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**UNIVERSITÄT
BERN**

Climate and Environmental Physics, Sidlerstr. 5, CH-3012 Bern

Physikalisches Institut
Klima- und Umweltphysik

PhD position

Earth system modeling with a focus on adaptive scenarios

The Ocean Modelling Group within the Climate and Environmental Physics Division at the University of Bern invites applications for a PhD position in Earth system modeling. The Climate and Environmental Physics Division has recently developed an adaptive emission reduction approach. This approach allows developing emission trajectories for CO₂ and other radiative forcing agents that iteratively adapt to meet the temperature goals of the Paris Agreement. The existing code primarily addresses global warming as the sole target, without considering other critical Earth system thresholds. **The goal of this PhD project is to advance the adaptive emission reduction approach to encompass multiple targets, including ocean physical and biogeochemical extreme event thresholds as well as tipping points.** The refined approach will undergo testing using an Intermediate Complexity model and a fully coupled Earth system model. The candidate will conduct multi-target simulations using the refined approach to develop safe emissions pathways to avoid crossing extreme event thresholds and tipping points.

This project offers the opportunity to work with comprehensive climate-carbon cycle Earth system models and collaborate with experts in climate and tipping points within the Horizon Europe TipESM project (<https://www.tipesm.eu>), 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. 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. Skills in climate modeling, programming, large dataset analysis, and/or expertise in ocean biogeochemistry and the carbon cycle are useful. 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.**

Prof. Dr. Thomas Frölicher
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