Rock glaciers, Disko Island, Greenland, Version 1

USER GUIDE

How to Cite These Data

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

Humlum, O 1998. *Rock glaciers, Disko Island, Greenland, Version 1*. [Indicate subset used]. Boulder, Colorado USA. NASA National Snow and Ice Data Center Distributed Active Archive Center. https://doi.org/10.7265/ghx6-ja82. [Date Accessed].

FOR QUESTIONS ABOUT THESE DATA, CONTACT NSIDC@NSIDC.ORG

FOR CURRENT INFORMATION, VISIT https://nsidc.org/data/GGD283

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 DETAILED DATA DESCRIPTION

- Location: Southwestern Disko Island, central West Greenland
- Time Period: Inventory of 1983-1997
- File: diskorg.dat
- Columns:No.,Easting,Northing,Type,Location in corrie (Y/N),Altitude of headwall top (m a.s.l..),Height headwall (m),Width headwall (m),Altitude of top talus (m a.s.l..),RILA (m a.s.l..),Altitude terminus (m a.s.l..),Length of rockglacier (m),Width of rockglacier (m),Estimated mean thickness rock glacier (m),Aspect RILA (0-359),Number of generations,Activity generation 1,Activity generation 2,Activity generation 3

1.1 Study Area

Southwestern Disko Island, central West Greenland (70oN). Positions given in UTM-coordinates for each rock glacier in data set. The data set includes observations on talus-derived rock glaciers, glacier-derived rock glaciers and large ice-cored moraines.

1.2 Outline of Study Area

Disko Island (8600 km2) is situated west of central mainland Greenland. The island is part of the Tertiary volcanic province of West Greenland and is mainly made up by lavas. The landscape is a plateau basalt landscape with cirque carved lava plateaus and U-shaped valleys and fjords. Rock glaciers are frequent in Disko Island (Humlum, 1982). In southern Disko Island, about 60 km SSE of the two study sites, meteorological observations have been carried out since 1923 in the village of Godhavn. The present (1961-1990) mean annual air temperature is -3.9C, the coldest month is March (-15.1C), and July is the warmest month (7.1C). The mean annual precipitation at Godhavn is about 400 mm water equivalent. Most of the precipitation (75 %) usually falls during the period June to December, associated with advection of moist, maritime air masses from the south and southwest along the Davis Strait. The remaining part of the year is comparatively dry, as it is dominated by cold and dry katabatic air masses flowing of f the Greenland Ice Sheet to the east. Approximately 60-70 % of the mean annual precipitation is snow and in Godhavn a persistent snow cover is registered from late September to late May.

No systematic mapping of permafrost or permafrost related terrain features have been carried out in this part of West Greenland. Weidick (1968), however, places Disko Island within the zone of continuous permafrost. This is supported by the occurrence of open system pingos (Christiansen, 1995) and numerous rock glaciers (Humlum, 1982, 1984, 1988a, 1988b, 1996; Humlum et al., 1995; Rasch et al. 1996), which are geomorphic indications of the presence of widespread

permafrost in Disko Island. Adopting a standard continental geothermal gradient of about 0.033C m-1, the mean annual air temperature of -7.5C (1991-96) indicates a potential permafrost thickness of about 175-225 m. This estimate is presumably somewhat conservative, as the Little Ice Age annual air temperature presumably was about 2C below modern values (Humlum, 1996), which would provide conditions for a somewhat thicker permafrost layer than is suggested by modern meteorological values. The high frequency of rock glaciers on Disko Island is presumably derived from high rock weathering rates (Humlum, 1992).

2 REFERENCES AND RELATED PUBLICATIONS

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4 DOCUMENT INFORMATION

4.1 Publication Date

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