

Climatology of the United States

No. 20

1971-2000

Station: WEBSTER DAM, KS

COOP ID: 148648

Climate Division: KS 2

NWS Call Sign:

Elevation: 1,863 Feet Lat: 39° 24N

Lon: 99° 25W

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	40.0	13.4	26.7	77	1990	11	37.6	1986	-22	1974	1	13.7	1979	1187	0	.0	.0	9.3	9.9	30.6	4.6
Feb	45.6	17.5	31.6	84	1970	18	40.5	1991	-20	1985	2	17.5	1978	937	0	.0	.0	12.2	6.8	26.3	3.1
Mar	55.6	26.8	41.2	92+	1989	11	47.6	1986	-17+	1960	4	32.3	1975	738	0	.0	.1	19.8	2.1	22.0	.5
Apr	66.4	37.0	51.7	103	1989	23	61.0	1981	11+	1994	7	45.0	1997	407	8	@	1.1	26.4	.2	8.5	.0
May	75.3	48.2	61.8	102+	1967	25	66.6+	1998	26	1966	13	55.6	1995	161	60	.1	2.2	30.7	.0	.9	.0
Jun	86.8	58.3	72.6	112	1980	27	79.4	1988	38	1983	1	66.3	1982	28	254	2.5	12.3	30.0	.0	.0	.0
Jul	92.9	63.9	78.4	113	1985	9	83.3	1980	44+	1990	15	73.7	1992	0	415	6.9	21.4	31.0	.0	.0	.0
Aug	90.7	61.5	76.1	113	1983	16	84.5	1983	41	1974	4	69.2	1992	13	356	5.0	18.5	31.0	.0	.0	.0
Sep	82.0	51.4	66.7	108+	1976	6	73.4	1998	22	1984	30	60.0	1974	79	130	1.1	9.1	29.8	.0	.9	.0
Oct	70.0	38.6	54.3	98+	1997	3	58.9	1979	11	1993	31	47.9	1976	337	5	.0	1.4	29.1	.1	7.0	.0
Nov	53.1	25.5	39.3	87	1980	7	48.6	1999	-8	1975	27	31.3	1985	771	0	.0	.0	17.9	1.9	23.7	.4
Dec	42.8	17.5	30.2	78	1964	24	36.4	1999	-25	1989	23	11.2	1983	1081	0	.0	.0	10.2	6.7	30.0	2.2
Ann	66.8	38.3	52.6	113+	Jul 1985	9	84.5	Aug 1983	-25	Dec 1989	23	11.2	Dec 1983	5739	1228	15.6	66.1	277.4	27.7	149.9	10.8

+ 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: 1953-2001

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

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No. 20 1971-2000

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

Station: WEBSTER DAM, KS

COOP ID: 148648

Climate Division: KS 2

NWS Call Sign:

Elevation: 1,863 Feet Lat: 39°24N

Lon: 99°25W

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	.52	.31	.95	1994	27	1.62	1979	.00+	1997	3.3	1.5	.3	.0	.00	.04	.12	.21	.29	.39	.51	.65	.84	1.17	1.49
Feb	.68	.55	1.71	1971	19	2.37	1971	.00+	1991	3.0	1.6	.3	.1	.00	.03	.12	.21	.33	.46	.62	.83	1.12	1.62	2.12
Mar	1.89	1.26	2.06	1987	17	7.20	1987	.00	1994	5.6	3.9	1.1	.4	.05	.18	.44	.71	1.01	1.36	1.78	2.31	3.04	4.28	5.51
Apr	2.34	2.17	3.03	1977	20	6.25	1984	.22	1989	6.9	4.6	1.5	.4	.67	.89	1.23	1.52	1.80	2.10	2.43	2.82	3.32	4.11	4.84
May	4.14	3.37	5.20	1995	27	15.38	1995	1.07	1974	9.2	7.0	2.5	1.1	1.08	1.47	2.07	2.60	3.12	3.67	4.28	5.00	5.94	7.43	8.82
Jun	2.70	2.38	3.50	1999	10	8.24	1999	.58+	1985	7.2	5.0	1.6	.6	.56	.80	1.20	1.56	1.92	2.31	2.75	3.28	3.98	5.10	6.16
Jul	3.64	3.42	3.27	1982	1	14.87	1993	.18	1984	7.4	5.3	2.4	1.0	.26	.48	.95	1.45	2.00	2.65	3.43	4.41	5.79	8.10	10.39
Aug	3.11	2.68	7.02	1969	24	8.16	1989	.35	2000	6.6	5.3	2.1	.9	.53	.80	1.25	1.68	2.11	2.59	3.13	3.80	4.68	6.10	7.47
Sep	1.95	1.17	3.33	1981	7	8.86	1973	.18	1974	5.7	3.9	1.2	.4	.25	.41	.69	.96	1.24	1.56	1.93	2.38	2.99	4.00	4.97
Oct	1.42	.87	3.65	1979	30	4.87	1979	.02	1975	4.3	3.0	.9	.3	.08	.15	.32	.51	.73	.99	1.30	1.71	2.28	3.25	4.23
Nov	1.30	.95	4.25	1996	16	4.65	1996	.00+	1989	3.6	2.5	.9	.2	.00	.08	.28	.48	.69	.94	1.23	1.60	2.11	2.97	3.82
Dec	.61	.55	1.01	1953	3	2.14	1984	.00+	1998	2.7	1.7	.4	.0	.00	.00	.07	.18	.29	.42	.57	.76	1.03	1.48	1.92
Ann	24.30	23.55	7.02	Aug 1969	24	15.38	May 1995	.00+	Dec 1998	65.5	45.3	15.2	5.4	15.02	16.72	18.95	20.68	22.24	23.77	25.37	27.15	29.34	32.57	35.41

