

# Ice Core Data sharing

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# We are living in a new data sharing environment

## Support for reproducible research

- USGS [Community for Data Integration \(CDI\)](#)
- AGU [Position Statement on Data](#)
- NSF [Public Data access plan](#)
- NASA [open data](#)
- Open Source Software Policy Options for NASA Earth and Space Sciences <https://www.nap.edu/read/25217>
- Coalition for Publishing Data in the Earth and Space Sciences [COPDESS](#)

# Can we improve ice core data management?

## Existing infrastructure

- NSF Arctic data center
- USAP-DC
- NSF-ICF
- IDP
- NOAA NCEI
- SESAR (agent for the IGSN)
- ORCID

## Emerging efforts

- Ice Core Wiki
- CSDCO and LacCore
- Linked Paleo Data (LiPD)
- LinkedEarth
- iMicrobe
- EarthCube
- Schema.org

## Workshop Organizers

- Sean Birkel
- Chaw (Sudarshan) Chawathe
- Jenna Epifanio
- Andrei Kurbatov
- Linda Markowsky
- Mark Royer
- Jessica Scheick

## Workshop Participants

- Aaron Chesler
- Benjamin de Foy
- Carleigh Larrick
- Dominic Winski
- Elena Di Stefano
- Elena Korotkikh
- Aja Ellis
- Erin McConnell
- Paolo Gabrielli

- Jacob Morgan
- Karl Kreutz
- Katherine Anderson
- Kristen Rasmussen
- Nels Iverson
- T.J. Fudge
- Trey Stafford

- Almost all major ice core groups from the US were represented
- Computer scientists
- Paleoclimatologists
- Climate modelers
- Volcanologists
- Ecologists

# Goals/objectives for workshop

Q1. How do different ice core groups collect and document data from the field to publications?

Q2. Which software tools are used to trace changes in the data from the field to data center and ultimately publication?

- Increase reproducibility of research results by documenting all major steps from data collection to final conclusions.
- Increase usability of the ice core data sets for the broader research community and the public.

# Workshop outcomes

- Ice core data sets are hard to find (e.g., find a single list of all ice cores with coordinates)
- Published research results are not always easy to replicate with provided data
- Number of measurements and sampling resolution is increasing rapidly
- Dramatic increase in spatial coverage
- Data processing is not always documented nor can be easily reconstructed from the final data products
- Data dispersed in multiple repositories with different layout and labeling
- Data not always uniformly documented (standardized)



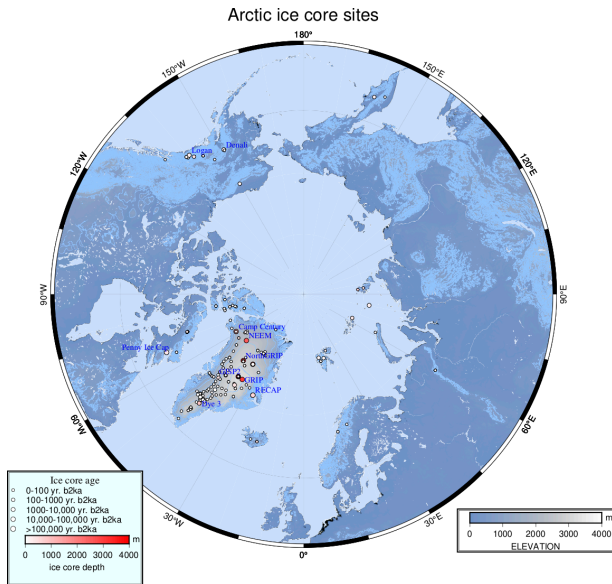
# Recommendations

- Improve data sharing and reusability
- Increase transparency of how data sets are generated
- Standardize common ice core data collection and processing
- Ice core domain specific cyberinfrastructure needs to be developed

# Possible community roadmap

- Discuss, document and share best practices and a “rewards” mechanism for data sharing.
- Develop data specific templates for data collection and archiving
- Use data certificates

# Data certificate



Data source [Wikipedia](#)

## Ice core site certificate

ICWG-C1s-V1

Core ID: **WDC-06A**

Project Name:

Latitude : -79.48

Longitude: -112.11

Elevation: 1766

Drill Dates Start Date

End Date

Core Depth:

Location: West Divide

Site ID: WDC

Publication DOI:

Investigators:

Drilling team:

Drilling system: