

**Opportunity Title:** ORNL Arctic Root Ecology Post-Bachelor's Research Associate

**Opportunity Reference Code:** ORNL19-25-ESD

**Organization** Oak Ridge National Laboratory (ORNL)

**Reference Code** ORNL19-25-ESD

**Description** The NGEE Arctic project (<http://ngee-arctic.ornl.gov>), funded by the U.S. Department of Energy, aims to improve the representation of Arctic ecosystems in global climate models. Oak Ridge National Laboratory's (ORNL) Environmental Sciences Division seeks to understand how warmer temperatures and thaw of perennally frozen soils (permafrost) may affect above- and belowground plant functional traits.

The response of arctic plants to a rapidly changing environment has important consequences for fluxes of carbon, energy, water, and nutrients. Data collection by ORNL researchers takes place at three sites on the Seward Peninsula in Alaska as well as one site on the northern coastal plain of Alaska. Samples collected include soil and plant materials that require sorting and chemical analysis of %C, %N, d13C, and d15N. The team is seeking a Post-Bachelor's Research Associate to process roots collected in the 2018 field season from manipulative warming experiments at the site on the northern coastal plain of Alaska. These roots were exposed to a non-hazardous isotopic tracer that will allow comparison of rates of nitrogen uptake by plants under warmed and unwarmed conditions.

The Research Associate will be responsible for sample processing in the lab and will work with researchers to check the quality of the resulting data and perform data analysis. The team is interested in learning whether warmed conditions increase the rate of nitrogen uptake and/or nitrogen demand of these plants. Candidates should be interested in nutrient cycling and plant-soil interactions.

The Research Associate may be invited to participate in the 2019 field season. This would involve accompanying NGEE Arctic researchers to Alaska and aiding in collection of new samples from the Seward Peninsula sites.

**Qualifications** The candidate should have a bachelor's degree and educational background that encompasses at least two of the following areas: environmental sciences, biology, botany, environmental chemistry, geology, soil science, plant physiology, plant-soil interactions, or chemistry.

Preferred:

- Experience conducting research in a laboratory setting
- Knowledge of laboratory safety procedures
- Familiarity with data management and protocol development
- Experience collecting data in remote field locations or processing root samples

The ORNL Post-Bachelor's Research Associates Program is administered by Oak Ridge Associated Universities through its contract with the U.S.



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Department of Energy to manage the Oak Ridge Institute for Science and Education (ORISE).

- Eligibility**
- **Degree:** Bachelor's Degree received within the last 36 month(s).
- Requirements**
- **Discipline(s):**
    - **Chemistry and Materials Sciences** ([1](#) )
    - **Earth and Geosciences** ([1](#) )
    - **Environmental and Marine Sciences** ([3](#) )
    - **Life Health and Medical Sciences** ([4](#) )

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