



Graduate Student Research Position available
Florida Atlantic University / Harbor Branch Oceanographic Inst.

Topic: Biogeochemical Flux Instrumentation Development

Start Date: Spring/Fall 2019.

Application Deadline:

Nov. 1, 2018 for enrollment in the Spring of 2019, or
Jul. 1, 2019 for enrollment in the Fall of 2019

in the **FAU Ocean and Mechanical Engineering Department.**

Description: The Geochemical Sensing Lab is one of the newest programs at FAU Harbor Branch Oceanographic Institute and is co-sponsored by the FAU Institute for Sensing and Embedded Network and Systems Engineering (I-SENSE). The lab develops in situ techniques and instrumentation to monitor elemental concentrations and fluxes over space and time in aquatic environments such as oceans, estuaries, rivers, lakes, groundwater, and most recently, frozen ice. Tools include electrochemical and fluidic sensors for the measurement of nutrients, trace metals, carbon, and sulfur, but also the platforms used to employ these sensors, such as moorings, seafloor benthic landers, and autonomous underwater vehicles. Research applications include constraining elemental biogeochemical budgets, water quality monitoring (e.g. nutrient budgets, harmful algal blooms, hypoxia, and sulfidization), sediment and soil resilience (e.g. mobilization of trace metals and seagrass site suitability), and ocean exploration (submarine sink “blueholes” and deep-sea sediment systems).

We are seeking a motivated student (M.S. or Ph.D. level) to join our group to work on a project focusing on developing technology to measure fluxes of iron, nutrients, and carbon across the sediment-water interface. This will include engineering both at the sensor (microelectrode array) and platform level (frame design, hydraulics, actuator-driven sampling). One goal is to develop a platform to be deployed to the base of Gulf of Mexico Outer Continental Shelf submarine sink “blueholes” sponsored by the NOAA Ocean Exploration Research Program through a collaboration with Georgia Tech, Mote Marine Laboratory, and the USGS. The role of these blueholes in terrestrial aquifer connectivity or in Gulf of Mexico primary production (including the Florida Red Tide harmful algal bloom species *Karenia brevis*) is currently unknown. The other major application is to study shallow environments of the Indian River Lagoon and Lake Okeechobee to constrain biogeochemical budgets and relations to other harmful algal blooms, including *Microcystis aeruginosa*.

At least 2 years of tuition and a competitive stipend will be provided, and additional possibilities are in place for internal and external fellowships and grants. The student will participate in oceanographic expeditions in the Atlantic Ocean and the Gulf of Mexico. There will be opportunities for national and international travel to conferences, including ASLO, Goldschmidt Geochemistry, or the American Chemical Society. The primary job location is in Ft. Pierce Florida at the historic and beautiful FAU Harbor Branch campus. The campus is within 1 hour of Vero Beach, Stuart, West Palm Beach, and Melbourne, and only 30 minutes from world-class surfing at Sebastian Inlet. The student should also anticipate spending time weekly at the main FAU campus 90 minutes south, in Boca Raton.

Please contact Dr. Jordon Beckler (jbeckler@fau.edu) for more information.