

The Chair of Hydrology in the Faculty of Environment and Natural Resources is looking for a

PhD student in snow hydrology

Part-time position (70% E13), Start-date: 01.06.2020

The position is funded by the German Research Foundation (DFG) project SPENSER “Understanding and Predicting the Spatial and Temporal Variability of Snow Processes Under Different Vegetation Covers Combining Laser Observations and Point Measurements” and will be located at the Chair of Hydrology (Prof Dr. Markus Weiler) at the University of Freiburg, Germany. The project is in cooperation with the Chair for Monitoring of Large-Scale Structures at the INATECH, University Freiburg.

A comprehensive knowledge about vegetation and forest structures influences on snow accumulation and ablation processes is especially important since forest covers are one of the most rapidly changing land cover types. Furthermore, changing climatic conditions will also result in expanding forest and shrub areas above timber line and hence changing the properties of forest canopies. Recent studies confirmed the high spatial and temporal variability present in the snow cover under forest vegetation dependent on various canopy conditions, tree species and climate conditions. The proposed study will focus on examining the effects of different tree species and different forest structures on the snow cover dynamics. An innovative observation approach that combines numerous continuous point measurements (SnoMoS) with frequent UAV (drone) based dual wavelength laser scanning observations will be used to observe the snow cover evolution under forest and shrub canopies in two different climate regions (mid elevation mountains (Black forest) and alpine (Swiss Alps)). The unique dataset will be used to improve existing snow models and to test new vegetation algorithms and to derive robust vegetation structure indices from large-scale datasets to be used in large-scale models.

Applicants should have an outstanding MSc degree (or equiv.) in hydrology, environmental science, geoscience, geography, remote sensing, engineering or a closely related field. Knowledge in programming, statistical data analysis and in environmental modeling, preferably hydrological modeling, is essential. Particular experience in snow hydrology and field work in winter will be an asset. We encourage applications from enthusiastic dedicated individuals with strong quantitative skills as well as very good writing and communication skills in English. Applicants should hold a valid driver’s license (European Cat. B)

We offer an interdisciplinary, international work environment in the Faculty of Environment and Natural Resources with a formal PhD program (www.gs.esgc.uni-freiburg.de). The PhD positions will be advised by Prof. Markus Weiler, head of a dynamic, international research group. Collaboration and co-advising by local and international partners (e.g. research Unit: Mountain Hydrology and Mass Movements at WSL, Switzerland) is foreseen.

Please send your application (Reference WE4598/16-1) as one single pdf-file to hydrology@hydrology.uni-freiburg.de. The file should include a cover and motivation letter, CV, certificate & transcript of your highest degree earned, an example of your own scientific writing (in English, if available), and the names and contact details of at least two persons who will be able to provide references on demand. For questions, please contact Markus Weiler.

The position is limited to 31.05.2023. The salary will be determined in accordance with TV-L E13.

We are particularly pleased to receive applications from women for the position advertised here.

Please send your application in English including supporting documents mentioned above citing the reference number 00000989, by 15.04.2020 at the latest. Please send your application to the following address in written or electronic form:

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