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: ARCADIA 3 N, MO **COOP ID: 230224**

Climate Division: MO 5 **NWS Call Sign:** **Elevation: 1,010 Feet** **Lat: 37˚38N** **Lon: 90˚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	39.9	18.7	29.3	79	1943	24	40.2	1990	-20	1977	17	16.4	1977	1107	0	.0	.0	9.0	7.3	25.9	1.6
Feb	46.0	22.8	34.4	87	1962	13	42.8	1976	-20	1951	2	21.3	1978	857	0	.0	.0	13.2	4.0	21.0	.8
Mar	56.3	32.1	44.2	91	1929	24	49.7	1973	-6	1978	5	37.6	1978	644	0	.0	.0	24.5	.6	15.5	.1
Apr	67.1	42.9	55.0	93	1987	20	61.4	1981	18+	1987	3	48.2	1983	310	10	.0	.2	29.0	.0	4.9	.0
May	74.8	51.3	63.1	96	1953	26	68.3	1991	28+	1976	4	58.1	1981	126	65	.0	.3	31.0	.0	.5	.0
Jun	82.4	59.8	71.1	106	1952	29	74.8	1971	36+	1988	11	66.9	1974	12	194	.0	4.7	30.0	.0	.0	.0
Jul	87.5	64.5	76.0	110	1980	15	81.8	1980	43+	1972	6	72.9	1996	0	341	.9	15.0	31.0	.0	.0	.0
Aug	86.4	63.1	74.8	108+	1943	25	80.3	1983	37	1986	29	69.3	1992	6	307	.4	10.6	31.0	.0	.0	.0
Sep	78.6	54.8	66.7	105	1947	8	71.9	1998	27+	1942	29	61.7	1974	65	115	.0	3.2	30.0	.0	.2	.0
Oct	69.0	43.4	56.2	94	1938	5	62.6	1971	15+	1981	24	50.9	1976	287	15	.0	.1	30.6	.0	4.8	.0
Nov	54.8	32.6	43.7	90	1963	20	50.0	1990	0	1950	25	36.8	1976	640	0	.0	.0	21.2	.3	13.5	.0
Dec	43.6	23.5	33.6	76+	1970	3	41.2	1984	-11	1983	23	20.8	1983	975	0	.0	.0	11.0	3.9	22.8	.8
Ann	65.5	42.5	54.0	110	Jul 1980	15	81.8	Jul 1980	-20+	Jan 1977	17	16.4	Jan 1977	5029	1047	1.3	34.1	291.5	16.1	109.1	3.3

\+ 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: 1918-2000

(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	2.65	2.30	4.00	1948	1	7.34	1982	.07	1986
Feb	2.71	2.57	3.30	1982	1	5.07	1990	.51	1983
Mar	4.00	3.45	4.35	1977	28	9.64	1973	.82	1972
Apr	4.64	3.89	4.02	1921	26	11.58	1994	1.28	1981
May	5.12	4.53	5.02	1933	13	11.93	1986	2.11	1978
Jun	4.06	4.04	6.97	1957	30	13.09	1985	.65	1972
Jul	3.57	2.86	4.59	1979	30	10.73	1979	.21	1974
Aug	4.16	3.69	4.90	1982	27	12.70	1982	.85	1988
Sep	3.50	3.14	3.76	1970	18	9.36	1993	.66	1985
Oct	3.48	2.94	5.61	1918	27	7.48	1973	.33	1971
Nov	5.22	4.60	4.80	1993	14	12.45	1985	.56	1976
Dec	3.65	2.95	4.00	1957	16	10.03	1982	.68+	1980
Ann	46.76	46.30	6.97	Jun 1957	30	13.09	Jun 1985	.07	Jan 1986

Mean Number of Days (3)

Month	Daily Precipitation >= 0.01	>= 0.10	>= 0.50	>= 1.00
Jan	8.7	5.2	1.7	.5
Feb	7.5	4.9	1.8	.6
Mar	10.6	7.9	3.2	1.0
Apr	11.0	7.8	2.9	1.2
May	10.8	8.2	3.5	1.1
Jun	10.0	6.9	3.1	1.1
Jul	8.2	6.0	2.3	.9
Aug	8.0	6.0	2.6	1.0
Sep	7.8	5.2	2.3	1.1
Oct	8.0	5.6	2.6	.8
Nov	9.2	7.1	3.3	1.7
Dec	8.4	5.7	2.5	.9
Ann	108.2	76.5	31.8	11.9

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	.36	.58	.96	1.32	1.71	2.14	2.63	3.23	4.05	5.39	6.68
Feb	.86	1.12	1.50	1.83	2.14	2.47	2.82	3.24	3.78	4.62	5.39
Mar	1.37	1.75	2.30	2.76	3.21	3.67	4.17	4.76	5.51	6.68	7.75
Apr	1.18	1.61	2.29	2.88	3.47	4.09	4.79	5.61	6.68	8.37	9.96
May	1.88	2.36	3.05	3.63	4.18	4.74	5.35	6.06	6.97	8.36	9.63
Jun	1.02	1.40	1.99	2.51	3.03	3.58	4.19	4.91	5.86	7.36	8.77
Jul	.70	1.03	1.55	2.03	2.52	3.04	3.63	4.34	5.29	6.80	8.24
Aug	1.04	1.43	2.03	2.57	3.10	3.66	4.29	5.03	6.00	7.54	8.98
Sep	.63	.94	1.46	1.93	2.42	2.94	3.54	4.27	5.23	6.78	8.26
Oct	.93	1.26	1.76	2.21	2.64	3.10	3.60	4.20	4.99	6.21	7.36
Nov	1.04	1.51	2.27	2.98	3.69	4.45	5.31	6.35	7.73	9.93	12.02
Dec	.94	1.29	1.82	2.28	2.74	3.23	3.77	4.41	5.25	6.57	7.80
Ann	31.73	34.59	38.27	41.09	43.61	46.05	48.59	51.40	54.83	59.82	64.16

