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: KINGFISHER 2 SE, OK **COOP ID: 344861**

Climate Division: OK 5 **NWS Call Sign:** **Elevation: 1,100 Feet** **Lat: 35˚51N** **Lon: 97˚54W**

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	45.8	22.0	33.9	85	1911	31	42.3	1990	-16	1930	18	20.8	1979	965	0	.0	.0	15.0	4.6	24.9	.5
Feb	51.8	26.6	39.2	93	1918	23	49.0	1976	-20	1929	10	26.3	1978	724	0	.0	@	18.0	2.5	17.4	.2
Mar	60.5	34.6	47.6	100	1907	19	52.3	1974	-3	1960	3	41.2	1996	540	0	.0	.2	26.6	.5	9.5	.0
Apr	69.6	44.6	57.1	103	1972	12	64.4	1981	15	1936	3	51.1	1983	260	24	@	.6	29.5	.0	1.9	.0
May	78.7	56.2	67.5	105	1985	30	73.2	1996	28	1903	1	62.7	1976	61	136	.1	3.7	31.0	.0	.0	.0
Jun	88.1	65.3	76.7	113	1953	14	81.4	1990	35	1907	2	72.7	1982	2	353	1.3	16.3	30.0	.0	.0	.0
Jul	94.3	70.3	82.3	115	1954	14	87.3+	1998	51+	1915	5	79.5	1975	0	536	7.8	25.3	31.0	.0	.0	.0
Aug	93.3	68.3	80.8	118+	1936	11	86.5	2000	44	1915	31	74.5	1992	1	490	7.7	24.0	31.0	.0	.0	.0
Sep	84.6	60.2	72.4	110+	1939	1	80.9	1998	29	1912	26	64.4	1974	29	250	2.1	11.5	30.0	.0	@	.0
Oct	73.5	47.8	60.7	101+	1898	3	64.3	2000	12	1917	30	54.5	1976	168	35	@	1.6	30.7	.0	1.3	.0
Nov	59.1	34.9	47.0	90	1899	9	56.3	1999	6	1991	3	41.2	1976	541	0	.0	.0	24.0	.1	10.0	.0
Dec	48.7	25.6	37.2	88	1955	24	42.9	1999	-14	1989	23	23.7	1983	863	0	.0	.0	16.7	2.7	21.7	.3
Ann	70.7	46.4	58.5	118+	Aug 1936	11	87.3+	Jul 1998	-20	Feb 1929	10	20.8	Jan 1979	4154	1824	19.0	83.2	313.5	10.4	86.7	1.0

\+ 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: 1897-2001

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

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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	1.10	.87	1.97	1967	26	3.12	1973	.00+	1986
Feb	1.50	1.07	4.03	1898	9	4.48	1990	.07	1995
Mar	2.66	2.62	3.00	1974	10	5.94	1990	.02	1971
Apr	3.23	3.02	4.13	1897	27	9.69	1994	.05+	1989
May	5.01	4.70	4.96	1908	23	11.69	1980	.18	1988
Jun	4.32	3.77	4.49	1963	23	10.37	2000	.49	1998
Jul	2.22	1.99	3.45	1950	29	5.62	1996	.00+	1983
Aug	2.75	2.56	5.30	1926	30	8.00	1989	.09	2000
Sep	3.53	3.04	7.36	1961	13	9.74	1988	.02	2000
Oct	2.57	2.19	5.33	1955	3	9.30	1986	.24	1978
Nov	2.38	2.20	5.10	1994	20	6.73	1992	.03	1989
Dec	1.62	1.36	2.28	1911	9	4.34	1991	.00	1976
Ann	32.89	32.38	7.36	Sep 1961	13	11.69	May 1980	.00+	Jan 1986

Mean Number of Days (3)

Month	Daily Precipitation >= 0.01	>= 0.10	>= 0.50	>= 1.00
Jan	4.3	2.0	.7	.2
Feb	4.9	3.3	.9	.3
Mar	6.5	4.5	1.6	.8
Apr	6.6	4.7	2.1	1.0
May	8.4	6.5	3.4	1.7
Jun	8.0	6.1	3.0	1.6
Jul	4.9	3.7	1.5	.8
Aug	5.9	4.2	1.6	.8
Sep	6.4	4.8	2.2	1.1
Oct	5.1	3.6	1.7	.9
Nov	5.3	3.8	1.6	.6
Dec	4.4	3.1	1.0	.4
Ann	70.7	50.3	21.3	10.2

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	.07	.23	.40	.58	.79	1.04	1.36	1.80	2.53	3.26
Feb	.10	.20	.39	.59	.82	1.09	1.41	1.81	2.38	3.33	4.28
Mar	.16	.31	.64	1.00	1.41	1.89	2.47	3.21	4.26	6.03	7.80
Apr	.27	.49	.92	1.37	1.86	2.42	3.09	3.93	5.09	7.02	8.93
May	.93	1.38	2.11	2.79	3.48	4.23	5.08	6.10	7.46	9.65	11.73
Jun	.72	1.10	1.73	2.32	2.93	3.59	4.35	5.27	6.50	8.50	10.40
Jul	.00	.35	.78	1.14	1.49	1.86	2.28	2.77	3.44	4.52	5.54
Aug	.26	.45	.83	1.21	1.62	2.10	2.65	3.35	4.31	5.90	7.47
Sep	.31	.55	1.02	1.51	2.05	2.66	3.39	4.30	5.56	7.66	9.72
Oct	.34	.55	.92	1.27	1.65	2.06	2.55	3.14	3.94	5.25	6.52
Nov	.21	.38	.70	1.03	1.39	1.80	2.29	2.90	3.74	5.15	6.54
Dec	.07	.21	.45	.69	.95	1.24	1.58	2.00	2.58	3.54	4.47
Ann	23.24	25.10	27.49	29.30	30.92	32.48	34.09	35.87	38.04	41.18	43.89

