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: CEDAR BLUFF DAM 4 NNE, KS **COOP ID: 141383**

Climate Division: KS 4 **NWS Call Sign:** **Elevation: 2,230 Feet** **Lat: 38˚52N** **Lon: 99˚42W**

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	42.1	14.0	28.1	79	1990	11	37.7	1986	-17+	1979	31	14.1	1979	1146	0	.0	.0	10.5	8.9	30.8	3.8
Feb	48.1	18.6	33.4	84	1989	26	41.6	1976	-20	1951	1	20.0	1978	885	0	.0	.0	13.0	6.0	26.2	2.5
Mar	56.8	26.7	41.8	95	1989	11	47.6	1986	-16+	1960	4	34.8	1975	721	0	.0	@	20.7	2.0	21.3	.5
Apr	67.1	36.5	51.8	103	1989	23	59.9	1981	12	1994	7	45.2	1983	402	6	@	.7	26.7	.2	8.2	.0
May	75.9	48.4	62.2	102+	2000	30	67.7	2000	26+	1967	2	55.2	1995	158	69	.1	2.0	30.6	.0	.5	.0
Jun	86.9	58.6	72.8	109	1953	25	78.8	1988	39+	1983	1	66.1	1982	23	256	1.9	11.8	30.0	.0	.0	.0
Jul	92.8	64.4	78.6	110+	1998	21	85.9	1980	45+	1970	22	74.5	1971	0	422	6.1	20.8	31.0	.0	.0	.0
Aug	90.5	62.3	76.4	110+	2000	26	83.9	1983	41	1956	21	70.1	1992	8	361	3.5	18.1	31.0	.0	.0	.0
Sep	82.7	52.8	67.8	110+	2000	4	75.1	1998	26	1984	30	61.2	1974	68	151	1.1	8.9	29.7	.0	.5	.0
Oct	71.6	39.7	55.7	102	2000	2	59.4	1998	12	1997	27	49.1	1976	300	10	.1	1.2	29.5	@	5.8	.0
Nov	55.0	26.1	40.6	86+	1980	7	48.9	1999	-7	1952	28	32.4	1985	734	0	.0	.0	19.0	1.8	22.8	.2
Dec	45.1	18.2	31.7	79	1995	1	37.2	1988	-24	1989	23	14.6	1983	1033	0	.0	.0	12.2	5.7	29.8	1.6
Ann	67.9	38.9	53.4	110+	Sep 2000	4	85.9	Jul 1980	-24	Dec 1989	23	14.1	Jan 1979	5478	1275	12.8	63.5	283.9	24.6	145.9	8.6

\+ 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: 1949-2001

(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	.50	.40	1.00	1995	27	1.45	1985	.00+	1998
Feb	.60	.31	1.23	1971	19	2.14	1993	.00+	1991
Mar	1.88	1.25	2.10	1987	17	8.29	1973	.00+	1997
Apr	2.03	1.77	2.50	1987	14	5.67	1984	.03	1992
May	3.15	2.77	2.79	1996	26	8.79	1995	.75	1994
Jun	3.00	2.84	3.25	2000	24	7.25	2000	.37	1988
Jul	3.42	2.73	4.15	1985	29	8.85	1979	.09	1983
Aug	2.97	2.44	3.89	1999	2	8.56	1999	.33	2000
Sep	1.69	1.22	2.20	1985	13	5.54	1976	.05	1977
Oct	1.25	.96	2.40	1979	30	3.61	2000	.00	1975
Nov	1.16	.67	2.21	1996	16	3.04	1998	.00+	1989
Dec	.59	.43	.90	1953	3	1.80	1984	.00+	1996
Ann	22.24	23.11	4.15	Jul 1985	29	8.85	Jul 1979	.00+	Jan 1998

Mean Number of Days (3)

