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U. S. DEPARTMENT OF COMMERCE
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CLIMATOGRAPHY OF THE UNITED STATES NO. 81-21

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
GRAND ISLAND AP	G1842 T 4													
MAX TEMP		36.1	39.0	49.1*	64.0*	75.0	85.4	92.7*	90.5*	81.0	69.2	51.1	40.2	64.4
MIN TEMP		12.0	16.2	25.3	38.1	49.1	59.5	64.7	63.0	52.3	39.6	25.3	17.1	38.5
AVG TEMP		24.1	27.6	37.2*	51.1*	62.1	72.5	78.7*	76.8*	66.7	54.4	38.2	28.7	51.5
DEG DAYS		1268	1047	862*	417*	177	36	0	0	87	357	804	1125	6180
PRECIP		.63	.74	1.27	2.28	3.85	3.79	2.51	2.35	2.15*	.96	.76	.56	21.85
LINCOLN CO	H1150 T 77													
MAX TEMP		34.0	38.0	48.0*	63.4	73.9	84.4	92.3	89.2	80.5	69.1	51.2	39.5	63.6
MIN TEMP		16.2	19.3	28.2	40.2	51.0	61.8	67.9	66.1	55.9	44.3	30.3	21.6	41.9
AVG TEMP		25.1	28.7	38.1*	51.8	62.5	73.1	80.1	77.7	68.2	56.7	40.8	30.6	52.8
DEG DAYS		1237	1016	834*	402	171	30	0	6	75	301	726	1066	5864
PRECIP		.92	1.09*	1.73	2.45	3.48	4.50	3.27	3.38	2.87	1.58	1.26	.90	27.43
NORFOLK AP	H1544 T 5													
MAX TEMP		30.1	33.2	43.1*	59.7	71.6	82.1*	89.2	87.2	78.0	66.2	47.2*	35.4*	60.3
MIN TEMP		8.6	12.6	23.5	37.0	48.8	59.6	64.7	63.1	52.0	39.6	24.5	15.0	37.4
AVG TEMP		19.4	22.9	33.3*	48.4	60.2	70.9*	77.0	75.2	65.0	52.9	35.9*	25.2*	48.9
DEG DAYS		1414	1179	983*	498	233	48*	9	0	111	397	873*	1234*	6979
PRECIP		.78	.78	1.59	2.18	3.66	4.26*	3.02	2.61	2.25*	1.18	.91	.73	23.95
NORTH PLATTE AP	H2779 T 7													
MAX TEMP		37.3	40.8	47.8*	60.8*	71.1	81.9	90.0	88.5	79.3	67.4	50.2*	40.5	63.0
MIN TEMP		10.7	14.9	22.1*	34.5*	45.8	56.2	62.2	60.4	48.1*	34.6*	20.8*	14.2	35.4
AVG TEMP		24.0	27.9	35.0*	47.7*	58.5	69.1	76.1	74.5	63.7*	51.0*	35.5*	27.4	49.2
DEG DAYS		1271	1039	930*	519*	248	57	0	6	123*	440*	885*	1166	6684
PRECIP		.43	.52*	.98	2.01	2.95	3.25*	2.52	2.13	1.67*	.91	.50	.40	18.27
OMAHA AP EPPLEY	H 978 T 5													
MAX TEMP		31.7	36.0	46.4	62.4*	73.9	83.8	89.7	86.9	78.5	67.5	48.9	37.2*	61.9
MIN TEMP		12.9	17.0	27.3	40.9	52.1	62.4	67.3	65.5	55.3	43.8	28.8	19.1	41.0
AVG TEMP		22.3	26.5	36.9	51.7*	63.0	73.1	78.5	76.2	66.9	55.7	38.9	28.2*	51.5
DEG DAYS		1324	1078	871	405*	164	30	0	6	90	326	783	1141*	6218
PRECIP		.82	.95	1.45	2.56*	3.48*	4.53	3.37	3.98*	2.63	1.73	1.26	.80	27.56
OMAHA AP NORTH	H1323 T 4	/NO TEST/												
MAX TEMP		29.2	33.3	44.0	60.2	71.5	81.0	87.0	84.4	76.5	65.7	46.7	34.7	59.5
MIN TEMP		11.4	15.3	25.3	38.8	49.8	60.5	65.1	63.4	53.7	42.0	27.0	17.4	39.1
AVG TEMP		20.3	24.3	34.7	49.5	60.7	70.8	76.1	73.9	65.1	53.9	36.9	26.1	49.4
DEG DAYS		1386	1140	939	465	208	45	9	16	114	372	843	1206	6743
PRECIP		.91	1.00	1.46	2.48	3.38	4.62	3.57	4.14	2.52	1.66	1.31	.89	27.94
SCOTTSBLUFF AP	H3946 T 5													
MAX TEMP		38.7*	42.4	48.6	60.4*	70.7	81.2	90.2*	88.0	78.2	66.1	49.7	41.6*	63.0
MIN TEMP		10.9	14.5	20.9	31.7	42.9	52.5	59.1	57.1	46.3	34.6	20.9	14.6*	33.8
