

# Climatography of the United States No. 20

National Climatic Data Center  
Federal Building  
151 Patton Avenue  
Asheville, North Carolina 28801  
www.ncdc.noaa.gov

Station: LEOTI 1 SE, KS

1971-2000

COOP ID: 144665

Climate Division: KS 4

NWS Call Sign:

Elevation: 3,307 Feet Lat: 38° 28N

Lon: 101° 21W

## 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	41.6	13.7	27.7	78+	1986	31	39.2	1986	-21	1942	5	15.0	1979	1158	0	.0	.0	10.4	8.2	30.8	3.0
Feb	47.2	18.2	32.7	83	1981	21	40.0	1976	-22	1951	1	19.5	1978	905	0	.0	.0	13.7	5.4	26.7	1.9
Mar	55.6	25.2	40.4	90+	1986	30	47.6	1986	-21	1948	11	34.6	1980	762	0	.0	.1	21.2	2.3	22.7	.2
Apr	65.2	33.7	49.5	98+	1989	24	57.0	1981	6	1975	2	44.2	1997	468	2	.0	.4	26.3	.3	11.4	.0
May	74.3	44.8	59.6	101+	1974	28	63.7	1974	22+	1979	11	52.7	1995	205	36	.1	2.2	30.4	.0	1.0	.0
Jun	86.0	55.8	70.9	109	1946	15	75.6	1988	32	1998	6	65.7	1982	29	204	1.9	12.6	30.0	.0	@	.0
Jul	91.3	60.4	75.9	111	1973	6	79.9	1980	40	1952	8	72.0	1992	0	337	4.3	20.4	31.0	.0	.0	.0
Aug	88.6	58.5	73.6	106+	1964	11	79.4	1983	41	1944	31	68.1	1992	11	276	1.4	17.0	31.0	.0	.0	.0
Sep	80.3	48.3	64.3	105+	2000	7	70.7	1998	24+	1984	30	59.3	1993	97	77	.3	7.1	29.6	.0	.8	.0
Oct	69.0	35.1	52.1	96+	2000	2	55.4	1998	9+	1993	31	45.4	1976	403	1	.0	.6	29.0	.2	8.2	.0
Nov	52.7	22.8	37.8	89	1950	1	45.4	1999	-10+	1952	28	31.9	1992	817	0	.0	.0	18.3	2.4	24.5	.2
Dec	43.7	15.7	29.7	80+	1980	18	35.3	1980	-20+	1989	23	17.3	1983	1095	0	.0	.0	11.6	5.9	30.1	2.0
Ann	66.3	36.0	51.2	111	Jul 1973	6	79.9	Jul 1980	-22	Feb 1951	1	15.0	Jan 1979	5950	933	8.0	60.4	282.5	24.7	156.2	7.3

+ 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/normal/usnormals.html](http://www.ncdc.noaa.gov/oa/climate/normal/usnormals.html)

Issue Date: February 2004

(1) From the 1971-2000 Monthly Normals

(2) Derived from station's available digital record: 1939-2001

(3) Derived from 1971-2000 serially complete daily data

060-A

# 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: LEOTI 1 SE, KS

COOP ID: 144665

Climate Division: KS 4

NWS Call Sign:

