U.S. Department of Commerce
National Oceanic & Atmospheric Administration
National Environmental Satellite, Data,
and Information Service

Climatography of the United States No. 20 1971-2000

National Climatic Data Center
Federal Building
151 Patton Avenue
Asheville, North Carolina 28801
www.ncdc.noaa.gov

Station: KENNETT RADIO KBOA, MO **COOP ID: 234417**

Climate Division: MO 6 **NWS Call Sign:** **Elevation: 270 Feet** **Lat: 36˚13N** **Lon: 90˚04W**

Temperature (˚F)

Mean (1)				Extremes										Degree Days (1) Base Temp 65		Mean Number of Days (3)					
Month	Daily Max	Daily Min	Mean	Highest Daily(2)	Year	Day	Highest Month(1) Mean	Year	Lowest Daily(2)	Year	Day	Lowest Month(1) Mean	Year	Heating	Cooling	Max >= 100	Max >= 90	Max >= 50	Max <= 32	Min <= 32	Min <= 0
Jan	43.9	24.6	34.3	74+	1987	30	43.2	1990	-12	1985	21	21.1	1977	954	0	.0	.0	10.6	5.3	23.1	.7
Feb	50.3	29.0	39.7	80	1962	13	46.9	1976	-4+	1979	10	22.3	1978	710	0	.0	.0	15.7	2.6	17.1	.2
Mar	60.1	38.0	49.1	86+	1986	31	54.5	1976	0+	1978	4	41.7	1978	496	2	.0	.0	25.6	.3	9.5	@
Apr	70.8	47.1	59.0	93+	1987	28	65.2	1981	24	1960	10	53.0	1983	210	28	.0	.3	29.4	.0	1.5	.0
May	79.8	57.0	68.4	98	1953	29	74.3	1987	34	1963	1	63.5	1976	59	164	.0	3.3	31.0	.0	.0	.0
Jun	88.7	65.4	77.1	105+	1988	27	79.6	1984	43	1974	23	71.3	1974	1	361	.6	15.2	30.0	.0	.0	.0
Jul	92.8	69.2	81.0	112+	1980	16	87.7	1980	50	1972	6	77.8	1971	0	496	3.3	22.6	31.0	.0	.0	.0
Aug	91.1	66.6	78.9	107+	1983	29	85.1	1983	46	1986	29	73.3	1992	1	429	2.5	18.5	31.0	.0	.0	.0
Sep	84.4	58.5	71.5	106	1980	10	77.3	1998	34	1974	23	63.4	1974	26	219	.7	8.3	30.0	.0	.0	.0
Oct	74.1	46.6	60.4	97	1963	11	66.4	1971	24	1981	24	55.2	1978	193	48	.0	.7	30.9	.0	2.1	.0
Nov	59.5	37.6	48.6	87	1987	5	54.6	1999	12+	1976	29	41.1	1976	496	2	.0	.0	23.6	.1	9.6	.0
Dec	48.2	29.2	38.7	78	1982	3	46.1	1984	-6+	1989	24	28.3	2000	815	0	.0	.0	14.3	2.8	19.6	.3
Ann	70.3	47.4	58.9	112+	Jul 1980	16	87.7	Jul 1980	-12	Jan 1985	21	21.1	Jan 1977	3961	1749	7.1	68.9	303.1	11.1	82.5	1.2

\+ Also occurred on an earlier date(s)

@ Denotes mean number of days greater than 0 but less than .05

Complete documentation available from: www.ncdc.noaa.gov/oa/climate/normals/usnormals.html

(1) From the 1971-2000 Monthly Normals

(2) Derived from station's available digital record: 1953-2001

(3) Derived from 1971-2000 serially complete daily data

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Precipitation (inches)

Precipitation Totals

Month	Means/ Medians(1) Mean	Means/ Medians(1) Median	Extremes Highest Daily(2)	Year	Day	Highest Monthly(1)	Year	Lowest Monthly(1)	Year
Jan	3.37	3.18	7.96	1966	1	6.62	1982	1.02	1983
Feb	3.84	3.29	3.32	2001	15	9.83	1989	1.04	1995
Mar	4.85	4.69	4.02	1975	28	11.73	1975	1.52	1982
Apr	4.92	4.45	4.90	1973	19	12.58	1979	.86	1976
May	5.59	4.92	4.84	2000	28	12.50	2000	1.28	1994
Jun	4.03	3.78	4.19	1989	12	9.42	2000	.12	1988
Jul	3.63	3.23	4.71	1976	4	9.85	1996	.26	1983
Aug	2.66	2.07	9.66	1957	14	7.15	1975	.23	1996
Sep	3.29	2.85	4.45	1988	30	12.13	1988	.16	1998
Oct	3.93	3.74	6.00	1998	6	10.10	1984	.63	1971
Nov	4.95	4.51	5.49	1973	24	13.64	1973	.89	1999
Dec	4.55	4.33	3.35	1990	22	10.96	1990	1.03	1976
Ann	49.61	48.99	9.66	Aug 1957	14	13.64	Nov 1973	.12	Jun 1988

