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: SYRACUSE, NE **COOP ID: 258395**

Climate Division: NE 9 **NWS Call Sign:** **Elevation: 1,100 Feet** **Lat: 40˚41N** **Lon: 96˚11W**

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	33.1	10.7	21.9	71+	1990	11	33.2	1989	-30	1974	12	8.1	1979	1336	0	.0	.0	4.0	14.4	30.3	6.8
Feb	39.2	15.8	27.5	83	1972	29	37.3	1987	-23	1971	8	10.8	1979	1051	0	.0	.0	7.8	9.8	25.7	4.1
Mar	51.1	26.3	38.7	89+	1986	30	44.5	1986	-22	1978	4	30.1	1975	816	0	.0	.0	16.4	2.8	21.3	.6
Apr	63.5	37.6	50.6	96+	1989	27	58.5	1981	6	1975	3	43.8	1983	440	6	.0	.5	25.9	.2	8.3	.0
May	74.0	49.3	61.7	100	1956	13	68.2	1977	26	1976	3	56.1	1997	175	71	.0	1.3	30.8	.0	.8	.0
Jun	84.5	59.6	72.1	107	1980	28	77.1	1988	38+	1979	2	66.8	1982	19	232	.7	9.0	30.0	.0	.0	.0
Jul	88.7	64.6	76.7	109+	1956	27	81.6	1980	41	1972	5	72.0	1992	0	361	2.3	14.8	31.0	.0	.0	.0
Aug	86.6	61.8	74.2	109	1955	1	81.1	1983	39	1950	20	68.9	1992	13	298	1.2	12.0	31.0	.0	.0	.0
Sep	79.1	51.5	65.3	108	2000	3	71.8	1998	23	1984	30	59.6	1974	88	97	.2	5.3	29.9	.0	.9	.0
Oct	66.9	38.8	52.9	95+	1994	1	57.4	1971	7	1997	28	47.1	1976	380	4	.0	.3	28.7	@	7.6	.0
Nov	49.4	26.4	37.9	83	1990	1	45.3	1999	-7	1952	28	30.7	1991	813	0	.0	.0	15.4	3.0	21.0	.4
Dec	36.6	15.6	26.1	72	1964	24	32.4	1979	-26	1989	23	7.2	1983	1206	0	.0	.0	5.3	10.6	29.6	3.8
Ann	62.7	38.2	50.5	109+	Jul 1956	27	81.6	Jul 1980	-30	Jan 1974	12	7.2	Dec 1983	6337	1069	4.4	43.2	256.2	40.8	145.5	15.7

\+ 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

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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	.71	.57	1.59	1949	3	1.81	1992	.00	1986
Feb	.80	.69	1.31	1951	25	2.79	1998	.02	1977
Mar	2.35	2.01	2.10	1957	25	6.65	1973	.06	1994
Apr	2.86	2.57	2.50	1969	4	6.69	1984	.63	1971
May	4.41	3.83	6.74	1950	9	10.05	1996	1.31	1989
Jun	3.46	3.07	4.60	1955	24	6.91	1984	.77	1973
Jul	4.47	3.67	5.75	1958	10	18.73	1993	.24	1974
Aug	3.41	2.55	3.41	1950	7	11.06	1982	.54	1976
Sep	3.20	2.53	4.27	1973	26	10.45	1973	.38	1980
Oct	2.35	2.26	4.40	1968	17	6.16	1986	.00+	1999
Nov	1.81	1.62	1.98	1961	16	3.74+	1996	.00	1989
Dec	.85	.60	1.64	1984	16	2.74	1984	.04	1996
Ann	30.68	28.89	6.74	May 1950	9	18.73	Jul 1993	.00+	Oct 1999

Mean Number of Days (3)

Month	Daily Precipitation >= 0.01	>= 0.10	>= 0.50	>= 1.00
Jan	4.3	2.4	.2	.0
Feb	4.7	2.5	.5	.0
Mar	7.7	4.7	1.6	.6
Apr	8.9	5.9	2.0	.6
May	11.9	7.9	3.1	1.1
Jun	9.1	6.2	2.5	.7
Jul	8.8	6.2	2.7	1.3
Aug	8.8	5.8	2.4	.9
Sep	7.5	4.7	1.9	.9
Oct	6.5	4.1	1.5	.6
Nov	6.0	3.8	1.3	.5
Dec	5.2	2.4	.4	.1
Ann	89.4	56.6	20.1	7.3

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	.04	.11	.22	.33	.44	.56	.70	.88	1.12	1.50	1.88
Feb	.04	.08	.18	.28	.41	.56	.74	.97	1.30	1.86	2.42
Mar	.19	.35	.66	.98	1.34	1.75	2.24	2.86	3.71	5.14	6.56
Apr	.76	1.03	1.44	1.81	2.16	2.54	2.96	3.45	4.10	5.11	6.07
May	1.60	2.01	2.61	3.11	3.59	4.08	4.61	5.23	6.02	7.24	8.35
Jun	1.06	1.39	1.88	2.30	2.71	3.13	3.60	4.15	4.86	5.96	6.99
Jul	.70	1.08	1.73	2.34	2.98	3.68	4.48	5.45	6.76	8.88	10.92
Aug	.63	.93	1.43	1.89	2.36	2.87	3.45	4.15	5.09	6.59	8.02
Sep	.50	.77	1.23	1.67	2.13	2.63	3.21	3.91	4.85	6.38	7.84
Oct	.00	.35	.81	1.19	1.56	1.96	2.41	2.94	3.65	4.81	5.91
Nov	.11	.29	.58	.84	1.12	1.43	1.79	2.24	2.84	3.83	4.78
Dec	.07	.12	.23	.35	.48	.63	.80	1.03	1.34	1.86	2.37
Ann	19.12	21.24	24.03	26.18	28.12	30.03	32.01	34.23	36.95	40.96	44.47

