

Opportunity Title: Application Software

Opportunity Reference Code: EPA-NSSC-0007-42

Organization U.S. Environmental Protection Agency (EPA)

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Description The EPA National Student Services Contract has an immediate opening for a full time Application Software position with the Office of Research and Development at the EPA facility in Research Triangle Park, NC.


What the EPA project is about

The Center for Environmental Measurement & Modeling (CEMM) conducts research to advance EPA'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 **Atmospheric & Environmental Systems Modeling Division (AESMD)** conducts research to advance EPA's ability to characterize atmospheric and environmental processes that impact the transport, transformation, and fate of environmental contaminants in the air and the multimedia linkages of air pollutant emissions in support of the Clean Air Act and the Clean Water Act.

As part of their mission, AESMD supports EPA's mission to protect human health and the environment by developing, evaluating, and applying state-of-the-science modeling tools that are used to manage air quality at local, state, regional, and global scales. Models developed by AESMD estimate the contributions of various air emission sources to ambient air pollution and inform human/ecological exposure and effects assessment. The AESMD staff consists of atmospheric scientists, meteorologists, hydrologists, physical scientists, computational chemists, chemical engineers, computer scientists, and statisticians.


The Community Multiscale Air Quality Modeling (CMAQ) system (www.epa.gov/cmaq) is an active open-source development project of the U.S. EPA that consists of a suite of programs for conducting air quality model simulations. CMAQ combines current knowledge in atmospheric science and air quality


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modeling, multi-processor computing techniques, and an open-source framework to deliver fast, technically sound estimates of ozone, particulates, toxics and acid deposition (<https://www.epa.gov/cmaq>). The Atmospheric Model Evaluation Tool (AMET) is the evaluation component of the CMAQ system. AMET was developed within AESMD, and it is used by scientists within and beyond the EPA to compare CMAQ simulations against observations of weather and air pollutants.

What experience and skills will you gain?

As a team member, you will work under the guidance of AESMD scientists to create an interactive user interface for AMET based on Java programming language. AMET includes a module for meteorology and a module for air quality. AMET currently runs on a multiprocessor, high-computing, Linux-based platform where the meteorology and air quality simulations are conducted. The backbone of AMET is a MySQL database that is populated with modeled and observed meteorology and air quality. This database is queried by R statistical codes for highly flexible evaluations of weather and air quality models. As a team member will design a software solution that works to upgrade the portability and improve the usability of AMET. In addition, you may be asked to provide data management, data curation, data analysis, and quality control support for AMET. You will be a member of a multi-disciplinary research team and shall support the development, maintenance, and analysis of AMET as part of the CMAQ system, including the potential extension of AMET to a container.

How you will apply your skills

Responsibilities:

- Developing an interactive Java interface for AMET
- Identifying potential areas for software improvement and optimization within AMET
- Extracting observation and modeled data to load into the AMET database
- Proposing a software engineering option to build a container for AMET
- Regularly communicating with AMET developers to consult on proposed design changes and software modifications to AMET

Required Knowledge, Skills, Work Experience, and Education

- Demonstrated proficiency with programming in Java.

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- Experience in coding scientific software and/or computational methods.
- Experience with linking Java and MySQL (or other databases).
- Experience with Linux.
- Experience developing software containers.
- Demonstrated ability to work independently, proactively, and remotely with minimal supervision.
- Strong written, oral and electronic communication skills.

Desired Skills

- Experience programming in Python or R or other scripting languages.

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 \$22.02 for hours worked.

Hours: Full-time.

Travel: Occasional overnight travel may be required.

Expected start date: The position is full time and expected to begin October 2020. The selected applicant will become a temporary employee of ORAU working as a contractor to EPA. The initial project is through May 14, 2021, with up to 4 additional potential optional periods.

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

Qualifications







- Be at least 18 years of age **and**
- Have earned at least a Bachelor's degree in computer science, atmospheric science, physical science, engineering, statistics, mathematics, or a related scientific or technological field of study 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.

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**Eligibility
Requirements**

- **Citizenship:** LPR or U.S. Citizen
- **Degree:** Bachelor's Degree received within the last 24 month(s).
- **Discipline(s):**
 - **Computer, Information, and Data Sciences** (16 )
 - **Earth and Geosciences** (21 )
 - **Engineering** (27 )
 - **Environmental and Marine Sciences** (14 )
 - **Mathematics and Statistics** (10 )
 - **Physics** (16 )

Affirmation

I certify that I am at least 18 years of age; A Bachelor's degree in computer science, atmospheric science, physical science, engineering, statistics, mathematics, or a related scientific or technological 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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