

Opportunity Title: USFS Postdoctoral Fellowship in Ecosystem Sciences and Modeling

Opportunity Reference Code: USDA-USFS-2021-0248

Organization: U.S. Department of Agriculture (USDA)

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How to Apply: *Connect with ORISE...on the GO!* Download the new ORISE GO mobile app in the [Apple App Store](#) or [Google Play Store](#) to help you stay engaged, connected, and informed during your ORISE experience and beyond!

A complete application package 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. Selected candidate must provide proof of completion of the degree before the appointment can start. Click [Here](#) for detailed information about acceptable transcripts.
- A current resume/CV
- 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.

Application Deadline: 2/14/2022 3:00:00 PM Eastern Time Zone

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

USFS Office/Lab and Location: A postdoctoral research opportunity is available with US Forest Service (USFS), Southern Research Station, Eastern Forest Environmental Threat Assessment Center in Research Triangle Park, North Carolina. The participant will mainly be stationed at Auburn University in Auburn, Alabama, but will travel to Research Triangle Park periodically as needed. The initial research location may be remote depending on COVID restrictions.

At the heart of the U.S. 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 U.S. 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.

Research Project: This study directly addresses research priorities of water resources (water yield, nitrogen loading and pollution), ecological ecosystem restoration (forest recovery and carbon sequestration), extreme climate change. The overarching goal of this proposed study is to provide a comprehensive assessment of hurricane impacts on southern forests in terms of their carbon, water and nitrogen dynamics during 1985-2020 and provide intelligence support for forest carbon and water management. The

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study will take advantage of remote sensing techniques, in situ measurements and terrestrial-aquatic modelling over multiple spatial and temporal scales. The observed or simulated results will also be used to generate maps of forest vulnerability to hurricanes. Forest management scenarios, such as stocking, rotation period, thinning, and salvage logging for mitigating effects of hurricane damages and forest restoration, will be tested. Outcomes such as maps and user-friendly tools produced from this research will be made available stakeholders for use in assessing historic and future hurricane impacts and developing post-hurricane measures to minimize forest ecosystem service losses.

Specifically, the study is to address:

- What are the key factors causing hurricane damage to southern forests?
- How do southern forests mitigate hurricane impacts on floods?
- How do forest carbon assimilation and soil carbon pool change after hurricanes?
- How is nitrogen loading from forests to rivers influenced during and after hurricanes?
- What are the best forest management options to mitigate hurricane impacts?

Learning Objectives: The postdoctoral fellow will learn advanced ecosystem sciences and technology by participating research activities:

1. Compiling water quality and quantity, forests, watershed, and meteorology data
2. Satellite observation and mapping impacts of hurricane on southern forests
3. Modeling terrestrial-aquatic systems with advanced ecosystem models

Mentor: The mentors for this opportunity are Steve McNulty (steven.mcnulty@usda.gov) and Dr. Hanqin Tian at Auburn University (tianhan@auburn.edu). If you have questions about the nature of the research please contact the mentor(s).

Anticipated Appointment Start Date: As soon as a qualified candidate is available. 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 for an additional year upon recommendation of USFS and is contingent on the availability of funds.

Level of Participation: The appointment is full-time.

Participant Stipend: Participant will receive a monthly stipend commensurate with educational level and experience up to **\$6,000 per month** and the participant will also be eligible to receive a health insurance supplement to offset the cost of a medical health insurance plan.

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

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valid immigration statuses that are acceptable for program participation.

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 USFS. Participants do not become employees of USDA, USFS, 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 USForestService@orise.orau.gov and include the reference code for this opportunity.

Qualifications The qualified candidate should have received a doctoral degree in one of the relevant fields (e.g., forestry, ecology, hydrology, remote sensing, earth system science, GIS).

Preferred skills:

- Experience with land surface/terrestrial ecosystem modeling, spatial data analysis, GIS, remote sensing
- Experience with computer programming (e.g. C++, R and/or Python)
- Strong writing skills

- Eligibility Requirements**
- **Degree:** Doctoral Degree.
 - **Discipline(s):**
 - **Computer, Information, and Data Sciences** ([4](#))
 - **Earth and Geosciences** ([2](#))
 - **Environmental and Marine Sciences** ([6](#))
 - **Life Health and Medical Sciences** ([2](#))