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: KINGMAN, KS **COOP ID: 144313**

Climate Division: KS 8 **NWS Call Sign:** **Elevation: 1,570 Feet** **Lat: 37˚40N** **Lon: 98˚07W**

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	41.5	18.1	29.8	79	1967	22	38.9	1990	-15	1959	4	16.1	1979	1090	0	.0	.0	11.2	7.3	28.2	1.6
Feb	48.5	22.8	35.7	88	1962	12	45.7	1976	-16	1982	6	21.7	1978	821	0	.0	.0	14.6	4.2	21.1	1.1
Mar	57.6	31.5	44.6	92+	1956	31	50.3	1986	-4	1960	3	38.5	1984	633	0	.0	.1	24.0	.9	14.2	@
Apr	67.7	42.2	55.0	97	1989	23	64.4	1981	16	1975	3	47.2	1983	319	17	.0	.7	28.7	@	3.5	.0
May	77.1	53.9	65.5	106	1953	31	70.4	1991	28	1954	3	59.2	1995	89	103	.1	2.3	31.0	.0	.0	.0
Jun	88.1	63.5	75.8	112+	1953	15	80.6	1990	41+	1964	1	71.0	1992	8	332	2.4	15.1	30.0	.0	.0	.0
Jul	93.8	68.6	81.2	116	1954	14	88.8	1980	47	1990	14	78.0	1972	0	502	8.1	23.9	31.0	.0	.0	.0
Aug	92.1	66.6	79.4	115	1964	6	85.9	1983	46	1956	21	73.2	1992	3	448	6.5	21.2	31.0	.0	.0	.0
Sep	83.3	57.3	70.3	109	1984	10	77.5	1998	24	1984	30	62.6	1974	42	201	1.7	10.6	29.9	.0	.2	.0
Oct	71.5	44.2	57.9	100	1979	8	62.5	1979	14	1993	31	51.9	1976	239	17	@	1.4	30.3	@	2.2	.0
Nov	55.5	30.9	43.2	88	1980	8	51.8	1999	-4	1952	28	37.3	1991	655	0	.0	.0	20.9	.8	14.9	.0
Dec	44.0	21.6	32.8	84	1955	24	37.8	1988	-17	1989	22	16.9	1983	999	0	.0	.0	12.1	4.4	26.4	.7
Ann	68.4	43.4	55.9	116	Jul 1954	14	88.8	Jul 1980	-17	Dec 1989	22	16.1	Jan 1979	4898	1620	18.8	75.3	294.7	17.6	110.7	3.4

\+ 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: 1948-2001

(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	.77	.74	1.27	1980	19	1.89	1999	.00+	1986
Feb	1.12	.75	1.72	2001	23	3.00	2000	.00	1991
Mar	2.83	2.28	2.13	1973	4	10.89	1973	.13	1994
Apr	2.66	2.11	2.68	1969	26	5.93	1999	.31	1982
May	4.29	3.83	3.56	1995	27	10.45	1977	.61	1994
Jun	4.03	3.63	4.11	1967	12	8.15	1992	.48	1973
Jul	3.19	3.26	3.83	1979	17	7.12	1998	.05	1983
Aug	3.02	1.89	5.09	1969	25	9.72	1989	.00	2000
Sep	2.94	2.37	5.25	1951	5	14.04	1973	.00	1979
Oct	2.81	2.05	4.94	1985	10	9.52	1998	.00+	1999
Nov	1.86	1.57	2.81	1975	2	4.96	1992	.00	1989
Dec	1.07	.79	1.40	1997	23	3.49	1984	.01	1976
Ann	30.59	30.33	5.25	Sep 1951	5	14.04	Sep 1973	.00+	Aug 2000

Mean Number of Days (3)

Daily Precipitation

Month	>= 0.01	>= 0.10	>= 0.50	>= 1.00
Jan	3.8	2.2	.4	@
Feb	4.5	2.6	.7	.3
Mar	7.4	5.0	2.0	.9
Apr	7.1	4.6	1.6	.8
May	10.0	6.7	2.6	1.4
Jun	8.1	5.6	2.9	1.3
Jul	6.7	5.0	2.3	.9
Aug	6.3	4.1	1.8	.9
Sep	6.5	4.6	2.1	.9
Oct	5.8	3.9	1.8	.8
Nov	5.1	3.5	1.3	.5
Dec	4.6	2.5	.7	.1
Ann	75.9	50.3	20.2	8.8

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	.06	.18	.30	.43	.57	.74	.95	1.25	1.73	2.21
Feb	.01	.06	.18	.33	.50	.72	.98	1.33	1.83	2.70	3.57
Mar	.21	.39	.75	1.14	1.57	2.07	2.67	3.43	4.49	6.26	8.02
Apr	.48	.71	1.10	1.46	1.84	2.24	2.69	3.25	3.99	5.18	6.31
May	.89	1.29	1.92	2.49	3.07	3.68	4.38	5.21	6.31	8.07	9.74
Jun	.91	1.29	1.88	2.41	2.94	3.50	4.14	4.89	5.88	7.46	8.95
Jul	.30	.52	.95	1.39	1.88	2.43	3.08	3.89	5.01	6.87	8.69
Aug	.10	.32	.75	1.18	1.66	2.21	2.87	3.69	4.84	6.76	8.65
Sep	.23	.55	1.03	1.46	1.90	2.39	2.95	3.63	4.54	6.03	7.46
Oct	.00	.09	.42	.82	1.28	1.83	2.51	3.39	4.65	6.81	8.99
Nov	.05	.18	.43	.70	.99	1.34	1.75	2.27	3.00	4.22	5.43
Dec	.11	.19	.34	.49	.65	.83	1.04	1.31	1.67	2.27	2.86
Ann	20.51	22.41	24.88	26.77	28.45	30.10	31.80	33.69	36.00	39.37	42.30

