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Mass transfers, sediment budgets and relief development in four drainage basins in Iceland, Swedish Lapland and Finnish Lapland

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By the combined, quantitative recording of relevant denudative slope processes and stream work in four selected drainage basins, information on the absolute and relative importance of the different denudative processes is collected. In all selected study areas in sub-arctic oceanic Eastern Iceland, arctic-oceanic Swedish Lapland and sub-arctic oceanic Finnish Lapland the intensity of contemporary denudative processes and mass transfers is altogether rather low.

The direct comparison of the annual mass transfers occuring within the four investigated drainage basins summarises that there are differences between process intensities and the relative importance of different denudative processes within the study areas in Eastern Iceland, Swedish Lapland and Finnish Lapland. The major controls of these detected differences are (i) climate, (ii) lithology, (iii) relief and (iv) vegetation cover.

The applied catchment-based approach seems to be effective for analysing sediment budgets and trends of Postglacial relief development in selected study areas with given environmental settings. Direct comparisons of investigated catchments will improve the possibilities to model relief development as well as possible effects of projected climate change in cold climate environments.