

Opening of a PhD possibility in Geomorphology, Institute of Geological Sciences, University of Bern and Swiss Federal Research Institute WSL, ETH domain

The institutes Geological Sciences of the University of Bern and the Swiss Federal Institute for Forest, Snow and Landscape Research WSL invite talented, motivated and excellent candidates to apply for a fully funded PhD position where the PhD student will be embedded in an interdisciplinary project including hydrologists, political scientists and economists. We focus on heavily modified landscapes in pre-Alpine areas of Switzerland where mountain streams have been channelized and engineered with check dams. We aim at exploring more natural ways of managing such drainage basins. To achieve these goals, we need a quantitative understanding of the functioning of such landscapes. The PhD project is tailored to provide this knowledge. Accordingly, the responsibilities of the PhD student include the establishment of a database on the routing of sediment in these basins from the hillslopes through the channel network down to the valleys. The methods include a wide range of quantitative geomorphology techniques such as (i) terrestrial cosmogenic ^{10}Be and ^{14}C for tracing sediment and to quantify sediment storage and transport, (ii) landscape and channel surveys with UAVs (unmanned aerial vehicles such as drones) to document changes of channels and hillslopes, and (iii) the application of engineering-based models to predict the channel response to heavy precipitation events and to model sediment mobilization by debris flows. We think that we can offer a fascinating project embedded in an interdisciplinary team where cutting-edge methods in quantitative geomorphology will be applied for practical use. The PhD student will be supervised by F. Schlunegger (Uni Bern) and B. McArdell (WSL), and the student will be enrolled at Uni Bern.

Questions about the science of the project can be addressed to Prof. Fritz Schlunegger, Institute of Geological Sciences, fritz.schlunegger@geo.unibe.ch.

The position is fully funded through the Swiss National Science Foundation for 48 months. We schedule the project to start either on July 1st or August 1st 2022.

Interested candidates should have a background in Geology, Physical Geography, Geomorphology or Environmental Engineering. Please send your application including a CV, a statement of research interest and names of 2 potential referees to Prof. Fritz Schlunegger, schlunegger@geo.unibe.ch. The deadline for applications is April 15th. You may also apply if you have not finished your Ms thesis yet. We are looking forward to your participation and a fruitful collaboration in an interdisciplinary team.

Fritz Schlunegger, Institute of Geological Sciences, University of Bern
Brian McArdell, WSL, Mountain Hydrology and Mass Movements Research Unit