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: FREDONIA, NY **COOP ID: 303033**

Climate Division: NY 9 **NWS Call Sign:** **Elevation: 760 Feet** **Lat: 42˚27N** **Lon: 79˚14W**

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	32.1	19.0	25.6	73	1950	25	35.9	1990	-17	1994	19	12.9	1977	1223	0	.0	.0	2.4	15.2	27.3	1.7
Feb	34.4	19.3	26.9	73+	2000	26	35.2	1998	-26	1943	15	14.7	1978	1068	0	.0	.0	3.6	12.8	24.7	1.7
Mar	43.9	26.9	35.4	82	1998	31	43.3	2000	-10+	1980	2	27.3	1984	919	0	.0	.0	9.8	5.6	22.6	.4
Apr	55.2	36.7	46.0	91	1990	28	50.6	1985	10	1972	8	39.2	1975	572	0	.0	.1	21.0	.4	9.9	.0
May	67.0	47.6	57.3	90+	1996	20	63.6	1998	27+	1970	7	51.9	1997	267	29	.0	@	30.1	.0	.6	.0
Jun	75.7	57.0	66.4	95	1949	24	70.3	1995	35	1972	11	60.9	1982	65	104	.0	.3	30.0	.0	.0	.0
Jul	79.6	61.7	70.7	98+	1936	10	75.4	1999	43	1963	9	66.9	1976	11	186	.0	1.2	31.0	.0	.0	.0
Aug	77.9	60.6	69.3	98	1951	31	73.7	1995	37	1982	29	65.6	1982	19	151	.0	.6	31.0	.0	.0	.0
Sep	71.6	54.2	62.9	97	1953	3	66.6	1998	32+	1965	27	58.5	1975	103	40	.0	@	30.0	.0	.0	.0
Oct	60.7	44.1	52.4	91	1927	2	58.4	1971	21	1965	29	46.9	1976	395	5	.0	.0	27.6	.0	1.9	.0
Nov	48.5	35.3	41.9	82	1950	1	47.3	1999	7	1929	30	34.7	1976	694	0	.0	.0	13.7	1.1	11.9	.0
Dec	37.1	25.2	31.2	74	1982	3	39.8	1982	-9	1943	15	20.5	1989	1049	0	.0	.0	3.8	9.1	24.0	.3
Ann	57.0	40.6	48.8	98+	Aug 1951	31	75.4	Jul 1999	-26	Feb 1943	15	12.9	Jan 1977	6385	515	.0	2.2	234.0	44.2	122.9	4.1

\+ 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: 1926-2001

(3) Derived from 1971-2000 serially complete daily data

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: FREDONIA, NY **COOP ID: 303033**

Climate Division: NY 9 **NWS Call Sign:** **Elevation: 760 Feet** **Lat: 42˚27N** **Lon: 79˚14W**

Precipitation (inches)

