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: UNION 8 SW, SC **COOP ID: 388786**

Climate Division: SC 2 **NWS Call Sign:** **Elevation: 560 Feet** **Lat: 34˚39N** **Lon: 81˚45W**

Temperature (˚F)

Month	Mean (1)			Extremes										Degree Days (1) Base Temp 65		Mean Number of Days (3)					
	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	51.9	26.8	39.4	79+	1952	3	51.7	1974	-1	1985	21	29.9	1977	796	0	.0	.0	18.2	.9	21.1	@
Feb	56.8	28.2	42.5	83+	1996	28	49.2	1976	3+	1966	1	35.2	1978	631	0	.0	.0	19.8	.5	18.9	.0
Mar	65.0	35.1	50.1	90	1995	24	55.3	1974	9	1960	6	44.9	1971	466	2	.0	@	28.3	.1	12.1	.0
Apr	73.9	42.5	58.2	95	1980	24	62.7	1999	21	1950	7	52.9	1983	220	15	.0	.7	29.5	.0	3.8	.0
May	80.7	52.1	66.4	98	1962	28	70.9	2000	29+	1989	9	62.1	1997	69	113	.0	2.9	31.0	.0	.1	.0
Jun	87.2	61.3	74.3	106	1954	28	79.0	1981	40+	1984	1	70.4	1972	3	281	.2	11.2	30.0	.0	.0	.0
Jul	90.6	66.0	78.3	108	1952	29	83.1	1993	50	1951	7	75.0	1979	0	413	1.6	19.4	31.0	.0	.0	.0
Aug	88.9	64.9	76.9	107	1954	18	80.5+	1999	46+	1968	31	73.9	1994	0	369	1.1	14.4	31.0	.0	.0	.0
Sep	83.1	58.0	70.6	102	1954	7	74.9	1980	35	1967	30	67.8	1994	15	181	.0	6.0	30.0	.0	.0	.0
Oct	73.5	44.4	59.0	100	1954	6	65.6	1984	18	1965	30	52.1	1987	222	33	.0	.3	30.9	.0	2.7	.0
Nov	63.8	35.5	49.7	87+	1974	4	58.2	1985	10+	1970	26	44.0	1976	463	2	.0	.0	27.7	.0	12.1	.0
Dec	54.8	28.8	41.8	80+	1970	1	49.7	1971	0	1962	13	34.4	1989	719	0	.0	.0	20.7	.3	19.9	.0
Ann	72.5	45.3	58.9	108	Jul 1952	29	83.1	Jul 1993	-1	Jan 1985	21	29.9	Jan 1977	3604	1409	2.9	54.9	328.1	1.8	90.7	@

+ 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: 1949-2001

(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	5.18	5.46	4.03	1995	15	8.68	1995	.35	1981
Feb	4.27	4.59	2.44	1981	11	7.66	1984	.27	1978
Mar	5.29	5.04	3.15	1971	3	11.58	1980	1.00	1985
Apr	3.42	3.33	3.34	1992	22	9.62	1998	.76	1995
May	3.53	3.06	2.97	1975	4	10.63	1976	.24	2000
Jun	3.98	4.08	3.79	1995	22	9.71	1995	.46	1993
Jul	3.90	3.70	5.55	1997	24	8.72	1971	.22	1993
Aug	3.95	3.26	6.60	1991	12	12.19	1986	.40	1997
Sep	3.86	3.62	5.55	1973	14	8.14	1976	.11	1985
Oct	4.12	3.39	7.33	1990	12	14.20	1990	.00	2000
Nov	3.77	3.27	5.04	1985	21	14.45	1985	.86	1981
Dec	3.84	3.71	2.85	1972	15	9.06	1983	.78	1985
Ann	49.11	49.11	7.33	Oct 1990	12	14.45	Nov 1985	.00	Oct 2000

Mean Number of Days (3)

Daily Precipitation

Month	>= 0.01	>= 0.10	>= 0.50	>= 1.00
Jan	9.9	7.7	3.7	1.6
Feb	8.6	6.6	3.1	1.5
Mar	9.4	7.6	3.6	1.5
Apr	7.4	5.2	2.5	1.1
May	8.2	6.4	2.5	.8
Jun	8.8	6.1	2.8	1.2
Jul	9.3	7.1	2.5	.9
Aug	7.5	5.3	2.4	1.1
Sep	7.4	5.3	2.2	1.2
Oct	5.9	4.6	2.5	1.4
Nov	7.7	5.9	2.7	1.0
Dec	9.9	6.8	2.5	.9
Ann	100.0	74.6	33.0	14.2

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	1.64	2.13	2.86	3.49	4.09	4.71	5.40	6.20	7.23	8.84	10.33
Feb	1.07	1.47	2.09	2.64	3.18	3.76	4.40	5.16	6.16	7.73	9.21
Mar	1.58	2.08	2.84	3.48	4.11	4.77	5.49	6.34	7.44	9.16	10.76
Apr	.84	1.16	1.66	2.10	2.54	3.00	3.52	4.13	4.94	6.21	7.41
May	.70	1.02	1.54	2.01	2.49	3.01	3.59	4.29	5.22	6.71	8.12
Jun	.98	1.36	1.94	2.45	2.96	3.50	4.10	4.81	5.74	7.22	8.60
Jul	.91	1.27	1.84	2.35	2.86	3.40	4.00	4.73	5.67	7.18	8.59
Aug	.56	.88	1.45	2.00	2.58	3.21	3.94	4.83	6.04	8.01	9.90
Sep	.82	1.17	1.73	2.25	2.77	3.32	3.94	4.69	5.67	7.25	8.73
Oct	.25	.66	1.30	1.91	2.55	3.25	4.07	5.08	6.45	8.69	10.86
Nov	1.06	1.42	1.96	2.43	2.89	3.37	3.90	4.53	5.35	6.62	7.81
Dec	1.04	1.41	1.96	2.45	2.92	3.42	3.98	4.63	5.49	6.83	8.08
Ann	36.26	38.78	41.99	44.41	46.55	48.62	50.74	53.08	55.91	60.00	63.51

