

Climatography of the United States

No. 20

1971-2000

Station: LAWRENCE, KS

COOP ID: 144559

Climate Division: KS 6

NWS Call Sign:

Elevation: 980 Feet Lat: 38° 58N Lon: 95° 16W

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	39.2	20.5	29.9	72+	1967	23	41.8	1990	-18	1947	4	16.6	1979	1089	0	.0	.0	7.3	9.2	25.8	2.1
Feb	45.6	25.9	35.8	82	1972	29	44.4	1991	-11+	1996	2	23.1	1978	819	0	.0	.0	11.2	5.9	19.1	1.2
Mar	57.2	35.4	46.3	90	1946	31	52.6	1986	-7	1978	4	36.6	1975	581	2	.0	.0	21.6	.8	12.6	.1
Apr	67.6	45.7	56.7	94	1989	26	65.7	1981	13	1975	3	49.6	1983	273	22	.0	.3	28.0	.0	2.5	.0
May	76.6	55.6	66.1	98	1956	21	72.2	1998	30	1944	6	59.8	1976	91	125	.0	1.0	31.0	.0	@	.0
Jun	85.3	64.8	75.1	107+	1980	28	80.2	1988	44+	1945	4	70.5	1982	5	307	.3	8.1	30.0	.0	.0	.0
Jul	90.6	69.7	80.2	111+	1954	14	88.0	1980	51	1972	5	75.8	1971	0	470	2.3	18.2	31.0	.0	.0	.0
Aug	89.4	67.9	78.7	107	1984	29	85.7	1983	42	1956	21	72.5	1992	5	427	2.1	15.6	31.0	.0	.0	.0
Sep	81.3	59.4	70.4	108	1947	3	75.8	1978	31	1942	27	62.2	1974	43	202	.3	5.7	30.0	.0	.0	.0
Oct	70.1	48.3	59.2	98	1939	7	64.2	1971	20	1993	31	52.1	1976	204	25	.0	.4	30.0	.0	1.3	.0
Nov	54.2	35.6	44.9	84	1980	8	54.1	1999	2	1986	13	36.7	1976	604	2	.0	.0	19.7	1.0	11.6	.0
Dec	42.4	25.0	33.7	76	1939	6	39.8	1988	-21	1989	22	16.6	1983	971	0	.0	.0	9.4	6.2	23.5	1.1
Ann	66.6	46.2	56.4	111+	Jul 1954	14	88.0	Jul 1980	-21	Dec 1989	22	16.6+	Dec 1983	4685	1582	5.0	49.3	280.2	23.1	96.4	4.5

+ 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

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

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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: LAWRENCE, KS

COOP ID: 144559

Climate Division: KS 6

NWS Call Sign:

Elevation: 980 Feet Lat: 38°58N

Lon: 95°16W

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	1.25	1.14	2.23	1982	30	3.49	1979	.00	1986	6.4	3.3	.6	.2	.06	.17	.36	.54	.74	.96	1.22	1.54	1.98	2.72	3.43
Feb	1.19	1.15	2.56	1961	18	2.71	1997	.01	1991	6.2	3.2	.6	.1	.17	.27	.44	.61	.78	.97	1.18	1.45	1.81	2.39	2.95
Mar	2.74	2.33	2.31	1944	15	10.54	1973	.43	1994	8.8	5.6	2.0	.5	.68	.94	1.34	1.69	2.04	2.41	2.82	3.31	3.95	4.96	5.91
Apr	3.54	3.03	3.93	1967	1	8.93	1999	.68	1980	10.3	6.7	2.7	.8	.83	1.16	1.68	2.14	2.60	3.09	3.64	4.29	5.15	6.52	7.80
May	5.30	5.54	3.18	1995	17	11.54	1995	.71	1998	12.0	7.9	3.9	1.7	1.38	1.88	2.65	3.33	3.99	4.70	5.48	6.40	7.61	9.52	11.30
Jun	5.63	4.41	5.92	1946	19	14.35	1977	2.05	1973	9.5	6.7	3.5	1.6	1.73	2.27	3.06	3.75	4.41	5.10	5.86	6.75	7.89	9.69	11.35
Jul	4.01	2.70	5.80	1949	7	18.30	1993	.23	1983	8.6	5.5	2.4	1.2	.37	.66	1.20	1.76	2.36	3.05	3.87	4.89	6.30	8.64	10.93
Aug	3.81	3.09	3.86	1939	2	10.94	1996	.61	1984	8.4	5.1	2.4	1.2	.75	1.09	1.65	2.17	2.69	3.24	3.88	4.64	5.65	7.26	8.80
Sep	4.54	3.62	4.96	1961	13	12.85	1973	.56	1990	8.5	5.8	2.8	1.5	.78	1.17	1.84	2.46	3.10	3.79	4.58	5.54	6.83	8.90	10.88
Oct	3.40	2.90	3.72	1985	10	10.11	1998	.25	1995	7.7	5.4	2.3	1.0	.49	.77	1.26	1.73	2.22	2.77	3.39	4.15	5.18	6.86	8.48
Nov	2.57	2.32	4.20	1958	17	6.21	1998	.00	1989	7.5	4.3	1.8	.8	.27	.58	1.01	1.38	1.76	2.16	2.62	3.18	3.91	5.09	6.22
Dec	1.80	1.56	3.05	1973	4	4.77	1971	.00	2000	6.1	3.7	1.3	.4	.06	.20	.45	.71	1.00	1.32	1.71	2.20	2.87	4.01	5.12
Ann	39.78	37.69	5.92	Jun 1946	19	18.30	Jul 1993	.00+	Dec 2000	100.0	63.2	26.3	11.0	24.28	27.11	30.83	33.71	36.32	38.87	41.55	44.54	48.22	53.64	58.41

+ 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:
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Station: LAWRENCE, KS

COOP ID: 144559

Climate Division: KS 6

NWS Call Sign:

Elevation: 980 Feet

Lat: 38°58N

Lon: 95°16W

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	6.5	3.8	1	#	9.6	1979	13	21.9+	1985	15	1979	15	8	1979	2.9	1.8	.6	.3	.0	7.4	3.9	2.5	.2
Feb	5.0	3.8	1	#	9.0	1978	12	17.5	1978	13	1980	10	5	1985	2.6	1.5	.6	.2	.0	5.3	3.0	2.0	.2
Mar	1.6	.0	#	#	7.5	1975	10	7.5	1975	9	1978	2	1	1978	.9	.7	.2	@	.0	1.1	.3	.1	.0
Apr	.3	.0	#	0	4.5	1983	4	4.5	1983	5	1983	4	#+	1997	.3	.1	@	.0	.0	.1	@	@	.0
May	.0	.0	0	0	.0	0	0	.0	0	0	0	0	0	0	.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	.0	.0	0	0	.0	0	0	.0	0	0	0	0	0	0	.0	.0	.0	.0	.0	.0	.0	.0	.0
Oct	.2	.0	#	0	7.0	1996	22	7.0	1996	4	1996	22	#	1996	.1	@	@	@	.0	@	@	.0	.0
Nov	1.1	.3	#	#	8.0	1975	26	8.0	1975	8	1975	26	1	1975	.9	.4	.1	@	.0	.5	.1	.1	.0
Dec	2.9	1.7	#	#	7.5	1978	31	10.6	1973	13	1983	22	5	1983	2.4	1.2	.3	.1	.0	3.3	.8	.3	.0
Ann	17.6	9.6	N/A	N/A	9.6	Jan 1979	13	21.9+	Jan 1985	15	Jan 1979	15	8	Jan 1979	10.1	5.7	1.8	.6	.0	17.7	8.1	5.0	.4

+ 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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Climate Division: KS 6

NWS Call Sign:

Elevation: 980 Feet

Lat: 38° 58N

Lon: 95° 16W

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	5/03	4/28	4/25	4/22	4/19	4/17	4/14	4/10	4/06
32	4/21	4/16	4/13	4/10	4/07	4/05	4/02	3/30	3/25
28	4/12	4/08	4/04	4/01	3/30	3/27	3/24	3/21	3/16
24	4/01	3/27	3/23	3/19	3/16	3/13	3/09	3/05	2/28
20	3/30	3/22	3/16	3/11	3/07	3/02	2/25	2/20	2/12
16	3/22	3/13	3/07	3/01	2/24	2/19	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	9/28	10/04	10/08	10/11	10/14	10/18	10/21	10/25	10/31
32	10/16	10/20	10/24	10/26	10/29	11/01	11/03	11/07	11/11
28	10/24	10/29	11/02	11/05	11/08	11/11	11/14	11/18	11/23
24	11/01	11/07	11/11	11/15	11/18	11/22	11/25	11/30	12/06
20	11/07	11/13	11/18	11/22	11/25	11/29	12/03	12/07	12/13
16	11/15	11/22	11/27	12/01	12/05	12/09	12/13	12/18	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	201	193	187	182	177	173	168	162	154
32	222	216	211	207	204	200	196	192	186
28	244	237	231	227	222	218	214	208	201
24	273	264	257	252	247	241	236	229	220
20	294	283	276	269	263	257	250	242	231
16	321	308	298	290	283	275	267	258	245

* 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:
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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	1089	819	581	273	91	5	0	5	43	204	604	971	4685
60	935	688	439	163	37	0	0	0	13	100	464	816	3655
57	847	610	357	112	19	0	0	0	5	59	383	727	3119
55	791	558	307	83	11	0	0	0	2	40	333	671	2796
50	646	437	201	33	2	0	0	0	0	12	225	527	2083
32	239	130	17	0	0	0	0	0	0	0	24	150	560

Base	Cooling Degree Days (1)												
Above	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Ann
32	172	235	461	739	1057	1292	1493	1445	1149	844	412	202	9501
55	11	19	37	132	355	602	780	732	461	171	31	10	3341
57	5	15	26	101	301	542	718	670	405	128	21	4	2936
60	1	9	14	62	226	452	625	577	323	77	12	0	2378
65	0	0	2	22	125	307	470	427	202	25	2	0	1582
70	0	0	0	5	56	178	320	287	112	5	0	0	963

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	108	264	510	818	1061	1256	1200	912	606	227	59	38	146	410	920	1738	2799	4055	5255	6167	6773	7000	7059
45	15	55	165	375	663	911	1101	1045	762	455	133	24	15	70	235	610	1273	2184	3285	4330	5092	5547	5680	5704
50	1	21	90	251	508	761	946	890	612	319	72	6	1	22	112	363	871	1632	2578	3468	4080	4399	4471	4477
55	0	6	48	149	359	611	791	735	467	197	31	1	0	6	54	203	562	1173	1964	2699	3166	3363	3394	3395
60	0	1	15	76	222	464	636	580	333	107	10	0	0	1	16	92	314	778	1414	1994	2327	2434	2444	2444
Base	Growing Degree Units for Corn (Monthly)												Growing Degree Units for Corn (Accumulated Monthly)											
50/86	27	69	164	306	517	727	860	817	603	367	124	36	27	96	260	566	1083	1810	2670	3487	4090	4457	4581	4617

(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.
Complete documentation for the 1971-2000 Normals is available on the internet from:
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">a. Temperature/ Precipitation Tables<ol style="list-style-type: none">1. 1971-2000 Monthly Normals2. Cooperative Summary of the Day3. National Weather Service station records4. 1971-2000 serially complete daily datab. Degree Day Table<ol style="list-style-type: none">1. Monthly and Annual Heating and Cooling Degree Days Normals to Selected Bases derived from 1971-2000 Monthly Normals2. Daily Normal Growing Degree Units to Selected Base Temperatures derived from 1971-2000 serially complete daily data | <ol style="list-style-type: none">c. Snow Tables<ol style="list-style-type: none">1. Snow Climatology2. Cooperative Summary of the Dayd. Freeze Data Table
1971-2000 serially complete daily data |
|---|---|

References

U.S. Climate Normals 1971-2000, www.ncdc.noaa.gov/normal.html
U.S. Climate Normals 1971-2000-Products Clim20, www.ncdc.noaa.gov/oa/climate/normal/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