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: UPHAM 3 N, ND **COOP ID: 328913**

Climate Division: ND 4 **NWS Call Sign:** **Elevation: 1,425 Feet** **Lat: 48˚37N** **Lon: 100˚44W**

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	15.1	-8.6	3.3	49	1990	11	18.5	1990	-45+	1978	16	-12.9	1982	1916	0	.0	.0	.0	26.3	31.0	20.7
Feb	23.3	-.6	11.4	66	1988	28	25.3	1998	-48	1996	1	-3.4	1979	1504	0	.0	.0	.6	19.6	28.3	14.4
Mar	35.0	12.5	23.8	77	1963	23	35.4	1973	-38+	1980	1	14.4	1996	1279	0	.0	.0	3.7	12.2	30.4	7.4
Apr	53.8	27.7	40.8	98	1980	22	50.7	1987	-17+	1979	2	29.5	1979	728	0	.0	.2	18.2	1.8	21.3	.4
May	68.5	41.0	54.8	100	1980	23	62.8	1977	13	1958	1	47.8	1979	335	18	@	1.0	29.2	.0	5.7	.0
Jun	76.4	50.1	63.3	104	1961	28	74.3	1988	25	1969	12	57.3	1985	131	78	.2	2.1	29.9	.0	.1	.0
Jul	81.4	53.4	67.4	108	1960	20	72.0	1975	31	1967	3	61.2	1993	57	131	.2	3.6	31.0	.0	.0	.0
Aug	81.1	50.9	66.0	105+	1988	7	72.5	1983	28	1982	27	59.7	1977	92	123	.6	4.9	31.0	.0	.2	.0
Sep	69.5	39.4	54.5	102	1976	7	60.2	1998	14	1974	30	49.7	1972	328	12	@	1.2	28.9	.0	5.7	.0
Oct	56.1	26.6	41.4	95	1963	4	46.0	1973	-10	1991	30	36.3	1976	733	0	.0	.1	20.5	.9	22.7	.2
Nov	34.9	12.5	23.7	76	1965	2	35.1	1981	-29+	1985	29	11.4	1985	1239	0	.0	.0	4.0	13.2	29.4	5.2
Dec	20.5	-1.9	9.3	60	1969	2	22.5	1997	-42+	1983	23	-4.5	1983	1729	0	.0	.0	.2	24.4	31.0	16.5
Ann	51.3	25.3	38.3	108	Jul 1960	20	74.3	Jun 1988	-48	Feb 1996	1	-12.9	Jan 1982	10071	362	1.0	13.1	197.2	98.4	205.8	64.8

\+ 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	.57	.51	.85	1949	5	1.43	1989	.03	1973
Feb	.47	.33	1.43	1998	26	3.29	1998	.09+	1978
Mar	.76	.64	.97	1971	14	1.65	1971	.10	1977
Apr	1.33	.93	3.87	1953	24	4.20	1984	.08	1988
May	2.07	1.77	2.05	1953	28	7.77	1999	.02	1980
Jun	3.32	3.28	3.74	1949	1	6.64	2000	.98	1992
Jul	2.71	2.71	2.81	1997	12	6.91	1993	.41	1985
Aug	2.00	1.69	5.34	1968	24	5.97	1980	.17	1979
Sep	1.80	1.66	2.60	1971	5	5.09	1973	.06	1976
Oct	1.28	.79	1.97	1994	19	5.77	1994	.01	1990
Nov	.85	.78	1.23	1986	8	3.22	2000	.02	1976
Dec	.56	.57	.81	1977	17	1.64	1977	.02	1987
Ann	17.72	17.09	5.34	Aug 1968	24	7.77	May 1999	.01	Oct 1990

Mean Number of Days (3)

Daily Precipitation

Month	>= 0.01	>= 0.10	>= 0.50	>= 1.00
Jan	7.0	2.0	.1	.0
Feb	5.4	1.3	.1	@
Mar	5.8	2.2	.4	.0
Apr	6.1	3.3	.9	.1
May	8.2	4.5	1.2	.4
Jun	11.5	6.8	2.0	.7
Jul	9.8	5.4	1.7	.7
Aug	7.9	4.5	1.2	.4
Sep	7.2	4.0	1.0	.4
Oct	5.6	3.1	.7	.3
Nov	5.7	2.6	.3	.1
Dec	6.3	1.7	.1	.0
Ann	86.5	41.4	9.7	3.1

