U. S. DEPARTMENT OF COMMERCE
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CLIMATOGRAPHY OF THE UNITED STATES NO. 81-34

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
HURON AP	H1282 T 6													
	MAX TEMP	24.1	27.7	39.6*	58.2*	70.9	80.5	89.3*	87.0	76.5*	63.5	43.3	30.2	57.6
	MIN TEMP	2.9	6.5	19.7	33.7	45.1	55.6	61.6	59.6*	48.3	36.0	21.1	10.4	33.4
	AVG TEMP	13.5	17.1	29.7*	46.0*	58.0	68.1	75.5*	73.3*	62.4*	49.8	32.2	20.3	45.5
	DEG DAYS	1597	1341	1094*	570*	279	78	12*	9*	156*	477	984	1386	7983
	PRECIP	.48	.60*	1.11	1.84	2.36	3.14	1.81	2.07	1.53*	1.15	.68	.56*	17.33
RAPID CITY AP	H3165 T 6													
	MAX TEMP	34.1	35.9	42.5	56.7	67.8	77.0*	87.7	86.0*	75.6*	63.1	47.0	38.7*	59.3
	MIN TEMP	9.8	12.3	19.7	32.3	43.6	52.8	59.9	58.0*	47.6	36.8	23.2	15.7*	34.3
	AVG TEMP	22.0	24.1	31.1	44.5	55.7	64.9*	73.8	72.0*	61.6*	50.0	35.1	27.2*	46.8
	DEG DAYS	1333	1145	1051	615	326	126*	22	12*	165*	481	897	1172*	7345
	PRECIP	.36*	.48*	1.01	1.67	2.66	3.08	1.78	1.22	.95	.79*	.41	.30	14.71
SIOUX FALLS AP	H1420 T 5													
	MAX TEMP	25.1	29.1	39.4*	57.0	70.1	79.4	86.0*	83.3	73.5	61.9	42.5	30.3	56.5
	MIN TEMP	5.2	9.0	20.8	34.7	46.5	56.8	62.5	60.3	50.0	38.6	22.7	11.9	34.9
	AVG TEMP	15.2	19.1	30.1*	45.9	58.3	68.1	74.3*	71.8	61.8	50.3	32.6	21.1	45.7
	DEG DAYS	1544	1285	1082*	573	270	78	19*	25	168	462	972	1361	7839
	PRECIP	.62*	.93*	1.54	2.31	3.38	4.35	2.84	3.59	2.61	1.25	1.00	.74	25.16

