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: HORTON, KS **COOP ID: 143810**

Climate Division: KS 3 **NWS Call Sign:** **Elevation: 1,030 Feet** **Lat: 39˚40N** **Lon: 95˚31W**

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	37.5	16.1	26.8	72	1939	2	37.2	1990	-30	1947	4	12.8	1979	1185	0	.0	.0	5.6	10.5	28.7	4.2
Feb	44.3	21.3	32.8	82+	1972	29	43.0	1976	-26	1971	8	19.1	1979	902	0	.0	.0	10.3	6.9	23.5	2.2
Mar	56.0	31.5	43.8	94	1907	25	49.5	1986	-18	1978	4	36.5+	1984	659	0	.0	.0	20.6	1.1	16.7	.3
Apr	67.2	42.1	54.7	96	1902	20	62.8	1981	3	1975	3	47.9	1983	325	14	.0	.4	27.8	.1	5.4	.0
May	76.5	52.4	64.5	104+	1934	31	70.1	1998	26	1907	4	59.7	1997	113	97	.0	1.7	31.0	.0	.2	.0
Jun	85.8	62.1	74.0	108	1936	19	78.0	1986	40+	1956	1	68.7	1982	7	274	.5	10.4	30.0	.0	.0	.0
Jul	90.7	66.9	78.8	111+	1936	15	85.4	1980	44	1972	5	74.7	1971	0	427	2.9	19.3	31.0	.0	.0	.0
Aug	89.3	64.8	77.1	112+	1936	14	84.4	1983	40	1956	21	71.6	1992	5	378	2.2	16.3	31.0	.0	.0	.0
Sep	81.5	56.1	68.8	109	1947	3	74.4	1998	27	1942	27	63.6+	1993	48	162	.4	6.4	29.9	.0	.2	.0
Oct	70.0	44.3	57.2	96+	1976	1	62.6	1971	11+	1925	30	50.9	1976	259	15	.0	.3	29.8	.0	4.1	.0
Nov	52.8	31.7	42.3	84+	1980	8	50.4	1999	-5	1976	28	35.5	1976	682	0	.0	.0	18.1	1.4	16.1	.1
Dec	40.6	20.6	30.6	74	1939	6	35.9	1979	-27	1989	23	12.7	1983	1066	0	.0	.0	7.3	6.8	27.5	2.1
Ann	66.0	42.5	54.3	112+	Aug 1936	14	85.4	Jul 1980	-30	Jan 1947	4	12.7	Dec 1983	5251	1367	6.0	54.8	272.4	26.8	122.4	8.9

\+ 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

(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

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	.90	.91	1.52	1965	2	2.34	1979	.00+	1986
Feb	1.23	1.08	2.34	1997	21	3.41	1997	.02	1991
Mar	2.49	2.01	2.58	1939	11	7.54	1973	.32	1988
Apr	3.62	3.23	3.30	1922	9	9.78	1999	.54	1989
May	4.97	4.25	4.70	1977	20	11.00	1995	.53	1992
Jun	4.68	4.05	6.65	1951	21	16.84	1984	1.74	1997
Jul	4.46	3.44	4.50	1900	16	22.02	1993	.16	1983
Aug	3.79	3.76	6.00	1900	13	8.44	1985	.63	1976
Sep	4.34	3.28	5.01	1977	12	13.66	1977	.37	1990
Oct	3.12	3.02	7.15	1973	11	7.81	1973	.09	1988
Nov	2.32	2.16	2.61	1977	9	5.40	1998	.00	1989
Dec	1.37	1.03	2.33	1980	8	3.32	1972	.07	1996
Ann	37.29	36.91	7.15	Oct 1973	11	22.02	Jul 1993	.00+	Nov 1989

Mean Number of Days (3)

