



Defining the Lateglacial stratigraphy in the Eastern-Alps using gravitational and glacial sedimentation sequences.

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Traditional Alpine Lateglacial stratigraphy rests upon morphostratigraphic characteristics of glacial deposits (e.g. end moraines) which were defined in isolated type localities in different valleys. Thus, a “type valley” with spatial succession documenting the chronology of the whole Lateglacial glacier dynamic is missing. The so far used framework is overwhelmingly based on non-continuous erosional remnants mostly lacking sequences showing super-imposition.

Hence absolutely dated (SED, ^{14}C) Lateglacial to Holocene landforms are mostly not verified by an associating relative stratigraphy. Here we present the results of ongoing detailed geological and geomorphological mapping of Quaternary sediments and dating of related relevant depositional sequences in the inner-alpine part of the Eastern Alps. These allow us to constrain a general model of past glacier and mass movement dynamics from the termination of the LGM to the Holocene. To back up this model we show field examples of the neighbouring Hüttwinkl-valley and Gastein-valley, two typically northward trending valleys on the northern flank of the Hohe Tauern Range in the province of Salzburg, Austria. The head of the Hüttwinkl-valley reveals a succession of different landscape-forming events (glacial advances, glacial retreats and mass movements) since the Last Glacial Maximum (LGM), which enable us to reconstruct a local Lateglacial to Holocene stratigraphy based on unconformity-bounded sediment bodies. We dated the sediment-bodies of this super-imposed succession (two landslides bracketing a till cover of a dominant glacial stadial) with ^{10}Be and in addition with ^{14}C to augment the ages gained by exposure dating. With this very well dated Lateglacial depositional sequence as a reference we show how Quaternary features and sediments of neighbouring valleys fit into the assumed general model of landscape evolution since the LGM.