Daily Precipitation

Month	>= 0.01	>= 0.10	>= 0.50	>= 1.00
Jan	2.3	1.5	.3	@
Feb	2.6	1.4	.3	.1
Mar	5.5	4.0	1.3	.4
Apr	5.9	3.9	1.4	.4
May	9.0	6.1	2.4	.6
Jun	7.4	5.6	1.7	.8
Jul	7.4	5.5	2.2	1.0
Aug	6.3	4.4	1.8	1.0
Sep	4.8	3.3	1.1	.4
Oct	3.4	2.4	.8	.4
Nov	3.4	2.3	.8	.3
Dec	3.0	1.9	.3	.0
Ann	61.0	42.3	14.4	5.4

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	.07	.16	.25	.35	.47	.63	.84	1.18	1.52
Feb	.00	.02	.09	.18	.27	.39	.54	.72	.98	1.43	1.89
Mar	.00	.14	.44	.73	1.04	1.40	1.82	2.33	3.05	4.24	5.41
Apr	.34	.52	.82	1.10	1.38	1.69	2.05	2.48	3.05	3.98	4.87
May	.79	1.09	1.55	1.95	2.35	2.78	3.25	3.81	4.54	5.70	6.79
Jun	.68	.96	1.40	1.80	2.19	2.61	3.08	3.64	4.38	5.55	6.66
Jul	.33	.57	1.04	1.51	2.03	2.62	3.31	4.17	5.35	7.32	9.25
Aug	.45	.70	1.13	1.54	1.97	2.44	2.98	3.63	4.52	5.95	7.33
Sep	.17	.29	.52	.75	1.01	1.30	1.63	2.06	2.64	3.61	4.55
Oct	.04	.14	.31	.49	.69	.92	1.19	1.53	1.99	2.78	3.55
Nov	.00	.06	.22	.39	.59	.81	1.08	1.42	1.90	2.70	3.50
Dec	.00	.06	.16	.25	.35	.46	.58	.73	.94	1.29	1.62
Ann	13.76	15.31	17.35	18.93	20.35	21.75	23.21	24.84	26.84	29.78	32.37

\+ 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: 1949-2001
(3) Derived from 1971-2000 serially complete daily data

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Climate Division: KS 4 **NWS Call Sign:** **Elevation: 2,230 Feet** **Lat: 38°52N** **Lon: 99°42W**

Snow (inches)

Snow Totals

Means/Medians (1)

Month	Snow Fall Mean	Snow Fall Median	Snow Depth Mean	Snow Depth Median
Jan	4.8	3.5	1	0
Feb	4.3	2.5	#	0
Mar	4.2	2.8	#	0
Apr	1.1	.0	#	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	0
Oct	.4	.0	0	0
Nov	1.8	.3	#	0
Dec	2.8	2.0	#	0
Ann	19.5	11.1	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	11.0	1979	13	18.0	1979	11	1974	3	5	1974
Feb	9.0	1978	13	14.5	1982	5	1971	23	1	1971
Mar	16.0	1980	24	26.0	1987	12	1999	13	1	1999
Apr	4.0	1979	1	9.0	1994	2	1974	4	#+	1999
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	1.5	1985	29	1.5	1985	0	0	0	0	0
Oct	6.0	1997	26	6.0	1997	0	0	0	0	0
Nov	8.0	1991	1	12.5	1992	3	1972	18	#+	2000
Dec	5.0	1995	30	11.0	1997	8	1973	31	2	1973
Ann	16.0	Mar 1980	24	26.0	Mar 1987	12	Mar 1999	13	5	Jan 1974

Mean Number of Days (1)

Snow Fall >= Thresholds

Month	0.1	1.0	3.0	5.0	10.0
Jan	2.0	1.4	.6	.3	@
Feb	1.7	1.3	.5	.3	.0
Mar	1.4	1.1	.5	.2	.1
Apr	.5	.5	.2	.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	.1	.1	.0	.0	.0
Oct	.1	.1	.1	@	.0
Nov	.8	.7	.2	.1	.0
Dec	1.7	1.3	.4	@	.0
Ann	8.3	6.5	2.5	.9	.1

