

Opportunity Title: EPA Water Quality Data Analysis Internship

Opportunity Reference Code: EPA-ORD-CEMM-ACESD-2020-04

Organization U.S. Environmental Protection Agency (EPA)

Reference Code EPA-ORD-CEMM-ACESD-2020-04

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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.

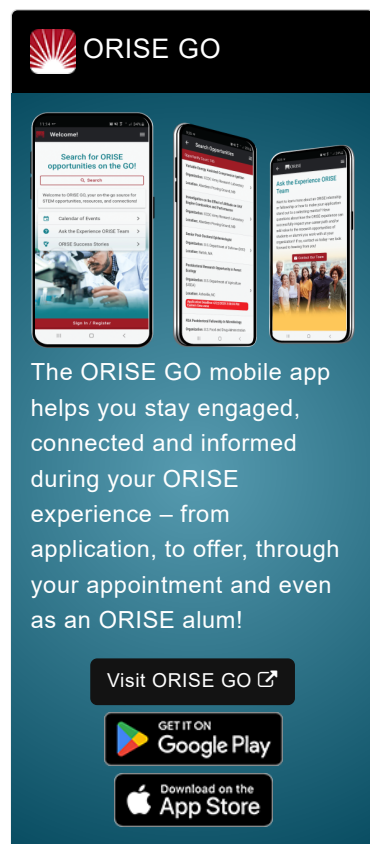
All documents must be in English or include an official English translation.

Application Deadline 12/1/2020 9:04:04 AM 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), Atlantic Coastal Environmental Sciences Division (ACESD), Watershed and Estuarine Diagnostics Branch (WEDB) located in Narragansett, Rhode Island.

Research Project: This research project is focused on numerical simulation and data analysis/extrapolation of water quality parameters in estuaries/coastal systems. The research participant will collaborate with the Coastal Eutrophication Modeling team to develop and evaluate a method for combining data and mechanistic modeling results to characterize dissolved oxygen (DO) in space and time with the goal of characterizing exposure and linking to biotic endpoints. Of particular interest is applying, linking, and evaluating current mechanistic models with observation data to investigate different ways to predict DO, algae concentrations, light penetration, and other water quality parameters and how these link to ecological receptors. For example, we are interested in how these would impact the development of seagrass in estuaries. The research participant may also collaborate with the team to develop and apply numerical, mechanistic mass balance models in concert with observed data, data analysis, and extrapolation to investigate the different types of approaches that can be used to answer coastal eutrophication questions. These would range from the high-resolution hydrodynamic and fate and transport models to empirical extrapolations of data. We are interested in developing different



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approaches using different techniques as part of EPA's development of a coastal modeling framework.

Under the guidance of a mentor, the research participant may be involved in the following training activities:

- Simulating hydrodynamics of estuaries using mechanistic modeling (e.g., EFDC)
- Simulating water quality of estuaries using mechanistic modeling (e.g., WASP)
- Programming and data analysis using computer programming (e.g., Matlab, R, Python)

Learning Objectives: The research participant will have the opportunity to learn how to simulate water quality in the Little Narragansett Bay and Pawcatuck River (CT, RI) while conducting research alongside the states and region. Depending on the research participant's interest, there may be an opportunity to learn different mechanistic models and data extrapolation techniques and aid in developing approaches for different levels of complexity and scale to match the site and the problem. As a part of this project, the research participant will learn modeling techniques: development, calibration, application, and evaluation.

Mentor(s): The mentor for this opportunity is Christopher Knightes (knightes.chris@epa.gov). If you have questions about the nature of the research please contact the mentor(s).

Anticipated Appointment Start Date: ~January 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 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.

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Questions: Please see the [FAQ section](#) of our website. After reading, if you have additional questions about the application process please email EPArpp@orau.org and include the reference code for this opportunity.

Qualifications The qualified candidate should have received a bachelor's or master's degree in one of the relevant fields, or be currently pursuing the degree and will reach completion by the appointment start date. Degree must have been received within five years of the appointment start date.

Preferred skills:

- Willingness to learn to perform simulation modeling
- Knowledge and/or desire to learn how to do numerical modeling, statistical analysis, and data extrapolation
- Knowledge or interest in learning R, Python, Matlab, programming or statistical packages
- Experience and/or interest in using and applying water quality models
- Experience and/or interest in using/applying hydrodynamic models
- Experience in numerical modeling, such as mass balance modeling, or advection-dispersion-reaction modeling
- Having familiarity with computer programming (Matlab, R, Python)
- Having a solid foundation in math, to understand the modeling itself
- Experience or interest in performing hydrodynamic modeling
- Interest and ability to join a team and be willing to learn

- Eligibility Requirements**
- **Citizenship:** U.S. Citizen Only
 - **Degree:** Bachelor's Degree or Master's Degree received within the last 60 months or anticipated to be received by 1/1/2021 11:59:00 PM.
 - **Discipline(s):**
 - **Chemistry and Materials Sciences** ([12](#) )
 - **Computer, Information, and Data Sciences** ([16](#) )
 - **Earth and Geosciences** ([21](#) )
 - **Engineering** ([27](#) )
 - **Environmental and Marine Sciences** ([14](#) )
 - **Life Health and Medical Sciences** ([45](#) )
 - **Mathematics and Statistics** ([10](#) )
 - **Physics** ([16](#) )
 - **Veteran Status:** Veterans Preference, degree received within the last 120 month(s).