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: DONIPHAN, MO **COOP ID: 232289**

Climate Division: MO 5 **NWS Call Sign:** **Elevation: 330 Feet** **Lat: 36˚37N** **Lon: 90˚49W**

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	43.7	19.9	31.8	77	1957	9	39.8	1990	-19	1985	21	18.2	1977	1028	0	.0	.0	10.2	5.0	26.3	1.5
Feb	50.4	23.9	37.2	88	1962	13	44.0	1976	-21	1951	2	25.0	1978	779	0	.0	.0	15.1	2.5	21.2	.8
Mar	59.5	32.8	46.2	92	1967	12	51.5	1973	0	1967	7	39.7	1980	585	0	.0	.0	25.4	.3	15.0	.0
Apr	69.9	41.9	55.9	94	1987	20	63.2	1981	18+	1989	12	50.4	1983	286	12	.0	.3	29.4	.0	5.6	.0
May	78.1	51.5	64.8	97	1953	26	71.1	1987	29+	1960	1	60.6	1997	109	103	.0	1.9	31.0	.0	.2	.0
Jun	86.0	60.6	73.3	108	1952	30	76.3	1986	35	1988	10	68.2	1974	6	256	.2	11.0	30.0	.0	.0	.0
Jul	91.0	65.2	78.1	110+	1980	14	83.7	1980	47+	1972	6	75.2	1988	0	406	2.3	21.4	31.0	.0	.0	.0
Aug	89.5	62.8	76.2	109	1954	16	82.4	1980	38	1986	29	72.3	1994	4	350	1.8	17.3	31.0	.0	.0	.0
Sep	82.4	54.6	68.5	106+	1954	5	74.3	1998	29	1967	29	63.0	1974	48	152	.4	6.6	30.0	.0	@	.0
Oct	72.5	41.6	57.1	96+	1953	2	64.2	1971	15	1952	30	50.9	1987	270	24	.0	.5	30.8	.0	6.5	.0
Nov	58.6	32.3	45.5	85+	1987	4	50.5	1999	2	1976	29	37.9	1976	586	0	.0	.0	23.3	.1	15.5	.0
Dec	47.4	23.6	35.5	78+	1970	1	43.5	1984	-14	1989	23	24.4	1983	915	0	.0	.0	13.1	2.7	23.7	.5
Ann	69.1	42.6	55.8	110+	Jul 1980	14	83.7	Jul 1980	-21	Feb 1951	2	18.2	Jan 1977	4616	1303	4.7	59.0	300.3	10.6	114.0	2.8

\+ 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

Issue Date: February 2004

(1) From the 1971-2000 Monthly Normals

(2) Derived from station's available digital record: 1948-2001

(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	3.51	3.28	4.45	1969	30	11.06	1982	.24	1986
Feb	3.42	2.79	3.05+	1989	14	10.97	1989	.74	1983
Mar	4.98	4.17	8.55	1977	28	15.07	1977	1.29	1971
Apr	5.12	4.46	4.80	1973	23	17.06	1973	1.56	2000
May	4.96	4.73	3.57	1957	22	9.05	1985	1.88	1998
Jun	3.15	2.62	4.35	1953	11	7.40	1976	.48	1988
Jul	3.63	3.34	4.72	1964	29	11.22	1998	.22	1991
Aug	3.90	3.29	7.12	1982	16	12.57	1982	.79	1989
Sep	3.70	2.96	4.14	1990	22	10.92	1977	.23	1998
Oct	3.51	3.30	3.70	1949	5	11.56	1984	.61	1989
Nov	5.51	4.98	4.82	1994	5	11.26	1983	.51	1989
Dec	4.34	3.97	5.38	1982	3	15.35	1982	.90	1989
Ann	49.73	47.70	8.55	Mar 1977	28	17.06	Apr 1973	.22	Jul 1991

Mean Number of Days (3)

Month	Daily Precipitation >= 0.01	>= 0.10	>= 0.50	>= 1.00
Jan	8.7	5.9	2.5	.8
Feb	7.4	5.6	2.6	.9
Mar	10.3	8.0	3.4	1.2
Apr	10.0	7.1	3.3	1.6
May	10.2	7.9	3.5	1.4
Jun	8.0	5.5	2.4	.6
Jul	7.3	5.4	2.5	1.1
Aug	7.0	5.1	2.4	1.3
Sep	7.3	4.8	2.6	1.1
Oct	7.0	5.5	2.7	1.0
Nov	9.1	6.8	3.4	2.0
Dec	8.9	6.7	2.9	1.2
Ann	101.2	74.3	34.2	14.2

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	.86	1.19	1.70	2.15	2.60	3.08	3.61	4.24	5.07	6.38	7.62
Feb	1.05	1.38	1.86	2.28	2.68	3.10	3.56	4.10	4.80	5.88	6.89
Mar	1.49	1.96	2.67	3.28	3.87	4.49	5.17	5.98	7.01	8.63	10.14
Apr	1.33	1.81	2.55	3.21	3.85	4.53	5.29	6.18	7.35	9.19	10.91
May	2.40	2.82	3.41	3.87	4.31	4.74	5.20	5.73	6.39	7.38	8.27
Jun	.86	1.16	1.61	2.01	2.40	2.81	3.26	3.79	4.49	5.58	6.60
Jul	.38	.65	1.15	1.65	2.20	2.81	3.53	4.43	5.66	7.69	9.67
Aug	.86	1.22	1.79	2.30	2.82	3.37	3.99	4.73	5.71	7.26	8.73
Sep	.47	.76	1.29	1.80	2.35	2.95	3.65	4.52	5.70	7.63	9.50
Oct	.81	1.14	1.66	2.12	2.57	3.06	3.61	4.26	5.11	6.47	7.75
Nov	1.14	1.64	2.45	3.19	3.93	4.73	5.62	6.70	8.13	10.40	12.56
Dec	.87	1.26	1.90	2.48	3.07	3.71	4.42	5.28	6.42	8.25	9.98
Ann	33.32	36.43	40.44	43.51	46.26	48.93	51.71	54.79	58.54	64.03	68.80

