U. S. DEPARTMENT OF COMMERCE
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CLIMATOGRAPHY OF THE UNITED STATES NO. 81-41

DECENNIAL CENSUS OF UNITED STATES CLIMATE—

MONTHLY NORMALS OF TEMPERATURE, PRECIPITATION, AND HEATING DEGREE DAYS

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PREFACE

The climatological standard normals presented in this publication are based on records for the 30-year period 1931-1960 inclusive. For the first time, normals have been computed for substations and divisions using a base period identical to that used for first-order stations.

Previous normals were published in Weather Bureau Technical Paper No. 31, "Monthly Normal Temperatures, Precipitation, and Degree Days," and were based on records for the period 1921-1950. Earlier sets of normals are described in [1].

This is the first series of publications resulting from the project "The Decennial Census of United States Climate, 1960." The project is a continuation of earlier censuses of the climate of the United States that date back to the early 19th Century and are described in [2]. Future publications of this project will be listings of daily normals of temperature, and degree days; summaries of hourly observations; and listings of monthly divisional averages of temperature and precipitation.

Units used in this publication are degrees F. for temperatures, and inches for precipitation. The heating degree day normals are derived from the monthly normal temperatures, and are computed on the standard base of 65°F. Monthly normals of less than 5 degree days are shown as zero.

Standard Normals for Weather Bureau First Order Stations

A normal of a climatological element is an arithmetic mean for a specific period of record which estimates the true mean of the element at the current exposure of the meteorological instrument measuring the element. The true mean is the mean of all possible observations (population) at the current exposure. It is from this population that future observations will come, not from values in the past record. This is what makes it important to obtain an estimate of this mean. The true mean can never be known exactly but must be estimated from a sample of the past record ([3] p. 53 section 4. 3). The normals presented here are estimates of the true mean obtained from the 30-year sample record 1931-1960. They are called standard normals because they conform to the World Meteorological Organization standard for climatological normals.

If no exposure changes have occurred at a station the normal is estimated by simply averaging the 30 values from the 1931-1960 record. Since it is next to impossible to maintain a multiple purpose network of meteorological stations without having exposure changes, it is first necessary to find and evaluate these changes and then make adjustments for them if necessary.

Heterogeneities in record due to exposure changes are found in two ways: by determining them from the station histories and by use of statistical tests. The statistical test when standardized for the purpose is easy to apply and will often find heterogeneities which are not defined by the station histories as well as those which have been so determined. Two statistical tests were employed: one for temperature and the other for precipitation. These are described in [4].

After the periods of heterogeneity have been determined, adjustments are applied to remove the heterogeneities introduced into the mean. This is done by comparing the record at the base station, for which the normal is desired, to the record at a supplementary station with a homogeneous period which covers the heterogeneous period at the base station. The difference method is applied to the monthly average maximum and minimum temperatures and the ratio method to the monthly total precipitation. A weighted average of the various partial means of the adjusted and unadjusted record is then prepared to give the normal. Brief discussions of the methods of adjustment are found in [3] (p. 49, section 4. 24).

Normal heating degree days are derived by the method described in [5].

Normals for Substations and Divisions

Normals for substations were computed somewhat differently than those for first-order stations. Monthly substation normals are the simple arithmetic averages of the monthly values of temperature and precipitation for the period 1931-1960. These were computed for only those substations that were active during the entire period and no attempt was made to adjust for minor changes in location of the observing site, or for changes in the time of observation. Normals were not computed for substations that were moved a significant distance during the 1931-1960 period. Missing values in the data series were estimated by methods described in [6]. Substations whose locations were essentially unchanged during the 1931-1960 period are identified in the tables.

Monthly divisional normals are the means of the monthly divisional averages of temperature and precipitation for the period 1931-1960. In calculating the monthly divisional averages, all of the stations in the division that furnished both temperature and precipitation data during the particular month were used. The averages therefore were obtained from a variable station sample. As a result, the divisional normals often differ from the averages of the normals for stations in the division.

Annual substation and divisional normals are the averages of the 12 monthly temperature normals and the sums of the 12 monthly precipitation normals.

References

1. U. S. Weather Bureau, "History of Climatological Publications," Key to Meteorological Records Documentation No. 4. 1, Washington, D. C., 1958.

2. H. E. Landsberg, "The Decennial United States Census of Climate 1960 and Its Antecedents," Key to Meteorological Records Documentation No. 6. 2, U. S. Weather Bureau, Washington, D. C., 1960.

3. U. S. Weather Bureau, Climatology at Work, Gerald L. Barger, ed., Washington, D. C., 1960.

4. H. C. S. Thom, "Tests of Significance for Temperature and Precipitation Normals," U. S. Weather Bureau Manuscript, 1961.

