



Ablation conditions on debris covered glaciers of the Caucasus and Altay mountains during the 2007 ablation season

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Debris covered glaciers are a common feature of many mountain regions in Asia. In contrast to debris free glaciers, the maximum ablation occurs on debris covered glaciers not necessarily on the lowest part of the tongue due to the radiative protection of the glacier ice by the debris layer. Different lithology, topography and climatic conditions result in large variations of supra-glacial debris distribution for different mountain regions. In order to evaluate the sensitivity of individual glacier covered regions to changes in climate it is necessary to compare the influence of debris cover on ice ablation. Here we present results from two recent test regions where ice melt and the related glacier run-off was observed in the framework of large scale glacier-climate studies of mountain regions in the former Soviet Union. In both regions, the Caucasus and the Altay mountains, a considerable number of glaciers show a widespread debris cover on their tongues. However, differences in climatic conditions and the different geology of the two regions lead to individual characteristics of their glaciers.

For the ablation season 2007 detailed long-term measurements of sub-debris ablation and the correlated meteorological conditions are analysed, in order to demonstrate the characteristic ablation conditions for the two different regions.