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: TRENTON, MO **COOP ID: 238444**

Climate Division: MO 1 **NWS Call Sign:** **Elevation: 837 Feet** **Lat: 40˚05N** **Lon: 93˚37W**

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	33.3	12.8	23.1	69	1952	14	35.4	1989	-26	1930	22	8.4	1979	1300	0	.0	.0	2.1	8.9	29.4	5.2
Feb	39.4	17.9	28.7	82	1930	24	39.2	1998	-22+	1982	6	13.4	1978	1017	0	.0	.0	4.9	5.5	25.2	2.6
Mar	51.8	27.9	39.9	88	1986	29	45.6	1973	-15	1978	5	31.1	1984	780	0	.0	.0	17.9	1.9	18.9	.2
Apr	63.2	38.9	51.1	94	1930	10	58.8	1987	13+	1975	3	42.9	1983	426	8	.0	.2	26.9	@	5.7	.0
May	73.0	50.4	61.7	105	1934	30	68.2+	1998	29	1980	9	57.0	1983	169	68	.0	.3	31.0	.0	.3	.0
Jun	82.4	60.2	71.3	107	1936	29	76.9	1971	42+	1985	13	65.3	1982	19	208	.2	4.7	30.0	.0	.0	.0
Jul	87.4	64.4	75.9	114	1936	15	80.7	1999	46	1972	5	72.4	1992	0	338	1.1	13.4	31.0	.0	.0	.0
Aug	85.6	62.1	73.9	113	1936	16	80.6	1983	43	1986	28	67.7	1992	17	291	.7	7.0	31.0	.0	.0	.0
Sep	77.9	52.1	65.0	106	1939	7	72.8	1998	27	1942	28	59.4	1993	97	96	.1	2.6	30.0	.0	.2	.0
Oct	66.8	40.7	53.8	98	1939	7	61.2	1971	3	1925	30	47.2	1976	360	10	.0	.0	29.6	.0	4.5	.0
Nov	50.3	28.6	39.5	84	1938	2	48.6	1999	-6	1964	30	31.3	1976	766	0	.0	.0	16.6	1.9	17.8	.2
Dec	37.7	17.6	27.7	71	1946	27	33.6	1994	-24	1983	19	10.4	1983	1158	0	.0	.0	5.4	8.2	28.0	2.7
Ann	62.4	39.5	51.0	114	Jul 1936	15	80.7	Jul 1999	-26	Jan 1930	22	8.4	Jan 1979	6109	1019	2.1	28.2	256.4	26.4	130.0	10.9

\+ 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: 1918-2001

(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	1.13	1.03	2.10	1965	1	3.63	1973	.00+	1986
Feb	1.13	1.00	2.55	2001	9	3.01	1997	.10	1987
Mar	2.47	2.28	2.85	1920	24	7.50	1973	.70	1971
Apr	3.16	3.02	3.82	1921	15	6.77	1984	.61	1985
May	5.13	4.86	4.50	1919	3	15.48	1982	1.20	1992
Jun	3.47	2.99	4.21	1919	19	9.31	1984	.73	1986
Jul	4.16	3.69	5.55	1974	4	13.42	1986	.76	1975
Aug	3.98	3.56	5.04	1939	2	10.47	1977	.05	1984
Sep	4.02	2.91	5.61	1978	18	10.27	1993	.80	1979
Oct	3.03	2.72	5.02	1998	4	6.88	1998	.53	1999
Nov	2.25	2.00	2.95+	1961	2	5.93	1983	.04	1989
Dec	1.52	1.19	3.08	1942	26	5.46	1982	.21	1976
Ann	35.45	33.77	5.61	Sep 1978	18	15.48	May 1982	.00+	Jan 1986

Mean Number of Days (3)

Daily Precipitation

Month	>= 0.01	>= 0.10	>= 0.50	>= 1.00
Jan	6.1	3.0	.6	.2
Feb	6.2	3.3	.5	.1
Mar	8.4	5.3	1.6	.4
Apr	10.0	6.4	2.7	.8
May	13.0	8.7	3.2	1.4
Jun	6.5	4.3	1.9	.6
Jul	9.4	6.1	2.9	1.3
Aug	9.2	6.3	2.5	1.4
Sep	8.7	6.1	2.5	1.0
Oct	8.0	5.1	1.9	.7
Nov	8.1	4.8	1.7	.4
Dec	5.4	3.0	.8	.2
Ann	99.0	62.4	22.8	8.5

