Opportunity Title: EPA Advanced Air Quality Model System (AAQMS) Research Fellowship
Opportunity Reference Code: EPA-ORD-CEMM-AESMD-2021-03

Organization U.S. Environmental Protection Agency (EPA)

Reference Code EPA-ORD-CEMM-AESMD-2021-03

How to Apply ***Connect with ORISE...on the GO!*** Download the new ORISE GO mobile app in the Apple or Google Play Store to help you stay engaged, connected, and informed during your ORISE experience and beyond!

A complete application 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. All transcripts must be in English or include an official English translation. Click here for detailed information about acceptable transcripts.
- A current resume/CV, including academic history, employment history, relevant experiences, and publication list
- Two educational or professional recommendations. Click here for detailed information about recommendations.

All documents must be in English or include an official English translation.

Application Deadline 11/13/2021 3:00:00 PM Eastern Time Zone

Description ***Applications may be reviewed on a rolling-basis and this posting could close before the deadline.** Click **here** for information about the selection process.

EPA Office/Lab and Location: A research opportunity is available at the Environmental Protection Agency (EPA), Office of Research and Development (ORD), Center for Environmental Measurement and Modeling (CEMM), Atmospheric and Environmental Systems Modeling Division (AESMD) located in Research Triangle Park, North Carolina. Scientists in the CEMM AESMD develop and apply large scale comprehensive atmospheric systems to study various aspects of air pollution.

Research Project: The USEPA has embarked on the Advanced Air Quality Model System (AAQMS) project to enable modeling of air quality from global to regional to local scales. The system will have three configurations: 1. Global meteorology with seamless mesh refinement and online (coupled) atmospheric chemistry; 2. Regional (limited area) online meteorology and chemistry; and 3. Offline (sequential) regional meteorology and chemistry. A team of scientists in AESMD is developing a global online configuration which includes the Model for Prediction Across Scales – Atmosphere (MPAS-A), developed at the National Center for Atmospheric Research (NCAR), coupled with the latest version of the Community Multiscale Air Quality (CMAQv5.3) model developed at the U.S. EPA. . This multiyear development and evaluation effort offers many opportunities to learn new skills and gain valuable research experience collaborating with a team of experienced atmospheric modeling scientists.

The main focus of this research project will be a continuation of the Advanced Air Quality Model System (AAQMS) development which enables modeling of air quality from global to regional to local scales.

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Research activities may include:

- adding new features in the modelling system
- thorough model evaluation
- studying and implementing aerosol radiative effect with respect to long wave radiation
- applying the model in real case study

Learning Objectives: The research participant will have the opportunity to learn about aerosol radiative effect, model coupling mechanics, systemic model evaluation as well as air quality impact in a local, regional, and/or global scale. The research participant will gain experience with coding, AMET and Python tools, and will have a great opportunity to collaborate and interact with other scientists in the group.

Mentor(s): The mentor for this opportunity is David Wong (wong.david-c@epa.gov). If you have questions about the nature of the research please contact the mentor(s).

Anticipated Appointment Start Date: September 2021. All start dates are flexible and vary depending on numerous factors. Click **here** for detailed information about start dates.

Appointment Length: The appointment will initially be for one year and may be renewed up to three or four additional years upon EPA recommendation and subject to availability of funding.

Level of Participation: The appointment is full-time.

Participant Stipend: The participant will receive a monthly stipend commensurate with educational level and experience. Click **here** for detailed information about full-time stipends.

EPA Security Clearance: Completion of a successful background investigation by the Office of Personnel Management (OPM) is required for an applicant to be on-boarded at EPA.

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 EPA. Participants do not become employees of EPA, 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 see the FAQ section of our website. After reading, if you have additional questions about the application process please email ORISE.EPA.ORD@orau.org and include the reference code for this opportunity.

Qualifications The qualified candidate should have received a master's or doctoral degree in one of the relevant fields, or be currently pursuing one of the degrees and will reach completion by the appointment

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start date. Degree must have been received within five years of the appointment start date.

Preferred skills:

- Strong programming skill (knowledge in Fortran)
- Strong data analysis skill, with ncl, python or similar tool experience
- Good communication skill
- Have general knowledge of and/or experience with RRTMG

Eligibility Requirements

- **Citizenship:** U.S. Citizen Only
- **Degree:** Master's Degree or Doctoral Degree received within the last 60 months or anticipated to be received by 8/31/2021 11:59:00 PM.
- **Discipline(s):**
  - **Computer, Information, and Data Sciences** (3 👁)
  - **Earth and Geosciences** (21 👁)
  - **Engineering** (27 👁)
  - **Environmental and Marine Sciences** (3 👁)
  - **Mathematics and Statistics** (10 👁)
  - **Physics** (2 👁)
- **Veteran Status:** Veterans Preference, degree received within the last 120 month(s).