

Climatography 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 9 SSE (HILL CITY), KS

1971-2000

COOP ID: 145856

Climate Division: KS 1

NWS Call Sign:

Elevation: 2,360 Feet Lat: 39°44N Lon: 99°50W

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	40.3	15.0	27.7	77	1990	11	38.2	1986	-19	1950	26	14.9	1979	1159	0	.0	.0	8.4	10.1	30.3	4.3
Feb	46.0	19.4	32.7	85	1972	29	41.1	1999	-16+	1985	5	20.2	1978	904	0	.0	.0	12.1	6.7	26.0	2.5
Mar	55.2	27.2	41.2	92+	1989	11	47.3	1986	-17	1960	3	33.8	1996	737	0	.0	.2	19.7	2.2	22.0	.5
Apr	65.5	37.2	51.4	98	1989	23	59.2	1981	12+	1997	12	45.5	1983	413	4	.0	.5	26.8	.2	9.4	.0
May	74.1	48.6	61.4	102	1939	23	66.0	1977	24	1967	2	53.6	1995	165	52	@	1.3	30.6	.0	.6	.0
Jun	85.6	58.4	72.0	110+	1988	22	79.0	1988	37	1951	4	65.9	1982	29	239	1.8	10.3	30.0	.0	.0	.0
Jul	91.7	64.3	78.0	115	1940	25	84.1	1980	44	1971	30	72.6	1992	1	404	5.6	19.3	31.0	.0	.0	.0
Aug	89.9	62.4	76.2	112+	1983	17	85.5	1983	44	1992	27	69.1	1992	12	357	4.1	17.4	31.0	.0	.0	.0
Sep	81.9	52.7	67.3	108	1947	3	72.7	1998	24+	1985	30	60.2	1993	71	140	1.0	8.2	29.8	.0	.8	.0
Oct	70.4	40.3	55.4	99	2000	2	58.6	1979	6	1946	5	49.3	1976	305	6	.0	1.1	28.8	.1	6.4	.0
Nov	53.1	27.0	40.1	89	1980	7	48.9	1999	-11	1940	14	30.6	1985	748	0	.0	.0	17.1	2.4	22.3	.3
Dec	43.2	18.2	30.7	84	1964	23	37.9	1979	-27+	1989	23	12.2	1983	1064	0	.0	.0	9.4	6.8	30.0	2.3
Ann	66.4	39.2	52.8	115	Jul 1940	25	85.5	Aug 1983	-27+	Dec 1989	23	12.2	Dec 1983	5608	1202	12.5	58.3	274.7	28.5	147.8	9.9

+ 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/normal/usnormals.html

Issue Date: February 2004

(1) From the 1971-2000 Monthly Normals

(2) Derived from station's available digital record: 1939-2001

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

078-A

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No. 20

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Climate Division: KS 1

NWS Call Sign:

Elevation: 2,360 Feet Lat: 39°44N

Lon: 99°50W

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	.59	.34	1.21	1994	27	2.00	1985	.00	1986	3.3	1.6	.4	@	.02	.07	.15	.24	.33	.44	.57	.73	.95	1.32	1.69
Feb	.60	.37	1.26	1993	11	2.15	1993	.00	1991	3.1	1.5	.3	.1	.01	.03	.09	.17	.26	.37	.52	.71	.98	1.46	1.94
Mar	1.76	1.03	2.44	1987	24	7.00	1987	.00	1994	6.4	3.7	.9	.4	.05	.17	.41	.66	.94	1.27	1.65	2.15	2.83	3.98	5.12
Apr	2.18	2.16	1.81	1985	30	5.53	1984	.05	1989	7.2	4.3	1.4	.6	.38	.57	.88	1.18	1.49	1.82	2.20	2.65	3.27	4.25	5.20
May	3.83	3.64	4.30	1953	28	13.06	1995	1.05	1994	10.5	7.2	2.7	.9	1.06	1.42	1.97	2.45	2.92	3.42	3.96	4.61	5.45	6.76	7.99
Jun	2.75	2.36	3.84	1957	16	6.43	1975	.40	1976	8.2	5.4	1.7	.6	.54	.79	1.20	1.57	1.94	2.35	2.80	3.35	4.08	5.25	6.36
Jul	3.35	3.09	6.09	1953	20	7.87	1993	.47	1974	8.3	5.9	2.2	.8	.54	.83	1.32	1.78	2.26	2.77	3.37	4.09	5.05	6.62	8.12
Aug	2.76	2.82	4.35	1975	14	7.32	1993	.32	1984	7.1	4.6	1.9	.7	.51	.76	1.17	1.54	1.92	2.33	2.80	3.37	4.12	5.32	6.47
Sep	1.68	1.42	4.82	1941	2	5.48	1976	.08	1974	5.6	3.9	1.1	.3	.20	.33	.57	.80	1.05	1.33	1.65	2.05	2.60	3.49	4.36
Oct	1.37	.93	3.70	1997	26	6.72	1997	.12	1999	4.5	2.8	.9	.3	.10	.19	.36	.55	.76	1.00	1.29	1.66	2.17	3.04	3.89
Nov	1.18	.96	1.50	1998	2	2.96	1972	.04	1980	4.8	2.5	.9	.3	.09	.17	.32	.49	.67	.87	1.12	1.44	1.87	2.60	3.32
Dec	.49	.42	.83	1953	3	1.32	1984	.00+	1995	3.4	1.6	.2	.0	.00	.00	.09	.18	.26	.36	.47	.62	.81	1.13	1.45
Ann	22.54	22.63	6.09	Jul 1953	20	13.06	May 1995	.00+	Dec 1995	72.4	45.0	14.6	5.0	15.71	17.02	18.71	19.99	21.13	22.24	23.38	24.65	26.19	28.42	30.36

+ 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: 1939-2001

(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: NORTON 9 SSE (HILL CITY), KS

COOP ID: 145856

Climate Division: KS 1

NWS Call Sign:

Elevation: 2,360 Feet

Lat: 39°44N

Lon: 99°50W

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	5.2	3.6	1	1	9.0	1994	27	16.5	1993	15+	1993	11	8	1993	3.0	1.8	.6	.2	.0	10.3	5.9	3.9	.5
Feb	4.0	1.9	1	1	10.0	1971	22	14.5	1971	14	1980	8	7	1993	2.1	1.2	.5	.3	.1	7.2	4.9	3.8	1.2
Mar	5.6	5.2	#	1	11.0	1984	19	28.0	1987	17+	1987	30	3+	1993	2.7	1.9	.7	.3	.1	4.0	1.9	1.1	.4
Apr	1.8	.0	#	0	9.0	1974	4	13.5	1994	13	1987	1	2	1987	.7	.4	.3	.1	.0	1.0	.7	.3	.1
May	.0	.0	#	0	.0	0	0	.0	0	0	0	0	#	1998	.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	.4	.0	#	0	8.0	1985	29	8.5	1985	8	1985	29	#	1995	.1	.1	@	@	.0	.1	.1	@	.0
Oct	1.0	.0	#	0	18.0	1997	26	18.0	1997	18	1997	26	2	1997	.2	.1	.1	.1	@	.4	.3	.2	.1
Nov	3.6	1.5	1	0	10.0	1973	21	13.5	1983	14+	1983	29	2+	2000	1.6	1.0	.5	.2	@	3.9	2.4	1.2	.2
Dec	4.2	2.0	1	1	7.0	1982	28	15.0	1973	12+	1983	2	7	1983	2.4	1.4	.6	.2	.0	7.4	4.4	1.5	.3
Ann	25.8	14.2	N/A	N/A	18.0	Oct 1997	26	28.0	Mar 1987	18	Oct 1997	26	8	Jan 1993	12.8	7.9	3.3	1.4	.2	34.3	20.6	12.0	2.8

+ 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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Station: NORTON 9 SSE (HILL CITY), KS