\+ 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)

Month	Snow Fall Mean	Snow Fall Median	Snow Depth Mean	Snow Depth Median
Jan	6.4	6.2	2	1
Feb	5.9	3.7	1	1
Mar	3.3	3.0	1	#
Apr	1.1	.0	#	0
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	.0	#	0
Nov	2.1	.9	#	#
Dec	4.5	3.5	1	#
Ann	24.0	17.3	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	10.0	1971	3	16.0	1975	13	1971	8	7	1971
Feb	9.0	1971	22	14.5	1981	12	1979	18	10	1979
Mar	9.0	1980	8	10.5	1978	14	1978	5	4	1998
Apr	8.0	1992	21	12.5	1997	7	1997	11	1	1997
May	.0	0	0	.0	0	0	0	0	0	0
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	.0	0	0	.0	0	0	0	0	0	0
Oct	11.0	1997	26	11.0	1997	8	1997	27	1	1997
Nov	7.5	2000	7	9.0	2000	6	1983	29	1	1991
Dec	8.0	1973	19	14.0	1973	11+	2000	20	5+	2000
Ann	11.0	Oct 1997	26	16.0	Jan 1975	14	Mar 1978	5	10	Feb 1979

Mean Number of Days (1)

Snow Fall >= Thresholds

Month	0.1	1.0	3.0	5.0	10.0
Jan	3.4	2.1	.9	.2	@
Feb	2.4	1.9	.6	.3	.0
Mar	1.5	1.2	.5	.2	.0
Apr	.3	.3	.2	.1	.0
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	.0	.0	.0	.0	.0
Oct	.1	.1	.1	@	@
Nov	1.1	.9	.3	.1	.0
Dec	2.7	1.8	.6	.2	.0
Ann	11.5	8.3	3.2	1.1	@

Snow Depth >= Thresholds

Month	1	3	5	10
Jan	11.8	8.1	4.6	.9
Feb	6.4	2.8	1.0	.0
Mar	2.2	1.4	.7	.2
Apr	.2	@	.0	.0
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	@	.0	.0	.0
Nov	1.2	.4	.2	.0
Dec	3.7	1.6	.6	.0
Ann	25.5	14.3	7.1	1.1

+ 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	5/16	5/12	5/08	5/05	5/03	4/30	4/27	4/24	4/19
32	5/10	5/05	5/02	4/29	4/26	4/24	4/21	4/17	4/12
28	4/30	4/25	4/21	4/18	4/15	4/12	4/08	4/04	3/30
24	4/17	4/12	4/09	4/06	4/04	4/01	3/29	3/26	3/21
20	4/11	4/05	4/01	3/28	3/25	3/22	3/18	3/14	3/08
16	4/02	3/27	3/22	3/18	3/14	3/11	3/07	3/02	2/23

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

Freeze Free Period

Temp (F)	Probability of longer than indicated freeze free period (Days)								
	.10	.20	.30	.40	.50	.60	.70	.80	.90
36	163	157	152	149	145	141	137	133	127
32	176	170	166	162	159	156	152	148	143
28	201	194	189	184	180	176	172	167	160
24	229	222	217	212	208	203	199	193	186
20	251	242	236	230	225	220	214	208	199
16	281	271	263	257	251	245	238	231	220

***** 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	1336	1051	816	440	175	19	0	13	88	380	813	1206	6337
60	1181	911	661	305	93	4	0	2	32	242	663	1051	5145
57	1088	835	575	234	58	1	0	0	14	172	574	958	4509
55	1027	783	516	191	41	0	0	0	7	131	516	896	4108
50	879	653	377	105	14	0	0	0	1	59	380	752	3220
32	400	274	69	1	0	0	0	0	0	0	64	295	1103

Cooling Degree Days (1)

Base Above	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Ann
32	87	147	276	557	918	1202	1384	1308	999	647	240	112	7877
55	1	12	10	57	246	513	671	595	316	66	3	0	2490
57	0	8	7	39	202	454	609	533	263	44	1	0	2160
60	0	0	0	21	144	367	516	442	191	21	0	0	1702
65	0	0	0	6	71	232	361	298	97	4	0	0	1069
70	0	0	0	1	27	123	216	175	39	0	0	0	581

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	7	41	141	367	695	983	1156	1081	785	436	112	15	7	48	189	556	1251	2234	3390	4471	5256	5692	5804	5819
45	0	13	78	244	543	833	1001	926	635	301	57	3	0	13	91	335	878	1711	2712	3638	4273	4574	4631	4634
50	0	3	39	147	391	683	846	771	490	192	21	1	0	3	42	189	580	1263	2109	2880	3370	3562	3583	3584
55	0	0	13	83	254	534	691	616	352	100	3	0	0	0	13	96	350	884	1575	2191	2543	2643	2646	2646
60	0	0	3	41	145	386	536	461	234	45	2	0	0	0	3	44	189	575	1111	1572	1806	1851	1853	1853
Base	**Growing Degree Units for Corn (Monthly)**												**Growing Degree Units for Corn (Accumulated Monthly)**											
50/86	13	40	114	238	434	650	777	720	511	292	85	19	13	53	167	405	839	1489	2266	2986	3497	3789	3874	3893

(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

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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