

Opportunity Title: USDA-ARS Postdoctoral Research Opportunity in

Groundwater Hydrology and Engineering

Opportunity Reference Code: USDA-ARS-2020-0188

Organization U.S. Department of Agriculture (USDA)

Reference Code USDA-ARS-2020-0188

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 recommendations

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

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Application Deadline 12/31/2020 3:00:00 PM Eastern Time Zone

Description ***Applications are reviewed on a rolling-basis and this posting could close before the deadline.**

ARS Office/Lab and Location: A research opportunity is currently available with the U.S. Department of Agriculture (USDA), Agricultural Research Service (ARS), National Sedimentation Laboratory located in Oxford, Mississippi.

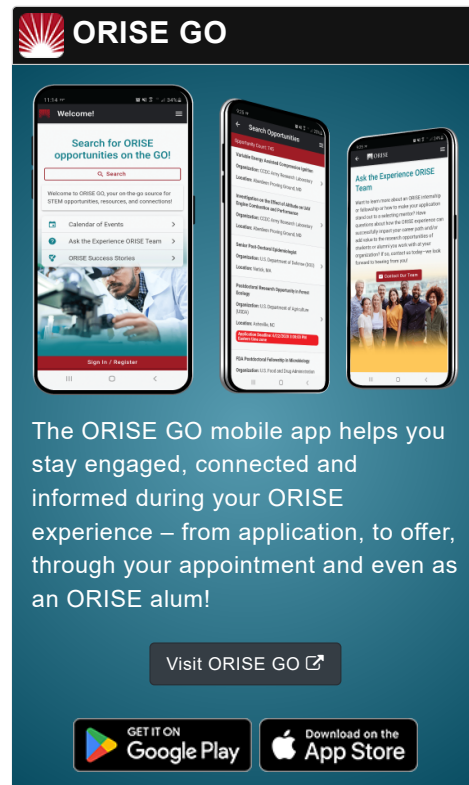
Research Project: The research will address the feasibility of artificial recharge in the Mississippi River Valley Alluvial Aquifer through a pilot project under construction by USDA. Research will contribute to developing an understanding of the engineering challenges and feasibility of groundwater injection as a component of managed aquifer recharge in the region. Modeling tools developed in collaboration with U.S. Geological Survey will be used to evaluate the pilot project and support decision making for water resources management in the region.

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

- Collaborate with USDA-ARS research scientists in all phases of operation and evaluation of the pilot project well field
- Seek out relevant data and review literature for existing knowledge related to riverbank filtration and groundwater injection
- Collaborate with USDA-ARS research scientists to develop operational parameters for sustained groundwater injection
- Collaborate with USDA-ARS scientists to implement a monitoring plan to evaluate groundwater storage benefits and potential risks for stakeholders

Learning Objectives:

- The participant will gain valuable experience collaborating with a multi-agency interdisciplinary research group
- The participant will become proficient at integrating disparate data sources and modeling techniques

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- The participant will gain valuable experience in the process of conducting scientific research, synthesizing data, and publishing the results in peer reviewed journal articles

Mentor(s): The mentor for this opportunity is Daniel Wren (daniel.wren@usda.gov). If you have questions about the nature of the research please contact the mentor(s).

Anticipated Appointment Start Date: Fall 2020. Start date is flexible and will depend on a variety of factors.

Appointment Length: The appointment will initially be for one year, but may be renewed upon recommendation of ARS and is contingent on the availability of funds.

Level of Participation: The appointment is full-time.

Participant Stipend: The participant(s) will receive a monthly stipend commensurate with educational level and experience.

Citizenship Requirements: This opportunity is available to U.S. citizens and Lawful Permanent Residents (LPR). Non-U.S. citizen applicants should refer to the [Guidelines for Non-U.S. Citizens Details page](#) of the program website for information about the valid immigration statuses that are acceptable for program participation.

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 ARS. Participants do not become employees of USDA, ARS, 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 visit our [Program Website](#). After reading, if you have additional questions about the application process please email USDA-ARS@orau.org and include the reference code for this opportunity.

Qualifications

The qualified candidate should have received a doctoral degree in one of the relevant fields.

Preferred skills:

- Specific knowledge of groundwater dynamics, well hydraulics, and groundwater modeling
- Broad knowledge of groundwater geophysics, environmental water chemistry, agriculture, time series analysis, and statistics
- Additional knowledge of or experience with current methods used in riverbank filtration, aquifer storage and recovery, or other artificial recharge technologies
- Use of MatLab or Python Programming Language, Excel, and Geographic Information Systems
- Operation and utilization of GPS systems for navigation
- Operation and utilization of hydrology and water quality sensors and instruments
- Operation of four-wheel drive vehicles and watercraft

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- Planning and execution of hydrologic data collection using a variety of field methodology
- Collection, identification, preparation, and data analysis of water samples for trace metal, elemental, and stable isotope analyses
- Planning and execution of tracer studies

**Eligibility
Requirements**

- **Citizenship:** LPR or U.S. Citizen
- **Degree:** Doctoral Degree.
- **Discipline(s):**
 - **Earth and Geosciences** (2 👁)
 - **Engineering** (2 👁)
 - **Environmental and Marine Sciences** (3 👁)