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: GRAFTON, NY **COOP ID: 303360**

Climate Division: NY 5 **NWS Call Sign:** **Elevation: 1,560 Feet** **Lat: 42˚47N** **Lon: 73˚28W**

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	28.7	12.7	20.7	61	1995	15	31.0	1990	-27	1968	9	11.5	1994	1374	0	.0	.0	1.6	20.1	29.6	6.1
Feb	31.5	14.6	23.1	62	1981	19	31.6	1981	-23+	1979	11	11.5	1979	1174	0	.0	.0	1.8	15.5	26.7	4.4
Mar	41.2	23.3	32.3	83	1998	31	40.1	1973	-11+	1989	7	24.2	1984	1015	0	.0	.0	6.9	7.1	25.9	.9
Apr	53.9	34.3	44.1	88	1962	27	49.3	1991	5	1982	7	37.7	1975	627	0	.0	.0	18.9	.6	14.5	.0
May	66.6	45.7	56.2	88+	1971	19	61.7	1975	21	1966	10	51.0	1997	285	11	.0	.0	29.9	.0	1.7	.0
Jun	73.8	53.8	63.8	92	1964	30	67.4	1976	32+	1986	3	59.6	1985	86	49	.0	@	30.0	.0	.1	.0
Jul	78.2	58.3	68.3	93+	1995	14	71.5	1988	39	1963	9	63.9	2000	19	119	.0	.3	31.0	.0	.0	.0
Aug	75.8	56.8	66.3	94+	1955	5	69.8	1973	32	1982	29	62.0	1982	39	79	.0	.1	31.0	.0	@	.0
Sep	67.6	49.4	58.5	95+	1953	3	62.3	1971	26+	1957	28	55.9	1978	200	5	.0	.0	29.8	.0	.6	.0
Oct	56.9	39.4	48.2	83	1963	7	55.2	1971	15+	1976	28	43.2	1974	522	0	.0	.0	23.6	.1	7.6	.0
Nov	44.4	29.9	37.2	78	1950	2	42.9	1975	0	1958	30	31.7	1976	835	0	.0	.0	9.5	4.1	19.7	.0
Dec	33.5	18.9	26.2	67	1966	9	32.4	1990	-23+	1980	25	11.2	1989	1204	0	.0	.0	2.2	14.9	28.3	2.4
Ann	54.3	36.4	45.4	95+	Sep 1953	3	71.5	Jul 1988	-27	Jan 1968	9	11.2	Dec 1989	7380	263	.0	.4	216.2	62.4	154.7	13.8

\+ 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

Issue Date: February 2004

(1) From the 1971-2000 Monthly Normals

(2) Derived from station's available digital record: 1950-2001

(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	3.09	2.93	1.66	1978	9	7.77	1979	.48	1980
Feb	2.45	2.15	2.60	1981	2	8.89	1981	.20	1987
Mar	3.39	3.39	1.95+	2001	6	6.38	1977	1.50	1981
Apr	3.88	3.62	2.31	1968	25	8.46	1983	.90	1999
May	4.63	4.24	2.12	1976	19	10.26	1984	1.62	1993
Jun	4.67	4.11	3.52	1975	29	11.95	1972	1.22	1997
Jul	4.34	3.99	3.75	1995	26	8.74	1996	1.71	1997
Aug	4.81	4.91	3.94	1976	10	9.62	1990	.91	1996
Sep	4.19	3.55	3.58	1999	17	10.83	1999	1.48	1973
Oct	4.05	3.82	4.75	1987	4	8.58	1987	1.28	1994
Nov	3.98	3.98	2.65	1983	25	6.83	1972	1.21	1994
Dec	2.99	2.68	2.56	2000	17	8.04	1973	.82	1989
Ann	46.47	44.83	4.75	Oct 1987	4	11.95	Jun 1972	.20	Feb 1987

Mean Number of Days (3)

