

Mass balance of the Amitsulôq ice cap, West Greenland

ANDREAS P. AHLSTRØM¹, CARL EGEDE BØGGILD², OLE B. OLESEN²,
DORTHE PETERSEN³ & JOHAN J. MOHR¹

1 Ørsted-DTU, Technical University of Denmark, Ørsted's Plads, Building 348, DK-2800 Kgs. Lyngby, Denmark
now at: Geological Survey of Denmark and Greenland, Øster Voldgade 10, DK-1350 Copenhagen K, Denmark
apa@geus.dk

2 Geological Survey of Denmark and Greenland, Øster Voldgade 10, DK-1350 Copenhagen K, Denmark
now at: Dept. of Geophysics, The University Centre in Svalbard, PB 156, N-9171 Longyearbyen, Norway

3 ASIAQ Greenland Survey, Qatserisut 8, Postbox 1003, DK-3900 Nuuk, Greenland

Abstract We present detailed mass balance measurements from the Amitsulôq ice cap in West Greenland spanning from 1982 to 1990. The data includes summer and winter balances from 26 stake locations distributed over five transects covering the whole ice cap. The mass balance measurements are combined with a recent satellite-derived digital elevation model to calculate the specific balance, which is in turn compared to discharge data from the adjacent Tasersiaq basin. The correlation between specific summer balance and discharge is $R^2 = 0.93$ indicating that the basin discharge is dominated by glacial meltwater, linking the hydropower potential of the basin closely to the fate of the adjoining Greenland ice-sheet margin.

Key words glaciated; Greenland; hydropower; local ice cap; mass balance; Tasersiaq basin