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																										
#BELLE FOURCHE 2 NE	21.9	24.0	31.7	45.5	56.1	64.7	72.8	70.7	60.2	48.9	34.7	26.7	46.5	.25	.24	.58	1.72	2.05	3.16	1.33	1.26	1.15	.72	.42	.21	13.09
CAMP CROOK	*	*	*	*	*	*	*	*	*	*	*	*	*	.45	.32	.70	1.21	2.02	2.85	1.80	1.39	.97	.64	.33	.23	12.91
DUPREE	16.6	19.5	29.2	45.3	57.0	66.2	75.2	73.1	62.2	49.7	32.7	22.9	45.8	.54	.53	.99	1.38	2.06	3.26	1.56	1.64	.93	.90	.54	.33	14.66
LEMMON	13.6	16.4	26.6	42.4	54.4	63.2	71.8	69.6	58.7	46.6	29.8	20.5	42.8	.48	.53	.89	1.25	2.08	3.73	1.88	1.79	1.12	.75	.57	.27	15.34
LUDLOW 2 NW	17.1	19.2	27.6	42.4	53.8	62.5	70.8	68.9	58.2	46.8	31.3	23.2	43.5	.30	.32	.46	1.12	1.82	3.68	2.01	1.51	.97	.71	.43	.19	13.52
#NEWELL 2 NW	18.3	21.0	29.5	44.1	55.4	66.4	73.2	71.2	60.4	48.3	32.9	23.9	45.2	.41	.37	.80	1.65	2.49	3.19	1.76	1.28	1.14	.81	.55	.30	14.75
#ORMAN DAM	21.3	23.9	31.7	45.8	56.9	65.5	74.4	72.3	61.8	50.0	35.2	26.6	47.1	.30	.29	.73	1.74	2.32	3.35	1.54	1.22	1.13	.76	.56	.25	14.19
REDIG 9 NE	16.8	19.5	28.1	42.9	54.2	63.0	71.7	69.6	58.8	46.9	31.5	22.7	43.8	.44	.32	.66	1.21	1.76	3.00	1.61	1.42	.99	.68	.42	.26	12.77
VALE	20.0	23.0	31.6	45.7	56.5	65.4	73.5	71.2	60.5	48.9	34.0	25.2	46.3	.35	.39	.84	1.75	2.63	3.29	1.87	1.32	1.16	.95	.58	.32	15.45
DIVISION	17.7	20.5	29.2	44.1	55.4	64.2	72.9	70.9	60.0	48.1	32.3	23.6	44.9	.39	.38	.75	1.41	2.18	3.33	1.71	1.46	1.07	.78	.47	.26	14.19
NORTH CENTRAL DIVISION																										
BOWDLE	*	*	*	43.6	*	*	*	*	*	*	*	*	*	.55	.50	.88	1.74	2.73	3.88	2.12	2.11	1.26	1.01	.68	.31	17.77
#EUREKA	10.6	14.2	26.7	43.6	56.1	65.0	72.4	70.7	60.1	47.6	29.8	17.7	42.9	.39	.40	.63	1.35	2.59	3.83	2.45	2.41	1.32	.97	.46	.26	17.06
FAULKTON 1 NW	13.4	17.1	29.1	45.3	57.3	66.4	73.7	71.8	61.4	49.3	32.2	20.4	44.8	.47	.47	.89	1.86	2.58	3.55	2.13	2.06	1.32	1.09	.59	.35	17.36
GETTYSBURG	*	*	*	*	*	*	*	*	*	*	*	*	*	.39	.52	.87	1.62	2.58	3.63	1.96	1.84	1.22	.89	.52	.36	16.40
MOBRIDGE	13.1	16.7	28.9	45.6	57.8	67.0	74.8	73.0	61.9	49.1	31.5	20.2	45.0	.43	.46	.84	1.28	2.37	3.42	2.24	1.89	1.12	1.05	.46	.32	15.88
ONAKA	*	*	*	*	*	*	*	*	*	*	*	*	*	.39	.46	.81	1.54	2.25	3.56	2.17	2.01	1.25	.92	.49	.46	16.31
POLLOCK	10.2	13.9	27.0	43.7	56.1	64.8	72.3	70.6	59.7	47.1	29.4	18.0	42.7	.36	.36	.55	1.19	2.21	3.40	2.18	1.77	1.13	.98	.42	.21	14.76
TIMBER LAKE	13.8	16.9	27.8	44.3	56.4	65.8	73.8	71.4	60.5	48.0	31.0	20.6	44.2	*	*	*	*	*	*	*	*	*	*	*	*	*
DIVISION	12.6	16.1	28.0	44.6	56.8	65.8	73.5	71.3	60.9	48.5	31.0	19.7	44.1	.47	.49	.83	1.47	2.41	3.68	2.13	1.98	1.22	.99	.52	.32	16.51
NORTHEAST DIVISION																										
ABERDEEN FAA AIRPORT	10.8	15.0	28.2	44.8	57.3	66.6	73.5	71.5	60.6	48.2	30.3	18.1	43.7	.66	.65	1.09	2.04	2.34	3.76	2.50	2.16	1.40	1.19	.74	.61	19.14
BRITTON	10.3	14.4	27.4	44.4	57.1	66.3	73.1	71.4	61.1	48.8	29.8	17.3	43.5	.39	.50	.69	1.73	2.23	3.92	2.50	2.77	1.55	1.05	.60	.40	18.33
LEOLA	*	*	*	*	*	*	*	*	*	*	*	*	*	.43	.48	.82	1.74	2.35	3.83	2.67	2.27	1.45	.97	.58	.35	17.94
