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: ASHLAND, KS **COOP ID: 140365**

Climate Division: KS 7 **NWS Call Sign:** **Elevation: 1,970 Feet** **Lat: 37˚12N** **Lon: 99˚46W**

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	44.8	15.6	30.2	84+	1986	20	38.1	1986	-19+	1988	8	17.4	1979	1080	0	.0	.0	13.2	6.8	30.5	2.6
Feb	51.4	21.0	36.2	90	1981	21	44.4	1976	-18	1982	6	22.7	1978	807	0	.0	@	16.0	4.3	25.5	1.4
Mar	60.2	30.1	45.2	100	1907	21	50.7	1972	-8+	1948	11	39.5	1998	616	0	.0	.2	23.7	1.1	19.8	@
Apr	70.0	39.6	54.8	102	1989	24	62.2	1981	11	1979	4	48.2	1983	318	13	@	1.3	28.2	.1	7.7	.0
May	78.5	51.2	64.9	104+	1996	24	70.2	1996	22	1909	1	58.3	1995	105	99	.4	3.4	30.9	.0	.2	.0
Jun	88.5	60.6	74.6	114	1911	25	81.4	1994	40+	1998	6	68.2	1982	19	305	3.0	14.4	30.0	.0	.0	.0
Jul	94.7	65.4	80.1	113	1934	31	84.2	1980	46	1990	14	77.3	1972	0	466	7.9	24.5	31.0	.0	.0	.0
Aug	93.2	64.2	78.7	114+	1936	13	83.7	1983	40	1915	31	73.4	1992	1	425	7.0	22.0	31.0	.0	.0	.0
Sep	84.4	55.2	69.8	109+	2000	5	76.0	1998	24	1984	30	61.7	1974	38	181	1.8	10.8	29.9	.0	.4	.0
Oct	73.4	40.8	57.1	99+	1991	4	61.7	1979	11	1993	31	51.2	1976	258	12	.0	2.2	30.1	@	6.2	.0
Nov	57.9	27.9	42.9	90	1980	9	49.8	1999	-1+	1906	22	36.5	1985	663	0	.0	@	21.6	.8	21.4	.0
Dec	47.6	18.6	33.1	92	1905	30	37.4	1994	-17	1989	23	18.6	1983	990	0	.0	.0	14.8	4.2	29.5	1.4
Ann	70.4	40.9	55.6	114+	Aug 1936	13	84.2	Jul 1980	-19+	Jan 1988	8	17.4	Jan 1979	4895	1501	20.1	78.8	300.4	17.3	141.2	5.4

\+ 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: 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	.52	.36	1.17	1939	8	2.21	1999	.00+	1986
Feb	.64	.52	2.36	1911	17	2.74	1993	.00+	1999
Mar	1.81	1.34	2.41	2000	23	8.25	1973	.00+	1997
Apr	1.89	1.50	2.90	1983	1	5.28	1976	.00	1987
May	3.64	3.57	4.75	1914	2	8.13	1978	.56	1986
Jun	3.59	3.16	4.00	1908	1	9.90	1999	.11	1973
Jul	2.95	2.62	3.25	1978	7	7.47	1996	.40	1983
Aug	2.48	1.37	4.00	1968	28	7.82	1996	.10	1982
Sep	2.22	1.92	4.50	1963	1	10.92	1973	.00+	1998
Oct	1.63	1.07	6.52	1920	21	6.29	2000	.00+	1977
Nov	1.08	.87	3.90	1909	28	3.50	1971	.00+	1999
Dec	.73	.52	1.60	1911	19	3.38	1984	.00+	1988
Ann	23.18	22.45	6.52	Oct 1920	21	10.92	Sep 1973	.00+	Nov 1999

Mean Number of Days (3)

Daily Precipitation

Month	>= 0.01	>= 0.10	>= 0.50	>= 1.00
Jan	2.6	1.6	.3	@
Feb	3.0	1.8	.4	@
Mar	5.1	3.9	1.1	.3
Apr	5.0	3.7	1.3	.5
May	7.9	5.9	2.9	1.0
Jun	7.1	5.7	2.5	1.0
Jul	5.7	4.6	2.0	.8
Aug	6.1	4.4	1.7	.7
Sep	5.5	3.8	1.5	.7
Oct	3.9	3.0	1.1	.4
Nov	3.2	2.3	.7	.2
Dec	3.1	1.9	.3	.2
Ann	58.2	42.6	15.8	5.8

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	.00	.12	.21	.30	.40	.52	.66	.85	1.16	1.47
Feb	.00	.00	.00	.08	.19	.33	.51	.76	1.11	1.72	2.35
Mar	.00	.12	.40	.68	.98	1.32	1.73	2.23	2.93	4.11	5.26
Apr	.14	.34	.65	.92	1.21	1.52	1.89	2.33	2.92	3.89	4.83
May	.84	1.18	1.72	2.19	2.67	3.17	3.73	4.41	5.29	6.69	8.01
Jun	.32	.57	1.05	1.55	2.09	2.71	3.45	4.37	5.64	7.76	9.84
Jul	.78	1.06	1.48	1.86	2.23	2.62	3.05	3.56	4.22	5.27	6.24
Aug	.19	.35	.67	1.01	1.39	1.83	2.35	3.01	3.92	5.46	6.98
Sep	.00	.00	.33	.67	1.05	1.50	2.04	2.74	3.69	5.32	6.95
Oct	.00	.07	.28	.52	.79	1.11	1.49	1.98	2.68	3.86	5.03
Nov	.00	.00	.14	.33	.53	.75	1.01	1.35	1.81	2.57	3.32
Dec	.00	.06	.17	.29	.41	.54	.71	.90	1.17	1.63	2.07
Ann	15.59	17.03	18.88	20.29	21.56	22.79	24.07	25.49	27.21	29.74	31.93

