

Request for Proposals

Niwot Ridge Long-term Ecological Research Program 2018

ELIGIBILITY. Any faculty member or group of faculty members involved with the Niwot Ridge LTER program is eligible to apply (any faculty member can become involved with the NWT program by sending your name and address to the NWT LTER coordinator (niwotridgelter@gmail.com) and attending science meetings).

SCOPE. The primary goal of these annual awards is to support LTER research and synthesis efforts, including filling gaps in current research to achieve LTER VII goals. Secondary goals include: enhancing the NWT research community by encouraging involvement of early- and midcareer researchers in the NWT program and enhancing our capacities to engage in broader impact activities. These awards are for one year, but can be renewed for multi-year projects. A faculty member can submit more than one proposal.

CORE TYPES OF SUPPORT. We have funding to allocate to support GRAs and expenses related to field supplies and sample processing. We expect to give about 10 awards, with the majority covering summer GRAs and 2-3 also including summer + one semester GRAs.

- a) **Graduate student support.** Funds can be used either to support an existing student or to recruit a new student. The faculty member who is applying for support must be eligible to be a mentor for a graduate student. If funds are to recruit a new student, the LTER cannot guarantee support past the year of the award. In this call, support can be requested for summer 2018, fall semester 2018, and/or spring semester 2019. We will not fund students over 50% time or pay non-resident tuition or tuition outside CU-Boulder.
- b) **Supplies and sample processing.** Funds can be used for field supplies and costs to run samples. Table 1 (below) lists Arikaree Environmental Lab water and soil sample processing costs, including fees for fluorometer usage.
- c) **Travel.** We will consider requests for non-local scientists for travel and lodging at MRS. Support for graduate student and postdoc travel to conferences will be covered in a separate RFP released in June.

Additional types of support. We can also support projects through technician support and use of lab space. We also have two REU positions each year to allocate (undergraduates in residence at MRS for the summer). You don't need to submit a proposal for these, just email niwotridgelter@gmail.com to request.

SELECTION CRITERIA

1. Proposed research and activities must support the goals and research activities in the NWT VII grant, particularly activities outlined in the proposal that are not currently supported in other ways or which may not be achieved without additional support. Please make specific mention of how the proposed research relates to LTER VII hypotheses, and to relevant NWT VII research activities found in the proposal (hint: this means that you **MUST HAVE** read and reference specific parts of the NWT VII proposal, <http://niwot.colorado.edu/publications/pub/2016-proposal>).
2. Likelihood of yielding important and publishable research products – based in part on the proposed work and in part on previous research history and productivity of the PI(s), and if applicable, qualifications of the student.

3. Potential for enhancing the NWT and LTER research community – based on the past and likely future contributions of the PI(s) and the student to the NWT Program as well as to activities in the LTER network.
4. It is our preference that proposed research link to one or more of our existing long-term datasets. A "link" to long-term datasets could mean research that (1) will help us to interpret a long-term dataset, or (2) will test a mechanism implied by a long-term dataset, or (3) will analyze a long-term dataset.
5. Proposals from PIs with students who have previously received GRA funding will be evaluated with proposals for new students based on the selection criteria. The committee may consider past levels of support from LTER, leveraged support from other sources, as well as the overall breadth of supported projects when comparing proposals of equal merit.

6. Priority Projects. The executive committee has identified several needs that would be appropriate for GRA support. These include:

- a. Establishment and initial measurements (vegetation, soil, snow) of the black sand early melt-out experiment. Sensor placement and protocol development. The manipulations are slated to begin May 2018, and have been modified a bit from the experimental design in the proposal (H1).
- b. Protocol development for the biotic influence manipulations (structures that mimic the presence of a shrub or tree) and measurements of ecological response (H2). Initial pilot structures are in place for testing this winter.
- c. Extension of modeling work of limiting resources to empirically test predictions of water/temperature limitations across various landscape positions at Niwot (H1).
- d. Development and validation of a protocol to monitor forest productivity across long-term monitoring plots (H1).
- e. Initial analysis of spatiotemporal variation (sensor network) in the saddle catchment, including possible consideration of stream dynamics (H4)
- f. Remote sensing work to address shifts in water and energy limitation at Niwot and regionally (H4)
- g. Continued development of DHSVM, with goal towards representation of hydrological fluxes in the saddle catchment (H4)
- h. Determination of bias in chart recorder versus sensor-based climate measures, whether we can account for this bias and phase out the use of chart recorders (climate).

TIMELINE. Application deadline is **February 1st 2018** by 5pm MST. The scientific steering committee will evaluate proposals and make decisions by the end of February. We request that all funding offers be accepted or declined by March 15th to allow us to make offers to support other projects and use all available funding.

