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: MASSENA AP, NY **COOP ID: 305134**

Climate Division: NY 8 **NWS Call Sign: MSS** **Elevation: 214 Feet** **Lat: 44˚56N** **Lon: 74˚51W**

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	24.7	4.8	14.8	66	1996	19	27.5	1990	-44	1957	15	2.4	1994	1559	0	.0	.0	.9	21.3	29.9	12.3
Feb	27.5	7.4	17.5	63+	2000	27	31.2	1981	-38	1993	7	5.5	1993	1332	0	.0	.0	.9	18.2	27.0	9.9
Mar	38.4	19.3	28.9	84	1998	31	38.2	1973	-26	1980	2	20.6	1984	1122	0	.0	.0	5.4	9.6	26.7	2.8
Apr	53.2	33.1	43.2	89	1990	27	48.5	1998	6+	1954	4	36.1	1972	655	0	.0	.0	18.0	.6	14.7	.0
May	68.0	45.0	56.5	95	1971	19	63.4	1998	20	1974	5	51.6	1974	280	15	.0	.2	30.2	.0	1.7	.0
Jun	76.1	53.5	64.8	97	1994	18	69.2	1995	31	1986	3	60.7	1986	81	75	.0	1.4	30.0	.0	.1	.0
Jul	81.1	58.4	69.8	96+	1988	10	72.9	1993	38	1978	2	65.2	1992	15	163	.0	3.0	31.0	.0	.0	.0
Aug	78.4	56.1	67.3	100	1975	1	72.0	1973	35+	2000	31	63.3	1982	44	113	@	1.4	31.0	.0	.0	.0
Sep	69.1	47.7	58.4	95+	1973	2	62.9	1971	24	1956	28	54.5	1978	209	10	.0	.2	29.8	.0	1.4	.0
Oct	56.8	36.9	46.9	85+	1991	5	53.0+	1995	15+	1984	6	42.6	1972	563	0	.0	.0	23.3	.0	10.6	.0
Nov	43.2	27.8	35.5	78	1948	6	41.4	1999	-8	1949	27	30.8	1995	886	0	.0	.0	7.8	4.7	19.8	.1
Dec	30.3	13.1	21.7	68	2001	6	32.2	1996	-33	1970	22	3.0	1989	1343	0	.0	.0	1.8	16.5	28.9	6.5
Ann	53.9	33.6	43.8	100	Aug 1975	1	72.9	Jul 1993	-44	Jan 1957	15	2.4	Jan 1994	8089	376	@	6.2	210.1	70.9	160.8	31.6

\+ 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

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	2.56	2.31	1.87	1998	8	5.42	1998	.58	1988
Feb	2.12	1.97	1.49	1951	7	5.58	1971	.74	1999
Mar	2.45	2.51	1.69	1992	11	4.64	1992	.49	1996
Apr	2.94	2.52	1.97	2000	8	7.36	1993	.43	1999
May	2.81	2.61	1.93	2000	9	6.36	2000	1.05	1977
Jun	3.30	3.06	2.33	1993	15	6.27	1993	.98	1991
Jul	3.35	3.02	3.08	1970	11	7.18	1986	1.16	1994
Aug	3.51	3.66	3.18	1952	16	5.65	1981	.79	1975
Sep	3.84	3.54	4.97	1979	14	7.18	1979	1.04	1984
Oct	2.96	2.83	2.86	1995	6	6.61	1995	.69	1994
Nov	3.03	3.08	2.07	1996	8	4.40	1994	1.14	1976
Dec	2.94	2.61	1.81	1973	20	6.68	1972	1.23	1989
Ann	35.81	35.13	4.97	Sep 1979	14	7.36	Apr 1993	.43	Apr 1999

Mean Number of Days (3)

Daily Precipitation

Month	>= 0.01	>= 0.10	>= 0.50	>= 1.00
Jan	17.2	7.9	.9	.2
Feb	12.6	6.3	.9	.1
Mar	13.2	6.9	1.1	.2
Apr	12.1	7.1	1.7	.4
May	12.0	7.1	1.6	.3
Jun	11.9	7.5	2.0	.7
Jul	10.8	6.9	2.2	.6
Aug	10.4	6.9	2.4	.7
Sep	11.4	7.3	2.5	.7
Oct	12.1	6.7	1.7	.5
Nov	14.7	7.8	1.6	.4
Dec	16.1	8.0	1.5	.2
Ann	154.5	86.4	20.1	5.0

