

## **Kolloquium:**

### **Limestone vs. gneiss: the influence of the lithology on glacial erosion rates and landscape evolution**

**Date:** Monday, 28 September 2020, 16:15  
**Location:** **Institut für Geologie**, Baltzerstrasse 3, 3012 Bern,  
Studer Auditorium, 2.OG  
**Speaker:** **Olivia Kronig**  
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Glaciers are modifying the appearance of the Alpine landscape by eroding their underlying bedrock beds. Over 150 years of glacial research resulted in a comprehensive understanding about the main processes in how the glaciers erode. However, it remains a long-lasting question about how fast glaciers erode. This is mainly because of the inaccessibility of the glacier-bedrock interface for direct measurements. Recently cosmogenic nuclide analysis has shown to be a versatile and elegant method to determine glacial erosion depth directly on glacially polished surfaces. Combining this technique with a numerical model allows us to calculate local glacial erosion rates.



With this combined approach, we investigated two completely different glacial landscapes; the limestone plateau in front of the Tsanfleuron glacier (VS) and the overdeepened basin in front of the Trift glacier (BE) located in crystalline

rock. These two independent studies not only gave us new insights into how fast glaciers erode certain lithologies but also enabled us to better understand why these two remarkably different glacial landscapes evolved. Inferences on the fundamental processes responsible for development of the relief and the shape of the Alps can be made.