

Opportunity Title: NOAA Post-Doctoral Fellowship in Hyperspectral Data

Processing for Harmful Algal Bloom Identification

Opportunity Reference Code: NOAA-2024-03

Organization National Oceanic and Atmospheric Administration (NOAA)

Reference Code NOAA-2024-03

How to Apply *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!

A complete application package consists of:

- An application
- Transcript(s) – For this opportunity, an unofficial transcript or copy of the student academic records printed by the applicant or by academic advisors from internal institution systems may be submitted. Click [Here](#) for detailed information about acceptable transcripts.
- A current resume/CV
- Two educational or professional recommendations
- A copy of an abstract or reprint of an article

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

Application Deadline 6/21/2024 3:00:00 PM Eastern Time Zone

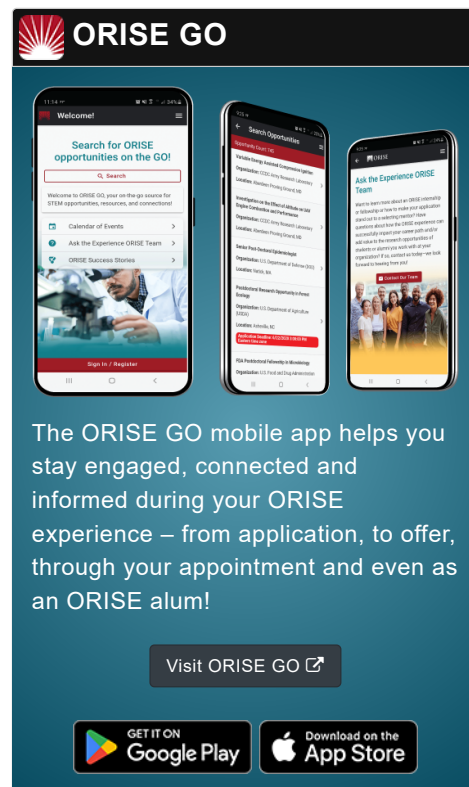
Description **Applications will be reviewed on a rolling-basis.*

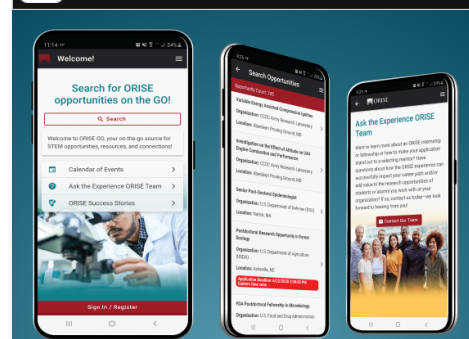
NOAA Office/Lab and Location: A research opportunity is currently available with the National Oceanic and Atmospheric Administration (NOAA), National Centers for Coastal Ocean Science (NCCOS), located in Silver Spring, MD or at the NCCOS Beaufort Laboratory in Beaufort, NC.

The National Oceanic and Atmospheric Administration (NOAA) formed the National Centers for Coastal Ocean Science (NCCOS) in 1999 as the focal point for NOAA's coastal ocean science efforts. NCCOS uses cutting-edge research and high-tech instrumentation to provide citizens, coastal managers, public health officials, and other decision makers with reliable information needed to determine how best to protect environmental resources and public health, preserve valued habitats, and improve the way communities interact with coastal ecosystems. The NCCOS is headquartered in Silver Spring, MD but also has research labs across the nation. The NCCOS also has many assets including research programs, vessels, satellites, science centers, laboratories, and a vast pool of distinguished scientists and experts.

A research opportunity is currently available with the NOAA, National Ocean Service (NOS), NCCOS, Stressor Detection and Impacts Division (SDI), Harmful Algal Bloom (HAB) Forecasting Branch. The HAB-F Branch delivers near real-time forecasting products for predicting the intensity/severity, location, and the potential health risk HABs pose in the Great Lakes and coastal









The ORISE GO mobile app helps you stay engaged, connected and informed during your ORISE experience – from application, to offer, through your appointment and even as an ORISE alum!

[Visit ORISE GO](#)





Opportunity Title: NOAA Post-Doctoral Fellowship in Hyperspectral Data

Processing for Harmful Algal Bloom Identification

Opportunity Reference Code: NOAA-2024-03

regions of the U.S. While national in scope, forecasting efforts and products address regional needs and specific HAB species. The product sets are intended to support coastal resource managers, public health officials, researchers, and the public.