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	.84	1.08	1.44	1.74	2.04	2.34	2.67	3.05	3.55	4.32	5.03
Feb	.71	.91	1.21	1.46	1.70	1.94	2.21	2.53	2.93	3.55	4.13
Mar	.88	1.11	1.44	1.72	1.99	2.26	2.56	2.91	3.35	4.04	4.67
Apr	.81	1.09	1.52	1.89	2.25	2.63	3.05	3.55	4.19	5.21	6.15
May	1.07	1.33	1.71	2.02	2.31	2.61	2.94	3.32	3.80	4.53	5.21
Jun	1.30	1.60	2.04	2.40	2.73	3.08	3.45	3.88	4.43	5.27	6.04
Jul	1.05	1.36	1.84	2.24	2.63	3.04	3.48	4.01	4.68	5.73	6.70
Aug	1.55	1.86	2.30	2.66	2.99	3.32	3.69	4.10	4.62	5.41	6.13
Sep	1.48	1.83	2.34	2.77	3.17	3.58	4.02	4.53	5.18	6.19	7.10
Oct	1.00	1.28	1.69	2.04	2.37	2.71	3.09	3.53	4.09	4.97	5.77
Nov	1.50	1.76	2.10	2.38	2.64	2.90	3.17	3.48	3.87	4.46	4.98
Dec	1.21	1.48	1.86	2.17	2.46	2.76	3.08	3.45	3.92	4.63	5.28
Ann	27.48	29.14	31.24	32.81	34.20	35.54	36.90	38.40	40.21	42.81	45.04

\+ 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)

Extremes (2)

Mean Number of Days (1)

Snow Fall >= Thresholds

Snow Depth >= Thresholds

Month	Snow Fall Mean	Snow Fall Median	Snow Depth Mean	Snow Depth Median	Highest Daily Snow Fall	Year	Day	Highest Monthly Snow Fall	Year	Highest Daily Snow Depth	Year	Day	Highest Monthly Mean Snow Depth	Year	0.1	1.0	3.0	5.0	10.0	1	3	5	10
Jan	17.2	17.9	8	7	9.7	1999	15	32.6	1994	34+	1978	22	20	1978	14.8	6.0	1.3	.4	.0	26.3	22.2	18.3	10.5
Feb	15.5	13.3	8	6	12.3	1994	24	43.4	1971	39+	1971	26	24	1971	10.3	4.8	1.3	.7	.1	24.1	19.6	16.5	9.6
Mar	11.9	10.2	4	3	15.6	1971	4	32.2	1971	44+	1971	10	27	1971	8.3	3.5	1.2	.4	.1	17.7	14.4	9.8	4.5
Apr	4.7	2.4	1	1	17.0	1993	22	29.5	1993	19	1975	5	4+	1975	2.2	1.1	.5	.2	@	3.2	1.8	1.1	.5
May	.1	.0	#	0	1.8	1983	9	1.8	1983	#+	1978	2	#	2000	.1	.0	.0	.0	.0	.0	.0	.0	.0
Jun	.0	.0	0	0	.0	0	0	.0	0	0	0	0	0	0	.0	.0	.0	.0	.0	.0	.0	.0	.0
Jul	.0	.0	0	0	.0	0	0	.0	0	0	0	0	0	0	.0	.0	.0	.0	.0	.0	.0	.0	.0
Aug	.0	.0	0	0	.0	0	0	.0	0	0	0	0	0	0	.0	.0	.0	.0	.0	.0	.0	.0	.0
Sep	#	.0	0	0	#	1992	30	#	1992	0	0	0	0	0	.0	.0	.0	.0	.0	.0	.0	.0	.0
Oct	.9	.0	#	0	7.3	1988	22	9.3	1988	3	1988	23	#	1997	.6	.3	.1	@	.0	.2	@	.0	.0
Nov	6.2	5.4	#	0	12.0	1975	14	18.1	1995	12	1975	15	2	1995	4.6	1.9	.6	.2	@	4.9	1.9	.8	@
Dec	16.8	17.8	4	3	11.7	1993	21	54.9	1972	26	1973	23	13	1995	12.0	5.5	1.7	.6	.1	19.6	13.2	9.7	3.9
Ann	73.3	67.0	N/A	N/A	17.0	Apr 1993	22	54.9	Dec 1972	44+	Mar 1971	10	27	Mar 1971	52.9	23.1	6.7	2.5	.3	96.0	73.1	56.2	29.0