5. H. C. S. Thom, "The Rational Relationship Between Heating Degree Days and Temperature," Monthly Weather Review, Vol. 82, No. 1, January 1954.

6. U. S. Weather Bureau, Administrative Manual, Vol. III, Chap. C-05, paras. C-0509 and C-0510.

NOTES

1. Station Names

In Table I, "AP" after the city name indicates "airport station" "CO" indicates "city office station." Figures and letters following the station name indicate a rural location, and refer to the distance and direction of the station from the nearest post office.

- # indicates a station whose location has been essentially unchanged during the period 1931-1960.
- H indicates the ground elevation of the station in feet above sea level, as of December 31, 1960.
- G indicates the elevation at hygrothermometer site (where different from "H").
- T indicates the height of the thermometer in feet above the ground as of December 31, 1960.

/NO TEST/ indicates that significant difference tests were not made.

2. Table Content

- * indicates that the departure of the 1951-60 record from the 1921-50 normal is statistically significant, but through the adjustments for changes in location and exposure the absolute difference between old and new normals may even in these cases be very small.
- T in the data tables indicates a monthly precipitation amount of only a trace.

February monthly normals are for a 28-day month.

TABLE I - NORMALS FOR FIRST ORDER STATIONS

STATION	JAN.	FEB.	MAR.	APR.	MAY	JUNE	JULY	AUG.	SEPT.	OCT.	NOV.	DEC.	ANNUAL
GREEN BAY AP H 689 T 5													
MAX TEMP	25.1	26.9	36.0	52.4*	65.3	75.4	81.0	79.0	70.3	58.6	41.2	29.1*	53.4
MIN TEMP	7.5	8.3	19.4	32.9*	43.2	53.5	58.0	56.8	48.6*	38.1*	26.1	13.8	33.9
AVG TEMP	16.3	17.6	27.7	42.7*	54.3	64.5	69.5	67.9	59.5*	48.4	33.7	21.5*	43.6
DEG DAYS	1510	1327	1156	669*	344	114	31	59	201*	515	939	1349*	8214
PRECIP	1.15*	1.08	1.34	2.46*	3.06*	3.36*	2.71*	2.75	2.92	1.91	1.91	1.18	25.83
LA CROSSE AP H 652 T 6													
MAX TEMP	25.6	28.9	39.4	57.0	69.8	79.1	84.6*	82.2	72.7	61.5	42.4	29.7	56.1
MIN TEMP	7.4	9.8	21.5	36.9	48.5	58.5	63.0	60.9	51.6	40.6	26.0	13.8*	36.5
AVG TEMP	16.5	19.4	30.5	47.0	59.2	68.8	73.8*	71.6	62.2	51.1	34.2	21.8*	46.3
DEG DAYS	1504	1277	1070	540	245	69	12*	19	153	437	924	1339*	7589
PRECIP	1.19*	1.05	2.07	2.75*	3.76	4.20	3.75*	3.63	3.48*	2.19	1.94	1.15*	31.16
MADISON AP H 857 T 5													
MAX TEMP	27.9	30.2	40.0	56.0	68.4	78.0	83.2	81.2	72.6	62.1	44.3	31.8	56.3
MIN TEMP	8.1	9.8	19.2	32.8	43.8	54.2	59.0	57.7	49.4*	38.7	24.6	13.4	34.2
AVG TEMP	18.0	20.0	29.6	44.4	56.1	66.1	71.1	69.5	61.0*	50.4	34.5	22.6	45.3
DEG DAYS	1457	1260	1097	618	310	102	25	40	174*	459	915	1314	7771
PRECIP	1.40	1.13	1.84	2.57*	3.34	3.95	3.58*	3.37*	3.32*	2.21*	2.14	1.31	30.16
MILWAUKEE AP H 672 T 5													
MAX TEMP	28.3	30.2	38.8	53.1	63.9	73.9	78.9	77.7	70.7	60.1	44.1	32.0	54.3
MIN TEMP	12.8	14.6	23.2	34.1	42.9	52.6	58.4	57.8	49.9	39.9	27.5	17.1	35.9
AVG TEMP	20.6	22.4	31.0	43.6	53.4	63.3	68.7	67.8	60.3	50.0	35.8	24.6	45.1
DEG DAYS	1376	1193	1054	642	372	135	43	47	174	471	876	1252	7635
PRECIP	1.83	1.40	2.31	2.53*	3.16	3.64	2.95*	3.06*	2.72*	2.10*	2.18	1.63	29.51

