

Climatography of the United States No. 20

National Climatic Data Center
Federal Building
151 Patton Avenue
Asheville, North Carolina 28801
www.ncdc.noaa.gov

Station: BOWLING GREEN 2 NE, MO

1971-2000

COOP ID: 230856

Climate Division: MO 2

NWS Call Sign:

Elevation: 710 Feet

Lat: 39° 22N

Lon: 91° 11W

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	35.5	15.4	25.5	72	1990	17	36.9	1989	-25+	1999	5	11.8	1977	1226	0	.0	.0	4.3	12.9	28.5	5.2
Feb	42.2	20.5	31.4	75	1976	28	42.9	2000	-26	1979	9	16.7	1978	943	0	.0	.0	8.3	7.7	23.8	3.5
Mar	53.6	30.6	42.1	85	1991	27	48.3	1973	-16	1978	5	34.4	1978	709	0	.0	.0	18.2	1.9	18.6	.2
Apr	65.4	41.6	53.5	92	1992	11	60.8	1981	13	1975	3	47.5	1997	355	11	.0	.1	26.3	.0	6.9	.0
May	75.1	51.1	63.1	96	1992	2	70.1	1998	26	1989	7	58.1	1997	149	90	.0	1.0	30.9	.0	.8	.0
Jun	83.7	60.6	72.2	104	1988	25	76.4	1971	37	1969	3	67.1	1982	15	230	.2	5.3	30.0	.0	.0	.0
Jul	88.2	65.7	77.0	105	1966	13	82.5	1980	42	1983	7	72.1	1971	0	370	.6	12.3	31.0	.0	.0	.0
Aug	86.6	63.6	75.1	106	1984	30	82.7	1983	37	1986	29	69.6	1992	11	323	.8	9.8	31.0	.0	.0	.0
Sep	79.5	54.8	67.2	102	1984	2	72.9	1998	28+	1989	25	60.7	1993	73	137	.1	4.0	30.0	.0	.4	.0
Oct	68.4	42.8	55.6	94	1963	11	61.9	1971	16+	1976	22	49.0	1976	308	17	.0	.2	29.6	.0	7.0	.0
Nov	53.5	32.7	43.1	80+	2000	2	50.2	1999	-8	1991	8	35.1	1976	658	0	.0	.0	17.2	1.3	17.4	.1
Dec	40.3	21.2	30.8	78	1991	9	39.0	1982	-21	1989	23	16.0	1983	1062	0	.0	.0	6.8	7.9	27.1	2.1
Ann	64.3	41.7	53.1	106	Aug 1984	30	82.7	Aug 1983	-26	Feb 1979	9	11.8	Jan 1977	5509	1178	1.7	32.7	263.6	31.7	130.5	11.1

+ 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/normal/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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Elevation: 710 Feet Lat: 39°22N

