Opportunity Title: Climate Change Research Scientist
Opportunity Reference Code: EPA-NSSC-0005-47-10-19-21

Organization U.S. Environmental Protection Agency (EPA)

Reference Code EPA-NSSC-0005-47-10-19-21

How to Apply Click HERE to Apply

Description The EPA National Student Services Contract has an immediate opening for a full time Climate Change Research Scientist position with the Office of Research and Development at the EPA facility in Corvallis, OR.

The Office of Research and Development at the EPA supports high-quality research to improve the scientific basis for decisions on national environmental issues and help EPA achieve its environmental goals. Research is conducted in a broad range of environmental areas by scientists in EPA laboratories and at universities across the country.

What the EPA project is about

The Pacific Ecological Systems Division (PESD) is one of four ecological effects divisions of EPA's Central for Public Health and Environmental Assessment (CPHEA). PESD's mission is 1) to provide EPA with national scientific leadership for terrestrial and regional-scale ecology, and 2) to develop the scientific basis for assessing the condition of aquatic resources and their response to natural and anthropogenic stresses. PESD's research approach comprises two aspects: 1) developing an understanding of the structure and function of ecological systems, and 2) conducting analyses of ecological phenomena at the ecosystem, landscape, and regional scales.

What experience and skills will you gain?

As a part of EPA's Air and Energy National Research Program, researchers are examining the potential impacts of climate change and climate-mediated forest disturbances (pests, pathogens, wildfire) on water quality and health of forested watersheds in the Pacific Northwest. Recent evidence indicates that forests throughout the west are sensitive to temperature and drought stress, making them more vulnerable to disturbance. With a predicted increase of pests, diseases, and fire frequency, understanding the interactions between climate and these disturbances is central to predicting climate change impacts to forest structure and functioning at local and regional scales. This research maintains a monitoring network of field sites in mature forest stands from the Coast Range to the west slopes of the Cascade Mountains of Oregon to measure and track climate change effects on forest growth and mortality.

EPA scientists are collaborating with the U.S. Forest Service and forest health specialists at Oregon State University to: (1) review the current scientific literature to describe the past and current patterns of forest disturbances (e.g., wildfires) and dynamics of forest conditions prior to land use changes including grazing, logging, and fire exclusion, (2) examine the role of climate change and forest disturbance agents on physiological processes, tree growth and mortality in forested watersheds; and (3) improve data and statistics for atmospheric and edaphic conditions, tree

growth and mortality, and identify forested watersheds at risk from climate change. EPA wishes to incorporate knowledge gained from these research efforts to develop a conceptual basis from which risks to water resources can be assessed and provide stakeholders with the information to develop adaptive management actions for reducing these risks.

EPA is seeking a team member to conduct a GIS-based risk assessment of tree mortality and wildfires in western forests to better understand the interactions between wildfire regimes and biological disturbance agents (BDAs, i.e., pests, pathogens) in western mixed-conifer forests with a special emphasis on how fuel loadings and aridity and tree mortality are influenced by drought and BDAs over time and space. The team member will utilize a variety of data sources including the multi-agency Monitoring Trends in Burn Severity database, USDA Forest Health Monitoring Program Forest Inventory and Analysis Database, the Multi-Resolution Land Characteristics Consortium National Land Cover Database, the USDA USFS Aerial Insect and Disease Surveys, NASA MODIS Rapid Response program, LANDSAT 7 satellite imagery data for Normalized Difference Vegetation Index, USDA USFS Dead Fuel Moisture index to identify geographic patterns of insect and disease activity, tree mortality and wildfires in response to climate, drought, and other disturbances. The team member will develop approaches to relate wildfire activity and tree mortality to seasonal climatic factors and biological disturbance agents at local to landscape scales. The team member will be responsible for data discovery, data acquisition, data management, and integration and analysis of data of varying spatial resolutions using geospatial tools. This modeling research is needed to understand how air and water quality are affected by wildfire regimes and tree mortality which, in turn, are influenced by climate and natural disturbances. There is a critical need to understand how forested watersheds are changing during a period of warming temperatures and how they are impacted by disturbance events (e.g., drought, wildfires, and insects). This work consists of creating a GIS database of tree species distribution, forest disturbances, wildfire activity, tree mortality, drought, climatic variables, and other predictor variables for use in a GIS-based risk assessment and modeling framework. The team member will interact with a multidisciplinary team of forest ecologists, biologists, and a statistician to prepare the GIS data for publication in peer-reviewed journals and presentation at international conferences. The team member will work with groups and subject matter experts to transform knowledge of forest pests, pathogens, and wildfire effects into strategies for reducing air and water quality risks for specific geographic areas and conditions. The team member will implement an approach for evaluating and reporting on the data and information quality upon which specific risks and strategies are based.

The team member will also assist in the collection and processing of dendrometer, vegetation, and meteorological data at the EPA monitoring network of field sites in Western Oregon as well as generating maps based on existing GIS databases of tree species distribution, forest disturbances, and wildfire activity. The team member will receive training as needed and

will be provided with equipment to perform all tasks. The effort may require field work to assist in the collection of data and maintenance of monitoring equipment as needed.

Required Knowledge, Skills, Work Experience, and Education

- Strong technical knowledge of ArcGIS, ArcEditor and ArcSDE for developing GIS databases;
- Strong programming skills with proficiency in SQL and R;
- Strong database management skills with experience in SQL server, MS Access, Oracle and PostGIS;
- Advanced experience with MS Office;
- Three years of Geographic Information System experience in GIS data management; and
- Experience integrating different types of data layers using geospatial tools.

Location: This job will be located EPA's facility in Corvallis, OR.

Salary: Selected applicant will become a temporary employee of ORAU and will receive an hourly wage of $29.27 for hours worked.

Hours: Full-time.

Travel: Some day-trip travel may be required.

Expected start date: The position is full time and expected to begin November 2021. The selected applicant will become a temporary employee of ORAU working as a contractor to EPA. The initial project is through May 14, 2022, with up to one 1-year additional option period.

Qualifications

- Be at least 18 years of age **and**
- Have earned at least a Master's degree in Geographic Information Systems, Forest Ecology, Fire Ecology, Biology, Geography, Statistics, Computer Science, or other scientific discipline from an accredited university or college within the last 24 months **and**
- Be a citizen of the United States of America or a Legal Permanent Resident.

EPA ORD employees, their spouses, and children are not eligible to participate in this program.

Eligibility Requirements

- **Citizenship:** LPR or U.S. Citizen
- **Degree:** Master's Degree received within the last 24 month(s).
- **Overall GPA:** 2.00
- **Discipline(s):**

Opportunity Title: Climate Change Research Scientist
Opportunity Reference Code: EPA-NSSC-0005-47-10-19-21

- **Computer, Information, and Data Sciences** (17 👁)
- **Earth and Geosciences** (21 👁)
- **Environmental and Marine Sciences** (14 👁)
- **Life Health and Medical Sciences** (46 👁)
- **Mathematics and Statistics** (10 👁)

Affirmation I certify that I am at least 18 years of age; a recent graduate with at least a Master's degree in Geographic Information Systems, Forest Ecology, Fire Ecology, Biology, Geography, Statistics, Computer Science, or other scientific discipline from an accredited university or college within the last 24 months; a citizen or a Legal Permanent Resident of the United States of America; and not a current employee of EPA ORD or the spouse or child of an EPA ORD employee.

Click HERE to Apply

ORAU is an Equal Opportunity Employer **(EOE AA M/F/Vet/Disability)**; visit the ORAU website for required employment notices.