Mean Number of Days (3)

Daily Precipitation

Month	>= 0.01	>= 0.10	>= 0.50	>= 1.00
Jan	9.0	5.9	2.5	.9
Feb	8.5	6.2	2.6	1.2
Mar	10.4	7.8	3.5	1.5
Apr	9.7	7.6	3.2	1.4
May	10.7	7.2	3.8	1.9
Jun	8.6	6.0	2.7	1.2
Jul	7.3	5.1	2.3	1.1
Aug	6.6	4.3	1.9	.7
Sep	7.5	4.5	2.1	1.0
Oct	7.5	5.1	2.4	1.0
Nov	9.0	6.8	3.3	1.5
Dec	9.1	7.1	3.0	1.4
Ann	103.9	73.6	33.3	14.8

Precipitation Probabilities (1)

Probability that the monthly/annual precipitation will be equal to or less than the indicated amount

Monthly/Annual Precipitation vs Probability Levels
These values were determined from the incomplete gamma distribution

Month	.05	.10	.20	.30	.40	.50	.60	.70	.80	.90	.95
Jan	1.22	1.53	1.99	2.37	2.74	3.12	3.52	4.00	4.60	5.54	6.40
Feb	1.00	1.36	1.92	2.41	2.90	3.40	3.97	4.64	5.51	6.89	8.18
Mar	1.77	2.23	2.88	3.43	3.95	4.49	5.07	5.75	6.61	7.94	9.16
Apr	1.38	1.84	2.55	3.17	3.77	4.40	5.10	5.93	7.00	8.68	10.25
May	1.84	2.37	3.15	3.81	4.45	5.11	5.83	6.67	7.75	9.43	10.98
Jun	.69	1.04	1.63	2.18	2.75	3.36	4.07	4.92	6.06	7.90	9.66
Jul	.47	.77	1.28	1.79	2.32	2.91	3.59	4.44	5.58	7.45	9.26
Aug	.34	.55	.93	1.30	1.69	2.12	2.63	3.25	4.09	5.47	6.81
Sep	.37	.63	1.09	1.54	2.03	2.58	3.22	4.02	5.10	6.89	8.63
Oct	.77	1.12	1.70	2.23	2.77	3.34	3.99	4.78	5.82	7.49	9.07
Nov	1.14	1.60	2.32	2.97	3.62	4.31	5.08	6.01	7.22	9.15	10.97
Dec	1.29	1.72	2.38	2.94	3.50	4.08	4.72	5.47	6.45	7.99	9.42
Ann	35.60	38.32	41.80	44.44	46.79	49.05	51.39	53.97	57.10	61.63	65.54

\+ Also occurred on an earlier date(s)
\# Denotes amounts of a trace
@ Denotes mean number of days greater than 0 but less than .05
****** Statistics not computed because less than six years out of thirty had measurable precipitation

(1) From the 1971-2000 Monthly Normals
(2) Derived from station's available digital record: 1953-2001
(3) Derived from 1971-2000 serially complete daily data

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Snow (inches)

Snow Totals

Means/Medians (1)

Extremes (2)

Mean Number of Days (1)

Snow Fall >= Thresholds

Snow Depth >= Thresholds

Month	Snow Fall Mean	Snow Fall Median	Snow Depth Mean	Snow Depth Median	Highest Daily Snow Fall	Year	Day	Highest Monthly Snow Fall	Year	Highest Daily Snow Depth	Year	Day	Highest Monthly Mean Snow Depth	Year	0.1	1.0	3.0	5.0	10.0	1	3	5	10
Jan	4.5	3.0	#	#	10.0	1985	4	18.5	1985	7	1988	10	2	1979	1.5	1.0	.5	.2	@	3.2	2.0	.5	.0
Feb	3.4	1.0	#	0	8.0	1979	7	17.6	1979	8	1979	9	3	1979	1.4	.9	.4	.2	.0	2.0	1.0	.4	.0
Mar	.7	.0	#	0	6.0	1971	3	8.5	1971	5	1990	1	#+	1998	.2	.2	.1	@	.0	.2	.1	@	.0
Apr	#	.0	0	0	#	1971	6	#	1971	0	0	0	0	0	.0	.0	.0	.0	.0	.0	.0	.0	.0
May	.0	.0	0	0	.0	0	0	.0	0	0	0	0	0	0	.0	.0	.0	.0	.0	.0	.0	.0	.0
Jun	.0	.0	0	0	.0	0	0	.0	0	0	0	0	0	0	.0	.0	.0	.0	.0	.0	.0	.0	.0
Jul	.0	.0	0	0	.0	0	0	.0	0	0	0	0	0	0	.0	.0	.0	.0	.0	.0	.0	.0	.0
Aug	.0	.0	0	0	.0	0	0	.0	0	0	0	0	0	0	.0	.0	.0	.0	.0	.0	.0	.0	.0
Sep	.0	.0	0	0	.0	0	0	.0	0	0	0	0	0	0	.0	.0	.0	.0	.0	.0	.0	.0	.0
Oct	.0	.0	0	0	.0	0	0	.0	0	0	0	0	0	0	.0	.0	.0	.0	.0	.0	.0	.0	.0
Nov	.3	.0	#	0	2.5	1971	23	4.0	1976	2	1976	12	#+	1995	.2	.1	.0	.0	.0	.1	.0	.0	.0
Dec	1.0	.0	#	0	3.0	1992	26	3.5	1990	6	1988	28	1	1990	.8	.5	@	.0	.0	.8	.0	.0	.0
Ann	9.9	4.0	N/A	N/A	10.0	Jan 1985	4	18.5	Jan 1985	8	Feb 1979	9	3	Feb 1979	4.1	2.7	1.0	.4	@	6.3	3.1	.9	.0