COOP ID: 145856

Climate Division: KS 1

NWS Call Sign:

Elevation: 2,360 Feet

Lat: 39° 44N

Lon: 99° 50W

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	5/16	5/13	5/10	5/08	5/06	5/04	5/02	4/30	4/26
32	5/13	5/08	5/04	5/01	4/28	4/25	4/22	4/18	4/13
28	5/02	4/27	4/23	4/20	4/18	4/15	4/12	4/08	4/03
24	4/18	4/14	4/11	4/08	4/05	4/03	3/31	3/28	3/23
20	4/12	4/06	4/02	3/29	3/26	3/22	3/19	3/15	3/09
16	4/07	3/30	3/24	3/19	3/14	3/10	3/05	2/27	2/19
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	9/14	9/19	9/23	9/26	9/29	10/02	10/05	10/09	10/14
32	9/23	9/28	10/03	10/06	10/10	10/13	10/17	10/21	10/27
28	10/04	10/10	10/13	10/16	10/19	10/22	10/25	10/29	11/03
24	10/10	10/16	10/21	10/24	10/28	10/31	11/04	11/08	11/15
20	10/28	11/01	11/05	11/07	11/10	11/12	11/15	11/18	11/23
16	11/02	11/07	11/11	11/15	11/18	11/22	11/25	11/29	12/05
Freeze Free Period									
Temp (F)	Probability of longer than indicated freeze free period (Days)								
	.10	.20	.30	.40	.50	.60	.70	.80	.90
36	164	157	153	149	145	141	137	133	126
32	185	178	173	168	164	159	155	150	142
28	203	197	192	188	184	180	176	172	165
24	228	220	214	209	205	200	195	189	181
20	251	244	238	233	229	224	219	213	206
16	278	268	260	254	248	242	236	228	218

* 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:

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

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Station: NORTON 9 SSE (HILL CITY), KS

COOP ID: 145856

Climate Division: KS 1 NWS Call Sign: Elevation: 2,360 Feet Lat: 39°44N Lon: 99°50W

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	1159	904	737	413	165	29	1	12	71	305	748	1064	5608
60	1004	767	582	278	79	8	0	2	25	175	598	909	4427
57	911	689	493	207	44	3	0	0	11	112	514	816	3800
55	850	637	436	165	28	1	0	0	6	80	458	757	3418
50	704	509	298	83	6	0	0	0	0	29	327	613	2569
32	253	169	31	0	0	0	0	0	0	0	49	197	699

Base	Cooling Degree Days (1)												
Above	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Ann
32	117	189	317	581	910	1200	1426	1369	1059	723	291	156	8338
55	1	13	9	56	225	511	713	656	375	90	10	3	2662
57	0	9	4	37	180	453	651	594	320	60	6	0	2314
60	0	3	0	18	121	368	558	503	243	30	0	0	1844
65	0	0	0	4	52	239	404	357	140	6	0	0	1202
70	0	0	0	0	16	136	259	227	69	1	0	0	708

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	18	61	161	365	662	958	1169	1117	809	471	123	31	18	79	240	605	1267	2225	3394	4511	5320	5791	5914	5945
45	2	26	87	240	507	808	1014	962	660	336	61	7	2	28	115	355	862	1670	2684	3646	4306	4642	4703	4710
50	0	4	39	143	362	658	859	807	516	215	23	0	0	4	43	186	548	1206	2065	2872	3388	3603	3626	3626
55	0	1	12	74	228	510	704	652	376	116	5	0	0	1	13	87	315	825	1529	2181	2557	2673	2678	2678
60	0	0	1	32	119	367	550	498	246	54	0	0	0	0	1	33	152	519	1069	1567	1813	1867	1867	1867
Base	Growing Degree Units for Corn (Monthly)												Growing Degree Units for Corn (Accumulated Monthly)											
50/86	34	70	144	257	408	612	751	713	507	323	106	35	34	104	248	505	913	1525	2276	2989	3496	3819	3925	3960

(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