

# Climatology of the United States

## No. 20

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

Station: MINNEAPOLIS, KS

1971-2000

COOP ID: 145363

Climate Division: KS 2

NWS Call Sign:

Elevation: 1,310 Feet Lat: 39°08N

Lon: 97°42W

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	39.6	18.1	28.9	80	1989	31	39.0	1989	-22+	1947	4	14.3	1979	1122	0	.0	.0	7.9	8.9	28.5	2.7
Feb	46.7	23.2	35.0	87	1972	29	45.0	1976	-28	1905	13	20.5	1978	847	0	.0	.0	12.2	5.4	22.2	1.8
Mar	58.1	33.1	45.6	94	1907	21	52.8	1986	-13+	1948	11	38.1	1975	603	0	.0	.0	22.3	1.2	15.3	.2
Apr	69.1	43.2	56.2	101	1989	23	64.0	1981	8	1920	5	48.4	1983	287	21	.1	.8	28.2	@	4.6	.0
May	78.2	53.4	65.8	104	1934	31	70.5	1977	21	1909	1	59.6	1995	95	119	.0	1.9	31.0	.0	.2	.0
Jun	89.2	63.1	76.2	113	1980	30	80.6	1988	40+	1947	13	70.5	1982	6	341	1.9	14.3	30.0	.0	.0	.0
Jul	94.9	68.4	81.7	117	1936	24	88.5	1980	48+	1990	14	77.6	1994	0	515	7.3	23.7	31.0	.0	.0	.0
Aug	92.9	66.8	79.9	119+	1936	13	88.0	2000	42	1915	30	73.5	1992	3	464	5.1	20.1	31.0	.0	.0	.0
Sep	84.0	57.6	70.8	115	1947	3	76.3	1998	28+	1916	29	64.9	1974	30	205	1.0	9.5	30.0	.0	.1	.0
Oct	71.8	45.5	58.7	102	1947	5	62.4	2000	10	1917	30	53.7	1976	216	19	.0	1.0	29.9	@	2.9	.0
Nov	54.3	31.9	43.1	86	1980	6	51.8	1999	-4	1929	22	35.5	1985	657	0	.0	.0	19.4	1.2	15.8	.1
Dec	42.5	22.1	32.3	82	1939	6	38.4	1988	-24	1989	22	15.2	1983	1014	0	.0	.0	9.5	5.7	27.5	1.2
Ann	68.4	43.9	56.2	119+	Aug 1936	13	88.5	Jul 1980	-28	Feb 1905	13	14.3	Jan 1979	4880	1684	15.4	71.3	282.4	22.4	117.1	6.0

+ 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](http://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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**Elevation: 1,310 Feet Lat: 39°08N**