Month	Daily Precipitation >= 0.01	>= 0.10	>= 0.50	>= 1.00
Jan	5.3	2.8	.4	@
Feb	5.2	3.2	.6	.2
Mar	6.9	4.9	1.9	.6
Apr	9.1	6.4	2.5	1.0
May	11.0	7.4	3.3	1.4
Jun	9.3	6.6	3.0	1.5
Jul	9.0	6.4	2.6	1.4
Aug	8.3	5.4	2.3	1.1
Sep	7.7	5.8	2.8	1.6
Oct	7.0	5.0	1.8	.9
Nov	6.3	4.3	1.6	.6
Dec	5.2	2.8	.9	.2
Ann	90.3	61.0	23.7	10.5

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	.00	.15	.33	.47	.61	.76	.93	1.12	1.38	1.81	2.21
Feb	.17	.27	.44	.62	.80	.99	1.23	1.51	1.89	2.52	3.12
Mar	.40	.61	.98	1.32	1.67	2.06	2.50	3.04	3.76	4.93	6.06
Apr	1.07	1.42	1.93	2.38	2.81	3.26	3.76	4.35	5.10	6.29	7.39
May	1.11	1.57	2.29	2.95	3.61	4.30	5.09	6.03	7.26	9.23	11.09
Jun	1.61	2.05	2.69	3.24	3.76	4.30	4.89	5.57	6.45	7.81	9.06
Jul	.40	.71	1.30	1.92	2.60	3.37	4.28	5.43	7.01	9.65	12.25
Aug	.63	.96	1.52	2.04	2.57	3.15	3.82	4.63	5.70	7.45	9.12
Sep	.68	1.05	1.68	2.28	2.90	3.58	4.35	5.30	6.57	8.62	10.60
Oct	.33	.57	1.00	1.43	1.90	2.43	3.04	3.81	4.86	6.60	8.29
Nov	.24	.51	.90	1.23	1.57	1.94	2.36	2.86	3.52	4.60	5.62
Dec	.15	.26	.45	.64	.84	1.07	1.34	1.67	2.12	2.87	3.59
Ann	22.22	24.94	28.53	31.33	33.86	36.35	38.96	41.89	45.49	50.82	55.51

\+ 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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Snow (inches)

Snow Totals

Means/Medians (1)

Month	Snow Fall Mean	Snow Fall Median	Snow Depth Mean	Snow Depth Median
Jan	4.7	3.0	2	1
Feb	4.9	3.3	1	1
Mar	2.6	1.0	1	#
Apr	.4	.0	#	0
May	.0	.0	0	0
Jun	.0	.0	0	0
Jul	.0	.0	0	0
Aug	.0	.0	0	0
Sep	.0	.0	0	0
Oct	.1	.0	0	0
Nov	.9	.0	#	0
Dec	1.9	.9	1	#
Ann	15.5	8.2	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	7.0	1979	13	11.5	1985	13	1984	1	8	1979
Feb	11.0	1978	13	18.0	1978	16	1978	16	8	1978
Mar	7.0	1975	10	11.0	1978	20	1978	4	7	1978
Apr	6.0	1975	2	7.5	1975	8	1975	3	1	1975
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	.0	0	0	.0	0	0	0	0	0	0
Oct	3.0	1996	23	3.0	1996	0	0	0	0	0
Nov	4.0	1975	26	6.0	1975	6	1975	27	1	1975
Dec	6.0	1997	8	10.0	1997	13	1983	31	7	1983
Ann	11.0	Feb 1978	13	18.0	Feb 1978	20	Mar 1978	4	8+	Jan 1979

Mean Number of Days (1)

Snow Fall >= Thresholds

Month	0.1	1.0	3.0	5.0	10.0
Jan	2.1	1.6	.7	.2	.0
Feb	1.9	1.6	.5	.2	@
Mar	1.0	1.0	.3	.1	.0
Apr	.2	.2	@	@	.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	.0	.0	.0	.0	.0
Oct	@	@	@	.0	.0
Nov	.6	.5	.1	.0	.0
Dec	1.6	1.3	.4	.1	.0
Ann	7.4	6.2	2.0	.6	@

