

Active-Layer and Permafrost Temperatures, Soendre Stroemfjord, Greenland, Version 1

USER GUIDE

How to Cite These Data

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

Olesen, O.B., H.H. Christiansen, and H. Hauch 2003. Active-Layer and Permafrost Temperatures, Soendre Stroemfjord, Greenland, Version 1. [Indicate subset used]. Copenhagen, Denmark. Greenlandic Geological Survey, GEUS. <https://doi.org/10.7265/q5dc-ps15>. [Date Accessed].

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

FOR CURRENT INFORMATION, VISIT <https://nsidc.org/data/GGD632>



National Snow and Ice Data Center

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1 DATA DESCRIPTION

This data set contains active-layer and permafrost temperatures from two stations in Soendre Stroemfjord, Greenland. Snow depth and snow extent were also recorded. Thermometers at Station A (67 deg N, 50.8 deg W, 50 m asl) recorded temperatures once a day from September 1967 to February 1976. Thermometers at Station B (67 deg N, 50.8 deg W, 38 m asl) recorded temperatures once a day from September 1967 to August 1970; however, only bi-weekly averages are given for Station B. Data are in tab-delimited ASCII text format and are available via FTP.

In 1967, the Greenlandic Geological Survey (GEUS) started a program to monitor soil temperatures in permafrost and seasonal frost areas in West Greenland as part of the UNESCO International Hydrological Decade program (Olesen 1967a, van Tatenhove and Olesen 1994). That same year, Ole Olesen established two permafrost stations in Søndre Strømfjord: Station A and Station B at 67°N, 50.8°W.

Olesen installed platinum resistance thermometers at Station A at 21 different depths down to 15 m, and backfilled the holes with original material. Thermistors at Station B were installed at 12 different depths. A Wheatstone bridge recorded temperatures (° C) at approximately noon every day. This instrument measures temperatures between -10°C to 10°C. Olesen also recorded snow depth (cm) and snow extent (quartiles). The thermistors were calibrated at 0°C only. Temperatures were measured in fine-grain sediment down to 15 m. Station A ("Mainstation") was located at 50 m asl, and Station B was at 38 m asl. Hasse Hauch transferred the analog data to digital format.

1.1 File Information

1.1.1 Format

Data are in tab-delimited ASCII text format. The file "ggd632_soiltmp_ssmain.txt" contains the following columns for Station A data:

- Date: yyyyymmdd
- 1 through 21: Bi-weekly averaged raw soil temperatures for 21 different depths ranging from 0.25 m to 15 m
- Max air temp (deg. C)
- Min air temp (deg. C)
- Snow cover index (1-4): Snow extent in quartiles. 1 = 25%, 2 = 50%, 3 = 75%, 4 = 100%, 0 = no data
- Snow depth (cm)

The file "ggd632_soiltmp_ssb.txt" contains the following columns for Station B data:

- Date: yyyyymmdd

- 1 through 12: Daily raw soil temperatures for 12 different depths ranging from 0.25 m to 15 m
- Snow cover index (1-4): Snow extent in quartiles. 1 = 25%, 2 = 50%, 3 = 75%, 4 = 100%, 0 = no data
- Snow depth (cm)

The files "ggd632_sensors_ssmain.txt" and "ggd632_sensors_ssb.txt" list the sensors from Stations A and B, respectively, with corresponding depths (m) and calibration factors (°C). Some thermometers stopped working during the period of data collection.

1.1.2 File Size

ggd632_sensors_ssb.txt: 1 KB

ggd632_sensors_ssmain.txt: 1KB

ggd632_soiltmp_ssb.txt: 79 KB

ggd632_soiltmp_ssmain.txt: 25 KB

1.1.3 Naming Convention

ggd632_sensors_ssb.txt

ggd632_sensors_ssmain.txt

ggd632_soiltmp_ssb.txt

ggd632_soiltmp_ssmain.txt

1.2 Spatial Information

1.2.1 Coverage

Data were collected in Søndre Strømfjord, Greenland, at approximately 67°N, 50.8°W.

1.3 Temporal Information

1.3.1 Coverage

Thermometers at Station A recorded temperatures once a day from September 1967 to February 1976. Thermometers at Station B recorded temperatures once a day from September 1967 to August 1970; however, only bi-weekly averages are given for Station B.

2 CONTACTS AND ACKNOWLEDGMENTS

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Acknowledgments:

When using these data, please acknowledge that they are the property of the Danish and Greenlandic Geological Survey (GEUS). A cooperative agreement with GEUS was signed before any access was granted to the hardcopy data digitized by Niels Foged and his students at Artek.

3 REFERENCES

Olesen, O.B. 1967a. Ground temperature measurements in West Greenland. The Geological Survey of Greenland, Report no. 15, 25-26.

Olesen, O.B. 1967b. Oprettelse af stationer til maaling af jordtemperaturer i Holsteinsborg og Soendre Stroemfjord. Report Greenland Geological Survey, 19 p. In Danish.

Van Tatenhove, F.G.M., and O.B. Olesen. 1994. Ground temperature and related permafrost characteristics in West Greenland. *Permafrost and Periglacial Processes* 5:199-215.

4 DOCUMENT INFORMATION

4.1 Publication Date

March 2003

4.2 Date Last Updated

20 January 2021