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: HOXIE, KS **COOP ID: 143837**

Climate Division: KS 1 **NWS Call Sign:** **Elevation: 2,706 Feet** **Lat: 39˚22N** **Lon: 100˚27W**

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	14.2	27.3	80+	1953	12	38.3	1986	-21	1959	4	15.1	1979	1169	0	.0	.0	10.1	8.3	30.1	3.3
Feb	46.3	18.0	32.2	85	1972	29	39.8	1999	-18	1985	5	19.5	1978	920	0	.0	.0	14.1	5.5	25.4	2.1
Mar	55.1	25.4	40.3	91+	1988	27	47.9	1986	-21	1948	11	32.9	1996	767	0	.0	.1	21.4	2.0	21.5	.6
Apr	65.2	35.6	50.4	100	1989	22	57.6	1981	10+	1997	13	44.6	1997	443	4	@	.5	26.5	.2	9.3	.0
May	74.3	47.4	60.9	100+	2000	30	65.8	1974	19	1967	1	51.6	1995	179	50	@	1.7	30.6	.0	.7	.0
Jun	85.6	57.3	71.5	110	1946	15	77.7	1988	36+	1998	6	65.8	1982	30	223	2.1	11.7	30.0	.0	.0	.0
Jul	91.3	63.3	77.3	114	1940	25	83.4	1980	43	1952	8	71.6	1993	2	382	5.6	20.1	31.0	.0	.0	.0
Aug	89.1	61.2	75.2	110	1943	24	83.5	1983	42	1976	28	68.1	1992	11	325	3.1	18.1	31.0	.0	.0	.0
Sep	80.9	51.5	66.2	107+	1947	3	71.0	1983	24	1942	26	59.2	1993	81	117	.7	8.5	29.7	.0	.7	.0
Oct	69.3	38.4	53.9	98	1947	5	57.7	1974	9	1997	27	48.4	1976	349	3	.0	.9	29.3	.2	6.4	.0
Nov	51.8	25.2	38.5	88	1980	6	47.5	1999	-10	1940	14	30.6	1985	795	0	.0	.0	17.6	2.2	22.8	.2
Dec	42.3	17.4	29.9	83	1964	23	36.5	1980	-28	1989	22	13.7	1983	1090	0	.0	.0	10.5	6.3	29.5	1.8
Ann	66.0	37.9	52.0	114	Jul 1940	25	83.5	Aug 1983	-28	Dec 1989	22	13.7	Dec 1983	5836	1104	11.5	61.6	281.8	24.7	146.4	8.0

\+ 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/normals/usnormals.html

(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

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	.52	.35	.93	1985	9	1.85	1992	.00	1986
Feb	.58	.35	1.80	1939	28	2.16	1993	.02+	1979
Mar	1.55	1.30	1.71	1980	28	4.18	1973	.00	1997
Apr	2.10	1.98	2.90	1971	23	6.69	1984	.30	1989
May	3.66	3.43	4.04	1976	22	9.40	1995	.36	1974
Jun	2.59	2.46	4.19	1975	18	8.90	1975	.23	1981
Jul	3.41	3.05	3.47	1993	7	12.33	1993	.27	1975
Aug	2.85	2.01	3.87	1950	7	8.79	1993	.05	1976
Sep	1.44	.97	1.96	1963	22	5.65	1976	.00	1979
Oct	1.14	1.07	2.84	1946	5	3.75	1984	.02	1975
Nov	1.07	.74	1.62	1971	16	3.39	1998	.00	1989
Dec	.46	.46	1.20	1941	25	1.62	1982	.00+	1995
Ann	21.37	21.34	4.19	Jun 1975	18	12.33	Jul 1993	.00+	Mar 1997

Mean Number of Days (3)

Daily Precipitation

Month	>= 0.01	>= 0.10	>= 0.50	>= 1.00
Jan	3.3	1.4	.3	.0
Feb	3.8	1.6	.2	@
Mar	6.2	3.9	.9	.3
Apr	6.9	4.1	1.3	.4
May	10.3	6.8	2.5	1.0
Jun	8.4	5.4	1.7	.4
Jul	8.2	5.9	2.5	.9
Aug	7.2	4.6	1.9	.8
Sep	5.4	3.2	1.0	.1
Oct	4.8	2.7	.9	.1
Nov	4.4	2.5	.7	.2
Dec	3.1	1.5	.1	.0
Ann	72.0	43.6	14.0	4.2

