

**Opportunity Title:** Wetland Soil Responses to Natural Threats Research - Post-Doctoral

**Opportunity Reference Code:** ERDC-EL-2020-0026

**Organization** U.S. Department of Defense (DOD)

**Reference Code** ERDC-EL-2020-0026

**How to Apply** How to Apply

Components of the online application are as follows:

- Profile Information
- Educational and Employment History
- Essay Questions (goals, experiences, and skills relevant to the opportunity)
- Resume (PDF)
- Transcripts/Academic Records
- Recommendation

Submitted documents must have all social security numbers, student identification numbers, and/or dates of birth removed (blacked out, blackened out, made illegible, etc.) prior to uploading into the application system.

If you have questions, send an email to [USACE@orise.orau.gov](mailto:USACE@orise.orau.gov). Please list the reference code of this opportunity in the subject line of the email.

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

**Description** The Environmental Laboratory (EL) provides relevant, value-added technology supporting the environmental mission of the US Army Corps of Engineers, the Army, the Department of Defense (DoD), and the Nation. Headquartered in Vicksburg, Mississippi, the EL's interdisciplinary staff of over 220 engineers, scientists, technicians, and support personnel plans and executes all phases of the technology development process, from basic research to field implementation to commercialization. The EL staff consists of problem solvers who use research, development, experimentation, special studies, and technical support to address the needs of national and international business development partners. Partnering with Federal and State agencies, academia, and the private sector, the EL uses its distinctive technical capabilities to resolve complex, multi-disciplinary environmental sustainability problems.

Under the guidance of a mentor, the selected candidate will participate with USACE Engineer Research and Development Center (ERDC) Environmental Laboratory (EL) wetland and soil scientists on research that will expand our understanding of wetland soil responses to natural threats in order to improve the protection of assets in coastal systems and provide predictive capabilities to address future scenarios. The post-doctoral participant will conduct a series of laboratory, field, and mesocosm studies focused on physicochemical, microbial, and vegetation responses to perturbations induced by natural threats including overwash events and changes in salinity regimes. Research include: documenting changes in carbon character and degradation dynamics following vegetation burial and salinity increase; investigating iron-sulfide (FeS) development in response to storm surge sediment deposition; integrating novel subaqueous soil mapping into Department of Defense operations; and developing approaches to identify stable, at-risk, and degraded coastal soil systems to support map overlays and future scenario analysis of natural threats. In addition, the participant will support the coordination of the team's research efforts with university partners and other USACE researchers.

**Appointment Length**

This appointment is a full-time twelve month research appointment, with the possibility to be



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renewed for additional research periods. Appointments may be extended depending on funding availability, project assignment, program rules, and availability of the participant.

#### **Participant Benefits**

Participants will receive a stipend to be determined by ERDC-EL. Stipends are typically based on the participant's academic standing, discipline, experience, and research facility location. Other benefits may include the following:

- Health Insurance Supplement. *Participants are eligible to purchase health insurance through ORISE.*
- Relocation Allowance
- Training and Travel Allowance

#### **Nature of Appointment**

The participant will not enter into an employee/employer relationship with ORISE, ORAU, DOD, or any other office or agency. Instead, the participant will be affiliated with ORISE for the administration of the appointment through the ORISE appointment letter and Terms of Appointment.

**Qualifications** Candidate should have completed or is pursuing his/her PhD in biology, ecology, soil science, or a related field.

Useful skills a candidate could bring to this opportunity include knowledge in:

- executing research on physicochemical, microbial, and/or vegetation responses to natural threats and disasters including flooding and changes in salinity regimes
- studying in carbon character and degradation dynamics following vegetation burial and salinity increase
- investigating iron-sulfide (FeS) development in response to storm surge sediment deposition
- statistical analyses of results from laboratory and field studies
- strong technical writing and presentation skills

Research may require physical exertion such as walking, bending, crouching, stretching, reaching, and similar activities on terrain that is rough, rocky, mountainous, and densely vegetated.

Research may be performed in an outdoor environment including navigable rivers, nearshore, and areas ranging from very cold and wet to very hot and dry. This research may require physical exertion over very steep, wet, muddy, slippery, rough, uneven or rocky surfaces. Research may require collecting samples on a boat or submerged in waist-high water (about 3 to 4 feet) for extended periods of time. Lifting and carrying equipment weighing up to 25 lbs is necessary to efficiently perform the work of the position and to provide for personal comfort and safety. This may include tools, personal protective equipment, and food and water to complete tasks away from vehicles for extended periods.

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**Eligibility  
Requirements**

- **Degree:** Doctoral Degree received within the last 60 months or currently pursuing.
- **Discipline(s):**
  - **Chemistry and Materials Sciences** ([12](#))
  - **Communications and Graphics Design** ([1](#))
  - **Earth and Geosciences** ([21](#))
  - **Engineering** ([27](#))
  - **Environmental and Marine Sciences** ([14](#))
  - **Life Health and Medical Sciences** ([45](#))
  - **Mathematics and Statistics** ([10](#))
  - **Physics** ([16](#))
- **Age:** Must be 18 years of age