

Operating Principles of the NSF Arctic LTER Project

Version 1.1

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I. Overview

This document describes the principles of operation and community of the United States National Science Foundation's Arctic Long-Term Ecosystem Research project (ARC LTER). These principles define the goals, core values, and organization of the project, and specifically the affiliations and duties of project personnel and how team members interact with project leadership and with funding agencies, regulatory bodies, and end-users of information produced by the project. In this document we also make transparent the membership and the major policies and procedures governing the ARC LTER.

1. Goals. The overall science goal of the ARC LTER program is to develop a predictive understanding of how the integrated arctic landscape including tundra, streams, and lakes responds to the effects of natural and anthropogenic environmental change. We use long-term monitoring and surveys of natural variation in ecosystem characteristics, experimental manipulation of ecosystems (seasonal to decades), and modeling to better understanding what controls ecosystem structure and function. The guiding framework of this research is presented in our conceptual diagram (Appendix 1), which integrates our previous LTER research on the role of system openness and connectivity with our new research on the role of climate variability. Through this understanding we contribute to the important societal goal of predicting how arctic ecosystems will respond to environmental change, and whether this response will amplify global climate warming and change.

Additional information about the project goals can be found at our [website](#), and the ARC VII funded proposal is available [here](#). Information about our primary field site at Toolik Lake in arctic Alaska also can be found at the Toolik Field Station (TFS) [website](#).

2. Community. We have a commitment to principles of community within our project, among our collaborators, and broadly within society. These principles are described in our [education and outreach](#) activities, and in our statement and action plan for Diversity, Equity, and Inclusion ([DEI plan](#)). Retaining and recruiting a diverse group of scientists as part of the ARC LTER project is critical to our long-term success as a productive scientific community, and to our ability to provide science-based information in language and formats useful for decision makers and society. Our project's research community represents multiple institutions and scientific disciplines, individual identities, and researchers at various career stages. In addition, conducting research in a remote field location carries with it particular challenges. To meet these challenges our goal is to provide appropriate and useful orientation for new project personnel, and to create an inclusive, welcoming, and productive environment for all project participants and for all those we interact with outside the project.

II. Affiliation

The ARC LTER is affiliated with the US Long-Term Ecological Research (LTER) Network, funded by the US National Science Foundation (NSF). The ARC LTER receives its core funding from NSF as the prime sponsor. NSF policies take precedence over ARC LTER Operating Principles whenever they are in conflict. The bylaws of NSF's LTER Network take precedence over ARC LTER Operating Principles whenever they are in conflict. The ARC LTER grant is administered through Columbia University (CU, the direct sponsor), and CU policies take precedence over ARC LTER Operating Principles whenever they are in conflict. Finally, the primary field site of the ARC LTER is at the Toolik Field Station, operated by the University of Alaska, Fairbanks (UAF) with funding support from a Cooperative Agreement with NSF. The ARC LTER has a long history of cooperation with TFS-UAF management and administration in terms of standardizing joint principles and policies and preventing or resolving conflicts.

III. Membership

There are five categories that together constitute the ARC LTER Membership: **(1)** the [Project Director](#) (also known as the lead Principle Investigator) and the [Project Investigators](#) (also known as co-Principle

Investigators) listed on the coversheet of the funded NSF proposal, (2) Project Managers (e.g., Information Managers, Education Coordinators, Senior Research Associates), (3) Other Personnel (e.g., graduate students, postdoctoral associates, technicians, other scientists), (4) Affiliated Investigators, and (5) Partners and Collaborators. In some instances, Project Investigators may also be Project Managers. The project's Information Manager maintains a current list of the project Membership and posts this list on the ARC LTER website. Current Project Investigators and Affiliated Investigators of the funded grant are listed in Appendix 2. The role of members in these categories, including the selection of members to the Executive Committee and its role in the project, is detailed in the sections below.

