Manager or CCIN **will not**, however, modify the content of data sets, **will not** be responsible for data quality, and **will not** perform data quality assurance; **these remain the responsibility of the NIs and persons submitting data sets**. To avoid any liability concerns, however, the PDC User Policy clearly states that usage of metadata and data from the site is entirely at the risk of user.

For complementary information on data management, we suggest the section “Data Management” from the website of the Association of Polar Early Career Scientists (APECS): <http://www.apecs.is/research/data-management>. This webinar organized by APECS is also very informative: [Ruth Duerr - Data Use and Management](#).

Good luck and thank you from the Polar Data Management Committee for all your efforts in this important contribution to international polar science.

If you have any questions, concerns, or comments, please contact:

Josée Michaud (Julie Veillette, interim January-October 2012)
ArcticNet Data Manager
Phone: +1-418-656-2411
fdc@arcticnet.ulaval.ca

Sample Metadata Record (Natural sciences)

(The following information is for example purposes only)

Data Identification Information (basic information about the data set)

Title of data (e.g. Climate Data in Northern Québec):

2010 Active Layer Detachment (ALD) Carbon Exchange, Cape Bounty

How should the data be cited (as unpublished data or a journal reference)?

Scott, N. et al., unpublished data

Study site:

Cape Bounty, Melville Island, Nunavut

Purpose (a summary of the intentions with which the data set was developed):

Data were collected in order to determine the effects of permafrost disturbance in the form of active layer detachments on carbon exchange. Samples were collected from four separate disturbances within the western Watershed at Cape Bounty.

Abstract (description of methodology and data type, e.g., interviews, physical and chemical variables, imagery, recordings, maps and other spatial data, profile, etc.):

Carbon exchange was monitored from two sites within four ALDs. Carbon exchange was monitored using a two-step process involving static Plexiglas chambers and infrared gas analyzers. Initial uncovered readings were taken, recording CO₂ concentrations in ppm, every 5 seconds for a total of 5 minutes to obtain net ecosystem productivity (NEP). A second covered reading was taken for the same period of time to obtain ecosystem respiration (R). Covered readings were subtracted from uncovered readings to obtain gross ecosystem productivity (GEP). CO₂ concentrations were measured using a Vaisala CARBOCAP GMP343 probe and recorded onto a hand-held device. Temperature and relative humidity were simultaneously recorded by a second Vaisala HUMICAP HM70 probe (VAISALA Corp., Vantaa, Finland). Carbon exchange was monitored every 5 to 6 days beginning on June 26th and ending August 8th. Collected CO₂ concentration data has been modified from ppm and expressed as a flux (ugC/m²/min). Concurrent to each CO₂ measurement, air pressure, air temperature, wind speed were monitored using a Kestrel 3500. Soil temperature, soil moisture and active layer depth were also measured. Soil temperature was recorded at a depth of 10cm using a Taylor model 9878 digital thermometer (Taylor Thermometer, Oak Brook, Illinois, USA). Soil moisture was measured to a depth of 10cm using a Delta-T ML2X ThetaProbe. Active layer was measured using steel probe marked with 10cm increments.

Plain language summary (if available, please provide the text in more than one language):

Not Applicable

Responsible Parties (e.g. name of data collector(s)):

Alison Beamish, Originator
Johann Wagner, Collaborator
Neal Scott, Principal Investigator

Links to data (if available, otherwise please enter principal researcher's email address):

neal.scott@queensu.ca

Status of data: Complete

Maintenance and update frequency: As needed

Research Programs (you may select more than one program)

IPY-Climate Change and Permafrost
Cape Bounty

Research Area (geographic coordinates in decimal format)

Coordinates MUST be between -90 and 90 for latitudes and between -180 and 180 for longitudes. Latitude is zero on the equator and positive in the northern hemisphere. Longitude is zero on the Greenwich meridian and negative to the west across America.

For studies that cover the **entire Arctic region**, we suggest using 50 to 90 as latitudinal and 180 to -180 as longitudinal limits.

