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: WELDON SPRING NWS, MO **COOP ID: 238805**

Climate Division: MO 2 **NWS Call Sign:** **Elevation: 584 Feet** **Lat: 38˚42N** **Lon: 90˚41W**

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	37.7	18.4	28.1	76	1967	24	38.5	1990	-23	1977	17	13.3	1977	1145	0	.0	.0	6.2	10.6	27.5	3.3
Feb	44.5	23.7	34.1	85	1962	14	42.2	1976	-14+	1988	12	19.6	1978	865	0	.0	.0	9.7	6.0	22.5	2.0
Mar	55.2	33.0	44.1	88	1997	21	50.2	1973	-11	1978	5	35.4	1984	649	0	.0	.0	19.7	1.1	15.6	.2
Apr	66.1	44.1	55.1	92	1970	29	63.0	1981	18	1989	10	48.6	1983	311	13	.0	.2	27.3	.0	4.6	.0
May	75.3	54.1	64.7	92+	1991	29	70.6	1991	26	1989	2	60.3	1997	112	102	.0	1.0	30.9	.0	.4	.0
Jun	83.4	63.2	73.3	97	1963	14	78.1	1971	39+	1989	16	68.9	1982	8	257	.1	6.1	30.0	.0	.0	.0
Jul	88.3	68.3	78.3	105+	1966	15	84.5	1980	45+	1975	13	74.1	1996	0	412	.8	14.0	31.0	.0	.0	.0
Aug	86.7	66.3	76.5	107	1984	30	82.6	1980	36	1986	29	70.6	1992	5	361	.7	11.0	31.0	.0	.0	.0
Sep	79.6	57.6	68.6	102	1984	2	73.1	1998	27	1989	27	62.9	1974	46	153	.1	3.4	30.0	.0	.3	.0
Oct	68.6	45.0	56.8	95	1963	11	64.1	1971	19	1981	24	50.6	1987	274	20	.0	.1	29.9	.0	4.2	.0
Nov	54.6	35.1	44.9	85	1989	13	52.0	1999	0	1964	30	37.2	1976	605	0	.0	.0	18.2	.8	14.4	.0
Dec	42.3	23.9	33.1	76	1970	4	40.5	1982	-28	1989	23	19.4	1983	988	0	.0	.0	8.9	6.1	25.3	1.4
Ann	65.2	44.4	54.8	107	Aug 1984	30	84.5	Jul 1980	-28	Dec 1989	23	13.3	Jan 1977	5008	1318	1.7	35.8	272.8	24.6	114.8	6.9

\+ 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: 1957-2001

(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	1.79	1.27	2.04	1995	14	5.17	1995	.09	1986
Feb	2.26	1.55	2.71	1959	10	5.73	1986	.10	1972
Mar	3.38	3.14	2.75	1977	28	6.46	1977	.44	1993
Apr	3.58	3.19	3.21	1970	24	9.69	1994	.11	1992
May	4.34	3.81	4.02	1959	18	11.84	1990	.40	1987
Jun	3.62	2.61	5.95	2000	24	10.38	2000	.80	1984
Jul	4.18	3.55	4.59	1980	3	11.73	1981	.67	1997
Aug	3.13	3.27	2.44	1987	9	5.92	1974	.80	1971
Sep	3.29	2.74	3.87	1984	11	10.82	1984	.00	1979
Oct	3.10	2.77	3.25	1986	4	6.51	1986	.65	1971
Nov	3.56	3.18	2.30	1987	25	10.08	1985	.30	1995
Dec	2.41	2.23	2.50	1992	15	6.68	1987	.04	1989
Ann	38.64	38.09	5.95	Jun 2000	24	11.84	May 1990	.00	Sep 1979

Mean Number of Days (3)

Month	Daily Precipitation >= 0.01	>= 0.10	>= 0.50	>= 1.00
Jan	7.0	3.7	1.0	.3
Feb	6.4	3.8	1.4	.5
Mar	8.6	6.3	2.2	.5
Apr	9.1	6.0	2.3	.7
May	10.4	6.5	2.7	1.2
Jun	8.6	5.7	2.1	1.1
Jul	7.9	5.0	2.6	1.2
Aug	8.0	5.4	2.2	.7
Sep	7.4	4.5	2.1	1.2
Oct	8.3	5.5	2.0	.6
Nov	9.1	6.0	2.3	1.1
Dec	7.1	4.5	1.7	.7
Ann	97.9	62.9	24.6	9.8

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	.18	.32	.56	.81	1.08	1.38	1.74	2.19	2.79	3.80	4.78
Feb	.23	.40	.71	1.03	1.37	1.75	2.20	2.76	3.52	4.79	6.02
Mar	1.05	1.37	1.85	2.25	2.65	3.06	3.51	4.04	4.72	5.79	6.77
Apr	.60	.91	1.43	1.92	2.43	2.98	3.60	4.37	5.38	7.03	8.61
May	.92	1.31	1.95	2.53	3.11	3.73	4.43	5.27	6.38	8.15	9.83
Jun	.66	.98	1.51	2.01	2.51	3.05	3.67	4.42	5.41	7.01	8.54
Jul	1.00	1.40	2.01	2.55	3.09	3.66	4.30	5.06	6.05	7.63	9.11
Aug	1.11	1.40	1.83	2.19	2.53	2.89	3.27	3.71	4.28	5.16	5.97
Sep	.29	.65	1.19	1.67	2.17	2.71	3.32	4.07	5.06	6.68	8.23
Oct	1.01	1.31	1.74	2.11	2.47	2.83	3.23	3.70	4.31	5.25	6.11
Nov	.56	.86	1.38	1.87	2.38	2.93	3.57	4.34	5.38	7.08	8.70
Dec	.39	.59	.94	1.28	1.62	1.99	2.42	2.94	3.64	4.77	5.86
Ann	25.78	28.20	31.34	33.75	35.91	38.00	40.18	42.59	45.54	49.85	53.60