Lon: 91°11W

Precipitation (inches)																								
	Precipitation Totals									Mean Number of Days (3)				Precipitation Probabilities (1) Probability that the monthly/annual precipitation will be equal to or less than the indicated amount										
	Means/ Medians(1)		Extremes							Daily Precipitation				Monthly/Annual Precipitation vs Probability Levels These values were determined from the incomplete gamma distribution										
Month	Mean	Med-ian	Highest Daily(2)	Year	Day	Highest Monthly(1)	Year	Lowest Monthly(1)	Year	>= 0.01	>= 0.10	>= 0.50	>= 1.00	.05	.10	.20	.30	.40	.50	.60	.70	.80	.90	.95
Jan	1.64	1.48	2.00	1996	4	4.67	1996	.00+	1991	5.4	3.6	1.1	.4	.00	.10	.34	.59	.86	1.18	1.55	2.02	2.68	3.79	4.88
Feb	1.84	1.54	2.25	1959	10	5.82	1990	.10	1983	5.8	3.6	1.1	.5	.27	.42	.68	.94	1.21	1.50	1.84	2.25	2.81	3.71	4.59
Mar	3.06	2.92	2.40	1962	21	9.41	1973	.42	1994	7.1	5.6	2.1	.8	.74	1.02	1.47	1.87	2.26	2.68	3.15	3.71	4.44	5.59	6.68
Apr	3.87	3.76	3.10	1975	24	11.78	1994	.56	1971	8.4	6.2	2.4	1.1	1.06	1.43	1.99	2.47	2.95	3.45	4.01	4.66	5.51	6.85	8.10
May	4.25	4.04	4.35	1974	31	9.45	1990	.82	1992	9.7	6.9	3.0	.9	1.26	1.66	2.27	2.79	3.30	3.83	4.41	5.10	5.98	7.37	8.66
Jun	3.48	2.56	3.58	1960	30	9.48	2000	.00	1972	8.3	5.7	2.3	1.2	.46	.91	1.50	1.99	2.49	3.01	3.59	4.29	5.21	6.68	8.06
Jul	3.42	3.23	3.80	1987	7	8.90	1981	.52	1994	6.7	5.2	2.3	1.3	.73	1.04	1.54	2.00	2.46	2.94	3.49	4.16	5.03	6.42	7.73
Aug	3.44	3.28	4.18	1975	26	8.82	1995	.58	1998	7.4	5.2	2.4	.9	.83	1.16	1.66	2.10	2.55	3.02	3.54	4.16	4.98	6.27	7.48
Sep	3.03	2.70	3.75+	1993	14	13.96	1993	1.10	1999	6.5	4.8	2.0	.9	.83	1.12	1.56	1.94	2.31	2.70	3.14	3.65	4.32	5.36	6.34
Oct	2.76	2.38	4.20	1969	12	6.18	1973	.94	1989	7.0	5.2	1.9	.6	1.02	1.28	1.65	1.96	2.25	2.56	2.88	3.27	3.75	4.50	5.19
Nov	3.59	3.56	5.66	1964	15	9.71	1985	.12	1976	7.2	5.6	2.5	1.1	.48	.77	1.29	1.79	2.31	2.89	3.56	4.39	5.50	7.33	9.09
Dec	2.52	2.20	3.19	1982	3	8.14	1982	.43	1996	6.1	4.3	1.4	.6	.58	.81	1.18	1.51	1.84	2.19	2.58	3.05	3.67	4.65	5.57
Ann	36.90	35.18	5.66	Nov 1964	15	13.96	Sep 1993	.00+	Jan 1991	85.6	61.9	24.5	10.3	25.01	27.27	30.19	32.42	34.41	36.34	38.35	40.57	43.28	47.24	50.67

+ 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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Station: BOWLING GREEN 2 NE, MO

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Climate Division: MO 2

NWS Call Sign:

Elevation: 710 Feet

Lat: 39°22N

Lon: 91°11W

Snow (inches)																							
Snow Totals															Mean Number of Days (1)								
Means/Medians (1)					Extremes (2)										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	3.6	2.0	1	#	4.0	1976	14	10.0	1976	11	1999	2	4	1974	.9	.8	.2	.0	.0	-9.9	-9.9	-9.9	-9.9
Feb	2.2	.3	#	0	7.0	1972	11	9.1	1989	8	1978	13	4	1978	1.1	.7	.4	.2	.0	2.2	1.8	.0	.0
Mar	2.2	.0	#	0	6.5	1980	13	9.8	1998	7	1990	24	1	1998	.7	.6	.3	.1	.0	.5	.2	.0	.0
Apr	.1	.0	#	0	1.8	1973	9	1.8	1973	##	1997	10	##	1997	.1	.1	.0	.0	.0	.0	.0	.0	.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	.0	.0	0	0	.0	0	0	.0	0	0	0	0	0	0	.0	.0	.0	.0	.0	.0	.0	.0	.0
Nov	1.0	.0	#	0	6.5	1977	27	9.5	1975	10	1975	27	1	1975	.2	.2	.2	.1	.0	.3	.3	.2	.1
Dec	1.0	.0	#	0	4.0	1972	12	6.0	1972	11	1973	31	4	1985	.2	.2	.1	.0	.0	.1	.1	.0	.0
Ann	10.1	2.3	N/A	N/A	7.0	Feb 1972	11	10.0	Jan 1976	11+	Jan 1999	2	4+	Dec 1985	3.2	2.6	1.2	.4	.0	-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

Complete documentation available from:

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Climate Division: MO 2

NWS Call Sign:

Elevation: 710 Feet

Lat: 39°22N

Lon: 91°11W

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	5/25	5/20	5/16	5/12	5/09	5/06	5/03	4/29	4/23
32	5/13	5/07	5/03	4/30	4/27	4/24	4/20	4/16	4/11
28	4/25	4/21	4/18	4/15	4/12	4/10	4/07	4/04	3/30
24	4/14	4/10	4/07	4/04	4/02	3/30	3/28	3/25	3/20
20	4/09	4/03	3/30	3/27	3/24	3/21	3/18	3/14	3/08
16	3/27	3/21	3/17	3/14	3/10	3/07	3/04	2/27	2/22
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	9/15	9/20	9/23	9/26	9/29	10/01	10/04	10/07	10/12
32	9/24	9/29	10/02	10/04	10/07	10/09	10/12	10/15	10/19
28	10/04	10/09	10/13	10/16	10/19	10/22	10/25	10/29	11/04
24	10/13	10/20	10/25	10/29	11/02	11/05	11/10	11/15	11/21
20	10/23	10/30	11/04	11/09	11/13	11/17	11/21	11/26	12/03
16	11/03	11/10	11/15	11/19	11/23	11/27	12/01	12/06	12/13
Freeze Free Period									
Temp (F)	Probability of longer than indicated freeze free period (Days)								
	.10	.20	.30	.40	.50	.60	.70	.80	.90
36	162	155	150	146	142	138	133	128	121
32	182	175	170	166	162	158	154	149	142
28	212	204	198	194	189	185	180	174	166
24	238	230	223	218	213	208	203	197	188
20	261	251	244	239	233	227	222	215	205
16	280	272	266	261	257	252	247	242	234

* 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

Complete documentation available from:

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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	1226	943	709	355	149	15	0	11	73	308	658	1062	5509
60	1071	807	558	230	75	3	0	1	26	188	511	907	4377
57	978	728	472	168	45	1	0	0	12	130	429	817	3780
55	917	676	416	132	30	0	0	0	7	99	374	759	3410
50	772	548	288	62	10	0	0	0	1	42	253	615	2591
32	311	198	37	0	0	0	0	0	0	0	25	209	780

Base	Cooling Degree Days (1)												
Above	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Ann
32	108	180	351	646	965	1205	1393	1336	1054	732	357	170	8497
55	1	13	16	88	282	515	680	623	371	118	16	7	2730
57	0	9	11	64	235	456	618	561	317	88	10	3	2372
60	0	4	4	36	172	368	525	469	241	53	3	0	1875
65	0	0	0	11	90	230	370	323	137	17	0	0	1178
70	0	0	0	2	37	117	224	195	64	4	0	0	643

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	15	56	173	397	698	938	1125	1068	794	470	171	38	15	71	244	641	1339	2277	3402	4470	5264	5734	5905	5943
45	2	26	99	271	544	788	970	913	644	331	100	16	2	28	127	398	942	1730	2700	3613	4257	4588	4688	4704
50	0	8	58	173	392	638	815	758	499	213	52	5	0	8	66	239	631	1269	2084	2842	3341	3554	3606	3611
55	0	2	29	92	256	489	660	603	361	120	22	1	0	2	31	123	379	868	1528	2131	2492	2612	2634	2635
60	0	0	9	48	148	346	505	448	237	58	4	0	0	0	9	57	205	551	1056	1504	1741	1799	1803	1803
Base	Growing Degree Units for Corn (Monthly)												Growing Degree Units for Corn (Accumulated Monthly)											
50/86	12	47	120	248	440	627	765	713	516	308	109	29	12	59	179	427	867	1494	2259	2972	3488	3796	3905	3934

(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.
Complete documentation for the 1971-2000 Normals is available on the internet from:
www.ncdc.noaa.gov/oa/climate/normal/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 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.

- | | |
|---|---|
| <ol style="list-style-type: none">a. Temperature/ Precipitation Tables<ol style="list-style-type: none">1. 1971-2000 Monthly Normals2. Cooperative Summary of the Day3. National Weather Service station records4. 1971-2000 serially complete daily datab. Degree Day Table<ol style="list-style-type: none">1. Monthly and Annual Heating and Cooling Degree Days Normals to Selected Bases derived from 1971-2000 Monthly Normals2. Daily Normal Growing Degree Units to Selected Base Temperatures derived from 1971-2000 serially complete daily data | <ol style="list-style-type: none">c. Snow Tables<ol style="list-style-type: none">1. Snow Climatology2. Cooperative Summary of the Dayd. Freeze Data Table
1971-2000 serially complete daily data |
|---|---|

References

U.S. Climate Normals 1971-2000, www.ncdc.noaa.gov/normal.html
U.S. Climate Normals 1971-2000-Products Clim20, www.ncdc.noaa.gov/oa/climate/normal/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