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: MARYVILLE 2 E, MO **COOP ID: 235340**

Climate Division: MO 1 **NWS Call Sign:** **Elevation: 985 Feet** **Lat: 40˚21N** **Lon: 94˚50W**

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	33.0	11.9	22.5	69	1981	25	35.2	1989	-32+	1974	13	8.6	1979	1318	0	.0	.0	3.2	14.5	30.2	6.8
Feb	39.1	17.0	28.1	80	1930	24	38.2	1998	-28	1979	1	12.1	1978	1035	0	.0	.0	6.5	10.1	25.9	4.1
Mar	51.5	27.4	39.5	89	1986	30	44.9	1992	-26	1960	5	30.2	1978	793	0	.0	.0	15.7	2.8	21.6	.6
Apr	63.7	37.9	50.8	96	1989	27	57.5	1981	4+	1975	4	44.4	1983	429	3	.0	.4	25.7	.1	8.2	.0
May	74.1	48.9	61.5	110	1934	30	67.0	1998	28+	1954	4	56.8	1983	173	64	.0	.9	30.9	.0	.4	.0
Jun	83.7	58.7	71.2	105	1933	6	75.7	1971	38+	1985	13	65.5	1982	19	206	.3	6.5	30.0	.0	.0	.0
Jul	88.0	63.3	75.7	112	1934	19	79.6	1980	42+	1972	5	71.6	1971	0	330	1.1	12.6	31.0	.0	.0	.0
Aug	86.2	60.7	73.5	113	1934	9	81.1	1983	41	1950	20	68.2	1986	19	280	.6	9.9	31.0	.0	.0	.0
Sep	78.6	51.2	64.9	107	1939	3	71.5	1998	22	1984	30	58.1	1974	97	95	.1	3.9	29.9	.0	.7	.0
Oct	66.7	39.3	53.0	94+	1997	4	58.8	1971	2	1925	30	44.7	1976	380	8	.0	.2	28.8	.0	7.4	.0
Nov	49.6	28.0	38.8	84+	1999	14	47.5	1999	-11	1976	30	31.4	1976	786	0	.0	.0	15.8	2.7	21.5	.2
Dec	36.4	16.8	26.6	71+	1964	24	33.1	1994	-28	1989	23	9.7	1983	1190	0	.0	.0	4.4	10.5	29.3	3.7
Ann	62.6	38.4	50.5	113	Aug 1934	9	81.1	Aug 1983	-32+	Jan 1974	13	8.6	Jan 1979	6239	986	2.1	34.4	252.9	40.7	145.2	15.4

\+ 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

Issue Date: February 2004

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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	.87	.75	1.80	1999	2	2.39	1999	.00	1986
Feb	.99	.92	2.02	1955	18	2.78	1997	.02	1996
Mar	2.37	1.83	1.95+	1957	24	6.20	1979	.14+	1994
Apr	3.16	2.69	4.33	1955	13	6.95	1991	1.07	1982
May	4.58	3.86	4.20	1944	2	10.62	1996	1.18	1994
Jun	4.16	3.74	6.31	1949	2	10.77	1984	.72	1988
Jul	5.24	4.53	10.82	1922	10	25.71	1993	.46	1974
Aug	3.82	2.97	4.95	1989	29	10.39	1989	.28	1992
Sep	4.06	3.42	6.70	1993	22	12.89	1993	.69	1991
Oct	2.97	3.26	4.46	1973	11	6.34	1977	.11	1999
Nov	2.33	2.14	2.39	1919	10	5.73	1992	.00	1989
Dec	1.29	1.07	2.16	1980	8	3.35	1982	.13	1996
Ann	35.84	34.68	10.82	Jul 1922	10	25.71	Jul 1993	.00+	Nov 1989

Mean Number of Days (3)

Daily Precipitation

Month	>= 0.01	>= 0.10	>= 0.50	>= 1.00
Jan	5.3	2.7	.4	.1
Feb	5.8	2.9	.4	.1
Mar	8.2	4.9	1.9	.5
Apr	10.2	6.3	2.1	.6
May	11.2	7.7	3.1	1.3
Jun	9.4	6.6	2.7	1.5
Jul	9.0	6.9	3.2	1.8
Aug	8.8	5.7	2.4	1.1
Sep	8.0	5.9	2.7	1.3
Oct	7.3	4.8	1.8	.8
Nov	7.6	4.6	1.8	.5
Dec	6.2	3.0	.8	.3
Ann	97.0	62.0	23.3	9.9

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	.03	.10	.22	.35	.48	.64	.83	1.06	1.39	1.93	2.47
Feb	.12	.20	.34	.47	.62	.78	.97	1.20	1.52	2.04	2.55
Mar	.35	.54	.89	1.21	1.56	1.93	2.37	2.90	3.61	4.77	5.89
Apr	.91	1.21	1.66	2.05	2.44	2.83	3.28	3.80	4.47	5.53	6.51
May	1.39	1.82	2.47	3.03	3.58	4.14	4.77	5.50	6.44	7.92	9.29
Jun	1.02	1.41	2.02	2.56	3.09	3.66	4.28	5.03	6.01	7.56	9.01
Jul	.81	1.26	2.02	2.74	3.49	4.31	5.25	6.41	7.95	10.46	12.86
Aug	.55	.87	1.42	1.95	2.50	3.11	3.81	4.67	5.82	7.71	9.52
Sep	.98	1.35	1.95	2.48	3.00	3.55	4.17	4.91	5.88	7.42	8.86
Oct	.43	.68	1.11	1.52	1.95	2.42	2.97	3.63	4.53	5.98	7.39
Nov	.30	.60	.99	1.32	1.65	2.00	2.40	2.87	3.49	4.47	5.41
Dec	.21	.32	.50	.68	.87	1.07	1.30	1.58	1.96	2.57	3.15
Ann	21.63	24.21	27.61	30.25	32.64	34.99	37.44	40.19	43.57	48.57	52.96