\+ 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	2.5	1.0	#	#
Feb	2.4	.0	#	0
Mar	1.8	.0	#	0
Apr	.5	.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	.3	.0	#	0
Dec	3.0	2.5	1	0
Ann	10.6	3.5	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	1993	9	13.5	1988	14	1988	8	2	1977
Feb	6.0	1978	9	23.0	1978	12	1971	22	4	1978
Mar	5.5	1998	19	8.0	1984	8	1999	14	1	1999
Apr	6.0	1979	4	10.0	1979	3	1973	8	#+	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	1.5	1991	31	1.5	1991	1	1993	29	#	1993
Nov	2.5	1991	7	3.0	1983	13	1992	25	1	1992
Dec	11.7	1997	24	11.9	1997	12	1997	24	10	1992
Ann	11.7	Dec 1997	24	23.0	Feb 1978	14	Jan 1988	8	10	Dec 1992

Mean Number of Days (1)

Snow Fall >= Thresholds

Month	0.1	1.0	3.0	5.0	10.0
Jan	1.3	1.0	.4	.1	.0
Feb	.9	.8	.3	.1	.0
Mar	.8	.6	.2	.1	.0
Apr	.1	.1	.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	.1	.1	.0	.0	.0
Nov	.2	.2	.0	.0	.0
Dec	1.1	.9	.3	.1	@
Ann	4.5	3.7	1.3	.4	@

Snow Depth >= Thresholds

Month	1	3	5	10
Jan	1.2	.4	.2	.2
Feb	.7	.1	.0	.0
Mar	.7	.3	.2	.0
Apr	@	@	.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	.2	.0	.0	.0
Dec	1.3	.4	.1	.1
Ann	4.1	1.2	.5	.3

+ 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	5/13	5/10	5/07	5/05	5/03	5/01	4/29	4/26	4/22
32	5/05	4/30	4/27	4/25	4/22	4/19	4/17	4/13	4/09
28	4/26	4/21	4/18	4/15	4/12	4/10	4/07	4/03	3/30
24	4/12	4/07	4/04	4/01	3/30	3/27	3/25	3/21	3/17
20	4/07	4/01	3/28	3/25	3/21	3/18	3/15	3/11	3/05
16	4/02	3/26	3/21	3/17	3/13	3/09	3/05	2/28	2/21

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	9/19	9/23	9/27	9/30	10/02	10/05	10/08	10/11	10/16
32	9/23	9/29	10/03	10/06	10/09	10/12	10/16	10/20	10/25
28	10/02	10/08	10/12	10/16	10/20	10/23	10/27	10/31	11/06
24	10/17	10/23	10/27	10/30	11/02	11/05	11/08	11/12	11/17
20	10/22	10/29	11/03	11/07	11/11	11/15	11/19	11/24	12/01
16	10/29	11/06	11/11	11/16	11/20	11/25	11/29	12/05	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	167	162	158	155	152	149	145	142	137
32	191	184	178	174	170	165	161	155	148
28	211	204	198	194	190	185	181	176	168
24	233	227	223	219	216	213	210	206	200
20	255	248	243	238	234	230	226	220	213
16	281	271	264	257	252	246	240	232	222

***** 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	1080	807	616	318	105	19	0	1	38	258	663	990	4895
60	925	670	462	197	43	6	0	0	9	139	513	835	3799
57	832	591	376	138	21	2	0	0	3	85	426	742	3216
55	770	539	319	105	13	0	0	0	1	58	371	680	2856
50	621	414	194	44	2	0	0	0	0	18	243	532	2068
32	185	102	8	0	0	0	0	0	0	0	16	122	433

Cooling Degree Days (1)

Base Above	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Ann
32	128	219	415	685	1017	1276	1489	1447	1134	777	344	154	9085
55	1	12	12	100	317	586	776	734	445	122	8	0	3113
57	0	8	7	73	263	528	714	672	387	87	4	0	2743
60	0	2	1	42	192	441	621	579	303	48	0	0	2229
65	0	0	0	13	99	305	466	425	181	12	0	0	1501
70	0	0	0	3	41	190	312	278	92	2	0	0	918

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	23	84	227	447	763	1038	1241	1199	892	533	169	39	23	107	334	781	1544	2582	3823	5022	5914	6447	6616	6655
45	0	35	132	313	608	888	1086	1044	743	388	92	9	0	35	167	480	1088	1976	3062	4106	4849	5237	5329	5338
50	0	9	67	198	459	738	931	889	597	256	40	0	0	9	76	274	733	1471	2402	3291	3888	4144	4184	4184
55	0	0	26	110	315	588	776	734	451	150	16	0	0	0	26	136	451	1039	1815	2549	3000	3150	3166	3166
60	0	0	5	46	186	439	621	579	318	70	2	0	0	0	5	51	237	676	1297	1876	2194	2264	2266	2266
Base	**Growing Degree Units for Corn (Monthly)**												**Growing Degree Units for Corn (Accumulated Monthly)**											
50/86	62	112	196	310	485	668	790	763	570	374	158	71	62	174	370	680	1165	1833	2623	3386	3956	4330	4488	4559

(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