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	.12	.18	.26	.34	.41	.50	.59	.70	.84	1.07	1.29
Feb	.05	.08	.14	.21	.28	.36	.45	.57	.74	1.01	1.27
Mar	.13	.20	.31	.41	.52	.64	.77	.93	1.14	1.49	1.82
Apr	.12	.22	.40	.58	.78	1.01	1.28	1.62	2.08	2.85	3.61
May	.23	.39	.68	.96	1.27	1.62	2.02	2.53	3.21	4.34	5.44
Jun	1.19	1.50	1.95	2.33	2.69	3.06	3.47	3.94	4.54	5.46	6.31
Jul	.65	.90	1.30	1.65	2.00	2.38	2.79	3.28	3.93	4.96	5.92
Aug	.35	.53	.82	1.09	1.37	1.68	2.02	2.44	3.00	3.90	4.76
Sep	.21	.35	.61	.86	1.12	1.42	1.77	2.20	2.78	3.74	4.67
Oct	.02	.07	.18	.33	.52	.76	1.07	1.49	2.10	3.19	4.31
Nov	.05	.09	.19	.31	.44	.60	.79	1.03	1.37	1.96	2.55
Dec	.09	.14	.22	.29	.37	.46	.56	.69	.85	1.12	1.38
Ann	11.66	12.80	14.28	15.41	16.43	17.42	18.45	19.59	20.99	23.04	24.82

\+ 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	9.7	8.3	10	9
Feb	5.9	5.8	10	11
Mar	7.4	8.0	7	7
Apr	4.5	3.4	1	#
May	.3	.0	#	0
Jun	#	.0	#	0
Jul	.0	.0	0	0
Aug	.0	.0	0	0
Sep	.2	.0	#	0
Oct	2.8	.4	#	#
Nov	8.4	9.0	2	2
Dec	8.3	8.3	6	6
Ann	47.5	43.2	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	1989	7	30.9	1989	27	1989	7	19	1989
Feb	12.0	1998	26	13.0	1976	20+	1999	28	19	1995
Mar	10.0	1988	8	17.2+	1995	24	1999	10	20	1999
Apr	9.0	1997	6	16.0	1979	20	1979	6	11	1979
May	6.5	1991	4	7.0	1991	5	1991	4	#+	1998
Jun	#	1998	3	#	1998	#	1998	3	#	1998
Jul	.0	0	0	.0	0	0	0	0	0	0
Aug	.0	0	0	.0	0	0	0	0	0	0
Sep	4.0	1972	26	4.0	1972	4	1972	26	#+	1995
Oct	11.0	1991	29	15.5	1991	10	1991	31	1	1996
Nov	12.0	1986	8	23.7	2000	13	1996	30	9	1991
Dec	8.0	1977	17	20.9	1975	17	1996	31	13	1996
Ann	12.0+	Feb 1998	26	30.9	Jan 1989	27	Jan 1989	7	20	Mar 1999

Mean Number of Days (1)

Snow Fall >= Thresholds

Month	0.1	1.0	3.0	5.0	10.0
Jan	6.8	4.0	1.0	.2	@
Feb	5.5	2.8	.5	.1	.1
Mar	4.3	2.7	.8	.4	@
Apr	2.1	1.5	.7	.2	.0
May	.2	.1	@	@	.0
Jun	.0	.0	.0	.0	.0
Jul	.0	.0	.0	.0	.0
Aug	.0	.0	.0	.0	.0
Sep	.2	.1	@	.0	.0
Oct	1.2	.9	.3	.2	.1
Nov	4.7	3.0	1.0	.4	.1
Dec	6.1	3.4	.8	.4	.0
Ann	31.1	18.5	5.1	1.9	.3

