

Rock glaciers, Bernese Alps, western Switzerland, Version 1

USER GUIDE

How to Cite These Data

As a condition of using these data, you must include a citation:

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National Snow and Ice Data Center

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Notice: This data set was first published on the [1998 CAPS CD](#).

The text for this document was taken unchanged from that CD.

1 DATA DESCRIPTION

1.1 Description of Study Area

The area investigated covers the entire Bernese Alps (western Switzerland), about 4200 km² and is situated between 46° 10' - 46° 50' N and 7° 10' - 8° 30' E. The Bernese Alps are one of the main European watersheds, separating the catchment area of the Aare (draining into the North Sea via the Rhine) from that of the Rhone (which flows into the Mediterranean Sea). The lowest points of the study area are situated in the valley floors of the two rivers at about 500 m ASL, whereas several summits exceed 4000 m ASL (highest point: Finsteraarhorn, 4273 m ASL). The main structure of the Bernese Alps is the crystalline Aar massif striking WSW-ENE and culminating in the western part of the study area. To the north and the west, the massif is covered by thrust nappes consisting of sedimentary rocks mainly of Mesozoic and early Tertiary age (chiefly marine limestones, shales, and sandstones). Their summits are considerably lower (mostly between 2000 and 3500 m ASL).

According to their geographic situation between 46° and 47° N, the climate of the Bernese Alps is of temperate character typical for the zone of the westerlies. Because of their horizontal and vertical extension, the Alps themselves have considerable influence on the climate. Based on climatic criteria, two main realms can be distinguished: the moist and quite oceanic part in the north of the main watershed and the slightly more continental part sloping south to the Rhone. The northern part, exposed to the westerlies, shows maximum precipitation during summer, with quite low variabilities, whereas the south is somewhat dryer, showing no distinct maximum but higher variabilities. Accordingly, mean cloudiness is higher in the north. This results in an increase in the height of the mean glacier elevation from about 2500 m ASL in the northern part of the Bernese Alps to 2900 m ASL in the south. Because of the high precipitation (locally exceeding 4000 mm per year) and their external situation, the Bernese Alps show a lower equilibrium line of the glaciers and are the mountain group showing the heaviest glacierization of the Alps, which leaves little space for periglacial phenomena (both the glacier showing the lowermost front and the largest glacier of the Alps are situated within the study site). However, this does not mean that permafrost is rare in the Bernese Alps: above 3300 m ASL, permafrost can be considered as continuous. In fact, the bedrock of many of the higher mountains in the Bernese Alps is perennially frozen.

The number of rock glaciers found in the Bernese Alps is relatively small compared with other Alpine regions. Furthermore, the objects are quite small. This can be explained with the stronger

glacierization. Modelling shows that permafrost ground amounts to roughly half as much as the glacierized area (subglacial permafrost not included).

(Imhof, 1996)

The inventory has been established from the results of the interpretation of aerial photographs and field work between 1992 and 1994.

1.2 Current Storage of Data

- Paper
- Wordprocessor files
- Database

The data are not at risk of getting lost.

2 CONTACTS AND ACKNOWLEDGMENTS

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3 REFERENCES AND RELATED PUBLICATIONS

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4 DOCUMENT INFORMATION

4.1 Publication Date

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4.2 Date Last Updated

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