

Soil temperatures at South Royalton, Vermont, USA, Version 1

USER GUIDE

How to Cite These Data

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

Peck, L. and J. Fiori 1992. *Soil temperatures at South Royalton, Vermont, USA, Version 1*. [Indicate subset used]. Boulder, Colorado USA. NASA National Snow and Ice Data Center Distributed Active Archive Center. <https://doi.org/10.7265/v9dw-z369>. [Date Accessed].

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

FOR CURRENT INFORMATION, VISIT <https://nsidc.org/data/GGD489>



National Snow and Ice Data Center

TABLE OF CONTENTS

1	DETAILED DATA DESCRIPTION.....	2
1.1	Format	2
1.2	File and Directory Structure.....	3
1.3	File Size.....	3
1.4	Spatial Coverage.....	3
1.5	Temporal Coverage.....	3
1.6	Parameter or Variable	4
1.7	Error Sources	4
2	DATA ACQUISITION AND PROCESSING.....	4
2.1	Derivation Techniques and Algorithms.....	4
3	CONTACTS AND ACKNOWLEDGMENTS	4
4	DOCUMENT INFORMATION.....	5
4.1	Document Creation Date.....	5
4.2	Date Last Updated.....	5

1 DETAILED DATA DESCRIPTION

1.1 Format

The data files are in tab-delimited ASCII. Each file represents one day (24 hours) of data, with measurements every half hour. The files are in the following format:

DATE	TIME	Chnl 201	Chnl 202	Chnl 203	Chnl
204				
10/23/89	00:30:00	6.7	7.6	8.3	8.8

The channels correspond to parameters as follows:

Channel	Parameter
201	Soil temperature (°C) at 7.5 cm
202	Soil temperature (°C) at 15 cm
203	Soil temperature (°C) at 22.5 cm
204	Soil temperature (°C) at 30 cm
205	Soil temperature (°C) at 37.5 cm
206	Soil temperature (°C) at 45 cm
207	Soil temperature (°C) at 52.5 cm
208	Soil temperature (°C) at 60 cm
301	Air temperature (°C) at 5 cm
302	Air temperature (°C) at 10 cm
303	Air temperature (°C) at 15 cm
304	Air temperature (°C) at 20 cm
305	Air temperature (°C) at 25 cm
306	Air temperature (°C) at 30 cm
307	Air temperature (°C) at 35 cm
308	Air temperature (°C) at 40 cm
315	Soil temperature (°C) at 0 cm
601	Forward scatter meter voltage (V)
701	Average air temperature (°C) at 2 m
702	Maximum air temperature (°C) at 2 m
703	Minimum air temperature (°C) at 2 m
704	Average relative humidity (%) at 2 m
705	Maximum relative humidity (%) at 2 m
706	Minimum relative humidity (%) at 2 m
707	Average wind speed (m/s) at 2 m
708	Average wind direction (degrees) at 2 m
709	Instantaneous wind speed (m/s) at 2 m
710	Instantaneous wind direction (degrees) at 2 m
711	Maximum gust wind speed (m/s) at 2 m
712	Time of maximum gust at 2 m
713	invalid
714	Precipitation (mm)
715	Incident solar radiation, 0.3 - 3 microns, [avg] (W/m2)
716	Reflected solar radiation, 0.3 - 3 microns [avg] (W/m2)
801	Average air temperature (°C) at 4 m
802	Maximum air temperature (°C) at 4 m
803	Minimum air temperature (°C) at 4 m
804	Average relative humidity (%) at 4 m
805	Maximum relative humidity (%) at 4 m

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806   Minimum relative humidity (%) at 4 m
807   Average wind speed (m/s) at 4 m
808   Average wind direction (degrees) at 4 m
809   Instantaneous wind speed (m/s) at 4 m
810   Instantaneous wind direction (degrees) at 4 m
811   Maximum gust wind speed (m/s) at 4 m
812   Time of maximum gust at 4 m
813   invalid
814   Barometric pressure
815   Incident longwave radiation, 3 - 50 microns [avg] (W/m2)
816   Upwelling longwave radiation, 3 - 50 microns [avg] (W/m2)
CR10-T      Instantaneous snow depth (mm)
CR10-3      Average snow depth (mm)
CR10-4      Maximum snow depth (mm)
CR0206-06   Average snow depth (mm)
CR0206-07   Maximum snow depth (mm)
    
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Channels 209-216, 314, 316, 602, and 603 are not site characterization channels; they are military sensor channels and can be ignored.

An entry of OVRNG indicates an out-of-range reading (high). An entry of OPEN means that a channel had been activated (the data logger was sampling that channel) but there was no instrument feeding a voltage to the channel.

1.2 File and Directory Structure

The data are in directories by year (1989, 1990, 1991, 1992, 1993) and named "metMMDDYY.txt".

1.3 File Size

The individual ASCII files range from 16 to 32 KB. Total file size is 30.5 MB.

1.4 Spatial Coverage

Data were collected at South Royalton, Vermont, USA.

Northwest latitude: 43° 49' N

Northwest longitude: 72° 31' W

Southeast latitude: 43° 48.9' N

Southeast longitude: 72° 30.6' W

1.5 Temporal Coverage

Data were collected between October 1989 and September 1993.

1.6 Parameter or Variable

The data set consists of soil temperatures, snow depth, and meteorological parameters (air temperature, precipitation, pressure, relative humidity, wind speed/direction, solar radiation, longwave radiation). Sampling was generally 8 cycles/sec (every 125 msec), and every 10 minutes for snow depth, and the samples were averaged for half-hourly data points.

1.7 Error Sources

Soil temperatures are valid only after 13:00 on 2 Oct 1989. The thermocouple probe for obtaining soil temperatures at the undisturbed location (channels 201 - 208) was put in place on 25 Sep 1989. During a site visit on 2 Oct, the researchers found that the thermocouple leads had been reversed when the thermocouple was connected to the data logger. The error was corrected. However, soil temperatures prior to midday on 2 October are invalid.

Channels 715 and 716 (incident and reflected solar radiation), sometimes display negative values. This is due to noise with the solar (0.3 - 3 microns) Eppleys at low levels of solar radiation. The negative values should be set to zero when working with the data.

There is a data anomaly at 11:00 on 23 October 1989. A technician installed an air thermocouple array (channels 301-308) on 18 Oct 1989, but there was a delay before those channels were sampled by the data logger. The researchers suspect that any nonsense numbers and additional overrange/open occurrences are the result of the technician working on the data logger. By the evening of 23 Oct 1989, the half-hourly reports stabilized in terms of number of channels and validity of their entries.

2 DATA ACQUISITION AND PROCESSING

2.1 Derivation Techniques and Algorithms

Intro paragraph.

3 CONTACTS AND ACKNOWLEDGMENTS

Lindamae Peck
US Army CRREL
72 Lyme Road
Hanover, NH 03755-1290
tel: 603-646-4261

fax: 603-646-4397

email: Lindamae.Peck@erdc.usace.army.mil

John Fiori

US Army CRREL

72 Lyme Road

Hanover, NH 03755-1290

tel: 603-646-4515

fax: 603-646-4397

e-mail: fiori@crrel.usace.army.mil

4 DOCUMENT INFORMATION

4.1 Document Creation Date

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4.2 Date Last Updated

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