



## Debris-covered glaciers during the LGM and Lateglacial at the eastern margin of the Alps

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We present the reconstruction of paleo-glaciers in the easternmost part of the Alps (Schneeberg mountain) with the main focus on sedimentology, chronology and glacial dynamics. The area is dominantly made up of limestone bedrock and hence characterized by steep slopes and cirques.

Two juvenile moraine-systems can be deciphered based on geological mapping. The major system is characterized by an up to 60 m high latero-frontal dump moraine with a prominent breach-lobe moraine in a lateral position. It is regarded to represent the Last Glacial Maximum (LGM; Würm Pleniglacial). The other system is much smaller and was formed most probably during the Würm Lateglacial.

The angular to subangular shape of the clasts and the abundant boulders on top of the ridges indicate a high portion of passive (Boulton, 1978) i.e. supraglacial and englacial transport of debris before deposition. Thus the model of a debris-covered glacier is favored to explain both landforms and as well the corresponding sediment facies. For the pleniglacial moraine such an assumption is backed by a low accumulation/ablation area ratio (AAR) of around 1:1 based on the reconstruction of the equilibrium line altitude (ELA) using the maximum elevation of lateral moraines (MELM; Lichtenecker, 1938). Furthermore as there is no indication of a former glacier snout glacio-fluvial processes should have played a limited role in sediment transport into the forefield. Such setting pinpoints to very cold-arid conditions, which are as well found in paleo-climate reconstructions of the eastern foreland (Frenzel et al. 1992).

Boulton, G.S., 1978: Boulder shapes and grain-size distribution of debris as indicators of transport paths through a glacier and till genesis.- *Sedimentology*, 25, 773-799.

Lichtenecker, N., 1938. Die gegenwärtige und die eiszeitliche Schneegrenze in den Ostalpen. In: *Verhandlungen der III. Internationalen Quartär - Konferenz*, Vienna, 1936, 141-147.

Frenzel, B., Pecci, M. & Velichko, A. A., 1992. *Atlas of Paleoclimate and Paleoenvironments of the Northern Hemisphere: Late Pleistocene - Holocene*. Geogr. Res. Institute, G. Fischer Verlag, Budapest-Stuttgart.