\+ 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: 1949-2001
(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	2.4	.7	#	0	7.0	2000	25	8.1	2000	6	2000	25	1	2000	.8	.8	.4	.2	.0	.5	.3	.1	.0
Feb	2.2	.0	#	0	4.0	1973	10	9.0	1979	5	1979	19	1	1979	.7	.7	.5	.0	.0	.2	.2	@	.0
Mar	.4	.0	0	0	4.0	1993	14	4.0	1993	0	0	0	0	0	.2	.2	.2	.0	.0	.0	.0	.0	.0
Apr	.0	.0	0	0	.0	0	0	.0	0	0	0	0	0	0	.0	.0	.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	0	.0	0	0	.0	0	0	0	0	0	0	.0	.0	.0	.0	.0	.0	.0	.0	.0
Nov	.0	.0	0	0	.0	0	0	.0	0	0	0	0	0	0	.0	.0	.0	.0	.0	.0	.0	.0	.0
Dec	1.0	.0	#	0	10.0	1971	4	10.0	1971	10	1971	4	#+	1993	.2	.2	.1	.1	.1	@	@	@	@
Ann	6.0	.7	N/A	N/A	10.0	Dec 1971	4	10.0	Dec 1971	10	Dec 1971	4	1+	Jan 2000	1.9	1.9	1.2	.3	.1	.7	.5	.1	@

+ Also occurred on an earlier date(s) #Denotes trace amounts

(1) Derived from Snow Climatology and 1971-2000 daily data

@ Denotes mean number of days greater than 0 but less than .05

(2) Derived from 1971-2000 daily data

-9/-9.9 represents missing values

Annual statistics for Mean/Median snow depths are not appropriate

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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	5/12	5/08	5/04	5/02	4/29	4/26	4/23	4/20	4/15
32	4/27	4/22	4/18	4/16	4/13	4/10	4/07	4/03	3/30
28	4/13	4/08	4/04	4/01	3/29	3/26	3/23	3/19	3/14
24	3/28	3/23	3/20	3/17	3/15	3/12	3/09	3/06	3/01
20	3/17	3/09	3/03	2/26	2/22	2/17	2/12	2/06	1/29
16	3/12	3/02	2/24	2/18	2/12	2/07	2/01	1/26	1/16

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	10/03	10/07	10/10	10/13	10/15	10/18	10/20	10/24	10/28
32	10/09	10/15	10/20	10/24	10/27	10/31	11/04	11/09	11/15
28	10/19	10/26	10/30	11/03	11/06	11/10	11/14	11/18	11/24
24	11/07	11/11	11/15	11/18	11/20	11/23	11/26	11/29	12/04
20	11/18	11/25	11/30	12/05	12/09	12/13	12/18	12/23	12/31
16	11/27	12/08	12/16	12/23	12/29	1/05	1/12	1/20	1/31

Freeze Free Period

Temp (F)	Probability of longer than indicated freeze free period (Days)								
	.10	.20	.30	.40	.50	.60	.70	.80	.90
36	188	181	176	172	169	165	161	156	150
32	217	210	205	201	197	193	189	184	177
28	244	237	231	226	222	217	213	207	199
24	266	261	257	253	250	247	244	240	234
20	320	310	302	296	290	284	278	270	260
16	>365	335	324	317	311	306	300	293	284

***** 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	796	631	466	220	69	3	0	0	15	222	463	719	3604
60	642	491	321	111	21	0	0	0	2	122	323	564	2597
57	557	408	242	65	8	0	0	0	1	79	247	478	2085
55	499	357	196	42	4	0	0	0	0	56	201	420	1775
50	362	231	103	10	0	0	0	0	0	19	110	285	1120
32	55	11	0	0	0	0	0	0	0	0	1	24	91

Cooling Degree Days (1)

Base Above	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Ann
32	283	303	559	785	1068	1267	1436	1392	1156	834	530	328	9941
55	13	6	42	137	359	577	723	679	466	178	40	11	3231
57	9	1	26	100	301	517	661	617	406	138	26	7	2809
60	1	0	12	57	221	427	568	524	318	88	12	0	2228
65	0	0	2	15	113	281	413	369	181	33	2	0	1409
70	0	0	0	2	44	150	259	219	73	8	0	0	755

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	114	167	348	563	837	1038	1199	1153	928	604	324	157	114	281	629	1192	2029	3067	4266	5419	6347	6951	7275	7432
45	57	89	222	417	682	888	1044	998	778	450	203	80	57	146	368	785	1467	2355	3399	4397	5175	5625	5828	5908
50	27	40	125	283	527	738	889	843	628	305	114	37	27	67	192	475	1002	1740	2629	3472	4100	4405	4519	4556
55	2	15	57	166	374	588	734	688	478	184	53	16	2	17	74	240	614	1202	1936	2624	3102	3286	3339	3355
60	0	1	24	86	234	438	579	533	333	88	17	1	0	1	25	111	345	783	1362	1895	2228	2316	2333	2334
Base	**Growing Degree Units for Corn (Monthly)**												**Growing Degree Units for Corn (Accumulated Monthly)**											
50/86	92	138	256	382	550	697	805	782	616	402	232	117	92	230	486	868	1418	2115	2920	3702	4318	4720	4952	5069

(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

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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