IV. Project Director and Project Investigators

- 1. Designation.** The grant is awarded by NSF to an Institution (e.g., Columbia University), and this home institution names a Project Director who has been vetted by the Project Investigators and NSF. The Project Director is thus the Project Investigator listed as the lead Principal Investigator on the coversheet of the current NSF grant funding the ARC LTER. Project Investigators also include the other individuals named as such (co-Principle Investigators on the primary grant and subcontracts) on the coversheet of the current NSF grant (they typically have “subcontracts” from the home institution). The Project Director can appoint a co-Director from among the Project Investigators to share leadership duties.
- 2. Duties.** The Project Director or an appointed delegate represents the ARC LTER to NSF and to the LTER Network Office. The Project Director also has the prime responsibility of submitting annual progress reports to NSF. The overall structure of the project management and responsibilities is shown in Appendix 3. All Project Investigators are required to share in the research, management, logistics, and administration of the ARC LTER project. Project Investigators must (a) discuss, write, and submit the LTER renewal proposal (end of a 6-year cycle), (b) prepare for and participate in the mid-term NSF site review of the project, (c) attend ARC LTER meetings whenever possible, (d) submit data associated with the ARC LTER (and metadata depending on data type) to the ARC LTER Information Managers for archival in the data repository, (e) coordinate research done in their specialty area, (f) contribute to annual reports, (g) supervise Project Managers or Other Personnel as required, (h) oversee the research permitting process, (i) interact with and respond to supporting entities such as the NSF-supported Toolik Field Station and the NSF Arctic Logistics office, (j) participate in LTER Network synthesis efforts and LTER All-Scientist meetings, (k) help coordinate collaborations with related projects with complimentary goals or shared research sites, (l) manage the acknowledgement of NSF funding and data in presentations and publications as appropriate, and (m) serve on the Executive Committee (section IX). The Project Investigators have access to private ARC LTER *cloud resources* (e.g., data, meeting notes, presentations, mailing lists, etc.) and *project resources* (e.g., access to research sites, lab or field assistance, or help from information managers on accessing and archiving data for the ARC LTER or related projects).
- 2. Appointment and removal.** The Executive Committee (defined in Section IX) nominates a Project Director for each 6-year grant cycle at the regular ARC LTER meeting in the third year of the project (preferably before the 3rd-year NSF site review), or in the fourth year of the current cycle at the latest (subject to approval by the home institution and NSF, see below). If the current Project Director is unable to fulfill their duties at any time in the grant cycle, the Executive Committee nominates an interim or new Project Director. The nominated Project Director must receive a positive vote from 2/3 of the Executive Committee, they must have an appointment at the current project home institution, and they must be approved by the home institution and by NSF. If the nominated Project Director does not receive a positive 2/3 vote, nominations are accepted from the floor, and the candidate with the most votes serves as the incoming Project Director for the remainder of the grant or for the next grant cycle, again subject to approval by the home institution and NSF. If the incoming Project Director is not at the current project home institution, the grant must be transferred to the new home institution prior to the final year of the grant, subject to approval from the current home institution and from NSF (see Section IX.4). If the incoming Project Director differs from the incumbent, both will serve on the Executive Committee during the remaining term of the current NSF grant, with the

incumbent Project Director responsible for administrating the remainder of the current grant cycle and the incoming Project Director responsible for leading the renewal proposal.

Designation of Project Investigator status typically occurs at the time of grant renewal, and prospective Project Investigators can self-nominate or be nominated by an existing Project Investigator. They must submit a written statement that describes their expected contributions and research goals over the next grant cycle, and the statement must be of a quality that could be incorporated into the renewal proposal. Granting Project Investigator status requires invitation by the Executive Committee after a positive 2/3 vote, and requires approval from the Project Director.

Project Investigators can resign by written request to the Executive Committee. Project Investigators can be re-designated as Affiliated Investigators by written request to the Executive Committee, subject to approval by the Project Director, the home institution, and NSF. The Project Director is authorized by NSF to remove Project Investigators, and this action should be supported by a 2/3 vote from the Executive Committee. If at any time mid-cycle the Project Director receives a 2/3 vote of no confidence from the Executive Committee, this result would be transmitted to the home institution and to NSF to initiate further discussion.

V. Project Managers

- 1. Designation.** ARC LTER Project Managers include Information Managers, Education Coordinators, DEI Coordinators, and Senior Research Associates (full-time, project-paid personnel) who are not also Project Investigators. Project Managers employed at the home institution can be appointed, reassigned, or released at any time during the grant cycle at the discretion of the Project Director, in consultation with the Executive Committee and subject to home institution policies. Project Managers employed by Project Investigators at other institutions may likewise be appointed, reassigned, or released at the discretion of the Project Investigator, again in consultation with the Executive Committee and subject to the Project Investigator's institution policies. Project Investigators who are serving as Project Managers can resign their duties by written request to the Executive Committee. The Executive Committee can also relieve a Project Investigator of their Project Manager duties by a 2/3 vote and approval by the Project Director; in this case the person remains as a Project Investigator unless other action is taken as specified in Section IV.3.
- 2. Duties.** ARC LTER Project Managers have primary responsibility for their particular specialty as determined by the Project Investigators and Executive Committee. These specialties could include information management, education and outreach activities, DEI and community activities, coordination of field sampling logistics, sample management and processing, and data preparation and analysis. For example, ARC LTER Information Managers maintain the project web pages and coordinate data archiving following the ARC LTER Data Management Plan (workflow diagram in Appendix 4, full plan found [here](#)). ARC LTER Education and DEI Coordinators oversee and coordinate their respected educational, outreach, and DEI activities. Senior Research Associates coordinate field sampling, project logistics, and laboratory analyses, supervise and train technicians or students, and participate in the preparation of publications and other products of the project.