APPLICATION REQUIREMENTS

- 1. Cover page.** Project title, PI name(s), position, department. Title. Specify the PI responsible for the reporting requirements.
- 2. Proposal.** In 3 pages or less, provide a description of what you will do during the period of funding, and what you expect to accomplish (expected products may occur after the one-year funding period). Include:

- a) A clear statement about the hypothesis or general research question that you will be pursuing, an explanation of the rationale for the work, and the research approach or experimental plan you will take in the project.
- b) Explanation of how the proposed work supports the selection criteria.
- c) A timeline including research activities, presentations, manuscript submission. If the proposed activity is part of a multi-year effort, please indicate these general plans.
- d) A statement of intention to provide data, results, and data documentation (subject to access restrictions outlined in the NWT data policy) to the NWT information manager.
- e) For GRA support, a statement of the student's willingness to participate in the LTER science communication and outreach graduate seminar (offered each fall through EBIO, 1 credit hour, led by Alex Rose) and contribution of at least 10 hours of outreach service (in coordination with Alex).
- f) If you have had prior support from NWT, detail the outcome of those efforts, including manuscripts and evidence that data has been submitted to NWT LTER. For those with 2017 support, we request you include the status of datasets you collected in 2017. All data need to be posted within 2 years of collection.

3. Budget. A budget (in tabular form) and a narrative justification of all requested expenditures (1-page maximum). Direct costs only. For GRA requests, provide duration (summer, fall, spring) and whether the student is a candidate or not. You do not need to provide dollar amounts for GRAs. Please provide dollar amounts for other expenses such as sample charges or field supplies.

5. Send application materials in one PDF file to NWT LTER (niwotridgelter@gmail.com) by the application deadline. Please title the file with your last name.

REPORTING REQUIREMENTS. At the end of the funding period (May 2019), the awardee will be asked to provide a report on how the funds were used and the benefits gained from the activities. An interim report is also expected that will contribute to the NWT VII annual report to NSF (mid November 2018). Outreach activities (e.g., those associated with GRA support) should be included. Awardees will be expected to present their work at one of the science hours of the NWT monthly meetings.

Any datasets acquired for this project should be archived with appropriate metadata according to NWT guidelines in consultation with NWT information manager Hope Humphries. All resulting publications must acknowledge the NWT LTER program using the NSF LTER Grant number. Please notify the NWT information manager of publications.

CONTACTS. Please contact the NWT LTER lead-PI Katharine Suding (suding@colorado.edu) or other members of the NWT executive committee to discuss ideas or request clarification. Application materials should be sent to the Niwot email address (niwotridgelter@gmail.com).

Table 1. Arikaree Environmental Laboratory Service Rates. Please use “capital investor” rates to estimate sample costs for LTER projects, even if the project will be in conjunction with a graduate student.

Instrument	Analysis	Full run (# samples)	Graduate student (\$)	Capital investor (\$)	CU (\$)
Lachat QuikChem 8500	Standard (N, P, or Si ²⁺)	90	N/A	5.95	7.00
	Non-standard (+ TDP)	100	N/A	11.05	13.00
Manual Titration	Alkalinity	N/A	4.50	5.10	6.00
Accumet AR10 pH Meter	pH	N/A	4.50	5.10	6.00
Perkin Elmer AAnalyst 200 Atomic Absorption Spectrometer	Standard (Na ⁺ , K ⁺ , Ca ²⁺ , Mg ²⁺)	130	18.75	21.25	25.00
	Non-standard (+ Mn ²⁺ , Li ⁺ , or Fe)	100	23.25	26.35	31.00
Thermo Finnigan FLASH EA 1112 CHN Analyzer	Total C and N; ground and packed	30	6.00	6.80	8.00
Metrohm 930 Compact IC Flex	Standard (Cl ⁻ , NO ₃ ⁻ , SO ₄ ²⁻)	70	N/A	16.15	19.00
	Non-standard (+ F ⁻ , Br ⁻)	50	N/A	20.40	24.00
Biotek Synergy 2 Multi-Detection Microplate Reader	NH ₄ ⁺	45	N/A	5.95	7.00
Shimadzu TOC-V CSN	DOC, TDN	50	9.75	11.05	13.00
	TOC, TN	50	N/A	11.05	13.00
Mettler Toledo SevenEasy Conductivity Meter	EC	N/A	4.50	5.10	6.00
Picarro L2130-i	δ ¹⁸ O, δ ² H	50	24.00	27.20	32.00
HORIBA Scientific FluoroMax 3	Chl a	20	N/A	18.70	22.00
HORIBA Scientific FluoroMax 3	2D FI and UVvis at 254nm	30	N/A	21.25	25.00
Filtering				5.10	6.00
Packing (solids)				1.00	1.00
Pre-cleaned bottles				2.00	2.35
Total Suspended Solids (TSS)				8.50	10.00