AVG TEMP		24.8*	28.5	34.8	46.1	56.8	66.9	74.7*	72.6	62.3	50.4	35.3	28.1*	48.4
DEG DAYS		1246*	1022	936	567	285	75	0	0	138	459	891	1144*	6763
PRECIP		.29	.40	.86	1.81*	2.70	3.10*	1.45	1.01	1.21	.69*	.46	.40	14.38
VALENTINE AP	H2587 T 5													
MAX TEMP		33.3	36.2	43.7*	59.1*	70.8	81.2	90.6	87.8	77.7	65.5	47.9	38.3	61.0
MIN TEMP		6.7	9.7	18.9	32.3	43.3	53.8	60.2	57.9	45.8	33.1	19.3	11.9	32.7
AVG TEMP		20.0	23.0	31.3*	45.7*	57.1	67.5	75.4	72.9	61.8	49.3	33.6	25.1	46.9
DEG DAYS		1395	1176	1045*	579*	288	84	9	12	165	493	942	1237	7425
PRECIP		.40*	.56*	1.01*	1.98	2.67	3.11	2.32	2.29*	1.25	.88*	.49	.34	17.30

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
PANHANDLE DIVISION																										
ALLIANCE	25.2	28.4	34.1	45.5	56.2	66.1	73.7	71.9	61.7	49.8	35.3	28.6	48.0	.41	.46	.90	1.90	2.89	2.97	1.77	1.66	1.27	.75	.48	.38	15.84
BOX BUTTE EXP FARM	23.7	30.2	32.6	44.2	54.6	64.7	73.1	71.4	61.0	48.9	34.1	27.1	47.1	.37	.43	.82	1.76	2.92	2.72	1.57	1.61	1.21	.75	.47	.35	14.98
BRIDGEPORT	26.3	30.1	36.6	47.9	57.7	67.3	74.4	72.8	63.1	51.2	36.6	29.3	49.4	.35	.32	.76	1.47	2.68	3.10	2.06	1.36	1.35	.66	.40	.36	14.87
CHADRON FAA AIRPORT	24.3	27.6	34.3	46.4	56.8	66.8	75.5	73.6	63.0	50.9	36.0	28.4	48.6	.44	.43	.95	1.91	2.90	2.79	1.70	1.18	1.30	.77	.49	.41	15.27
#DALTON	*	*	*	*	*	*	*	*	*	*	*	*	*	.41	.46	1.05	1.89	2.95	3.08	2.05	1.74	1.50	.85	.65	.46	17.09
FORT ROBINSON	24.7	27.4	33.5	45.3	55.4	65.4	73.5	72.1	61.6	50.0	35.4	28.7	47.8	.45	.55	1.11	2.23	3.39	3.16	1.72	1.50	1.47	.86	.61	.44	17.49
GORDON	22.5	25.9	32.7	45.4	55.8	65.6	73.2	71.4	61.1	49.2	34.1	26.4	46.9	.48	.40	1.03	1.74	2.66	2.88	2.25	1.71	1.40	1.01	.50	.36	16.42
HARRISBURG 1 NW	*	*	*	*	*	*	*	*	*	*	*	*	*	.37	.39	.82	1.75	2.79	2.46	1.57	1.29	1.15	.77	.56	.45	14.37
HARRISON	23.0	25.7	31.4	42.8	53.0	62.8	71.4	69.7	59.7	48.2	33.5	26.6	45.7	.56	.63	1.28	2.26	3.24	2.99	1.86	1.29	1.38	.85	.74	.56	17.64
#HAY SPRINGS	23.3	26.5	32.7	45.0	55.3	65.3	73.3	71.8	61.5	49.4	34.6	27.0	47.1	.86	.77	1.37	2.17	3.15	3.20	2.25	1.69	1.49	.94	.75	.67	19.31
KIMBALL	27.0	29.8	35.2	45.4	55.3	65.5	72.4	70.8	61.4	50.0	36.5	30.2	48.3	.44	.50	1.15	1.92	3.06	2.77	2.47	1.86	1.25	.74	.63	.56	17.35
LODGEPOLE	27.7	30.6	36.6	48.0	58.1	68.1	75.8	73.9	64.2	52.0	37.6	30.5	50.3	.36	.43	1.02	2.04	3.05	3.09	2.25	2.08	1.50	.83	.55	.50	17.70
LYMAN	*	*	*	*	*	*	*	*	*	*	*	*	*	.36	.44	.89	1.97	2.73	2.53	1.25	1.06	.98	.86	.52	.46	14.05
#MITCHELL 5 E	25.0	28.3	34.6	45.8	56.2	65.9	73.5	71.2	61.4	50.1	35.7	28.5	48.0	.24	.24	.61	1.46	2.35	2.97	1.34	1.11	1.10	.67	.38	.31	12.78
OSHKOSH	25.8	29.6	36.5	48.6	58.9	68.4	75.6	73.3	63.7	51.8	36.7	29.1	49.8	.37	.40	.92	1.92	2.68	2.81	2.15	1.91	1.39	.82	.54	.41	16.32
#OSHKOSH 8 SW	*	*	*	*	*	*	*	*	*	*	*	*	*	.37	.50	1.15	2.30	3.06	2.84	2.18	1.83	1.48	.85	.63	.51	17.70
