

**Opportunity Title:** Engineering: Riverine Hydraulic Analysis System

**Opportunity Reference Code:** ERDC-CHL-2022-0007

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

**Reference Code** ERDC-CHL-2022-0007

**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.erdchpc.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.erdchpc.usace.army.mil/Locations/CHL/>.

**Project:** Developing a Global-Scale Riverine Hydraulic Analysis System

Broad hydrologic awareness is needed to support military decision making by utilizing decision aids related to floodplain delineation, off-road trafficability mapping, stream characterization for bridging and fording of wet gaps, off-the-grid power generation, and water resource accounting. This requires a data architecture that supports the ability to centralize, aggregate, automate, and report data related to global riverine hydraulic states. The riverine hydraulic states can feed into downstream decision support applications by characterizing annual and inter-annual variation of hydraulic and hydrologic properties (e.g. flow, velocity, depth, & top width) and utilizing hydrometeorological forecasts from existing global datasets to inform tactical decision-making.

#### What will I be doing?

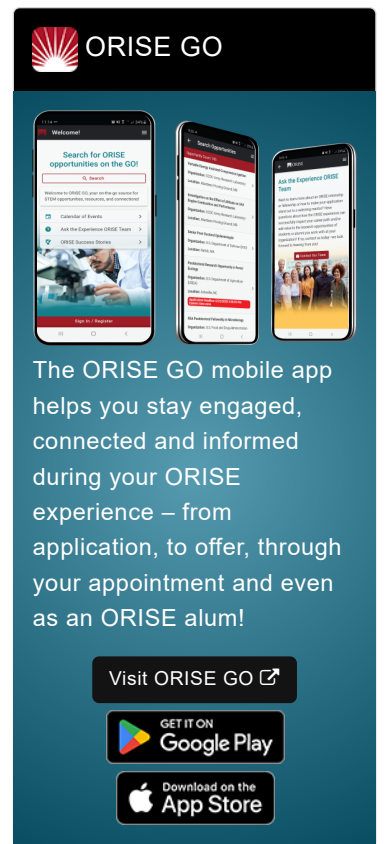
Under the guidance of a mentor, you will have an opportunity to participate in developing a global-scale computational system that provides seasonal and forecasted characterization of riverine hydraulic states. You will conduct research utilizing continental hydrologic and hydraulic models, such as RAPID and AutoRoute and will have the opportunity to collaborate with groups such as NGA, the Navy, and DOE research laboratories.

#### Why should I apply?

This fellowship provides the opportunity to independently utilize your skills and engage with experts in innovative ideas to move the proposed research forward.


**Where will I be located?** Location Varies


**What is the anticipated start date?**




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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 is the length of the appointment?**

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

**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

**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** Master's, or Doctoral degree received or currently pursuing in hydrologic, geography, engineering, computer science, or related fields and have knowledge with at least one programming language (e.g., Python), the Linux operation system, and large spatial datasets in NetCDF format. The ideal candidate with a surface hydrology and hydraulics background is a plus.

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 - Your application will be considered incomplete and will not be reviewed until one recommendation is submitted. We encourage you to contact your recommender(s) as soon as you start your application to ensure they are able to complete the recommendation form and to let them know to expect a message from Zintellect. Recommenders will be asked to rate your scientific capabilities, personal characteristics, and describe how they know you. You can always log back in to your Zintellect account and check the status of your application. The status will go from Started to Submitted and then to Completed once the required recommendations have been received

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. Please understand that ORISE does not review applications or select applicants; selections are made by the sponsoring agency identified on this opportunity. All application materials should be submitted via the "Apply" button at the bottom of

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this opportunity listing. Please do not send application materials to the email address above.

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- Eligibility Requirements**
- **Degree:** Master's Degree or Doctoral Degree received within the last 60 months or currently pursuing.
  - **Overall GPA:** 3.00
  - **Discipline(s):**
    - **Chemistry and Materials Sciences** ([12](#))
    - **Communications and Graphics Design** ([1](#))
    - **Computer, Information, and Data Sciences** ([17](#))
    - **Earth and Geosciences** ([21](#))
    - **Engineering** ([27](#))
    - **Environmental and Marine Sciences** ([14](#))
    - **Life Health and Medical Sciences** ([48](#))
    - **Mathematics and Statistics** ([11](#))
    - **Physics** ([16](#))
  - **Age:** Must be 18 years of age