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: WALLACE 2 W, NE **COOP ID: 258920**

Climate Division: NE 7 **NWS Call Sign:** **Elevation: 3,100 Feet** **Lat: 40˚51N** **Lon: 101˚13W**

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	35.9	12.0	24.0	71	1990	11	32.4	1986	-26+	1974	4	7.8	1979	1273	0	.0	.0	5.5	10.7	30.8	6.4
Feb	43.2	16.9	30.1	78	1999	11	39.0	1992	-24	1993	17	16.8	1978	977	0	.0	.0	10.6	7.1	27.2	3.5
Mar	51.9	24.4	38.2	85+	1968	30	44.9	1986	-19	1978	4	33.1	1998	832	0	.0	.0	17.8	3.4	26.5	.8
Apr	63.2	33.1	48.2	94	1989	22	55.9	1981	3	1973	10	42.3	1997	507	1	.0	.1	25.1	.3	15.1	.0
May	72.5	44.3	58.4	97+	2000	30	63.4	1994	20	1989	1	52.9	1995	226	22	.0	.5	30.4	.0	2.5	.0
Jun	83.3	54.1	68.7	109	1963	29	74.6	1988	31	1964	2	62.8	1982	46	157	.8	6.2	29.9	.0	.0	.0
Jul	89.3	59.6	74.5	109	1990	3	78.7	1980	40	1990	14	69.0	1992	2	295	2.2	14.1	31.0	.0	.0	.0
Aug	87.5	58.0	72.8	107+	1990	31	78.8	1995	35	1964	30	67.9	1992	12	252	1.0	11.4	31.0	.0	.0	.0
Sep	79.4	47.5	63.5	101+	1998	11	68.7	1998	15	1984	29	59.0	1999	119	72	.2	4.9	29.5	.0	1.9	.0
Oct	66.6	34.8	50.7	92	1997	3	54.4	1974	4	1997	27	46.3	1976	444	0	.0	.2	27.9	.3	12.9	.0
Nov	48.4	22.6	35.5	81	1980	6	44.0	1999	-20	1986	13	24.9	1985	886	0	.0	.0	14.7	4.3	27.1	.9
Dec	39.1	14.5	26.8	72+	1995	1	34.7	1991	-33	1989	22	8.9	1983	1184	0	.0	.0	7.4	9.0	30.6	4.0
Ann	63.4	35.2	49.3	109+	Jul 1990	3	78.8	Aug 1995	-33	Dec 1989	22	7.8	Jan 1979	6508	799	4.2	37.4	260.8	35.1	174.6	15.6

\+ 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: 1948-2001

(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	.32	.21	.78	1990	20	.94	1992	.00	1986
Feb	.43	.29	1.25	1971	19	1.49	1971	.03	1972
Mar	1.15	.98	1.54	1959	26	4.27	1977	.00	1994
Apr	1.67	1.37	1.77	1971	20	4.32	1971	.11	1992
May	3.34	3.36	2.80	1951	15	7.45	1982	1.03	1994
Jun	3.06	3.20	3.31	1984	12	6.28	1984	.75	1985
Jul	2.84	2.62	3.22	1950	25	8.23	1994	.32	1989
Aug	2.44	1.82	3.10	1999	2	9.28	1999	.17	1975
Sep	1.33	.99	4.38	1963	16	5.26	1973	.03	1992
Oct	1.21	1.07	2.47	2000	29	3.59	2000	.07	1999
Nov	.63	.59	1.37	1948	18	1.98	1972	.00+	1989
Dec	.35	.27	.74	1968	22	1.15	1982	.00+	1988
Ann	18.77	19.76	4.38	Sep 1963	16	9.28	Aug 1999	.00+	Mar 1994

Mean Number of Days (3)

