

Climatology of the United States

No. 20

1971-2000

Station: BRUNSWICK, MO

COOP ID: 231037

Climate Division: MO 1

NWS Call Sign:

Elevation: 660 Feet

Lat: 39°26N

Lon: 93°07W

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	33.9	15.9	24.9	73+	1957	21	36.6	1990	-22+	1982	10	11.4	1977	1243	0	.0	.0	4.1	12.6	28.7	4.1
Feb	40.4	21.0	30.7	82	1921	15	39.7	1998	-17+	1988	12	17.0	1978	960	0	.0	.0	8.4	7.5	23.2	2.4
Mar	52.4	31.2	41.8	89	1928	22	47.5	1991	-14	1960	5	34.5	1984	720	0	.0	.0	18.3	1.6	17.1	.1
Apr	63.8	41.4	52.6	95	1930	10	60.6	1981	11+	1920	6	46.2	1983	382	9	.0	.2	26.8	.0	4.9	.0
May	73.3	52.0	62.7	104	1934	30	68.8	1977	30	1976	3	57.8	1997	152	79	.0	.4	30.9	.0	.2	.0
Jun	82.0	61.6	71.8	108	1936	19	75.2+	1987	40	1993	5	67.5	1982	10	214	.1	4.6	30.0	.0	.0	.0
Jul	86.5	66.3	76.4	114	1936	15	81.9	1980	48+	1975	14	72.8	1992	0	353	.8	12.6	31.0	.0	.0	.0
Aug	84.6	63.8	74.2	113	1934	9	80.9	1983	42	1986	28	66.7	1992	10	295	.3	9.9	31.0	.0	.0	.0
Sep	77.2	54.8	66.0	104	1939	3	72.0	1998	29	1942	29	58.9	1993	87	116	@	3.3	30.0	.0	.3	.0
Oct	66.4	43.5	55.0	98	1939	7	61.4	1971	18	1925	28	48.8	1976	321	9	.0	.2	29.4	.0	3.8	.0
Nov	51.2	31.9	41.6	88+	1950	1	50.1	1999	-7+	1991	9	33.7	1976	703	0	.0	.0	17.2	1.8	15.8	.1
Dec	38.6	21.0	29.8	76	1949	21	35.7	1994	-25	1989	23	15.5	1983	1092	0	.0	.0	6.3	7.7	26.9	1.8
Ann	62.5	42.0	52.3	114	Jul 1936	15	81.9	Jul 1980	-25	Dec 1989	23	11.4	Jan 1977	5680	1075	1.2	31.2	263.4	31.2	120.9	8.5

+ 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: 1918-2001

(3) Derived from 1971-2000 serially complete daily data

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No. 20 1971-2000

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

Station: BRUNSWICK, MO

COOP ID: 231037

Climate Division: MO 1

NWS Call Sign:

Elevation: 660 Feet Lat: 39°26N

Lon: 93°07W

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	1.59	1.35	3.12	1982	30	4.58	1982	.05	1986	6.9	3.9	.7	.2	.16	.27	.49	.71	.95	1.22	1.54	1.94	2.49	3.39	4.28
Feb	1.47	1.40	3.38	1936	26	4.49	1997	.13	1991	6.1	3.7	.8	.2	.31	.44	.66	.85	1.05	1.26	1.50	1.79	2.16	2.77	3.34
Mar	2.69	2.32	2.86	1944	15	8.25	1973	.74	1971	8.5	5.4	1.5	.5	.79	1.05	1.43	1.76	2.09	2.42	2.80	3.23	3.80	4.69	5.51
Apr	3.52	3.12	3.70	1973	21	9.37	1973	.91	1980	9.8	6.4	2.5	.7	.90	1.23	1.74	2.19	2.64	3.11	3.63	4.25	5.06	6.33	7.53
May	5.03	4.20	4.22	1996	27	11.64	1996	1.06	1994	11.8	8.4	3.5	1.2	1.60	2.08	2.78	3.39	3.97	4.57	5.24	6.01	7.01	8.57	10.01
Jun	4.50	4.23	5.36	1993	7	10.94	1998	.28	1988	9.7	6.6	3.0	1.3	.85	1.25	1.91	2.52	3.14	3.80	4.56	5.48	6.69	8.65	10.51
Jul	3.95	3.67	6.38	1969	10	10.92	1981	.57	1997	8.3	5.8	2.8	1.3	1.02	1.39	1.96	2.47	2.97	3.49	4.08	4.77	5.68	7.11	8.45
Aug	3.74	3.30	5.81	1987	14	11.26	1982	.06	1984	8.6	5.5	2.4	.9	.51	.81	1.34	1.86	2.41	3.01	3.71	4.57	5.73	7.63	9.46
Sep	3.82	3.25	6.60	1961	13	11.28	1986	.62	1979	7.8	5.5	2.6	1.2	.79	1.14	1.70	2.21	2.72	3.27	3.90	4.64	5.63	7.21	8.71
Oct	3.29	3.04	4.73	1946	18	6.41	1998	.47	1988	8.1	5.3	2.2	.8	.79	1.10	1.58	2.01	2.43	2.88	3.39	3.99	4.77	6.02	7.19
Nov	3.20	2.85	3.70	1964	16	8.88+	1992	.06	1989	8.2	5.9	2.2	.8	.48	.75	1.21	1.65	2.11	2.62	3.20	3.91	4.87	6.43	7.93
Dec	2.03	1.77	2.90	1971	15	5.69	1982	.36	1995	7.3	4.3	1.3	.4	.34	.52	.81	1.09	1.38	1.69	2.05	2.48	3.06	4.00	4.89
Ann	38.83	36.89	6.60	Sep 1961	13	11.64	May 1996	.05	Jan 1986	101.1	66.7	25.5	9.5	24.83	27.43	30.82	33.44	35.79	38.08	40.47	43.14	46.41	51.20	55.39