TABLE II - NORMALS BY CLIMATOLOGICAL DIVISIONS

STATIONS (By Divisions)	TEMPERATURE (°F) JANUARY	FEBRUARY	MARCH	APRIL	MAY	JUNE	JULY	AUGUST	SEPTEMBER	OCTOBER	NOVEMBER	DECEMBER	ANNUAL	PRECIPITATION (In.) JANUARY	FEBRUARY	MARCH	APRIL	MAY	JUNE	JULY	AUGUST	SEPTEMBER	OCTOBER	NOVEMBER	DECEMBER	ANNUAL
NORTHWEST DIVISION																										
AMERY BLACK BROOK HYDRO	12.2	14.7	26.2	43.5	56.3	65.5	70.9	68.8	59.7	48.4	31.0	17.9	42.9	.73	.77	1.34	2.19	3.55	4.79	3.34	3.95	2.91	1.80	1.50	.82	27.69
#ASHLAND EXPERIMENT FARM	13.3	15.1	24.7	39.1	50.4	60.7	69.1	65.4	56.8	46.3	30.9	18.7	40.9	.94	.71	1.16	2.35	3.39	4.23	3.86	4.07	2.84	2.11	1.90	.91	28.47
DANBURY	10.4	13.4	25.1	41.7	54.3	64.0	69.5	67.0	57.7	46.6	29.7	16.1	41.3	.97	.88	1.51	2.25	3.75	5.06	3.57	4.50	3.13	2.09	1.77	.99	30.47
HOLCOMBE	•	•	•	•	•	•	•	•	•	•	•	•	•	.94	.77	1.48	2.77	3.86	4.67	3.97	4.06	3.89	2.06	1.64	1.02	31.13
LADYSMITH	•	•	•	•	•	•	•	•	•	•	•	•	•	.83	.79	1.51	2.45	3.50	4.61	3.92	4.07	3.28	2.09	1.71	1.00	29.76
SOLON SPRINGS	11.8	14.3	25.3	41.4	53.6	63.3	68.8	66.5	57.1	46.8	29.9	16.7	41.3	•	•	•	•	•	•	•	•	•	•	•	•	•
SPOONER EXPERIMENT FARM	12.2	14.7	26.0	42.8	55.4	64.8	70.1	67.8	58.4	47.5	30.4	17.4	42.3	.74	.64	1.28	2.11	3.37	4.39	3.95	4.17	3.19	1.82	1.58	.84	28.08
SUPERIOR 7 SE	12.6	15.1	25.1	39.5	49.6	59.1	66.7	66.1	56.7	46.6	30.7	18.2	40.5	•	•	•	•	•	•	•	•	•	•	•	•	•
WEYERHAUSER 1 N	12.7	15.3	26.0	42.5	54.8	63.5	68.7	66.5	57.5	46.9	30.3	17.4	41.8	•	•	•	•	•	•	•	•	•	•	•	•	•
#WINTER 6 NNW	9.9	10.8	21.6	38.9	51.8	61.2	65.9	63.6	54.6	44.0	28.4	14.7	38.8	.87	.82	1.35	2.33	3.72	4.80	4.32	4.59	3.27	1.94	1.80	.89	30.70
DIVISION	12.2	14.8	25.4	41.7	53.9	63.3	68.8	66.9	57.7	47.2	30.5	17.6	41.7	.91	.82	1.45	2.43	3.66	4.69	3.85	4.25	3.17	2.00	1.76	.98	29.97
NORTH CENTRAL DIVISION																										
BIG SAINT GERMAIN DAM	12.2	14.1	23.7	39.3	52.3	61.4	65.9	63.8	55.4	45.1	28.9	16.6	39.9	1.17	.97	1.41	2.15	3.50	4.64	4.16	4.23	4.05	2.23	2.24	1.13	31.88
#FLAMBEAU RESERVOIR	•	•	•	•	•	•	•	•	•	•	•	•	•	1.03	1.01	1.45	2.44	3.76	5.09	4.26	4.45	3.45	2.16	2.13	1.14	32.37
#LONG LAKE DAM	12.4	13.5	22.9	38.8	51.9	61.3	65.7	63.8	55.3	44.8	29.0	16.8	39.7	1.30	1.07	1.50	2.44	3.41	4.46	4.10	4.28	3.74	2.34	2.37	1.25	32.26
MEDFORD 1 SW	13.3	15.2	25.5	41.9	54.2	63.4	68.1	66.9	57.6	46.7	30.2	17.8	41.7	1.19	1.07	1.70	2.45	4.03	5.18	3.68	4.37	3.76	2.15	2.13	1.33	33.04
MELLEN 2 N	13.2	14.5	24.1	40.0	52.2	61.7	67.3	64.9	56.7	46.4	30.6	18.1	40.8	•	•	•	•	•	•	•	•	•	•	•	•	•
