

Summer balance of Elisebreen

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The studies of ablation of Kaffiøyra glaciers refer to Waldemarbreen, Irenebreen and Elisebreen. In 2006 the studies of ablation of Elisebreen began.

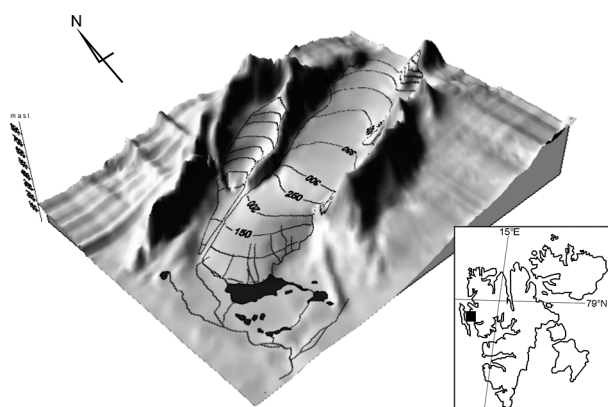


Fig. 1. Topographical draft of Elisebreen

These researches are continued (Sobota, 2004, 2005a). The measurements of surface ablation were made from July to September each year. All ablation poles were drilled 10 m deep with a steam driven Heucke Ice Drill (Heucke, 1999). Snow, firn and ice ablation were converted into water equivalent (w.e.).

Elisebreen area is 11.9 km². Its length is about 7 km, while its width is up to 1.8 km. To the north the glacier borders Agnorbreen which is often treated as part of Elisebreen. The northern border of the glacier is marked by the ranges of the Prinsesserygen and Prins Heinrichfjella, while the southern border by the ranges of thr Jarlsbergryggen, Kysa and Askerfjellet. In the east the glacier is connected with the Løvenskiold Plateau. The altitude of the frontal part of the Elisebreen is about 30–60 m above sea level (a.s.l).



Fig. 2. Frontal part of Elisebreen during summer time (photo I. Sobota)

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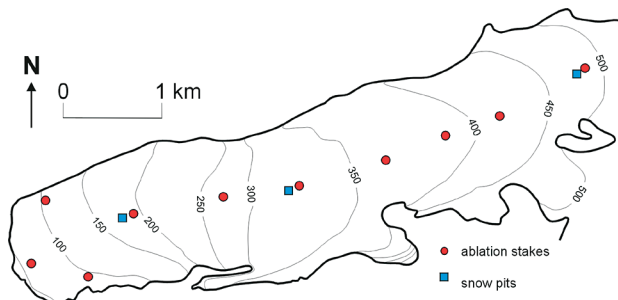


Fig. 3. Map of ablation stakes and snow pits on Elisebreen

Spatial diversity of ablation of Elisebreen shows clearly that the largest values were reached in the front part; they decreased towards the accumulation field, where snow cover was found throughout the entire summer season. The size of ablation in the frontal part of glacier (about 3 m of w.e.) was much higher than those of both Waldemarbreen and Irenebreen. This mainly resulted from the fact the altitude of this part of glacier is lower.

In 2006 the summer balance of Elisebreen was -135 cm w.e. Such large negative values during that

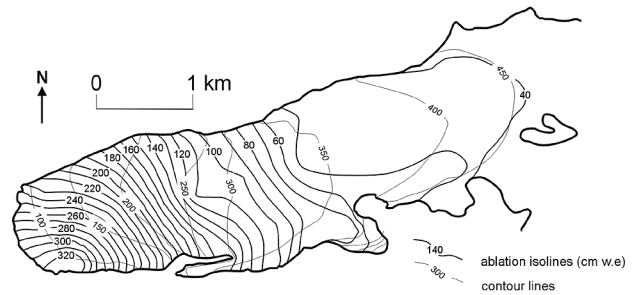


Fig. 4. Map of ablation of Elisebreen in 2006

period resulted from a very early beginning of the ablation season.

The weather conditions of the summer season of 2006 conditioned earlier, compared to previous years, ice- and snow-melting processes in lower parts of the glaciers. Thus, in spite of a large snow accumulation in winter, the mass balance of all the analysed s was negative.