\+ 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: 1948-2001
(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	4.3	2.2	1	#
Feb	3.7	1.5	1	#
Mar	1.3	.0	#	#
Apr	.2	.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	.0	.0	#	0
Nov	1.2	.0	#	0
Dec	2.4	2.0	#	#
Ann	13.1	5.7	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	7.0	1987	9	20.8	1973	11	1988	7	4	1979
Feb	14.0	1971	22	19.0	1971	15	1971	23	4	1971
Mar	7.0	1984	20	11.0	1984	10	1984	20	1	1998
Apr	2.0	1973	9	3.0	1973	3	1983	5	#+	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	.0	0	0	.0	0	0	0	0	0	0
Oct	1.0	1991	31	1.0	1991	1	1991	31	#	1991
Nov	6.0	1987	28	11.0	1972	4+	1987	28	1	1972
Dec	6.0	1999	4	10.0	1987	7	1987	15	1	1995
Ann	14.0	Feb 1971	22	20.8	Jan 1973	15	Feb 1971	23	4+	Jan 1979

Mean Number of Days (1)

Snow Fall >= Thresholds

Month	0.1	1.0	3.0	5.0	10.0
Jan	1.9	1.4	.5	.2	.0
Feb	1.6	1.2	.5	.2	.1
Mar	.8	.8	.3	.1	.0
Apr	.1	.1	.0	.0	.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	.5	.2	@	.0
Dec	1.2	1.1	.3	@	.0
Ann	6.1	5.1	1.8	.5	.1

Snow Depth >= Thresholds

Month	1	3	5	10
Jan	5.9	2.8	1.6	.1
Feb	4.6	3.3	1.6	.4
Mar	1.1	.5	.2	@
Apr	.1	.0	.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	@	.0	.0	.0
Nov	.9	.3	.0	.0
Dec	3.2	1.0	.1	.0
Ann	15.8	7.9	3.5	.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	5/10	5/05	5/01	4/28	4/25	4/22	4/19	4/16	4/11
32	4/24	4/20	4/17	4/14	4/12	4/09	4/06	4/03	3/30
28	4/13	4/09	4/06	4/04	4/02	3/30	3/28	3/25	3/22
24	4/05	3/31	3/27	3/24	3/21	3/18	3/14	3/10	3/05
20	3/31	3/24	3/19	3/14	3/10	3/06	3/01	2/24	2/17
16	3/22	3/14	3/07	3/02	2/25	2/20	2/14	2/08	1/30

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	9/21	9/27	10/01	10/04	10/07	10/10	10/14	10/18	10/23
32	10/01	10/07	10/11	10/14	10/17	10/21	10/24	10/28	11/03
28	10/17	10/22	10/26	10/29	11/01	11/04	11/08	11/12	11/17
24	10/23	10/30	11/04	11/08	11/12	11/16	11/20	11/25	12/02
20	11/01	11/08	11/13	11/18	11/22	11/26	11/30	12/05	12/12
16	11/10	11/18	11/23	11/28	12/02	12/07	12/11	12/17	12/24

Freeze Free Period

Temp (F)	Probability of longer than indicated freeze free period (Days)								
	.10	.20	.30	.40	.50	.60	.70	.80	.90
36	184	177	172	168	164	160	156	151	145
32	211	203	197	193	188	184	179	174	166
28	234	227	222	217	213	209	205	199	192
24	261	252	246	241	236	231	225	219	210
20	284	275	268	262	256	250	244	237	227
16	316	303	294	287	280	273	265	256	244

***** 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	1090	821	633	319	89	8	0	3	42	239	655	999	4898
60	935	691	481	201	34	1	0	0	12	125	507	844	3831
57	843	612	395	144	16	0	0	0	5	76	422	751	3264
55	783	561	338	112	9	0	0	0	2	51	368	690	2914
50	637	439	214	51	2	0	0	0	0	15	245	544	2147
32	206	131	14	0	0	0	0	0	0	0	21	139	511

Cooling Degree Days (1)

Base Above	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Ann
32	139	234	403	688	1038	1314	1525	1468	1149	801	356	163	9278
55	3	20	15	110	334	624	812	755	461	140	13	1	3288
57	1	15	9	83	278	564	750	693	404	102	7	0	2906
60	0	9	2	50	204	475	657	600	322	59	2	0	2380
65	0	0	0	17	103	332	502	448	201	17	0	0	1620
70	0	0	0	4	41	206	348	304	110	3	0	0	1016

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	38	106	266	507	817	1096	1297	1251	945	608	202	50	38	144	410	917	1734	2830	4127	5378	6323	6931	7133	7183
45	8	49	167	367	662	946	1142	1096	796	459	117	18	8	57	224	591	1253	2199	3341	4437	5233	5692	5809	5827
50	0	17	92	244	508	796	987	941	648	317	56	4	0	17	109	353	861	1657	2644	3585	4233	4550	4606	4610
55	0	3	40	142	356	646	832	786	501	199	22	0	0	3	43	185	541	1187	2019	2805	3306	3505	3527	3527
60	0	0	12	69	223	496	677	631	363	104	5	0	0	0	12	81	304	800	1477	2108	2471	2575	2580	2580
Base	**Growing Degree Units for Corn (Monthly)**												**Growing Degree Units for Corn (Accumulated Monthly)**											
50/86	44	95	187	321	521	725	846	821	611	388	141	47	44	139	326	647	1168	1893	2739	3560	4171	4559	4700	4747

(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