

NGEE ARCTIC DATA PUBLICATION AND SHARING POLICY *

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The open sharing of Next-Generation Ecosystem Experiments (NGEE Arctic) data among project researchers, the broader scientific community, and the public is critical to meeting the scientific goals and objectives of the NGEE Arctic project and to advancing the mission of the Department of Energy (DOE), Office of Science, Biological and Environmental (BER) program. The NGEE Arctic project is committed to upholding a rigorous and high-quality data management strategy and the implementation of that strategy in an innovative, cost-effective, data collection, management, distribution, and archival framework. The NGEE Arctic data management policy is consistent with the data policies of the sponsoring program (<https://www.energy.gov/datamanagement/doe-policy-digital-research-data-management>). We intend this policy to be a clear statement of the importance of full, open, and timely sharing of all data and associated metadata produced by NGEE Arctic. This Policy is applicable to all NGEE Arctic participants, including scientists at Oak Ridge National Laboratory, Los Alamos National Laboratory, Brookhaven National Laboratory, Lawrence Berkeley National Laboratory, the University of Alaska Fairbanks, partners at universities and other state and federal agencies, cooperating independent researchers, and to users of NGEE Arctic data products.

Sharing Data: Metadata describing the NGEE Arctic data products is captured in the Online Metadata Editor (OME). Data (including metadata) should be made available as soon as feasible after initial quality checks but no later than 12 months after acquisition. Generally, public release will be concurrent with open literature publication of results. All public data will be submitted to the DOE's ESS-DIVE data center. At the end of the project, all internal data and associated metadata will be made public and will be transitioned to ESS-DIVE. Key data collected by graduate students should not be released publicly at the NGEE Arctic Data Portal prior to submitting their thesis, dissertation, or peer-reviewed publication because to do so can jeopardize the student's academic interests. As a result, data collected specifically for a student's thesis or dissertation are not subject to the public data sharing obligations of this policy until the end of Phase 3 or after the student has completed their degree, whichever comes first. All data supporting a student or postdoctoral associate's work must be submitted to the archive prior to leaving the NGEE Arctic project.

Quality Assurance of Data: Data products submitted to the archive must undergo quality checks and should include estimates of uncertainty. Each data contributor should document the quality assurance checks that have been performed before data sharing. When data products have been updated because of additional quality checks or the discovery of errors, the data should be resubmitted to the Archive as a new version and with documentation of the changes. Data versioning will be facilitated by the OME system.

Credit to Data Contributors and Authors: The NGEE Arctic data will be released publicly under a [Creative Commons Attribution 4.0 license \(CC-BY\)](#) license. Users are free to use, share, and adapt the data for their own use, but they must give appropriate credit to the data authors. When data are used in publications or in modeling or integrative studies, the scientist collecting the data must be credited appropriately, either by co-authorship, citation, or acknowledgement. The NGEE Arctic Data Search and Access Tool provides formal citations and digital object identifiers (DOIs) for all data products. The full citation should be included in any publication that uses the data, and the citation should include all individuals contributing to the data product, the title of the data product, the year of data release, the name of the archive, and the DOI. NGEE Arctic participants who wish to use internally-shared products are required to discuss and develop planned uses and any resulting publications with the data contributors in a collaborative manner. The data contributors must have the opportunity to read the manuscript before submission, and, if appropriate, be offered co-authorship. In cases where unpublished data from other investigators are a minor contribution to a paper, the data are to be referenced by the proper citation and DOI. Where NGEE Arctic datasets are included in papers led by the modeling team, the relevant data contributors should be notified and included in analysis and co-authorship discussions. In all cases each dataset must be properly cited.

Code Sharing: Public release of NGEE Arctic modeling code will be discussed and agreed upon by the modeling team, with the understanding that our goal as a group is to make the developments here available to the larger community as soon as possible. Therefore, we will release code to the public on submission of the primary paper describing the model version. Public release removes the ‘rights’ of code developers to be automatically considered for co-authorship. However, we encourage users of the released model to consider including those developers to the extent it would benefit the users’ analyses.

Disclaimer of Liability: Data and documents available from the NGEE Arctic web site (<https://ngee.ornl.gov/>) were prepared as an account of work sponsored by an agency of the U.S. Government. Neither the U.S. Government nor any agency thereof, or any of their employees, makes any warranty, express or implied, or assumes any legal liability or responsibility for the accuracy, completeness, or usefulness of any information, apparatus, product, or process disclosed, or represents that its use would not infringe privately owned rights. Further, Oak Ridge National Laboratory is not responsible for the contents of any off-site pages referenced. The complete ORNL disclaimer can be viewed at <http://www.ornl.gov/ornlhome/disclaimers.shtml>.