Opportunity Title: Quantifying Wetland to Watershed Connectivity Research Project
Opportunity Reference Code: EPA-ORD-NERL-SED-2016-001

Organization U.S. Environmental Protection Agency (EPA)

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How to Apply A complete application consists of:

- An application
- Transcripts – 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 references

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

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

Description A postdoctoral research project training opportunity is currently available at the U.S. Environmental Protection Agency's (EPA) Office of Research and Development/National Exposure Research Laboratory (NERL). The appointment will be served with the Systems Exposure Division (SED) in Cincinnati, Ohio.

EPA/ORD scientists are currently researching how dynamic connections and interactions within watershed-scale wetland systems influence the downstream integrity and resilience of streams, lakes, and coastal waters in the United States. A key component of this research is the development and validation of modeling approaches and metrics for assessing wetland connectivity across multiple spatial and temporal scales. The research participant activities will involve conducting process-based and spatial modeling of watershed-scale wetland connectivity and the cumulative watershed hydrological and biogeochemical responses to variations in wetland connectivity. The goal of this project is to advance scientific understanding of the role of wetland hydrological (e.g., water storage) and biogeochemical (e.g., nutrient cycling) processes in maintaining watershed integrity and resilience. This project involves participation across EPA/ORD as well as other federal agencies and academic institutions. (Additional information may be found at https://powellcenter.usgs.gov/view-project/5432ed55e4b095098ca6ebb4.)

The research participant may be involved in the following team activities:

- Simulating how wetlands in the landscape mediate watershed-scale responses to stressors such as climate change (drought, deluge), land cover modifications, and variations in nutrient inputs
- Developing and applying novel approaches towards scaling wetland connectivity across the landscape, from wetlands-to-wetlands and wetlands-to-downgradient surface waters
- Developing manuscripts and presenting at international scientific conferences on outcomes related to project findings

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This program, administered by ORAU through its contract with the U.S. Department of Energy to manage the Oak Ridge Institute for Science and Education, was established through an interagency agreement between DOE and EPA.

Qualifications

Applicants must have received a doctoral degree in environmental engineering, geography, hydrology, environmental science, or a related field within five years of the desired starting date or completion of all requirements for the degree should be expected prior to the starting date. A strong background in watershed hydrology and biogeochemistry, watershed modeling (e.g., SWAT, HydroGeoSphere), and GIS and/or remote sensing is desirable. Strong mathematical skills and experience with one or more coding/scripting languages (preferably R, Python, Fortran, and/or Matlab) will also enhance the research experience. Experience with a collaborative research team is a plus.

The appointment is full time for one year and may be renewed for an additional three years upon recommendation of EPA and contingent on the availability of funds. The participant will receive a monthly stipend. Funding may be made available to reimburse the participant's travel expenses to present the results of his/her research at scientific conferences. No funding will be made available to cover travel costs for pre-appointment visits, relocation costs, tuition and fees, or participant's health insurance. The participant must show proof of health and medical insurance. **The participant does not become an EPA employee**.

The mentors for this project are Heather Golden (golden.heather@epa.gov) and Charles Lane (lane.charles@epa.gov). The appointment start date is July 1, 2016.

Eligibility Requirements

- **Degree:** Doctoral Degree received within the last 60 month(s).
- **Academic Level(s):** Postdoctoral.
- **Discipline(s):**
  - **Chemistry and Materials Sciences** (1)
  - **Earth and Geosciences** (2)
  - **Engineering** (3)
  - **Environmental and Marine Sciences** (4)
  - **Social and Behavioral Sciences** (1)