



Assessing slope dynamics in a climate-sensitive high arctic region with Sentinel-1 dataset

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As witnessed by an increasing number of studies, the evidence of ongoing climate change and its geomorphological effects is unquestionable. In the Svalbard archipelago, the Arctic amplification of global warming trends currently has a significant effect on permafrost temperatures and active layer thickness. Combined with altered intensity and variability of precipitation, slopes are likely to become more active in terms of both rapid and slow (creep) processes – at least as a temporary effect where the ice-rich transient layer of soils or jointed permafrost rock walls are starting to thaw. The slopes of the Kongsfjorden area around Ny-Ålesund, NW Spitzbergen comprise a variable set of slopes systems on which to evaluate current modifications of slope sediment transfer; from low-angle fined-grained vegetated slopes to steep rock walls, talus slopes and rock glaciers. In addition, systems influenced by currently retreating glaciers and thermokarst processes are also found, in some settings interfering with the rock wall and talus slope systems. Within the framework of the SLOPES project, we provide baseline data on slope geometry from detailed terrestrial laser scanning and drone aerial image acquisition. Further, in order to document current dynamics, we employ interferometric analysis of data gathered by the new ESA mission SENTINEL. This presentation will report on data from the interferometric analysis.