Precipitation Totals

	Means/ Medians(1)		Extremes							Mean Number of Days (3)				Precipitation Probabilities (1)									
										Daily Precipitation				Monthly/Annual Precipitation vs Probability Levels These values were determined from the incomplete gamma distribution									
Month	Mean	Median	Highest Daily(2)	Year	Day	Highest Monthly(1)	Year	Lowest Monthly(1)	Year	>= 0.01	>= 0.10	>= 0.50	>= 1.00	.05	.10	.20	.30	.40	.50	.60	.70	.80	.90	.95
Jan	2.57	2.21	1.90	1998	8	5.64	1979	.94	1992	15.7	8.2	1.0	.1	.90	1.14	1.49	1.79	2.08	2.37	2.69	3.06	3.54	4.27	4.95
Feb	2.12	2.03	2.04	1930	25	5.18	1981	.42	1987	12.1	6.4	.9	.2	.61	.81	1.11	1.38	1.63	1.90	2.20	2.55	3.00	3.70	4.36
Mar	2.76	2.51	1.90	1956	7	4.98	1976	1.26	1995	12.2	7.6	1.4	.2	1.27	1.52	1.85	2.12	2.37	2.62	2.89	3.20	3.59	4.17	4.70
Apr	3.30	3.42	3.32	1977	23	6.07	1996	.82	1975	11.5	8.1	2.0	.4	1.35	1.65	2.08	2.43	2.76	3.09	3.46	3.87	4.40	5.21	5.94
May	3.32	3.10	2.68	1986	20	6.82	1989	.93	1987	10.5	7.2	2.3	.5	1.17	1.49	1.94	2.32	2.68	3.06	3.46	3.94	4.54	5.48	6.34
Jun	3.94	3.70	2.74	1937	18	8.69	1972	.98	1988	10.3	7.4	2.7	1.0	1.37	1.74	2.28	2.74	3.18	3.63	4.12	4.69	5.42	6.55	7.59
Jul	3.78	3.69	4.41	1983	29	7.64	1976	1.09	1979	9.2	6.6	2.3	.9	1.21	1.57	2.10	2.55	2.99	3.44	3.94	4.52	5.26	6.43	7.50
Aug	3.86	3.70	6.88	1942	22	9.01	1979	1.65	1996	9.8	7.1	2.4	1.0	1.61	1.96	2.46	2.86	3.24	3.63	4.05	4.52	5.13	6.05	6.89
Sep	4.84	4.79	5.81	1979	14	11.84	1977	2.12	1998	10.4	8.3	3.3	1.3	1.93	2.37	3.01	3.53	4.03	4.53	5.07	5.70	6.50	7.72	8.83
Oct	4.04	3.54	2.52	1959	1	7.38	1980	2.01	1975	11.4	8.4	2.7	.8	1.90	2.25	2.74	3.13	3.49	3.85	4.24	4.68	5.24	6.08	6.83
Nov	4.16	3.65	2.78	1985	5	12.11	1985	1.47	1978	13.4	9.8	2.8	.6	1.62	2.00	2.55	3.01	3.44	3.88	4.35	4.90	5.60	6.68	7.66
Dec	3.39	3.25	2.28	1979	25	7.06	1977	1.74	1995	15.0	9.6	1.8	.3	1.72	2.00	2.38	2.69	2.97	3.25	3.55	3.89	4.31	4.95	5.52
Ann	42.08	41.15	6.88	Aug 1942	22	12.11	Nov 1985	.42	Feb 1987	141.5	94.7	25.6	7.3	31.72	33.77	36.37	38.33	40.06	41.72	43.43	45.31	47.57	50.84	53.64

\+ 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: 1926-2001
(3) Derived from 1971-2000 serially complete daily data

Complete documentation available from:
www.ncdc.noaa.gov/oa/climate/normals/usnormals.html

U.S. Department of Commerce
National Oceanic & Atmospheric Administration
National Environmental Satellite, Data,
and Information Services

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: FREDONIA, NY **COOP ID: 303033**

Climate Division: NY 9 **NWS Call Sign:** **Elevation: 760 Feet** **Lat: 42°27N** **Lon: 79°14W**

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	25.3	18.2	9	6	13.0	1975	14	52.7	1994	50+	1982	5	32	1977	11.0	8.5	3.5	1.3	.3	23.0	17.6	13.9	9.9
Feb	16.7	17.0	8	5	17.0	1979	26	36.0	1979	68	1977	8	38	1977	7.2	5.6	2.0	.7	.1	18.5	15.5	12.3	5.9
Mar	10.5	9.0	2	2	12.0	1999	6	23.5	1980	24	1978	5	12	1978	5.1	3.9	1.4	.6	@	8.9	5.5	3.2	1.1
Apr	2.5	1.0	#	#	10.0	1982	6	12.8	1982	10	1982	6	1	1982	1.4	1.1	.3	@	@	1.2	.5	.2	@
May	.3	.0	#	0	7.0	1989	7	9.0	1989	2	1989	7	#	1989	.1	.1	@	@	.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	0	.0	0	0	.0	0	0	0	0	0	0	.0	.0	.0	.0	.0	.0	.0	.0	.0
Oct	.4	.0	#	0	3.0	1988	26	3.0+	1993	2	1993	31	#+	1993	.1	.1	.1	.0	.0	.1	.0	.0	.0
Nov	6.9	4.3	1	#	11.0	1976	30	25.0	1976	22	1979	30	4	1996	2.7	2.2	.8	.5	.1	3.5	1.5	.5	@
Dec	20.0	18.0	4	2	12.0	1977	25	55.0	1977	42	1985	30	15	1985	8.2	6.8	2.7	1.2	.1	14.4	9.6	5.8	1.7
Ann	82.6	67.5	N/A	N/A	17.0	Feb 1979	26	55.0	Dec 1977	68	Feb 1977	8	38	Feb 1977	35.8	28.3	10.8	4.3	.6	69.6	50.2	35.9	18.6