Month	Daily Precipitation >= 0.01	>= 0.10	>= 0.50	>= 1.00
Jan	3.2	1.1	@	.0
Feb	3.4	1.2	.1	@
Mar	6.1	2.9	.6	.1
Apr	6.9	4.1	1.0	.2
May	10.6	6.9	2.2	.8
Jun	9.1	6.0	1.8	.6
Jul	8.1	5.5	2.0	.8
Aug	7.3	4.5	1.5	.6
Sep	6.0	3.2	.7	.3
Oct	4.9	2.6	.8	.2
Nov	4.0	1.8	.3	@
Dec	3.1	1.1	.1	.0
Ann	72.7	40.9	11.1	3.6

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	.01	.04	.09	.14	.19	.24	.31	.39	.51	.69	.88
Feb	.02	.04	.08	.14	.20	.28	.38	.51	.70	1.02	1.34
Mar	.05	.15	.32	.49	.67	.88	1.12	1.42	1.83	2.52	3.19
Apr	.33	.48	.73	.95	1.18	1.42	1.70	2.03	2.47	3.18	3.85
May	1.18	1.50	1.95	2.34	2.70	3.08	3.49	3.96	4.57	5.51	6.37
Jun	.74	1.02	1.47	1.87	2.26	2.68	3.15	3.71	4.43	5.59	6.67
Jul	.68	.94	1.36	1.73	2.09	2.48	2.92	3.43	4.11	5.19	6.20
Aug	.28	.47	.82	1.16	1.52	1.92	2.40	2.98	3.78	5.09	6.36
Sep	.06	.13	.29	.46	.67	.91	1.21	1.60	2.15	3.09	4.03
Oct	.07	.14	.28	.45	.63	.85	1.12	1.46	1.94	2.75	3.56
Nov	.00	.05	.15	.25	.35	.47	.61	.78	1.02	1.42	1.80
Dec	.00	.02	.07	.12	.17	.24	.32	.43	.57	.81	1.06
Ann	12.63	13.79	15.30	16.45	17.48	18.48	19.51	20.66	22.07	24.12	25.90

\+ 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

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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	4.5	3.9	2	1
Feb	4.4	2.2	1	#
Mar	6.3	4.4	1	#
Apr	2.4	1.0	#	#
May	.1	.0	#	0
Jun	.0	.0	0	0
Jul	.0	.0	0	0
Aug	.0	.0	0	0
Sep	.2	.0	#	0
Oct	.8	.0	#	#
Nov	4.5	3.5	1	#
Dec	4.3	3.7	1	1
Ann	27.5	18.7	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	9.0	1990	20	12.9	1976	11	1974	11	8	1974
Feb	8.5	1978	13	19.7	1978	14	1978	13	10	1993
Mar	12.0	1977	12	25.0	1977	13	1980	29	3	1993
Apr	6.0	1995	18	12.0	1995	7	1980	3	1	1997
May	1.0	1979	10	1.0	1979	1+	1984	7	#+	1984
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	6.0	1985	29	6.0	1985	6	1985	29	#+	2000
Oct	7.0	1995	23	7.0	1995	7	1995	23	1	1995
Nov	8.0	1983	28	15.7	1983	13	1983	28	3	1975
Dec	6.0	1973	25	13.7	1973	11	1983	1	7	1983
Ann	12.0	Mar 1977	12	25.0	Mar 1977	14	Feb 1978	13	10	Feb 1993

Mean Number of Days (1)

Snow Fall >= Thresholds

Month	0.1	1.0	3.0	5.0	10.0
Jan	3.1	1.6	.3	.2	.0
Feb	2.7	1.6	.5	.1	.0
Mar	3.3	2.4	.6	.2	.1
Apr	1.1	1.0	.3	@	.0
May	.1	@	.0	.0	.0
Jun	.0	.0	.0	.0	.0
Jul	.0	.0	.0	.0	.0
Aug	.0	.0	.0	.0	.0
Sep	.1	.1	@	@	.0
Oct	.7	.3	.1	.1	.0
Nov	2.6	1.7	.5	.2	.0
Dec	2.8	1.6	.6	.1	.0
Ann	16.5	10.3	2.9	.9	.1

