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: FALL RIVER LAKE, KS **COOP ID: 142686**

Climate Division: KS 9 **NWS Call Sign:** **Elevation: 1,020 Feet** **Lat: 37˚39N** **Lon: 96˚05W**

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	40.4	18.5	29.5	78	1950	24	40.5	1990	-22	1949	30	16.4	1979	1103	0	.0	.0	8.4	8.9	28.8	2.3
Feb	46.6	23.6	35.1	86	1962	13	46.2	1976	-18+	1981	11	22.9	1978	837	0	.0	.0	11.6	5.5	22.9	1.7
Mar	57.3	33.5	45.4	91	1967	12	50.9	1986	-1+	1980	2	38.9	1975	608	0	.0	.0	21.4	.9	14.2	@
Apr	67.7	44.1	55.9	97	1972	13	61.6	1981	17	1975	3	48.6	1983	289	17	.0	.5	28.2	@	2.8	.0
May	75.6	54.2	64.9	96+	1964	27	70.2	1998	31	1963	1	60.2	1995	97	93	.0	.4	31.0	.0	.1	.0
Jun	84.1	63.0	73.6	109	1980	28	77.4	1994	44	2000	6	67.6	1982	9	266	.3	6.1	30.0	.0	.0	.0
Jul	90.4	67.9	79.2	114+	1954	15	86.6	1980	49	1971	31	75.3	1972	0	438	2.2	16.9	31.0	.0	.0	.0
Aug	89.9	65.8	77.9	112	1980	3	84.1	1983	46	1950	21	71.1	1992	4	401	3.0	16.6	31.0	.0	.0	.0
Sep	81.7	57.1	69.4	106	2000	1	76.7	1998	28	1984	30	62.2	1974	48	181	.7	7.1	30.0	.0	.1	.0
Oct	70.9	44.9	57.9	99	1979	9	61.9	1973	16	1993	31	52.1	1976	240	20	.0	.8	29.9	.0	2.4	.0
Nov	56.2	33.4	44.8	86+	1980	7	53.5	1999	1	1975	27	38.7+	1991	606	0	.0	.0	20.4	.7	14.5	.0
Dec	44.6	23.1	33.9	78	1966	8	39.8	1984	-18+	1989	24	18.9	1983	965	0	.0	.0	11.3	5.2	26.1	1.0
Ann	67.1	44.1	55.6	114+	Jul 1954	15	86.6	Jul 1980	-22	Jan 1949	30	16.4	Jan 1979	4806	1416	6.2	48.4	284.2	21.2	111.9	5.0

\+ 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	.84	.55	2.45	1967	26	2.73	1973	.00+	1986
Feb	1.34	1.24	3.41	1997	21	4.28	1997	.00	1991
Mar	2.89	2.48	2.58	1974	9	8.23	1973	.24	1971
Apr	3.33	2.77	3.55	1988	1	16.08	1994	.15	1989
May	4.69	3.75	3.74	1961	6	10.06	1982	1.81	1972
Jun	5.23	4.95	4.30	1977	22	10.16	1977	.25	1980
Jul	3.90	3.58	5.20	1992	11	12.31	1992	.00	1974
Aug	3.72	3.78	3.05	1993	31	8.84	1985	.00	2000
Sep	3.58	2.48	6.10	1961	13	10.47	1973	.33	1982
Oct	3.31	3.18	6.17	1986	3	8.98	1986	.10	1995
Nov	2.68	2.50	3.65	1974	3	6.13	1992	.00+	1989
Dec	1.66	1.38	1.91	1991	20	4.67	1984	.05	1977
Ann	37.17	35.86	6.17	Oct 1986	3	16.08	Apr 1994	.00+	Aug 2000

Mean Number of Days (3)

Daily Precipitation

Month	>= 0.01	>= 0.10	>= 0.50	>= 1.00
Jan	3.8	2.5	.4	.1
Feb	4.5	3.1	.7	.2
Mar	7.0	5.3	2.1	.7
Apr	7.8	5.7	2.0	.9
May	9.4	7.3	3.4	1.3
Jun	8.6	6.8	3.4	1.9
Jul	6.8	5.4	2.6	1.3
Aug	6.9	4.9	2.2	1.1
Sep	6.6	5.4	2.2	1.2
Oct	6.1	4.5	2.1	1.0
Nov	5.6	4.2	1.9	.7
Dec	4.4	2.7	1.3	.5
Ann	77.5	57.8	24.3	10.9

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	.09	.24	.38	.51	.67	.84	1.05	1.34	1.81	2.26
Feb	.09	.22	.44	.63	.84	1.07	1.33	1.65	2.09	2.80	3.49
Mar	.66	.93	1.36	1.74	2.11	2.52	2.97	3.50	4.21	5.33	6.39
Apr	.46	.73	1.21	1.67	2.16	2.69	3.31	4.07	5.09	6.76	8.37
May	1.58	2.03	2.68	3.23	3.76	4.30	4.90	5.59	6.48	7.87	9.14
Jun	1.11	1.59	2.36	3.06	3.76	4.50	5.34	6.35	7.68	9.81	11.82
Jul	.35	.80	1.44	2.01	2.59	3.22	3.94	4.82	5.98	7.88	9.68
Aug	.26	.64	1.23	1.78	2.35	2.98	3.71	4.60	5.80	7.76	9.65
Sep	.41	.69	1.19	1.69	2.22	2.82	3.51	4.38	5.55	7.48	9.36
Oct	.44	.71	1.18	1.64	2.13	2.66	3.29	4.05	5.08	6.77	8.41
Nov	.00	.67	1.23	1.64	2.03	2.42	2.85	3.33	3.98	4.99	5.93
Dec	.11	.21	.42	.64	.90	1.19	1.55	2.01	2.64	3.72	4.78
Ann	24.44	26.83	29.93	32.31	34.45	36.53	38.69	41.09	44.03	48.33	52.07

