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: ANSELMO 2 SE, NE **COOP ID: 250245**

Climate Division: NE 5 **NWS Call Sign:** **Elevation: 2,605 Feet** **Lat: 41˚36N** **Lon: 99˚50W**

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	34.1	8.2	21.2	72	1990	10	32.8	1986	-37	1963	27	3.6	1979	1360	0	.0	.0	5.0	12.0	30.6	7.7
Feb	39.8	13.4	26.6	78	1995	26	36.2	1992	-28	1996	3	11.4	1978	1075	0	.0	.0	8.7	8.3	27.1	4.0
Mar	49.6	21.6	35.6	88	1986	29	42.1	1986	-24	1978	4	29.0	1975	912	0	.0	.0	17.0	3.5	25.7	.9
Apr	60.9	31.7	46.3	93+	1994	19	54.5	1981	5	1975	2	39.7	1983	561	0	.0	.4	24.9	.3	14.6	.0
May	71.2	44.1	57.7	98	1967	25	63.4	1987	18	1989	1	50.6	1995	252	24	.0	.6	30.5	.0	2.8	.0
Jun	81.2	54.1	67.7	105	1988	21	74.1	1988	30+	1969	3	62.4	1982	60	139	.5	6.0	29.9	.0	@	.0
Jul	86.8	59.7	73.3	108	1990	2	78.1	1980	35	1971	30	66.7	1992	7	262	1.2	12.5	31.0	.0	.0	.0
Aug	84.6	57.2	70.9	109	1980	24	77.1	1983	33	1967	17	65.3	1992	26	208	.6	10.2	31.0	.0	.0	.0
Sep	76.3	46.1	61.2	101	1998	7	68.5	1998	16	1984	29	56.0	1993	165	50	@	3.8	29.6	.0	2.3	.0
Oct	64.4	33.2	48.8	92+	1990	5	51.8	1974	5	1991	31	43.4	1976	503	0	.0	.2	28.0	.3	12.6	.0
Nov	46.6	20.0	33.3	82	1999	8	43.9	1999	-19	1975	26	21.6	1985	952	0	.0	.0	13.5	4.4	26.1	1.3
Dec	36.6	11.1	23.9	72	1962	16	32.0	1999	-35	1967	30	3.7	1983	1276	0	.0	.0	6.7	10.4	30.7	4.9
Ann	61.0	33.4	47.2	109	Aug 1980	24	78.1	Jul 1980	-37	Jan 1963	27	3.6	Jan 1979	7149	683	2.3	33.7	255.8	39.2	172.5	18.8

\+ 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/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

Issue Date: February 2004

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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	.48	.33	1.32	1988	19	1.80	1988	.00	1986
Feb	.59	.35	1.17	1984	18	2.31	1984	.00	1996
Mar	1.67	1.00	3.10	1977	11	6.31	1977	.12	1994
Apr	2.63	2.26	2.55	1984	21	8.19	1984	.25+	1992
May	3.74	3.81	3.42	1956	29	7.04	1995	.57	1994
Jun	3.99	3.17	3.98	1966	8	10.71	1975	1.10	1973
Jul	3.51	3.59	3.38	1958	19	7.69	1993	.58	1980
Aug	2.73	2.85	3.58	1950	6	7.23	1977	.18	1973
Sep	2.40	1.81	2.38	1973	28	7.67	1997	.18	1980
Oct	1.54	1.31	2.12	2000	29	3.95	1982	.16	1989
Nov	1.31	1.14	2.04	2001	24	3.32	1983	.02+	1989
Dec	.50	.40	1.05	1978	2	1.91	1982	.02	1976
Ann	25.09	25.48	3.98	Jun 1966	8	10.71	Jun 1975	.00+	Feb 1996

Mean Number of Days (3)

