



## **Dynamics of a Younger-Dryas glacier system framed by Bølling-Allerød and Preboreal landslides**

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The head of the Hüttwinkl valley in the Austrian province of Salzburg, north of the Hoher Sonnblick (3106m asl) in the Hohe Tauern alpine range provides an excellent opportunity to reconstruct a Younger-Dryas (Egesen stadial) glacier system and its relation to prominent landslides from the onset of the ice advance to the retreat phase.

The landslide events (13ka BP and 10ka BP) as well as the glacial advance (12.5ka BP) and retreat (11ka BP) were dated using terrestrial in-situ cosmogenic nuclides (TCN),  $^{10}\text{Be}$  in this case, and, partly, organic  $^{14}\text{C}$  from peat. To produce a extensive chronology, seven TCN samples from the landslides, and eleven TCN boulder samples and two TCN polished bedrock samples related to glacier history were processed.

Detailed sedimentary evidence allows us to constrain the starting position of glaciers before the Younger Dryas advance, as well reconstructing a confluence situation of the two local glaciers (Goldbergkees and Pilatuskees), producing a glacier system with a maximum surface area of  $10 \text{ km}^2$ , as well as shedding some light on the glacial dynamics during the retreat phases of the Egesen. In addition, surface models revealed in one case a reconstituted glacier geometry.

We employed various methods for calculating Equilibrium-Line-Altitudes (Maximum Elevation of Lateral Moraines, Toe-to-Headwall-Altitude Ratio, Area x Altitude, Area x Altitude Balance Ratio, and Accumulation Area Ratio) and compared them to already available data from western Austria and Switzerland. With this data, we are able to reconstruct temperature and precipitation change of the local climate and glacier dynamics during the maximum of the Younger-Dryas in the central part of the European Eastern Alps.