Elevation: 3,307 Feet Lat: 38°28N

Lon: 101°21W

Precipitation (inches)																								
	Precipitation Totals									Mean Number of Days (3)				Precipitation Probabilities (1) Probability that the monthly/annual precipitation will be equal to or less than the indicated amount										
	Means/ Medians(1)		Extremes							Daily Precipitation				Monthly/Annual Precipitation vs Probability Levels These values were determined from the incomplete gamma distribution										
Month	Mean	Med-ian	Highest Daily(2)	Year	Day	Highest Monthly(1)	Year	Lowest Monthly(1)	Year	>= 0.01	>= 0.10	>= 0.50	>= 1.00	.05	.10	.20	.30	.40	.50	.60	.70	.80	.90	.95
Jan	.39	.25	.93	2001	16	1.32+	1992	.00	1986	3.4	1.4	.1	.0	.02	.05	.11	.17	.23	.30	.38	.48	.62	.86	1.08
Feb	.48	.27	1.26	1993	11	2.55	1993	.00+	1981	3.0	1.4	.3	@	.00	.00	.03	.10	.18	.28	.41	.57	.81	1.22	1.63
Mar	1.32	1.19	1.48	1980	28	4.01	1973	.00+	1997	5.3	3.3	1.0	.1	.00	.07	.26	.45	.67	.93	1.23	1.62	2.16	3.07	3.97
Apr	1.46	1.38	2.27	1944	10	4.06	1984	.17	1972	6.0	3.6	.8	.2	.30	.43	.65	.84	1.04	1.25	1.49	1.78	2.16	2.77	3.35
May	2.91	2.59	3.37	1964	30	5.26	1978	.45	1986	8.5	5.6	1.9	.7	.96	1.23	1.64	1.98	2.31	2.66	3.03	3.47	4.03	4.91	5.72
Jun	2.56	2.67	3.23	1949	5	6.86	1992	.17	1985	7.4	4.8	1.7	.4	.57	.80	1.18	1.52	1.86	2.22	2.62	3.11	3.75	4.77	5.73
Jul	3.00	2.89	2.55	1950	3	6.78	1998	.08	1983	7.8	5.7	2.1	.7	.63	.90	1.34	1.74	2.15	2.58	3.06	3.65	4.42	5.65	6.82
Aug	2.59	1.81	4.43	1980	15	8.00	1997	.00	1982	7.1	4.4	1.4	.6	.32	.64	1.08	1.45	1.82	2.21	2.66	3.19	3.90	5.03	6.09
Sep	1.46	1.12	2.73	1982	12	5.23	1973	.16	1979	5.5	3.5	.8	.2	.16	.27	.48	.68	.90	1.14	1.43	1.79	2.27	3.07	3.85
Oct	1.08	.70	2.97	1965	18	4.66	1984	.00	1987	3.8	2.2	.6	.2	.01	.05	.16	.30	.46	.67	.94	1.28	1.79	2.66	3.55
Nov	.84	.56	1.88	1971	16	2.87	1971	.00	1989	3.8	2.1	.5	.1	.02	.07	.17	.29	.42	.58	.77	1.02	1.36	1.95	2.53
Dec	.35	.22	.84	1979	28	1.77	1997	.00+	1980	2.7	1.2	.1	.0	.00	.01	.05	.10	.16	.22	.31	.42	.57	.84	1.11
Ann	18.44	18.31	4.43	Aug 1980	15	8.00	Aug 1997	.00+	Mar 1997	64.3	39.2	11.3	3.2	12.70	13.80	15.21	16.29	17.25	18.18	19.15	20.22	21.52	23.42	25.06

+ 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: 1939-2001

(3) Derived from 1971-2000 serially complete daily data

Complete documentation available from:  
www.ncdc.noaa.gov/oa/climate/normals/usnormals.html

