



Sub-recent erosion and sedimentation within a paraglacial tributary catchment of the Nordfjorden valley-fjord system (Erdalen, western Norway)

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This study aims at obtaining quantitative information on sub-recent and contemporary erosion and sedimentation processes within a braided sandur system in upper Erdalen. The Erdalen catchment is a steep U-shaped valley with connection to the Jostedalbreen ice field, located in western Norway. The sub-Arctic oceanic upper Erdalen (approx. 50 km²) comprises three distinct areas: the braided-sandur system (approx. 1.5 km²) developed on Holocene valley infill sediments as well as two tributary valleys (sub-catchments). The elevation of the braided-sandur system ranges from approximately 460 to 480 m a.s.l.. Within the braided sandur system the tree species grey alder (*Alnus incana*) is dominant. However, eroded areas in the upper parts of the braided sandur system are mainly characterised by different cryptogam species like moss and lichen. Based on field observations different sub-systems can be identified: fine-grained flood sediments at the down-valley part of the braided sandur system and coarser deposits in the upper part. The coarser deposits are originating from the Little Ice Age advance in Erdalen. A combination of different methods is applied for studying erosion and sedimentation processes within this paraglacial system (sedimentological and stratigraphic analyses, ¹⁴C dating, dendrochronology and lichenometry). Preliminary results indicate that the flood plain sediments were deposited after the Little Ice Age advance. Different sedimentary facies types are present and different phases of flooding can be identified. The results of the volume and mass quantification provide a first estimation of the potential sub-recent mass redistribution within the braided sandur system. In comparison to the upper part which has a negative sub-recent sediment balance the lower part is characterised by a balanced to slightly positive sediment budget. In total, the sub-recent sediment budget of the entire braided sandur system appears to be slightly negative.