

# 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: WEEPING WATER, NE

1971-2000

COOP ID: 259090

Climate Division: NE 6

NWS Call Sign:

Elevation: 1,100 Feet Lat: 40° 52N

Lon: 96° 08W

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	32.5	11.7	22.1	70+	1989	31	33.5	1990	-26	1974	12	8.8	1979	1331	0	.0	.0	3.2	14.4	30.4	6.2
Feb	39.0	17.3	28.2	76+	1999	11	36.8	1998	-25	1971	8	14.4	1979	1032	0	.0	.0	7.2	9.2	25.6	3.4
Mar	50.5	28.0	39.3	89+	1986	29	44.8	2000	-22	1962	1	32.0	1975	798	0	.0	.0	16.8	2.4	20.8	.6
Apr	63.0	39.1	51.1	96	1989	24	58.5	1981	5	1975	3	44.8	1983	423	5	.0	.6	26.4	.1	7.2	.0
May	73.2	50.1	61.7	98+	2000	31	69.1	1977	25	1976	3	56.2	1997	166	62	.0	.6	31.0	.0	.6	.0
Jun	82.8	59.8	71.3	105	1953	18	75.3	1971	39+	1982	1	66.2	1982	14	202	.3	6.1	30.0	.0	.0	.0
Jul	86.5	64.6	75.6	109	1954	13	81.2	1974	41	1971	30	71.1	1992	2	330	1.7	11.6	31.0	.0	.0	.0
Aug	84.0	62.5	73.3	106	1983	16	80.6	1983	39	1950	20	67.9	1986	18	274	.7	8.9	31.0	.0	.0	.0
Sep	76.5	52.9	64.7	104+	1955	8	70.8	1998	24	1984	29	59.5	1993	92	82	.1	3.4	29.9	.0	.4	.0
Oct	65.4	40.4	52.9	94+	1963	6	58.0	1971	12	1972	19	47.4	1987	379	4	.0	.2	28.9	.0	6.0	.0
Nov	48.2	27.0	37.6	82+	1999	14	46.4	1999	-10	1964	30	28.9	1985	822	0	.0	.0	14.7	2.8	21.0	.2
Dec	35.4	16.2	25.8	69	1998	2	31.8	1991	-29	1989	23	8.7	1983	1215	0	.0	.0	4.1	10.7	29.6	3.5
Ann	61.4	39.1	50.3	109	Jul 1954	13	81.2	Jul 1974	-29	Dec 1989	23	8.7	Dec 1983	6292	959	2.8	31.4	254.2	39.6	141.6	13.9

+ 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: 1948-2001

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

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**Station: WEEPING WATER, NE**

**COOP ID: 259090**

**Climate Division: NE 6**

**NWS Call Sign:**

**Elevation: 1,100 Feet Lat: 40°52N**

**Lon: 96°08W**

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	.87	.72	1.28	1949	27	2.05	1975	.00	1986	4.9	2.4	.4	.0	.08	.18	.32	.45	.58	.72	.88	1.08	1.34	1.76	2.16
Feb	.91	.84	1.58	1965	11	2.61	1971	.04	1977	5.3	2.5	.4	@	.12	.19	.32	.45	.58	.73	.90	1.11	1.39	1.86	2.31
Mar	2.38	2.40	2.40	1957	24	6.57	1973	.02	1994	7.7	5.0	1.8	.6	.17	.32	.62	.95	1.32	1.74	2.25	2.89	3.79	5.30	6.79
Apr	3.17	2.65	2.21	1978	9	7.49	1978	.34	1971	9.1	6.0	2.3	.6	.67	.96	1.43	1.85	2.27	2.72	3.24	3.85	4.66	5.95	7.17
May	4.86	4.22	5.93	1987	26	10.81	1982	.82	1989	12.0	8.1	3.3	1.3	1.39	1.85	2.55	3.15	3.74	4.36	5.04	5.85	6.89	8.53	10.05
Jun	4.36	3.54	7.42	1984	12	11.87	1984	.79	1973	8.7	6.2	2.7	1.1	.81	1.20	1.84	2.43	3.03	3.68	4.42	5.31	6.49	8.39	10.19
Jul	4.59	3.19	7.49	1990	25	19.00	1993	.34	1974	8.4	5.7	2.8	1.0	.50	.85	1.49	2.13	2.81	3.58	4.49	5.61	7.14	9.67	12.13
Aug	3.86	2.96	5.53	1987	25	11.09	1987	.73	1973	8.2	5.8	2.5	1.1	.58	.91	1.47	2.00	2.55	3.16	3.86	4.71	5.86	7.73	9.52
Sep	3.24	2.46	6.83	1989	8	10.55	1973	.46	1974	7.4	5.2	2.0	.6	.45	.71	1.18	1.63	2.10	2.62	3.22	3.96	4.95	6.58	8.15
Oct	2.54	2.38	3.37	1961	10	6.39	1986	.00	1999	6.2	4.3	1.7	.7	.19	.46	.87	1.24	1.63	2.05	2.54	3.14	3.94	5.24	6.50
Nov	1.84	1.70	2.41	1996	16	4.53	1971	.00+	1980	6.4	3.9	1.2	.4	.00	.31	.68	.98	1.27	1.57	1.91	2.30	2.84	3.70	4.51
Dec	1.05	.86	2.40	1984	15	4.13	1984	.07	1976	5.9	2.8	.5	.1	.16	.25	.40	.54	.69	.86	1.05	1.28	1.59	2.10	2.59
Ann	33.67	31.19	7.49	Jul 1990	25	19.00	Jul 1993	.00+	Oct 1999	90.2	57.9	21.6	7.5	20.94	23.28	26.34	28.71	30.85	32.94	35.13	37.57	40.57	44.98	48.85

