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: CAPE GIRARDEAU AP, MO **COOP ID: 231289**

Climate Division: MO 5 **NWS Call Sign: CGI** **Elevation: 337 Feet** **Lat: 37˚14N** **Lon: 89˚34W**

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	40.8	24.0	32.4	73	1967	23	42.8	1990	-18	1977	11	17.9	1977	1009	0	.0	.0	7.6	7.8	24.2	1.3
Feb	47.2	28.6	37.9	79	1962	13	45.3	1976	-8+	1996	4	23.7	1978	760	0	.0	.0	12.2	4.2	17.8	.3
Mar	57.6	37.5	47.6	94	1982	17	54.8	1973	4+	1978	5	41.6	1978	542	1	.0	@	23.3	.6	10.5	.0
Apr	68.5	46.4	57.5	91	1989	27	63.4	1981	25+	2000	9	51.3	1983	244	18	.0	.2	28.8	.0	2.1	.0
May	77.7	56.3	67.0	97	1996	24	72.8	1987	30	1968	17	62.2	1981	77	138	.0	2.1	31.0	.0	.0	.0
Jun	86.3	65.0	75.7	103+	1988	24	79.9	1971	43	1972	1	71.7	1974	2	322	.3	10.9	30.0	.0	.0	.0
Jul	90.1	68.9	79.5	105+	1980	15	83.0+	1993	49	1962	27	76.0	2000	0	449	.9	18.2	31.0	.0	.0	.0
Aug	88.3	66.3	77.3	105	1964	4	82.3	1995	45	1986	29	72.9	1992	1	381	.6	13.7	31.0	.0	.0	.0
Sep	80.9	58.1	69.5	100	1960	6	75.2	1998	33	1999	30	64.6	1974	38	173	.0	4.9	30.0	.0	.0	.0
Oct	70.5	46.1	58.3	93	1969	3	65.6	1971	23+	1981	24	52.5	1976	240	33	.0	.1	30.5	.0	2.2	.0
Nov	56.4	37.1	46.8	82+	1987	4	51.8	1990	8	1976	29	38.5	1976	547	0	.0	.0	20.8	.2	10.1	.0
Dec	44.8	28.2	36.5	76	1982	2	44.7	1971	-11	1989	22	24.3	2000	884	0	.0	.0	10.6	4.1	20.2	.4
Ann	67.4	46.9	57.2	105+	Jul 1980	15	83.0+	Jul 1993	-18	Jan 1977	11	17.9	Jan 1977	4344	1515	1.8	50.1	286.8	16.9	87.1	2.0

+ 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: 1960-2001

(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	3.38	3.14	4.81	1982	30	11.83	1982	.61	1986
Feb	3.44	3.24	3.23	1979	25	9.66	1989	.93	1983
Mar	4.57	3.51	6.73	1977	27	11.89	1977	1.64	1971
Apr	4.34	3.80	5.54	1983	29	12.73	1983	1.27	1971
May	5.09	4.65	6.64	1986	15	16.89	1973	.78	1994
Jun	3.81	3.52	3.63	1989	28	11.09	1989	.69	1988
Jul	3.45	2.66	5.81	2001	19	8.39	1971	.63	1999
Aug	3.28	2.69	3.15	1985	5	7.80	1985	.22	1996
Sep	3.30	2.57	3.52	1988	2	10.23	1993	.48	1999
Oct	3.17	2.86	3.16	1984	20	10.65	1984	.48	1971
Nov	4.50	4.93	6.05	1991	19	8.36	1991	.34	1976
Dec	4.21	3.66	3.92	1982	24	12.32	1982	.77	1980
Ann	46.54	45.85	6.73	Mar 1977	27	16.89	May 1973	.22	Aug 1996

Mean Number of Days (3)

Daily Precipitation

Month	>= 0.01	>= 0.10	>= 0.50	>= 1.00
Jan	9.2	5.7	1.9	.8
Feb	8.9	5.3	2.1	1.1
Mar	11.5	7.4	3.1	1.0
Apr	10.8	7.2	2.7	1.2
May	11.3	8.0	3.2	1.3
Jun	9.9	6.7	2.5	.7
Jul	8.4	5.5	2.4	.9
Aug	7.7	5.3	2.1	.9
Sep	7.1	4.9	2.2	1.0
Oct	7.6	5.1	2.1	.9
Nov	10.1	6.7	3.0	1.3
Dec	10.0	6.6	2.9	1.1
Ann	112.5	74.4	30.2	12.2

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	.78	1.09	1.59	2.03	2.47	2.94	3.47	4.10	4.93	6.24	7.48
Feb	.93	1.26	1.75	2.19	2.61	3.06	3.56	4.14	4.91	6.10	7.22
Mar	1.56	1.99	2.63	3.16	3.67	4.20	4.77	5.45	6.31	7.64	8.87
Apr	1.11	1.52	2.15	2.71	3.25	3.83	4.48	5.24	6.23	7.81	9.28
May	1.19	1.66	2.41	3.08	3.74	4.44	5.23	6.17	7.41	9.37	11.21
Jun	.99	1.35	1.90	2.39	2.87	3.38	3.94	4.60	5.47	6.84	8.12
Jul	.87	1.20	1.70	2.14	2.58	3.05	3.56	4.17	4.97	6.24	7.42
Aug	.45	.72	1.19	1.64	2.12	2.65	3.26	4.00	5.01	6.66	8.26
Sep	.44	.71	1.18	1.64	2.12	2.65	3.27	4.03	5.05	6.73	8.35
Oct	.69	.98	1.45	1.87	2.29	2.74	3.25	3.85	4.65	5.93	7.13
Nov	1.14	1.56	2.22	2.80	3.37	3.97	4.64	5.44	6.47	8.12	9.65
Dec	.98	1.37	1.99	2.54	3.09	3.67	4.32	5.10	6.12	7.73	9.26
Ann	33.42	35.97	39.23	41.70	43.89	46.01	48.19	50.60	53.53	57.76	61.42