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	.01	.04	.11	.18	.27	.37	.48	.63	.84	1.20	1.56
Feb	.03	.06	.13	.21	.30	.41	.53	.70	.93	1.33	1.72
Mar	.06	.19	.42	.64	.89	1.17	1.49	1.90	2.47	3.41	4.33
Apr	.54	.74	1.05	1.31	1.58	1.86	2.17	2.53	3.01	3.77	4.48
May	.71	1.04	1.58	2.07	2.58	3.11	3.73	4.46	5.44	7.01	8.49
Jun	.46	.69	1.07	1.42	1.78	2.17	2.62	3.16	3.87	5.03	6.14
Jul	.61	.92	1.42	1.88	2.36	2.87	3.45	4.16	5.10	6.62	8.07
Aug	.26	.47	.85	1.25	1.68	2.17	2.75	3.47	4.47	6.13	7.76
Sep	.08	.21	.44	.65	.87	1.13	1.42	1.78	2.27	3.09	3.88
Oct	.09	.16	.31	.46	.64	.84	1.08	1.39	1.81	2.53	3.23
Nov	.06	.16	.32	.48	.65	.83	1.05	1.32	1.68	2.28	2.87
Dec	.00	.00	.10	.18	.26	.35	.45	.58	.74	1.03	1.30
Ann	14.65	15.93	17.59	18.85	19.97	21.07	22.20	23.45	24.98	27.20	29.13

\+ 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

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Snow (inches)

Snow Totals

Means/Medians (1)

Month	Snow Fall Mean	Snow Fall Median	Snow Depth Mean	Snow Depth Median
Jan	5.9	3.1	1	1
Feb	4.0	2.5	1	#
Mar	6.5	5.0	#	#
Apr	1.7	.0	#	0
May	.0	.0	0	0
Jun	.0	.0	0	0
Jul	.0	.0	0	0
Aug	.0	.0	0	0
Sep	.3	.0	#	0
Oct	.7	.0	#	0
Nov	2.8	1.5	#	#
Dec	4.3	4.1	1	#
Ann	26.2	16.2	N/A	N/A

Extremes (2)

Month	Highest Daily Snow Fall	Year	Day	Highest Monthly Snow Fall	Year	Highest Daily Snow Depth	Year	Day	Highest Monthly Mean Snow Depth	Year
Jan	10.0	1985	9	14.0	1985	12	1990	20	5	1985
Feb	9.0	1980	8	13.0	1978	13	1978	14	9	1978
Mar	12.0	1984	19	25.0	1987	18	1987	29	3	1993
Apr	8.0	1994	12	11.0	1984	6	1987	1	1	1997
May	.0	0	0	.0	0	0	0	0	0	0
Jun	.0	0	0	.0	0	0	0	0	0	0
Jul	.0	0	0	.0	0	0	0	0	0	0
Aug	.0	0	0	.0	0	0	0	0	0	0
Sep	4.0	1985	29	4.0+	1995	4	1995	21	#+	1995
Oct	18.0	1997	26	18.0	1997	18	1997	26	2	1997
Nov	8.0	1983	27	13.0	1983	12	1991	3	2+	2000
Dec	9.0	1984	14	12.0+	1982	10	1983	6	6	1983
Ann	18.0	Oct 1997	26	25.0	Mar 1987	18+	Oct 1997	26	9	Feb 1978

Mean Number of Days (1)

Snow Fall >= Thresholds

Month	0.1	1.0	3.0	5.0	10.0
Jan	1.9	1.6	.7	.3	.1
Feb	1.9	1.6	.5	.3	.0
Mar	1.9	1.8	.9	.6	.1
Apr	1.0	.9	.3	.1	.0
May	.0	.0	.0	.0	.0
Jun	.0	.0	.0	.0	.0
Jul	.0	.0	.0	.0	.0
Aug	.0	.0	.0	.0	.0
Sep	.1	.1	.1	.0	.0
Oct	.2	.2	.2	.1	@
Nov	1.0	.9	.5	.2	.0
Dec	1.8	1.5	.5	.2	.0
Ann	9.8	8.6	3.7	1.8	.2

