

PhD position

Modeling ocean carbon removal and sequestration

The Ocean Modelling Group within the Climate and Environmental Physics Division at the University of Bern invites applications for a PhD position focusing on modeling ocean-based approaches to carbon dioxide removal and sequestration. Given the urgency to combat climate change, there is growing global interest in exploring (nature-based) carbon removal strategies. These strategies are not intended to replace mitigation efforts but rather to serve as a compensation for hard-to-abate greenhouse gas emissions. Among these strategies, ocean-based carbon removal methods such as alkalinity enhancement, nutrient fertilization or the restoration of ocean ecosystems are being discussed. However, their potential for carbon sequestration, associated risks and potential co-benefits are still largely uncertain.

The goal of this PhD project is to advance our understanding of ocean-based carbon dioxide removal and sequestration approaches by combining high-resolution Earth system model simulations and novel ocean observations. This project offers the opportunity to work with a comprehensive climate-carbon cycle Earth system model and to implement various ocean-based carbon removal scenarios into the model. The effectiveness and side effects of these ocean-based carbon removal approaches will be explored in collaboration with experts in climate and ocean carbon cycling at the Climate and Environmental Physics Division and the Oeschger Centre for Climate Change Research. The successful candidate will actively contribute to the dynamic and expanding Ocean Modeling Group, presenting results at international scientific conferences and publishing in peer-reviewed literature. Close collaboration with the supervisors Dr. Friedrich Burger and Prof. Thomas Frölicher is anticipated. Employment conditions and remuneration are in accordance with the standards of the University of Bern, Switzerland. The initial appointment is for three years, with the potential for extension by an additional year.

We seek an outstanding PhD researcher with a master's degree in Climate Science, Oceanography, Physics, Earth sciences, or related fields. Expertise in climate modeling, programming, ocean biogeochemistry, and/or the carbon cycle are useful, and analytical skills a prerequisite. Proficiency in English, both written and spoken, is essential.

Interested candidates should submit a single pdf-file containing a motivation letter, CV, MSc certificates including evaluations, a web link to the master's thesis, and contact details for two references. Applications should be sent to Prof. Thomas Frölicher (thomas.froelicher@unibe.ch). **The review of applications begins on March 28, with the project start preferably in mid-2024 or upon agreement.**