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	.00	.18	.40	.58	.76	.95	1.16	1.41	1.74	2.28	2.80
Feb	.19	.29	.46	.61	.77	.95	1.14	1.38	1.70	2.22	2.71
Mar	.71	.94	1.30	1.60	1.90	2.22	2.56	2.97	3.50	4.33	5.10
Apr	.83	1.13	1.59	1.99	2.39	2.81	3.27	3.82	4.53	5.66	6.72
May	1.56	2.05	2.78	3.40	4.01	4.64	5.34	6.15	7.21	8.85	10.38
Jun	.81	1.14	1.65	2.10	2.55	3.03	3.57	4.21	5.05	6.38	7.63
Jul	.76	1.13	1.73	2.30	2.88	3.50	4.21	5.07	6.21	8.05	9.80
Aug	.71	1.06	1.65	2.19	2.74	3.34	4.03	4.85	5.95	7.73	9.42
Sep	1.15	1.53	2.11	2.61	3.10	3.61	4.17	4.84	5.70	7.05	8.31
Oct	.63	.91	1.35	1.75	2.16	2.60	3.09	3.68	4.46	5.71	6.89
Nov	.36	.55	.88	1.19	1.51	1.86	2.26	2.74	3.40	4.46	5.48
Dec	.23	.36	.58	.79	1.00	1.24	1.52	1.85	2.31	3.04	3.75
Ann	23.06	25.38	28.39	30.71	32.79	34.81	36.92	39.27	42.14	46.35	50.02

\+ 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: 1918-2001
(3) Derived from 1971-2000 serially complete daily data

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Snow (inches)

Snow Totals

Means/Medians (1)

Month	Snow Fall Mean	Snow Fall Median	Snow Depth Mean	Snow Depth Median
Jan	5.4	4.8	2	#
Feb	4.9	5.0	1	#
Mar	3.1	.7	1	0
Apr	.5	.0	#	0
May	.0	.0	0	0
Jun	.0	.0	0	0
Jul	.0	.0	0	0
Aug	.0	.0	0	0
Sep	.0	.0	0	0
Oct	#	.0	0	0
Nov	.8	.0	#	0
Dec	4.6	4.0	#	0
Ann	19.3	14.5	N/A	N/A

Extremes (2)

Month	Highest Daily Snow Fall	Year	Day	Highest Monthly Snow Fall	Year	Highest Daily Snow Depth	Year	Day	Highest Monthly Mean Snow Depth	Year
Jan	10.0	1979	13	12.4	1977	29	1979	14	16	1979
Feb	8.0	1978	13	13.1	1978	11	1978	14	7	1978
Mar	7.0	1998	9	12.5	1984	12	1978	3	8	1978
Apr	4.5	1975	3	7.0	1975	5	1975	3	#	1975
May	.0	0	0	.0	0	0	0	0	0	0
Jun	.0	0	0	.0	0	0	0	0	0	0
Jul	.0	0	0	.0	0	0	0	0	0	0
Aug	.0	0	0	.0	0	0	0	0	0	0
Sep	.0	0	0	.0	0	0	0	0	0	0
Oct	#	1986	13	#	1986	0	0	0	0	0
Nov	4.0	1976	27	4.2	1975	6	1971	23	#+	1986
Dec	8.5	1981	17	18.0	1983	10	1997	10	4	2000
Ann	10.0	Jan 1979	13	18.0	Dec 1983	29	Jan 1979	14	16	Jan 1979

Mean Number of Days (1)

Snow Fall >= Thresholds

Month	0.1	1.0	3.0	5.0	10.0
Jan	3.4	2.1	.7	.4	.1
Feb	2.7	1.9	.6	.1	.0
Mar	1.5	1.1	.5	.1	.0
Apr	.2	.2	.1	.0	.0
May	.0	.0	.0	.0	.0
Jun	.0	.0	.0	.0	.0
Jul	.0	.0	.0	.0	.0
Aug	.0	.0	.0	.0	.0
Sep	.0	.0	.0	.0	.0
Oct	.0	.0	.0	.0	.0
Nov	.5	.3	.1	.0	.0
Dec	2.7	2.2	.7	.1	.0
Ann	11.0	7.8	2.7	.7	.1

