

## **Postdoctoral Research Associate in Modelling Coastal Wetland Processes**

Annual salary: \$53,433

Anticipated start date: Spring 2022

Appointment term: 1 year minimum with potential renewal for a total of 2 years

The Biogeochemistry Lab at the Smithsonian Environmental Research Center (SERC) is seeking a Postdoctoral Research Associate for a Department of Energy (DOE) funded university project. The postdoc will be employed by SERC but stationed at Oak Ridge National Laboratory (ORNL) in Oak Ridge, TN to take advantage of the computing capabilities and resources. This position provides an excellent opportunity for the candidate to work with a multi-institutional team within a data-model integration framework. There will be immediate opportunity for engagement in two or more multi-year research projects within both SERC and ORNL.

You will work as part of a multidisciplinary team developing representation of ecological-biogeochemical-geomorphic feedbacks in coastal systems using the reactive transport model, PFLOTRAN and the land component of DOE's Earth System Model - the Energy Exascale Earth System Model (E3SM). The position will focus on the brackish marsh of the Global Change Research Wetland at SERC, but candidates with research experience in other saltwater or freshwater coastal systems are also encouraged to apply.

### **Major Duties/Responsibilities:**

- Develop and test new mechanistic modeling representations for coastal wetland vegetation and biogeochemistry, including the influence of redox conditions and salinity gradients production of methane and carbon dioxide
- Incorporate geomorphic feedbacks in E3SM's land model (ELM)
- Work directly with experimentalists and observationalists to test hypotheses regarding variability in biogeochemical processes across coastal land-water interface gradients.
- Publish research results in high-quality journals, and present results at conferences.
- Assist in field work during intensive measurement campaigns.

### **Qualifications**

A successful candidate for either position will have, at a minimum:

- A PhD in physical or natural sciences awarded by the time the position starts.
- Programming experience in Fortran, python, R, or related language.
- A working knowledge of one or more mechanistic numerical models with relevance to these systems.

An ideal candidate will have one or more of the following:

- Experience in wetland ecosystems.
- A working knowledge of field and laboratory methods relevant to hydrological, biogeochemical, and/or ecological process studies in coastal systems.
- Demonstrated excellent oral and written communication skills through published papers and scientific presentations.
- Demonstrated ability to work effectively in both a highly collaborative team environment and independently.
- Expertise and experience in developing evaluating, and applying mechanistic models of the hydrological, biogeochemical, and vegetation components of coastal systems.

## **How to Apply**

Please send a 1-page cover letter describing your relevant experience and qualifications, a CV, and the contact information of three references to Teri O'Meara ([omearata@ornl.gov](mailto:omearata@ornl.gov)). Review of applications will begin immediately and continue until the position is filled.

## **About ORNL**

### Working here:

Leveraging the talents of its world-class researchers and exceptional support staff, Oak Ridge National Laboratory is helping solve critical scientific and technical challenges and, in so doing, creating economic opportunity for the nation. ORNL provides access to unique facilities, laboratories, and equipment, drawing thousands of visiting researchers each year. A vibrant and welcoming scientific community, ORNL embraces the pursuit of innovative ideas and invests in its people to ensure their success.

### Living here:

Located in the foothills of the Great Smoky Mountains, ORNL's campus is just one hour away from the national park. Within a day's drive of all major cities on the East Coast, ORNL provides the best of both worlds: proximity to the great outdoors and urban centers with diverse cultural attractions. The city of Oak Ridge, Tennessee has 150 miles of shoreline for water recreation, rowing, and boating; and nearby Knoxville, Tennessee is home to the thriving research campus of the University of Tennessee and a historic downtown known for its dining, theaters, shopping, and cultural and music festivals.

## **About SERC**

SERC is focused on understanding the causes and consequences of environmental change for marine, freshwater, and terrestrial ecosystems. The postdoctoral scientist will be hired as a 'Trust Employee' through Smithsonian's non-profit wing, entitling them to health, vision, dental, and other benefits.

The Smithsonian Institution is an equal opportunity employer, committed to a policy of non-discrimination on the basis of race, ethnicity, national origin, sex, gender identity and expression, sexual orientation, age, religion, marital/parental/caregiver status, and disability. The SERC community recognizes the value of diversity in promoting innovative science and creative solutions, and we strongly encourage candidates from all backgrounds to apply. We recognize that each applicant for this role will bring unique skills, knowledge, experiences, and background to this position; as such, we will be looking for candidates who possess many, but not necessarily all, of the qualifications and experience listed above.