Daily Precipitation

Month	>= 0.01	>= 0.10	>= 0.50	>= 1.00
Jan	3.5	1.3	.2	.1
Feb	3.4	1.7	.3	@
Mar	5.9	3.6	.9	.3
Apr	8.6	5.5	1.7	.6
May	9.8	7.1	2.6	.9
Jun	8.9	6.3	2.9	1.1
Jul	8.0	6.0	2.5	1.0
Aug	7.2	4.9	1.8	.8
Sep	6.3	4.3	1.7	.6
Oct	5.1	3.2	1.0	.3
Nov	4.1	2.6	.8	.4
Dec	3.2	1.2	.3	@
Ann	74.0	47.7	16.7	6.1

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	.02	.07	.14	.21	.29	.37	.47	.60	.76	1.04	1.31
Feb	.01	.04	.10	.18	.27	.38	.52	.71	.96	1.41	1.86
Mar	.13	.25	.46	.69	.95	1.24	1.59	2.03	2.64	3.66	4.66
Apr	.55	.79	1.18	1.53	1.89	2.26	2.69	3.20	3.88	4.96	5.98
May	1.22	1.58	2.10	2.54	2.97	3.41	3.90	4.46	5.19	6.32	7.36
Jun	1.17	1.55	2.12	2.61	3.09	3.59	4.14	4.79	5.63	6.95	8.18
Jul	.91	1.24	1.75	2.20	2.65	3.11	3.63	4.24	5.04	6.31	7.49
Aug	.48	.72	1.12	1.50	1.88	2.29	2.76	3.33	4.09	5.31	6.48
Sep	.24	.42	.75	1.08	1.45	1.85	2.33	2.93	3.75	5.11	6.43
Oct	.18	.30	.51	.73	.96	1.21	1.51	1.88	2.39	3.22	4.03
Nov	.06	.12	.27	.44	.64	.88	1.18	1.56	2.11	3.05	4.00
Dec	.04	.07	.13	.20	.28	.37	.47	.61	.80	1.11	1.42
Ann	17.65	19.09	20.93	22.33	23.57	24.78	26.03	27.40	29.08	31.51	33.61

\+ 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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Snow (inches)

Snow Totals

Means/Medians (1)

Month	Snow Fall Mean	Snow Fall Median	Snow Depth Mean	Snow Depth Median
Jan	5.7	4.5	3	2
Feb	5.3	3.0	2	1
Mar	7.4	4.9	1	1
Apr	3.2	1.5	#	#
May	#	.0	#	0
Jun	.0	.0	0	0
Jul	.0	.0	0	0
Aug	.0	.0	0	0
Sep	.1	.0	#	0
Oct	1.4	.0	#	0
Nov	7.5	5.0	1	#
Dec	6.0	4.0	2	1
Ann	36.6	22.9	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	12.0	1988	19	15.0	1993	20	1988	21	11	1979
Feb	10.0	1984	18	18.5	1978	15+	1984	18	12	1979
Mar	21.0	1980	28	31.0	1980	25	1980	29	7	1978
Apr	10.0	1984	29	28.0	1984	15	1984	3	4	1984
May	#	1979	10	#	1979	#+	1994	1	#+	1994
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	3.0	1985	29	3.5	1985	#	1983	20	#	1983
Oct	6.0	1986	11	6.1	1997	6+	1997	26	1+	1997
Nov	15.0	1983	27	26.0	1979	17	1979	23	9	1979
Dec	13.0	1978	2	19.7	1973	19	1978	3	13	1983
Ann	21.0	Mar 1980	28	31.0	Mar 1980	25	Mar 1980	29	13	Dec 1983

Mean Number of Days (1)

Snow Fall >= Thresholds

Month	0.1	1.0	3.0	5.0	10.0
Jan	3.7	2.2	.6	.2	.1
Feb	2.6	2.1	.7	.2	@
Mar	3.2	2.7	1.0	.3	@
Apr	1.2	1.2	.3	.1	@
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	.1	@	@	.0	.0
Oct	.6	.5	.2	.1	.0
Nov	2.3	2.1	1.0	.5	.2
Dec	2.9	2.1	.7	.4	.1
Ann	16.6	12.9	4.5	1.8	.4