SCOTTSBLUFF AP	24.8	28.5	34.8	46.1	56.8	66.9	74.7	72.6	62.3	50.4	35.3	28.1	48.4	.29	.40	.86	1.81	2.70	3.10	1.45	1.01	1.21	.69	.46	.40	14.38
SIDNEY	26.2	29.4	35.8	46.5	56.7	66.7	74.3	72.4	62.7	50.7	36.4	29.3	48.9	.32	.33	.88	1.87	2.78	2.85	1.99	1.79	1.27	.76	.47	.46	15.77
DIVISION	25.0	28.3	34.4	46.0	56.2	66.1	73.9	72.1	62.0	50.2	35.6	28.5	48.2	.43	.45	.99	1.89	2.91	2.95	2.00	1.61	1.35	.81	.53	.43	16.35
NORTH CENTRAL DIVISION																										
AINSWORTH	23.0	25.9	33.9	47.7	59.1	69.0	76.6	74.7	64.6	52.7	36.8	27.8	49.3	.49	.71	1.19	2.11	3.29	3.95	2.26	2.35	1.76	1.12	.61	.47	20.31
ARTHUR	23.9	27.3	34.5	47.3	57.4	66.9	74.4	72.4	62.8	50.5	35.5	27.7	48.4	.32	.39	.76	1.98	3.04	3.18	2.44	2.11	1.49	.96	.39	.36	17.42
BREWSTER	*	*	*	*	*	*	*	*	*	*	*	*	*	.48	.60	1.14	2.01	3.19	3.41	2.25	2.37	2.10	1.16	.51	.48	19.70
BURWELL	*	*	*	*	*	*	*	*	*	*	*	*	*	.34	.45	1.02	1.83	3.72	3.46	2.21	1.94	1.92	1.17	.54	.39	18.99
BUTTE	21.2	23.9	33.1	48.0	59.3	69.7	76.9	75.1	65.0	52.9	36.6	26.5	49.0	.57	.84	1.42	2.29	3.43	3.74	2.72	2.78	1.81	1.17	.78	.59	22.14
CHAMBERS	21.6	24.7	33.7	47.8	59.0	68.9	75.3	73.8	64.0	52.6	36.1	26.4	48.7	.47	.58	1.16	2.02	3.50	3.97	2.29	2.34	1.90	1.45	.60	.48	20.76
ELLSMERE 9 ENE	*	*	*	*	*	*	*	*	*	*	*	*	*	.54	.67	1.27	2.28	3.64	3.77	2.47	2.33	1.82	1.19	.65	.56	21.19
ERICSON 6 WNW	*	*	*	*	*	*	*	*	*	*	*	*	*	.60	.67	1.26	2.25	3.74	3.81	2.65	2.18	1.88	1.18	.73	.56	21.51
EWING	20.8	24.1	33.9	48.4	59.6	69.8	75.9	74.1	64.1	52.2	35.7	25.8	48.7	.50	.65	1.25	2.11	3.42	4.19	2.94	2.78	1.93	1.40	.75	.55	22.47
HALSEY 2 W	22.8	26.1	34.3	47.7	58.9	69.1	75.7	73.8	63.7	51.5	35.8	27.4	48.9	.48	.64	1.20	2.26	3.22	3.16	2.28	2.72	1.83	1.03	.60	.47	19.89
HYANNIS	24.9	27.8	34.4	46.9	57.1	67.1	74.0	72.5	62.9	51.1	36.2	28.5	48.6	.39	.53	1.05	2.06	2.72	2.85	2.40	2.12	1.42	.78	.49	.38	17.19
MERRIMAN	22.5	25.6	32.8	46.1	57.3	67.0	74.8	72.4	62.2	50.4	35.0	26.9	47.8	*	*	*	*	*	*	*	*	*	*	*	*	*
#PURDUM	24.0	26.8	34.7	47.9	58.9	68.8	76.0	74.0	64.4	52.2	36.6	28.3	49.4	.57	.75	1.48	2.27	3.12	3.27	2.41	2.65	1.74	1.06	.61	.51	20.44
STAPLETON 5 SSE	24.7	27.9	35.3	47.9	58.8	68.8	75.5	73.9	64.0	52.1	36.9	28.6	49.5	.47	.62	1.22	2.18	3.27	3.53	2.12	2.18	2.01	1.10	.59	.50	19.79
VALENTINE AP	20.0	23.0	31.3	45.7	57.1	67.5	75.4	72.9	61.8	49.3	33.6	25.1	46.9	.40	.56	1.01	1.98	2.67	3.11	2.32	2.29	1.25	.88	.49	.34	17.30
DIVISION	22.6	25.7	33.7	47.6	58.5	68.5	75.5	73.7	63.8	51.9	36.1	27.3	48.7	.50	.66	1.19	2.12	3.22	3.59	2.40	2.39	1.72	1.12	.62	.47	20.00
NORTHEAST DIVISION																										
ALBION	21.8	25.4	35.0	49.2	60.2	70.7	77.1	75.3	65.7	53.9	37.4	27.4	49.9	.72	.81	1.52	2.34	3.77	4.00	2.61	2.85	1.94	1.14	.78	.76	23.24
#ELGIN 9 WSW ARDEN	*	*	*	*	*	*	*	*	*	*	*	*	*	.88	.90	1.80	2.31	3.50	4.31	2.79	2.39	1.85	1.22	.87	.86	23.68
HARTINGTON	20.0	23.4	33.7	49.2	60.9	70.6	76.9	75.1	65.6	53.8	36.5	25.8	49.3	.86	1.10	1.77	2.36	3.54	3.94	2.74	2.97	2.27	1.29	1.16	.74	24.74