VI. Other Personnel

- 1. Designation.** Other Personnel include graduate students, postdoctoral scientists, senior scientists, and technicians (junior level, undergraduates, or part-time personnel) working toward ARC LTER project goals alongside or under the supervision of Project Investigators and Affiliated Investigators. Independent researchers can also be designated as Other Personnel if they rely heavily on the ARC LTER for logistical support.
- 2. Duties.** All Other Personnel are expected to contribute to the research goals, or to the education, outreach, or DEI goals of the project, and are encouraged to attend ARC LTER Membership meetings, other project activities, and to participate in LTER Network activities at the discretion of their

supervisors. All Other Personnel will have access to private ARC LTER cloud resources and project resources at the discretion of their supervisors.

VII. Affiliated Investigators

- 1. Designation.** ARC LTER Affiliated Investigators are listed in the proposal according to NSF guidelines as “Unfunded collaborators”, and are shown in Appendix 2. These collaborators may have specific ARC LTER responsibilities, or they may have sustained research programs that leverage ARC LTER resources and relationships. Affiliated Investigators can contribute to various aspects of the project as a part of their areas of expertise and scope of work within their organizations.
- 2. Duties.** Affiliated Investigators are expected to actively collaborate with ARC LTER Project Investigators in (a) data generation, (b) submission of ARC LTER related data and metadata (depending on data type) to the ARC LTER Information Manager for archival in the data repository, (c) contribute to annual reports, and (d) acknowledge funding and data in presentations and publications as appropriate. For datasets that are submitted elsewhere, Affiliated Investigators must submit a summary to the ARC LTER Information Managers to be archived in the data repository. Affiliated Investigators have access to private ARC LTER cloud resources and project resources. Affiliated Investigators are encouraged but not expected to attend ARC LTER meetings; they have no voting rights unless they are elected to the Executive Committee.
- 3. Appointment and removal.** Designation as an Affiliated Investigator requires approval by a 2/3 vote of the Executive Committee. Prospective Affiliated Investigators must be sponsored by an ARC LTER Project Investigator, and must submit a recent CV, a brief (1 page) document describing their connection to the ARC LTER, and a data management plan if applicable. The Executive Committee will notify the ARC LTER membership of initial requests for Affiliated Investigator status and allow a minimum of two weeks for comment before acting on the request. Appointment terms coincide with the duration of the current grant cycle (up to 6 years). Affiliated Investigator status is renewable with each grant cycle upon written request to the Executive Committee.

Affiliated Investigators can resign by written request to the Executive Committee. The Executive Committee can remove Affiliated Investigators with a 2/3 vote.

VIII. Partners and Collaborators

- 1. Designation.** ARC LTER Partners and Collaborators can be individual researchers, institutions such as Universities or field stations, or other entities such as consulting firms or private organizations. NSF defines this category in their progress reporting system as follows: “Partner organizations may provide financial or in-kind support, supply facilities or equipment, collaborate in the research, exchange personnel, or otherwise contribute [to the research]”.
- 2. Duties.** Partners and Collaborators are expected to collaborate with ARC LTER Project Investigators in some aspect of the research, logistics, or administration of the project.

IX. ARC LTER Executive Committee

- 1. Designation.** The ARC LTER Executive Committee (EC) comprises all Project Investigators, the DEI Committee Coordinator (defined in Section X.2), and one to two rotating members, and is chaired by the Project Director. Project Investigators serve for the entire 6-year grant cycle, and the DEI Coordinator serves on a renewable 3-year cycle. Rotating members are typically chosen from the Affiliated Investigators, and can self-nominate or be nominated by an existing Project Investigator. Rotating members typically serve two-year terms, but this could be shortened or extended if appropriate. Nominations are considered by the EC each year at the annual ARC LTER meeting or as needed. Candidates must submit a recent CV and a written statement that describes their expected contributions to the project. Granting rotating member status requires invitation by the Executive Committee after a positive 2/3 vote.

