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NATIONAL CLIMATIC DATA CENTER

TD-9619
TEMPERATURE ANOMALIES -
N. HEM. GRIDDED (FROM USSR)

Documentation Manual

U.S. DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration

2-22-82

MACH 72

SHEET NUMBER 1.

USSR TEMP & ANOMALIES NH. 1891-1972

DATA SHEET FOR EACH FILE IN LIBRARY ID# 9619

I. DOCUMENTATION ATTACHED? YES ✓, NO ____.

YES, LEVEL OF DOCUMENTATION

FORMAT ONLY ✓.

LETTER ONLY ____.

COMPLETE ____.

NO. NONE AVAILABLE ____.

STILL SEARCHING ____.

II. HOW MANY UNIQUE ELEMENTS IN THIS FILE? 26

III. GEOGRAPHIC COVERAGE NORTHERN HEMISPHERE

IV. PERIOD OF RECORD 1891-1972

V. IS THIS ORIGINAL OBSERVED DATA? ____.

OR COMPUTED STATISTICAL DATA ✓.

VI. NUMBER OF TIMES USED DURING PERIOD 7-1-73 THRU 12-2-81 0.

VII. IMPORTANCE OF USE? LIMITED ✓, MODERATE ____, VERY ____.

VIII. COST TO REPRODUCE DATA SET? TAPE COPY ✓*, SOME REPROCESSING ____, RE-RUN ____

* ONLY WAY TO REPLACE IT IF THIS IS POSSIBLE

IX. NUMBER OF TAPES IN DATA SET AT PRESENT 1 (1600 BPI)

X. DATA SET SIZE? NO UPDATE/MERGE ✓, UPDATE/MERGE ____.

NOTE ON TEMPERATURE ANOMALY DATA FOR YEARS 1891-1972

The data set is performed on 1/2" 9 track magnetic tape with a packing density of 32 bits/mm (800 bpi) using NRZI method of recording. Technical details are as follows:

1) track positions and identification are in accordance with ISO-1863 recommendation;
2) the length of inter-block gap is 17 mm;
3) the parity bit is written to make row parity odd;
4) after the end of each block the longitudinal redundancy check (LRC) row is written.

The set consists of 996 blocks of 880 8 bit words each, which are recorded in EBCDIC code. The first 984 blocks contain temperature anomalies; blocks 985 to 996 contain averages on which temperature anomalies are based. The meanings of the first 12 words of each block are as shown below: I^{st} word - the element index (T in EBCDIC code for temperature), words 2 and 3 - month; and words 4 to 6 - the year minus 1000 (e.g. T 12.948); words 7 to 12 - control sum of informative part of the block (see table 2). This sum is an algebraic sum of anomalies only. Next come anomalies which are written as whole three-digit numbers. To find real anomaly one must subtract 500 and the result divide by 10 (eg 496: (496-500)/10 = -0,4°C). First comes the point 75°N, 0°E value which is followed by all other grid point values as shown in table 1. The last 4 words (877-880) is control sum of all the previous 876 words. This sum is formed by adding all 32 bit computer's rows without end-around carry.

All these anomalies represent deviation of the mean monthly temperature from the averages for a given month. The first

82 blocks give anomalies for January for all 82 years (1st block - 1891, 2nd - 1892 etc.), next 82 blocks - for February and so forth. Blocks 985 to 996 give averages for all grid points and for each month, namely block 985 for January, 986 - for February etc. (see table 3). The structure of these blocks is the same as for anomalies but instead of the year three zeros (000) are written. Averages are given in Kelvin scale e.g. $t = t^{\circ}C + 273$.

For different periods anomalies were based on different averages, namely:

1) for years 1891 to 1940 and 1961 to 1969 - on averages for 1881 to 1935 (1940 for some stations)
2) for years 1941 to 1960 - on averages for 1881 to 1960
3) for years 1970 to 1972 - on averages for 1931 to 1960

To find real anomaly a correction must be done. However differences between averages for 1881 to 1935 (1940) and for 1881 to 1960 are small and exist only north of 60°N. Therefore a correction must be done only for years 1970 to 1972.