MADISON	21.6	25.3	35.3	49.8	61.2	71.4	77.2	75.1	65.7	53.7	37.6	27.1	50.1	.88	.96	1.57	2.54	3.87	4.70	3.34	2.85	2.23	1.23	1.03	.81	26.01
#NORFOLK	*	*	*	*	*	*	*	*	*	*	*	*	*	.78	.79	1.58	2.26	3.91	4.54	3.08	2.79	2.36	1.25	.97	.77	25.08
NORFOLK AP	19.4	22.9	33.3	48.4	60.2	70.9	77.0	75.2	65.0	52.9	35.9	25.2	48.9	.78	.78	1.59	2.18	3.66	4.26	3.02	2.61	2.25	1.18	.91	.73	23.95
OAKDALE	19.8	23.4	33.5	48.5	60.1	70.2	76.2	74.0	63.8	52.0	35.7	25.5	48.6	.73	.79	1.50	2.27	3.56	4.14	2.54	2.82	2.00	1.34	.88	.70	23.27
OSMOND	*	*	*	*	*	*	*	*	*	*	*	*	*	.78	.90	1.67	2.48	3.92	3.88	2.71	2.75	2.27	1.31	1.12	.73	24.52
STANTON	21.2	24.8	35.3	50.0	60.9	70.9	76.7	74.9	65.4	53.7	37.4	26.8	49.8	.82	.87	1.56	2.29	3.40	4.31	3.15	2.86	2.37	1.17	.99	.66	24.45
TEKAMAH	22.0	25.6	36.1	51.1	62.3	72.4	77.7	75.5	66.6	55.2	38.3	27.8	50.9	.89	1.17	1.83	2.68	3.93	4.38	3.45	3.63	2.67	1.63	1.18	.82	28.26
WAKEFIELD	20.4	24.1	34.8	49.5	61.1	71.3	76.9	74.7	65.1	53.4	36.7	25.9	49.5	.71	.90	1.43	2.14	3.44	4.11	2.80	3.24	2.31	1.08	.97	.72	23.85
WALTHILL	19.8	23.5	34.2	49.0	60.9	70.9	76.1	74.0	64.8	53.1	36.4	25.8	49.0	.82	.92	1.50	2.26	3.49	4.39	3.20	2.94	2.33	1.38	1.02	.66	24.91
WEST POINT	21.4	25.1	35.8	50.7	62.2	72.6	78.3	76.1	66.7	54.7	37.9	27.3	50.7	.99	1.10	1.54	2.54	3.62	4.48	3.27	3.27	2.64	1.40	1.07	.77	26.69
DIVISION	20.8	24.4	34.6	49.5	61.0	71.1	76.9	74.9	65.4	53.6	36.9	26.4	49.6	.81	.92	1.58	2.37	3.66	4.24	2.96	2.99	2.31	1.30	1.00	.72	24.86

TABLE II - NORMALS BY CLIMATOLOGICAL DIVISIONS

NEBRASKA

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
CENTRAL DIVISION																										
ARCADIA	•	•	•	•	•	•	•	•	•	•	•	•	•	.46	.57	1.18	2.07	3.44	3.71	2.58	2.39	1.92	1.17	.58	.49	20.56
BROKEN BOW 2 W	23.5	26.8	34.9	47.9	58.7	69.0	75.5	73.8	63.5	51.8	36.4	27.8	49.1	.60	.62	1.17	2.17	3.40	3.98	2.70	2.49	2.08	1.00	.59	.51	21.31
GOTHENBURG	25.6	29.5	37.5	50.4	60.7	70.6	77.2	75.3	65.4	53.5	37.9	29.3	51.1	.44	.57	1.17	2.07	3.31	3.96	2.17	2.39	1.85	1.00	.55	.44	19.92
GRAND ISLAND AP	24.1	27.6	37.2	51.1	62.1	72.5	78.7	76.8	66.7	54.4	38.2	28.7	51.5	.63	.74	1.27	2.28	3.85	3.79	2.51	2.35	2.15	.96	.76	.56	21.85
KEARNEY	23.9	27.9	35.9	49.5	60.5	71.2	77.6	76.0	65.9	53.9	37.8	28.6	50.7	.54	.67	1.25	2.51	3.86	4.04	2.73	2.20	2.32	1.22	.74	.52	22.60
LEXINGTON 7 ESE	24.9	29.5	37.3	50.1	60.1	70.7	76.7	75.0	65.3	53.7	38.4	29.5	50.9	•	•	•	•	•	•	•	•	•	•	•	•	•
LOUP CITY	23.5	27.4	36.7	50.1	60.7	70.8	76.9	75.3	65.4	53.3	37.4	28.0	50.5	.52	.53	1.17	2.00	3.36	3.91	2.72	2.32	2.05	1.07	.63	.52	20.80
#MASON CITY 1 NNW	•	•	•	•	•	•	•	•	•	•	•	•	•	.64	.71	1.24	1.95	3.41	3.77	2.74	2.27	1.95	1.33	.62	.54	21.17
NORTH LOUP	22.3	26.2	35.4	49.0	60.1	70.7	76.7	75.0	65.0	53.0	37.1	27.3	49.8	.58	.64	1.17	2.07	3.49	3.82	2.71	2.35	1.87	1.08	.70	.58	21.06
#ORD	•	•	•	•	•	•	•	•	•	•	•	•	•	.66	.78	1.49	2.29	3.46	3.79	2.37	2.18	1.98	1.14	.73	.68	21.55