- 2. Duties.** Full power in the management and administration of ARC LTER affairs is vested in the Project Director and the Executive Committee. The Project Director and the EC can authorize action on behalf of the ARC LTER, assign areas of responsibility within the EC, delegate tasks to Project Investigators and Project Managers, create committees, plan and oversee ARC LTER research, and otherwise administer the affairs of the ARC LTER (see Duties of the Project Director and Investigators in Section IV.2). The Project Director and Executive Committee must arrange and convene the annual meeting of the entire project (Section XI.1). Regular Executive Committee meetings are convened on a quarterly basis (Section XI.2), during which time the specific duties of the Project Investigators (Section IV.2), including all elements (boxes) shown in the project organizational diagram (Appendix 3), are discussed and resolved as necessary. The Project Director and Executive Committee are responsible for selection and appointment of members of the ARC LTER Advisory Board and the DEI Committee Coordinator (Sections X.1, X.2). The Project Director makes a presentation at the annual meeting to the ARC LTER Membership summarizing major Executive Committee decisions since the previous annual meeting.

Funding resources for ARC LTER are specified in the NSF proposal to cover specific costs of personnel, equipment, supplies, travel, tuition, participant support (e.g., the annual meeting), and overhead. However, the Project Director and Executive Committee administer a small amount of discretionary funds in the grant to support two NSF-REU students per year and to provide modest travel or field support (user days) for collaborating or new investigators on the project. Prospective collaborating or new investigators requesting support must be sponsored by an ARC LTER Executive Committee member, and they must submit a current CV and a written statement that describes their proposed research and expected contributions to the project (~1 page). Prospective collaborators can submit their requests at any time, and requests for summer support in the field will be evaluated by the EC during the annual ARC LTER meeting. Requests for other support will be evaluated at the next quarterly meeting of the EC. Investigators requesting an REU student supported by the ARC LTER must submit the following written materials by February 15th to aid the Executive Committee in their award decision:

- A. *Who is responsible for the REU student and their project?* Responsible parties are limited to Project Investigators and Affiliated Investigators.
- B. *Who will mentor and supervise the REU student?* Mentors are limited to Project Investigators, Affiliated Investigators, postdoctoral associates, senior PhD students, and Senior Research Associates on the LTER. All mentors must have prior experience at Toolik (or at the location where the student will do their project), and the support of their immediate project supervisor (e.g., the faculty advisor of a postdoc or graduate student).
- C. *The standing of the student (junior year or prior) and a brief description of the project (~ 1 page).*
- D. *A plan for how and where the REU student will present their results* (e.g., the end-of-season REU poster session at Toolik, written report made available to the ARC LTER).

Occasionally NSF will make available supplemental funding for LTER grants. The Project Director and Executive Committee are responsible for requesting these supplements and for determining their best use on the project. Requests for the use of supplemental funds (e.g., for equipment or for support of NSF-RET, Research Experience for Teachers), can be made by any project Member and must be sponsored by a member of the Executive Committee. Requests must detail the use of the funding and the benefit for the ARC LTER project, and the Executive Committee will track prior funding awards and focus on fair distribution of funds within the project over time. All decisions on requests of discretionary funding to support REU students, for travel or field support, or for NSF supplemental funds require a unanimous vote of the Executive Committee (including the Project Director).

Any conflicts arising between ARC LTER Operating Principles and the bylaws or policies of NSF, the LTER Network, or the direct sponsor Columbia University (section II) are resolved by the Project Director and Executive Committee. Conflicts of a professional or personal nature within the ARC LTER project, when relayed to the Executive Committee, are resolved by the Project Director and EC in consultation with appropriate resources including those at collaborating institutions (e.g., TFS, University counseling services, Title IX offices, etc.).

- 3. Voting.** No binding vote can be taken in the absence of a **quorum**. A quorum consists of 2/3 of the ARC

LTER Executive Committee, and must include the Project Director. Executive Committee members may attend meetings by telephone or videoconferencing if not in person. Main motions require a 2/3 vote of the Executive Committee. All members of the Executive Committee do not need to be present to consider main motions (except for the Project Director), but 2/3 of all members must approve main motions (fractions are rounded up to the nearest integer). Examples of main motions include: (a) to amend the Operating Principles, (b) to add an Affiliated Investigator, (c) to remove project personnel before the end of the grant cycle, (d) to open or close nominations for project membership, and (e) to form an ad hoc committee. For all other motions a majority vote of those present is sufficient, unless specifically noted elsewhere in this document. Voting can be done either electronically or in-person at the meeting, and if any member of the EC makes a request the vote will be anonymous.

