



E I N L A D U N G

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V E R A - S E M I N A R

von

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Detection of dead ice in the proglacial with hydro-chemical tracers - Implications for geomorphological process studies and natural hazard assessment

The Gepatschferner glacier in the Upper Kaunertal valley is one of the fastest-melting glaciers in the Eastern Alps. With a retreat rate of around 100 meters per year in the last years unconsolidated sediments of steep lateral moraines have been exposed to erosion. The existence of episodic springs, welling from these lateral moraines, fostered the hypothesis that a potential significant morphological change in the moraines may result from the melt out of ice lenses and leaching by water, which is so far not considered in contemporary erosion measurement campaigns. The present study aims to identify the spring water's origin and displays first attempts of quantifying the leached volume.

Samples were routinely analyzed for temperature, electrical conductivity, $\delta^2\text{H}$, and $\delta^{18}\text{O}$. Results support the hypothesis that certain springs derive from melting ice of similar isotopic signature as the glacier. In a second step, chosen samples were examined for the long-lived anthropogenic nuclide ^{129}I . Since the 1950s the abundance of ^{129}I has significantly increased in the atmosphere. Its occurrence in the water samples hints at surface contact of the waters in the last 65 years. Springs of ice origin show little ^{129}I content and are believed to derive of dead ice by the glacier. Further ice ablation and discharge measurements allowed to give first rough estimates of the thermal erosion volume caused by the melt out of the dead ice lenses.

Donnerstag, 17. November 2016, 16:30 Uhr
1090 Wien, Währinger Str. 17, "Kavalierstrakt",
1. Stock, Victor-Franz-Hess-Hörsaal