\+ 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: 1960-2001
(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	4.4	1.8	1	0
Feb	4.5	1.9	1	0
Mar	1.6	.6	#	0
Apr	.1	.0	0	0
May	.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	.3	.0	#	0
Dec	1.9	1.3	#	0
Ann	12.9	5.6	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	12.0	1978	16	19.3	1978	14+	1978	18	4+	1978
Feb	24.0	1979	25	29.2	1979	24	1979	26	3+	1979
Mar	7.2	1994	8	12.0	1994	15	1979	1	1+	1994
Apr	.7	1971	6	1.3	1971	0	0	0	0	0
May	.0	0	0	.0	0	0	0	0	#	1996
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	2.1	1993	29	2.7	1993	2	1993	30	#	1993
Nov	4.0	1980	27	4.0	1980	4	1980	27	#	1995
Dec	8.0	1984	5	8.2	1975	10	1996	16	1+	1996
Ann	24.0	Feb 1979	25	29.2	Feb 1979	24	Feb 1979	26	4+	Jan 1978

Mean Number of Days (1)

Snow Fall >= Thresholds

Month	0.1	1.0	3.0	5.0	10.0
Jan	2.8	1.6	.6	.1	@
Feb	2.2	1.4	.3	.2	.1
Mar	1.2	.5	.2	.1	.0
Apr	.1	.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	.1	.0	.0	.0	.0
Nov	.4	.1	@	.0	.0
Dec	1.4	.7	.2	.1	.0
Ann	8.2	4.3	1.3	.5	.1

Snow Depth >= Thresholds

Month	1	3	5	10
Jan	6.1	3.2	1.5	.3
Feb	5.0	2.3	1.3	.2
Mar	1.2	.5	.3	.2
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	.1	@	.0	.0
Dec	1.8	.6	.2	@
Ann	14.2	6.6	3.3	.7

+ 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	4/30	4/25	4/22	4/19	4/16	4/13	4/10	4/07	4/02
32	4/18	4/14	4/10	4/07	4/05	4/02	3/30	3/27	3/22
28	4/10	4/05	4/01	3/29	3/26	3/22	3/19	3/15	3/10
24	3/23	3/18	3/15	3/12	3/09	3/07	3/04	3/01	2/24
20	3/16	3/10	3/05	3/01	2/26	2/22	2/18	2/13	2/07
16	3/13	3/05	2/27	2/22	2/17	2/12	2/07	2/01	1/24

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	9/27	10/02	10/06	10/09	10/12	10/15	10/18	10/22	10/28
32	10/08	10/13	10/17	10/21	10/24	10/27	10/30	11/03	11/09
28	10/21	10/27	11/01	11/04	11/08	11/11	11/15	11/19	11/25
24	10/29	11/05	11/10	11/14	11/18	11/22	11/26	12/01	12/08
20	11/14	11/21	11/25	11/29	12/03	12/07	12/11	12/16	12/23
16	11/22	11/30	12/05	12/10	12/14	12/19	12/23	12/29	1/06

Freeze Free Period

Temp (F)	Probability of longer than indicated freeze free period (Days)								
	.10	.20	.30	.40	.50	.60	.70	.80	.90
36	197	190	186	182	178	175	171	166	160
32	223	216	210	206	201	197	193	187	180
28	252	243	237	232	227	222	216	210	202
24	277	268	263	258	253	248	243	237	229
20	304	296	290	285	280	275	270	264	256
16	328	318	311	305	299	294	287	280	270

***** 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	1009	760	542	244	77	2	0	1	38	240	547	884	4344
60	854	624	398	135	29	0	0	0	10	135	402	729	3316
57	770	546	317	85	13	0	0	0	4	88	322	645	2790
55	711	494	268	59	8	0	0	0	2	64	270	586	2462
50	567	372	166	19	1	0	0	0	0	22	163	446	1756
32	182	81	9	0	0	0	0	0	0	0	6	105	383

Cooling Degree Days (1)

Base Above	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Ann
32	195	245	491	764	1084	1309	1472	1403	1125	816	449	244	9597
55	12	15	37	133	378	619	759	690	437	167	23	12	3282
57	9	11	24	99	322	559	697	628	379	129	14	9	2880
60	0	5	13	59	244	469	604	535	295	83	5	0	2312
65	0	0	1	18	138	322	449	381	173	33	0	0	1515
70	0	0	0	3	63	184	294	236	82	9	0	0	871

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	55	111	288	539	852	1089	1241	1176	904	588	259	85	55	166	454	993	1845	2934	4175	5351	6255	6843	7102	7187
45	24	60	177	397	697	939	1086	1021	754	438	158	43	24	84	261	658	1355	2294	3380	4401	5155	5593	5751	5794
50	6	24	100	267	542	789	931	866	604	300	91	17	6	30	130	397	939	1728	2659	3525	4129	4429	4520	4537
55	0	7	46	161	392	639	776	711	456	182	41	5	0	7	53	214	606	1245	2021	2732	3188	3370	3411	3416
60	0	0	17	80	249	489	621	556	320	94	13	0	0	0	17	97	346	835	1456	2012	2332	2426	2439	2439
Base	**Growing Degree Units for Corn (Monthly)**												**Growing Degree Units for Corn (Accumulated Monthly)**											
50/86	30	66	165	326	550	746	857	810	601	365	145	45	30	96	261	587	1137	1883	2740	3550	4151	4516	4661	4706

(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:
www.ncdc.noaa.gov/oa/climate/normals/usnormals.html

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