\+ 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: 1948-2001
(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	4.5	2.0	1	#
Feb	3.4	1.0	1	#
Mar	1.3	.0	#	0
Apr	#	.0	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	.1	.0	#	0
Nov	.5	.0	#	0
Dec	1.0	.3	#	#
Ann	10.8	3.3	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	7.1	1985	19	20.7+	1985	12	1977	13	5	1977
Feb	10.7	1979	25	19.2	1979	14	1979	26	3	1979
Mar	16.5	1994	9	16.5	1994	17	1994	9	1	1994
Apr	#	1977	6	#+	1977	0	0	0	0	0
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	2.3	1993	30	2.3	1993	2	1993	30	#	1993
Nov	6.0	1980	27	6.0	1980	6	1980	27	#+	1997
Dec	3.0	1975	25	5.0	1975	4	1975	27	1+	2000
Ann	16.5	Mar 1994	9	20.7+	Jan 1985	17	Mar 1994	9	5	Jan 1977

Mean Number of Days (1)

Snow Fall >= Thresholds

Month	0.1	1.0	3.0	5.0	10.0
Jan	2.5	1.2	.4	.2	.0
Feb	1.5	1.0	.5	.2	.1
Mar	.6	.4	.1	.1	@
Apr	.0	.0	.0	.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
Nov	.3	.1	.1	@	.0
Dec	1.0	.6	.1	.0	.0
Ann	5.9	3.3	1.2	.5	.1

Snow Depth >= Thresholds

Month	1	3	5	10
Jan	5.2	2.9	1.6	.2
Feb	3.3	1.9	.5	.2
Mar	.6	.2	.1	@
Apr	.0	.0	.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	.2	.1	@	.0
Dec	1.3	.2	.0	.0
Ann	10.6	5.3	2.2	.4

+ 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	5/18	5/11	5/07	5/03	4/29	4/25	4/21	4/17	4/10
32	5/03	4/29	4/25	4/22	4/20	4/17	4/14	4/11	4/06
28	4/18	4/13	4/10	4/07	4/05	4/02	3/30	3/27	3/22
24	4/12	4/07	4/03	3/31	3/28	3/25	3/22	3/18	3/13
20	3/29	3/24	3/20	3/17	3/14	3/11	3/08	3/04	2/27
16	3/20	3/12	3/07	3/02	2/26	2/22	2/17	2/11	2/04

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	9/23	9/27	9/30	10/02	10/05	10/07	10/09	10/12	10/16
32	9/30	10/04	10/07	10/10	10/13	10/15	10/18	10/21	10/25
28	10/09	10/14	10/18	10/21	10/24	10/27	10/30	11/03	11/08
24	10/23	10/28	11/01	11/04	11/07	11/10	11/14	11/18	11/23
20	11/02	11/07	11/11	11/15	11/18	11/21	11/24	11/28	12/04
16	11/09	11/16	11/22	11/27	12/01	12/05	12/10	12/15	12/23

Freeze Free Period

Temp (F)	Probability of longer than indicated freeze free period (Days)								
	.10	.20	.30	.40	.50	.60	.70	.80	.90
36	179	171	166	162	158	154	149	144	137
32	193	187	183	179	175	171	168	163	157
28	223	216	210	206	202	198	193	188	181
24	248	240	234	229	224	219	214	208	200
20	271	263	258	253	248	244	239	233	226
16	305	295	289	283	277	272	266	259	250

***** 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	1028	779	585	286	109	6	0	4	48	270	586	915	4616
60	873	640	438	167	47	1	0	0	14	158	439	760	3537
57	781	563	353	111	24	0	0	0	5	106	356	668	2967
55	722	511	300	81	15	0	0	0	3	78	303	612	2625
50	579	385	188	29	3	0	0	0	0	30	187	468	1869
32	175	83	11	0	0	0	0	0	0	0	8	105	382

Base — Cooling Degree Days (1)

Above	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Ann
32	170	228	449	717	1017	1240	1429	1369	1094	777	412	213	9115
55	3	12	25	108	319	550	716	656	406	142	17	7	2961
57	1	8	16	78	266	490	654	594	349	108	10	1	2575
60	0	1	8	44	196	401	561	501	268	67	3	0	2050
65	0	0	0	12	103	256	406	350	152	24	0	0	1303
70	0	0	0	2	42	131	255	212	69	6	0	0	717

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	107	260	500	795	1022	1202	1146	874	553	231	73	50	157	417	917	1712	2734	3936	5082	5956	6509	6740	6813
45	21	54	160	361	640	872	1047	991	724	402	136	35	21	75	235	596	1236	2108	3155	4146	4870	5272	5408	5443
50	7	22	86	238	485	722	892	836	574	265	73	15	7	29	115	353	838	1560	2452	3288	3862	4127	4200	4215
55	0	5	40	135	335	572	737	681	428	153	30	0	0	5	45	180	515	1087	1824	2505	2933	3086	3116	3116
60	0	0	11	68	198	422	582	526	295	73	10	0	0	0	11	79	277	699	1281	1807	2102	2175	2185	2185
Base	**Growing Degree Units for Corn (Monthly)**												**Growing Degree Units for Corn (Accumulated Monthly)**											
50/86	43	94	188	337	523	683	799	761	580	388	170	56	43	137	325	662	1185	1868	2667	3428	4008	4396	4566	4622

(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