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: MONROE 4 SE, NC **COOP ID: 315771**

Climate Division: NC 5 **NWS Call Sign:** **Elevation: 580 Feet** **Lat: 34˚58N** **Lon: 80˚30W**

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	52.0	31.0	41.5	82	1944	28	53.3	1974	-5	1985	21	31.3	1977	729	0	.0	.0	18.0	1.0	17.2	@
Feb	56.8	33.2	45.0	81	1996	27	52.6	1976	-3	1936	1	36.7	1978	561	0	.0	.0	20.1	.5	14.1	.0
Mar	64.9	40.3	52.6	91	1935	21	57.7	1997	5	1980	3	48.2	1996	389	5	.0	.0	29.0	.1	7.6	.0
Apr	73.6	47.2	60.4	93	1946	3	64.6	1981	23	1943	4	56.3	1983	159	20	.0	.1	29.8	.0	1.9	.0
May	80.1	56.1	68.1	102	1941	29	71.9	1991	31+	1966	11	64.3	1992	39	135	.0	1.6	31.0	.0	.1	.0
Jun	86.6	64.1	75.4	106	1933	21	79.8	1981	43+	1972	12	71.8	1979	2	312	.1	9.0	30.0	.0	.0	.0
Jul	89.7	68.2	79.0	106+	1952	21	83.3	1993	48	1933	5	76.3	1984	0	432	.8	16.3	31.0	.0	.0	.0
Aug	87.9	66.7	77.3	107	1983	21	81.8	1980	47+	1976	31	74.8	1992	0	381	.6	12.3	31.0	.0	.0	.0
Sep	82.6	60.6	71.6	102+	1954	6	75.1	1980	35	1942	30	68.5	1994	9	206	.0	4.1	30.0	.0	.0	.0
Oct	73.3	48.0	60.7	100	1954	6	67.3	1984	19	1962	27	54.9	1988	179	44	.0	.2	31.0	.0	1.7	.0
Nov	63.6	39.6	51.6	88	1950	1	59.8	1985	11	1970	25	45.6	1976	406	3	.0	.0	27.7	.0	8.5	.0
Dec	54.8	33.2	44.0	80	1943	9	52.4	1971	-1	1958	12	35.2	2000	652	0	.0	.0	20.7	.3	15.6	.0
Ann	72.2	49.0	60.6	107	Aug 1983	21	83.3	Jul 1993	-5	Jan 1985	21	31.3	Jan 1977	3125	1538	1.5	43.6	329.3	1.9	66.7	@

\+ 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: 1933-2001

(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	4.71	4.40	3.62	1984	11	9.81	1998	.48	1981
Feb	3.81	4.04	2.65	1984	14	7.01	1982	.63	1978
Mar	4.85	4.44	3.93	1989	24	9.86	1980	1.30	1985
Apr	3.02	3.13	3.49	1973	1	6.08	1991	.48	1976
May	3.53	3.41	3.11	1990	28	7.00	1990	.95	1987
Jun	4.32	4.38	3.25	1951	30	8.99	1973	.35	1990
Jul	4.63	4.20	4.90	1959	10	9.70	1978	.75	1983
Aug	4.53	3.81	5.01	1983	24	13.66	1986	.32	1997
Sep	4.38	3.49	6.74	1998	4	11.36	1999	.05	1985
Oct	4.04	3.37	7.72	1990	11	15.94	1990	.00+	2000
Nov	3.33	3.01	2.69	1948	28	6.70	1979	.35	1973
Dec	3.58	3.23	3.65	1972	15	9.07	1972	.92	1985
Ann	48.73	47.87	7.72	Oct 1990	11	15.94	Oct 1990	.00+	Oct 2000

Mean Number of Days (3)

Daily Precipitation

Month	>= 0.01	>= 0.10	>= 0.50	>= 1.00
Jan	9.9	7.7	3.6	1.3
Feb	8.4	6.5	2.6	1.1
Mar	9.1	7.7	3.4	1.1
Apr	7.0	5.7	2.3	.7
May	8.0	6.7	2.5	.9
Jun	8.1	6.8	3.2	1.4
Jul	9.4	7.3	3.2	1.2
Aug	8.1	6.1	2.7	1.3
Sep	6.8	5.4	2.7	1.4
Oct	5.8	4.7	2.6	1.3
Nov	7.5	5.5	2.5	.9
Dec	8.3	6.6	2.4	1.0
Ann	96.4	76.7	33.7	13.6