Snow Depth >= Thresholds

Month	1	3	5	10
Jan	12.3	6.6	3.0	.4
Feb	7.4	3.8	2.1	.7
Mar	5.3	2.3	1.0	.1
Apr	1.8	.7	.2	.0
May	.1	.0	.0	.0
Jun	.0	.0	.0	.0
Jul	.0	.0	.0	.0
Aug	.0	.0	.0	.0
Sep	.1	@	@	.0
Oct	.6	.2	.1	.0
Nov	5.8	2.4	1.0	.3
Dec	10.0	4.9	2.2	.2
Ann	43.4	20.9	9.6	1.7

+ 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	6/02	5/27	5/24	5/20	5/17	5/14	5/11	5/07	5/02
32	5/20	5/16	5/13	5/11	5/09	5/07	5/04	5/02	4/28
28	5/13	5/08	5/05	5/03	4/30	4/28	4/25	4/22	4/17
24	5/05	4/30	4/26	4/23	4/20	4/17	4/14	4/10	4/05
20	4/24	4/18	4/15	4/11	4/08	4/05	4/02	3/29	3/24
16	4/13	4/07	4/03	3/30	3/26	3/23	3/19	3/14	3/08

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	9/10	9/14	9/16	9/19	9/21	9/23	9/25	9/28	10/01
32	9/13	9/17	9/21	9/23	9/26	9/28	10/01	10/04	10/09
28	9/19	9/24	9/28	10/01	10/04	10/07	10/10	10/14	10/19
24	9/30	10/05	10/09	10/12	10/15	10/18	10/22	10/25	10/31
20	10/10	10/15	10/18	10/21	10/24	10/27	10/30	11/02	11/07
16	10/16	10/23	10/27	10/31	11/04	11/07	11/11	11/16	11/22

Freeze Free Period

Temp (F)	Probability of longer than indicated freeze free period (Days)								
	.10	.20	.30	.40	.50	.60	.70	.80	.90
36	143	137	133	129	126	122	119	114	108
32	159	152	147	143	139	135	131	126	119
28	174	168	164	160	156	153	149	144	138
24	195	189	184	181	178	174	171	166	160
20	221	213	208	203	198	193	188	183	175
16	247	238	232	227	222	217	212	206	197

***** 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	1273	977	832	507	226	46	2	12	119	444	886	1184	6508
60	1118	837	677	363	118	13	0	2	48	292	736	1029	5233
57	1025	756	584	282	71	5	0	0	23	208	646	936	4536
55	963	704	523	233	48	2	0	0	12	158	586	874	4103
50	810	574	376	131	13	0	0	0	1	66	448	730	3149
32	325	202	43	1	0	0	0	0	0	0	96	278	945

Cooling Degree Days (1)

Base Above	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Ann
32	75	149	234	485	818	1101	1316	1263	943	580	200	117	7281
55	0	7	0	27	153	413	603	550	265	25	0	0	2043
57	0	3	0	17	114	356	541	488	216	13	0	0	1748
60	0	0	0	7	68	274	448	397	151	4	0	0	1349
65	0	0	0	1	22	157	295	252	72	0	0	0	799
70	0	0	0	0	4	74	157	132	26	0	0	0	393

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	1	34	103	270	563	848	1059	1003	686	348	67	18	1	35	138	408	971	1819	2878	3881	4567	4915	4982	5000
45	0	5	48	164	412	699	904	848	539	222	23	0	0	5	53	217	629	1328	2232	3080	3619	3841	3864	3864
50	0	0	15	85	274	549	749	693	399	116	5	0	0	0	15	100	374	923	1672	2365	2764	2880	2885	2885
55	0	0	1	36	158	401	594	538	272	49	0	0	0	0	1	37	195	596	1190	1728	2000	2049	2049	2049
60	0	0	0	9	77	262	441	386	162	15	0	0	0	0	0	9	86	348	789	1175	1337	1352	1352	1352
Base	**Growing Degree Units for Corn (Monthly)**												**Growing Degree Units for Corn (Accumulated Monthly)**											
50/86	18	54	110	217	357	539	681	645	445	268	79	29	18	72	182	399	756	1295	1976	2621	3066	3334	3413	3442

(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