Snow Depth >= Thresholds

Month	1	3	5	10
Jan	16.0	9.8	6.4	2.9
Feb	10.8	5.9	3.9	1.2
Mar	6.1	3.4	1.9	.5
Apr	1.6	1.0	.4	.1
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	.7	.4	.2	.0
Nov	6.9	3.8	2.2	1.0
Dec	12.5	6.8	4.5	2.5
Ann	54.6	31.1	19.5	8.2

+ 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	6/18	6/10	6/04	5/31	5/26	5/21	5/16	5/11	5/03
32	5/23	5/19	5/15	5/12	5/10	5/07	5/04	5/01	4/26
28	5/12	5/08	5/06	5/03	5/01	4/29	4/26	4/23	4/19
24	5/07	5/02	4/29	4/26	4/23	4/20	4/17	4/14	4/09
20	4/30	4/24	4/19	4/16	4/12	4/09	4/05	3/31	3/25
16	4/17	4/11	4/07	4/03	3/30	3/27	3/23	3/19	3/13

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	9/01	9/07	9/10	9/14	9/17	9/20	9/23	9/27	10/02
32	9/12	9/17	9/20	9/22	9/24	9/27	9/29	10/02	10/06
28	9/18	9/23	9/27	9/30	10/03	10/06	10/09	10/12	10/18
24	9/26	10/01	10/05	10/08	10/11	10/15	10/18	10/22	10/27
20	10/08	10/13	10/16	10/19	10/22	10/25	10/27	10/31	11/05
16	10/14	10/20	10/25	10/29	11/02	11/05	11/09	11/14	11/20

Freeze Free Period

Temp (F)	Probability of longer than indicated freeze free period (Days)								
	.10	.20	.30	.40	.50	.60	.70	.80	.90
36	142	132	125	119	113	107	101	94	85
32	156	149	145	141	137	133	129	125	118
28	171	165	161	158	154	151	147	143	138
24	189	183	178	174	171	167	163	159	153
20	208	203	199	195	192	189	185	181	176
16	242	233	226	221	216	210	205	198	189

***** 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	1360	1075	912	561	252	60	7	26	165	503	952	1276	7149
60	1205	935	757	416	142	20	0	6	78	350	802	1121	5832
57	1112	851	664	333	92	8	0	2	43	262	712	1028	5107
55	1050	802	602	281	66	4	0	1	26	208	652	966	4658
50	901	671	454	169	23	0	0	0	6	100	513	818	3655
32	418	276	77	4	0	0	0	0	0	1	134	346	1256

Cooling Degree Days (1)

Base Above	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Ann
32	81	125	189	434	795	1069	1278	1205	876	521	172	93	6838
55	0	7	0	20	147	383	565	493	212	15	0	0	1842
57	0	0	0	12	111	327	503	432	168	7	0	0	1560
60	0	0	0	5	69	249	410	343	114	2	0	0	1192
65	0	0	0	0	24	139	262	208	50	0	0	0	683
70	0	0	0	0	5	63	135	105	16	0	0	0	324

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	6	34	101	277	580	856	1056	1001	680	341	71	13	6	40	141	418	998	1854	2910	3911	4591	4932	5003	5016
45	0	5	48	172	429	706	901	846	534	220	27	0	0	5	53	225	654	1360	2261	3107	3641	3861	3888	3888
50	0	0	15	96	288	559	746	691	392	113	7	0	0	0	15	111	399	958	1704	2395	2787	2900	2907	2907
55	0	0	3	43	171	412	591	536	266	48	1	0	0	0	3	46	217	629	1220	1756	2022	2070	2071	2071
60	0	0	0	19	83	273	436	385	157	15	0	0	0	0	0	19	102	375	811	1196	1353	1368	1368	1368
Base	**Growing Degree Units for Corn (Monthly)**												**Growing Degree Units for Corn (Accumulated Monthly)**											
50/86	20	42	104	214	370	549	687	650	440	258	73	23	20	62	166	380	750	1299	1986	2636	3076	3334	3407	3430

(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