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	1.53	1.98	2.63	3.19	3.73	4.29	4.90	5.62	6.54	7.97	9.29
Feb	1.10	1.46	2.01	2.48	2.94	3.42	3.95	4.58	5.39	6.66	7.84
Mar	1.63	2.09	2.76	3.33	3.88	4.44	5.06	5.78	6.70	8.14	9.46
Apr	.62	.90	1.34	1.75	2.16	2.59	3.09	3.68	4.46	5.71	6.89
May	1.07	1.41	1.91	2.34	2.76	3.19	3.67	4.23	4.95	6.08	7.13
Jun	1.15	1.56	2.19	2.73	3.27	3.84	4.47	5.21	6.18	7.70	9.13
Jul	1.06	1.49	2.17	2.78	3.39	4.03	4.75	5.62	6.76	8.56	10.26
Aug	.75	1.15	1.81	2.43	3.07	3.76	4.56	5.53	6.82	8.92	10.92
Sep	.40	.71	1.30	1.90	2.57	3.32	4.22	5.34	6.87	9.44	11.96
Oct	.00	.63	1.43	2.08	2.72	3.40	4.16	5.06	6.27	8.23	10.09
Nov	1.01	1.33	1.80	2.21	2.60	3.01	3.46	3.99	4.67	5.74	6.73
Dec	.90	1.24	1.76	2.22	2.68	3.16	3.69	4.33	5.16	6.47	7.70
Ann	38.56	40.61	43.19	45.12	46.81	48.44	50.09	51.91	54.09	57.21	59.87

+ 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: 1933-2001
(3) Derived from 1971-2000 serially complete daily data

Complete documentation available from:
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Snow (inches)

Snow Totals

Means/Medians (1)

Month	Snow Fall Mean	Snow Fall Median	Snow Depth Mean	Snow Depth Median
Jan	.6	.0	#	0
Feb	1.3	.0	#	0
Mar	.8	.0	#	0
Apr	#	.0	0	0
May	.0	.0	0	0
Jun	.0	.0	0	0
Jul	.0	.0	0	0
Aug	.0	.0	0	0
Sep	.0	.0	0	0
Oct	.0	.0	0	0
Nov	.0	.0	#	0
Dec	.5	.0	#	0
Ann	3.2	.0	N/A	N/A

Extremes (2)

Month	Highest Daily Snow Fall	Year	Day	Highest Monthly Snow Fall	Year	Highest Daily Snow Depth	Year	Day	Highest Monthly Mean Snow Depth	Year
Jan	13.0	2000	25	13.0	2000	12	2000	26	3	2000
Feb	5.0	1979	19	11.0	1979	9	1979	19	1+	2000
Mar	5.0	1980	3	6.3	1980	5	1980	3	#+	1993
Apr	#	1982	8	#	1982	0	0	0	0	0
May	.0	0	0	.0	0	0	0	0	0	0
Jun	.0	0	0	.0	0	0	0	0	0	0
Jul	.0	0	0	.0	0	0	0	0	0	0
Aug	.0	0	0	.0	0	0	0	0	0	0
Sep	.0	0	0	.0	0	0	0	0	0	0
Oct	.0	0	0	.0	0	0	0	0	0	0
Nov	.5	2000	20	.5	2000	#	2000	20	#	2000
Dec	6.0	1971	4	6.5	1971	7	1971	4	#+	1998
Ann	13.0	Jan 2000	25	13.0	Jan 2000	12	Jan 2000	26	3	Jan 2000

Mean Number of Days (1)

Snow Fall >= Thresholds

Month	0.1	1.0	3.0	5.0	10.0
Jan	.6	.4	.2	.1	@
Feb	.7	.3	.1	@	.0
Mar	.3	.2	.1	@	.0
Apr	.0	.0	.0	.0	.0
May	.0	.0	.0	.0	.0
Jun	.0	.0	.0	.0	.0
Jul	.0	.0	.0	.0	.0
Aug	.0	.0	.0	.0	.0
Sep	.0	.0	.0	.0	.0
Oct	.0	.0	.0	.0	.0
Nov	@	.0	.0	.0	.0
Dec	.3	.1	.1	@	.0
Ann	1.9	1.0	.5	.1	@