Daily Precipitation

Month	>= 0.01	>= 0.10	>= 0.50	>= 1.00
Jan	13.2	7.4	2.0	.5
Feb	11.2	5.9	1.4	.3
Mar	13.0	8.1	2.4	.5
Apr	13.9	8.9	2.7	.5
May	15.0	9.4	3.2	1.1
Jun	13.6	8.7	3.2	1.1
Jul	12.3	7.8	2.7	1.1
Aug	12.6	8.3	2.9	1.2
Sep	12.3	7.5	2.8	.9
Oct	12.0	7.8	2.7	.7
Nov	12.7	8.6	2.6	.7
Dec	13.1	7.7	1.5	.4
Ann	154.9	96.1	30.1	9.0

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	.85	1.15	1.59	1.98	2.36	2.76	3.20	3.72	4.40	5.46	6.45
Feb	.58	.81	1.16	1.48	1.80	2.14	2.51	2.96	3.55	4.48	5.36
Mar	1.81	2.08	2.45	2.74	3.01	3.27	3.55	3.87	4.26	4.85	5.38
Apr	1.71	2.06	2.54	2.94	3.30	3.67	4.07	4.53	5.10	5.98	6.77
May	1.68	2.12	2.75	3.27	3.77	4.29	4.85	5.49	6.32	7.60	8.77
Jun	1.43	1.87	2.53	3.10	3.65	4.23	4.86	5.60	6.56	8.05	9.43
Jul	1.72	2.12	2.69	3.16	3.60	4.06	4.55	5.11	5.83	6.93	7.93
Aug	1.48	1.93	2.62	3.20	3.77	4.36	5.01	5.77	6.75	8.29	9.71
Sep	1.41	1.81	2.39	2.88	3.35	3.84	4.37	4.99	5.79	7.03	8.17
Oct	1.66	2.03	2.55	2.98	3.39	3.80	4.24	4.75	5.39	6.38	7.27
Nov	1.66	2.02	2.53	2.95	3.34	3.74	4.17	4.66	5.29	6.24	7.11
Dec	1.01	1.29	1.71	2.06	2.39	2.74	3.12	3.56	4.13	5.01	5.82
Ann	36.04	38.13	40.77	42.74	44.48	46.15	47.86	49.73	51.98	55.22	57.99

\+ 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

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(2) Derived from station's available digital record: 1950-2001
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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	18.2	19.5	7	6
Feb	14.9	13.0	9	7
Mar	12.4	8.3	5	2
Apr	7.5	2.1	1	#
May	.7	.0	#	0
Jun	.0	.0	0	0
Jul	.0	.0	0	0
Aug	.0	.0	0	0
Sep	#	.0	0	0
Oct	1.0	.0	#	0
Nov	7.9	6.7	1	#
Dec	15.7	13.9	3	4
Ann	78.3	63.5	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	19.3	1983	16	30.9	1979	37	1987	23	21	1987
Feb	11.9	1984	6	28.1	1981	29	1987	1	24	1987
Mar	15.0	1993	14	35.2	1993	31	1993	14	18	1971
Apr	19.0	1982	6	37.3	1975	28	1975	8	8	1975
May	9.0	1976	19	11.6	1977	9	1976	19	1	1976
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	#	1992	30	#	1992	0	0	0	0	0
Oct	22.0	1987	4	22.0	1987	22	1987	4	1	1987
Nov	16.0	1971	25	22.8	1971	18	1971	25	4	1997
Dec	12.2	1981	16	32.8	1995	22	1981	16	11	1995
Ann	22.0	Oct 1987	4	37.3	Apr 1975	37	Jan 1987	23	24	Feb 1987

Mean Number of Days (1)

Snow Fall >= Thresholds

Month	0.1	1.0	3.0	5.0	10.0
Jan	8.3	5.6	2.3	1.2	.2
Feb	6.8	4.7	1.8	.9	.1
Mar	5.0	3.7	1.6	.7	.2
Apr	1.7	1.6	.8	.4	.2
May	.1	.1	.1	.1	.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	.1	.1	@	@	@
Nov	2.7	2.3	.9	.4	.1
Dec	7.0	4.8	1.7	.7	.1
Ann	31.7	22.9	9.2	4.4	.9