- 4. Removal of members.** Executive Committee members can resign from the EC by written request to the ARC LTER EC. If Project Investigators resign from the Executive Committee, they must also relinquish their roles as Project Investigators (including subcontract awards if applicable). If the Project Director resigns or is otherwise unable to complete their term, the Executive Committee will negotiate with the home institution and NSF to appoint a new Project Director. The order of succession for a new Project Director should follow the guideline of (1) other Project Investigators within the lead organization that executes the grant from NSF (i.e., the home institution), (2) other Project Investigators on the cover page of the NSF grant, (3) parties nominated from inside or outside the ARC LTER Membership by the Executive Committee. As described in Section IV.3, the new Project Director must have an appointment at the current project home institution; if not, then the grant must be transferred to the new project home institution prior to the final year of the grant and pending the approval of the current home institution and NSF. If any Project Managers resign or cannot perform their duties on the project, the Project Director or Project Investigator who supervised the Project Manager will appoint a new Manager in consultation with the Executive Committee and the ARC LTER Advisory Board (Section X.1), and approve the nomination by a 2/3 vote of the EC. Executive Committee members can be removed from the EC by 2/3 vote of the EC and approval of the Project Director.

X. Other Committees

- 1. Advisory Board.** Starting with the ARC LTER VII grant, the Executive Committee will create and maintain an Advisory Board to provide perspective through a variety of voices to the EC on all aspects of the ARC LTER project. The Advisory Board will include one representative each from (a) the DEI Committee (but not the DEI Coordinator), (b) the group of Senior Research Associates or other Project Managers funded by the project, (c) the group of postdoctoral associates funded by or associated with the project, and (d) the group of graduate students funded by or associated with the project. Prospective members can self-nominate or be nominated by any Project Investigator or Affiliated Investigator in a request to the Executive Committee. Nominations must be accompanied by a current CV and a brief statement of interest, and are due February 15th each year or as needed to maintain membership, to be reviewed by the EC. The Executive Committee will determine Advisory Board membership by a unanimous vote. The Advisory Board will elect its own chair or at least a designated reporter. Each member will be appointed for two years with half of the committee rotating off each year.

Each Board member will maintain active communication with their peers in the ARC LTER community, and the community of researchers and educators at the Toolik Field Station or with other relevant locations, organizations, or groups. Duties of the Advisory Board including reporting to the Executive Committee on both positive and negative aspects of the ARC LTER project, providing perspectives and suggestions on improvements in project operation and community, and generally keeping the EC apprised of new and useful developments in training, education, outreach, and research related to the ARC LTER.

- 2. Diversity, Equity, and Inclusivity (DEI) Committee.** The ARC LTER DEI Committee is chaired by a Coordinator. The ARC LTER Project Director will solicit applications for the position of DEI Coordinator, typically drawing from the Project Investigators and the Affiliated Investigators. Applicants

will provide a current CV and a written statement describing their qualifications and vision for the role of Coordinator. The Executive Committee must approve the Project Director's nomination of a Coordinator by a unanimous vote. The Coordinator will serve for three years, chair the DEI Committee, and serve on the ARC LTER Executive Committee for a renewable 3-year term. The DEI Coordinator can be renewed for a second 3-year term, but only after a new, formal process of selection and approval by the Executive Committee as described above has been completed.

In addition to the DEI Coordinator, who also sits on the Executive Committee, the DEI Committee will include at least one Project Investigator or Affiliated Investigator, one Senior Research Associate or other Project Manager, and one graduate student working on the ARC LTER project. Effort will be made to have the committee represent diverse identities. Each member will be appointed for two years with half of the committee rotating off each year. Prospective members can self-nominate or be nominated by any Project Investigator in a request to the Executive Committee, accompanied by a current CV and a brief statement of interest. The Executive Committee will determine membership by a unanimous vote.

The DEI Committee will work with the Executive Committee to prioritize and complete the work outlined in the DEI [action plan](#). The Committee will be responsible for evaluating the plan annually and submitting a summary report to the Project Director for the annual progress report to NSF. The Committee will meet once per month during the academic year and will make a presentation to the ARC LTER community at the annual meeting. At least one member of the DEI Committee will attend the monthly LTER Network DEIJ Committee meetings to represent ARC on that committee and provide information back to the ARC DEI Committee and Executive Committee as to network activities. This could be the DEI Coordinator but can also be any member of the committee who would like to participate in these network meetings. The DEI Coordinator is responsible for relaying information about DEI Committee activities to the Executive Committee in a timely manner.

