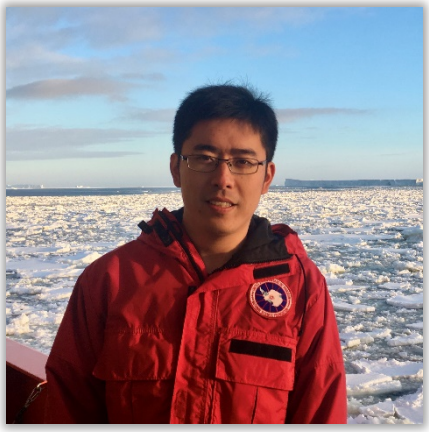
# Center for Environmental & Applied Fluid Mechanics

## "Where the Ocean Meets the Seafloor: Flow-Topography Interaction in the Oceanic Bottom Boundary Layer"


**Xiaozhou Ruan**

Boston University

Earth and Environment


The oceanic bottom boundary layer (BBL) is a thin layer near the seafloor characterized by enhanced velocity shear and turbulence. It plays a crucial role in the global ocean's energy budget and is believed to provide closure for the global overturning circulation in the largely unexplored abyssal ocean. However, our understanding of the oceanic BBL is still limited due to the lack of in-situ observations and the challenges of accurately representing it in global numerical models. In this talk, I will delve into the various types of oceanic BBLs, primarily including friction and mixing-driven BBLs, with specific physics differing based on whether there is balanced mean-flow, prescribed profiles of mixing coefficients, and oscillatory tides. I will provide an overview of the various approaches we are utilizing to tackle these challenges and present a summary of the current state-of-the-art understanding of the relevant dynamics.


## Spring 2023 CEAFM Seminar Series

April 7, 2023 ✦ 3:00 PM ✦ Gilman Hall 50

Johns Hopkins Whiting School of Engineering