\+ 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: 1897-2001
(3) Derived from 1971-2000 serially complete daily data

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Snow (inches)

Snow Totals

Means/Medians (1)

Extremes (2)

Mean Number of Days (1)

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	2.6	.7	#	0	9.5	1995	22	10.0	1988	10	1995	22	4	1985	.9	.5	.2	.1	.0	1.1	.5	.1	.0
Feb	.9	.0	#	0	6.7	1971	22	8.8	1971	8	1971	22	1	1971	.5	.3	.1	.1	.0	.4	.2	.1	.0
Mar	.1	.0	#	0	1.9	1974	21	1.9	1974	4	1988	3	#+	1998	.1	.1	.0	.0	.0	.1	.0	.0	.0
Apr	.0	.0	#	0	.5	1973	8	.5	1973	1	1973	8	#	1973	@	.0	.0	.0	.0	@	.0	.0	.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	#	.0	0	0	#	1993	30	#	1993	0	0	0	0	0	.0	.0	.0	.0	.0	.0	.0	.0	.0
Nov	.5	.0	#	0	4.0	2000	8	4.3	1972	4	2000	8	#+	2000	.2	.2	@	.0	.0	.2	.1	.0	.0
Dec	1.3	.0	#	0	4.7	1971	3	4.7	1971	6	1987	15	#+	2000	.6	.4	.2	.0	.0	.4	.1	.1	.0
Ann	5.4	.7	N/A	N/A	9.5	Jan 1995	22	10.0	Jan 1988	10	Jan 1995	22	4	Jan 1985	2.3	1.5	.5	.2	.0	2.2	.9	.3	.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	5/04	4/29	4/26	4/22	4/19	4/16	4/13	4/09	4/04
32	4/19	4/15	4/12	4/09	4/07	4/05	4/02	3/30	3/26
28	4/13	4/08	4/04	3/31	3/28	3/25	3/21	3/17	3/11
24	4/02	3/27	3/22	3/18	3/14	3/11	3/07	3/02	2/23
20	3/25	3/16	3/10	3/05	2/28	2/23	2/17	2/11	2/02
16	3/09	3/01	2/23	2/18	2/13	2/09	2/04	1/29	1/21

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	10/02	10/07	10/11	10/14	10/18	10/21	10/24	10/28	11/02
32	10/13	10/19	10/23	10/26	10/30	11/02	11/05	11/09	11/15
28	10/22	10/28	11/01	11/05	11/08	11/12	11/15	11/20	11/26
24	10/29	11/05	11/10	11/14	11/18	11/22	11/27	12/02	12/09
20	11/10	11/17	11/22	11/26	11/30	12/04	12/08	12/13	12/20
16	11/14	11/25	12/03	12/09	12/16	12/22	12/28	1/05	1/16

Freeze Free Period

Temp (F)	Probability of longer than indicated freeze free period (Days)								
	.10	.20	.30	.40	.50	.60	.70	.80	.90
36	200	193	189	184	180	177	172	167	161
32	226	219	214	209	205	200	196	190	183
28	247	239	234	229	225	220	216	210	202
24	275	266	259	253	248	243	237	231	222
20	310	298	289	282	275	268	261	252	240
16	341	323	314	307	301	294	288	280	269

***** 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	965	724	540	260	61	2	0	1	29	168	541	863	4154
60	811	594	388	152	20	0	0	0	8	74	398	708	3153
57	720	517	303	102	8	0	0	0	3	39	317	618	2627
55	660	467	250	74	4	0	0	0	0	24	267	560	2306
50	517	352	139	27	1	0	0	0	0	5	162	418	1621
32	132	80	4	0	0	0	0	0	0	0	8	74	298

Cooling Degree Days (1)

Base Above	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Ann
32	190	282	487	754	1099	1340	1559	1512	1211	890	457	233	10014
55	5	24	20	138	390	650	846	799	521	200	26	6	3625
57	3	18	11	106	332	590	784	737	464	154	16	2	3217
60	1	12	4	66	250	500	691	644	379	95	7	0	2649
65	0	0	0	24	136	353	536	490	250	35	0	0	1824
70	0	0	0	7	58	216	381	340	147	8	0	0	1157

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	83	168	363	594	896	1135	1339	1301	1017	702	295	107	83	251	614	1208	2104	3239	4578	5879	6896	7598	7893	8000
45	34	96	240	452	741	985	1184	1146	867	550	188	48	34	130	370	822	1563	2548	3732	4878	5745	6295	6483	6531
50	9	49	142	314	586	835	1029	991	717	401	106	15	9	58	200	514	1100	1935	2964	3955	4672	5073	5179	5194
55	1	18	75	196	432	685	874	836	569	267	47	5	1	19	94	290	722	1407	2281	3117	3686	3953	4000	4005
60	0	4	32	105	288	535	719	681	424	154	16	0	0	4	36	141	429	964	1683	2364	2788	2942	2958	2958
Base	**Growing Degree Units for Corn (Monthly)**												**Growing Degree Units for Corn (Accumulated Monthly)**											
50/86	74	132	240	385	588	765	879	857	666	447	187	82	74	206	446	831	1419	2184	3063	3920	4586	5033	5220	5302

(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:
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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