+ Also occurred on an earlier date(s) #Denotes trace amounts

@ Denotes mean number of days greater than 0 but less than .05

-9/-9.9 represents missing values
Annual statistics for Mean/Median snow depths are not appropriate

(1) Derived from Snow Climatology and 1971-2000 daily data

(2) Derived from 1971-2000 daily data

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Freeze Data

Spring Freeze Dates (Month/Day)

Temp (F)	Probability of later date in spring (thru Jul 31) than indicated(*)								
	.10	.20	.30	.40	.50	.60	.70	.80	.90
36	4/24	4/20	4/17	4/14	4/12	4/10	4/07	4/04	3/31
32	4/15	4/11	4/08	4/06	4/04	4/01	3/30	3/27	3/23
28	4/04	3/30	3/27	3/24	3/21	3/18	3/15	3/11	3/06
24	3/23	3/16	3/11	3/06	3/02	2/26	2/21	2/16	2/09
20	3/12	3/04	2/27	2/22	2/18	2/14	2/09	2/04	1/28
16	3/08	2/26	2/18	2/12	2/05	1/30	1/24	1/15	1/03

Fall Freeze Dates (Month/Day)

Temp (F)	Probability of earlier date in fall (beginning Aug 1) than indicated(*)								
	.10	.20	.30	.40	.50	.60	.70	.80	.90
36	9/30	10/05	10/08	10/11	10/13	10/16	10/19	10/22	10/27
32	10/09	10/15	10/19	10/22	10/25	10/28	11/01	11/05	11/10
28	10/27	11/01	11/05	11/08	11/11	11/14	11/18	11/21	11/27
24	10/31	11/07	11/13	11/18	11/22	11/26	12/01	12/07	12/14
20	11/14	11/21	11/26	12/01	12/05	12/10	12/14	12/20	12/27
16	11/20	12/01	12/08	12/15	12/21	12/27	1/03	1/12	1/24

Freeze Free Period

Temp (F)	Probability of longer than indicated freeze free period (Days)								
	.10	.20	.30	.40	.50	.60	.70	.80	.90
36	200	195	191	187	184	181	177	173	167
32	222	216	211	207	204	200	196	192	186
28	258	250	244	239	235	230	225	219	211
24	296	285	277	270	264	258	251	244	233
20	320	310	302	296	290	283	277	269	259
16	>365	351	332	321	313	305	297	288	276

***** Probability of observing a temperature as cold, or colder, later in the spring or earlier in the fall than the indicated date.

0/00 Indicates that the probability of occurrence of threshold temperature is less than the indicated probability.

Derived from 1971-2000 serially complete daily data

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Degree Days to Selected Base Temperatures (˚F)

Base — Heating Degree Days (1)

Below	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Ann
65	954	710	496	210	59	1	0	1	26	193	496	815	3961
60	800	580	354	110	20	0	0	0	6	102	357	661	2990
57	715	502	276	66	9	0	0	0	2	63	279	576	2488
55	656	451	229	45	5	0	0	0	1	44	233	517	2181
50	515	335	135	12	0	0	0	0	0	14	137	380	1528
32	148	67	6	0	0	0	0	0	0	0	4	65	290

Base — Cooling Degree Days (1)

Above	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Ann
32	218	281	535	808	1128	1350	1519	1451	1183	878	501	273	10125
55	13	21	46	163	420	660	806	738	494	209	40	12	3622
57	9	15	30	125	362	600	744	676	435	166	26	8	3196
60	2	10	15	78	279	510	651	583	349	112	13	1	2603
65	0	0	2	28	164	361	496	429	219	48	2	0	1749
70	0	0	0	7	79	218	341	283	117	15	0	0	1060

