



Geomorphic effects of ice avalanches: The event in 2003 at the glacier Nördliches Bockkarkees, Austria

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The glacier Nördliche Bockkarkees, Hohe Tauern Range, central Austria (47°07'N, 12°44'E) represents the only Austrian glacier that formed massive and hazardous ice-avalanches in recent times. A massive and destructive ice avalanche with a volume of appr. 4-5 Mio. m³ occurred in summer 1945. Furthermore, a number of larger events with volumes of 1-3 Mio. m³ are reported from the post-1967 period (Slupetzky, 2002). The hitherto ultimate ice-avalanche event of the glacier Nördliche Bockkarkees occurred on June 26th 2003 after a ten year break. Ice and debris with a volume of approximately 250 000 m³ (quantified by Laserscanning, G. Ehgartner, e:geo) avalanched down a vertical distance of some 1 300 m. The deposits of this event formed a flat ice-cone in the Käfer Valley covering an area of some 85 000 m² with a maximum horizontal extent of 680 to 180 m. This paper focuses on geomorphologic and glacialogic field observations at the ice-avalanche deposit and its vicinity three weeks after the event. Field observations were made at the following locations: (i) at the margin of the ice-avalanche deposit (e.g. signs of push-effects); (ii) outside the ice-avalanche deposit (e.g. geomorphic features indicating older ice-avalanche events; cf. Slupetzky, 2002); (iii) at the ice-avalanche deposit itself (e.g. structures of the ice-rock mass indicating movement pattern during the event); (iv) at the subavalanche-deposit surface (i.e. at a quasi-subglacial position) (e.g. crag-and-tail landforms, fluted moraine structures). Our results indicate that ice-avalanches - charged with debris - might play an important role in mountainous proglacial areas in terms of formation and reshaping of erosional and depositional landforms.

Reference: Slupetzky H. 2002. Der Eissturz vom nördlichen Bockkarkees (Hohe Tauern, Glocknergruppe, Käfertal) im Jahr 1945. Grazer Schriften der Geographie

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