

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: NORTON DAM, KS

1971-2000

COOP ID: 145852

Climate Division: KS 1

NWS Call Sign:

Elevation: 2,340 Feet Lat: 39°49N

Lon: 99°56W

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	38.4	12.5	25.5	78	1990	11	35.5	1986	-21	1974	4	11.9	1979	1226	0	.0	.0	7.4	11.2	30.9	5.0
Feb	44.0	16.8	30.4	82	1970	18	38.3	1992	-18	1981	11	17.5	1978	968	0	.0	.0	11.0	7.5	27.1	3.3
Mar	53.1	25.0	39.1	90	1986	30	46.2	1986	-9	1978	4	32.5	1996	805	0	.0	@	18.2	2.9	24.5	.8
Apr	64.4	35.8	50.1	93	1980	22	57.3	1981	12+	1997	12	44.8	1983	451	2	.0	.5	25.7	.4	10.7	.0
May	73.0	47.2	60.1	101	2000	30	64.5	1998	27+	1984	1	53.4	1995	198	47	@	1.2	30.5	.0	.9	.0
Jun	84.5	57.2	70.9	109	1990	29	77.4	1988	31	1998	7	64.2	1982	35	209	1.4	9.2	29.9	.0	@	.0
Jul	90.8	63.1	77.0	111	1991	7	82.5	1980	42	1971	30	71.7	1992	1	371	4.5	19.0	31.0	.0	.0	.0
Aug	88.7	61.1	74.9	109	1964	10	82.1	1983	43+	1988	28	68.8	1992	12	318	2.8	15.6	31.0	.0	.0	.0
Sep	79.8	50.8	65.3	106	1984	1	71.5	1998	20	1984	29	59.7	1993	89	97	.5	7.0	29.7	.0	.8	.0
Oct	67.9	37.8	52.9	95+	1969	1	56.6	1979	6	1997	27	47.7	1976	378	1	.0	.6	28.6	.2	8.5	.0
Nov	50.8	24.8	37.8	88	1980	7	46.4	1999	-7+	1991	3	30.0	2000	815	0	.0	.0	16.3	2.8	24.8	.3
Dec	40.8	15.8	28.3	84	1964	24	34.4	1979	-28	1989	23	10.3	1983	1137	0	.0	.0	8.3	8.4	30.6	2.5
Ann	64.7	37.3	51.0	111	Jul 1991	7	82.5	Jul 1980	-28	Dec 1989	23	10.3	Dec 1983	6115	1045	9.2	53.1	267.6	33.4	158.8	11.9

+ 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

Issue Date: February 2004

(1) From the 1971-2000 Monthly Normals

(2) Derived from station's available digital record: 1962-2001

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

077-A

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COOP ID: 145852

Climate Division: KS 1

NWS Call Sign:

Elevation: 2,340 Feet Lat: 39°49N

Lon: 99°56W

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	.39	.21	.71	1994	27	1.47	1992	.00	1986	3.4	1.0	.1	.0	.01	.04	.09	.14	.20	.28	.36	.47	.63	.89	1.15
Feb	.47	.31	.89	1983	20	1.67	1993	.01+	1974	3.2	1.1	.2	.0	.01	.03	.07	.13	.20	.28	.40	.55	.77	1.16	1.56
Mar	1.73	1.25	2.08	1979	22	5.97	1973	.02	1994	6.5	3.3	1.0	.3	.08	.16	.36	.59	.85	1.17	1.56	2.07	2.79	4.02	5.26
Apr	2.64	2.43	2.36	1984	21	6.71	1984	.06	1989	8.2	4.8	1.7	.8	.52	.76	1.15	1.51	1.87	2.25	2.69	3.21	3.91	5.02	6.08
May	4.40	3.86	3.16	1985	14	14.33	1995	.71	2000	11.0	7.6	3.3	1.0	1.18	1.59	2.23	2.79	3.34	3.91	4.55	5.31	6.30	7.85	9.29
Jun	3.29	2.78	4.29	1966	24	9.12	1996	.92	1990	9.1	6.0	2.1	.6	1.03	1.34	1.80	2.20	2.59	2.99	3.43	3.94	4.61	5.64	6.60
Jul	3.62	3.18	2.50	1968	27	11.02	1993	.56	1974	9.1	6.1	2.5	1.0	.61	.93	1.45	1.95	2.46	3.01	3.65	4.42	5.44	7.10	8.69
Aug	3.20	2.96	3.25	1975	14	8.94	1993	.35	1995	7.8	5.0	2.0	.9	.48	.75	1.22	1.66	2.12	2.62	3.20	3.91	4.86	6.41	7.89
Sep	1.97	1.56	4.49	1963	22	7.22	1976	.08	1994	6.3	3.6	1.2	.4	.19	.33	.59	.87	1.17	1.50	1.90	2.40	3.08	4.21	5.32
Oct	1.56	1.36	3.59	1965	18	4.34	1997	.06	1999	5.4	2.8	.9	.3	.14	.24	.45	.67	.90	1.17	1.49	1.90	2.46	3.39	4.30
Nov	1.19	.84	1.82	1998	2	3.59	1998	.01	1980	4.8	2.3	.7	.3	.05	.11	.25	.41	.59	.81	1.08	1.43	1.92	2.77	3.62
Dec	.43	.37	1.16	1982	25	1.56	1982	.00+	1995	3.4	1.0	.1	@	.00	.00	.10	.17	.25	.33	.42	.54	.69	.95	1.20
Ann	24.89	24.51	4.49	Sep 1963	22	14.33	May 1995	.00+	Dec 1995	78.2	44.6	15.8	5.6	17.29	18.74	20.62	22.04	23.31	24.54	25.81	27.22	28.93	31.43	33.59