Snow Depth >= Thresholds

Month	1	3	5	10
Jan	-9.9	-9.9	-9.9	-9.9
Feb	-9.9	-9.9	-9.9	-9.9
Mar	-9.9	-9.9	-9.9	-9.9
Apr	.2	.2	.1	.0
May	.0	.0	.0	.0
Jun	.0	.0	.0	.0
Jul	.0	.0	.0	.0
Aug	.0	.0	.0	.0
Sep	-9.9	-9.9	-9.9	-9.9
Oct	.0	.0	.0	.0
Nov	.4	.2	.0	.0
Dec	-9.9	-9.9	-9.9	-9.9
Ann	-9.9	-9.9	-9.9	-9.9

+ 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	5/12	5/08	5/04	5/02	4/29	4/26	4/24	4/20	4/16
32	5/04	4/29	4/25	4/22	4/19	4/16	4/13	4/09	4/04
28	4/17	4/14	4/12	4/10	4/08	4/06	4/04	4/01	3/29
24	4/13	4/08	4/05	4/02	3/30	3/28	3/25	3/21	3/17
20	4/07	4/01	3/27	3/23	3/19	3/16	3/12	3/07	3/01
16	4/02	3/22	3/14	3/08	3/02	2/24	2/17	2/09	1/30

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	9/16	9/23	9/29	10/03	10/07	10/11	10/16	10/21	10/28
32	9/24	10/01	10/06	10/10	10/14	10/18	10/22	10/27	11/03
28	10/07	10/13	10/17	10/20	10/24	10/27	10/31	11/04	11/10
24	10/19	10/26	10/30	11/03	11/07	11/11	11/15	11/20	11/26
20	10/27	11/02	11/07	11/11	11/15	11/18	11/22	11/27	12/03
16	11/03	11/10	11/15	11/19	11/23	11/28	12/02	12/07	12/14

Freeze Free Period

Temp (F)	Probability of longer than indicated freeze free period (Days)								
	.10	.20	.30	.40	.50	.60	.70	.80	.90
36	184	176	170	165	160	156	151	145	137
32	203	194	188	182	177	172	167	160	151
28	217	210	206	202	198	195	191	186	180
24	244	236	231	226	221	216	212	206	198
20	267	258	251	245	239	234	228	221	212
16	300	286	278	270	264	257	250	242	231

***** 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	1300	1017	780	426	169	19	0	17	97	360	766	1158	6109
60	1145	877	626	294	88	4	0	4	38	232	617	1003	4928
57	1052	801	540	225	54	1	0	1	18	168	530	910	4300
55	991	749	482	185	37	0	0	0	10	131	474	848	3907
50	847	619	347	102	12	0	0	0	1	63	342	706	3039
32	377	246	57	1	0	0	0	0	0	0	52	265	998

Base	Cooling Degree Days (1)												
Above	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Ann
32	100	153	300	573	921	1179	1361	1297	989	673	276	130	7952
55	1	12	13	66	245	489	648	584	310	91	8	0	2467
57	0	7	9	47	200	430	586	523	258	66	4	0	2130
60	0	0	1	26	141	343	493	433	187	37	1	0	1662
65	0	0	0	8	68	208	338	291	96	10	0	0	1019
70	0	0	0	1	24	102	192	171	39	2	0	0	531

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	7	32	159	407	709	980	1154	1085	804	473	139	20	7	39	198	605	1314	2294	3448	4533	5337	5810	5949	5969
45	1	15	90	278	554	830	999	930	654	329	74	4	1	16	106	384	938	1768	2767	3697	4351	4680	4754	4758
50	0	2	44	168	402	680	844	775	504	204	33	3	0	2	46	214	616	1296	2140	2915	3419	3623	3656	3659
55	0	1	19	90	261	530	689	620	364	106	10	0	0	1	20	110	371	901	1590	2210	2574	2680	2690	2690
60	0	0	4	40	143	382	534	465	234	44	1	0	0	0	4	44	187	569	1103	1568	1802	1846	1847	1847
Base	Growing Degree Units for Corn (Monthly)												Growing Degree Units for Corn (Accumulated Monthly)											
50/86	1	23	113	256	440	658	779	741	526	289	90	19	1	24	137	393	833	1491	2270	3011	3537	3826	3916	3935

(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