RAVENNA	24.4	28.4	37.3	50.8	61.3	71.8	77.9	76.5	66.6	54.4	38.2	28.8	51.4	.47	.60	1.16	2.18	3.52	4.33	2.81	2.40	2.11	1.10	.68	.46	21.82
SAINT PAUL	23.9	27.7	37.2	51.1	61.7	72.0	78.0	76.4	66.7	54.6	38.3	28.5	51.3	.50	.66	1.17	2.33	3.66	4.49	3.05	2.38	2.12	1.10	.72	.62	22.80
DIVISION	24.1	27.9	36.5	49.9	60.5	70.9	77.0	75.4	65.5	53.6	37.7	28.5	50.6	.52	.61	1.21	2.17	3.51	4.04	2.71	2.35	2.04	1.07	.64	.51	21.38
EAST CENTRAL DIVISION																										
ASHLAND 3 NE	•	•	•	•	•	•	•	•	•	•	•	•	•	.77	.94	1.41	2.50	3.46	4.74	3.45	4.04	3.37	1.59	1.17	.77	28.21
AURORA	•	•	•	•	•	•	•	•	•	•	•	•	•	.65	.80	1.26	2.40	3.67	4.28	2.81	2.95	2.40	1.08	.82	.64	23.76
BLAIR	22.1	25.7	36.1	51.3	62.0	72.1	77.4	75.2	66.2	55.4	38.6	27.8	50.8	.89	1.05	1.70	2.45	3.44	4.34	3.01	3.31	2.63	1.60	1.26	.84	26.52
BRADSHAW	•	•	•	•	•	•	•	•	•	•	•	•	•	.86	.76	1.25	2.64	3.67	4.61	2.94	2.95	2.32	1.27	.88	.64	24.79
CENTRAL CITY	23.7	27.5	36.7	50.7	61.3	72.0	78.2	76.5	66.8	54.9	38.6	28.8	51.3	.62	.77	1.35	2.23	3.94	3.94	3.21	2.74	2.44	1.04	.84	.64	23.76
COLUMBUS	23.4	27.1	37.2	51.2	62.1	72.3	78.1	76.3	67.1	55.4	39.0	28.7	51.5	•	•	•	•	•	•	•	•	•	•	•	•	•
DAVID CITY	22.7	26.6	36.2	50.6	61.6	71.9	77.8	76.0	66.8	55.2	38.3	28.2	51.0	.99	1.09	1.63	2.44	3.85	4.89	2.68	3.21	2.52	1.28	1.11	.72	26.41
#FREMONT	23.0	26.9	37.3	51.8	62.7	72.6	78.1	76.3	67.4	55.9	39.2	28.5	51.6	1.11	1.15	1.84	2.54	3.57	4.65	3.27	4.17	2.60	1.49	1.10	.83	28.32
GENOA	23.3	27.1	37.0	51.0	61.9	72.1	77.8	76.1	66.9	55.2	38.8	28.4	51.3	.62	.81	1.24	2.20	3.63	4.48	2.87	2.73	2.19	1.08	.81	.71	23.37
LINCOLN AGRONOMY FARM	24.9	29.1	38.6	52.6	63.2	73.7	79.4	77.6	68.7	57.1	40.5	30.3	53.0	.85	1.03	1.65	2.44	3.48	4.41	3.07	3.94	2.88	1.63	1.27	.84	27.49
LINCOLN COLLEGE VIEW	•	•	•	•	•	•	•	•	•	•	•	•	•	.82	.99	1.73	2.55	3.47	4.28	3.23	3.56	2.84	1.61	1.22	.82	27.12
LINCOLN CO	25.1	28.7	38.1	51.8	62.5	73.1	80.1	77.7	68.2	56.7	40.8	30.6	52.8	.92	1.09	1.73	2.45	3.48	4.50	3.27	3.38	2.87	1.58	1.26	.90	27.43
OMAHA AP EPPLEY	22.3	26.5	36.9	51.7	63.0	73.1	78.5	76.2	66.9	55.7	38.9	28.2	51.5	.82	.95	1.45	2.56	3.48	4.53	3.37	3.98	2.63	1.73	1.26	.80	27.56
OMAHA AP NORTH	20.3	24.3	34.7	49.5	60.7	70.8	76.1	73.9	65.1	53.9	36.9	26.1	49.4	.91	1.00	1.46	2.48	3.38	4.62	3.57	4.14	2.52	1.66	1.31	.89	27.94
OSCEOLA	23.0	26.9	36.8	50.8	61.8	72.1	78.4	76.3	67.4	55.3	38.9	28.5	51.4	.82	1.00	1.33	2.47	3.72	4.06	2.89	2.91	2.38	1.15	.99	.73	24.45
SCHUYLER	•	•	•	•	•	•	•	•	•	•	•	•	•	.88	1.01	1.56	2.63	3.75	4.66	3.05	3.81	2.41	1.15	.98	.78	26.67
SEWARD	24.0	28.1	37.6	51.6	62.0	72.3	78.2	76.0	67.1	55.6	38.9	29.2	51.7	.83	.93	1.54	2.41	3.62	4.75	3.41	3.42	2.57	1.55	1.18	.85	27.06
UTICA	•	•	•	•	•	•	•	•	•	•	•	•	•	.66	.85	1.21	2.27	3.69	4.69	3.29	3.38	2.39	1.30	.98	.70	25.41
WAHOO	•	•	•	•	•	•	•	•	•	•	•	•	•	.97	1.06	1.55	2.57	3.54	4.57	2.99	3.99	2.67	1.58	1.18	.81	27.48
