

Climatography of the United States

No. 20

1971-2000

Station: MCPHERSON, KS

COOP ID: 145152

Climate Division: KS 5

NWS Call Sign:

Elevation: 1,495 Feet Lat: 38° 23N

Lon: 97° 40W

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	39.1	17.2	28.2	79	1990	10	37.5	1990	-22	1919	3	14.0	1979	1143	0	.0	.0	8.2	9.2	28.4	2.2
Feb	46.4	21.8	34.1	83+	1954	14	43.5	1976	-22	1905	13	20.8	1978	865	0	.0	.0	12.8	5.3	21.7	1.4
Mar	56.3	30.5	43.4	94	1907	21	49.9	1986	-11	1948	11	36.8	1975	670	0	.0	.0	22.4	1.1	15.0	.1
Apr	66.4	40.5	53.5	99	1989	23	61.9	1981	9	1975	3	45.8	1983	356	9	.0	.5	28.4	.1	4.2	.0
May	75.5	51.9	63.7	106	1939	23	68.7	1987	22	1909	1	58.7	1995	121	81	@	1.3	31.0	.0	.1	.0
Jun	86.2	62.1	74.2	114	1911	26	79.4	1980	41+	1998	6	68.8	1992	12	286	1.3	12.3	30.0	.0	.0	.0
Jul	92.1	67.4	79.8	117+	1936	24	87.2	1980	47+	1960	31	76.3	1994	0	458	5.8	22.3	31.0	.0	.0	.0
Aug	89.9	65.5	77.7	117	1936	12	84.3	2000	43	1910	26	70.9	1992	5	399	3.9	19.1	31.0	.0	.0	.0
Sep	81.6	56.5	69.1	109+	1947	3	76.3	1998	27	1984	30	61.4	1974	53	174	.7	8.7	29.9	.0	.1	.0
Oct	70.1	43.7	56.9	98	1954	3	62.1	1979	12	1917	30	51.2	1976	264	14	.0	.8	30.1	@	2.4	.0
Nov	53.8	30.4	42.1	88	1980	8	51.3	1999	-3+	1975	27	35.1	1991	687	0	.0	.0	20.0	1.1	15.3	.1
Dec	42.2	20.9	31.6	81	1955	24	37.3	1988	-21	1989	22	14.7	1983	1037	0	.0	.0	10.3	5.3	26.5	.9
Ann	66.6	42.4	54.5	117+	Aug 1936	12	87.2	Jul 1980	-22+	Jan 1919	3	14.0	Jan 1979	5213	1421	11.7	65.0	285.1	22.1	113.7	4.7

+ 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: 1900-2001

(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: MCPHERSON, KS

COOP ID: 145152

Climate Division: KS 5

NWS Call Sign:

Elevation: 1,495 Feet Lat: 38°23N

Lon: 97°40W

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	.74	.57	1.30	1980	19	3.09	1999	.00+	1997	4.7	1.9	.4	.1	.00	.07	.20	.32	.44	.58	.73	.92	1.18	1.60	2.01
Feb	1.05	.82	2.55	1948	27	2.96	1971	.00	1991	4.4	2.2	.5	.2	.02	.08	.21	.36	.53	.72	.97	1.27	1.71	2.45	3.18
Mar	2.81	2.06	2.54	1984	19	11.22	1973	.10	1994	7.4	4.9	2.0	.8	.25	.44	.81	1.20	1.63	2.11	2.69	3.42	4.41	6.08	7.72
Apr	2.72	2.22	3.26	1933	19	7.67	1976	.34	1989	8.2	5.3	1.7	.6	.55	.80	1.20	1.56	1.93	2.32	2.77	3.30	4.01	5.14	6.21
May	4.86	4.57	4.14	1971	22	11.86	1995	.28	1994	10.9	6.9	3.0	1.4	1.22	1.68	2.39	3.01	3.63	4.28	5.01	5.88	7.01	8.79	10.47
Jun	4.60	4.16	4.15	1966	8	9.61	1995	.82	1973	9.0	6.5	3.2	1.5	1.05	1.48	2.15	2.76	3.36	4.00	4.72	5.57	6.70	8.48	10.17
Jul	3.83	4.07	4.32	1993	14	12.97	1993	.01	1975	7.8	5.1	2.4	1.3	.15	.33	.76	1.25	1.84	2.55	3.43	4.57	6.20	9.02	11.86
Aug	3.59	3.51	4.37	1980	6	10.96	1987	.18	2000	7.5	5.1	2.3	1.2	.40	.67	1.17	1.67	2.21	2.81	3.51	4.38	5.58	7.54	9.46
Sep	2.90	2.17	4.15	1973	26	10.59	1973	.39	1980	6.8	4.5	1.8	.9	.44	.68	1.10	1.50	1.92	2.38	2.90	3.54	4.41	5.81	7.16
Oct	2.32	1.70	4.07	1973	11	9.61	1979	.01	1999	6.1	3.7	1.5	.6	.14	.28	.56	.88	1.23	1.65	2.16	2.80	3.71	5.25	6.78
Nov	1.75	1.40	3.14	1938	3	6.20	1998	.00	1989	5.6	3.2	1.2	.4	.05	.18	.42	.67	.95	1.27	1.65	2.13	2.81	3.94	5.06
Dec	.95	.75	1.94	1965	24	2.85	1984	.02	1976	4.9	2.4	.5	.2	.09	.16	.29	.42	.57	.73	.92	1.16	1.49	2.04	2.58
Ann	32.12	31.11	4.37	Aug 1980	6	12.97	Jul 1993	.00+	Jan 1997	83.3	51.7	20.5	9.2	20.60	22.74	25.53	27.67	29.60	31.49	33.45	35.64	38.31	42.24	45.67

