

Data Sharing Policy for the Arctic LCC

Data sharing is an essential component of rapid adaptation and response to changing environmental conditions. All LCCs are committed to acquisition, synthesis, and distribution of information needed by managers and scientists to make informed decisions in the face of a changing landscape. This document sets forth the Arctic LCC (LCC) policy for the sharing of data^{1,2} by collaborators funded entirely or in part by the Arctic LCC. These policies are considered to be a binding condition upon all Arctic LCC-supported projects. Deviations from this policy may be obtained, but must be requested in writing by the Principal Investigator (PI), and agreed to by the Arctic LCC Coordinator or Science Coordinator, prior to the implementation of the project. Within the proposal review process, compliance with this policy will be considered in the Steering Committee's evaluation of the proposal.

1. Proposals and scopes of work submitted after March 15, 2011 to the LCC for funding must include a written data management plan that:
 - Addresses all aspects of the data life cycle;
 - Describes how data will be collected;
 - Articulates quality assurance/quality control procedures;
 - Defines the metadata standard for the data;
 - Identifies anticipated data formats;
 - Specifies how and when the data will be transferred to LCC custody; and
 - If applicable, describes archiving, data exposure, data delivery, and long-term maintenance measures.
2. Principal Investigators (PIs) are expected to submit to the LCC the raw data, data¹, derived data products, and other supporting materials created or gathered in the course of work under LCC-supported research. Release of these materials at the conclusion of LCC-funded projects³ into the public domain will be the de facto policy of the LCC.
 - a. PIs shall be responsible for the quality, completeness, and description of the data, metadata and associated products prior to submitting to the LCC.
 - b. Raw data shall be turned over for archive by the LCC as soon as possible after its collection. The purpose of the LCC raw data archive is to protect against data loss and the archive will not be accessible by other researchers or the public.

¹ Data may include "textual information, numeric information, instrumental readouts, equations, statistics, images (whether fixed or moving), diagrams, and audio recordings. It includes raw data, processed data, derived data, published data, physical samples, and archived data. It includes the data generated by experiments, by models and simulations, and by observations of natural phenomena at specific times and locations. It includes data gathered specifically for research as well as information gathered for other purposes that is then used in research."

² Ensuring the Integrity, Accessibility, and Stewardship of Research Data in the Digital Age. National Academy of Sciences, National Academy of Engineering, and Institute of Medicine 2009, page 22.

³ Conclusion of the project is defined as the date upon which final deliverables are due for submission to the Arctic LCC as defined in the project's contract.

Upon transfer of raw data from investigators to the LCC, the LCC becomes responsible for maintaining the raw data archive.

- c. All data is due to be submitted to the LCC at the conclusion of the project. Conclusion of the project is defined as the date upon the project contract ends. Final payment may be withheld until all data and proper documentation have been turned over to the LCC.
 - d. For those projects in which PIs have been granted initial periods of exclusive data use, data should be made publically available as soon as possible, but no later than two years after the conclusion of the project.
 - e. The period of exclusive use may be extended to three years for projects supporting work of a PI or Co-PI who is a matriculated student in a master's degree program. The period of exclusive use may not be extended past the student's graduation date.
 - f. The period of exclusive use is extended to five years for projects supporting work of a PI or Co-PI who is a matriculated student in a doctoral degree program. The period of exclusive use may not be extended past the student's graduation date.
 - g. For projects producing observation sets greater than 5 years in duration and for long-term (>5 years duration) projects, data are to be made public as follows: data collected from January 1 to September 30 of a given year will be made publicly available by March 31 of the following year. Data collected from October 1 to December 31 of a given year will be made publicly available by June 30 of the following year.
 - h. Upon transfer of data from investigators to the LCC, the LCC becomes responsible for providing the long-term maintenance and public access to this data.
 - i. For data which has constraints such as file sizes or data types not supported by the capacity of the LCC, an alternative information clearinghouse may be arranged. In such cases the PI should arrange for data to be made available through a public web site, an institutional archive that is standard to a particular discipline or university, or through other approved repositories. If an alternative information clearinghouse is used, the PIs remain responsible for providing long-term maintenance and support for the data. In all cases, the PIs are still responsible for delivering a copy of all data, appropriate metadata and other supporting information to the LCC for archiving (ensuring that the LCC retains access to the information in the event of insolvency of the alternative information clearinghouse chosen by the PI to serve project data. Intention to use this alternative approach to making data public and discoverable must be indicated in the project pre-proposal, proposal, and scope of work.
3. Principal Investigators are responsible for depositing any samples and physical collections associated with their research in a recognized repository or collection within their discipline. A sample or physical collection preservation plan must be defined in the project's data management plan.
 4. Principal Investigators that will use or create proprietary data such that the terms of information release or types of data use are affected must clearly state this in their

proposal documents. The requirements of data restriction must be documented in the pre-proposal, proposal, and scope of work, and must clearly state what information, data, and conclusions cannot be released to the public upon conclusion of the project.

- a. All data deemed sensitive, privileged, or subject to restricted access must be identified and appropriately labeled by the PIs upon submission to the LCC. Policies for access to these data must be negotiated between the PIs and the LCC Coordinator or Science Coordinator, and documented in writing, prior to project implementation.
 - b. This policy does not supersede the legal requirements imposed upon organizations to restrict public access to data. However, such legal requirements restricting information and data access must be clearly stated in the project pre-proposal, proposal and scope of work.
5. Metadata will be required of all data sets. Metadata content and format will be determined on a project by project basis, and must be FGDC or NBII compliant.
 6. Data that rely on licensed software for access, evaluation, or use should be identified in the project pre-proposal, proposal, and scope of work. Proprietary formats and software should be documented in the project metadata. Project data shall also be submitted in a non-proprietary format as agreed upon by the PI and the Arctic LCC Coordinator or Science Coordinator prior to project implementation.