



A comparison of glacier melt on debris covered glaciers in the northern and southern Caucasus

A. Lambrecht (1), V. Popovnin (2), C. Mayer (3), W. Hagg (4), N. Lomidze (5), and D. Svanadze (5)

(1) University of Innsbruck, Institute of Meteorology and Geophysics, Innsbruck, Austria (astrid.lambrecht@uibk.ac.at, ++43 512 507 2924), (2) Moscow State University, Department of Cryolithology and Glaciology, Moscow, Russia, (3) Bavarian Academy of Sciences and Humanities, Commission of Glaciology, Munich, Germany, (4) Ludwig Maximilians University of Munich, Department of Geography, Munich, Germany, (5) Georgian Academy of Science, Vakhushti Bagrationi Institute of Geography, Tbilisi, Georgia

The Caucasus mountains extend from the Black Sea to the Caspian Sea in a West-East direction with glaciers covering about 1600 km². The general West-East direction acts as a meteorological divide between the northern and southern slopes of the mountain range, with generally larger glaciers in the North than in the South. We investigate the conditions at two partly debris covered glaciers North and South of the main divide of the Caucasus, namely Djankuat glacier and Zopkhito glacier. Apart from the different exposition (NW and SE, respectively) the mean elevation of the debris covered glacier tongues is comparable, with the Djankuat glacier tongue about 100m higher than the tongue of Zopkhito glacier. On both glaciers debris covers about 10% of the glacier area.

Based on field work in 2007 and 2008, sub-debris ablation was analysed in detail. In connection with mass balance investigations on the entire ablation zone and meteorological data, glacier melt was calculated for the respective ablation seasons. It could be shown that thermal debris cover conditions are rather similar between these two areas and ablation reaches comparable magnitudes. Under the present conditions ice ablation is rather similar on both sides of the Caucasus main divide and thus glacier mass balance depends mainly on local differences in weather conditions.