\+ 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

Complete documentation available from:
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Climate Division: KS 9 **NWS Call Sign:** **Elevation: 1,020 Feet** **Lat: 37°39N** **Lon: 96°05W**

Snow (inches)

Snow Totals

Means/Medians (1)

Month	Snow Fall Mean	Snow Fall Median	Snow Depth Mean	Snow Depth Median
Jan	1.3	.0	1	0
Feb	1.3	-99.9	#	0
Mar	.8	.0	#	0
Apr	.0	.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	1.0	.0	#	0
Dec	1.1	.0	#	0
Ann	5.5	-9.9	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	6.0	1984	16	7.0	1984	10	1987	10	5	1984
Feb	5.0	1975	23	5.0	1975	7	1982	12	1	1982
Mar	10.0	1975	10	10.0	1975	10	1975	10	1	1988
Apr	.0	0	0	.0	0	0	0	0	0	0
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	.0	0	0	.0	0	0	0	0	0	0
Nov	7.0	1971	23	7.0	1971	7	1971	23	#+	1975
Dec	7.0	1987	15	9.4	1987	11	1987	15	2	1987
Ann	10.0	Mar 1975	10	10.0	Mar 1975	11	Dec 1987	15	5	Jan 1984

Mean Number of Days (1)

Snow Fall >= Thresholds

Month	0.1	1.0	3.0	5.0	10.0
Jan	.5	.4	.2	.1	.0
Feb	.6	.4	.3	.1	.0
Mar	.1	.1	.1	.1	.1
Apr	.0	.0	.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	.0	.0
Nov	.2	.1	.1	.1	.0
Dec	.5	.2	.1	.1	.0
Ann	1.9	1.2	.8	.5	.1

Snow Depth >= Thresholds

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

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

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	10/03	10/06	10/10	10/13	10/17	10/21	10/27
32	10/08	10/13	10/17	10/20	10/23	10/26	10/29	11/02	11/08
28	10/16	10/23	10/28	11/01	11/04	11/08	11/12	11/17	11/24
24	11/01	11/07	11/11	11/14	11/17	11/20	11/23	11/27	12/03
20	11/04	11/11	11/16	11/21	11/25	11/29	12/03	12/08	12/15
16	11/11	11/19	11/24	11/29	12/03	12/07	12/12	12/17	12/25

Freeze Free Period

Temp (F)	Probability of longer than indicated freeze free period (Days)								
	.10	.20	.30	.40	.50	.60	.70	.80	.90
36	197	188	182	176	171	166	161	154	145
32	220	211	205	200	195	190	184	178	169
28	242	234	229	224	219	215	210	204	196
24	270	261	254	249	244	239	233	227	218
20	291	281	274	268	262	257	251	244	234
16	316	303	295	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	1103	837	608	289	97	9	0	4	48	240	606	965	4806
60	948	705	459	175	37	1	0	0	15	128	464	810	3742
57	856	627	373	120	18	0	0	0	6	79	382	719	3180
55	796	575	319	90	10	0	0	0	3	55	331	660	2839
50	651	453	202	36	2	0	0	0	0	18	219	517	2098
32	222	139	14	0	0	0	0	0	0	0	19	134	528

Cooling Degree Days (1)

Base Above	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Ann
32	142	227	429	718	1019	1247	1461	1421	1123	802	402	192	9183
55	3	19	20	118	316	557	748	708	435	145	24	5	3098
57	1	14	13	88	262	497	686	646	379	107	16	2	2711
60	0	9	6	53	188	408	593	553	297	63	8	0	2178
65	0	0	0	17	93	266	438	401	181	20	0	0	1416
70	0	0	0	4	33	146	288	260	95	4	0	0	830

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	32	94	243	492	778	1017	1222	1181	893	567	218	57	32	126	369	861	1639	2656	3878	5059	5952	6519	6737	6794
45	10	47	151	356	623	867	1067	1026	744	421	128	23	10	57	208	564	1187	2054	3121	4147	4891	5312	5440	5463
50	1	19	84	228	468	717	912	871	595	282	68	5	1	20	104	332	800	1517	2429	3300	3895	4177	4245	4250
55	1	5	38	132	321	567	757	716	448	168	30	0	1	6	44	176	497	1064	1821	2537	2985	3153	3183	3183
60	0	1	11	66	189	417	602	561	313	84	9	0	0	1	12	78	267	684	1286	1847	2160	2244	2253	2253
Base	**Growing Degree Units for Corn (Monthly)**												**Growing Degree Units for Corn (Accumulated Monthly)**											
50/86	36	76	169	303	490	688	826	790	579	360	145	52	36	112	281	584	1074	1762	2588	3378	3957	4317	4462	4514

(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