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: HUTCHINSON 10 SW, KS **COOP ID: 143930**

Climate Division: KS 8 **NWS Call Sign:** **Elevation: 1,570 Feet** **Lat: 37˚56N** **Lon: 98˚02W**

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	39.9	17.0	28.5	79	1990	11	37.4	1986	-16	1979	31	13.9	1979	1133	0	.0	.0	8.8	9.1	29.6	2.0
Feb	46.7	22.2	34.5	84	1976	9	44.6	1976	-19	1982	6	20.3	1978	854	0	.0	.0	12.6	5.3	23.0	1.3
Mar	56.3	31.7	44.0	89	1989	12	50.0	1986	-6	1960	3	37.9	1975	651	0	.0	.0	22.0	1.2	14.9	.1
Apr	66.0	41.4	53.7	98	1989	24	62.6	1981	16+	1975	3	46.6	1983	350	11	.0	.4	28.1	.1	4.0	.0
May	75.1	52.3	63.7	102	2000	12	68.0	1998	28	1967	2	57.0	1995	121	80	.1	1.3	30.9	.0	.1	.0
Jun	86.8	62.0	74.4	110+	1980	30	80.3	1990	42+	1998	6	69.1	1982	12	294	2.2	12.5	30.0	.0	.0	.0
Jul	92.7	67.1	79.9	110	1980	12	87.3	1980	46	1990	14	75.3	1994	0	462	6.3	21.9	31.0	.0	.0	.0
Aug	91.0	65.4	78.2	111	1964	6	84.9	2000	46	1967	27	72.5	1992	4	414	4.7	19.4	31.0	.0	.0	.0
Sep	82.3	56.2	69.3	108	2000	3	77.2	1998	29	1984	30	61.6	1974	52	180	1.1	9.3	29.8	.0	.2	.0
Oct	70.4	43.2	56.8	95+	1997	3	61.1	1979	12	1993	31	50.9	1976	266	13	.0	1.1	30.0	.0	3.0	.0
Nov	54.2	30.6	42.4	88	1980	8	51.6	1999	1	1975	27	36.4	1991	678	0	.0	.0	19.5	1.1	16.3	.0
Dec	43.0	20.9	32.0	76	1995	1	37.2	1991	-18	1989	22	17.0	1983	1025	0	.0	.0	10.3	5.6	27.6	1.0
Ann	67.0	42.5	54.8	111	Aug 1964	6	87.3	Jul 1980	-19	Feb 1982	6	13.9	Jan 1979	5146	1454	14.4	65.9	284.0	22.4	118.7	4.4

\+ 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: 1953-2001

(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	.70	.67	1.25	1980	19	2.12	1973	.00	1986
Feb	1.08	.82	1.67	2000	23	2.91	2000	.02+	1996
Mar	2.70	1.97	2.08	1984	19	9.49	1973	.16	1994
Apr	2.83	1.98	6.35	1974	20	8.52	1976	.17	1989
May	4.36	3.98	3.69	1995	27	10.91	1995	.62	1994
Jun	3.97	3.56	4.10	1965	5	9.18	1989	.29	1973
Jul	3.70	3.28	4.22	1999	17	10.22	1999	.21	1974
Aug	2.97	2.28	2.98	1977	11	9.55	1977	.00	2000
Sep	3.02	2.16	4.85	1977	13	9.96	1973	.09	1979
Oct	2.43	1.86	4.64	1973	11	11.52	1979	.03	1999
Nov	1.56	1.15	2.71	1998	1	5.29	1998	.01	1989
Dec	1.00	.91	1.40	1973	4	3.52	1984	.03	1976
Ann	30.32	30.03	6.35	Apr 1974	20	11.52	Oct 1979	.00+	Aug 2000

Mean Number of Days (3)

Daily Precipitation

Month	>= 0.01	>= 0.10	>= 0.50	>= 1.00
Jan	4.2	2.0	.4	@
Feb	4.8	2.3	.7	.3
Mar	7.4	4.5	2.0	.7
Apr	8.3	4.4	1.6	.6
May	11.0	7.1	2.8	1.1
Jun	7.9	5.4	2.8	1.2
Jul	7.2	4.8	2.4	1.5
Aug	6.8	4.4	1.9	.9
Sep	6.7	4.2	1.7	.9
Oct	6.0	3.5	1.3	.7
Nov	5.1	3.0	1.1	.4
Dec	4.9	2.3	.5	.2
Ann	80.3	47.9	19.2	8.5

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	.02	.07	.16	.26	.37	.50	.66	.86	1.13	1.60	2.06
Feb	.02	.05	.14	.27	.43	.63	.90	1.25	1.78	2.72	3.69
Mar	.30	.50	.88	1.25	1.66	2.11	2.64	3.30	4.20	5.68	7.13
Apr	.31	.53	.92	1.32	1.74	2.22	2.77	3.46	4.40	5.95	7.46
May	1.00	1.40	2.04	2.61	3.18	3.79	4.47	5.28	6.35	8.05	9.65
Jun	.80	1.17	1.75	2.28	2.82	3.40	4.05	4.83	5.87	7.53	9.10
Jul	.47	.77	1.29	1.81	2.35	2.95	3.65	4.52	5.69	7.61	9.47
Aug	.09	.31	.72	1.14	1.62	2.16	2.81	3.64	4.78	6.70	8.59
Sep	.32	.54	.96	1.38	1.83	2.34	2.94	3.69	4.71	6.41	8.06
Oct	.09	.20	.47	.78	1.15	1.60	2.16	2.89	3.94	5.75	7.57
Nov	.05	.11	.26	.46	.69	.99	1.36	1.84	2.55	3.78	5.02
Dec	.07	.14	.27	.40	.56	.73	.95	1.22	1.59	2.22	2.85
Ann	21.17	22.93	25.20	26.92	28.45	29.93	31.47	33.17	35.23	38.23	40.83