MERRILL	•	•	•	•	•	•	•	•	•	•	•	•	•	1.05	.86	1.36	2.24	3.74	4.46	3.30	3.99	3.71	2.20	2.15	1.00	30.06
#PARK FALLS	12.4	14.2	24.6	40.6	53.3	62.7	67.7	65.4	56.5	45.9	29.2	16.6	40.8	1.09	.97	1.47	2.58	3.52	5.44	4.23	4.64	3.59	2.25	2.02	1.16	32.96
#PHELPS DEERSKIN DAM	•	•	•	•	•	•	•	•	•	•	•	•	•	1.28	1.03	1.33	2.37	3.34	4.63	3.98	4.06	3.90	2.32	2.27	1.24	31.75
PRENTICE 5 W	12.4	14.2	24.7	41.2	53.4	62.4	66.8	64.7	56.2	46.1	29.7	17.1	40.7	1.35	1.15	1.87	2.68	3.94	5.25	4.01	4.56	3.97	2.29	2.12	1.23	34.42
RHINELANDER	13.0	14.7	24.8	41.0	53.8	63.4	68.2	65.9	57.2	46.6	30.3	17.9	41.4	1.20	1.10	1.49	2.12	3.50	4.68	3.76	4.15	3.54	2.29	1.98	1.14	30.95
WAUSAU RECORD HERALD	16.6	18.2	28.6	44.6	57.2	66.8	71.6	69.5	60.8	49.2	33.1	21.0	44.8	1.36	1.28	1.86	2.61	3.85	4.66	3.65	4.14	3.66	2.43	2.25	1.29	33.04
DIVISION	13.2	15.0	24.8	41.1	53.6	63.0	67.8	65.9	57.1	46.7	30.4	18.0	41.4	1.17	1.02	1.55	2.45	3.68	4.80	4.00	4.24	3.65	2.23	2.10	1.15	32.04
NORTHEAST DIVISION																										
ANTIGO	15.7	17.3	26.9	42.5	55.1	64.3	69.1	67.1	58.6	47.8	31.9	19.8	43.0	1.19	.92	1.44	2.45	3.50	4.40	3.68	4.28	3.69	2.25	1.99	1.03	30.82
#BREAKWATER	•	•	•	•	•	•	•	•	•	•	•	•	•	1.20	1.03	1.58	2.28	3.23	3.80	3.37	3.71	3.07	2.01	2.32	1.23	28.83
#BRULE ISLAND	•	•	•	•	•	•	•	•	•	•	•	•	•	1.29	1.14	1.56	2.25	3.36	4.37	3.63	3.47	3.42	2.06	2.35	1.26	30.18
CRIVITZ HIGH FALLS	16.1	17.5	26.8	42.2	54.7	64.6	69.5	67.5	58.8	48.0	33.0	20.3	43.3	1.21	1.00	1.57	2.56	2.99	3.69	3.23	3.57	3.16	2.05	2.30	1.24	28.57
MARINETTE	20.2	21.4	29.9	43.5	55.3	66.0	71.6	69.7	61.5	50.7	35.9	24.5	45.9	1.46	1.19	1.54	2.44	3.09	3.57	2.83	3.52	3.16	2.23	2.42	1.38	28.83
OCONTO	18.5	19.7	29.1	43.4	55.1	65.6	70.6	68.9	60.3	49.5	35.0	23.1	44.9	1.42	1.25	1.63	2.52	2.78	3.22	2.60	3.21	3.05	2.07	2.23	1.28	27.26
SHAWANO	17.3	19.1	29.1	44.6	56.9	66.7	71.4	69.1	60.4	48.9	34.1	21.7	44.9	1.52	1.33	1.68	2.63	3.44	3.92	2.91	3.85	3.14	2.20	2.33	1.51	30.46
DIVISION	16.6	18.1	27.3	42.5	54.6	64.4	69.2	67.3	58.8	48.1	33.1	21.0	43.4	1.35	1.14	1.56	2.45	3.22	3.91	3.25	3.62	3.27	2.14	2.26	1.27	29.44
WEST CENTRAL DIVISION																										
BLAIR	15.1	17.5	29.0	45.2	57.6	67.3	71.9	69.7	60.7	49.3	32.8	20.0	44.7	1.15	1.01	1.85	2.59	3.78	4.52	3.84	3.94	3.59	2.02	1.95	.99	31.23
EAU CLAIRE	15.6	18.3	29.4	45.5	58.8	68.5	73.8	71.5	61.9	50.2	33.3	20.7	45.6	.93	.95	1.75	2.73	3.71	4.47	3.30	4.06	3.30	2.01	1.77	1.04	30.02