MELLETTE	12.2	16.5	29.6	45.7	57.9	67.3	74.2	72.5	61.9	49.4	31.5	19.0	44.8	.56	.63	1.04	1.93	2.47	3.89	2.06	2.07	1.45	1.19	.67	.46	18.42
MILBANK	13.3	17.6	29.2	45.4	58.6	67.8	74.2	72.2	62.3	50.5	32.2	20.2	45.3	*	*	*	*	*	*	*	*	*	*	*	*	*
#VICTOR 5 NE	*	*	*	*	*	*	*	*	*	*	*	*	*	.57	.69	1.22	2.10	2.74	4.15	2.92	2.72	1.64	1.22	.97	.61	21.55
DIVISION	11.6	15.7	28.3	44.9	57.4	66.6	73.3	71.6	61.1	49.1	30.9	18.5	44.1	.55	.61	.98	2.10	2.57	4.02	2.48	2.50	1.57	1.20	.75	.52	19.85
BLACK HILLS DIVISION																										
BUSKALA RANCH	*	*	*	*	*	*	*	*	*	*	*	*	*	1.15	.86	1.65	2.92	3.84	4.22	2.59	1.94	1.41	1.16	1.16	.94	23.84
CUSTER	*	*	*	*	*	*	*	*	*	*	*	*	*	.40	.39	.97	1.90	3.16	3.20	2.00	2.27	1.03	.95	.46	.34	17.07
DUMONT 2 ENE	*	*	*	*	*	*	*	*	*	*	*	*	*	1.30	.92	1.69	2.48	3.31	3.67	2.19	1.87	1.33	1.10	1.37	1.00	22.23
HOT SPRINGS	24.9	27.4	34.3	46.1	56.7	66.3	74.7	73.0	62.6	50.7	36.5	29.3	48.5	.38	.49	1.03	1.83	2.97	2.94	2.16	1.56	1.26	.71	.39	.35	16.06
LEAD	24.3	25.4	29.8	40.8	51.2	60.3	69.3	67.8	58.2	47.8	33.8	28.5	44.8	1.08	.95	1.72	2.99	3.81	4.02	2.27	1.70	1.49	1.30	1.46	1.02	23.81
SPEARFISH 9 WNW	*	*	*	*	*	*	*	*	*	*	*	*	*	.54	.49	.88	2.08	2.67	3.46	1.68	1.48	1.47	.86	.75	.46	16.82
DIVISION	24.2	26.1	31.0	43.1	52.9	62.0	70.5	69.0	59.1	48.4	34.4	27.8	45.7	.71	.68	1.36	2.25	3.45	3.63	2.07	1.82	1.37	1.03	.96	.64	19.97
SOUTHWEST DIVISION																										
#COTTONWOOD 2 E	20.0	23.0	32.0	46.3	57.4	67.1	75.6	73.8	63.0	50.3	34.6	24.9	47.3	.50	.44	.89	1.65	2.71	2.98	1.54	1.36	1.02	.81	.41	.34	14.65
LONGVALLEY	*	*	*	*	*	*	*	*	*	*	*	*	*	.41	.45	1.10	1.89	2.88	3.02	1.59	1.93	1.10	1.00	.47	.27	16.11
OELRICHS	23.3	26.3	33.8	46.3	56.6	66.3	75.2	73.5	62.8	50.7	35.6	27.3	48.1	*	*	*	*	*	*	*	*	*	*	*	*	*
RAPID CITY AP	22.0	24.1	31.1	44.5	55.7	64.9	73.8	72.0	61.6	50.0	35.1	27.2	46.8	.36	.48	1.01	1.67	2.66	3.08	1.78	1.22	.95	.79	.41	.30	14.71
#RAPID CITY	24.4	26.4	32.4	45.4	56.3	65.4	74.1	72.2	62.2	51.1	37.1	29.6	48.1	.42	.45	1.02	2.11	2.88	3.35	1.85	1.67	.98	.86	.48	.32	16.39
DIVISION	21.8	25.1	32.6	46.0	56.8	66.3	75.2	73.3	62.8	50.7	35.2	26.5	47.7	.39	.42	.91	1.76	2.86	3.09	1.75	1.60	1.14	.86	.45	.32	15.55
CENTRAL DIVISION																										
#HIGHMORE 1 W	14.6	17.8	29.0	45.4	57.2	66.8	74.5	72.8	62.6	50.0	32.4	20.8	45.3	.39	.53	1.09	1.74	2.33	3.54	1.98	2.04	1.31	1.15	.60	.40	17.10
KENNEBEC	18.6	21.9	31.8	47.6	58.9	68.7	76.8	75.0	64.5	51.4	34.8	23.9	47.8	.47	.57	1.02	1.79	2.38	3.11	1.66	2.08	1.46	.98	.67	.39	16.57
MURDO	20.7	23.7	32.8	48.1	59.2	68.8	77.2	75.6	65.2	52.8	36.1	26.3	48.9	.54	.54	1.20	1.87	2.74	3.26	1.28	1.95	1.25	1.04	.54	.32	16.53
PIERRE FAA AIRPORT	17.0	20.3	31.0	47.2	58.9	68.9	77.2	75.1	64.0	51.4	34.1	23.1	47.4	.43	.67	1.07	1.51	2.63	3.17	1.69	2.09	1.15	.87	.54	.45	16.27
PUKWANA 3 W	17.8	21.4	32.1	48.0	59.4	69.2	76.8	74.6	64.3	51.3	34.2	23.3	47.7	*	*	*	*	*	*	*	*	*	*	*	*	*
VIVIAN	18.7	22.0	32.7	47.3	58.9	68.3	76.9	74.9	64.4	51.6	34.4	24.2	47.9	*	*	*	*	*	*	*	*	*	*	*	*	*
DIVISION	17.6	20.9	31.0	47.0	58.4	68.0	76.3	74.5	63.9	51.1	34.1	23.3	47.2	.42	.55	1.06	1.68	2.54	3.41	1.68	2.01	1.28	.96	.54	.37	16.50

