**Opportunity Title:** Ocean Wave Science and Modeling - Doctoral Degree - Coastal Hydraulics Laboratory (CHL)
**Opportunity Reference Code:** ERDC-CHL-2021-0014

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

**Reference Code** ERDC-CHL-2021-0014

**How to Apply** Click on *Apply* now to start your application.

**Description** The U.S. Army Engineer Research and Development Center's Coastal & Hydraulics Laboratory (CHL) performs research on ocean, estuarine, riverine, and watershed systems in support of the U.S. Army Corps of Engineers (USACE) and the Department of Defense (DOD) Task Force in support of the Ocean Commission. A multi-disciplinary team of scientists, engineers, and support personnel work in CHL's internationally known, unique facilities. This team has developed state-of-the-art experimental and computational models for solving water resource problems worldwide. Physical facilities of approximately 1.7 million square feet and high-performance computing facilities at the DOD Supercomputing Research Center (http://www.erdc.hpc.mil) are the basic infrastructure for producing cutting-edge products for successful coastal, inland water resources, and navigation management. CHL work, although primarily in support of the DOD and the Corp's districts, also interfaces with other federal, state and local agencies, academia, conservation groups, and the general public, as appropriate. The Research Participation Program for USACE-ERDC-CHL provides opportunities to participate in new and on-going applied research and development projects. Research projects range from design guidance to three-dimensional computational models. Focus is placed on inland and coastal navigation, military logistics over the shore, dredging, flood control, storm and erosion protection, waterway restoration, fish passage, hydro-environmental modeling, water/land management, and other water and sediment-related issues facing the nation. For more information about USACE-ERDC-CHL, please visit https://www.erdc.usace.army.mil/Locations/CHL/.

Ocean waves are the driving force behind sediment transport in the nearshore. Waves also set the design criteria for structures along the coast. The one way to ascertain information about the wave climate on a scale relevant to the lifetime of structures is to model their history using hindcasts. To this end, the USACE Wave Information Study (WIS) has provided 3+ decade hindcasts along the U.S. Coasts, Great Lakes, and Territories.

**What will I be doing?**

WIS is currently in a transition phase and are considering what a future WIS needs to address. You could address one of several areas of interest including; but not limited to, shallow water wave models and deep to shallow transformation techniques, advanced model evaluation and validation, buoy and satellite altimeter data curation, unstructured WAVEWATCH III, model tuning, and wave-current interaction.

Under the guidance of a mentor, your research will include the following experiences:

• Publish peer-review journal articles and present at scientific conferences
• Regular communication with WIS collaborators
• Write model code and analysis code
• Analyze data from buoys and satellites

**Why should I apply?**

This fellowship provides the opportunity to utilize your skills and learn from experts within the Coastal Observations and Analysis Branch (COAB).

**Where will I be located?** Duck, NC

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**What is the anticipated stat date?**

ERDC-CHL is ready to make an appointment immediately. Exact start date will be determined at the time of selection and in coordination with the selected candidates.

**What are the benefits?**

You will receive a stipend to be determined by ERDC-CHL. 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

This ORISE appointment is a full-time twelve month opportunity. Appointments may be extended depending on funding availability, project assignment, program rules, and availability of the participant.

**Nature of the Appointment**

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

## Qualifications

You should have a doctoral degree in the Marine Sciences, Oceanography, Engineering, or a related field of research on wave physics.

You should have skills in the following areas:

- Proficiency in MATLAB and/or Python for data analysis
- Excellent oral and written communication skills.
- Excellent problem solving skills
- Ability to research productively in field experiments

Skills and knowledge in the following areas are considered highly desirable include:

Spectral wave models, including SWAN, WAVEWATCH III, STWAVE, and WAM. Familiarity with super computing environments, LINUX OS, and FORTRAN.

A complete application consists of:

- Zintellect profile
- Essay Questions - The application includes questions specific to the opportunity
- Academic Records - An official transcript or copy of the student academic records printed by the applicant or by academic advisors from internal institution systems may be submitted.
- One (1) recommendation - You are encouraged to request a recommendation from a professional who can speak to your abilities and potential for success as well as your scientific capabilities and personal characteristics. Recommendation requests must be sent through the Zintellect application system. Recommenders will be asked to complete a recommendation in Zintellect. Letters of recommendation submitted via email will not be accepted.

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*Submitted documents must have all social security numbers, student identification numbers, and/or dates of birth removed (blanked 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. 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.*

***Connect with ORISE...on the GO!*** Download the new ORISE GO mobile app in the Apple App Store or Google Play Store to help you stay engaged, connected, and informed during your ORISE experience and beyond!

**Eligibility Requirements**

- **Citizenship:** U.S. Citizen Only
- **Degree:** Doctoral Degree received within the last 60 months or anticipated to be received by 5/31/2022 11:59:00 PM.
- **Discipline(s):**
  - **Chemistry and Materials Sciences** (12 👁)
  - **Communications and Graphics Design** (6 👁)
  - **Computer, Information, and Data Sciences** (17 👁)
  - **Earth and Geosciences** (21 👁)
  - **Engineering** (27 👁)
  - **Environmental and Marine Sciences** (14 👁)
  - **Life Health and Medical Sciences** (46 👁)
  - **Mathematics and Statistics** (10 👁)
  - **Physics** (16 👁)
- **Age:** Must be 18 years of age