HATFIELD DAM	15.1	17.6	28.0	44.4	56.9	66.2	70.7	68.9	60.1	49.1	32.8	20.5	44.2	.90	.80	1.64	2.64	4.04	4.91	3.29	3.71	3.42	2.25	1.87	.95	30.42
LA CROSSE AP	16.5	19.4	30.5	47.0	59.2	68.8	73.8	71.6	62.2	51.1	34.2	21.8	46.3	1.19	1.05	2.07	2.75	3.76	4.20	3.75	3.63	3.48	2.19	1.94	1.15	31.16
MATHER 3 NW	15.1	17.1	27.8	43.8	56.1	65.5	69.8	67.7	58.8	48.1	32.2	19.9	43.5	1.22	1.08	1.75	2.76	4.09	4.46	3.51	3.38	3.63	2.23	2.23	1.15	31.49
RIVER FALLS	13.4	16.3	27.8	44.6	57.3	66.8	71.9	69.8	60.6	49.3	32.1	19.2	44.1	.90	.82	1.70	2.42	3.84	4.80	3.87	3.46	3.21	1.90	1.61	1.09	29.62
DIVISION	15.2	18.1	28.9	45.2	57.7	67.2	72.0	70.0	60.9	49.8	33.0	20.3	44.9	.94	.89	1.75	2.61	3.86	4.64	3.57	3.71	3.27	1.96	1.78	1.02	30.00
CENTRAL DIVISION																										
#CODDINGTON 1 E	14.8	16.5	26.9	42.9	54.7	63.9	68.4	66.4	58.0	47.2	31.9	19.3	42.6	.97	.89	1.45	2.85	3.72	4.90	3.15	3.45	3.54	2.39	2.22	.96	30.49
HANCOCK EXPERIMENT FARM	16.1	18.1	28.2	44.5	57.0	66.9	71.8	69.6	60.7	49.6	33.1	20.5	44.7	.98	.95	1.43	2.63	3.81	4.31	3.09	3.23	3.60	2.32	2.21	1.03	29.59
MARSHFIELD EXP FARM	14.5	16.6	26.8	43.1	55.3	64.6	69.3	67.5	58.8	47.8	31.6	19.2	42.9	1.00	.99	1.62	2.71	3.79	4.74	3.22	4.00	3.49	2.40	2.03	1.10	31.29
MAUSTON 1 SE	•	•	•	•	•	•	•	•	•	•	•	•	•	1.07	1.14	1.78	2.73	3.54	3.99	3.49	3.49	3.49	2.16	2.04	1.01	29.93
MONTELLO	18.5	20.4	30.5	45.8	57.5	67.1	71.5	69.4	61.1	50.3	34.9	22.7	45.8	1.15	1.09	1.64	2.82	3.42	4.17	3.26	3.25	3.31	2.02	2.04	1.18	29.35
NEW LONDON	17.9	19.5	29.7	45.2	57.2	67.1	71.8	69.7	61.1	50.0	34.5	22.2	45.5	1.41	1.23	1.84	2.94	3.49	4.27	2.95	3.23	3.45	2.15	2.31	1.33	30.60
STEVENS POINT	16.4	18.1	28.7	44.8	57.4	67.3	72.1	70.2	61.3	49.6	33.4	20.9	45.0	1.39	1.25	1.68	2.75	3.79	4.57	3.07	3.70	3.60	2.15	2.17	1.28	31.40
WAUPACA	17.7	19.3	29.5	45.1	57.5	67.2	72.0	70.0	61.5	50.2	34.7	22.2	45.6	1.14	1.00	1.50	2.80	3.56	4.44	2.89	3.55	3.52	2.22	2.11	1.08	29.81
WISCONSIN RAPIDS	15.2	17.0	27.6	45.5	56.0	65.9	70.8	68.7	59.4	48.2	32.0	19.7	43.7	1.04	1.00	1.60	2.67	3.80	4.57	3.12	3.56	3.78	2.31	2.17	1.16	30.78
DIVISION	16.5	18.5	28.6	44.5	56.4	66.2	70.9	69.0	60.3	49.4	33.4	21.0	44.6	1.13	1.08	1.65	2.82	3.67	4.36	3.21	3.50	3.40	2.22	2.12	1.14	30.30
EAST CENTRAL DIVISION																										
APPLETON	18.3	19.7	29.5	44.2	56.4	66.9	72.2	70.3	61.5	50.2	34.8	22.8	45.6	1.30	1.27	1.72	2.70	3.12	3.95	3.02	3.00	3.35	1.96	2.15	1.38	28.92
FOND DU LAC	19.9	21.7	31.4	46.3	57.9	67.7	72.4	70.7	62.4	51.5	36.1	23.8	46.8	1.30	1.26	1.75	2.49	3.16	3.85	3.45	3.42	3.18	2.06	2.16	1.32	29.40
