Opportunity Title: USGS Postdoctoral Fellowship in Climate Data Analysis
Opportunity Reference Code: DOI-USGS-2023-11

Organization U.S. Department of the Interior (DOI)

Reference Code DOI-USGS-2023-11

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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 1/5/2024 11:59:00 PM Eastern Time Zone

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

USGS Office/Lab and Location: A research opportunity is currently available with the U.S. Geological Survey (USGS) at the Northwest Climate Adaptation Science Center (NW CASC) located in Corvallis, OR.

The USGS mission is to monitor, analyze, and predict current and evolving dynamics of complex human and natural Earth-system interactions and to deliver actionable intelligence at scales and timeframes relevant to decision makers. As the Nation's largest water, earth, and biological science and civilian mapping agency, USGS collects, monitors, analyzes, and provides science about natural resource conditions, issues, and problems.

The mission of the Climate Adaptation Science Centers (CASCs) is to deliver science to help wildlife, ecosystems, and people adapt to a changing climate. We work directly with land managers, Indigenous communities, and other partners to create research and tools that can be applied directly to adaptation decisions. Our network is comprised of nine regional CASCs and one national CASC.

Research Project: In partnership with NatureServe, this project will provide technical assistance and research on climate data analysis, statistical model development and testing, and human-computer interaction applications in support of developing a next-generation version of the Climate Change Vulnerability Index (CCVI). The CCVI is extensively used by state and other wildlife management partners for conducting climate change vulnerability assessments (CCVAs) for species. CCVAs provide important information for prioritizing and planning conservation management under a changing climate. However, advances in science dictate that the tool be updated and improved. This project will contribute to the development, testing, and release of a modern version of CCVI that will

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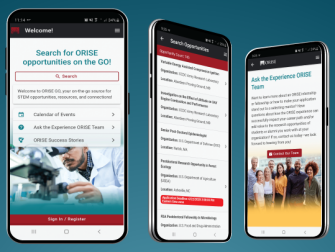

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be web hosted, use the latest CMIP climate data, and support collaboration and data sharing. Additionally, the updated version will be made more robust with improved accounting for uncertainty and incorporation of new science on climate change vulnerability (e.g., adaptive capacity) and vulnerability assessments, along with a better understanding and presentation of the sensitivity of the CCVI algorithm to its various inputs. The project will involve:

1. Collation and critical evaluation of updated climate exposure variables and climate models (and climate model ensembles), including sources of uncertainty and appropriate scales or contexts for application.
2. Quantitative sensitivity analysis of the independent and combined effects of climate exposure variables on the CCVI algorithm and resulting vulnerability score. Of particular interest is the relationship between—and relative importance of—exposure (abiotic conditions) and adaptive capacity (i.e., biological traits) variables in their influence on the resulting score.
3. Evaluating the need for variable weighting (or down-weighting) the importance of variables in the CCVI algorithm.
4. Pilot testing the use of climate scenarios to guide selection of exposure metrics.

Project will involve close interaction with ecologists involved in refining the biological components of CCVI and engagement with natural-resource managers at federal and state agencies.

Learning Objectives:

1. Develop or strengthen understanding of how climate exposure variables influence predictions of species vulnerability and response to climate change.
2. Develop or strengthen understanding of how human-computer interaction applications are created and pilot tested.
3. Develop understanding of technical and scientific needs of natural-resource managers to address climate-related challenges in conservation planning.

Mentor: The mentor for this opportunity is Lindsey Thurman (lthurman@usgs.gov). If you have questions about the nature of the research please contact the mentor.

Anticipated Appointment Start Date: September 2023. 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 USGS 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 based on education and experience. **The current stipend for this opportunity is $84,923 per year plus an insurance supplement estimated at $18,936.**

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Citizenship Requirements: This opportunity is available to U.S. citizens only.

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 USGS. Participants do not become employees of USGS, 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: If you have questions about the application process please email USGS@orau.org and include the reference code for this opportunity.

Qualifications

The qualified candidate should have received a doctoral degree in one of the relevant fields listed in the eligibility requirements section or be currently pursuing the degree with completion before December 31, 2023. Degree must have been received within the last five years.

Preferred Skills:

- Experience with principles, theory, and concepts of the climate system and climate models, including routine access, use, and interpretation of climate model output.
- Experience in advanced statistical methods, analysis of climate models, spatial analysis using R, Matlab, Python, or similar programming.
- Understanding of climate model downscaling approaches, climate projections, and sea level rise projections.
- Ability to manage, manipulate, analyze, and distribute very large climate datasets.
- Experience studying climate impacts to natural resources and communication/translation of climate concepts to non-experts.

Eligibility Requirements

- **Citizenship:** U.S. Citizen Only
- **Degree:** Doctoral Degree received within the last 60 months or anticipated to be received by 12/31/2023 11:59:00 PM.
- **Academic Level(s):** Graduate Students or Postdoctoral.
- **Discipline(s):**
  - **Earth and Geosciences** (9)
  - **Engineering** (2)
  - **Environmental and Marine Sciences** (14)
  - **Life Health and Medical Sciences** (14)
  - **Mathematics and Statistics** (3)
  - **Physics** (3)
  - **Social and Behavioral Sciences** (1)