WEEPING WATER	22.7	27.1	37.2	51.6	62.3	72.5	77.7	75.5	66.6	55.2	38.7	28.3	51.3	.91	1.02	1.88	2.57	3.75	5.02	3.17	4.66	3.00	1.67	1.34	.89	29.88
YORK	24.5	28.4	37.7	51.5	62.0	72.6	78.6	76.9	67.4	55.7	39.4	29.5	52.0	.79	.91	1.33	2.43	3.93	4.80	3.52	3.22	2.35	1.30	.99	.79	26.36
DIVISION	23.3	27.2	37.0	51.3	62.1	72.3	78.1	76.2	67.1	55.5	38.9	28.7	51.5	.83	.96	1.51	2.43	3.70	4.55	3.17	3.49	2.62	1.40	1.09	.77	26.52
SOUTHWEST DIVISION																										
BENKELMAN	29.1	33.0	39.6	51.5	61.5	71.8	78.5	76.8	67.2	54.9	40.1	32.4	53.0	.43	.42	1.07	1.73	2.78	2.60	2.30	2.13	1.47	.78	.50	.41	16.62
CULBERTSON	27.0	31.5	38.6	51.1	61.4	71.8	78.4	76.4	66.6	54.0	38.4	30.2	52.1	.46	.61	1.23	1.91	3.24	3.08	2.66	2.49	1.58	.99	.65	.48	19.38
CURTIS	26.3	30.5	38.3	50.7	60.8	71.1	77.5	75.9	65.7	53.6	38.0	29.7	51.5	.45	.54	1.25	2.00	3.40	3.36	2.32	2.30	1.57	1.00	.52	.49	19.20
HAYES CENTER	27.1	30.3	37.0	49.3	59.8	70.0	77.3	75.8	66.2	54.3	38.7	30.8	51.4	.56	.67	1.34	2.24	3.44	3.22	2.62	1.99	1.86	1.00	.66	.47	20.07
IMPERIAL	27.1	30.7	37.0	49.1	59.3	69.8	77.0	75.2	65.4	53.2	38.3	30.5	51.1	.45	.52	1.06	1.88	3.46	3.37	2.39	2.09	1.65	.89	.55	.45	18.76
#MADRID	26.4	30.2	37.0	49.1	59.7	70.4	77.5	75.7	65.8	53.1	37.8	29.7	51.0	.52	.57	1.37	2.25	3.19	3.14	2.55	2.09	1.69	.80	.62	.53	19.32
MC COOK	28.1	32.2	39.7	52.1	61.9	72.0	78.3	76.5	67.0	55.2	40.1	31.7	52.9	.52	.65	1.39	2.04	3.10	3.22	2.73	2.28	1.61	.98	.69	.54	19.75
NORTH PLATTE AP	24.0	27.9	35.0	47.7	58.5	69.1	76.1	74.5	63.7	51.0	35.5	27.4	49.2	.43	.52	.98	2.01	2.95	3.25	2.52	2.13	1.67	.91	.50	.40	18.27
OGALLALA	26.3	30.0	36.8	49.1	59.4	69.6	76.5	74.4	64.4	52.2	37.5	29.7	50.5	.45	.56	1.05	2.05	3.09	2.75	2.45	2.36	1.71	.76	.52	.49	18.24
STRATTON	•	•	•	•	•	•	•	•	•	•	•	•	•	.52	.53	1.28	2.16	3.29	3.12	2.64	2.03	1.56	1.00	.57	.48	19.18
WAUNETA	•	•	•	•	•	•	•	•	•	•	•	•	•	.52	.64	1.25	1.93	3.38	3.21	2.29	2.31	1.65	.82	.65	.48	19.13
DIVISION	26.9	30.8	37.8	50.0	60.4	70.6	77.4	75.7	66.0	53.8	38.6	30.6	51.6	.47	.55	1.16	1.95	3.14	3.06	2.48	2.18	1.64	.89	.57	.47	18.56
SOUTH CENTRAL DIVISION																										
ALMA	26.5	30.8	39.2	52.5	62.7	73.4	79.5	77.9	68.4	56.1	39.8	30.4	53.1	.46	.63	1.07	2.29	3.26	3.63	2.71	2.53	2.12	1.08	.70	.43	20.91
BEAVER CITY	27.6	31.7	39.9	52.8	62.6	73.2	79.6	77.8	68.1	56.0	40.2	31.2	53.4	.60	.72	1.21	2.12	3.59	3.39	2.88	2.35	1.64	1.10	.70	.49	20.79
#ELWOOD 9 SSW	•	•	•	•	•	•	•	•	•	•	•	•	•	.41	.50	1.12	2.05	3.57	3.99	2.40	2.34	1.83	1.14	.63	.42	20.40
FRANKLIN	26.7	30.8	39.4	52.3	62.4	72.6	78.9	77.6	67.4	55.8	39.9	31.1	52.9	.54	.73	1.32	2.22	3.21	4.01	2.69	2.87	2.11	1.16	.76	.54	22.16
GUIDE ROCK	•	•	•	•	•	•	•	•	•	•	•	•	•	.47	.69	1.29	2.15	3.50	4.74	2.99	2.89	2.45	1.25	.84	.61	23.87
HASTINGS	25.8	29.7	38.2	51.4	61.9	72.3	78.5	76.9	67.7	56.1	40.0	30.7	52.4	.66	.86	1.44	2.47	3.70	4.07	2.66	3.18	2.30	1.13	.90	.65	24.02