Snow Depth >= Thresholds

Month	1	3	5	10
Jan	.9	.6	.2	.2
Feb	.9	.6	.1	.0
Mar	.3	.2	@	.0
Apr	.0	.0	.0	.0
May	.0	.0	.0	.0
Jun	.0	.0	.0	.0
Jul	.0	.0	.0	.0
Aug	.0	.0	.0	.0
Sep	.0	.0	.0	.0
Oct	.0	.0	.0	.0
Nov	.0	.0	.0	.0
Dec	.1	.0	.0	.0
Ann	2.2	1.4	.3	.2

+ 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	5/07	5/02	4/29	4/25	4/23	4/20	4/17	4/13	4/08
32	4/28	4/22	4/18	4/15	4/12	4/08	4/05	4/01	3/26
28	4/09	4/04	3/31	3/27	3/24	3/21	3/17	3/13	3/07
24	3/25	3/19	3/14	3/10	3/06	3/02	2/26	2/21	2/15
20	3/12	3/05	2/28	2/23	2/19	2/15	2/11	2/06	1/29
16	3/02	2/20	2/13	2/06	1/31	1/25	1/17	1/07	0/00

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	10/04	10/09	10/12	10/15	10/18	10/21	10/23	10/27	11/01
32	10/12	10/16	10/19	10/22	10/25	10/28	10/30	11/03	11/07
28	10/22	10/28	11/01	11/04	11/07	11/11	11/14	11/18	11/24
24	11/04	11/10	11/15	11/19	11/22	11/26	11/30	12/05	12/11
20	11/19	11/27	12/02	12/07	12/11	12/16	12/20	12/26	1/03
16	12/03	12/14	12/22	12/29	1/05	1/12	1/20	1/31	0/00

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	192	186	182	177	173	168	163	155
32	219	211	205	200	196	191	186	180	172
28	251	243	237	232	228	223	218	213	205
24	284	276	270	265	261	256	251	245	237
20	322	312	305	300	294	289	283	276	267
16	>365	>365	>365	342	330	321	312	303	291

***** 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	729	561	389	159	39	2	0	0	9	179	406	652	3125
60	582	422	252	65	8	0	0	0	1	90	271	504	2195
57	495	345	183	32	2	0	0	0	0	54	199	418	1728
55	439	294	143	17	0	0	0	0	0	36	158	362	1449
50	311	182	68	3	0	0	0	0	0	10	78	240	892
32	40	7	0	0	0	0	0	0	0	0	0	19	66

Cooling Degree Days (1)

Base Above	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Ann
32	335	370	639	852	1119	1300	1455	1404	1187	888	587	390	10526
55	20	13	69	179	407	610	742	691	497	210	55	21	3514
57	14	8	46	133	346	550	680	629	437	167	36	14	3060
60	8	1	23	77	259	460	587	536	348	110	18	7	2434
65	0	0	5	20	135	312	432	381	206	44	3	0	1538
70	0	0	0	2	53	175	278	230	90	12	0	0	840

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	152	214	416	625	879	1073	1216	1170	959	653	374	199	152	366	782	1407	2286	3359	4575	5745	6704	7357	7731	7930
45	77	127	280	478	724	923	1061	1015	809	499	248	115	77	204	484	962	1686	2609	3670	4685	5494	5993	6241	6356
50	36	66	167	335	569	773	906	860	659	354	144	59	36	102	269	604	1173	1946	2852	3712	4371	4725	4869	4928
55	12	29	86	204	414	623	751	705	510	222	77	30	12	41	127	331	745	1368	2119	2824	3334	3556	3633	3663
60	1	5	37	115	276	473	596	550	365	117	30	5	1	6	43	158	434	907	1503	2053	2418	2535	2565	2570
Base	**Growing Degree Units for Corn (Monthly)**												**Growing Degree Units for Corn (Accumulated Monthly)**											
50/86	96	142	259	404	584	736	842	810	651	422	235	123	96	238	497	901	1485	2221	3063	3873	4524	4946	5181	5304

(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.
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