

Opportunity Title: Ph.D. Watershed Modeling and Analysis Researcher

Opportunity Reference Code: EPA-NSSC-0007-104

Organization U.S. Environmental Protection Agency (EPA)

Reference Code EPA-NSSC-0007-104

How to Apply Click [HERE](#) to apply!

Description The EPA National Student Services Contract has an immediate opening for a full time Ph.D. Watershed Modeling and Analysis Researcher position with the Office of Research and Development at the EPA facility in Research Triangle Park, NC.

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

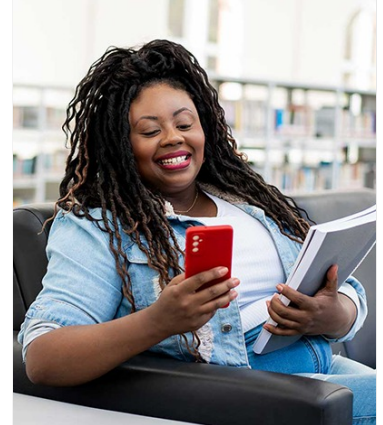
The Center for Environmental Measurement and Modeling (CEMM) conducts research to advance the Agency's ability to measure and model contaminants in the environment, including research to provide fundamental methods and models needed to implement environmental statutes. Within CEMM, the Watershed & Ecosystem Characterization Division (WECD) conducts research to help characterize the presence, transport, transformation, sources, and impacts of contaminants in watersheds and ecological systems. In addition, the WECD develops methods, tools, and technologies that are used to inform effective watershed management practices and minimize health risks from various chemical and microbial contaminants.

CEMM supports EPA's mission to protect human health and the environment. A major component of the organization's research program is the Safe and Sustainable Water Resources (SSWR) (https://www.epa.gov/system/files/documents/2022-10/SSWR%20FY23-26%20StRAP_EPA-ORD_October%202022_508.pdf). One of the research topics under SSWR is nutrient pollution under a changing climate. The goal of this research area is to improve our scientific understanding of how management practices and climate change impact environmental quality.

EPA has developed the Fertilizer Emission Scenario Tool for the Community Multiscale Air Quality (FEST-C) system to simulate daily fertilizer application to agricultural lands for bi-directional ammonia (NH₃) modeling in the Community Multiscale Air Quality (CMAQ) model. FEST-C integrates the Environmental Policy Integrated Climate (EPIC) model with the Weather Research and Forecast (WRF) model and CMAQ. The research participant will collaborate with EPA scientist and model developers to learn how the modeling systems was developed and how it can be applied to address questions such as how climate change impact nutrient losses from



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agricultural fields.

What experience and skills will you gain?

As a team member, you will prepare data including data curation and extraction, quality control to support model development and application. The team member will be a member of a multi-disciplinary research team and perform qualitative and quantitative data analysis to support ongoing research under SSWR and/or regional projects.

Detailed responsibilities will include:

- Collecting USGS streamflow and water quality monitoring data for hydrologic and water quality analysis as well as model calibration and validation
- Model evaluation
- GIS (Geographic Information System) processing of data layers of DEM, Soil, landuse/landcover, and Ag Census data for model enhancement and application
- Quality control of geospatial data
- Creation of metadata and fact sheets supporting the data
- Literature review.
- Prepare manuscript for journal publication.

Communications-related responsibilities will include:

- Participating as a member of a multi-disciplinary research team
- Interacting with other members of the development team as well as EPA scientists
- Documenting code, methods and data development efforts
- Presenting work performed to the research team as needed.

Required Knowledge, Skills, Work Experience, and Education

- Demonstrated education and/or experience in GIS (geographic information systems), geospatial data compilation and analysis as well as watershed hydrologic and water quality modeling;
- Strong written, oral and electronic communication skills; and
- Experience programming in Python or R or other scripting languages.

Desired Knowledge, Skills, Work Experience, and Education

- Experience using Linux system.

Location: This job will be located EPA's facility in Research Triangle Park, NC.

Salary: Selected applicant will become a temporary employee of ORAU and will receive an hourly wage of \$45.96 for hours worked.

Hours: Full-time.

Travel: Occasional overnight travel may be required.

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Expected start date: The position is full time and expected to begin November 2024. The selected applicant will become a temporary employee of ORAU working as a contractor to EPA.

For more information, contact EPANSSC@orau.org. Do not contact EPA directly.

- Qualifications**
- Be at least 18 years of age **and**
 - Have earned at least a Ph.D. degree in the fields of Agricultural Engineering, Civil and Environmental Engineering, Hydrology, Geology, Geospatial Science, Geography, Environmental Science, Geosciences or a related field 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:** Doctoral Degree received within the last 24 month(s).
 - **Overall GPA:** 2.00
 - **Discipline(s):**
 - **Business** ([11](#) )
 - **Chemistry and Materials Sciences** ([12](#) )
 - **Communications and Graphics Design** ([6](#) )
 - **Computer, Information, and Data Sciences** ([17](#) )
 - **Earth and Geosciences** ([21](#) )
 - **Engineering** ([27](#) )
 - **Environmental and Marine Sciences** ([14](#) )
 - **Life Health and Medical Sciences** ([51](#) )
 - **Mathematics and Statistics** ([11](#) )
 - **Other Non-Science & Engineering** ([13](#) )
 - **Physics** ([16](#) )
 - **Science & Engineering-related** ([2](#) )
 - **Social and Behavioral Sciences** ([30](#) )

Affirmation I certify that I am at least 18 years of age; a recent graduate with at least a Ph.D. degree in the fields of Agricultural Engineering, Civil and Environmental Engineering, Hydrology, Geology, Geospatial Science, Geography, Environmental Science, Geosciences or a related field 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.

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