

## Global PhD Scholarship - St Andrews and Bonn

### Hydrologic relevance and climate response of rock glaciers in mountain permafrost environments

#### **Project description and criteria for the PhD position**

Availability of water is one of the most important factors for population health, ecosystem functioning and sustainable development. Mountains are Earth's fundamental water towers, providing water to densely populated lowlands well beyond their immediate downstream areas. While the knowledge about snow and glacier melt and related runoff significantly improved during the last years the contribution of ice stored in rock glaciers is largely unknown despite the potentially high importance. This project aims therefore to reduce the knowledge gap and to improve our knowledge about rock glacier occurrence, their ice volume and their climate response. This will be done by a holistic approach combining multi-scale and multi-temporal remote sensing (using both UAV and satellite data acquisitions) and geophysical field investigations (e.g. using ground penetrating radar and geoelectric). The project will concentrate on selected catchments in the Tien Shan (Central Asia) where ice melt is of great importance for the local population and rock glaciers are abundant. It is therefore expected that the candidate is willing to perform joint field work in South-East Kazakhstan.

The applicant should have ideally profound knowledge in remote sensing, photogrammetry and geophysics. Scripting skills, knowledge about permafrost and rock glaciers, work experience in high mountains as well as knowledge in Russian language (as many relevant publications are in Russian) are an advantage.

The project will be managed jointly between the School of Geography and Sustainable Development at St Andrews and the Department of Geography at Bonn. The student will be supervised by Dr Tobias Bolch (St Andrews) and Professor Lothar Schrott (Bonn).

Informal enquiries regarding this scholarship may be addressed to the co-supervisors:

- **Dr Tobias Bolch:** [tobias.bolch@st-andrews.ac.uk](mailto:tobias.bolch@st-andrews.ac.uk)
- **Professor Lothar Schrott:** [schrott@uni-bonn.de](mailto:schrott@uni-bonn.de)

For further information, please visit <https://www.uni-bonn.de/joint-doctoral-program> and <https://www.st-andrews.ac.uk/study/fees-and-funding/postgraduate/scholarships/global-bonn-geography-bolch/>

**Application deadline: 23 May 2022**