+ 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: 1918-2001

(3) Derived from 1971-2000 serially complete daily data

Complete documentation available from:
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Station: BRUNSWICK, MO

COOP ID: 231037

Climate Division: MO 1

NWS Call Sign:

Elevation: 660 Feet

Lat: 39°26N

Lon: 93°07W

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	5.8	1.0	1	#	12.0	1979	13	25.0	1979	7	1993	10	5	1985	2.0	1.3	.7	.2	@	7.4	5.4	2.8	.0
Feb	2.9	2.0	1	#	7.0	1993	25	9.5	1988	10	1993	26	4	1985	1.8	1.2	.3	.1	.0	4.8	2.7	1.4	.0
Mar	2.3	1.0	#	#	6.0	1990	24	10.0	1980	6	1994	1	1	1994	.8	.7	.3	.1	.0	.7	.2	.1	.0
Apr	.1	.0	#	0	1.5	1980	14	1.5	1980	#	1997	9	#	1997	@	@	.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	#	1993	30	#+	1993	0	0	0	0	0	.0	.0	.0	.0	.0	.0	.0	.0	.0
Nov	1.1	.0	#	0	5.0	1977	27	6.0+	1975	6	1974	30	1	1991	.5	.3	.2	@	.0	.6	.3	.1	.0
Dec	2.3	.5	#	0	10.0	1987	15	11.0	1987	10	1987	15	3	1983	1.3	.8	.2	.1	@	1.6	.8	.6	.1
Ann	14.5	4.5	N/A	N/A	12.0	Jan 1979	13	25.0	Jan 1979	10+	Feb 1993	26	5	Jan 1985	6.4	4.3	1.7	.5	@	15.1	9.4	5.0	.1

+ 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	5/12	5/06	5/03	4/29	4/26	4/23	4/20	4/16	4/11
32	5/01	4/26	4/22	4/19	4/16	4/13	4/10	4/06	4/01
28	4/17	4/13	4/11	4/08	4/06	4/04	4/01	3/29	3/25
24	4/12	4/07	4/04	3/31	3/29	3/26	3/22	3/19	3/14
20	4/04	3/28	3/23	3/19	3/15	3/11	3/07	3/02	2/23
16	3/27	3/18	3/12	3/07	3/02	2/25	2/20	2/14	2/05
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	9/24	9/29	10/02	10/05	10/08	10/10	10/13	10/17	10/22
32	9/27	10/02	10/06	10/10	10/13	10/16	10/20	10/24	10/29
28	10/12	10/17	10/20	10/24	10/27	10/30	11/02	11/05	11/10
24	10/29	11/03	11/06	11/10	11/13	11/16	11/19	11/23	11/28
20	11/06	11/11	11/15	11/18	11/22	11/25	11/28	12/02	12/07
16	11/13	11/19	11/24	11/28	12/02	12/05	12/09	12/14	12/21
Freeze Free Period									
Temp (F)	Probability of longer than indicated freeze free period (Days)								
	.10	.20	.30	.40	.50	.60	.70	.80	.90
36	184	177	172	168	164	159	155	150	143
32	203	195	189	184	179	175	170	164	155
28	222	216	211	207	203	199	195	190	184
24	248	241	236	232	228	225	221	216	209
20	280	270	263	257	251	245	239	232	222
16	307	295	287	280	274	267	260	252	241

* 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	1243	960	720	382	152	10	0	10	87	321	703	1092	5680
60	1088	820	568	254	77	1	0	2	33	194	557	937	4531
57	995	743	483	189	46	0	0	0	16	132	474	844	3922
55	934	691	426	151	31	0	0	0	9	99	419	784	3544
50	789	561	296	76	10	0	0	0	1	41	295	639	2708
32	323	201	38	0	0	0	0	0	0	0	41	212	815

Base	Cooling Degree Days (1)												
Above	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Ann
32	103	165	341	617	951	1194	1376	1308	1020	710	328	144	8257
55	1	10	15	78	269	504	663	595	338	96	16	2	2587
57	0	7	10	56	222	444	601	533	285	67	11	0	2236
60	0	0	2	31	160	355	508	441	212	36	4	0	1749
65	0	0	0	9	79	214	353	295	116	9	0	0	1075
70	0	0	0	2	30	98	206	168	51	1	0	0	556

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	12	59	190	420	725	979	1151	1090	808	496	175	34	12	71	261	681	1406	2385	3536	4626	5434	5930	6105	6139
45	3	24	111	291	571	829	996	935	658	353	99	13	3	27	138	429	1000	1829	2825	3760	4418	4771	4870	4883
50	0	7	59	180	419	679	841	780	511	224	52	3	0	7	66	246	665	1344	2185	2965	3476	3700	3752	3755
55	0	2	27	102	276	529	686	625	373	128	20	0	0	2	29	131	407	936	1622	2247	2620	2748	2768	2768
60	0	0	7	50	158	381	531	470	245	57	4	0	0	0	7	57	215	596	1127	1597	1842	1899	1903	1903
Base	Growing Degree Units for Corn (Monthly)												Growing Degree Units for Corn (Accumulated Monthly)											
50/86	9	45	122	258	450	664	787	739	525	305	107	25	9	54	176	434	884	1548	2335	3074	3599	3904	4011	4036

(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