

Opportunity Title: Watershed-Scale Effects of Green Infrastructure

Opportunity Reference Code: EPA-ORD-NERL-SED-2016-02



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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@ornl.gov. Please include the reference code for this opportunity in your email.

Description A 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 modeling methods for scaling localized Green Infrastructure (GI) practices to multiple watershed drainage areas. Key components of this research are to quantify (1) the advantages and gaps in diverse models that represent different hydrological and biogeochemical processes involved with GI practices and (2) the cumulative impacts of localized GI implementation on downstream hydrology and water quality. The activities for this project will involve conducting process-based watershed-scale modeling to assess the multi-scale watershed hydrological and biogeochemical responses to variations in GI implementation. This research project involves collaboration across EPA/ORD as well as other federal agencies and academic institutions.

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

- Applying a recently developed Ecosystems for Land Management Assessments (VELMA) model to quantify how placement and implementation of various GI practices in the landscape mediates watershed-scale hydrology and water quality
- Developing and applying novel approaches toward

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understanding how GI practices scale across the landscape, from small plots to large watersheds

- Conducting model comparison projects with team members using different simulation approaches and participating in numerical experiments for inter-model comparisons of GI implementation
- Developing manuscripts and presenting at international scientific conferences on outcomes related to project findings



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., TOPMODEL, 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, 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 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, 01, 2016.

Eligibility Requirements

- **Degree:** Doctoral Degree received within the last 60 month(s).
- **Discipline(s):**
 - **Chemistry and Materials Sciences** (1 )
 - **Earth and Geosciences** (2 )

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- **Engineering** (3 )
- **Environmental and Marine Sciences** (4 )
- **Social and Behavioral Sciences** (1 )