#HOLDREGE	26.5	30.4	38.9	51.9	62.1	72.8	79.3	77.7	68.1	55.8	39.6	30.5	52.8	.60	.78	1.28	2.36	3.86	4.20	2.42	2.45	2.23	1.18	.77	.57	22.70
MINDEN	25.6	29.7	38.1	51.0	61.5	72.0	78.5	77.1	67.5	55.7	39.3	30.1	52.2	.51	.70	1.36	2.25	3.96	4.25	2.67	2.76	2.28	1.01	.76	.48	22.99
RED CLOUD	25.6	30.1	39.0	52.5	62.6	73.3	79.2	77.8	68.0	55.6	39.3	30.1	52.8	.60	.86	1.42	2.01	3.40	4.40	2.92	2.61	2.43	1.24	.88	.66	23.43
UPLAND	•	•	•	•	•	•	•	•	•	•	•	•	•	.65	.76	1.18	2.27	3.38	4.35	2.55	2.71	2.29	1.08	.79	.55	22.56
DIVISION	26.2	30.5	38.7	51.8	62.1	72.6	78.7	77.4	67.8	55.7	39.6	30.3	52.6	.55	.72	1.27	2.21	3.58	3.97	2.72	2.63	2.13	1.13	.83	.54	22.28
SOUTHEAST DIVISION																										
AUBURN	•	•	•	•	•	•	•	•	•	•	•	•	•	1.09	1.18	2.30	2.89	4.58	5.50	3.50	4.73	4.10	2.31	1.51	1.12	34.81
#BEATRICE NO 1	24.4	28.9	38.1	52.1	62.6	73.1	79.1	77.5	68.0	55.8	39.5	29.6	52.4	.76	.98	1.60	2.29	3.87	4.91	3.50	3.97	3.38	1.70	1.14	.77	28.87
BRUNING	•	•	•	•	•	•	•	•	•	•	•	•	•	.74	.86	1.38	2.50	4.06	4.72	2.84	3.44	2.71	1.34	1.16	.85	26.60
CLAY CENTER	24.7	29.2	38.1	51.4	61.6	72.4	78.4	76.9	68.0	55.8	39.4	29.7	52.1	.63	.81	1.30	2.26	3.64	3.96	2.68	2.96	2.33	1.21	.91	.71	23.40
CRETE	24.4	28.7	38.3	52.2	62.6	72.8	78.7	77.1	68.0	56.4	39.6	29.5	52.4	.80	1.01	1.60	2.57	4.10	4.98	3.07	3.55	2.98	1.57	1.22	.81	28.26
FAIRBURY 2 SSE	25.5	30.0	39.4	52.9	63.3	73.8	79.7	78.3	68.8	57.1	40.4	30.6	53.3	.72	.98	1.58	2.29	4.15	5.09	3.30	3.97	3.03	1.60	1.17	.81	28.69
FAIRMONT	23.1	27.4	36.6	50.6	61.5	72.3	78.4	76.6	67.2	55.4	38.7	28.9	51.4	.63	.82	1.25	2.49	3.67	4.54	3.07	3.78	2.64	1.37	1.07	.71	26.04
FALLS CITY	26.6	30.6	40.0	53.2	63.1	73.1	78.6	76.8	68.3	57.3	41.5	31.5	53.4	1.23	1.18	2.23	3.05	4.89	5.33	3.15	4.58	4.14	2.26	1.74	1.23	35.01
GENEVA	24.2	28.3	37.4	50.9	61.5	72.2	78.3	76.5	67.3	55.7	39.0	29.4	51.7	.83	1.12	1.60	2.58	3.78	4.48	2.94	3.75	2.50	1.45	1.16	.84	27.03
HEBRON	24.6	29.1	38.1	51.8	62.1	73.1	79.0	77.6	67.8	55.9	39.4	29.8	52.4	.67	.90	1.41	2.43	4.14	5.23	3.12	3.18	2.97	1.48	1.09	.80	27.42
#NEBRASKA CITY	25.2	29.4	39.0	53.1	63.2	72.7	77.9	76.1	68.1	57.4	41.1	30.6	52.8	.90	.98	1.90	2.42	3.83	5.31	3.35	4.21	3.24	2.18	1.30	.84	30.46
NELSON	•	•	•	•	•	•	•	•	•	•	•	•	•	.70	.94	1.47	2.35	3.61	4.63	2.81	2.93	2.66	1.23	1.00	.76	25.09
PAWNEE CITY	26.6	30.9	40.3	53.7	63.8	74.0	79.5	78.0	68.9	57.7	41.5	31.5	53.9	.96	1.07	1.97	2.56	4.32	5.18	3.10	4.31	3.95	2.21	1.29	.97	31.89
SUPERIOR	•	•	•	•	•	•	•	•	•	•	•	•	•	.61	.84	1.39	2.13	3.57	4.57	2.94	2.91	2.73	1.31	1.01	.71	24.72
SYRACUSE	24.5	28.7	38.8	52.7	63.1	73.4	78.9	77.2	68.2	56.6	40.0	29.7	52.7	.87	.98	1.81	2.64	3.84	4.81	3.23	4.07	3.11	1.78	1.34	.82	29.30
#TABLE ROCK 5 N	•	•	•	•	•	•	•	•	•	•	•	•	•	.91	.97	1.91	2.49	3.82	4.97	3.29	4.17	3.79	1.97	1.19	.89	30.37
TECUMSEH	24.9	29.3	38.8	52.3	62.2	72.5	77.9	76.2	67.2	55.9	40.0	29.9	52.3	1.05	1.14	2.05	2.47	4.32	5.21	3.65	4.06	3.78	2.01	1.35	.94	32.03