Table 1. Grid points positions.

longitude / latitude	0°	10°E	20°	30°	40°	50°	60°	.....	180°E	170°W	160°W	.....	50°	40°	30°	20°	10°W
75°N	a_1	a_2	a_3	a_4	a_5	a_6	a_7	.....	a_{19}	a_{20}	a_{21}	.....	a_{32}	a_{33}	a_{34}	a_{35}	a_{36}
70	a_{37}	. . . . .															a_{72}
65	a_{73}	. . . . .															a_{108}
60	a_{109}	. . . . .															a_{144}
55	a_{145}	. . . . .															a_{180}
50	a_{181}	. . . . .															a_{216}
45	a_{217}	. . . . .															a_{252}
40	a_{253}	. . . . .															a_{288}

Table 2. Tape formats

words	1	2	3	4	5	6	7	8	9	10	11	12	13–876			877	878	879	880
	I	M	M	Y	Y	Y	Σ	Σ	Σ	Σ	Σ	Σ	a_1	a_1	a_1	a_{288}	a_{288}	a_{288}	CΣ	CΣ	CΣ	CΣ

I – element index
M – month
Y – year
Σ – algebraic sum of all anomalies
$a_1 a_1 a_1$ – three-digit anomaly in the first point etc.
CΣ – control sum of the whole block.

Table 3. Block identification.

month	I	II	III	IV	V	VI	VII	VIII	IX	X	XI	XII
blocks of anomalies	1–82	83–164	165–246	247–328	329–410	411–492	493–574	575–656	657–738	739–820	821–902	903–984
blocks	985	986	987	988	989	990	991	992	993	994	995	996

UNITED STATES DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration
Rockville, Md. 20852

TD 9619 ?

July 7, 1982

Dr. Alan Robock
Department of Meteorology
University of Maryland
College Park, Maryland 20742

Dear Dr. Robock:

The enclosed corrected temperature data for February 1974 was given to the U.S. Embassy in Moscow with no additional information. The caption reads "Average monthly temperature anomalies at the nodes of the geographic grid of the Northern Hemisphere (latitude intervals $\Delta \varphi = 5^{o}$, longitude intervals $\Delta \lambda = 10^{o}$) for February 1974."

Your secretary told me that you had requested these data from Dr. Vinnikov of the State Hydrological Institute in Leningrad. I assume that these are corrections to the temperature data tape given to the U.S. Delegation at the Working Group VIII meeting in the USSR last year. I would be interested to learn if they sent you the 1980-82 data that you requested.

Please send these data to the appropriate people. Thank you.

Sincerely yours,

Howard L. April

Howard L. April

Enclosure

cc:
R. Jenne, NCAR
J. Fletcher, CIRES
E. Tiernan, EDIS
A. Hecht, NCPO

02.08 -11

CORRECTED DATA

Аномалии среднемесячной температуры в узлах географической сетки северного полушария (шаг по широте $\Delta\varphi = 5^{\circ}$, шаг по долготе $\Delta\lambda = 10^{\circ}$) за февраль 1974 года.

BL= 998;

P(1)= 1974 B,P(2)= 2;