- 3. Education Coordinator.** The Executive Committee will appoint an Education Coordinator for the ARC LTER project. The ARC LTER Project Director will solicit applications for the position, and applicants will provide a current CV and a written statement describing their qualifications and vision for the role of Coordinator. The Executive Committee must approve the Project Director's nomination of a Coordinator by a unanimous vote. The Education Coordinator will serve a 2 or 3-year term, and can be renewed for a second 2 or 3-year term but only after a new, formal process of selection and approval by the Executive Committee as described above has been completed.

The Education Coordinator will report to the Executive Committee about all aspects of education and outreach on the ARC LTER, as defined in the current NSF [proposal](#). The Coordinator will also report to the Executive Committee on the activities of the LTER Network Education and Outreach Committee, including the LTER Network RET subcommittee and other relevant education and outreach efforts at ARC LTER collaborating institutions.

- 4. Ad hoc Committees.** The Executive Committee can create ad hoc committees or coordinators as are deemed useful. The powers and terms of ad hoc committees and coordinators will be limited to those specifically designated by the Executive Committee.

XI. Meetings of the ARC LTER Project

- 1. Annual Membership meetings.** The Membership of the ARC LTER meets at least once each year, at a date determined by the Executive Committee. Meetings are typically held in February or March in order to facilitate planning for the upcoming field season and reporting of support requests to NSF or TFS. Notice of annual meetings is given by the Executive Committee at least 4 weeks in advance of the meeting, and meeting agendas are posted on the ARC LTER website at least 2 weeks in advance of the meeting.
- 2. Executive Committee meetings.** Executive Committee meetings are regularly scheduled (in advance) on a quarterly basis, with at least one in-person meeting each year subject to government

health or travel restrictions. The schedule and agendas of Executive Meetings are posted to the project website at least 2 weeks in advance, at which time any project Member can request additional agenda items for the EC to consider; requests can be sent to any member of the EC. The standing agenda of the Executive Committee provides for discussion of each major element (box) of our project operation as shown by the diagram of organizational structure in Appendix 3.

3. **Advisory Board meetings.** The Advisory Board will meet at least quarterly, at or near the time of the quarterly Executive Committee meetings (Section X.1). The Advisory Board will set its own agenda for meetings, augmented by any specific requests from the Executive Committee. In at least two of these four annual meetings the Advisory Board will meet for 1-2 hours with the Executive Committee to provide opportunities for active discussion and feedback. Within two weeks of each quarterly meeting the Advisory Board will provide a brief, written summary of their meeting to the Executive Committee.
4. **DEI Committee meetings.** The DEI Committee will meet at least quarterly and typically once per month during the academic year. The Committee will set its own agenda for meetings, augmented by any specific requests from the Executive Committee. The DEI Coordinator is responsible for a presentation of Committee activities to the ARC LTER community at the annual meeting, and for keeping the Executive Committee apprised.
5. **Special meetings.** The Executive Committee can call special meetings of the Membership of the ARC LTER. In addition, the Executive Committee will call a special meeting if requested by the Project Director or by a petition of one third of the Membership. Notice of special meetings will be given by the Executive Committee at least one week in advance of the meeting.

XII. Amendments to the Operating Principles

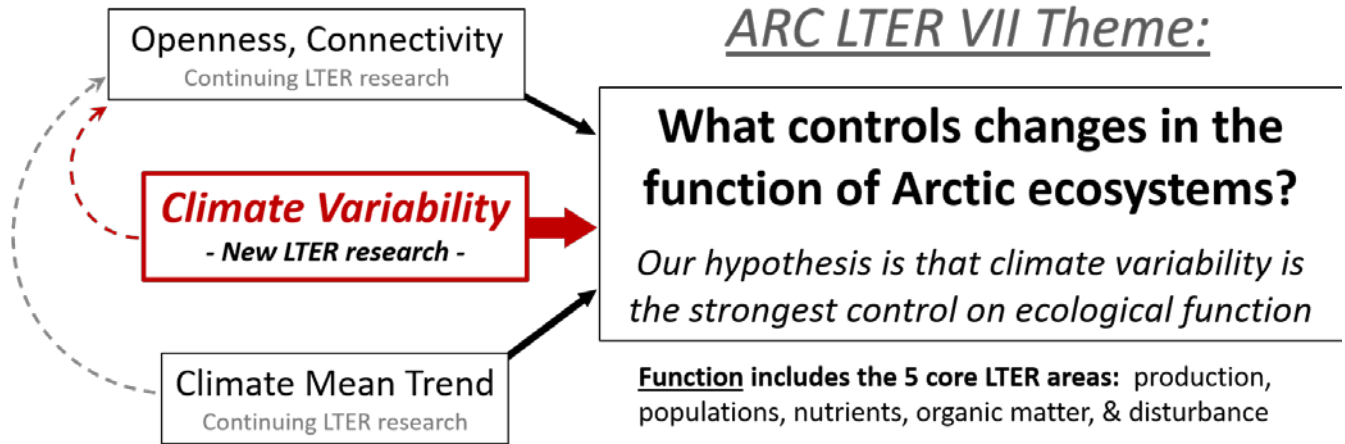
All Operating Principles of the ARC LTER Site are subject to change, amendment, or repeal, and new amendments can be made by a vote of 2/3 of the Executive Committee at any regular or special meeting, or by electronic ballot. A notice that has specified or summarized the proposed amendment, repeal, or new Principle must be circulated to the Executive Committee at least two weeks before the meeting or balloting takes place. Suggestions for changes to the Operating Principles can be made by any Project Member by providing a written request to any Executive Committee member. The written request should detail the rationale for the suggested change. The new document of amended, approved Operating Principles will be incremented in version, dated, provided to the Project Membership, and updated on the project website. Previous versions of the Operating Principles will be archived on the project website.