Snow Depth >= Thresholds

Month	1	3	5	10
Jan	22.4	17.3	14.2	6.7
Feb	22.9	18.9	15.4	8.1
Mar	14.9	11.0	7.7	3.7
Apr	3.4	2.5	1.7	.6
May	.2	.1	.1	.0
Jun	.0	.0	.0	.0
Jul	.0	.0	.0	.0
Aug	.0	.0	.0	.0
Sep	.0	.0	.0	.0
Oct	.1	.1	.1	.1
Nov	5.1	3.6	1.9	.4
Dec	18.4	13.6	8.3	2.5
Ann	87.4	67.1	49.4	22.1

+ 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	6/06	6/01	5/28	5/25	5/22	5/19	5/15	5/11	5/06
32	5/24	5/19	5/15	5/12	5/08	5/05	5/02	4/28	4/22
28	5/07	5/03	4/30	4/27	4/25	4/22	4/20	4/16	4/12
24	4/26	4/21	4/18	4/16	4/13	4/11	4/08	4/05	3/31
20	4/18	4/14	4/11	4/09	4/07	4/04	4/02	3/30	3/26
16	4/11	4/07	4/04	4/02	3/30	3/28	3/25	3/22	3/18

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	9/17	9/20	9/23	9/25	9/28	10/01	10/05
32	9/16	9/22	9/26	9/29	10/02	10/05	10/08	10/12	10/17
28	9/28	10/03	10/07	10/10	10/14	10/17	10/20	10/24	10/29
24	10/14	10/19	10/22	10/25	10/28	10/30	11/02	11/06	11/10
20	10/25	10/30	11/03	11/07	11/10	11/13	11/16	11/20	11/25
16	11/08	11/12	11/15	11/18	11/21	11/23	11/26	11/29	12/04

Freeze Free Period

Temp (F)	Probability of longer than indicated freeze free period (Days)								
	.10	.20	.30	.40	.50	.60	.70	.80	.90
36	141	135	130	127	123	120	116	111	105
32	167	159	154	150	146	142	137	132	125
28	190	183	179	175	171	167	163	159	152
24	217	210	205	201	197	193	189	184	177
20	237	230	225	220	216	212	208	203	196
16	255	248	243	239	235	231	227	222	215

***** 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	1374	1174	1015	627	285	86	19	39	200	522	835	1204	7380
60	1219	1034	860	479	163	24	1	4	86	373	685	1049	5977
57	1126	950	767	392	107	8	0	0	43	289	595	956	5233
55	1064	894	705	336	77	4	0	0	25	238	535	894	4772
50	909	754	552	212	27	0	0	0	4	132	389	739	3718
32	386	292	122	7	0	0	0	0	0	2	44	258	1111

Cooling Degree Days (1)

Base Above	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Ann
32	34	42	129	370	750	953	1123	1062	794	502	199	77	6035
55	0	0	0	9	113	267	410	349	130	25	0	0	1303
57	0	0	0	5	81	211	348	288	88	14	0	0	1035
60	0	0	0	1	44	137	256	199	40	6	0	0	683
65	0	0	0	0	11	49	119	79	5	0	0	0	263
70	0	0	0	0	1	9	33	16	0	0	0	0	59

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	4	9	50	178	503	717	883	824	563	277	82	12	4	13	63	241	744	1461	2344	3168	3731	4008	4090	4102
45	0	0	21	101	355	567	728	669	414	166	37	3	0	0	21	122	477	1044	1772	2441	2855	3021	3058	3061
50	0	0	8	51	226	417	573	514	277	83	16	0	0	0	8	59	285	702	1275	1789	2066	2149	2165	2165
55	0	0	2	24	116	274	418	359	159	36	5	0	0	0	2	26	142	416	834	1193	1352	1388	1393	1393
60	0	0	0	5	51	153	263	217	75	7	0	0	0	0	0	5	56	209	472	689	764	771	771	771
Base	**Growing Degree Units for Corn (Monthly)**												**Growing Degree Units for Corn (Accumulated Monthly)**											
50/86	0	2	30	107	292	442	573	524	319	136	42	2	0	2	32	139	431	873	1446	1970	2289	2425	2467	2469

(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