

Ground Temperatures from Deep Boreholes in the Ob River Valley, Russia (VK-1615 and ZS-124/124a), Version 1

USER GUIDE

How to Cite These Data

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

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

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National Snow and Ice Data Center

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1 DATA DESCRIPTION

This data set includes soil temperature data from deep boreholes in the Ob River valley in Russia. Boreholes were drilled in 1967 (VK-1615), 1977 (ZS-124), and 1980 (ZS-124a) in discontinuous permafrost of approximately 70 m depth. Borehole VK-1615 was sampled to a depth of 100 m between 1971 and 2002, ZS-124 was sampled to a depth of 13 m between 1978 and 1980, and ZS-124a was sampled to a depth of 33.7 m between 1980 and 2002..

Both boreholes are in a high glacial-marine plain, dominated by tundra, with loam, loamy sand, and gravel soil.

Peat: 0 - 0.9 m

Loam and loamy sand: 0.9 - 31.2 m

Gravel and sand: 11.5 - 13.3 m

The boreholes are 20 km from the nearest road, 100 m from a small river, and 9 m above the river. The nearest climate station (40 km) is located at Vorkuta (67° 20' N, 64° 01' E).

The VK-1615 borehole had low to medium ice content, and the ZS-124/124a boreholes had low to high ice content. Borehole VK-1615 is at 154.7 m elevation, and boreholes ZS-124/124a are at 205.4 m elevation.

The mean, as of 2002, annual ground temperature at a depth of zero annual amplitude was -0.34°C (VK-1615 at 15 m depth) and -1.35°C (ZS 124/124a at 11 m depth).

1.1 File Information

1.1.1 Format

Data files are formatted as tab-delimited ASCII text, with one file per year per borehole. Each yearly file provides soil temperature data for up to five days per month at various depth intervals. Missing data are recorded as -999. Quality files are ASCII text and provide QC notes for years/files as recorded.

1.1.2 Sample Data Record

Following is a sample from the file `vk_1615_1980.txt`:

Year	1980											
Month	1	2	3	4	5	6	7	8	9	10	11	12
Days	24	11	"26,27"	"5,13"	20	25	22	"18,28"	"3,29"	"13,25"	"16,28"	11
Depth (m)	Temperature (deg. C)											
2.5	-1.49	-0.94	-2.48	-4.65	-3.48	-2.25	-1.62	-1.07	-0.94	-0.59	-0.57	-0.70
5	-0.99	-999	-1.74	-1.66	-2.12	-2.25	-2.05	-1.61	-1.42	-1.25	-1.12	-999
7.5	-1.39	-1.09	-1.82	-1.12	-1.28	-1.49	-1.52	-999	-999	-999	-999	-999
10	-1.01	-999	-999	-0.98	-0.98	-1.03	-1.12	-999	-999	-999	-999	-999

Figure 1. Sample from file vk_1615_1980

1.1.3 File Naming Convention

vk_1615_yyyy.txt are data files for borehole VK-1615, for year "yyyy".

zs_124_yyyy.txt are data files for borehole ZS-124 for year "yyyy".

zs_124a_yyyy.txt are data files for borehole ZS-124a for year "yyyy".

vk_1615_qc.txt is the QC file for borehole VK-1615.

zs_124_qc.txt is the QC file for borehole ZS-124.

zs_124a_qc.txt is the QC file for borehole ZS-124a.

1.1.4 File Size

File sizes range from 1 to 7 KB.

1.2 Spatial Information

1.2.1 Coverage

Borehole temperature data were collected from boreholes VK-1615 (67° 27' N, 63° 21') and ZS-124/124a (67° 24' N, 63° 23' E) in the Ob River valley of Russia.

1.3 Temporal Information

1.3.1 Coverage

Data were collected between:

1971 - 2002 (VK-1615)

1978 - 1980(ZS-124)

1980 - 2002 (ZS-124a).

Data were collected on one or two days or more of each month of the year.

2 CONTACTS AND ACKNOWLEDGMENTS

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3 REFERENCES

Oberman, N.G. and G.G. Mazhitova. 2001. Permafrost dynamics in the north-east of European Russia at the end of the 20th century. *Norsk Geografisk Tidsskrift (Norw. J. Geog.)*, 55(4):241-244.

Oberman, N.G. and G.G. Mazhitova. 2003. Permafrost mapping of northeast European Russia based on the period of climatic warming, 1970-1995. *Norsk Geografisk Tidsskrift (Norw. J. Geog.)*, 57.

4 DOCUMENT INFORMATION

4.1 Publication Date

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4.2 Date Last Updated

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