Growing Degree Units (2)

Base	Growing Degree Units (Monthly)												Growing Degree Units (Accumulated Monthly)											
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
40	74	151	336	588	900	1124	1285	1211	958	643	300	115	74	225	561	1149	2049	3173	4458	5669	6627	7270	7570	7685
45	32	80	218	441	745	974	1130	1056	808	489	192	57	32	112	330	771	1516	2490	3620	4676	5484	5973	6165	6222
50	13	38	129	306	590	824	975	901	658	347	112	23	13	51	180	486	1076	1900	2875	3776	4434	4781	4893	4916
55	1	14	64	190	438	674	820	746	508	225	57	7	1	15	79	269	707	1381	2201	2947	3455	3680	3737	3744
60	0	0	28	101	287	524	665	591	365	124	22	0	0	0	28	129	416	940	1605	2196	2561	2685	2707	2707
Base	**Growing Degree Units for Corn (Monthly)**												**Growing Degree Units for Corn (Accumulated Monthly)**											
50/86	49	97	205	366	585	764	862	817	637	423	183	65	49	146	351	717	1302	2066	2928	3745	4382	4805	4988	5053

(1) Derived from the 1971-2000 Monthly Normals
(2) Derived from 1971-2000 serially complete daily data
Note: For corn, temperatures below 50 are set to 50, and temperatures above 86 are set to 86

Complete documentation available from:
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Notes

a. The monthly means are simple arithmetic averages computed by summing the monthly values for the period 1971-2000 and dividing by thirty. Prior to averaging, the data are adjusted if necessary to compensate for data quality issues, station moves or changes in station reporting practices. Missing months are replaced by estimates based on neighboring stations.

b. The median is defined as the middle value in an ordered set of values. The median is being provided for the snow and precipitation elements because the mean can be a misleading value for precipitation normals.

c. Only observed validated values were used to select the extreme daily values.

d. Extreme monthly temperature/precipitation means were selected from the monthly normals data.
Monthly snow extremes were calculated from daily values quality controlled to be consistent with the Snow Climatology.

e. Degree Days were derived using the same techniques as the 1971-2000 normals.
Compete documentation for the 1971-2000 Normals is available on the internet from:
www.ncdc.noaa.gov/oa/climate/normals/usnormals.html

f. Mean "number of days statistics" for temperature and precipitation were calculated from a serially complete daily data set .
Documentation of the serially complete data set is available from the link below:

g. Snowfall and snow depth statistics were derived from the Snow Climatology.
Documentation for the Snow Climatology project is available from the link under references.

Data Sources for Tables

Several different data sources were used to create the Clim20 climate summaries. In some cases the daily extremes appear inconsistent with the monthly extremes and or the mean number of days statistics. For example, a high daily extreme value may not be reflected in the highest monthly value or the mean number of days threshold that is less than and equal to the extreme value. Some of these difference are caused by different periods of record. Daily extremes are derived from the station's entire period of record while the serial data and normals data were are for the 1971-2000 period. Therefore extremes observed before 1971 would not be included in the 1971-2000 normals or the 1971-2000 serial daily data set. Inconsistencies can also occur when monthly values are adjusted to reflect the current observing conditions or were replaced during the 1971-2000 Monthly Normals processing and are not reconciled with the Summary of the Day data.

a. Temperature/ Precipitation Tables
   1. 1971-2000 Monthly Normals
   2. Cooperative Summary of the Day
   3. National Weather Service station records
   4. 1971-2000 serially complete daily data

b. Degree Day Table
   1. Monthly and Annual Heating and Cooling Degree Days Normals to Selected Bases derived from 1971-2000 Monthly Normals
   2. Daily Normal Growing Degree Units to Selected Base Temperatures derived from 1971-2000 serially complete daily data

c. Snow Tables
   1. Snow Climatology
   2. Cooperative Summary of the Day

d. Freeze Data Table
   1971-2000 serially complete daily data

References

U.S. Climate Normals 1971-2000, www.ncdc.noaa.gov/normals.html
U.S. Climate Normals 1971-2000-Products Clim20, www.ncdc.noaa.gov/oa/climate/normals/usnormalsprods.html
Snow Climatology Project Description, www.ncdc.noaa.gov/oa/climate/monitoring/snowclim/mainpage.html
Eischeid, J. K., P. Pasteris, H. F. Diaz, M. Plantico, and N. Lott, 2000: Creating a serially complete, national daily time series of temperature and precipitation for the Western United States. J. Appl. Meteorol., 39, 1580-1591,
www1.ncdc.noaa.gov/pub/data/special/ serialcomplete_jam_0900.pdf