

Active-Layer and Permafrost Temperatures, Sisimiut (Holsteinsborg), 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., F.G.M. van Tatenhove, H. Hvidtfeldt, and N. Foged 2003. *Active-Layer and Permafrost Temperatures, Sisimiut (Holsteinsborg), 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/agy6-ky59>. [Date Accessed].

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

FOR CURRENT INFORMATION, VISIT <https://nsidc.org/data/GGD23>



National Snow and Ice Data Center

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1 DETAILED DATA DESCRIPTION

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 a permafrost station in Sisimiut (formerly known as Holsteinsborg).

Olesen installed platinum resistance thermometers at 18 depths down to 9 m, and backfilled the holes with original material. 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 sediment down to 6.4 m and in bedrock from 6.4 m to 9 m. The station was located at 38 m asl. N. Foged and his students digitized the original daily data on a 14-day basis

1.1 Format

Data are in tab-delimited ASCII text format. The file "ggd23_soiltmp_sisimiut.txt" contains the following columns:

- **Year**
- **Month:** decimal format (9.5 = mid-September)
- **Time (months from 1967/09/01):** decimal format
- **1 through 18:** Bi-weekly averaged raw soil temperatures for 18 different depths ranging from 0.25 m to 9 m. Missing values are indicated by "-999."
- **Snow cover index (1-4):** Snow extent in quartiles. 1 = 25%, 2 = 50%, 3 = 75%, 4 = 100%, 0 = no data
- **Snow depth (cm)**
- **Max air temp (deg. C)**
- **Min air temp (deg. C)**

The file "ggd23_sensors_sisimiut.txt" lists the sensors with corresponding depths (m) and calibration factors (°C). Some thermometers stopped working during the period of data collection.

1.2 File Naming Convention

ggd23_soiltmp_sisimiut.txt

ggd23_sensors_sisimiut.txt

1.3 File Size

ggd23_soiltmp_sisimiut.txt: 35 KB

ggd23_sensors_sisimiut.txt: 1 KB

1.4 Spatial Coverage

Data were collected in Sisimiut, west Greenland, at approximately 66.94°N, 53.64°W.

1.5 Temporal Coverage

Thermometers recorded temperatures once a day from September 1967 to August 1982; however, this data set only contains bi-weekly averages.

2 REFERENCES AND RELATED PUBLICATIONS

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.

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.

3 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.

4 DOCUMENT INFORMATION

4.1 Document Creation Date

March 2003

4.2 Date Last Updated

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