

Opportunity Title: Modeling Low-Order Aquatic Systems and Flow Variability at Watershed Scales

Opportunity Reference Code: EPA-ORD-NERL-SED-2019-14

Organization U.S. Environmental Protection Agency (EPA)

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How to Apply 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

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

If you have questions, send an email to EPArpp@oraui.org. Please include the reference code for this opportunity in your email.

Application Deadline 6/30/2020 3:00:00 PM Eastern Time Zone

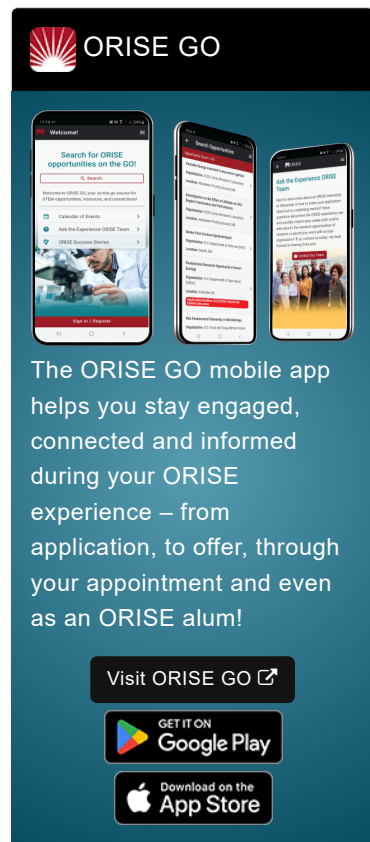
Description *Applications will be reviewed on a rolling-basis.

The EPA's Office of Research and Development (ORD) in association with the Oak Ridge Institute for Science and Education (ORISE) announces a postdoctoral research opportunity collaborating with a team of EPA/ORD research scientists to characterize the spatial and temporal variability of nested surface water flows across multiple landscape settings in the U.S.

The extensive stream and interacting riparian network plays an integral part in maintaining clean and plentiful water for aquatic ecosystems and human beneficial uses. Yet modeling streamflow across the network is difficult as variable factors including precipitation, physiography and contributing area change in time and space, and gaged data to calibrate and verify model response is often limited. Recent advancements in remote sensors, data processing capacities, and statistical approaches may allow for bridging past technological barriers to improve simulations of surface water flows. The improved model outputs advance both the underlying scientific understanding of hydrology as well as aquatic resource management by providing a baseline for mapping flow permanence across local, state, and regional-scale watersheds.


The focus of this research will be to apply ensemble watershed hydrological modeling approaches, in coordination with field and remotely sensed data, to improve surface flow estimates across multiple dense stream networks. A primary goal of the research is improved lateral and longitudinal mapping of flow permanence in low-order stream systems and associated riparian wetlands. The research project will initially concentrate on selected watersheds within the conterminous United States where field and/or remotely sensed validation data are available.


The research participant will collaborate with a productive and driven research team of watershed hydrologists and systems ecologists for a one-year postdoctoral research appointment. The research participant may lead multiple publications of the study findings in scientific journals and present at professional conferences. The research participant will gain valuable experience in the applied fields of hydrologic modeling geospatial techniques and statistical approaches within aquatic systems, be engaged with a collaborative team, and produce scientific publications that will




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further our scientific knowledge in the area of aquatic resources.

The mentors for this opportunity are Dr. Jay Christensen (Christensen.jay@epa.gov), Dr. Charles Lane (lane.charles@epa.gov) and Dr. Heather Golden (golden.heather@epa.gov).

Anticipated Appointment Start Date: Flexible start date, ideally in May 2020









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. The initial appointment is for one year, but may be renewed upon recommendation of EPA and is contingent on the availability of funds. The participant will receive a monthly stipend commensurate with educational level and experience. Proof of health insurance is required for participation in this program. The appointment is full-time at EPA in the Cincinnati, Ohio, area. Participants do not become employees of EPA, DOE or the program administrator, and there are no employment-related benefits.

Completion of a successful background investigation by the Office of Personnel Management (OPM) is required for an applicant to be on-boarded at EPA. OPM can complete a background investigation only for individuals, including non-US Citizens, who have resided in the US for the past three years.

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

Preferred skills:

- Experience in hydrology, environmental engineering, environmental science, ecology, geography, geology, or a related discipline
- Experience in numerical catchment-scale rainfall-runoff models (e.g., TOPMODEL, HBV, FLEX-Topo, others) or a combination of rainfall-runoff models (e.g., using the MARRMoT toolbox or others)
- GIS/remote-sensing software and applications
- Watershed hydrology
- Scripting (e.g., R, Python, MATLAB) languages

- Eligibility Requirements**
- **Degree:** Doctoral Degree received within the last 60 months or anticipated to be received by 6/6/2020 11:59:00 PM.
 - **Discipline(s):**
 - **Communications and Graphics Design** ([1](#) )
 - **Computer, Information, and Data Sciences** ([1](#) )
 - **Earth and Geosciences** ([2](#) )
 - **Engineering** ([2](#) )
 - **Environmental and Marine Sciences** ([4](#) )
 - **Life Health and Medical Sciences** ([2](#) )
 - **Mathematics and Statistics** ([1](#) )
 - **Social and Behavioral Sciences** ([1](#) )