

# Abstract of the field projects from the Tarfala student course 2007

Abstract compiled by Håkan Grudd

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## **Hastighetsmätning av Blockglaciären sommaren 2007**

*Marie Westling, Franziska Grossenbacher, and Malin Ericsson*

Measurements were conducted at a Rock glacier south-east of the Storglaciären on the 12 and 13th of August in 2007. The measurements were conducted using a Geodimeter 440 and the results indicate that the average velocity from 1985 until 2007 is 15cm/year. The height of the front is on average at its steepest 13m.

## **Avbördningsmätning i Tarfalajökk, Tarfaladalen, 2007**

*Christoffer Carstens, Åke Rydell, and Joanna Uhlbäck*

The aim of the present study was to establish an updated rating curve for the mountain stream Tarfalajökk near Tarfala Research Station in Tarfala Valley in the far north of Sweden. The discharge of the stream was determined by the salt dilution method, e.g. by measuring the change in electric conductivity of the stream water after a known amount of salt is injected into the stream some distance upstream.

Since the geometry of the hydrological station at "Rännan" is expected to change each year due to deformation of the walls caused by the severe weather conditions (impacts by blocks of ice and rocks transported by the water during spring melting) and avalanches from nearby mountain slopes, it is necessary to regularly determine a new rating curve and it is interesting to compare this curve to earlier

measurements. An investigation of the sensitivity of measuring points was conducted to test the hypothesis that it is better to measure in the leakage flows beside the "Rännan" instead of in the "Rännan" itself, where the flow is highly turbulent and aeration could possibly influence the result. The hypothesis could not be validated nor dismissed.

## **Är Storglaciärens front i balans med klimatet?**

*Inga Labuhn, Ewa Lind Mettäväinö & Jonas Svensson*

The purpose of this study is to determine whether Storglaciären's terminus is in balance with the present climate. A previous study done by Holmlund (1988) proved that the glacier was in balance with the climate during the 1980's. Our results, however, show that the glacier's terminus is not in balance with the current development of the climate. Emergence velocities at the glacier terminus were determined and compared with mass balance data dating 30 years back. The velocities were calculated from measuring the positions of stakes over a period of one month. The extrapolated value for emergence velocity in the study area was 1.5 meter of ice per year. Comparison with the mean net balance over the last 30 years showed little difference from equilibrium, while on a 10 year scale the mean net balance was a lot more negative and could not be compensated by the nearly constant emergence velocity. This indicates that the glacier terminus is not in balance with today's climate development and is therefore retreating or thinning.