# 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](http://www.ncdc.noaa.gov)

**Station: LEOTI 1 SE, KS**

**COOP ID: 144665**

**Climate Division: KS 4**

**NWS Call Sign:**

**Elevation: 3,307 Feet**

**Lat: 38°28N**

**Lon: 101°21W**

Snow (inches)																							
Snow Totals															Mean Number of Days (1)								
Means/Medians (1)					Extremes (2)										Snow Fall >= Thresholds					Snow Depth >= Thresholds			
Month	Snow Fall Mean	Snow Fall Median	Snow Depth Mean	Snow Depth Median	Highest Daily Snow Fall	Year	Day	Highest Monthly Snow Fall	Year	Highest Daily Snow Depth	Year	Day	Highest Monthly Mean Snow Depth	Year	0.1	1.0	3.0	5.0	10.0	1	3	5	10
Jan	6.4	4.2	2	1	8.6	1993	9	20.3	1993	14+	1993	21	8	1993	3.0	2.2	.8	.3	.0	9.8	6.1	3.4	1.2
Feb	4.3	1.8	1	#	9.1	1993	11	20.3	1993	14	1993	18	8	1993	2.1	1.3	.6	.3	.0	5.7	3.2	1.8	.7
Mar	5.9	3.4	#	#	11.0	1984	19	23.5	1984	15	1987	30	3	1993	2.1	1.4	.8	.4	@	3.5	2.1	1.1	.2
Apr	2.6	.5	#	0	14.0	1988	2	14.0+	1994	12	1988	2	1+	1997	.7	.6	.3	.2	@	1.0	.5	.3	.1
May	.0	.0	#	0	.0	0	0	.0	0	1	1971	18	#+	1989	.0	.0	.0	.0	.0	.0	.0	.0	.0
Jun	.0	.0	0	0	.0	0	0	.0	0	0	0	0	0	0	.0	.0	.0	.0	.0	.0	.0	.0	.0
Jul	.0	.0	0	0	.0	0	0	.0	0	0	0	0	0	0	.0	.0	.0	.0	.0	.0	.0	.0	.0
Aug	.0	.0	0	0	.0	0	0	.0	0	0	0	0	0	0	.0	.0	.0	.0	.0	.0	.0	.0	.0
Sep	.2	.0	#	0	3.1	1995	21	3.1	1995	3	1995	21	#+	1995	.1	.1	.1	.0	.0	.1	@	.0	.0
Oct	1.2	.0	#	0	11.0	1997	26	13.0	1997	13	1997	26	2	1997	.3	.3	.1	.1	@	.5	.3	.3	.1
Nov	2.8	1.5	#	#	8.0	1991	1	17.6	1991	15	1991	2	3	1991	1.3	.9	.2	.1	.0	1.9	.9	.5	.2
Dec	3.6	2.1	1	#	7.0	1979	28	20.7	1997	8	1997	11	4	1997	2.1	1.4	.4	.2	.0	5.8	2.8	1.2	.0
Ann	27.0	13.5	N/A	N/A	14.0	Apr 1988	2	23.5	Mar 1984	15+	Nov 1991	2	8+	Feb 1993	11.7	8.2	3.3	1.6	@	28.3	15.9	8.6	2.5

+ 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

Complete documentation available from:

[www.ncdc.noaa.gov/oa/climate/normal/usnormals.html](http://www.ncdc.noaa.gov/oa/climate/normal/usnormals.html)

**Climatography  
of the United States  
No. 20  
1971-2000**

**Station: LEOTI 1 SE, KS**

**COOP ID: 144665**

**Climate Division: KS 4**

**NWS Call Sign:**

**Elevation: 3,307 Feet**

**Lat: 38°28N**

**Lon: 101°21W**

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	5/24	5/20	5/17	5/14	5/11	5/09	5/06	5/03	4/28
32	5/20	5/15	5/11	5/07	5/04	5/01	4/28	4/24	4/18
28	5/03	4/28	4/25	4/22	4/19	4/17	4/14	4/11	4/06
24	4/25	4/20	4/16	4/13	4/10	4/07	4/04	3/31	3/26
20	4/16	4/10	4/06	4/02	3/30	3/26	3/22	3/18	3/12
16	4/07	4/01	3/28	3/24	3/20	3/17	3/13	3/09	3/03
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	9/14	9/19	9/22	9/25	9/28	10/01	10/04	10/07	10/12
32	9/22	9/27	10/01	10/04	10/07	10/10	10/13	10/16	10/21
28	10/01	10/06	10/09	10/12	10/15	10/18	10/21	10/25	10/30
24	10/12	10/17	10/21	10/24	10/27	10/30	11/02	11/05	11/11
20	10/27	10/31	11/03	11/06	11/09	11/11	11/14	11/17	11/21
16	10/31	11/06	11/10	11/13	11/17	11/20	11/23	11/27	12/03
Freeze Free Period									
Temp (F)	Probability of longer than indicated freeze free period (Days)								
	.10	.20	.30	.40	.50	.60	.70	.80	.90
36	157	151	146	143	139	136	132	128	122
32	178	170	164	159	155	150	145	140	132
28	197	191	186	182	178	174	170	165	159
24	220	213	208	203	199	195	190	185	178
20	247	239	233	228	223	219	214	208	200
16	266	257	251	245	240	235	230	224	215

\* 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

Complete documentation available from:  
[www.ncdc.noaa.gov/oa/climate/normal/usnormals.html](http://www.ncdc.noaa.gov/oa/climate/normal/usnormals.html)