\+ 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: 1918-2000
(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	3.1	1	#	5.0	1978	17	15.1	1985	10	1978	21	5	1977	3.0	1.6	.4	.1	.0	7.8	4.6	3.1	.2
Feb	3.1	1.6	1	#	7.5	1984	27	13.0	1982	12	1980	9	11	1980	1.8	1.0	.5	.1	.0	5.2	3.2	.7	.0
Mar	1.4	.5	#	0	8.5	1975	10	8.5	1975	9	1975	10	1	1978	.8	.5	.1	@	.0	1.3	.5	.1	.0
Apr	.6	.0	0	0	4.0	1971	6	10.6	1971	5	1971	7	1	1971	.2	.2	.1	.0	.0	.2	.2	.1	.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	.1	.0	0	0	2.0	1993	30	2.0	1993	0	0	0	0	0	.1	.1	.0	.0	.0	.0	.0	.0	.0
Nov	1.1	.0	#	0	8.0	1975	27	9.3	1980	8+	1980	28	1	1980	.4	.3	.1	.1	.0	.4	.2	.2	.0
Dec	2.1	.3	#	0	7.5	1973	20	12.2	1973	8	1973	21	1	1975	.9	.6	.2	.1	.0	1.0	.7	.5	.0
Ann	12.9	5.5	N/A	N/A	8.5	Mar 1975	10	15.1	Jan 1985	12	Feb 1980	9	11	Feb 1980	7.2	4.3	1.4	.4	.0	15.9	9.4	4.7	.2

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

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

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

(2) Derived from 1971-2000 daily data

-9/-9.9 represents missing values

Annual statistics for Mean/Median snow depths are not appropriate

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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	5/26	5/19	5/15	5/11	5/07	5/04	4/30	4/25	4/19
32	5/10	5/04	4/30	4/26	4/22	4/19	4/15	4/11	4/05
28	4/26	4/20	4/16	4/13	4/10	4/07	4/03	3/31	3/25
24	4/12	4/07	4/04	4/01	3/29	3/26	3/23	3/19	3/14
20	4/06	3/31	3/27	3/23	3/20	3/16	3/13	3/08	3/02
16	3/23	3/17	3/12	3/08	3/05	3/02	2/26	2/21	2/15

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	9/19	9/23	9/26	9/29	10/01	10/04	10/06	10/10	10/14
32	9/27	10/02	10/05	10/07	10/10	10/12	10/15	10/18	10/22
28	10/02	10/08	10/12	10/16	10/19	10/23	10/27	10/31	11/06
24	10/19	10/26	10/30	11/03	11/07	11/11	11/15	11/20	11/26
20	10/27	11/03	11/07	11/12	11/16	11/19	11/24	11/28	12/05
16	11/07	11/14	11/19	11/23	11/27	12/01	12/05	12/10	12/17

Freeze Free Period

Temp (F)	Probability of longer than indicated freeze free period (Days)								
	.10	.20	.30	.40	.50	.60	.70	.80	.90
36	166	159	154	150	146	142	138	133	127
32	193	185	179	174	169	165	160	154	146
28	213	206	201	196	192	187	183	178	170
24	245	237	232	227	223	218	213	208	200
20	262	255	249	244	240	235	231	225	217
16	288	281	275	271	266	262	257	252	244

***** 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	1107	857	644	310	126	12	0	6	65	287	640	975	5029
60	952	717	492	187	53	1	0	0	20	168	492	820	3902
57	859	635	407	129	27	0	0	0	8	112	408	729	3314
55	797	583	351	96	16	0	0	0	4	82	353	672	2954
50	655	454	229	38	3	0	0	0	0	31	230	529	2169
32	224	115	16	0	0	0	0	0	0	0	16	147	518

Cooling Degree Days (1)

Base Above	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Ann
32	139	182	395	690	963	1173	1364	1325	1040	751	366	195	8583
55	0	6	17	96	265	483	651	612	354	120	13	8	2625
57	0	2	11	69	214	423	589	550	298	88	8	2	2254
60	0	0	3	37	148	334	496	457	220	51	2	0	1748
65	0	0	0	10	65	194	341	307	115	15	0	0	1047
70	0	0	0	1	19	85	194	175	46	3	0	0	523

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	50	103	257	509	763	972	1148	1101	840	549	234	72	50	153	410	919	1682	2654	3802	4903	5743	6292	6526	6598
45	24	52	157	370	608	822	993	946	690	401	142	35	24	76	233	603	1211	2033	3026	3972	4662	5063	5205	5240
50	5	23	87	247	453	672	838	791	540	263	76	13	5	28	115	362	815	1487	2325	3116	3656	3919	3995	4008
55	0	8	42	143	309	522	683	636	395	155	32	2	0	8	50	193	502	1024	1707	2343	2738	2893	2925	2927
60	0	1	13	71	177	372	528	482	264	71	6	0	0	1	14	85	262	634	1162	1644	1908	1979	1985	1985
Base	**Growing Degree Units for Corn (Monthly)**												**Growing Degree Units for Corn (Accumulated Monthly)**											
50/86	38	79	183	335	498	659	776	743	552	356	147	47	38	117	300	635	1133	1792	2568	3311	3863	4219	4366	4413

(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