UNIVERSITÄT BERN

Klima- und Umweltphysik, Sidlerstr. 5, CH-3012 Bern

Physikalisches Institut
**Klima- und Umweltphysik**

The Division of Climate- and Environmental Physics, Physics Institute, University of Bern opens a position for a

# PhD student

## to model the risks of extreme events for marine organisms and ecosystems

Extreme climate and weather events shape the structure of biological systems and affect the biogeochemical functions and services they provide for society in a fundamental manner. There is overwhelming evidence that the frequency, duration, intensity and timing of extreme events on land are changing under global warming, increasing the risk of severe, pervasive and in some cases irreversible impacts on natural and socio-economic systems. In contrast, we know very little how extreme events in the ocean, especially those associated with warming, acidification, deoxygenation and nutrient stress will unfold in time and space, and how these extreme events will impact marine organisms and ecosystems services.

It is planned that the candidate will integrate available and newly developed marine organism and marine ecosystem exposure and vulnerability indices into a high-resolution modeling framework to quantify the regional risks levels of marine organisms and ecosystems to key ocean extreme events. In a first step, the candidate will collect, synthesize and develop new extreme event vulnerability indices for marine ecosystems. In a second step, the candidate will combine high temporal and spatial resolution hazard maps of ocean extreme events obtained from observations and high resolution modeling with nominal levels of vulnerability and exposure to come up with nominal categories of risks. The candidate will present results at international scientific meetings and publish in the peer-reviewed literature.

The PhD research work will be embedded within the collaborative project *OceanX* funded by the Swiss National Science foundation (SNSF), which aims at discovering and attributing past and future changes in ocean extremes, and at assessing and mapping the risks of the extreme events for marine organisms and ecosystems. The research is closely linked to the activities of the Oeschger Centre for Climate Change Research of the University of Bern. The candidate will also be able to take advantage of existing collaborations with long-term collaborators from the University of British Columbia under the umbrella of the Nereus Program (www.nereusprogram.org). The salary is according to the

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guidelines of the Swiss National Science Foundation and University of Bern, with funding guaranteed for 3.5 years.

We are looking for a highly-motivated student with a strong interest in physical, chemical and/or biological oceanography, and with strong numerical skills. Applicants should have a Master in Environmental/Climate Sciences, Biogeochemistry, biological oceanography or similar disciplines. Requirements for the positions are: ability and interest to work across disciplines, experience in numerical modelling (Linux, Fortran, Python, Matlab), innate curiosity, enthusiasm for reading scientific literature, excellent writing and communication skills in English, and aptitude for teamwork.

In order to receive full consideration, applications must be submitted before June 15, 2017, but the positions will stay open until filled. Applications should include a CV, a statement of research experience and interests (max. 2 pages), an academic transcript of your studies, a web link to the master thesis, and the names and addresses of at least 2 references as a single pdf file to Prof. Dr. Thomas Frölicher (froelicher@climate.unibe.ch).

The start of the PhD project is scheduled for October/November 2017, or by agreement.

Bern, 19 May, 2017