Post doctoral researcher

Rebecca Robinson (URI) and Mark Brzezinksi & Ivia Closset (UCSB) seek 1-2 postdocs to work with a collaborative team of from the University of Rhode Island and University of California Santa Barbara to investigate the nitrogen and silicon isotope paleoproxies in the Southern Ocean. These postdoctoral positions are funded through National Science Foundation's Office for Polar Programs.

Overview & Motivation: The chemistry of fossil diatoms, specifically their nitrogen and silicon stable isotope signatures, reflects past changes in surface nutrient sources and uptake. Changes in sedimentary diatom nitrogen and silicon isotope values from the Southern Ocean record to what degree ocean biology consumed nutrients in the surface ocean through time. These records have been interpreted to document changes in large-scale vertical ocean circulation as well as iron-stimulated biological production, likely processes that contribute to carbon exchange between the ocean and the atmosphere. The proposed work will address gaps in our understanding of how the diatom proxies record surface nutrient conditions. Specifically, this includes an examination of environmentally controlled effects on physiology that lead diatoms to change how they build their shells and of alteration during sinking and burial as potential influences on the isotope signals. The results will improve reconstructions of nutrient drawdown in the past, highlight optimal geological conditions for robust reconstructions, and increase our understanding of observed spatial and temporal variability in existing diatom nitrogen and silicon isotope records.

Responsibilities and Duties: The postdocs will examine 1) the relationship between diatom nitrogen and silicon isotope values and surface nutrient uptake during a Southern Ocean spring bloom and 2) primary controls on the spatial variability observed for the relationships between diatom-bound nutrient isotope proxies, macronutrients, and biomass. The loss of lightly silicified taxa and/or fractionation during the dissolution of frustules will be evaluated through laboratory incubations at home institutions. Ideally, the postdoc will contribute to the field component, which includes a transect from 67°S to 54°S to conduct extensive sampling of water and particles with shipboard incubations combining isotope and novel fluorescent labeling techniques will measure how degree of silicification influences diatom N and Si isotope. There is no teaching requirement or expectation to write research grants, but those opportunities can be provided as desired.

Qualifications: Candidates should have a PhD in biological, chemical, or geological oceanography or a related field. Relevant knowledge around diatom culturing, microscopy, diatom taxonomy, geochemistry, stable isotopes, water column nutrient dynamics, and/or data synthesis is desirable. Excellent written and verbal science communication skills are important.

Appointment: One position is in the URI Graduate School of Oceanography and is intended to start Summer/Fall 2024 and continue for 12-months, with funding secured for a second year, pending satisfactory progress. The second position is hosted at UC Santa Barbara. Postdocs will

receive training in research collaboration, presentation and publication of results, outreach, and mentoring. Please note: This is not a federal position.

To Apply: Applications must include (1) a 2-page statement of experience, career goals, research vision and interests; (2) curriculum vitae, (3) reprint(s) of relevant publications and (4) names and email addresses of three references who can provide a recommendation. Email application materials to Rebecca Robinson (rebecca_r@uri.edu) or Mark Brzezinski (markbrzezinski@ucsb.edu) if you are interested. Candidates will be selected based on academic qualifications, reference assessments, and prior skills, experience, and research goals that are compatible with the goals of the funded research.

Diversity, equity and inclusion are important to URI and GSO. We are committed to a sustained University-wide effort to advance inclusion and belonging, including being one of the first oceanography schools to be selected as an AGU-Bridge partner institution. We encourage women, minorities, veterans, those with disabilities, and other underrepresented groups to apply. All qualified applicants will receive consideration for employment without regard to race, color, religion, gender, gender identity or expression, sexual orientation, national origin, genetics, disability, age, or veteran status."

Review: Applications to be reviewed on a rolling basis. Email Rebecca Robinson (rebecca_r@uri.edu) or Mark Brzezinski (markbrzezinski@ucsb.edu) for any additional information.