

**Opportunity Title:** USFS Postdoctoral Fellowship in Hydrology

**Opportunity Reference Code:** USDA-USFS-2021-0160

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

**Reference Code** USDA-USFS-2021-0160

**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. All transcripts must be in English or include an official English translation. Click [Here](#) for detailed information about acceptable transcripts.
- A current resume/CV
- Two educational or professional recommendations. Applications need at least one recommendation submitted in order to be viewed by the mentor.

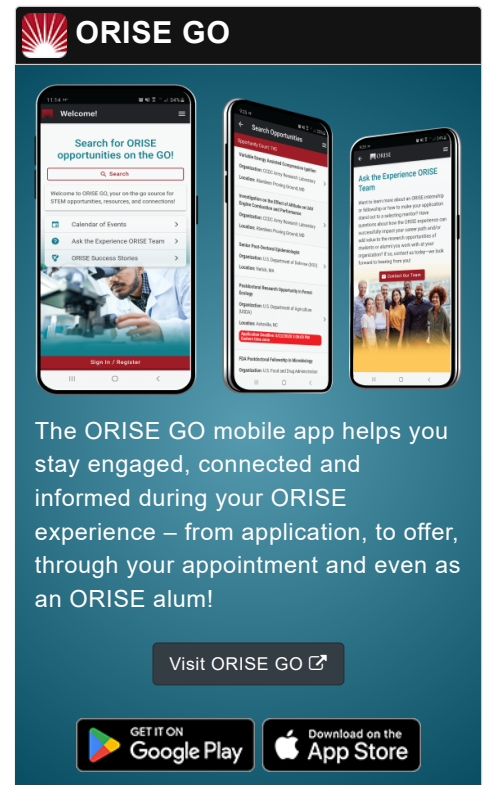
All documents must be in English or include an official English translation.

**Application Deadline** 8/17/2021 3:00:00 PM Eastern Time Zone

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

**USFS Office/Lab and Location:** Six research opportunities are available with the US Forest Service (USFS), Southern Research Station, Center for Integrated Forest Science. The appointment will be located in either Otto, North Carolina, Research Triangle Park, North Carolina, Tallahassee, Florida, or Starkville, Mississippi.

**Research Project:** Forests provide the most stable and highest quality water among all other land uses. Changes in land use from forest to more intensive land use such as agricultural and urban development can increase point and non-point pollution, reduce aquifer recharge, and accelerate stormwater release. In addition to upstream freshwater watersheds, downstream marine and coastal waters such as those along the Gulf of Mexico are also vulnerable to the effects of forest conversion. Forests are particularly vulnerable to land use change in the southeastern United States where most forest land is privately owned. Technical and financial assistance for forest restoration can provide benefits for both the landowner and downstream water quantity and quality by enabling private forest landowners to retain and generate income from their forest land, thereby preventing conversion to other uses. Models, data, and other tools are critically important for understanding the linkage between upstream forest land use and downstream water resources and to support forest restoration decision-making.



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We are seeking a postdoctoral hydrologist who has broad knowledge of water quantity and quality issues and how they are modeled across large multi-use watersheds. The participant will join a diverse team of scientists and stakeholders on an exciting new project that will implement forest restoration activities (e.g., reforestation, riparian buffers, etc.) across coastal watersheds in Mississippi, Alabama, and Florida in the southeastern United States. The participant will contribute to the development of hydrologic models that will be used to support forest restoration decision-making and to project restoration benefits for water quantity and quality to the Gulf of Mexico over the long term.

**Learning Objectives:** Learning objectives for the participant include development of capabilities in hydrological modeling of forest management activities, engaging with stakeholders representing various interests, and application of the scientific research process from hypothesis testing to publishing and presenting results in a management decision-support context.

**Mentor(s):** The mentor for this opportunity is Peter Caldwell ([peter.v.caldwell@usda.gov](mailto:peter.v.caldwell@usda.gov)). If you have questions about the nature of the research please contact the mentor.

**Anticipated Appointment Start Date:** **October 1, 2021.** Start date is flexible and negotiable, 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 USFS 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.

**Participants will be provided a stipend of \$77,500/year, partial coverage (75% of total premium) of individual health insurance, moving allowance, and a travel stipend for attendance at project meetings and presentations at scientific conferences.**

**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.

**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

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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](mailto: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, or be currently pursuing the degree with completion by the appointment start date.

Preferred skills:

- Strong hydrology background and quantitative skills that integrate field observations with empirical and process-based modeling to understand the linkage between land use change, forest management, and water quantity and quality.
- Skills and experience in applying hydrologic and water quality models (e.g., SWAT, HSPF, MIKE SHE, and SPARROW)
- Strong analytical and programming capabilities and the ability to build, manage, and analyze large datasets of hydrologic information using programming and/or statistical software (e.g., SAS, Python, MATLAB, R, and Fortran).
- Knowledge of geospatial analysis, data, and associated tools (e.g., ArcGIS, GRASS GIS, etc.)
- Evidence of publication and presentation to scientific and/or lay audiences

**Eligibility  
Requirements**

- **Degree:** Doctoral Degree.
- **Discipline(s):**
  - **Earth and Geosciences** (2 )
  - **Engineering** (3 )
  - **Environmental and Marine Sciences** (7 )
  - **Life Health and Medical Sciences** (3 )