WESTERN	•	•	•	•	•	•	•	•	•	•	•	•	•	.69	.94	1.29	2.31	3.86	4.45	3.19	3.85	2.90	1.43	1.09	.73	26.73
DIVISION	25.0	29.3	38.6	52.3	62.6	72.9	78.7	77.1	68.0	56.4	40.1	30.1	52.6	.85	1.01	1.72	2.52	4.05	4.95	3.17	3.86	3.21	1.74	1.24	.86	29.18

1963 REVISIONS AND ADDITIONS TO CLIMATOGRAPHY OF THE UNITED STATES NO. 81-21 NEBRASKA

TABLE I — NORMALS FOR FIRST ORDER STATIONS

STATION	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Annual
GRAND ISLAND AP													
G1841 T 4													
MAX TEMP	34.1	37.0	47.1	62.0	73.0	83.4	90.7	88.5	79.0	68.2	50.1	38.2	62.6
MIN TEMP	11.0	15.2	24.3	37.1	48.1	58.5	63.7	62.0	51.3	38.6	24.3	16.1	37.5
AVG TEMP	22.6	26.1	35.7	49.6	60.6	71.0	77.2	75.3	65.2	53.4	37.2	27.2	50.1
DEG DAYS	1314	1089	908	462	211	45	0	6	108	381	834	1172	6530
OMAHA AP-NORTH													
H1323 T 4													
MAX TEMP	30.2	33.3	44.0	60.2	71.5	81.0	87.0	84.4	76.5	65.7	46.7	35.7	59.7
MIN TEMP	12.4	16.3	25.3	38.8	49.8	61.5	66.1	64.4	54.7	43.0	28.0	18.4	39.9
AVG TEMP	21.3	24.8	34.7	49.5	60.7	71.3	76.6	74.4	65.6	54.4	37.4	27.1	49.8
DEG DAYS	1355	1126	939	465	208	42	0	12	105	357	828	1175	6612
SCOTTSBLUFF AP													
H3950 T 5													
MAX TEMP	38.7	42.4	48.6	60.4	69.7	80.2	89.2	87.0	77.2	65.1	49.7	41.6	62.5
MIN TEMP	11.9	15.5	21.9	32.7	43.9	53.5	60.1	58.1	47.3	35.6	21.9	15.6	34.8
AVG TEMP	25.3	29.0	35.3	46.6	56.8	66.9	74.7	72.6	62.3	50.4	35.8	28.6	48.7
DEG DAYS	1231	1008	921	552	285	75	0	0	138	459	876	1128	6673

TABLE II — NORMALS BY CLIMATOLOGICAL DIVISIONS

	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Annual
TEMPERATURE (°F.)													
PANHANDLE DIVISION	25.1		34.6	46.1	56.5	66.4	74.1	72.2	62.2	50.5	35.8	28.6	48.4
NORTH CENTRAL DIVISION	22.7		33.8	47.4			75.6			51.8			
NORTHEAST DIVISION	20.7	24.3				71.2	77.0	75.0		53.4			
CENTRAL DIVISION	24.0	27.8		49.8			77.1	75.5				28.4	
EAST CENTRAL DIVISION		27.3	37.1		62.2	72.5	78.2				39.0	28.8	
SOUTHWEST DIVISION	27.0				60.2				65.9	53.7	38.5	30.5	51.5
SOUTH CENTRAL DIVISION		30.3	38.8	51.9		72.7	79.0		67.9	55.8		30.4	52.7
SOUTHEAST DIVISION			38.7			73.0							
PRECIPITATION (In.)													
PANHANDLE DIVISION		.46	.98	1.90	2.88	2.97	1.97			.83	.55	.44	16.37
NORTH CENTRAL DIVISION	.49	.65		2.16	3.21	3.56	2.39	2.40	1.70	1.09	.60		19.91
NORTHEAST DIVISION	.80			2.35	3.63	4.19	2.94	2.98	2.29	1.29	.99	.73	24.69
CENTRAL DIVISION	.53	.62	1.20	2.19	3.55		2.72	2.33	2.05	1.06	.65		21.45
EAST CENTRAL DIVISION	.84			2.44	3.65	4.51	3.18	3.50	2.61	1.42	1.11		26.50
SOUTHWEST DIVISION	.46	.54	1.15	1.94	3.18	3.07	2.49	2.22	1.61	.88	.56	.45	18.55
SOUTH CENTRAL DIVISION	.54		1.22	2.23	3.53	3.93	2.64	2.60	2.11	1.12	.81	.52	21.97
SOUTHEAST DIVISION				2.51	4.07		3.18	3.85	3.24	1.75		.87	29.24

PANHANDLE DIVISION
HARRISBURG 10 NW
(CORRECTION TO NAME ONLY)

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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