Version 1.0 written and approved by the ARC LTER Executive Committee, May 2023

Version 1.1 revised and approved by the Executive Committee on 26 March 2024

APPENDIX 1. ARC LTER VII Conceptual Diagram from the funded NSF proposal.

In our conceptual diagram, climate variability interacts with the climate mean trend and system openness and connectivity to control arctic ecosystems. Our hypothesis for the current grant is that the strongest control comes from climate variability. Climate variability also impacts the openness and connectivity of ecosystems, and this indirect control on ecosystem function is also new to our research program.



APPENDIX 2. List of Project Investigators named on the coversheet of the ARC LTER VII proposal, and the Affiliated Investigators named according to NSF guidelines as “Unfunded collaborators” in the ARC LTER VII proposal.

PROJECT INVESTIGATORS:

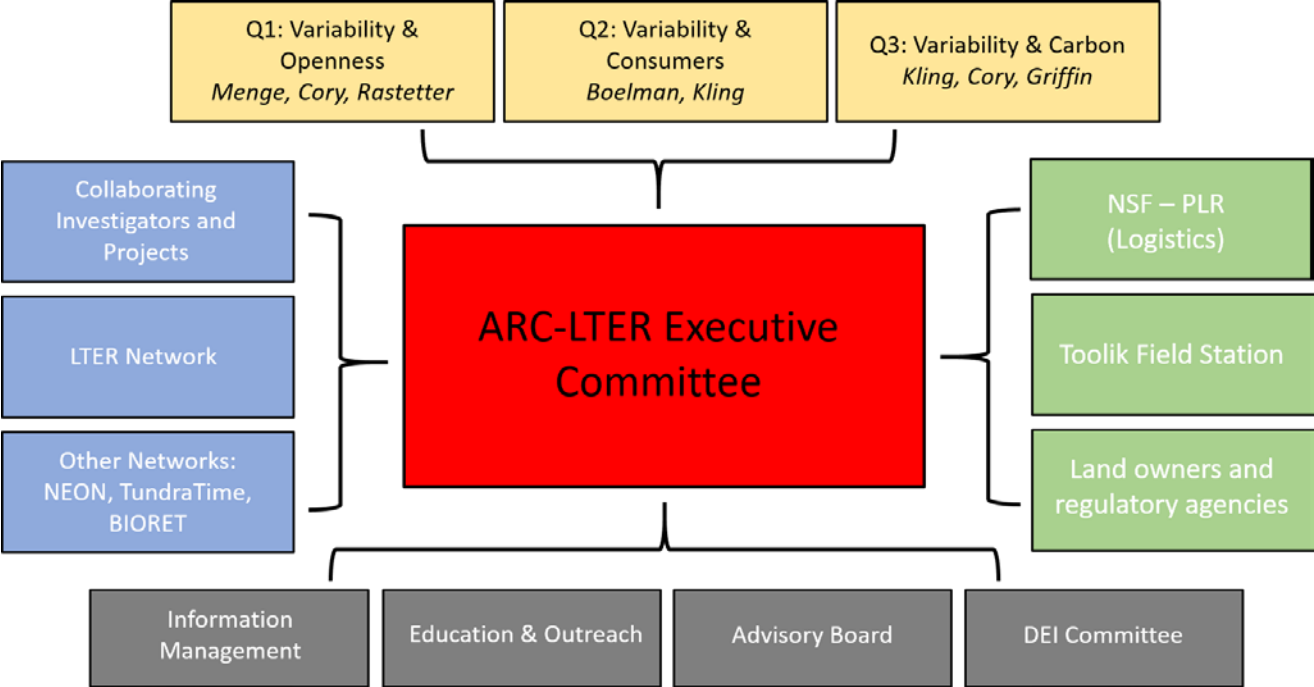
1. **Kevin Griffin**, Columbia University, Professor. **Project Director** (griff@ldeo.columbia.edu)
2. **Natalie Boelman**, Columbia University, Full Research Professor (nboelman@ldeo.columbia.edu)
3. **George Kling**, University of Michigan, Professor (gwk@umich.edu)
4. **Duncan Menge**, Columbia University, Associate Professor (dm2972@columbia.edu)
5. **Rose Cory**, University of Michigan, Professor (rmcory@umich.edu)