GREEN BAY AP	16.3	17.6	27.7	42.7	54.3	64.5	69.5	67.9	59.5	48.4	33.7	21.5	43.6	1.15	1.08	1.34	2.46	3.06	3.36	2.71	2.75	2.92	1.91	1.91	1.18	25.83
KEWAUNEE	20.7	21.6	30.5	42.1	51.7	61.6	68.7	68.5	60.5	50.1	36.1	24.8	44.7	1.36	1.31	1.64	2.51	2.60	3.17	2.92	2.82	3.04	1.79	2.23	1.47	26.86
MANITOWOC	21.9	23.1	31.2	43.6	54.1	64.5	71.0	70.0	61.6	51.0	37.0	26.0	46.3	1.46	1.43	1.99	2.67	2.83	3.66	2.57	3.16	3.24	2.13	2.30	1.50	28.94
OSHKOSH	18.6	20.1	29.7	44.6	56.8	67.2	72.3	70.6	62.1	50.8	35.1	22.8	45.9	1.29	1.17	1.57	2.61	2.95	3.90	3.04	3.26	3.24	1.87	2.13	1.34	28.37
#PLYMOUTH	20.4	21.6	30.4	44.2	55.2	65.3	70.8	69.8	61.4	50.7	35.9	24.3	45.8	•	•	•	•	•	•	•	•	•	•	•	•	•
SHEBOYGAN	21.4	22.5	31.5	43.6	53.5	64.3	71.5	70.7	62.8	51.7	37.0	25.5	46.3	1.63	1.51	1.98	2.49	3.12	3.79	2.94	3.02	3.13	2.32	2.22	1.68	29.83
#STURGEON BAY EXP FARM	18.9	19.2	27.9	41.4	52.1	62.6	68.7	67.5	59.3	48.8	35.1	23.8	43.8	1.22	1.22	1.71	2.47	2.74	3.16	2.87	3.16	3.22	2.20	2.32	1.37	27.66
DIVISION	19.7	21.1	30.2	43.9	54.8	65.0	70.8	69.7	61.3	50.7	35.8	24.0	45.6	1.35	1.26	1.74	2.61	2.95	3.66	3.05	3.14	3.12	2.05	2.19	1.40	28.52
SOUTHWEST DIVISION																										
DARLINGTON	20.1	23.1	33.0	47.2	58.0	67.6	72.1	70.2	62.1	51.3	36.1	24.1	47.1	1.35	1.03	1.95	2.93	3.69	4.77	3.89	4.43	3.48	2.45	2.21	1.40	33.58
HILLSBORO	17.9	20.4	30.3	45.7	57.4	67.1	71.7	69.6	61.1	50.1	34.4	22.2	45.7	1.11	1.09	1.88	2.83	3.64	4.30	3.69	3.70	3.79	2.24	2.26	1.13	31.66
LANCASTER	19.5	22.3	32.3	47.3	59.1	68.5	73.4	71.7	63.3	52.4	35.9	23.9	47.5	1.29	1.06	2.16	2.83	3.85	4.93	3.73	3.83	3.68	2.43	2.12	1.35	33.26
PRAIRIE DU CHIEN	20.6	23.3	33.6	49.2	61.0	70.4	75.0	73.3	64.6	53.1	37.0	25.0	48.8	1.14	1.03	2.07	2.80	3.95	4.97	3.77	4.29	3.55	2.16	2.10	1.25	33.08
PRAIRIE DU SAC 2 N	18.8	21.1	30.6	45.8	58.0	68.3	73.4	71.4	62.5	51.2	35.3	23.3	46.6	1.08	.99	1.52	2.52	3.21	4.00	3.41	3.45	3.44	2.02	2.00	1.13	28.77
RICHLAND CENTER	19.7	22.6	32.6	47.4	58.9	68.4	72.9	71.1	62.6	51.4	35.8	23.9	47.3	1.16	1.10	2.12	2.75	3.58	5.10	3.88	4.06	3.86	2.38	2.17	1.24	33.40
VIROQUA	16.8	19.5	29.9	45.6	57.6	67.9	72.9	70.9	61.8	50.6	33.7	21.4	45.7	1.13	1.04	1.90	2.59	3.88	4.76	4.07	3.74	3.79	2.12	1.96	1.10	32.08
DIVISION	18.9	22.1	31.7	47.2	58.5	68.2	72.9	71.1	62.4	51.6	35.4	23.3	46.9	1.14	1.05	1.94	2.86	3.72	4.88	3.87	3.90	3.46	2.21	2.01	1.21	32.25
SOUTH CENTRAL DIVISION																										
ARLINGTON	•	•	•	•	•	•	•	•	•	•	•	•	•	1.34	1.12	1.67	2.74	3.50	3.70	3.82	3.65	3.87	2.17	2.11	1.27	30.96