+ 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: 1953-2001

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

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

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Station: WEBSTER DAM, KS

COOP ID: 148648

Climate Division: KS 2

NWS Call Sign:

Elevation: 1,863 Feet

Lat: 39°24N

Lon: 99°25W

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	4.3	4.0	1	#	9.0	1994	27	18.0	1985	12	1974	12	8	1974	2.3	1.7	.5	.3	.0	7.4	3.2	1.6	1.0
Feb	4.9	3.3	1	0	10.0	1978	13	19.0	1978	18	1978	14	8	1978	2.0	1.6	.6	.5	@	4.2	2.0	1.5	.7
Mar	4.7	2.8	#	0	11.0	1987	24	27.0	1987	10	1975	10	2	1975	1.5	1.2	.5	.3	.1	2.3	1.1	.7	.1
Apr	.5	.0	#	0	9.0	1974	4	9.0	1974	7	1974	4	#+	1977	.2	.2	.1	.1	.0	.4	.2	.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	.1	.0	0	0	3.0	1985	29	3.0	1985	0	0	0	0	0	@	@	@	.0	.0	.0	.0	.0	.0
Oct	.1	.0	0	0	4.0	1991	31	4.0	1991	0	0	0	0	0	@	@	@	.0	.0	.0	.0	.0	.0
Nov	2.1	.3	#	0	8.0	1991	1	12.0	1975	12	1992	26	2	1985	.9	.7	.3	.1	.0	2.0	1.0	.5	.0
Dec	4.0	1.0	#	#	7.0	1983	28	18.0	1973	9	1973	31	4	1973	1.4	1.2	.4	.2	.0	4.0	2.3	1.6	.0
Ann	20.7	11.4	N/A	N/A	11.0	Mar 1987	24	27.0	Mar 1987	18	Feb 1978	14	8+	Feb 1978	8.3	6.6	2.4	1.5	.1	20.3	9.8	6.0	1.8

+ 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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No. 20 1971-2000

Station: WEBSTER DAM, KS

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Climate Division: KS 2

NWS Call Sign:

Elevation: 1,863 Feet

Lat: 39°24N

Lon: 99°25W

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	5/11	5/08	5/06	5/04	5/02	4/29	4/26
32	5/10	5/05	5/01	4/28	4/25	4/22	4/18	4/14	4/09
28	4/27	4/23	4/20	4/17	4/15	4/13	4/10	4/07	4/03
24	4/14	4/11	4/08	4/05	4/03	4/01	3/30	3/27	3/23
20	4/09	4/03	3/30	3/26	3/23	3/19	3/16	3/11	3/06
16	4/01	3/25	3/21	3/17	3/13	3/09	3/05	3/01	2/22
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	9/27	9/30	10/02	10/05	10/10
32	9/18	9/24	9/29	10/03	10/06	10/10	10/14	10/18	10/25
28	10/02	10/08	10/12	10/15	10/19	10/22	10/25	10/29	11/04
24	10/11	10/16	10/19	10/23	10/26	10/28	11/01	11/04	11/09
20	10/22	10/28	11/01	11/05	11/08	11/11	11/15	11/19	11/25
16	11/01	11/06	11/10	11/13	11/17	11/20	11/23	11/27	12/02
Freeze Free Period									
Temp (F)	Probability of longer than indicated freeze free period (Days)								
	.10	.20	.30	.40	.50	.60	.70	.80	.90
36	161	155	150	147	143	139	136	131	125
32	189	180	174	169	164	159	154	148	139
28	208	200	195	190	186	182	177	172	164
24	220	215	211	208	205	202	198	195	189
20	255	246	240	234	230	225	219	213	204
16	272	264	258	253	248	243	238	232	223

* 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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Climate Division: KS 2 NWS Call Sign: Elevation: 1,863 Feet Lat: 39° 24N Lon: 99° 25W

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	1187	937	738	407	161	28	0	13	79	337	771	1081	5739
60	1032	803	584	276	78	8	0	3	28	203	621	926	4562
57	940	725	498	208	45	3	0	0	13	136	535	833	3936
55	880	672	441	169	29	1	0	0	7	100	480	772	3551
50	735	546	307	89	7	0	0	0	0	40	346	628	2698
32	284	201	40	0	0	0	0	0	0	0	55	203	783

Base	Cooling Degree Days (1)												
Above	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Ann
32	120	187	325	591	922	1216	1438	1367	1041	691	275	145	8318
55	2	15	13	69	238	527	725	654	358	78	9	1	2689
57	1	12	9	48	192	469	663	592	304	52	4	0	2346
60	0	6	1	26	132	384	570	502	229	26	0	0	1876
65	0	0	0	8	60	254	415	356	130	5	0	0	1228
70	0	0	0	0	21	149	267	227	63	0	0	0	727

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	17	60	170	385	688	989	1206	1135	815	465	124	26	17	77	247	632	1320	2309	3515	4650	5465	5930	6054	6080
45	1	21	92	263	533	839	1051	980	667	332	61	5	1	22	114	377	910	1749	2800	3780	4447	4779	4840	4845
50	0	5	42	160	383	689	896	825	523	209	25	0	0	5	47	207	590	1279	2175	3000	3523	3732	3757	3757
55	0	0	13	87	248	542	741	670	381	115	4	0	0	0	13	100	348	890	1631	2301	2682	2797	2801	2801
60	0	0	2	40	140	394	586	515	259	50	0	0	0	0	2	42	182	576	1162	1677	1936	1986	1986	1986
Base	Growing Degree Units for Corn (Monthly)												Growing Degree Units for Corn (Accumulated Monthly)											
50/86	39	76	152	266	429	634	772	729	519	328	117	41	39	115	267	533	962	1596	2368	3097	3616	3944	4061	4102

(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