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Gravitational sediments as markers for constraining the Late Pleistocene to Holocene stratigraphy in the Eastern Alps

BICHLER, Mathias G., REITNER, Jürgen M.

Geological Survey of Austria, Sedimentary Geology, Neulinggasse 38, 1030 Vienna, Austria

The stratigraphy of the Late Pleistocene to Holocene in the Eastern Alps resting on the glacial chronology is based mostly on isolated morphostratigraphic and occasionally on lithostratigraphic characteristics. In combination with modern geochronological data (Radiocarbon, Surface Exposure Dating, Pollen) it is possible to establish a chronological framework. This enables the correlation with high-resolution marine and ice-core records and the elaboration of paleoclimatic considerations. However, superimposed event-based depositional sequences have so far often not been used to reconstruct landscape evolution in Alpine valleys and therefore the chronological framework is commonly not verified by an accompanying relative stratigraphy. Ongoing comprehensive geological mapping shows that gravitational deposits (landslides) could serve as an excellent marker to improve the Late Pleistocene to Holocene glacial stratigraphy considering the whole landscape evolution. We will show examples of partly absolutely dated glacial, glaciofluvial and gravitational sedimentary sequences in the Austrian Eastern Alps for the pre-LGM time in the lower Inn valley (Starnberger et al. 2013 and Reitner & Gruber 2014) and for the post-LGM time (Alpine Lateglacial) in the Fusch valley (Gschnitz, Oldest Dryas) and Rauris valley (Egesen, Younger Dryas; Bichler et al. 2015).

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