



Glacier retreat and associated sediment dynamics in proglacial areas: a case study from the Silvretta Alps, Austria

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Global warming results in an ongoing retreat of glaciers in the Alps, leaving behind large amounts of easily erodible sediments. In addition, the debuttressing of rock-walls and the decay of permafrost in the high mountain regions facilitates mass movements of potential disastrous consequences, such as rock falls, landslides and debris flows. Therefore, it is highly important to quantify the amount of sediments that are supplied from the different compartments and to investigate how glacial retreat influences sediment dynamics in proglacial areas. In the presented work glacier retreat and associated sediment dynamics were investigated in the Kromer valley (Silvretta Alps, Austria) by analyzing remote sensing data. Glacial retreat from the period of 1950 to 2012 was documented by interpreting aerial photographs. By digitizing the different stages of the glaciers for six time frames, changes in glacier area and length were mapped and quantified. In order to identify, characterize and quantify sediment dynamics in the proglacial areas a high resolution DEM of difference (DoD) between 2007 and 2012 was created and analyzed, further differentiating between different zones (e.g. valley bottom, hillslope) and types of geomorphic processes (e.g. fluvial, gravitational). First results will be presented at the EGU General Assembly 2016.