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
EAST CENTRAL DIVISION																										
ARLINGTON	*	*	*	*	*	*	*	*	*	*	*	*	*	.54	.62	1.36	2.24	2.88	3.90	2.38	2.88	2.07	1.34	.84	.58	21.63
BROOKINGS 1 NE	13.6	17.6	29.2	45.2	57.6	67.1	73.2	71.2	61.3	49.5	31.6	19.6	44.7	.36	.47	.97	1.77	2.79	3.95	2.15	2.97	2.03	1.22	.70	.48	19.86
CASTLEWOOD	12.2	16.3	28.2	44.1	56.3	65.8	71.9	70.2	60.4	48.2	30.3	18.5	43.5	.47	.49	.97	2.01	2.76	4.09	2.70	2.78	1.95	1.32	.76	.50	20.80
CLARK	12.0	16.0	27.9	44.3	56.8	66.0	72.8	71.0	60.7	48.6	30.4	18.4	43.7	*	*	*	*	*	*	*	*	*	*	*	*	*
DE SMET	13.6	17.9	29.3	45.3	57.6	67.2	73.7	71.9	61.1	49.3	31.2	19.4	44.8	*	*	*	*	*	*	*	*	*	*	*	*	*
FLANDREAU	14.2	18.2	29.3	45.4	57.7	67.2	73.2	71.2	61.5	49.7	32.0	20.0	45.0	.52	.73	1.25	2.00	3.01	4.40	2.55	3.13	2.54	1.34	.92	.57	22.96
#FORESTBURG 3 NE	15.7	19.7	30.8	46.7	58.5	67.9	74.8	73.0	62.9	50.7	33.4	21.7	46.3	.45	.58	1.36	2.32	2.70	3.65	2.36	2.61	1.63	1.32	.80	.66	20.44
HOWARD	15.2	19.2	30.3	46.7	58.7	68.4	75.2	73.1	62.9	50.8	32.8	21.2	46.2	.47	.58	1.20	2.24	2.90	3.85	2.41	2.83	2.17	1.20	.79	.54	21.18
HURON AP	13.5	17.1	29.7	46.0	58.0	68.1	75.5	73.3	62.4	49.8	32.2	20.3	45.5	.48	.60	1.11	1.84	2.36	3.14	1.81	2.07	1.53	1.15	.68	.56	17.33
LA DELLE 7 NE	12.9	17.2	29.5	45.6	57.7	67.1	74.0	72.0	61.9	49.5	31.4	19.1	44.8	.44	.46	.93	1.87	2.45	3.78	2.63	2.44	1.66	1.16	.65	.50	18.97
MILLER	15.7	19.3	30.3	46.6	58.4	68.0	75.3	73.2	63.1	50.6	33.4	21.9	46.3	.52	.52	1.03	2.19	2.50	3.79	2.12	2.09	1.36	1.31	.66	.47	18.56
REDFIELD	13.5	17.5	30.0	46.2	58.7	68.3	75.3	73.3	62.9	50.2	32.3	20.3	45.7	.47	.51	.88	1.85	2.34	3.72	2.07	2.05	1.36	1.26	.60	.46	17.57
WATERTOWN FAA AIRPORT	11.1	15.1	27.0	43.2	56.0	65.7	72.3	70.2	59.9	47.7	29.6	17.8	43.0	.50	.59	.99	2.06	2.87	3.70	2.67	2.78	1.83	1.21	.81	.51	20.52
WENTWORTH	*	*	*	*	*	*	*	*	*	*	*	*	*	.52	.65	1.38	2.17	3.14	4.05	2.78	3.35	2.33	1.37	.96	.61	23.31
DIVISION	13.9	17.9	29.4	45.5	57.6	67.2	73.9	71.9	61.8	49.7	31.9	20.1	45.1	.49	.57	1.12	2.06	2.76	3.96	2.51	2.73	1.90	1.29	.78	.53	20.70
SOUTH CENTRAL DIVISION																										
ACADEMY	19.9	22.9	32.6	47.6	58.8	69.1	76.8	74.8	64.5	52.1	35.9	25.2	48.4	.50	.67	1.24	2.37	3.11	3.87	2.26	2.51	1.53	1.24	.73	.43	20.46
GREGORY	21.1	24.1	33.0	47.5	58.8	68.6	76.0	74.2	64.6	52.6	36.2	26.5	48.6	.49	.75	1.41	2.43	3.09	4.08	2.21	2.46	1.65	1.28	.92	.56	21.33
