Active layer physical processes at Broeggerhalvoya, western Spitsbergen, Version 1

USER GUIDE

How to Cite These Data

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

Putkonen, J. K., B. Hallet. 1998. *Active layer physical processes at Broeggerhalvoya, western Spitsbergen, Version 1.* [Indicate subset used]. Boulder, Colorado USA. NASA National Snow and Ice Data Center Distributed Active Archive Center. https://doi.org/10.7265/esbz-tz87. [Date Accessed].

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

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1 DETAILED DATA DESCRIPTION

The data has been collected from an Arctic desert site (latitude 78o57'29N, longitude 12o27'42E), Broeggerhalvoya in western Spitsbergen, 10 km NW from Ny Alesund, 45 m above sea level, 2 km from the shore. This is a low relief tip of a bedrock peninsula covered with several meters of glacial drift and reworked raised beach ridges. The measurements are obtained in the site of well developed patterned ground, sorted polygons, where the influence of plants, including thermal insulation and transpiration, is negligible. The 1985-1986 period, was average. Mean annual air temperature was -6.6oC, 0.4oC colder than the long term (1975-1990) mean, but well within the mean variability. Mean winter air temperature is relatively warm (mean of coldest month, February is -14.6oC). Annual precipitation was 17 % larger than long term mean (372 mm), however the number of rain-on-snow events was less (3) than average (5.5). Overall, the reference period is close to long-term averages.

A program of automated soil temperature recordings was initiated in the summer of 1984, at a patterned ground field site Thermistors were placed approximately 0.1 m apart in an epoxy-filled PVC rod (18 mm outside diameter), buried in the center of a fine-grained domain of a sorted circle, down to 1.14 m below the ground surface. The data presented here covers 7/1/85-7/1/86, once a day (6 am), two levels (0.0 m, 1.145 m below surface). The resolution of the thermistors is 0.004oC, and the accuracy is estimated to be 0.02oC near 0oC. Missing data accounts for less than 7%. The gaps are filled with simple average of the beginning and end of the gap values. For a detailed description of the field site and data analysis see Putkonen (1997) and Hallet and Prestrud (1986).

2 REFERENCES AND RELATED PUBLICATIONS

Hallet, B. and Prestrud, S. 1986. Dynamics of Periglacial Sorted Circles in Western Spitsbergen. Quaternary Research, Vol. 26, pp. 81-99

Putkonen, J.K. 1997. Climatic Control of the Thermal Regime of Permafrost, Northwest Spitsbergen. Unpublished Doctorate Dissertation, University of Washington, Department of Geological Sciences 7/9/97.

3 DOCUMENT INFORMATION

3.1 Publication Date

1998

3.2 Date Last Updated

2021