:	90:	85:	80:	75:	70:	65:	60:	55:	50:	45:	40:	35:	30:	25:	20:	15:	10:	5:	0:
0:	-10	3	18	21	18	16	17	17	16	13	3	-1	-4	-15	-19	-16	-10	-7	9999
10:	-10	4	20	24	12	24	42	35	33	23	10	3	-5	-15	-15	-7	0	5	9999
20:	-10	4	19	29	5	52	48	43	54	42	9	-2	6	-5	-15	-7	-2	5	9999
30:	-10	4	16	21	25	60	80	62	50	23	11	2	6	5	3	2	-8	5	9999
40:	-10	5	2	3	0	50	81	78	44	9	-20	-7	-9	-7	-5	10	10	10	9999
50:	-10	4	-1	-10	-25	20	40	44	-2	-60	-18	-38	-20	-17	-10	-5	2	9999	9999
60:	-10	4	-2	-22	-32	-30	-10	0	-20	-82	-59	-77	-40	-19	-9	2	4	9999	9999
70:	-10	3	-2	-14	-38	-62	-50	-30	-60	-79	-50	-50	-30	-19	-10	-5	-4	0	9999
80:	-10	2	-8	-25	-31	-68	-65	-56	-50	-50	22	10	0	16	0	-2	0	3	9999
90:	-10	1	-10	-14	-50	-74	-83	-15	-34	0	22	17	10	-4	0	-10	-7	2	9999
100:	-10	-1	-10	-22	-10	-80	-82	-28	0	22	20	10	0	-10	-18	-16	-2	3	9999
110:	-10	-6	-12	-15	-30	-66	-80	-10	8	10	13	10	-1	-18	-24	-20	-1	5	9999
120:	-10	-9	-15	-30	-55	-30	-65	-30	21	18	9	2	0	-12	-24	-19	0	5	9999
130:	-10	-12	-21	-43	-60	-23	-26	-5	-8	10	-6	-11	-11	-8	-9	0	5	9999	9999
140:	-10	-15	-22	-47	-43	-25	-2	-3	-6	10	1	2	3	3	4	4	4	9999	9999
150:	-10	-18	-30	-39	-49	-22	10	20	23	19	15	10	10	10	3	3	3	9999	9999
160:	-10	-20	-30	-36	-40	20	40	30	25	22	21	18	10	9	2	-3	1	6	9999
170:	-10	-21	-30	-35	-30	-8	10	10	22	25	25	24	20	10	0	-4	2	9	9999
180:	-10	-21	-30	-35	-49	-30	-29	-10	19	25	25	25	24	15	10	8	8	9999	9999
190:	-10	-22	-28	-38	-65	-62	-58	-40	0	20	23	25	24	20	15	2	9999	9999	9999
200:	-10	-23	-25	-34	-70	-83	-85	-57	-10	10	20	22	22	22	12	9999	9999	9999	9999
210:	-10	-23	-20	-30	-60	-82	-34	-57	-15	5	10	12	12	12	12	9999	9999	9999	9999
220:	-10	-23	-19	-20	-58	-40	2	0	0	5	5	12	12	12	9999	9999	9999	9999	9999
230:	-10	-23	-19	-10	-45	-50	-20	2	2	-5	-3	3	5	9	9999	9999	9999	9999	9999
240:	-10	-23	-19	1	-20	-30	-22	10	21	-3	-20	-7	2	10	9999	9999	9999	9999	9999
250:	-10	-23	-20	5	0	-21	0	27	47	42	-3	-2	0	2	7	10	10	9999	9999
260:	-10	-22	-21	3	5	-5	10	10	-9	23	21	12	1	-2	-7	0	0	9999	9999
270:	-10	-22	-22	0	0	-17	18	-39	-40	-2	4	4	-2	-5	-3	-3	9999	9999	9999
280:	-10	-21	-22	-14	-20	-22	-20	-30	-40	-23	-12	0	-2	5	5	0	9999	9999	9999
290:	-10	-20	-21	-10	-10	-18	-5	-10	-28	-10	-5	3	6	6	4	1	-3	9999	9999
300:	-10	-18	-20	1	6	-2	2	4	-9	-25	-10	2	5	6	5	1	-5	9999	9999
310:	-10	-11	-12	15	6	8	1	-1	-12	-15	-3	2	5	5	4	0	-5	9999	9999
320:	-10	-8	-7	10	0	-8	-8	-10	-15	-9	-3	2	4	6	4	-1	-6	9999	9999
330:	-10	-5	0	10	0	-8	-4	-10	-9	-5	-2	2	5	5	0	-2	9999	9999	9999
340:	-10	-1	5	13	7	-2	-9	-8	-8	-7	0	3	2	-5	-10	-3	9999	9999	9999
350:	-10	5	10	17	10	9	0	0	0	-1	4	3	-12	-10	-10	-2	0	-1	9999

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Latitude \ Longitude	0°	10°E	20°	30°	40°	50°	60°	.....	180°E	170°W	160°W	.....	50°	40°	30°	20°	10°W
75°N	a_1	a_2	a_3	a_4	a_5	a_6	a_7	.....	a_{19}	a_{20}	a_{21}	.....	a_{32}	a_{33}	a_{34}	a_{35}	a_{36}
70	a_{37}	.	.	.	.	.	.	...	.	.	.	...	.	.	.	.	a_{72}
65	a_{73}	.	.	.	.	.	.	...	.	.	.	...	.	.	.	.	a_{108}
60	a_{109}	.	.	.	.	.	.	...	.	.	.	...	.	.	.	.	a_{144}
55	a_{145}	.	.	.	.	.	.	...	.	.	.	...	.	.	.	.	a_{180}
50	a_{181}	.	.	.	.	.	.	...	.	.	.	...	.	.	.	.	a_{216}
45	a_{217}	.	.	.	.	.	.	...	.	.	.	...	.	.	.	.	a_{252}
40	a_{253}	.	.	.	.	.	.	...	.	.	.	...	.	.	.	.	a_{288}

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words	1	2	3	4	5	6	7	8	9	10	11	12	13 – 876			877	878	879	880
	I	M	M	Y	Y	Y	Σ	Σ	Σ	Σ	Σ	Σ	a_1	a_1	a_1	a_{288}	a_{288}	a_{288}	CΣ	CΣ	CΣ	CΣ

I – element index
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Blocks of ~~averages~~ AVERAGES	985	986	987	988	989	990	991	992	993	994	995	996