**Lon: 97°42W**

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	.78	.67	1.64	1999	31	2.42	1979	.00	1986	4.6	2.3	.4	.1	.04	.10	.22	.33	.46	.60	.76	.96	1.24	1.71	2.16
Feb	.91	.81	2.50	1928	6	2.40	2000	.02	1974	4.7	2.1	.6	.2	.05	.11	.22	.34	.48	.64	.84	1.10	1.45	2.06	2.66
Mar	2.39	1.74	2.93	1998	30	8.58	1973	.12	1997	7.7	4.2	1.8	.5	.25	.42	.75	1.09	1.45	1.85	2.33	2.92	3.73	5.08	6.39
Apr	2.22	1.88	2.97	1976	24	6.02	1976	.13	1989	8.1	5.0	1.7	.3	.52	.73	1.05	1.35	1.63	1.94	2.28	2.69	3.23	4.08	4.89
May	5.01	3.92	4.40	1953	27	11.82	1995	1.72	1998	11.3	7.8	3.4	1.5	1.57	2.05	2.75	3.36	3.94	4.55	5.21	5.99	6.99	8.56	10.01
Jun	3.76	3.51	4.45	1951	21	7.59	1975	1.35	1990	8.7	6.2	2.5	1.1	1.49	1.84	2.33	2.74	3.13	3.52	3.94	4.43	5.05	6.00	6.87
Jul	4.57	3.48	5.50	1990	26	16.69	1993	.05	1974	8.4	5.8	2.8	1.5	.33	.62	1.20	1.83	2.53	3.34	4.31	5.55	7.26	10.15	13.01
Aug	3.39	3.09	5.35	1966	21	9.18	1977	.00	1971	8.3	5.7	2.5	1.2	.42	.85	1.42	1.90	2.39	2.90	3.48	4.17	5.08	6.54	7.92
Sep	2.52	2.20	6.34	1942	3	11.18	1973	.08	1983	6.7	4.4	1.7	.6	.29	.48	.83	1.18	1.56	1.98	2.47	3.07	3.90	5.27	6.60
Oct	2.22	2.01	3.83	1973	11	5.20	1992	.00	1999	6.5	3.8	1.5	.5	.10	.29	.62	.94	1.29	1.68	2.15	2.73	3.52	4.83	6.12
Nov	1.53	.89	2.44	1998	2	5.15	1998	.00+	1989	5.9	3.6	.9	.3	.00	.15	.42	.67	.92	1.20	1.52	1.91	2.44	3.32	4.17
Dec	.98	.78	2.07	1913	5	3.11	1973	.00+	1977	4.8	2.3	.7	.2	.00	.09	.25	.41	.57	.75	.96	1.22	1.57	2.16	2.73
Ann	30.28	29.93	6.34	Sep 1942	3	16.69	Jul 1993	.00+	Oct 1999	85.7	53.2	20.5	8.0	18.03	20.24	23.16	25.44	27.50	29.52	31.64	34.02	36.95	41.28	45.09

+ 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:  
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Station: MINNEAPOLIS, KS

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Climate Division: KS 2

NWS Call Sign:

Elevation: 1,310 Feet

Lat: 39°08N

Lon: 97°42W

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	6.4	4.2	1	1	10.0	1979	13	28.0	1979	14	1979	15	8	1993	3.6	2.2	.7	.2	@	8.1	4.7	2.9	.5
Feb	4.6	2.2	1	#	14.0	1980	8	20.0	1971	14	1980	8	7	1979	2.2	1.5	.5	.3	.1	6.9	4.0	2.8	1.0
Mar	3.0	2.0	#	#	11.0	1975	10	11.0	1975	10	1975	10	2	1998	1.7	1.0	.3	.1	@	2.3	.9	.5	@
Apr	.6	.0	#	0	3.0	1974	4	5.0	1997	5	1997	12	#+	1997	.3	.3	.1	.0	.0	.4	@	@	.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	.2	.0	#	0	1.5	1992	8	1.5	1992	1	1991	31	#+	1997	.2	.1	.0	.0	.0	@	.0	.0	.0
Nov	1.6	.0	#	#	7.0	1975	26	8.5	1975	7	1975	26	2	1991	.9	.6	.2	@	.0	1.2	.5	.2	.0
Dec	3.1	1.9	#	#	4.0	1972	12	11.6	1997	7	2000	26	3	2000	2.3	1.6	.2	.0	.0	4.6	1.6	.4	.0
Ann	19.5	10.3	N/A	N/A	14.0	Feb 1980	8	28.0	Jan 1979	14+	Feb 1980	8	8	Jan 1993	11.2	7.3	2.0	.6	.1	23.5	11.7	6.8	1.5