+ 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: 1962-2001

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

Complete documentation available from:
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Station: NORTON DAM, KS

COOP ID: 145852

Climate Division: KS 1

NWS Call Sign:

Elevation: 2,340 Feet

Lat: 39°49N

Lon: 99°56W

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	3.4	3.0	2	#	8.0	1994	27	8.7	1980	15	1993	15	10	1993	2.2	1.6	.5	.2	.0	6.3	2.5	.9	.0
Feb	3.1	1.0	2	#	12.0	1980	8	17.0	1978	13	1978	14	7	1993	1.6	1.4	.4	.2	.1	4.7	2.7	1.7	.3
Mar	3.9	3.0	1	#	8.0	1993	2	12.0	1979	15	1993	2	3	1993	1.7	1.5	.6	.2	.0	2.7	1.3	.4	.0
Apr	1.4	.0	#	#	7.0	1980	3	9.0	1980	7	1980	3	#+	1998	.5	.5	.3	.1	.0	.5	.2	.1	.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	#	1974	6	#	1974	.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	.7	.0	#	0	12.0	1997	26	12.0	1997	12	1997	27	2	1997	.1	.1	.1	@	@	.3	.3	.2	.1
Nov	2.0	1.3	#	#	6.0	1973	21	7.0	1975	10+	1991	4	2+	2000	.7	.6	.2	.1	.0	2.0	1.1	.4	.2
Dec	3.4	3.0	1	1	6.0	1992	15	11.0	1973	14	1982	30	8	1983	1.7	1.4	.3	@	.0	4.5	1.3	.2	.0
Ann	17.9	11.3	N/A	N/A	12.0+	Oct 1997	26	17.0	Feb 1978	15+	Mar 1993	2	10	Jan 1993	8.5	7.1	2.4	.8	.1	21.0	9.4	3.9	.6

+ 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:

www.ncdc.noaa.gov/oa/climate/normal/usnormals.html

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Station: NORTON DAM, KS

COOP ID: 145852

Climate Division: KS 1

NWS Call Sign:

Elevation: 2,340 Feet

Lat: 39° 49N

Lon: 99° 56W

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	5/19	5/15	5/13	5/10	5/07	5/04	5/01	4/26
32	5/19	5/13	5/09	5/05	5/02	4/29	4/25	4/21	4/16
28	5/01	4/27	4/24	4/21	4/18	4/16	4/13	4/10	4/05
24	4/19	4/15	4/12	4/10	4/08	4/05	4/03	3/31	3/27
20	4/12	4/06	4/03	3/31	3/28	3/25	3/22	3/18	3/13
16	4/08	4/01	3/27	3/22	3/18	3/14	3/09	3/04	2/25
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	9/20	9/23	9/25	9/28	9/30	10/03	10/05	10/09
32	9/20	9/25	9/28	10/01	10/04	10/07	10/11	10/14	10/19
28	10/04	10/08	10/11	10/14	10/17	10/20	10/22	10/26	10/30
24	10/11	10/17	10/21	10/24	10/27	10/30	11/03	11/07	11/12
20	10/17	10/23	10/28	11/01	11/05	11/08	11/12	11/17	11/23
16	10/29	11/04	11/08	11/12	11/15	11/18	11/21	11/25	12/01
Freeze Free Period									
Temp (F)	Probability of longer than indicated freeze free period (Days)								
	.10	.20	.30	.40	.50	.60	.70	.80	.90
36	158	152	147	144	140	137	133	129	123
32	175	168	163	159	155	151	146	141	134
28	200	193	189	185	181	177	173	169	162
24	218	212	208	205	202	199	195	191	186
20	247	238	232	226	221	216	211	204	195
16	268	258	252	246	241	236	230	224	215

* 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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COOP ID: 145852

Climate Division: KS 1 NWS Call Sign: Elevation: 2,340 Feet Lat: 39° 49N Lon: 99° 56W

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	1226	968	805	451	198	35	1	12	89	378	815	1137	6115
60	1071	828	650	311	105	10	0	2	31	232	665	982	4887
57	978	751	557	235	65	4	0	0	13	156	575	889	4223
55	917	699	498	190	44	2	0	0	7	114	518	827	3816
50	766	569	356	99	13	0	0	0	0	43	380	680	2906
32	300	206	47	0	0	0	0	0	0	0	63	233	849

Base	Cooling Degree Days (1)												
Above	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Ann
32	96	162	266	542	871	1164	1394	1330	998	646	238	118	7825
55	0	10	3	42	203	476	681	617	315	47	3	0	2397
57	0	7	1	27	161	418	619	555	261	27	0	0	2076
60	0	0	0	12	108	335	526	464	189	10	0	0	1644
65	0	0	0	2	47	209	371	318	97	1	0	0	1045
70	0	0	0	0	15	112	226	192	41	0	0	0	586

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	11	47	135	338	635	936	1158	1094	769	420	98	16	11	58	193	531	1166	2102	3260	4354	5123	5543	5641	5657
45	0	15	68	219	482	787	1003	939	623	287	42	3	0	15	83	302	784	1571	2574	3513	4136	4423	4465	4468
50	0	2	28	126	342	637	848	784	480	175	13	0	0	2	30	156	498	1135	1983	2767	3247	3422	3435	3435
55	0	0	5	65	214	488	693	629	342	88	0	0	0	0	5	70	284	772	1465	2094	2436	2524	2524	2524
60	0	0	0	27	113	344	538	476	222	33	0	0	0	0	0	27	140	484	1022	1498	1720	1753	1753	1753
Base	Growing Degree Units for Corn (Monthly)												Growing Degree Units for Corn (Accumulated Monthly)											
50/86	27	65	132	245	394	600	749	706	491	301	96	34	27	92	224	469	863	1463	2212	2918	3409	3710	3806	3840

(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