+ 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	6/05	5/31	5/28	5/25	5/23	5/20	5/18	5/15	5/10
32	5/24	5/18	5/15	5/11	5/08	5/05	5/02	4/28	4/22
28	5/06	5/02	4/29	4/27	4/25	4/23	4/21	4/18	4/14
24	4/25	4/22	4/19	4/17	4/14	4/12	4/10	4/07	4/03
20	4/19	4/15	4/11	4/09	4/06	4/03	3/31	3/28	3/24
16	4/10	4/05	4/02	3/31	3/28	3/26	3/23	3/20	3/16

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	8/30	9/04	9/08	9/11	9/14	9/17	9/20	9/24	9/29
32	9/18	9/21	9/24	9/26	9/28	10/01	10/03	10/05	10/09
28	9/25	9/29	10/03	10/05	10/08	10/10	10/13	10/16	10/20
24	10/06	10/12	10/16	10/20	10/23	10/27	10/30	11/03	11/09
20	10/19	10/24	10/28	11/01	11/04	11/07	11/10	11/14	11/20
16	10/27	11/02	11/07	11/10	11/14	11/17	11/21	11/25	12/01

Freeze Free Period

Temp (F)	Probability of longer than indicated freeze free period (Days)								
	.10	.20	.30	.40	.50	.60	.70	.80	.90
36	133	126	121	117	113	109	105	100	94
32	161	155	150	146	143	139	135	130	124
28	185	178	173	169	165	161	157	152	146
24	215	207	201	196	191	186	181	176	167
20	232	225	220	215	211	207	203	197	190
16	253	245	239	234	230	225	221	215	207

***** 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	1559	1332	1122	655	280	81	15	44	209	563	886	1343	8089
60	1404	1192	967	507	162	25	1	9	98	412	736	1188	6701
57	1311	1108	874	420	107	10	0	2	54	326	646	1095	5953
55	1249	1052	812	364	77	5	0	0	34	272	586	1033	5484
50	1094	912	659	238	29	0	0	0	7	156	437	880	4412
32	560	436	206	14	0	0	0	0	0	2	58	394	1670

Cooling Degree Days (1)

Base Above	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Ann
32	24	27	107	349	759	984	1171	1093	792	462	162	74	6004
55	0	0	0	9	123	299	458	380	136	19	0	0	1424
57	0	0	0	4	90	244	396	320	96	11	0	0	1161
60	0	0	0	1	53	170	303	233	50	4	0	0	814
65	0	0	0	0	15	75	163	113	10	0	0	0	376
70	0	0	0	0	3	21	64	39	1	0	0	0	128

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	2	29	166	522	754	933	853	560	242	65	7	1	3	32	198	720	1474	2407	3260	3820	4062	4127	4134
45	0	0	13	88	374	604	778	698	412	140	28	0	0	0	13	101	475	1079	1857	2555	2967	3107	3135	3135
50	0	0	4	44	235	455	623	543	274	68	7	0	0	0	4	48	283	738	1361	1904	2178	2246	2253	2253
55	0	0	2	18	128	312	468	388	159	29	1	0	0	0	2	20	148	460	928	1316	1475	1504	1505	1505
60	0	0	0	8	59	181	315	243	79	7	0	0	0	0	0	8	67	248	563	806	885	892	892	892
Base	**Growing Degree Units for Corn (Monthly)**												**Growing Degree Units for Corn (Accumulated Monthly)**											
50/86	0	0	22	102	310	474	616	551	333	141	33	2	0	0	22	124	434	908	1524	2075	2408	2549	2582	2584

(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