\+ 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: 1953-2001
(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	4.4	1	#
Feb	4.0	1.0	1	#
Mar	2.2	1.0	#	#
Apr	.6	.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
Nov	.9	.0	#	0
Dec	2.3	1.3	#	#
Ann	14.8	7.7	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	7.5	1987	9	15.3	1979	10	1979	14	6	1979
Feb	9.0	1971	22	16.1	1982	11	1982	12	4	1982
Mar	7.0	1984	19	16.3	1984	12	1984	20	1	1998
Apr	6.0	1983	4	9.0	1983	7	1983	5	1	1983
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	2.5	1991	31	2.5	1991	3	1991	31	#+	1993
Nov	4.0	1992	25	10.0	1972	5	1972	19	1	1991
Dec	5.0	1978	31	10.6	1987	6	1987	15	2	1983
Ann	9.0	Feb 1971	22	16.3	Mar 1984	12	Mar 1984	20	6	Jan 1979

Mean Number of Days (1)

Snow Fall >= Thresholds

Month	0.1	1.0	3.0	5.0	10.0
Jan	2.6	1.5	.6	.2	.0
Feb	1.8	1.3	.5	.2	.0
Mar	1.3	1.0	.3	.2	.0
Apr	.2	.2	.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	.0	.0	.0	.0	.0
Oct	@	@	.0	.0	.0
Nov	.5	.3	.2	.0	.0
Dec	2.0	.8	.3	@	.0
Ann	8.4	5.1	2.0	.6	.0

Snow Depth >= Thresholds

Month	1	3	5	10
Jan	7.5	4.0	1.9	.1
Feb	4.7	2.9	1.6	.4
Mar	1.5	.6	.2	@
Apr	.3	.2	.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
Nov	1.0	.3	@	.0
Dec	3.1	1.0	.1	.0
Ann	18.1	9.0	3.9	.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

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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	5/12	5/07	5/04	5/01	4/28	4/25	4/23	4/19	4/15
32	4/30	4/25	4/22	4/19	4/17	4/14	4/12	4/09	4/04
28	4/16	4/11	4/08	4/05	4/02	3/31	3/28	3/25	3/20
24	4/07	4/02	3/28	3/25	3/22	3/18	3/15	3/11	3/05
20	4/01	3/26	3/21	3/17	3/13	3/09	3/05	2/28	2/21
16	3/24	3/16	3/09	3/04	2/27	2/22	2/17	2/11	2/02

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	9/23	9/28	10/02	10/05	10/08	10/11	10/14	10/18	10/23
32	9/27	10/03	10/07	10/11	10/15	10/18	10/22	10/26	11/01
28	10/19	10/23	10/27	10/29	11/01	11/03	11/06	11/09	11/14
24	10/27	11/02	11/06	11/10	11/13	11/16	11/20	11/24	11/30
20	10/31	11/07	11/13	11/17	11/22	11/26	12/01	12/07	12/14
16	11/07	11/15	11/20	11/25	11/30	12/04	12/09	12/14	12/22

Freeze Free Period

Temp (F)	Probability of longer than indicated freeze free period (Days)								
	.10	.20	.30	.40	.50	.60	.70	.80	.90
36	181	175	170	166	162	158	154	149	143
32	204	196	190	185	180	175	170	164	156
28	233	226	220	216	212	208	203	198	191
24	261	252	246	241	236	231	225	219	211
20	283	273	266	259	254	248	241	234	224
16	312	299	290	282	275	267	259	250	237

***** 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	1133	854	651	350	121	12	0	4	52	266	678	1025	5146
60	978	723	498	225	53	2	0	0	17	146	529	870	4041
57	885	645	411	163	28	0	0	0	7	91	444	777	3451
55	825	593	354	128	17	0	0	0	3	63	389	715	3087
50	676	470	227	59	4	0	0	0	0	21	262	567	2286
32	233	151	16	0	0	0	0	0	0	0	24	149	573

Cooling Degree Days (1)

Base Above	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Ann
32	124	221	388	651	982	1272	1485	1433	1118	770	336	146	8926
55	2	18	13	88	286	582	772	720	431	120	11	0	3043
57	1	14	8	64	235	522	710	658	375	86	6	0	2679
60	0	9	2	36	167	434	617	565	294	48	1	0	2173
65	0	0	0	11	80	294	462	414	180	13	0	0	1454
70	0	0	0	2	29	174	310	273	96	2	0	0	886

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	24	89	233	450	756	1056	1257	1209	905	564	181	40	24	113	346	796	1552	2608	3865	5074	5979	6543	6724	6764
45	3	41	139	312	602	906	1102	1054	755	416	101	9	3	44	183	495	1097	2003	3105	4159	4914	5330	5431	5440
50	0	13	74	196	451	756	947	899	609	283	47	2	0	13	87	283	734	1490	2437	3336	3945	4228	4275	4277
55	0	1	31	107	304	606	792	744	465	170	18	0	0	1	32	139	443	1049	1841	2585	3050	3220	3238	3238
60	0	0	8	52	182	459	637	589	330	83	3	0	0	0	8	60	242	701	1338	1927	2257	2340	2343	2343
Base	**Growing Degree Units for Corn (Monthly)**												**Growing Degree Units for Corn (Accumulated Monthly)**											
50/86	33	81	162	283	474	700	829	798	582	359	124	39	33	114	276	559	1033	1733	2562	3360	3942	4301	4425	4464

(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.
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