Snow Depth >= Thresholds

Month	1	3	5	10
Jan	30.0	26.9	22.9	13.9
Feb	24.8	21.9	19.0	13.7
Mar	16.4	14.0	12.4	7.6
Apr	2.7	1.5	1.1	.0
May	.2	@	@	.0
Jun	.0	.0	.0	.0
Jul	.0	.0	.0	.0
Aug	.0	.0	.0	.0
Sep	@	@	.0	.0
Oct	1.5	.6	.3	.1
Nov	13.1	9.2	6.9	1.6
Dec	25.5	20.8	18.0	6.6
Ann	114.2	94.9	80.6	43.5

+ 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	6/27	6/19	6/14	6/09	6/04	5/30	5/25	5/20	5/12
32	5/31	5/27	5/24	5/21	5/19	5/17	5/14	5/11	5/07
28	5/23	5/19	5/16	5/14	5/12	5/09	5/07	5/04	4/30
24	5/11	5/07	5/04	5/01	4/29	4/27	4/24	4/21	4/17
20	5/03	4/28	4/25	4/22	4/19	4/16	4/14	4/10	4/05
16	4/21	4/17	4/14	4/12	4/09	4/07	4/05	4/02	3/29

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	8/18	8/23	8/27	8/30	9/03	9/06	9/09	9/13	9/19
32	8/25	8/31	9/03	9/07	9/10	9/13	9/16	9/20	9/25
28	9/10	9/14	9/17	9/19	9/21	9/24	9/26	9/29	10/03
24	9/18	9/23	9/26	9/28	10/01	10/03	10/06	10/09	10/13
20	9/25	9/30	10/03	10/06	10/09	10/12	10/15	10/18	10/23
16	10/02	10/08	10/13	10/16	10/20	10/23	10/26	10/31	11/06

Freeze Free Period

Temp (F)	Probability of longer than indicated freeze free period (Days)								
	.10	.20	.30	.40	.50	.60	.70	.80	.90
36	120	110	102	96	90	84	77	70	59
32	132	125	120	117	113	109	105	101	94
28	147	142	138	135	132	129	126	122	117
24	173	167	162	158	154	150	146	141	135
20	190	184	179	176	172	168	165	160	154
16	215	207	202	197	192	188	183	178	170

***** 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	1916	1504	1279	728	335	131	57	92	328	733	1239	1729	10071
60	1761	1364	1124	584	214	60	15	36	204	578	1089	1574	8603
57	1668	1280	1031	501	155	32	7	19	141	486	999	1481	7800
55	1606	1224	971	448	122	20	2	11	105	424	939	1419	7291
50	1451	1084	828	325	58	5	0	2	41	276	791	1264	6125
32	916	620	369	59	0	0	0	0	0	18	330	729	3041

Cooling Degree Days (1)

Base Above	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Ann
32	23	40	113	322	706	937	1097	1054	674	308	80	24	5378
55	0	0	2	20	115	268	386	352	89	1	0	0	1233
57	0	0	0	14	86	220	329	297	65	0	0	0	1011
60	0	0	0	6	52	157	245	222	37	0	0	0	719
65	0	0	0	0	18	78	131	123	12	0	0	0	362
70	0	0	0	0	4	28	54	54	3	0	0	0	143

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	0	0	7	149	468	704	855	816	453	150	10	0	0	0	7	156	624	1328	2183	2999	3452	3602	3612	3612
45	0	0	1	78	331	554	700	661	314	77	2	0	0	0	1	79	410	964	1664	2325	2639	2716	2718	2718
50	0	0	0	36	212	408	545	507	196	35	0	0	0	0	0	36	248	656	1201	1708	1904	1939	1939	1939
55	0	0	0	15	119	269	391	359	104	9	0	0	0	0	0	15	134	403	794	1153	1257	1266	1266	1266
60	0	0	0	5	53	146	245	222	49	2	0	0	0	0	0	5	58	204	449	671	720	722	722	722
Base	**Growing Degree Units for Corn (Monthly)**												**Growing Degree Units for Corn (Accumulated Monthly)**											
50/86	0	0	10	122	304	435	547	517	299	138	15	0	0	0	10	132	436	871	1418	1935	2234	2372	2387	2387

(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