+ 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: 1957-2001
(3) Derived from 1971-2000 serially complete daily data

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Snow (inches)

Snow Totals

Means/Medians (1)

Extremes (2)

Mean Number of Days (1)

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	4.4	2.2	1	#	6.0	1999	1	12.0	1997	13	1977	25	10	1977	2.3	1.3	.4	.1	.0	1.7	.6	.4	.0
Feb	2.6	1.1	#	#	5.5	1982	9	7.5	1982	12	1982	1	3	1977	1.2	.8	.1	.1	.0	.6	.0	.0	.0
Mar	3.1	.5	#	0	6.4	2000	11	13.5	1980	6	1980	13	1	1980	1.1	.8	.4	.2	.0	.6	.3	.2	.0
Apr	.5	.0	#	0	4.5	1997	10	4.5	1997	5	1971	6	#+	1997	.1	.1	.1	.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	#	1976	19	#	1976	0	0	0	0	0	.0	.0	.0	.0	.0	.0	.0	.0	.0
Nov	1.0	.0	#	0	7.0	1975	27	7.0	1975	7	1975	27	#+	1997	.4	.3	.1	.1	.0	.5	.1	.1	.0
Dec	1.4	.2	#	0	6.3	2000	14	9.1	1981	6	2000	15	3	2000	1.7	.7	.1	.1	.0	1.2	.6	.4	.0
Ann	13.0	4.0	N/A	N/A	7.0	Nov 1975	27	13.5	Mar 1980	13	Jan 1977	25	10	Jan 1977	6.8	4.0	1.2	.6	.0	4.6	1.6	1.1	.0

+ 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	5/15	5/10	5/06	5/03	4/30	4/27	4/24	4/20	4/15
32	5/03	4/28	4/24	4/20	4/17	4/14	4/11	4/07	4/01
28	4/23	4/17	4/13	4/09	4/06	4/03	3/30	3/26	3/20
24	4/12	4/07	4/03	3/31	3/28	3/25	3/22	3/18	3/13
20	4/01	3/26	3/22	3/18	3/15	3/12	3/08	3/04	2/26
16	3/26	3/18	3/12	3/07	3/03	2/26	2/21	2/15	2/07

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	9/16	9/23	9/27	10/01	10/05	10/09	10/13	10/17	10/24
32	9/25	10/01	10/06	10/09	10/13	10/17	10/20	10/25	10/31
28	10/02	10/10	10/15	10/20	10/24	10/29	11/02	11/08	11/16
24	10/18	10/26	11/01	11/05	11/10	11/14	11/19	11/24	12/02
20	10/30	11/06	11/11	11/16	11/20	11/24	11/29	12/04	12/11
16	11/09	11/16	11/21	11/26	11/30	12/04	12/08	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	182	173	167	162	157	152	147	141	133
32	203	195	188	183	178	173	168	161	153
28	233	222	214	207	200	194	187	179	168
24	255	245	238	231	226	220	214	207	196
20	276	267	260	254	249	244	238	231	222
16	304	293	285	278	272	265	258	250	239

***** 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	1145	865	649	311	112	8	0	5	46	274	605	988	5008
60	990	725	502	191	49	1	0	0	13	160	461	833	3925
57	897	647	417	133	26	0	0	0	5	106	380	744	3355
55	836	595	362	101	16	0	0	0	2	78	328	686	3004
50	691	467	244	43	4	0	0	0	0	31	215	544	2239
32	248	132	24	0	0	0	0	0	0	0	17	161	582

Base — Cooling Degree Days (1)

Above	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Ann
32	126	191	398	693	1013	1239	1435	1379	1097	768	402	196	8937
55	0	10	24	104	316	549	722	666	409	134	23	9	2966
57	0	6	16	76	264	489	660	604	351	100	15	4	2585
60	0	0	9	44	194	400	567	511	269	60	7	0	2061
65	0	0	0	13	102	257	412	361	153	20	0	0	1318
70	0	0	0	3	42	135	262	224	71	4	0	0	741

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	31	79	220	458	748	981	1159	1101	833	517	206	55	31	110	330	788	1536	2517	3676	4777	5610	6127	6333	6388
45	6	43	134	326	593	831	1004	946	683	374	126	26	6	49	183	509	1102	1933	2937	3883	4566	4940	5066	5092
50	3	17	74	212	441	681	849	791	535	248	69	10	3	20	94	306	747	1428	2277	3068	3603	3851	3920	3930
55	0	5	37	122	300	532	694	636	391	141	28	2	0	5	42	164	464	996	1690	2326	2717	2858	2886	2888
60	0	0	14	64	178	388	539	481	264	71	7	0	0	0	14	78	256	644	1183	1664	1928	1999	2006	2006
Base	**Growing Degree Units for Corn (Monthly)**												**Growing Degree Units for Corn (Accumulated Monthly)**											
50/86	28	60	142	281	473	666	789	745	548	326	127	41	28	88	230	511	984	1650	2439	3184	3732	4058	4185	4226

(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