#BELOIT	22.9	25.3	35.0	49.1	60.2	69.9	74.5	72.7	64.8	53.8	38.5	26.7	49.5	1.63	1.25	1.94	2.68	3.59	4.24	3.78	3.86	3.45	2.39	2.42	1.56	32.79
BRODHEAD 1 SW	20.7	23.0	32.9	47.5	59.0	69.0	73.8	71.8	63.3	52.0	36.5	24.4	47.8	1.72	1.28	2.09	2.95	3.38	4.22	3.57	4.24	3.51	2.41	2.34	1.63	33.34
LAKE MILLS	20.7	22.6	32.1	46.7	58.1	67.7	72.7	71.3	63.0	52.3	37.0	24.7	47.4	1.57	1.16	1.93	2.79	3.33	4.25	3.56	3.23	3.43	2.27	2.41	1.55	31.48
MADISON AP	18.0	20.0	29.6	44.4	56.1	66.1	71.1	69.5	61.0	50.4	34.5	22.6	45.3	1.40	1.13	1.84	2.57	3.34	3.95	3.58	3.37	3.32	2.21	2.14	1.31	30.16
#MADISON WB CITY	19.8	22.0	31.6	46.4	58.0	68.2	73.3	71.5	62.9	52.1	36.2	24.3	47.2	1.49	1.18	1.95	2.59	3.39	4.01	3.69	3.36	3.43	2.19	2.08	1.39	30.75
PORTAGE	20.2	22.4	32.2	47.6	59.6	69.2	73.9	71.8	63.5	52.4	36.8	24.4	47.8	1.38	1.18	1.86	2.90	3.22	3.96	3.43	3.53	3.72	2.05	2.18	1.29	30.70
STOUGHTON	•	•	•	•	•	•	•	•	•	•	•	•	•	1.50	1.15	1.82	2.71	3.24	3.88	3.33	3.56	3.25	2.23	2.15	1.43	30.25
WATERTOWN	21.5	23.5	32.7	46.9	58.3	68.2	73.1	71.5	63.0	52.0	36.9	25.2	47.7	1.61	1.24	2.05	2.82	3.21	4.02	3.50	3.52	3.47	2.30	2.23	1.52	31.49
WISCONSIN DELLS	18.3	20.6	30.4	45.4	57.5	67.4	72.5	70.7	61.7	50.6	34.7	22.7	46.0	1.22	1.15	1.95	2.86	3.24	4.10	3.89	3.60	3.74	2.19	2.15	1.19	31.28
DIVISION	20.4	22.6	32.3	47.0	58.4	68.2	73.1	71.2	63.0	52.0	36.5	24.4	47.4	1.45	1.16	1.88	2.76	3.34	4.07	3.63	3.60	3.51	2.24	2.20	1.42	31.26
SOUTHEAST DIVISION																										
FONTANA	21.3	23.2	32.4	46.5	57.8	67.8	72.8	71.5	63.6	52.5	37.0	25.1	47.6	1.95	1.27	2.40	2.80	3.65	3.98	3.73	3.54	3.14	2.28	2.47	1.74	32.95
MILWAUKEE AP	20.6	22.4	31.0	43.6	53.4	63.3	68.7	67.8	60.3	50.0	35.8	24.6	45.1	1.83	1.40	2.31	2.53	3.16	3.64	2.95	3.06	2.72	2.10	2.18	1.63	29.51
PORT WASHINGTON	•	•	•	•	•	•	•	•	•	•	•	•	•	1.50	1.32	1.81	2.57	2.91	3.52	2.87	2.88	3.00	2.11	2.01	1.46	27.96
RACINE	24.4	25.9	34.1	46.0	56.0	66.9	72.9	72.2	64.6	53.6	38.9	27.7	48.6	2.08	1.60	2.68	2.84	3.86	3.52	3.09	3.29	3.01	2.11	2.42	1.96	32.46
WAUKESHA	20.9	22.7	31.8	45.5	56.4	66.8	72.0	70.8	62.4	51.3	36.3	24.8	46.8	1.73	1.29	2.15	2.57	3.53	3.72	3.39	3.24	2.95	2.13	2.37	1.55	30.62
WEST BEND	20.5	22.0	31.0	45.0	56.3	66.5	71.7	70.1	61.9	51.0	36.2	24.2	46.4	1.69	1.32	2.02	2.53	2.98	3.90	3.45	2.99	3.21	2.21	2.19	1.47	29.96
DIVISION	21.7	23.9	32.4	46.1	56.6	66.9	72.2	71.1	63.0	52.4	37.0	25.4	47.4	1.75	1.29	2.49	2.88	3.39	3.99	3.66	3.25	2.85	2.11	2.22	1.68	31.56