\+ 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	4.1	3.0	1	#
Feb	3.8	2.9	1	#
Mar	2.0	.3	#	#
Apr	.8	.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
Nov	.9	.0	#	0
Dec	2.6	1.5	#	#
Ann	14.2	7.7	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	9.0	1979	13	12.2	1977	10	1974	11	10	1974
Feb	6.6	1999	23	17.0	1978	13	1978	20	6	1978
Mar	6.8	1998	9	8.1	1978	8	1998	14	2	1998
Apr	7.0	1997	11	10.3	1997	8	1997	12	1	1997
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	#	1980	28	#+	1980	#	1980	28	#	1980
Nov	5.0	1972	14	6.8	1972	3	1975	28	#+	1991
Dec	4.0	1972	12	9.5	1973	9	2000	29	4	2000
Ann	9.0	Jan 1979	13	17.0	Feb 1978	13	Feb 1978	20	10	Jan 1974

Mean Number of Days (1)

Snow Fall >= Thresholds

Month	0.1	1.0	3.0	5.0	10.0
Jan	2.5	1.7	.5	.1	.0
Feb	1.5	1.0	.4	.2	.0
Mar	1.1	.7	.3	.1	.0
Apr	.3	.3	.1	@	.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	.6	.4	@	@	.0
Dec	2.2	1.3	.4	.0	.0
Ann	8.2	5.4	1.7	.4	.0

Snow Depth >= Thresholds

Month	1	3	5	10
Jan	1.2	.2	.1	.0
Feb	1.2	.7	.2	.0
Mar	.4	.1	.0	.0
Apr	.2	@	.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	.0
Nov	.3	.1	.0	.0
Dec	.5	.0	.0	.0
Ann	3.8	1.1	.3	.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	5/14	5/09	5/06	5/03	5/01	4/28	4/25	4/22	4/18
32	5/05	5/01	4/27	4/25	4/22	4/20	4/17	4/14	4/09
28	4/23	4/19	4/16	4/13	4/11	4/08	4/06	4/03	3/30
24	4/17	4/12	4/08	4/05	4/03	3/31	3/28	3/24	3/20
20	4/09	4/03	3/30	3/27	3/24	3/20	3/17	3/13	3/08
16	3/31	3/23	3/17	3/12	3/08	3/03	2/26	2/21	2/13

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	9/12	9/16	9/20	9/23	9/25	9/28	10/01	10/04	10/08
32	9/21	9/27	10/01	10/04	10/07	10/10	10/14	10/18	10/23
28	9/30	10/06	10/11	10/14	10/18	10/21	10/25	10/29	11/04
24	10/10	10/17	10/22	10/26	10/30	11/03	11/07	11/12	11/19
20	10/27	11/03	11/07	11/11	11/15	11/18	11/22	11/27	12/03
16	11/05	11/11	11/16	11/19	11/23	11/26	11/30	12/04	12/10

Freeze Free Period

Temp (F)	Probability of longer than indicated freeze free period (Days)								
	.10	.20	.30	.40	.50	.60	.70	.80	.90
36	167	160	155	151	147	143	138	133	126
32	188	181	176	171	167	163	159	154	147
28	212	204	199	194	189	185	180	175	167
24	235	226	220	215	210	205	200	194	185
20	257	249	244	240	235	231	226	221	214
16	291	280	272	265	259	253	246	238	228

***** 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)

Heating Degree Days (1)

Base Below	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Ann
65	1318	1035	793	429	173	19	0	19	97	380	786	1190	6239
60	1163	895	638	292	90	4	0	4	38	248	637	1035	5044
57	1070	819	554	219	55	1	0	1	18	181	549	942	4409
55	1009	767	496	176	37	0	0	0	10	142	493	880	4010
50	865	637	360	91	11	0	0	0	1	69	359	737	3130
32	392	262	65	0	0	0	0	0	0	0	59	288	1066

Cooling Degree Days (1)

Base Above	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Ann
32	97	152	295	564	914	1177	1353	1285	988	651	263	120	7859
55	1	12	13	50	238	487	640	572	308	80	7	0	2408
57	0	8	9	33	194	428	578	511	256	56	3	0	2076
60	0	0	1	16	136	341	485	421	186	30	0	0	1616
65	0	0	0	3	64	206	330	280	95	8	0	0	986
70	0	0	0	0	23	99	184	163	38	1	0	0	508

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	4	32	125	347	677	947	1111	1043	758	426	113	12	4	36	161	508	1185	2132	3243	4286	5044	5470	5583	5595
45	0	9	65	231	523	797	956	888	608	288	57	4	0	9	74	305	828	1625	2581	3469	4077	4365	4422	4426
50	0	1	30	134	377	647	801	733	463	178	22	1	0	1	31	165	542	1189	1990	2723	3186	3364	3386	3387
55	0	0	7	72	242	497	646	578	323	94	5	0	0	0	7	79	321	818	1464	2042	2365	2459	2464	2464
60	0	0	2	31	133	352	491	423	208	39	0	0	0	0	2	33	166	518	1009	1432	1640	1679	1679	1679
Base	**Growing Degree Units for Corn (Monthly)**												**Growing Degree Units for Corn (Accumulated Monthly)**											
50/86	6	37	99	223	414	623	747	691	490	282	82	12	6	43	142	365	779	1402	2149	2840	3330	3612	3694	3706

(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