POLAR INFORMATION COMMONS
PIC

Data are the common wealth of humanity
- Adama Samassekou

Convener of the UN World Summit on the Information Society

Shared Interests and Shared Resources

The polar regions are changing rapidly with dramatic global effect. Wise use of resources, astute management of our environment, improved decision support, and effective international cooperation on natural resource and geopolitical issues require a deeper understanding of, and an ability to predict change and its impact. Understanding and knowledge are built on data and information, yet polar information is scattered, scarce, temporally and spatially sporadic.

We are inspired by the Antarctic Treaty of 1959 that established the Antarctic as a global commons to generate greater scientific understanding. Correspondingly, we assert that data and information about the polar regions are themselves "public goods" that should be shared ethically and with minimal constraint.

We envision a *Polar Information Commons (PIC)* as a shared virtual resource mirroring the geographic commons. The PIC would serve as an open, virtual repository for vital scientific data and information, and would provide a shared, community-based cyberinfrastructure fostering innovation, improved scientific understanding, and encourage participation in research, education, planning, and management in the polar regions.

The PIC builds on the legacy of the International Polar Year and we seek active participation and ideas from national governments, international organizations, and the scientific and data management communities at large to build this common resource.

Right now, the PIC is a vision gathering momentum. We need active involvement by the community to address technical challenges, develop governance structures, and contribute data to make PIC a reality. To get involved, contact:

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Who is building PIC

The PIC is an initiative of the International Council for Science (ICSU) led by the Committee on Data for Science and Technology (CODATA). PIC is also sponsored by the World Meteorological Organization (WMO), the International Arctic Science Committee (IASC), the Scientific Committee for Antarctic Research (SCAR), the International Union of Geodesy and Geophysics (IUGG), and the Royal Netherlands Academy of Science.

The PIC grows out of the International Polar Year (IPY) and involves all members of the IPY Data and Information Service and the Standing Committee for Antarctic Data Management. The PIC also contributes to the development of the new ICSU World Data System and engages with national and world data centres across disciplines.

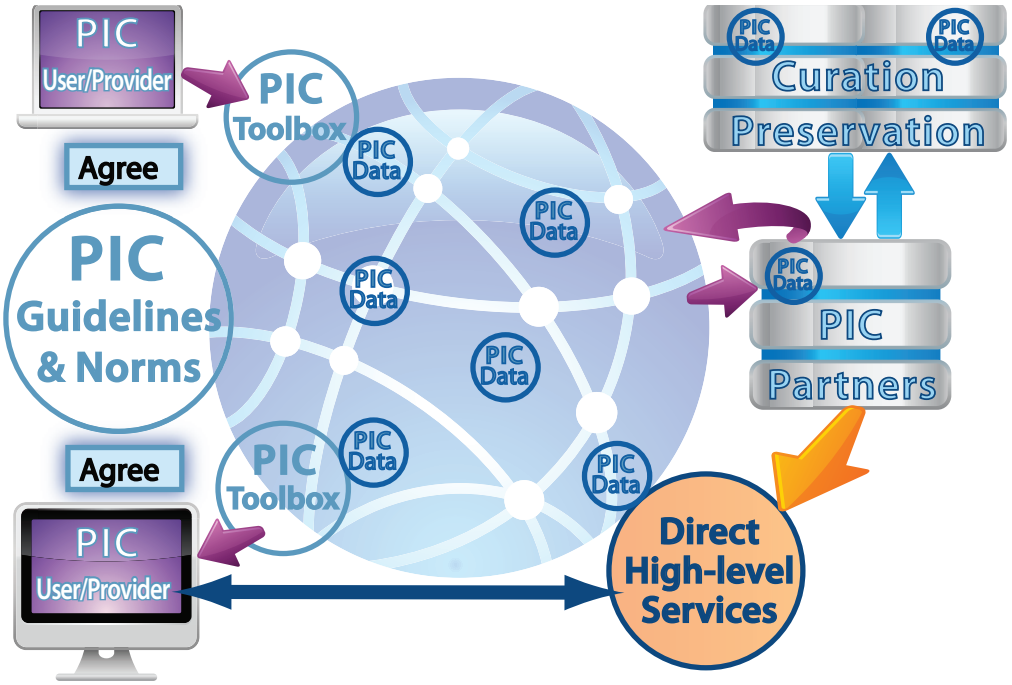
Ultimately the PIC is the scientists who collect polar data; the archives that preserve data; and the community who use, repurpose, and share data.

How PIC Works

Rapid change demands rapid data access. We envision a PIC system where investigators quickly expose their data to the world and share them, without restriction, through open protocols on the internet. Data descriptions (metadata) are not necessarily registered in formal repositories or catalogues. They may simply be exposed to search engines or broadcast through syndication services such as RSS or Atom. The data are labelled or branded as part of the PIC and are, therefore, open for use without restriction.

The PIC label also alerts data centers around the world to new polar data. These data centers then assess and acquire important data for formal archiving, curation, and access through national and global data systems. The intent is to enable rapid data access without qualification, while establishing a process for long-term preservation and stewardship of critical data.

The figure below outlines a conceptual architecture of the system.



Ethics and Norms of Data Sharing

The PIC adheres to a policy of full, free, and open data access. In keeping with the IPY data policy, we believe that data should be formally cited much like a journal article or book when possible (http://ipydis.org/data/citations.html). Further, we believe that unfettered and interoperable data access is central to 21st century e-science. Extensive research and community engagement by CODATA, the Creative Commons, and the Global Information Commons for Science Initiative has led to the Science Commons Protocol for Implementing **Open Access Data**.

The core principles behind this protocol are that data should be openly available in the public domain, and basic norms of practice should control how data are used in a fair and equitable manner.

To address diverse legal environments around rights and ownership of data, Creative Commons has created a legal waiver called CC0 (CC Zero), which gives people an unambiguous way to give up any rights they may have to their data or data structures —essentially a "no rights reserved" option. This removes any ambiguity about the usability of the data, but it does not eliminate all obligations for the data user.

In short, good scientific practice dictates identifying a set of norms on appropriate and ethical data use. These norms may vary across different scientific communities, but a core principle should be appropriate attribution of data. Many data authors may also want to be notified of how their data are used.

Communities need to consciously develop and adhere to appropriate scientific norms. In order to identify these norms for data sharing we need the input from the polar data community on their opinions and comments on four core questions:

1. How to preserve the source information?
2. How to cite?
3. How to preserve quality standards?
4. How to note and release user contributions?

We welcome your ideas, your contributions, your knowledge, and your data services.
Please visit http://www.polarcommons.org