+ 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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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	5/14	5/09	5/05	5/02	4/29	4/26	4/23	4/19	4/14
32	5/02	4/27	4/24	4/21	4/18	4/15	4/12	4/09	4/04
28	4/18	4/14	4/11	4/08	4/06	4/03	4/01	3/29	3/24
24	4/14	4/08	4/04	3/31	3/28	3/25	3/21	3/17	3/12
20	4/05	3/30	3/25	3/21	3/18	3/14	3/10	3/05	2/27
16	3/26	3/18	3/12	3/07	3/02	2/25	2/20	2/14	2/06
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	9/20	9/25	9/28	10/01	10/03	10/06	10/09	10/12	10/17
32	10/02	10/07	10/11	10/14	10/17	10/20	10/23	10/27	11/01
28	10/13	10/17	10/21	10/24	10/26	10/29	11/01	11/04	11/09
24	10/20	10/26	10/31	11/04	11/07	11/11	11/15	11/19	11/26
20	11/03	11/08	11/12	11/16	11/19	11/22	11/25	11/29	12/05
16	11/07	11/13	11/18	11/23	11/27	12/01	12/05	12/10	12/17
Freeze Free Period									
Temp (F)	Probability of longer than indicated freeze free period (Days)								
	.10	.20	.30	.40	.50	.60	.70	.80	.90
36	178	171	165	161	157	152	148	142	135
32	203	196	190	186	182	177	173	168	160
28	222	215	211	207	203	199	195	190	184
24	249	240	234	228	224	219	213	207	198
20	271	262	256	250	245	240	235	229	220
16	303	291	283	276	269	262	255	246	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	1122	847	603	287	95	6	0	3	30	216	657	1014	4880
60	967	716	457	175	39	1	0	0	7	108	511	859	3840
57	877	638	373	122	20	0	0	0	2	64	428	766	3290
55	817	588	320	92	12	0	0	0	0	43	374	706	2952
50	673	468	208	38	2	0	0	0	0	13	253	562	2217
32	244	160	18	0	0	0	0	0	0	0	26	159	607

Base	Cooling Degree Days (1)												
Above	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Ann
32	145	242	439	725	1047	1325	1538	1484	1165	827	359	168	9464
55	5	26	27	127	346	635	825	771	475	157	17	2	3413
57	3	20	18	97	292	575	763	709	416	116	10	0	3019
60	1	14	9	60	218	486	670	616	332	67	4	0	2477
65	0	0	0	21	119	341	515	464	205	19	0	0	1684
70	0	0	0	6	52	211	360	320	109	3	0	0	1061

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	29	91	244	487	794	1077	1282	1222	920	584	181	39	29	120	364	851	1645	2722	4004	5226	6146	6730	6911	6950
45	4	45	147	349	639	927	1127	1067	770	432	97	7	4	49	196	545	1184	2111	3238	4305	5075	5507	5604	5611
50	0	14	82	227	484	777	972	912	622	299	41	1	0	14	96	323	807	1584	2556	3468	4090	4389	4430	4431
55	0	2	37	129	338	627	817	757	473	181	18	0	0	2	39	168	506	1133	1950	2707	3180	3361	3379	3379
60	0	0	7	63	205	478	662	603	337	90	3	0	0	0	7	70	275	753	1415	2018	2355	2445	2448	2448
Base	Growing Degree Units for Corn (Monthly)												Growing Degree Units for Corn (Accumulated Monthly)											
50/86	28	80	178	312	507	712	834	806	596	371	117	37	28	108	286	598	1105	1817	2651	3457	4053	4424	4541	4578

(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](http://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](http://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"><li>a. Temperature/ Precipitation Tables<ol style="list-style-type: none"><li>1. 1971-2000 Monthly Normals</li><li>2. Cooperative Summary of the Day</li><li>3. National Weather Service station records</li><li>4. 1971-2000 serially complete daily data</li></ol></li><li>b. Degree Day Table<ol style="list-style-type: none"><li>1. Monthly and Annual Heating and Cooling Degree Days Normals to Selected Bases derived from 1971-2000 Monthly Normals</li><li>2. Daily Normal Growing Degree Units to Selected Base Temperatures derived from 1971-2000 serially complete daily data</li></ol></li></ol> | <ol style="list-style-type: none"><li>c. Snow Tables<ol style="list-style-type: none"><li>1. Snow Climatology</li><li>2. Cooperative Summary of the Day</li></ol></li><li>d. Freeze Data Table<br/>1971-2000 serially complete daily data</li></ol> |
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## References

U.S. Climate Normals 1971-2000, [www.ncdc.noaa.gov/normal.html](http://www.ncdc.noaa.gov/normal.html)  
U.S. Climate Normals 1971-2000-Products Clim20, [www.ncdc.noaa.gov/oa/climate/normal/usnormalsprods.html](http://www.ncdc.noaa.gov/oa/climate/normal/usnormalsprods.html)  
Snow Climatology Project Description, [www.ncdc.noaa.gov/oa/climate/monitoring/snowclim/mainpage.html](http://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](http://www1.ncdc.noaa.gov/pub/data/special/serialcomplete_jam_0900.pdf)