

Climatology of the United States

No. 20

1971-2000

Station: FREDERICKTOWN, MO

COOP ID: 233038

Climate Division: MO 5

NWS Call Sign:

Elevation: 719 Feet

Lat: 37° 34N

Lon: 90° 19W

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	40.4	21.6	31.0	74+	1986	22	40.2	1990	-24	1977	11	18.1	1977	1055	0	.0	.0	8.0	7.9	27.3	2.6
Feb	46.8	25.7	36.3	83	1982	24	44.8	1976	-17	1985	3	24.3	1978	805	0	.0	.0	12.0	4.4	22.1	1.5
Mar	56.9	35.3	46.1	87+	1997	22	53.7	1976	-6	1978	5	38.5	1996	587	1	.0	.0	22.2	.8	16.1	.1
Apr	67.8	43.8	55.8	93	1965	24	63.2	1981	12	1989	11	50.0	1997	291	14	.0	.3	28.0	.0	6.6	.0
May	76.3	53.0	64.7	93+	1987	22	70.1	1991	24	1989	7	60.3	1997	109	98	.0	1.3	31.0	.0	.8	.0
Jun	84.3	61.7	73.0	103	1988	26	77.3	1984	34	1988	10	69.3	1974	8	248	.1	7.9	30.0	.0	.0	.0
Jul	88.9	66.1	77.5	109	1980	16	82.8	1980	42+	1972	6	74.3	1996	0	387	1.2	16.7	31.0	.0	.0	.0
Aug	87.5	63.5	75.5	109	1980	1	81.9	1983	36+	1988	30	70.1	1992	5	330	1.2	13.3	31.0	.0	.0	.0
Sep	80.2	55.4	67.8	100+	1990	7	72.9	1998	23	1989	24	63.2	1974	59	143	.1	4.8	30.0	.0	.4	.0
Oct	69.5	43.2	56.4	92	1963	12	63.5	1971	16	1981	24	50.2	1988	293	24	.0	.3	30.3	.0	8.3	.0
Nov	55.8	35.5	45.7	85+	1989	12	51.1	1973	3	1986	14	38.2	1976	580	0	.0	.0	20.4	.3	15.7	.0
Dec	44.0	26.1	35.1	75+	1970	4	44.2	1971	-18	1989	22	22.0	2000	929	0	.0	.0	10.1	4.7	24.0	1.0
Ann	66.5	44.2	55.4	109+	Aug 1980	1	82.8	Jul 1980	-24	Jan 1977	11	18.1	Jan 1977	4721	1245	2.6	44.6	284.0	18.1	121.3	5.2

+ 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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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: FREDERICKTOWN, MO

COOP ID: 233038

Climate Division: MO 5

NWS Call Sign:

Elevation: 719 Feet Lat: 37°34N

Lon: 90°19W

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	2.75	2.51	3.36	1993	4	7.67	1982	.10	1986	7.7	4.9	1.9	.7	.42	.65	1.05	1.43	1.83	2.26	2.75	3.36	4.17	5.49	6.76
Feb	2.58	2.60	3.80	1950	13	5.18	1990	.20	1996	7.2	4.9	1.7	.6	.72	.97	1.34	1.66	1.98	2.30	2.67	3.10	3.66	4.54	5.36
Mar	4.13	3.50	5.09	1977	28	9.91	1977	1.50	1981	9.5	7.1	3.0	1.0	1.38	1.78	2.35	2.83	3.30	3.78	4.30	4.92	5.71	6.93	8.05
Apr	4.46	3.21	5.20	1999	4	11.31	1999	1.06	1988	9.4	6.9	2.9	1.3	.88	1.28	1.93	2.54	3.14	3.80	4.54	5.43	6.62	8.52	10.32
May	4.72	4.07	4.27	1950	9	11.52	1986	1.16	1987	9.7	7.1	3.3	1.2	1.15	1.60	2.29	2.90	3.50	4.15	4.86	5.71	6.83	8.60	10.25
Jun	3.83	3.39	6.10	1957	30	10.34	1985	.79	1979	7.7	5.6	2.8	1.2	1.33	1.70	2.22	2.67	3.09	3.53	4.00	4.56	5.27	6.36	7.37
Jul	3.77	3.46	4.12	1979	28	9.36	1979	.32	1982	7.4	5.4	2.6	1.1	.83	1.18	1.73	2.23	2.73	3.26	3.86	4.58	5.53	7.04	8.46
Aug	3.85	3.42	5.97	1974	29	10.91	1985	.34	1988	6.7	5.3	2.4	1.1	.65	.98	1.54	2.07	2.61	3.20	3.88	4.70	5.79	7.56	9.26
Sep	3.11	2.38	5.62	1965	22	8.47	1984	.13	1998	6.2	4.7	2.0	1.0	.38	.63	1.07	1.50	1.96	2.47	3.06	3.80	4.80	6.43	8.02
Oct	3.11	2.63	3.06	1998	6	7.95	1984	.94	1971	6.7	5.1	2.1	.8	1.04	1.33	1.76	2.13	2.48	2.84	3.24	3.71	4.30	5.23	6.08
Nov	4.80	4.56	5.28	1993	14	12.33	1993	.35	1976	8.4	6.5	3.0	1.6	.92	1.35	2.06	2.71	3.37	4.07	4.88	5.84	7.13	9.19	11.15
Dec	3.95	2.94	4.14	1982	3	14.58	1982	.73	1976	8.3	5.8	2.6	1.1	.87	1.23	1.81	2.33	2.86	3.42	4.04	4.80	5.79	7.37	8.86
Ann	45.06	44.95	6.10	Jun 1957	30	14.58	Dec 1982	.10	Jan 1986	94.9	69.3	30.3	12.7	29.54	32.45	36.23	39.14	41.74	44.27	46.91	49.84	53.42	58.67	63.24

