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Opportunity Title: USDA-FS Temperature and Hurricane Disturbance on Soil Carbon Dynamics in a Wet Tropical Forest
Opportunity Reference Code: USDA-FS-IITF-2025-0027

Organization U.S. Department of Agriculture (USDA)

Reference Code USDA-FS-IITF-2025-0027

How to Apply ***To submit your application, scroll to the bottom of this opportunity and click APPLY.***

A complete application consists of:

- An application
- Transcript(s) – For this opportunity, an unofficial transcript or copy of the student academic records printed by the applicant or by academic advisors from internal institution systems may be submitted.
  Click here for detailed information about acceptable transcripts.
- A current resume/CV, including academic history, employment history, relevant experiences, and publication list
- Two educational or professional recommendations. At least one recommendation must be submitted in order for the mentor to view your application.

All documents must be in English or include an official English translation.

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Application Deadline 3/28/2025 3:00:00 PM Eastern Time Zone

Description ***Applications will be reviewed on a rolling-basis.**

USDA Forest Service Office/Lab and Location: A fellowship opportunity is available with the US Department of Agriculture (USDA) Forest Service (FS) within the The International Institute of Tropical Forestry (IITF), located at Sabana Field Research Station in Luquillo, Puerto Rico.

At the heart of the USDA Forest Service's mission is their purpose. Everything they do is intended to help sustain forests and grasslands for present and future generations. Why? Because their stewardship work supports nature in sustaining life. This is the purpose that drives the agency's mission and motivates their work across the agency. It's been there from the agency's very beginning, and it still drives them. To advance the mission and serve their purpose, the USDA Forest Service balances the short and long-term needs of people and nature by: working in collaboration with communities and our partners; providing access to resources and experiences that promote economic, ecological, and social vitality; connecting people to the land and one another; and delivering world-class science, technology and land management.

The International Institute of Tropical Forestry (the Institute), headquartered in Río Piedras, Puerto Rico, is a research and technology transfer institute that is dedicated to advancing tropical forestry on insular, national, and international levels, and developing and exchanging knowledge critical to

sustaining benefits of tropical forests and grasslands. The IITF mission is to develop and disseminate scientifically based knowledge that contributes to the conservation of forests, wildlife, and watersheds of the American tropics in the context of environmental change. Current foci include disturbance ecology, climate change and forest ecosystem services. The Research and Development mission of the USFS is to develop and deliver knowledge and innovative technology to improve the health and use of the Nation's forests and grasslands—both public and private including National Forest lands.

Proposed Project: We are seeking an ORISE Postdoctoral Fellow to help conduct research that includes analysis of multiple complimentary datasets from a long-running field warming experiment in Puerto Rico to estimate the combined effects of the hurricanes of 2017 and 2022 and experimental warming on soil carbon loss from the Luquillo Experimental Forest (LEF). The goal is to evaluate underlying mechanisms controlling soil carbon stabilization and to participate in developing predictive models to better project the future of carbon loss from tropical forest soils. Additional activities include collaborating on a broader effort to model the effects of hurricane disturbance and warmer temperatures on the carbon balance of the LEF, and a cross-site synthesis that will utilize machine learning to improve predictive understanding of temperature controls on soil carbon loss from both tropical and arctic soils in collaboration with Dr. Debjani Sihi at North Carolina State University as well as other collaborating scientists at a range of institutions. This research will further the IITF Mission by developing knowledge on changes in forest function in the LEF in response to warmer temperatures and multiple hurricane disturbances and gain insights on potential vulnerabilities of the LEF to predicted future disturbances. The long-term data collected as part of TRACE are unique, and by synthesizing these data streams, this opportunity will result in significant improvements to our understanding of mechanisms controlling stabilization of tropical forest soil carbon and the vulnerability of these large carbon pools to projected future disturbances.

Learning Objectives: The fellow will be mentored by IITF Scientist, Dr. Tana Wood, and will gain experience analyzing large, complex data sets that span multiple disturbances, publishing peer-reviewed publications, and giving presentations on the research. The scientist will additionally be invited to participate in workshops that will bring together a team of scientists to help improve predictive models for soil carbon cycling, globally. The fellow will gain knowledge of controls on carbon and nutrient cycling in tropical forested ecosystems; improve data management and analysis skills, including application of machine learning; engage and collaborate with top scientists in the field and contribute to a larger synthesis effort; improve written and oral communication skills through the development and delivery of research publications and presentations

Mentor: The mentor for this opportunity is Dr. Tana Wood (tana.e.wood@usda.gov). If you have questions about the nature of the research, please contact the mentor.

Anticipated Appointment Start Date: April 2025. Start date is flexible

and will depend on a variety of factors.

Appointment Length: The appointment will initially be for one year but may be extended upon recommendation of USDA Forest Service and is contingent on the availability of funds.

Level of Participation: The appointment is full time.

Participant Stipend: The participant will receive a monthly stipend commensurate with educational level and experience. **The anticipated annual stipend is $72,000 (12-months). Additionally, the medical and dental insurance supplement is $6,547, and travel support to present research findings is $3,000.**

Citizenship Requirements: This opportunity is available to U.S. citizens, Lawful Permanent Residents (LPR), and foreign nationals. Non-U.S. citizen applicants should refer to the Guidelines for Non-U.S. Citizens Details page of the program website for information about the valid immigration statuses that are acceptable for program participation. Foreign national candidates may have a mandatory in-person requirement depending on visa status.

ORISE Information: This program, administered by ORAU through its contract with the U.S. Department of Energy (DOE) to manage the Oak Ridge Institute for Science and Education (ORISE), was established through an interagency agreement between DOE and USDA Forest Service. Participants do not become employees of USDA, USDA Forest Service, DOE or the program administrator, and there are no employment-related benefits. Proof of health insurance is required for participation in this program. Health insurance can be obtained through ORISE.

Questions: Please visit our Program Website. After reading, if you have additional questions about the application process please email ORISE.USFS.WO@orau.org and include the reference code for this opportunity.

Qualifications

The qualified candidate should be currently pursuing or have received a doctoral degree in the one of the relevant fields (e.g. Soil Science, Earth System Science, Biogeochemistry, Environmental Science, Ecology, or a related field). Degree must have been received within the past five years or is anticipated to be received by 5/30/2025.

Preferred skills:

- Experience in analyzing soil carbon dynamics and biogeochemical processes.
- Proficiency in programming languages (R, Python, or C++) for data analysis and modeling.
- Familiarity with machine learning techniques and/or biogeochemical modeling frameworks.

Point of Contact Justina

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Eligibility Requirements

- **Degree:** Doctoral Degree received within the last 60 months or currently pursuing.
- **Discipline(s):**
  - **Chemistry and Materials Sciences** (4 👁)
  - **Communications and Graphics Design** (1 👁)
  - **Computer, Information, and Data Sciences** (17 👁)
  - **Earth and Geosciences** (8 👁)
  - **Engineering** (2 👁)
  - **Environmental and Marine Sciences** (6 👁)
  - **Mathematics and Statistics** (5 👁)