Postdoc Position on Remote Sensing of Greenland Firn Hydrology

Job description

A postdoc position on Remote Sensing of Greenland Firn Hydrology is funded for three years in the framework of the ERC project ‘CASSANDRA - Accelerating mass loss of Greenland: firn and the shifting runoff limit’ at the Department of Geosciences, University of Fribourg, Switzerland.

Surface runoff is the largest contributor to mass loss of the Greenland ice sheet. Recent years saw the runoff limit (the elevation at which meltwater starts to discharge into the oceans) migrating uphill into Greenland’s vast firn area. Pilot studies suggest that this uphill migration is not just a direct effect of increased melt, but is amplified by changes in firn characteristics that favour runoff. This interplay between melt, firn and runoff is expected to play a decisive role in shaping Greenland’s future mass balance.

The position focuses on developing methods to detect the runoff limit and to quantify its changes on the Greenland ice sheet. Detection of the runoff limit will be based on a variety of remote sensing products, but strongly relies on optical satellite and aerial imagery. Legacy remote sensing data will be included in the analysis to achieve an extended temporal coverage. Emphasis will be on Greenland-wide mapping.

More about the position

The optimal starting date for the position is 1 May 2019, corresponding to the kick-off of the CASSANDRA project. Some flexibility with respect to the starting date, however, exists.

The holder of the position will collaborate with Horst Machguth, PI of the CASSANDRA project, and two PhD students. The successful applicant will take direct responsibility in the supervision of PhD students.

This position is associated with the Cryosphere group in the Department of Geosciences of Fribourg University. The Cryosphere group has a staff of c. 20 and holds strong expertise in surface processes and numerical modelling of glaciers and ice sheets, permafrost, meteorology and geophysics.

Qualification

We seek a dedicated person with a passion for Arctic glaciology, remote sensing and ice sheet research.

The following requirements for the position apply:

- The applicant must hold a PhD within geosciences, geophysics, climatology or hydrology.
- The applicant must have published in peer-reviewed international journals.
- The applicant must have a background in studying physical processes in cold climates and must document experience with remote sensing data.
• Computer programming skills are mandatory, preferably using Python for processing of geophysical or remote sensing data.
• The applicant must have excellent verbal and written communication skills in English.

The following points represent assets for the candidates:

• Experience in glaciological fieldwork and willingness to join the planned field campaigns in the firn area of the Greenland ice sheet is an important asset.
• Experience in processing of climate model output.
• Knowledge of either French or German language would be an advantage.

We offer:

• Salary up to CHF 75,100 per annum, depending on qualification of the applicant.
• A professionally stimulating working environment and the ability to shape the research strategy in collaboration with the PI.
• Involvement and experience in field research on the Greenland ice sheet.
• The opportunity to gain experience in supervision of PhD and MSc students.
• Rich opportunities for culture and outdoor activities in the city and surroundings of Fribourg.

How to apply:

The application must include:

• Application letter
• CV (summarizing education, positions, academic work and achievements)
• List of publications
• Copies of educational certificates
• Names and contact details of 2-3 references (name, affiliation, relation to applicant, e-mail and telephone number)

For questions, please contact Horst Machguth (+41 26 300 9015, horst.machguth@unifr.ch). The application (merged into one PDF file) can be sent directly to horst.machguth@unifr.ch. Please note that all documents should be in English. Evaluation of applications will start February 25 and continue until the position is filled.