+ 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: NE 6**

**NWS Call Sign:**

**Elevation: 1,100 Feet**

**Lat: 40°52N**

**Lon: 96°08W**

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	7.9	7.0	3	1	14.0	1975	11	22.3	1975	17	1974	12	16	1974	3.4	2.7	1.1	.4	.1	14.0	10.9	7.8	2.0
Feb	6.9	5.6	2	1	12.0	1971	22	18.5	1978	15	1978	13	9	1978	3.0	2.5	.9	.3	.1	10.9	7.9	5.5	1.3
Mar	3.8	3.6	1	#	12.0	1998	8	14.2	1998	14	1998	9	5	1998	1.5	1.4	.4	.2	@	3.3	2.0	1.2	.5
Apr	1.3	.0	#	0	13.0	1992	20	13.0	1992	13	1992	20	1+	1997	.4	.2	.1	.1	@	.3	.2	.2	.1
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	.8	.0	#	0	11.5	1997	26	11.5	1997	11	1997	26	1	1997	.2	.2	.1	@	@	.3	.2	.2	@
Nov	2.0	.1	#	0	9.0	1983	27	10.0	1983	5	1991	23	1	1991	.8	.7	.3	.1	.0	.9	.3	.0	.0
Dec	6.3	5.5	1	#	12.0	1973	19	18.5	1973	13	1973	19	6	2000	2.7	2.0	.7	.1	.1	3.8	1.6	.7	.0
Ann	29.0	21.8	N/A	N/A	14.0	Jan 1975	11	22.3	Jan 1975	17	Jan 1974	12	16	Jan 1974	12.0	9.7	3.6	1.2	.3	33.5	23.1	15.6	3.9

+ 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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**Lon: 96° 08W**

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	5/20	5/14	5/11	5/08	5/05	5/02	4/29	4/25	4/20
32	5/12	5/07	5/03	4/30	4/27	4/24	4/21	4/17	4/12
28	5/01	4/26	4/23	4/20	4/18	4/15	4/12	4/09	4/04
24	4/15	4/11	4/08	4/06	4/03	4/01	3/30	3/27	3/23
20	4/11	4/05	4/01	3/29	3/25	3/22	3/19	3/15	3/09
16	3/28	3/23	3/19	3/15	3/12	3/09	3/05	3/01	2/24
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	9/13	9/17	9/20	9/23	9/25	9/27	9/30	10/03	10/07
32	9/20	9/25	9/29	10/02	10/05	10/08	10/11	10/15	10/20
28	10/02	10/07	10/11	10/14	10/16	10/19	10/22	10/26	10/31
24	10/12	10/18	10/22	10/26	10/30	11/02	11/06	11/11	11/17
20	10/18	10/24	10/28	11/01	11/05	11/08	11/12	11/17	11/23
16	11/03	11/09	11/13	11/17	11/20	11/23	11/27	12/01	12/07
Freeze Free Period									
Temp (F)	Probability of longer than indicated freeze free period (Days)								
	.10	.20	.30	.40	.50	.60	.70	.80	.90
36	163	156	151	147	143	139	134	129	122
32	182	175	169	165	160	156	152	146	139
28	199	193	188	185	181	178	174	169	163
24	230	223	218	213	209	205	200	195	188
20	249	240	234	229	224	219	213	207	198
16	276	268	262	257	252	247	242	236	228

\* 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	1331	1032	798	423	166	14	2	18	92	379	822	1215	6292
60	1176	892	643	287	84	2	0	4	32	242	672	1060	5094
57	1083	811	553	216	50	0	0	0	14	173	584	967	4451
55	1021	760	497	174	34	0	0	0	7	133	527	905	4058
50	870	629	357	90	10	0	0	0	0	62	391	755	3164
32	388	246	56	0	0	0	0	0	0	0	72	289	1051

Base	Cooling Degree Days (1)												
Above	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Ann
32	80	138	280	572	919	1178	1351	1279	980	648	239	97	7761
55	0	8	8	55	240	488	638	566	297	68	5	0	2373
57	0	2	3	37	194	429	576	505	244	46	2	0	2038
60	0	0	0	19	135	340	483	415	173	22	0	0	1587
65	0	0	0	5	62	202	330	274	82	4	0	0	959
70	0	0	0	0	21	93	192	159	30	0	0	0	495

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	3	34	141	380	697	962	1120	1059	771	437	107	10	3	37	178	558	1255	2217	3337	4396	5167	5604	5711	5721
45	0	10	76	255	543	812	965	904	622	302	48	2	0	10	86	341	884	1696	2661	3565	4187	4489	4537	4539
50	0	1	37	153	391	662	810	749	477	183	17	0	0	1	38	191	582	1244	2054	2803	3280	3463	3480	3480
55	0	0	8	83	252	513	655	594	338	94	4	0	0	0	8	91	343	856	1511	2105	2443	2537	2541	2541
60	0	0	3	37	137	365	500	440	217	39	0	0	0	0	3	40	177	542	1042	1482	1699	1738	1738	1738
Base	Growing Degree Units for Corn (Monthly)												Growing Degree Units for Corn (Accumulated Monthly)											
50/86	8	37	106	242	435	638	763	711	496	282	77	14	8	45	151	393	828	1466	2229	2940	3436	3718	3795	3809

(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> |
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## 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)