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**Opportunity Title:** USFS Climate Impacts on Demand for Suppression Resources
**Opportunity Reference Code:** USDA-USFS-2023-0279

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

**Reference Code** USDA-USFS-2023-0279

**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. 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** 7/7/2023 3:00:00 PM Eastern Time Zone

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

**USFS Office/Lab and Location:** A fellowship opportunity is available with the US Department of Agriculture (USDA) Forest Service (USFS) at the Rocky Mountain Research Station (RMRS) located in Fort Collins, Colorado.

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:** A highly trained set of professional wildland fire personnel is key to completing landscape management tasks that minimize the occurrence and impacts of large, severe wildland fires and to minimizing damage from those wildland fires when they threaten communities. Climate change is expected to impact patterns of large wildland fires both spatially and temporally in the United States, which will impact the demands on the wildland fire suppression workforce. Within the United States, the wildland fire response workforce is comprised of federal, state, and local employees, as well as volunteers. The largest provider of wildland firefighters is the federal government, specifically, the United States Department of Agriculture (USDA) and the United States Department

of the Interior (USDOI), with the majority of the workforce employed by the Forest Service (within the USDA) and comprised of permanent, seasonal, temporary, and contract employees. Recently, the wildland fire response workforce has seen challenges with recruitment and retention, leading to unfilled positions, particularly in the Forest Service, leading to concerns about the future of the workforce. Assessing future workforce needs is critical in strategic workforce development. To estimate future needs for a federal wildland firefighting workforce quantifying the range potential fire activity and its impact on wildland firefighter use is critical. This is a challenging task, as historically there has been high variability in both fire activity, which is likely to be exacerbated by climate change, and the level of personnel required to support fire suppression activities.

The Rocky Mountain Research Station (RMRS), as a part of the USDA Forest Service, works at the forefront of science to improve the health and use of our Nation's forests and grasslands. This ORISE Fellowship will provide a graduate student with the opportunity to collaborate with researchers at RMRS on a project that aims to quantify potential shifts in the demand for wildland fire suppression personnel and equipment under climate change. This project, called “Climate impacts on demand for suppression resources” or “CIDER”, was developed jointly by two researchers from the Rocky Mountain Research Station, Dr. Karin Riley and Dr. Erin Belval.

**Learning Objectives:** The ORISE Fellow will be highly engaged in research on data and model development, which provides a valuable opportunity for a graduate student to gain exposure and experience with wildland fire data sets and Bayesian modeling techniques. The ORISE Fellow selected for this project will be collaborating with the researchers to prepare the data needed for the model. Therefore, they will be conducting research to run FSim and process the outputs, giving them a deeper understanding of modeling fire activity using climate conditioned weather scenarios. They will also be collaborating with wildland firefighting personnel use data, fire occurrence data, and remotely sensed data, which will provide them with an understanding of the historical datasets available for use in examining historical wildland fire occurrence and management. Last, the project has planned to use a hierarchical Bayesian approach to estimate the personnel needs under differing outcomes and the Fellow will be involved in the model development process. The project is expected to result in peer reviewed publications, and the Fellow’s research will be properly acknowledged in any such publication.

**Mentor:** The mentor for this opportunity is Dr. Erin Belval (erin.belval@usda.gov). If you have questions about the nature of the research, please contact the mentor.

**Anticipated Appointment Start Date: June 2023;** start date is flexible (earlier or later).

**Appointment Length:** The appointment will initially be for twelve weeks 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.

**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 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 be currently pursuing a master's or doctoral degree in one of the relevant fields.

Preferred Skills:

- Previous experience with mathematical modeling
- Previous experience with geospatial analysis
- Previous experience running the FSim wildfire simulation model
- Expertise in coding using Python and/or R
- Interest in climate change
- Interest in wildfire modeling

**Eligibility Requirements**

- **Degree:** Currently pursuing a Master's Degree or Doctoral Degree.
- **Discipline(s):**
  - **Earth and Geosciences** (1)
  - **Environmental and Marine Sciences** (2)
  - **Mathematics and Statistics** (1)