**Climatography  
of the United States**  
**No. 20**  
**1971-2000**

**Station: LEOTI 1 SE, KS**

**COOP ID: 144665**

**Climate Division: KS 4      NWS Call Sign:      Elevation: 3,307 Feet    Lat: 38°28N      Lon: 101°21W**

Degree Days to Selected Base Temperatures (°F)													
Base	Heating Degree Days (1)												
Below	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Ann
65	1158	905	762	468	205	29	0	11	97	403	817	1095	5950
60	1003	765	607	328	106	7	0	2	34	255	667	940	4714
57	910	681	514	251	65	3	0	0	14	178	577	847	4040
55	848	630	454	205	44	1	0	0	7	133	518	785	3625
50	696	499	312	111	13	0	0	0	0	54	379	631	2695
32	235	143	25	0	0	0	0	0	0	0	53	181	637

Base	Cooling Degree Days (1)												
Above	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Ann
32	100	162	286	524	854	1165	1360	1288	969	621	226	110	7665
55	0	5	2	38	185	476	647	575	286	41	1	0	2256
57	0	0	0	24	144	418	585	513	234	23	0	0	1941
60	0	0	0	11	92	333	492	422	163	8	0	0	1521
65	0	0	0	2	36	204	337	276	77	1	0	0	933
70	0	0	0	0	9	104	188	152	27	0	0	0	480

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	19	60	170	353	653	955	1150	1084	776	440	115	32	19	79	249	602	1255	2210	3360	4444	5220	5660	5775	5807
45	0	21	91	230	501	805	995	929	629	303	55	6	0	21	112	342	843	1648	2643	3572	4201	4504	4559	4565
50	0	2	40	134	356	656	840	774	487	186	16	0	0	2	42	176	532	1188	2028	2802	3289	3475	3491	3491
55	0	0	11	66	226	507	685	619	350	96	1	0	0	0	11	77	303	810	1495	2114	2464	2560	2561	2561
60	0	0	1	27	121	363	530	466	229	31	0	0	0	0	1	28	149	512	1042	1508	1737	1768	1768	1768
Base	Growing Degree Units for Corn (Monthly)												Growing Degree Units for Corn (Accumulated Monthly)											
50/86	46	84	159	264	410	603	737	697	496	319	112	52	46	130	289	553	963	1566	2303	3000	3496	3815	3927	3979

(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](http://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.  
Complete documentation for the 1971-2000 Normals is available on the internet from:  
[www.ncdc.noaa.gov/oa/climate/normal/usnormals.html](http://www.ncdc.noaa.gov/oa/climate/normal/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 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.

- |   |   |
|---|---|
| <ol style="list-style-type: none"><li>a. Temperature/ Precipitation Tables<ol style="list-style-type: none"><li>1. 1971-2000 Monthly Normals</li><li>2. Cooperative Summary of the Day</li><li>3. National Weather Service station records</li><li>4. 1971-2000 serially complete daily data</li></ol></li><li>b. Degree Day Table<ol style="list-style-type: none"><li>1. Monthly and Annual Heating and Cooling Degree Days Normals to Selected Bases derived from 1971-2000 Monthly Normals</li><li>2. Daily Normal Growing Degree Units to Selected Base Temperatures derived from 1971-2000 serially complete daily data</li></ol></li></ol> | <ol style="list-style-type: none"><li>c. Snow Tables<ol style="list-style-type: none"><li>1. Snow Climatology</li><li>2. Cooperative Summary of the Day</li></ol></li><li>d. Freeze Data Table<br/>1971-2000 serially complete daily data</li></ol> |
|---|---|

## References

U.S. Climate Normals 1971-2000, [www.ncdc.noaa.gov/normal.html](http://www.ncdc.noaa.gov/normal.html)  
U.S. Climate Normals 1971-2000-Products Clim20, [www.ncdc.noaa.gov/oa/climate/normal/usnormalsprods.html](http://www.ncdc.noaa.gov/oa/climate/normal/usnormalsprods.html)  
Snow Climatology Project Description, [www.ncdc.noaa.gov/oa/climate/monitoring/snowclim/mainpage.html](http://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](http://www1.ncdc.noaa.gov/pub/data/special/serialcomplete_jam_0900.pdf)