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1963 REVISIONS AND ADDITIONS TO CLIMATOGRAPHY OF THE UNITED STATES NO. 81-41 WISCONSIN

TABLE I — NORMALS FOR FIRST ORDER STATIONS

STATION	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Annual
GREEN BAY AP													
G 682 T 4													
MAX TEMP	25.1	26.9	36.0	52.4	65.3	75.4	82.0	80.0	71.3	59.6	41.2	29.1	53.7
MIN TEMP	8.5	9.3	20.4	33.9	44.2	55.5	59.0	57.8	49.6	39.1	27.1	14.8	34.9
AVG TEMP	16.8	18.1	28.2	43.2	54.8	65.5	70.5	68.9	60.5	49.4	34.2	22.0	44.3
DEG DAYS	1494	1313	1141	654	335	99	28	50	174	484	924	1333	8029
MADISON AP													
G 858 T 5													
MAX TEMP	25.9	28.2	38.0	54.0	66.4	77.0	82.2	80.2	71.6	60.1	42.3	29.8	54.6
MIN TEMP	9.1	10.8	20.2	34.8	45.8	55.2	60.0	58.7	50.4	39.7	25.6	14.4	35.4
AVG TEMP	17.5	19.5	29.1	44.4	56.1	66.1	71.1	69.5	61.0	49.9	34.0	22.1	45.0
DEG DAYS	1473	1274	1113	618	310	102	25	40	174	474	930	1330	7863

TABLE II — NORMALS BY CLIMATOLOGICAL DIVISIONS

	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Annual
TEMPERATURE (°F.)													
NORTHWEST DIVISION	12.4	14.7	25.5		53.8		69.0	67.0	57.9	47.1			
NORTH CENTRAL DIVISION	13.3	14.9		40.9		63.1	67.9	65.8		46.5	30.3		
NORTHEAST DIVISION	16.7	18.0		42.4			69.3						
WEST CENTRAL DIVISION	15.3	17.9	29.0		57.9	67.3	72.1			49.7	33.1	20.4	
CENTRAL DIVISION		18.3		44.4	56.6	66.3				49.2			44.5
EAST CENTRAL DIVISION	19.8	21.0	29.9	43.6	54.6	64.8	70.7	69.5		50.5		24.1	45.5
SOUTHWEST DIVISION	19.1	21.9	31.8	46.9	58.6	68.3	73.1		62.5	51.4		23.4	47.0
SOUTH CENTRAL DIVISION		22.5	32.2	46.9			73.0		62.9	51.9		24.5	
SOUTHEAST DIVISION	21.9	23.6	32.5	45.8	56.7	67.0	72.4	71.2	63.1	52.2	37.2	25.6	
PRECIPITATION (In.)													
NORTHWEST DIVISION	.95	.83	1.44	2.37	3.65	4.64	3.77	4.28	3.16	2.04	1.81	1.00	29.94
NORTH CENTRAL DIVISION	1.20	1.05	1.53	2.41	3.71	4.81	3.86	4.28	3.72	2.27	2.13	1.17	32.14
NORTHEAST DIVISION	1.36	1.13	1.57	2.47	3.23	3.89	3.26	3.65	3.28	2.16	2.25	1.28	29.53
WEST CENTRAL DIVISION	1.00	.94	1.72	2.63	3.79	4.60	3.39	3.62	3.37	2.00	1.83	1.04	29.93
CENTRAL DIVISION	1.16	1.07	1.64	2.76	3.64	4.43	3.16	3.52	3.51	2.24	2.16	1.15	30.44
EAST CENTRAL DIVISION	1.38	1.29	1.73	2.55	2.93		2.97	3.08	3.14	2.07	2.20		28.40
SOUTHWEST DIVISION	1.15	1.04	1.92	2.75		4.69	3.77	3.94	3.63	2.23	2.09		32.14
SOUTH CENTRAL DIVISION	1.46	1.17	1.87	2.72	3.32	4.06	3.64	3.59	3.53	2.26	2.22	1.41	31.25
SOUTHEAST DIVISION	1.81	1.32	2.19	2.66	3.42	3.83	3.31	3.32	3.05	2.17	2.30	1.60	30.98

REVISIONS TO FIRST ORDER STATIONS IN TABLE I AFFECT THE SAME STATIONS IN TABLE II.

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