Snow Depth >= Thresholds

Month	1	3	5	10
Jan	6.8	4.2	1.7	.0
Feb	5.8	3.1	1.2	.2
Mar	1.3	.6	.2	.0
Apr	.1	.1	.1	.0
May	.0	.0	.0	.0
Jun	.0	.0	.0	.0
Jul	.0	.0	.0	.0
Aug	.0	.0	.0	.0
Sep	.0	.0	.0	.0
Oct	.0	.0	.0	.0
Nov	.8	.3	.1	.0
Dec	4.1	2.5	1.0	.5
Ann	18.9	10.8	4.3	.7

+ 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	5/11	5/07	5/05	5/02	4/30	4/28	4/25	4/22	4/18
32	5/05	5/01	4/28	4/25	4/22	4/20	4/17	4/14	4/09
28	4/22	4/17	4/14	4/11	4/08	4/05	4/03	3/30	3/26
24	4/12	4/06	4/03	3/30	3/27	3/24	3/21	3/18	3/12
20	4/04	3/29	3/25	3/22	3/19	3/15	3/12	3/08	3/02
16	3/28	3/20	3/14	3/10	3/05	2/28	2/24	2/18	2/10

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	9/22	9/26	9/29	10/02	10/05	10/08	10/12	10/17
32	9/24	9/29	10/03	10/06	10/09	10/12	10/15	10/19	10/24
28	10/10	10/15	10/19	10/22	10/25	10/29	11/01	11/05	11/10
24	10/15	10/21	10/26	10/30	11/02	11/06	11/10	11/14	11/21
20	10/31	11/06	11/11	11/15	11/18	11/22	11/26	11/30	12/07
16	11/08	11/14	11/18	11/21	11/25	11/28	12/02	12/06	12/12

Freeze Free Period

Temp (F)	Probability of longer than indicated freeze free period (Days)								
	.10	.20	.30	.40	.50	.60	.70	.80	.90
36	175	168	163	158	154	150	146	141	134
32	187	181	177	173	169	166	162	157	151
28	223	215	209	204	200	195	190	184	176
24	243	235	229	224	219	214	209	203	195
20	269	261	254	249	244	239	234	227	219
16	293	283	276	270	264	258	252	244	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

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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	1185	902	659	325	113	7	0	5	48	259	682	1066	5251
60	1030	769	511	205	49	1	0	0	14	143	535	911	4168
57	938	691	424	147	26	0	0	0	5	91	452	819	3593
55	878	638	368	113	16	0	0	0	2	64	397	760	3236
50	733	513	246	51	4	0	0	0	0	23	274	617	2461
32	287	179	25	0	0	0	0	0	0	0	34	204	729

Base	Cooling Degree Days (1)												
Above	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Ann
32	125	201	389	679	1007	1258	1450	1397	1105	779	342	161	8893
55	3	16	20	102	310	568	737	684	417	130	16	4	3007
57	1	13	13	75	258	508	675	622	360	94	10	1	2630
60	0	7	7	44	188	418	582	529	278	54	3	0	2110
65	0	0	0	14	97	274	427	378	162	15	0	0	1367
70	0	0	0	3	38	150	276	239	80	2	0	0	788

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	16	67	213	467	780	1039	1222	1166	876	543	166	29	16	83	296	763	1543	2582	3804	4970	5846	6389	6555	6584
45	4	27	125	330	625	889	1067	1011	726	400	88	8	4	31	156	486	1111	2000	3067	4078	4804	5204	5292	5300
50	0	10	70	210	472	739	912	856	576	261	39	3	0	10	80	290	762	1501	2413	3269	3845	4106	4145	4148
55	0	3	33	121	325	589	757	701	432	154	15	0	0	3	36	157	482	1071	1828	2529	2961	3115	3130	3130
60	0	0	7	62	196	440	602	546	299	76	3	0	0	0	7	69	265	705	1307	1853	2152	2228	2231	2231
Base	Growing Degree Units for Corn (Monthly)												Growing Degree Units for Corn (Accumulated Monthly)											
50/86	19	60	150	294	503	697	822	780	574	346	104	28	19	79	229	523	1026	1723	2545	3325	3899	4245	4349	4377

(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