Research Project: Under the guidance of a mentor, the selected candidate will gain experience in various research activities including the collection and/or analysis of optical properties of various phytoplankton cultures and natural bloom assemblages. Specifically, the candidate will gain experience in the use of ecological multivariate statistical approaches to investigate spectral separability of various classes of algae endemic to the Great Lakes and Chesapeake Bay. The candidate will also collaborate to develop class and/or genus-specific algorithms for phytoplankton identification.

- 1) Conduct pre- and post-processing of optical properties of monocultures through HSI, radiometry, backscattering, etc. targeting genera common in the Great Lakes and Chesapeake Bay, including both HAB and non-HAB forming species. This includes the collection of information on approximately one dozen species at various concentrations and life stages. This information may have potential for assisting with, identifying potentially toxic species and assessing toxin release risk associated with changes in bloom life stage.
- 2) Conduct multivariate statistical analyses to determine if there is sufficient separation between different classes and genera of phytoplankton to determine if this technology can be applied in large coastal systems to determine the potential for a toxic HAB event.
- 3) Streamline and automate processing pipelines (where appropriate) for various optical sensors, including the hyperspectral instruments used in the lab, onboard UAVs, and satellite platforms. Building off a reference library previously constructed for HSI lab-scale information for cyanobacteria. As this is not inclusive of other optical sensors or marine phytoplankton we plan to design a comprehensive reference database that incorporates all of these data, develops a process for resampling spectral bands for cross calibration and intercomparisons, and for use as a reference library for unclassified field collected spectra.

Learning Objectives: The fellow will:

- 1) Develop an understanding of phytoplankton species common in the Chesapeake Bay and Great Lakes
- 2) Learn about HAB-F capabilities in monitoring and modeling, including use of satellite data products and models
- 3) Expand familiarity with statistical and coding software such as R, Python and/or Matlab
- 4) Develop skills in the analysis of radiometric and hyperspectral

Opportunity Title: NOAA Post-Doctoral Fellowship in Hyperspectral Data

Processing for Harmful Algal Bloom Identification

Opportunity Reference Code: NOAA-2024-03

remotely sensed data and other optically-based acquisition platforms

5) Develop skills algorithm development and classifier construction for phytoplankton discrimination.

Technical mentors for this opportunity include Dr. Kaytee Pokrzywinski and Ms. Michelle Tomlinson of the NCCOS HAB Forecasting Branch and Dr. Sachi Mishra CSS Contract Staff to the NCCOS HAB-Forecasting Branch.

Mentor: The mentors for this opportunity are Kaytee Pokrzywinski (kaytee.pokrzywinski@noaa.gov), Michelle Tomlinson (Michelle.Tomlinson@noaa.gov), and Sachi Mishra (sachi.mishra@noaa.gov). If you have questions about the nature of the research please contact the mentors.

Anticipated Appointment Start Date: July/August 2024. Start date is flexible and will depend on a variety of factors.

Appointment Length: The appointment will initially be for 3 months but may be renewed upon recommendation of NOAA and is contingent on the availability of funds. To align with the federal fiscal year, this appointment will initially be for 3 months (July through September) and will be renewed for 12 months (October through September 2025). The opportunity is annually renewable after that for up to a total appointment length of 3 years, pending funding availability and project needs.

Level of Participation: The appointment is full-time.

Participant Stipend: The participant 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) only.

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 NOAA. Participants do not become employees of NOAA, 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: If you have questions about the application process please email NOAA@orau.org and include the reference code for this opportunity.

Qualifications The qualified candidate should be currently pursuing or have received a doctoral degree in the one of the relevant fields. Degree must have been received within the past 5 years, or

Opportunity Title: NOAA Post-Doctoral Fellowship in Hyperspectral Data

Processing for Harmful Algal Bloom Identification

Opportunity Reference Code: NOAA-2024-03

anticipated to be received by 8/30/2024.

Preferred skills:

- Research experience, a demonstrated ability to work independently and part of a team, and have a working knowledge of radiometric and hyperspectral data, ocean optics, and data management.
- Coursework in oceanography, computer programming languages, remote sensing, and image processing, or related areas is highly desired.

**Eligibility
Requirements**

- **Citizenship:** LPR or U.S. Citizen
- **Degree:** Doctoral Degree received within the last 60 months or anticipated to be received by 8/30/2024 12:00:00 AM.
- **Academic Level(s):** Postdoctoral or Post-Master's.
- **Discipline(s):**
 - **Environmental and Marine Sciences** (8 👁)
 - **Mathematics and Statistics** (6 👁)