AFFILIATED INVESTIGATORS:

1. **Laura Gough**, Towson University, Professor. ARC LTER DEI Coordinator and EC member
2. **William B. Bowden**, University of Vermont, Professor
3. **M. Sydonia Bret-Harte**, University of Alaska Fairbanks, Professor
4. **Ann (Jingyi) Chen**, University of Texas at Austin, Assistant Professor
5. **Byron Crump**, Oregon State University, Professor, ARC LTER Executive Committee (rotating member)
6. **Bayani Cardenas**, University of Texas at Austin, Professor
7. **Claudia Czimczik**, University of California, Irvine, Professor
8. **Linda Deegan**, Woods Hole Research Center, Senior Scientist
9. **Ned Fetcher**, Wilkes University, Coordinator
10. **Anne Giblin**, Marine Biological Laboratory, Senior Scientist, ARC LTER EC (rotating member)
11. **Michael Gooseff**, University of Colorado, Associate Professor
12. **Mary Heskell**, Macalaster College, Assistant Professor
13. **Rebecca Hewitt**, Amherst College, Assistant Professor
14. **Alex Huryn**, University of Alabama, Professor
15. **Nic Jelinski**, University of Minnesota, Associate Professor
16. **Michelle Mack**, Northern Arizona University, Professor
17. **Jennie McLaren**, University of Texas at El Paso, Associate Professor
18. **Shahid Naeem**, Columbia University, Professor
19. **Susan Natali**, Woods Hole Research Center, Associate Scientist
20. **Beth Neilson**, Utah State University, Associate Professor
21. **Tom Parker**, James Hutton Institute, Ecologist
22. **Adrian Rocha**, University of Notre Dame, Associate Professor
23. **Rebecca Rowe**, University of New Hampshire, Associate Professor
24. **Gaius Shaver**, Marine Biological Laboratory, Senior Scientist (past PI)
25. **Arial Shogren**, University of Alabama, Assistant Professor
26. **Mark Urban**, University of Connecticut, Associate Professor
27. **Michael Weintraub**, University of Toledo, Professor
28. **Jeff Welker**, University of Alaska, Professor
29. **Jay Zarnetske**, Michigan State University, Associate Professor

The current ARC LTER has Dr. Phaedra Budy, a professor at Utah State University, as Other Personnel with a subcontract to provide data on fish and zooplankton to the ARC LTER, as defined in the proposal. Dr. Heidi Golden, owner of the consulting firm Golden Ecology, is an additional partner who is contracted to provide data on fish to the ARC LTER.

APPENDIX 3. Organizational structure of the ARC-LTER. The ARC Executive Committee (EC, red) manages the allocation of resources among research, data, DEI, and education components in response to the needs of the the project and collaborating investigators. The EC is also responsible for the oversight of the three research questions (yellow) and their integration. The three research questions represent groups of investigators, students, research assistants, and educators working on the activities related to these questions. Four other committees or managers report to the EC (gray); the ARC LTER Advisory Board (see Section X.1 above) includes students, postdocs, research associates or project managers, and a representative from the DEI Committee. The Executive Committee interacts with the LTER Network Office, other networks, and NSF (blue), and it responds to requests for information or collaboration and prepares annual reports and other communications. The Executive Committee is also responsible for interacting with and responding to logistics support entities (e.g., NSF-PLR and Toolik Field Station) and regulatory agencies (green). Regular Executive Committee meetings use this diagram to prepare an agenda for discussion of all areas and operations of the project represented here.



APPENDIX 4. ARC LTER dataset workflow from the researcher to the final data repository. See the full ARC LTER [Data Management Plan](#) for details.

