Is single-window data search a myth or can it be made real? Developing Federated Search for Polar Oceanographic and Terrestrial Data

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POLDER: Polar Data Discovery Enhancement Research **Polder (Dutch verb):** to work collaboratively to achieve a common goal.

Science communities have long asked for a single-window search to aid in data discovery and access

But polar data management efforts have historically been siloed by national or discipline boundaries

Dozens of discovery metadata catalogues list polar datasets

The catalogues use a wide range of metadata standards, profiles, and web service protocols to organise these records

This variety of approaches has historically made federation and aggregation of catalogues challenging

These problems are not unique to polar regions, but the preexisting community relationships in polar data management make it a sensible scale for coordinating needs and planning developments

biodiversity.aq British Antarctic Survey Polar Data Centre Marlin (CSIRO) MGDS Antarctic SOOS (GCMD) US Antarctic Program Data Portal Biological and Chemical Oceanography Data Management Office British Oceanographic Data Centre Chinese National Arctic and Antarctic Data Centre CLIVAR and Carbon Hydrographic Data Office Gulf of Alaska Data Portal Antarctic Master Directory and **DataONE** Alaska Satellite Facility ASF SOOS (GCMD) contributors Dryad Arctic Data Explorer Argentina EarthChem Arctic Institute of North America Australia Earth Observation Laboratory UCAR/NCAR Arctic Landscape Conservation Cooperative Belgium **Environmental Data Initiative** Arctic Observing Viewer Canada **EUDAT** Arctic Spatial Data Infrastructure Chile **GEOTRACES** Estonia ArcticConnect Global Biodiversity Information Facility **Finland** Arctic Research Mapping Application Global Cryosphere Watch France Barrow Area Information Database Global Terrestrial Network for Permafrost Centre Etude Nordique Japan Group on Earth Observations System of Systems Conservation of Arctic Flora and Fauna Malaysia Joint Technical Committee of Marine Meteorology Platform Support Dept. Fisheries and Oceans Canada **Netherlands** Centre **EnviDat** NCEI National Climatic Data Center New Zealand KNB Data Repository **Environment Canada** People's Republic of China NCEI - National Geophysical Data Center Met.no Republic of Korea NCEI - National Oceanographic Data Center NASA ABoVE Spain NCEI - World Data System Paleoclimatology Data NASA GCMD/CMR Sweden National Institute of Polar Research Switzerland National Snow and Ice Data Center Ukraine Netherlands Polar Data Center United Kingdom Norwegian Meteorological Institute United States of America Norwegian Polar Institute Uruguay OBIS Ocean Data and Information System **PANGAEA** Polar Data Catalogue Figure 1: Research Data Archive UCAR/NCAR POLDER has identified these metadata catalogues with significant polar holdings; SeaDataNet Environment Climate Data Sweden **SESAR** background data from ESRI, GARMIN, GEBCO, NOAA NGDC The digital Archaeological Record INTAROS **USGS** ScienceBase International Arctic Research Center WMO Integrated Global Observing System Inuit Qaujisarvingat National Ecological Observatory Network North Slope Science Initiative NSF Arctic Data Center

Antarctic Master Directory (GCMD)

Australian Antarctic Data Centre

Australian Ocean Data Network

To get involved, please visit https://polder.info

NWT Discovery Portal

Scholars Portal Dataverse U. of Toronto

Svalbard Integrated Arctic Earth Observing System

Open Data (Canada)

University of Alberta

Yukon Research Centre

WMOADC

POLDER is a group of polar data managers identifying and advocating the needs of the polar data users in a fast-moving environment

POLDER is building relationships with metadata federation and discovery projects, such as GEOSS, DataONE, Arctic Data Explorer, and schema.org

Through coordination on metadata exchange, POLDER can make data more FAIR: Findable, Accessible, Interoperable, and Reusable