+ 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

Complete documentation available from:
www.ncdc.noaa.gov/oa/climate/normals/usnormals.html

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: FREDONIA, NY **COOP ID: 303033**

Climate Division: NY 9 **NWS Call Sign:** **Elevation: 760 Feet** **Lat: 42˚27N** **Lon: 79˚14W**

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	5/26	5/22	5/18	5/16	5/13	5/10	5/07	5/04	4/30
32	5/14	5/10	5/07	5/04	5/02	4/29	4/27	4/24	4/20
28	4/27	4/24	4/22	4/20	4/18	4/16	4/14	4/11	4/08
24	4/18	4/14	4/11	4/09	4/07	4/04	4/02	3/30	3/26
20	4/11	4/07	4/04	4/01	3/29	3/27	3/24	3/20	3/16
16	3/31	3/27	3/24	3/22	3/19	3/17	3/14	3/11	3/07

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	9/24	9/29	10/02	10/05	10/08	10/10	10/13	10/17	10/21
32	10/08	10/12	10/16	10/19	10/22	10/25	10/28	10/31	11/05
28	10/18	10/24	10/29	11/01	11/05	11/08	11/12	11/16	11/22
24	11/04	11/09	11/13	11/16	11/20	11/23	11/26	11/30	12/05
20	11/12	11/18	11/22	11/25	11/28	12/02	12/05	12/09	12/15
16	11/25	11/30	12/03	12/06	12/08	12/11	12/14	12/17	12/22

Freeze Free Period

Temp (F)	Probability of longer than indicated freeze free period (Days)								
	.10	.20	.30	.40	.50	.60	.70	.80	.90
36	168	161	155	151	147	143	139	134	127
32	192	185	180	176	172	168	164	159	152
28	222	215	209	205	200	196	191	186	178
24	247	240	235	230	226	222	217	212	205
20	263	257	252	247	244	240	235	230	224
16	281	275	271	267	264	260	256	252	246

***** 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

Complete documentation available from:
www.ncdc.noaa.gov/oa/climate/normals/usnormals.html

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: FREDONIA, NY **COOP ID: 303033**

Climate Division: NY 9 **NWS Call Sign:** **Elevation: 760 Feet** **Lat: 42˚27N** **Lon: 79˚14W**

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	1223	1068	919	572	267	65	11	19	103	395	694	1049	6385
60	1068	928	764	425	158	20	0	2	34	258	544	894	5095
57	975	844	671	340	107	8	0	0	14	188	456	801	4404
55	913	788	611	288	80	4	0	0	7	148	399	739	3977
50	758	650	468	172	32	0	0	0	1	72	267	592	3012
32	286	231	99	4	0	0	0	0	0	0	17	166	803

Cooling Degree Days (1)

Base Above	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Ann
32	86	87	204	423	785	1029	1198	1155	927	633	313	139	6979
55	0	0	2	16	152	343	485	442	243	67	5	0	1755
57	0	0	0	9	118	287	423	380	191	46	2	0	1456
60	0	0	0	3	76	209	331	289	121	23	0	0	1052
65	0	0	0	0	29	104	186	151	40	5	0	0	515
70	0	0	0	0	8	36	78	58	6	0	0	0	186

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	13	22	90	245	565	813	974	929	705	408	149	34	13	35	125	370	935	1748	2722	3651	4356	4764	4913	4947
45	3	8	50	145	415	663	819	774	555	268	76	13	3	11	61	206	621	1284	2103	2877	3432	3700	3776	3789
50	0	0	24	80	277	514	664	619	407	156	38	5	0	0	24	104	381	895	1559	2178	2585	2741	2779	2784
55	0	0	9	46	165	368	509	464	270	77	15	0	0	0	9	55	220	588	1097	1561	1831	1908	1923	1923
60	0	0	3	17	86	235	355	309	153	33	1	0	0	0	3	20	106	341	696	1005	1158	1191	1192	1192
Base	**Growing Degree Units for Corn (Monthly)**												**Growing Degree Units for Corn (Accumulated Monthly)**											
50/86	4	10	56	141	331	522	660	617	430	210	68	12	4	14	70	211	542	1064	1724	2341	2771	2981	3049	3061

(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:
www.ncdc.noaa.gov/oa/climate/normals/usnormals.html

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