North: 74.9
South: 74.9
West: -109.5
East: -109.5

Time Period (during which the data was collected)

Start Year:	2010	End Year:	2010
Start Month:	Jun	End Month:	Aug
Start Day:	26	End Day:	8

Keywords (see keywords library)

(e.g. Alaska, Nunavik, Resolute, Active layer, Caribou, Glaciers, Migration, Stratigraphy, Diet, Salmonella, Habitat vulnerability)

Carbon dioxide
Carbon fluxes
Cape Bounty
Permafrost
Melville Island

Security

Data Access: Limited

Sample Metadata Record (Social sciences)

(The following information is for example purposes only)

Data Identification Information (basic information about the data set)

Title of data (e.g. Climate Data in Northern Québec):

Rankin Inlet Miner Interviews

How should the data be cited (as unpublished data or a journal reference)?

Keeling, A., unpublished data

Study site:

Rankin Inlet, NU

Purpose (a summary of the intentions with which the data set was developed):

This data were generated to fulfill two key goals of the project: 1) Community-based investigations of Inuit knowledge, experiences and memories of socio-cultural and environmental changes associated with minerals-based industrial development; 2) An historical-geographical study of minerals-driven Arctic industrial development and resettlement in Arctic regions. The Kangiqiniq (Rankin Inlet) nickel mine (1958-62) was significant as one of the first deliberate attempts at the industrial employment of Aboriginal northerners, and the town was also connected to federal Inuit resettlement efforts. Recent mining exploration and development activities have focused renewed industrial activity and infrastructure proposals on the community and surrounding region. Oral history interviews and a public workshop were undertaken to investigate Inuit recollections and perceptions of their experiences with past industrial development and the subsequent closure of the mine. By connecting community perspectives on this history with archival research, this research aims to understand the long-term consequences of and adaptations to industrial development (even long after closure or abandonment).

Abstract (description of methodology and data type, e.g., interviews, physical and chemical variables, imagery, recordings, maps and other spatial data, profile, etc.):

Interviews were undertaken with 10 individuals in August 2011. Interviews were conducted in Inuktitut and English, with translation by Peter Irniq, Inuit cultural advisor. Interviews were recorded on digital audio and video, with the consent of the informants. Video recording of interviews was undertaken by Jordan Konek, an Inuit filmmaker from Arviat. Interviews were conducted by Arn Keeling (PI) and Patricia Boulter, MA student. English-language portions of interviews have been transcribed for analysis purposes. Full translations of selected interviews are being undertaken. A public workshop was held August 11 at the community hall in Rankin Inlet, organized with the help of a community member. About 70 members of community attended, including many elders who were former miners. After an overview of the research project, the NFB film "People of the Rock" (1961) was screened. Community members were invited to share their reactions and memories of the mining and post-mining periods. Many did so, with Peter Irniq providing simultaneous translation of portions of their contributions. The workshop was audio-recorded and may be translated, mainly for the community's own record.

Plain language summary (if available, please provide the text in more than one language):

n/a

Responsible Parties (e.g. name of data collector(s)):

Arn Keeling, Principal Investigator

Arn Keeling, Originator

Jordan Konek, Collaborator

Patricia Boulter, Collaborator

Peter Irniq, Collaborator

Links to data (if available, otherwise please enter principal researcher's email address):

akeeling@mun.ca

Status of data: In progress

Maintenance and update frequency: Irregular

Research Programs (you may select more than one program)

ArcticNet

Research Area (geographic coordinates in decimal format)

Coordinates MUST be between -90 and 90 for latitudes and between -180 and 180 for longitudes. Latitude is zero on the equator and positive in the northern hemisphere. Longitude is zero on the Greenwich meridian and negative to the west across America.

For studies that cover the **entire Arctic region**, we suggest using 50 to 90 as latitudinal and 180 to -180 as longitudinal limits.

North: 62.8
South: 62.8
West: -92.08
East: -92.08

Time Period (during which the data was collected)

Start Year:	2011	End Year:	Unknown
Start Month:	Aug	End Month:	Unknown
Start Day:	8	End Day:	Unknown

Keywords (see keywords library)

(e.g. Alaska, Nunavik, Resolute, Active layer, Caribou, Glaciers, Migration, Stratigraphy, Diet, Salmonella, Habitat vulnerability)

Industries
Inuit population
Socio-economic impacts
Rankin Inlet
Kivalliq
Resource development

Security

Data Access: Limited (data involve human subjects)