Snow Depth >= Thresholds

Month	1	3	5	10
Jan	-9.9	-9.9	-9.9	-9.9
Feb	-9.9	-9.9	-9.9	-9.9
Mar	1.3	.6	.3	.1
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	.0
Nov	.9	.1	.0	.0
Dec	3.2	1.0	.3	.0
Ann	-9.9	-9.9	-9.9	-9.9

+ 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	5/17	5/13	5/10	5/07	5/05	5/02	4/30	4/27	4/22
32	5/11	5/07	5/03	4/30	4/27	4/25	4/22	4/18	4/13
28	4/24	4/21	4/18	4/16	4/13	4/11	4/09	4/06	4/02
24	4/16	4/12	4/09	4/06	4/04	4/01	3/30	3/26	3/22
20	4/11	4/04	3/31	3/27	3/23	3/20	3/16	3/11	3/05
16	4/03	3/27	3/21	3/17	3/13	3/08	3/04	2/26	2/19

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	9/17	9/21	9/24	9/27	9/30	10/02	10/05	10/08	10/13
32	9/25	9/30	10/04	10/07	10/10	10/13	10/17	10/20	10/26
28	10/09	10/13	10/17	10/20	10/22	10/25	10/28	10/31	11/05
24	10/19	10/24	10/28	10/31	11/03	11/06	11/10	11/13	11/19
20	10/28	11/02	11/05	11/08	11/11	11/13	11/16	11/20	11/24
16	11/04	11/10	11/15	11/19	11/22	11/26	11/30	12/04	12/10

Freeze Free Period

Temp (F)	Probability of longer than indicated freeze free period (Days)								
	.10	.20	.30	.40	.50	.60	.70	.80	.90
36	164	158	154	151	147	144	140	136	131
32	185	179	174	169	165	161	157	152	145
28	205	200	197	194	191	189	186	182	178
24	233	226	221	217	213	209	205	200	193
20	256	248	242	236	232	227	221	215	207
16	282	272	265	259	254	248	243	236	226

***** 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	1146	885	721	402	158	23	0	8	68	300	734	1033	5478
60	991	750	566	268	78	6	0	1	24	175	584	878	4321
57	898	672	478	199	46	2	0	0	11	115	497	785	3703
55	837	619	421	158	30	1	0	0	6	83	442	723	3320
50	691	493	285	79	8	0	0	0	0	32	309	579	2476
32	245	159	28	0	0	0	0	0	0	0	37	164	633

Cooling Degree Days (1)

Base Above	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Ann
32	122	198	330	594	935	1223	1445	1376	1073	734	294	153	8477
55	2	14	10	62	251	533	732	663	388	104	8	0	2767
57	0	10	5	43	205	475	670	601	334	73	3	0	2419
60	0	5	0	22	145	389	577	509	257	40	0	0	1944
65	0	0	0	6	69	256	422	361	151	10	0	0	1275
70	0	0	0	0	26	148	275	227	76	2	0	0	754

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	21	71	180	389	699	996	1216	1153	851	504	137	36	21	92	272	661	1360	2356	3572	4725	5576	6080	6217	6253
45	1	31	102	261	546	846	1061	998	701	363	71	8	1	32	134	395	941	1787	2848	3846	4547	4910	4981	4989
50	0	10	50	159	397	696	906	843	559	239	27	0	0	10	60	219	616	1312	2218	3061	3620	3859	3886	3886
55	0	1	17	84	257	546	751	688	416	138	7	0	0	1	18	102	359	905	1656	2344	2760	2898	2905	2905
60	0	0	4	37	145	398	596	533	287	60	0	0	0	0	4	41	186	584	1180	1713	2000	2060	2060	2060
Base	**Growing Degree Units for Corn (Monthly)**												**Growing Degree Units for Corn (Accumulated Monthly)**											
50/86	46	84	158	265	432	643	793	750	539	343	129	53	46	130	288	553	985	1628	2421	3171	3710	4053	4182	4235

(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