WINNER	21.7	25.1	33.2	48.1	59.4	69.0	77.0	75.0	64.9	52.5	36.3	26.7	49.1	.46	.58	1.26	2.15	2.76	3.63	2.02	2.57	1.44	1.11	.69	.42	19.09
#WOOD	22.9	25.7	33.8	48.5	59.2	68.7	77.2	76.0	65.9	53.6	37.3	28.0	49.7	.56	.67	1.34	1.91	2.97	3.46	2.05	1.78	1.42	1.07	.71	.41	18.35
DIVISION	21.4	24.4	33.1	47.8	59.0	68.8	76.7	74.9	64.9	52.6	[illegible]	[illegible]	48.9	.49	.66	1.30	2.21	2.97	3.73	2.09	2.34	1.49	1.16	.73	.45	19.62
SOUTHEAST DIVISION																										
ALEXANDRIA	16.9	20.8	31.9	48.1	59.9	69.6	76.3	74.4	64.5	52.4	34.8	23.0	47.7	.38	.59	1.21	2.19	2.86	3.67	2.33	2.66	2.05	1.26	.73	.45	20.38
ARMOUR	19.2	22.6	33.1	48.8	60.5	70.5	77.6	75.6	65.5	52.9	35.4	24.6	48.9	.49	.70	1.42	2.12	2.80	3.93	2.07	3.15	1.94	1.23	.83	.54	21.22
BONESTEEL	20.2	23.2	32.7	47.7	59.0	68.8	76.0	74.3	64.2	52.3	35.7	25.5	48.3	.53	.80	1.69	2.44	3.53	3.66	2.36	2.89	1.98	1.39	.84	.49	22.60
#CANISTOTA 2 N	*	*	*	*	*	*	*	*	*	*	*	*	*	.56	.80	1.49	2.05	3.06	4.18	2.63	3.30	2.39	1.27	.87	.60	23.20
CANTON	17.3	21.3	32.5	48.4	60.3	70.0	75.7	73.9	64.2	52.2	34.8	23.0	47.8	*	*	*	*	*	*	*	*	*	*	*	*	*
MARION	16.9	20.8	32.0	48.0	60.2	69.6	75.9	74.0	64.3	52.0	34.1	22.6	47.5	.52	.86	1.59	2.15	3.40	4.17	2.78	2.88	2.28	1.46	.93	.63	23.65
#MENNO	18.1	21.9	32.9	48.8	60.0	70.0	76.2	74.0	64.4	52.4	34.9	23.7	48.1	.61	.86	1.52	2.15	3.38	4.06	2.39	3.02	2.03	1.31	.90	.62	22.85
MITCHELL 2 SSE	17.8	21.3	32.4	48.5	60.1	69.7	76.5	74.4	64.4	52.3	35.0	23.5	48.0	.43	.61	1.39	2.24	2.91	3.68	2.27	2.82	2.12	1.30	.77	.50	21.04
PARKSTON 5 E	*	*	*	*	*	*	*	*	*	*	*	*	*	.48	.69	1.30	2.02	2.80	3.81	2.40	2.86	2.22	1.16	.80	.53	21.07
SIOUX FALLS AP	15.2	19.1	30.1	45.9	58.3	68.1	74.3	71.8	61.8	50.3	32.6	21.1	45.7	.62	.93	1.54	2.31	3.38	4.35	2.84	3.59	2.61	1.25	1.00	.74	25.16
TYNDALL	19.3	22.6	33.2	48.5	60.2	70.1	76.8	74.9	64.9	53.0	35.7	24.8	48.7	.52	.79	1.47	2.21	3.41	3.87	2.44	3.02	2.16	1.22	.85	.50	22.46
VERMILLION 2 N	20.3	24.0	34.5	50.1	61.6	71.4	77.0	75.2	65.9	54.4	37.1	26.0	49.8	.47	.82	1.17	2.26	3.35	3.93	3.08	3.04	2.54	1.27	1.00	.57	23.50
WHITE LAKE	17.7	21.2	31.9	47.6	59.2	69.2	76.4	74.4	64.4	52.1	34.8	23.3	47.7	*	*	*	*	*	*	*	*	*	*	*	*	*
YANKTON 3 NNW	18.1	21.3	31.7	47.3	59.5	69.6	76.0	73.7	63.8	51.9	34.9	24.1	47.7	.42	.69	1.21	2.19	3.50	4.30	2.47	3.21	2.20	1.33	.91	.49	22.92
DIVISION	18.4	22.2	32.6	48.4	60.2	69.9	76.5	74.6	64.7	52.6	35.3	24.1	48.3	.51	.79	1.41	2.23	3.20	3.97	2.47	3.04	2.14	1.28	.88	.55	22.47