+ 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: FREDERICKTOWN, MO

COOP ID: 233038

Climate Division: MO 5

NWS Call Sign:

Elevation: 719 Feet

Lat: 37°34N

Lon: 90°19W

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	4.6	3.4	1	#	8.0	1985	4	20.0	1979	11	1978	21	5	1985	2.0	1.9	.7	.3	.0	7.7	4.7	2.7	.2
Feb	3.6	2.0	1	#	12.0	1979	25	17.0	1993	13	1982	4	6	1982	1.6	1.4	.4	.2	@	5.3	3.5	2.1	.4
Mar	2.3	1.0	#	#	10.0	1999	14	16.0	1975	12	1999	15	1	1999	.9	.9	.2	.1	@	1.5	.8	.4	.1
Apr	.2	.0	#	0	2.0	1971	7	3.5	1971	2	1971	6	#+	1982	.1	.1	.0	.0	.0	.1	.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	.1	.0	#	0	3.0	1993	30	3.0	1993	3	1993	30	#	1993	@	@	@	.0	.0	@	@	.0	.0
Nov	.9	.0	#	0	10.0	1975	27	10.0	1975	8	1980	28	1	1980	.3	.2	.1	.1	@	.3	.2	.2	.0
Dec	2.4	1.0	#	#	5.0	1975	26	15.0	1990	12	1990	28	2	2000	1.3	1.1	.4	.1	.0	3.2	1.5	.3	@
Ann	14.1	7.4	N/A	N/A	12.0	Feb 1979	25	20.0	Jan 1979	13	Feb 1982	4	6	Feb 1982	6.2	5.6	1.8	.8	@	18.1	10.7	5.7	.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

Complete documentation available from:

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NWS Call Sign:

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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	5/24	5/18	5/14	5/10	5/07	5/03	4/30	4/25	4/19
32	5/13	5/07	5/03	4/29	4/26	4/23	4/19	4/15	4/09
28	5/02	4/26	4/21	4/18	4/14	4/11	4/07	4/03	3/28
24	4/21	4/14	4/10	4/06	4/03	3/30	3/26	3/22	3/16
20	4/06	4/01	3/28	3/25	3/22	3/19	3/16	3/12	3/07
16	3/27	3/21	3/16	3/12	3/08	3/04	2/28	2/23	2/16
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	9/13	9/18	9/21	9/24	9/26	9/29	10/02	10/05	10/10
32	9/26	9/30	10/03	10/05	10/07	10/09	10/11	10/14	10/18
28	9/30	10/05	10/09	10/12	10/15	10/18	10/22	10/25	10/31
24	10/11	10/18	10/23	10/27	10/31	11/04	11/08	11/12	11/19
20	10/23	10/30	11/04	11/08	11/12	11/16	11/21	11/26	12/03
16	11/02	11/10	11/16	11/21	11/26	12/01	12/06	12/12	12/20
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	157	152	147	142	137	132	126	118
32	183	176	171	167	163	159	155	150	143
28	208	199	193	188	183	178	173	167	159
24	241	231	223	216	210	204	198	190	180
20	262	253	246	240	234	229	223	216	207
16	293	283	275	268	262	256	249	242	231

* 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	1055	805	587	291	109	8	0	5	59	293	580	929	4721
60	900	665	442	173	46	1	0	0	20	178	436	774	3635
57	807	585	359	118	24	0	0	0	8	124	355	685	3065
55	746	533	307	88	14	0	0	0	4	94	303	628	2717
50	602	406	198	34	3	0	0	0	0	40	191	486	1960
32	184	90	13	0	0	0	0	0	0	0	10	122	419

Base	Cooling Degree Days (1)												
Above	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Ann
32	152	209	450	714	1012	1229	1410	1348	1074	754	420	217	8989
55	0	9	31	112	313	539	697	635	388	135	23	9	2891
57	0	5	20	82	261	479	635	573	332	103	14	5	2509
60	0	0	11	47	190	390	542	480	253	64	6	0	1983
65	0	0	1	14	98	248	387	330	143	24	0	0	1245
70	0	0	0	2	39	127	237	195	65	6	0	0	671

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	34	85	230	459	745	974	1153	1092	820	492	215	63	34	119	349	808	1553	2527	3680	4772	5592	6084	6299	6362
45	12	44	141	325	590	824	998	937	671	348	129	30	12	56	197	522	1112	1936	2934	3871	4542	4890	5019	5049
50	4	17	79	210	437	674	843	782	522	225	71	10	4	21	100	310	747	1421	2264	3046	3568	3793	3864	3874
55	0	5	37	124	294	524	688	627	380	125	29	2	0	5	42	166	460	984	1672	2299	2679	2804	2833	2835
60	0	0	12	62	175	375	533	473	252	58	7	0	0	0	12	74	249	624	1157	1630	1882	1940	1947	1947
Base	Growing Degree Units for Corn (Monthly)												Growing Degree Units for Corn (Accumulated Monthly)											
50/86	31	71	160	303	487	653	772	728	542	341	144	45	31	102	262	565	1052	1705	2477	3205	3747	4088	4232	4277

(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.

- 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/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