Snow Depth >= Thresholds

Month	1	3	5	10
Jan	6.0	3.5	2.1	.1
Feb	4.4	2.9	2.0	.6
Mar	2.2	1.2	.4	.2
Apr	.7	.4	.1	.0
May	.0	.0	.0	.0
Jun	.0	.0	.0	.0
Jul	.0	.0	.0	.0
Aug	.0	.0	.0	.0
Sep	.1	@	.0	.0
Oct	.3	.2	.1	.1
Nov	2.4	1.6	.6	.1
Dec	4.3	2.6	1.5	.0
Ann	20.4	12.4	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

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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	5/24	5/19	5/16	5/13	5/11	5/08	5/05	5/02	4/27
32	5/16	5/11	5/07	5/03	4/30	4/27	4/24	4/20	4/15
28	5/05	4/30	4/26	4/23	4/20	4/17	4/14	4/10	4/05
24	4/16	4/11	4/08	4/05	4/02	3/30	3/27	3/24	3/19
20	4/12	4/06	4/02	3/29	3/26	3/22	3/18	3/14	3/08
16	4/05	3/29	3/25	3/21	3/18	3/14	3/10	3/06	2/28

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	9/15	9/19	9/22	9/25	9/28	9/30	10/03	10/06	10/11
32	9/17	9/23	9/28	10/01	10/05	10/08	10/12	10/16	10/22
28	9/30	10/06	10/10	10/13	10/16	10/19	10/22	10/26	10/31
24	10/12	10/18	10/22	10/26	10/29	11/02	11/05	11/09	11/15
20	10/27	10/31	11/03	11/06	11/08	11/11	11/14	11/17	11/21
16	10/30	11/05	11/09	11/13	11/16	11/20	11/23	11/28	12/03

Freeze Free Period

Temp (F)	Probability of longer than indicated freeze free period (Days)								
	.10	.20	.30	.40	.50	.60	.70	.80	.90
36	155	150	146	142	139	136	133	129	124
32	180	172	166	161	157	152	147	141	133
28	201	193	187	182	178	173	169	163	155
24	234	226	220	215	210	205	200	194	185
20	251	243	237	232	227	222	217	211	203
16	268	259	253	248	243	238	233	226	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

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Degree Days to Selected Base Temperatures (˚F)

Heating Degree Days (1)

Base Below	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Ann
65	1169	920	767	443	179	30	2	11	81	349	795	1090	5836
60	1014	780	612	306	91	8	0	2	29	210	645	935	4632
57	921	701	520	232	54	3	0	0	13	141	556	842	3983
55	859	649	461	189	36	1	0	0	7	103	499	780	3584
50	708	519	321	101	10	0	0	0	0	39	362	633	2693
32	246	166	32	0	0	0	0	0	0	0	55	196	695

Cooling Degree Days (1)

Base Above	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Ann
32	100	170	288	551	894	1183	1403	1338	1027	677	250	129	8010
55	0	9	4	50	217	494	690	625	343	67	4	0	2503
57	0	5	1	34	173	436	628	563	289	43	1	0	2173
60	0	0	0	17	116	351	535	471	215	19	0	0	1724
65	0	0	0	4	50	223	382	325	117	3	0	0	1104
70	0	0	0	0	16	123	241	197	53	0	0	0	630

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	22	75	185	392	692	980	1181	1124	822	482	122	36	22	97	282	674	1366	2346	3527	4651	5473	5955	6077	6113
45	1	32	100	262	538	830	1026	969	672	344	61	7	1	33	133	395	933	1763	2789	3758	4430	4774	4835	4842
50	0	6	49	164	387	681	871	814	525	221	20	0	0	6	55	219	606	1287	2158	2972	3497	3718	3738	3738
55	0	0	16	87	251	532	716	659	386	118	5	0	0	0	16	103	354	886	1602	2261	2647	2765	2770	2770
60	0	0	3	39	140	387	561	506	263	52	0	0	0	0	3	42	182	569	1130	1636	1899	1951	1951	1951
Base	**Growing Degree Units for Corn (Monthly)**												**Growing Degree Units for Corn (Accumulated Monthly)**											
50/86	44	86	167	274	433	626	760	728	520	335	110	46	44	130	297	571	1004	1630	2390	3118	3638	3973	4083	4129

(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