GPO 924545

1963 REVISIONS AND ADDITIONS TO CLIMATOGRAPHY OF THE UNITED STATES NO. 81-34
SOUTH DAKOTA
TABLE I — NORMALS FOR FIRST ORDER STATIONS

STATION	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Annual
HURON AP													
G1282 T 4													
MAX TEMP	23.1	27.7	39.6	58.2	71.9	81.5	90.3	88.0	77.5	63.5	43.3	29.2	57.8
MIN TEMP	1.9	5.5	17.7	31.7	43.1	53.6	59.6	57.6	46.3	34.0	19.1	8.4	31.5
AVG TEMP	12.5	16.6	28.7	45.0	57.5	67.6	75.0	72.8	61.9	48.8	31.2	18.8	44.7
DEG DAYS	1628	1355	1125	600	288	87	9	12	165	508	1014	1432	8223

TABLE II — NORMALS BY CLIMATOLOGICAL DIVISIONS

	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Annual
TEMPERATURE (°F.)													
NORTHWEST DIVISION		20.3			55.5	64.4			60.1		32.4	23.5	
NORTH CENTRAL DIVISION			28.1	44.7		66.0	73.6	71.7	61.0	48.6		19.8	44.2
NORTHEAST DIVISION	11.3	15.3	27.8	44.3	57.0	66.3	72.9	71.1	60.8	48.7	30.4	18.1	43.7
BLACK HILLS DIVISION	23.9	25.7	31.3	42.8	53.1	62.2	70.6	68.5	59.2		34.2	28.0	
SOUTHWEST DIVISION	21.9	25.0	32.7	46.2	57.0	66.5	75.3	73.5	62.9	50.8	35.3	26.7	47.8
CENTRAL DIVISION	17.9	21.1	31.2	46.9			76.4			51.2	34.3	23.7	47.3
EAST CENTRAL DIVISION					57.7	67.3	74.0	72.0	61.9				
SOUTH CENTRAL DIVISION		24.5			58.9		76.6		64.8		36.3		
SOUTHEAST DIVISION		22.0		48.3	60.1	70.0					35.2	24.0	
PRECIPITATION (In.)													
NORTHWEST DIVISION	.40		.77	1.39	2.17	3.32		1.45	1.06	.79	.46		14.16
NORTH CENTRAL DIVISION	.46	.48		1.46	2.42	3.62	2.11	1.97	1.21	.97	.50	.33	16.36
NORTHEAST DIVISION	.52	.59		2.04	2.60	4.01	2.53	2.48		1.24	.74	.51	19.81
BLACK HILLS DIVISION	.68	.67	1.39	2.35	3.40	3.66	2.15	1.62	1.42	.99	.94		19.91
SOUTHWEST DIVISION		.41	.92	1.78	2.84	3.01	1.80		1.10	.84		.31	15.45
CENTRAL DIVISION		.53	1.04	1.65		3.37	1.67	1.95	1.25	.95		.36	16.27
EAST CENTRAL DIVISION	.48	.56	1.11	2.03	2.73	3.89	2.45	2.68	1.86	1.28	.76		20.36
SOUTH CENTRAL DIVISION			1.31	2.20	2.98	3.71	2.11	2.35					19.64
SOUTHEAST DIVISION		.78	1.43	2.21			2.46	2.96	2.16			.56	22.40

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

USCOMM-WB-Asheville, N. C. -3/31/64- 1900

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