+ 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: 1900-2001

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

Complete documentation available from:
www.ncdc.noaa.gov/oa/climate/normals/usnormals.html

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Station: MCPHERSON, KS

COOP ID: 145152

Climate Division: KS 5

NWS Call Sign:

Elevation: 1,495 Feet

Lat: 38°23N

Lon: 97°40W

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	5.3	3.5	1	#	12.0	2000	4	18.3	1979	13	1979	15	7	1979	2.8	1.8	.6	.2	@	8.4	4.9	2.4	.2
Feb	4.7	2.5	1	#	14.0	1971	22	22.0	1971	16	1971	23	7	1979	2.0	1.4	.5	.2	.1	6.3	4.3	3.0	.9
Mar	2.9	2.0	#	#	6.0	1980	24	16.1	1998	9	1998	9	2	1998	1.2	1.0	.4	.2	.0	2.4	1.2	.5	.0
Apr	.8	.0	#	0	6.0	1983	4	11.0	1983	10	1983	5	1	1983	.4	.3	.1	.1	.0	.4	.1	.1	@
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	1.0	1997	27	1.0	1997	1+	1997	27	#+	1997	@	@	.0	.0	.0	@	.0	.0	.0
Nov	.9	.0	#	0	5.0	1972	16	9.0	1972	5	1972	16	1	1992	.6	.4	.1	@	.0	.6	.2	@	.0
Dec	2.5	1.3	1	#	5.0	1999	5	10.5	1983	9	1983	31	4	1983	2.0	1.3	.4	@	.0	3.9	1.5	.8	.0
Ann	17.1	9.3	N/A	N/A	14.0	Feb 1971	22	22.0	Feb 1971	16	Feb 1971	23	7+	Feb 1979	9.0	6.2	2.1	.7	.1	22.0	12.2	6.8	1.1

+ 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

Complete documentation available from:

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No. 20 1971-2000

Station: MCPHERSON, KS

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Climate Division: KS 5

NWS Call Sign:

Elevation: 1,495 Feet

Lat: 38°23N

Lon: 97°40W

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	5/07	5/03	4/30	4/27	4/24	4/21	4/17	4/12
32	4/29	4/24	4/21	4/18	4/15	4/12	4/09	4/06	4/01
28	4/13	4/10	4/07	4/05	4/03	4/01	3/30	3/27	3/24
24	4/08	4/03	3/31	3/27	3/25	3/22	3/19	3/15	3/10
20	4/03	3/27	3/22	3/18	3/14	3/11	3/06	3/01	2/23
16	3/25	3/17	3/11	3/06	3/01	2/24	2/19	2/13	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	10/04	10/07	10/09	10/12	10/15	10/19
32	10/04	10/09	10/13	10/16	10/19	10/22	10/25	10/29	11/03
28	10/16	10/21	10/24	10/27	10/30	11/01	11/04	11/07	11/12
24	10/22	10/29	11/03	11/07	11/11	11/15	11/19	11/24	12/01
20	11/04	11/11	11/15	11/19	11/23	11/27	12/01	12/05	12/12
16	11/08	11/15	11/20	11/25	11/29	12/03	12/08	12/13	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	181	175	170	166	162	159	154	150	143
32	207	200	195	190	186	182	178	172	165
28	226	220	216	212	209	206	202	198	192
24	257	248	241	236	230	225	220	213	204
20	279	270	264	258	253	248	242	236	226
16	307	295	287	279	272	266	258	250	238

* 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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Climate Division: KS 5 NWS Call Sign: Elevation: 1,495 Feet Lat: 38° 23N Lon: 97° 40W

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	1143	865	670	356	121	12	0	5	53	264	687	1037	5213
60	988	732	517	229	53	2	0	0	17	145	539	882	4104
57	896	653	431	165	28	0	0	0	7	91	455	789	3515
55	835	602	374	129	17	0	0	0	3	64	400	728	3152
50	686	477	246	60	4	0	0	0	0	21	275	583	2352
32	240	153	21	0	0	0	0	0	0	0	31	169	614

Base	Cooling Degree Days (1)												
Above	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Ann
32	119	212	374	644	983	1264	1481	1417	1111	773	334	155	8867
55	2	17	14	83	286	574	768	704	424	124	13	1	3010
57	1	13	9	59	236	514	706	642	368	89	8	0	2645
60	0	7	2	32	168	426	613	549	288	50	2	0	2137
65	0	0	0	9	81	286	458	399	174	14	0	0	1421
70	0	0	0	1	30	166	305	259	91	2	0	0	854

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	33	90	247	474	778	1060	1271	1220	926	594	192	43	33	123	370	844	1622	2682	3953	5173	6099	6693	6885	6928
45	5	42	148	338	623	910	1116	1065	776	444	110	11	5	47	195	533	1156	2066	3182	4247	5023	5467	5577	5588
50	0	12	84	217	469	760	961	910	626	307	49	3	0	12	96	313	782	1542	2503	3413	4039	4346	4395	4398
55	0	1	39	121	322	610	806	755	481	188	20	0	0	1	40	161	483	1093	1899	2654	3135	3323	3343	3343
60	0	0	9	58	191	462	651	600	346	98	3	0	0	0	9	67	258	720	1371	1971	2317	2415	2418	2418
Base	Growing Degree Units for Corn (Monthly)												Growing Degree Units for Corn (Accumulated Monthly)											
50/86	29	79	171	303	493	705	837	812	602	372	125	35	29	108	279	582	1075	1780	2617	3429	4031	4403	4528	4563

(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