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: ELMIRA, NY **COOP ID: 302610**

Climate Division: NY 1 **NWS Call Sign:** **Elevation: 844 Feet** **Lat: 42˚06N** **Lon: 76˚48W**

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	32.7	15.0	23.9	72	1950	26	34.0	1990	-20	1963	29	13.5	1977	1275	0	.0	.0	2.1	15.1	28.9	3.8
Feb	35.3	15.8	25.6	70	1953	22	33.5	1998	-21+	1979	19	14.9	1979	1105	0	.0	.0	3.4	11.8	25.8	3.2
Mar	44.7	23.7	34.2	86	1998	31	40.9	1973	-10+	1967	20	25.0	1984	955	0	.0	.0	9.8	4.4	25.0	.5
Apr	57.0	34.0	45.5	92	1990	29	50.5	1987	9	1982	8	38.8	1975	585	0	.0	.1	21.5	.4	14.8	.0
May	69.6	44.1	56.9	96+	1996	21	63.9	1991	21	1931	1	52.6	1997	276	23	.0	.6	30.2	.0	2.8	.0
Jun	77.9	53.3	65.6	102	1952	27	69.1	1973	32+	1983	9	60.1	1985	69	88	.0	1.7	30.0	.0	@	.0
Jul	82.3	58.3	70.3	104	1936	9	74.6	1988	40+	1983	7	65.8	2000	14	178	.1	4.3	31.0	.0	.0	.0
Aug	80.4	56.6	68.5	102	1948	26	72.5	1980	31	1982	29	65.0	1982	27	136	.0	2.4	31.0	.0	@	.0
Sep	72.5	49.2	60.9	107	1953	3	64.3	1971	23	1947	28	56.8	1975	145	20	.0	.6	30.0	.0	.6	.0
Oct	60.8	37.8	49.3	93	1951	6	55.4	1971	15+	1974	20	44.2	1972	487	1	.0	.0	26.8	.0	8.8	.0
Nov	48.4	30.7	39.6	87	1950	2	44.3	1975	3+	1976	30	33.9	1976	763	0	.0	.0	12.8	1.2	18.4	.0
Dec	37.3	21.4	29.4	69	1998	7	35.3	1982	-16	1980	25	16.8	1989	1105	0	.0	.0	3.6	9.2	26.9	1.3
Ann	58.2	36.7	47.5	107	Sep 1953	3	74.6	Jul 1988	-21+	Feb 1979	19	13.5	Jan 1977	6806	446	.1	9.7	232.2	42.1	152.0	8.8

\+ 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: 1926-2001

(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	1.92	1.72	1.74	1979	25	5.15	1978	.43	1981
Feb	2.01	1.75	2.69	1984	15	4.52	1984	.87	1987
Mar	2.65	2.31	3.56	1999	4	7.01	1980	.87	1981
Apr	2.94	2.58	1.95	1993	17	8.70	1993	.83	1975
May	3.02	2.89	2.52	1946	28	6.47	1989	.90	1980
Jun	4.01	3.84	3.65	1972	22	11.10	1972	.93	1991
Jul	3.42	3.12	2.90	1998	1	7.20	1975	1.07	1989
Aug	3.29	2.72	3.70	1994	18	8.88	1994	1.03	1998
Sep	3.53	3.00	3.60	2001	25	8.15	1975	1.43	1983
Oct	2.79	2.33	3.00	1929	2	6.91	1990	.86	1982
Nov	3.02	2.94	3.80	1996	9	5.94	1985	.93	1998
Dec	2.35	2.11	2.55	1952	11	4.62	1990	.80	1988
Ann	34.95	35.45	3.80	Nov 1996	9	11.10	Jun 1972	.43	Jan 1981

Mean Number of Days (3)

Daily Precipitation

Month	>= 0.01	>= 0.10	>= 0.50	>= 1.00
Jan	10.5	5.4	.8	.2
Feb	8.8	5.4	1.0	.2
Mar	9.8	5.9	1.6	.5
Apr	11.7	6.9	1.7	.4
May	12.6	7.7	2.0	.5
Jun	11.7	7.9	3.0	.6
Jul	10.8	6.8	2.3	.7
Aug	10.4	6.3	2.1	.7
Sep	11.2	7.3	2.2	.8
Oct	10.5	5.9	1.6	.6
Nov	10.8	6.6	1.9	.5
Dec	10.6	5.8	1.4	.3
Ann	129.4	77.9	21.6	6.0

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	.47	.65	.93	1.18	1.43	1.69	1.98	2.33	2.78	3.50	4.18
Feb	.72	.91	1.19	1.41	1.63	1.86	2.10	2.38	2.74	3.30	3.81
Mar	.81	1.07	1.44	1.77	2.08	2.40	2.76	3.18	3.72	4.57	5.35
Apr	.98	1.26	1.67	2.02	2.35	2.69	3.07	3.51	4.07	4.95	5.75
May	1.06	1.34	1.76	2.10	2.44	2.78	3.16	3.59	4.15	5.01	5.81
Jun	1.25	1.63	2.20	2.68	3.15	3.64	4.17	4.80	5.60	6.86	8.03
Jul	1.22	1.54	2.01	2.40	2.77	3.16	3.57	4.06	4.68	5.64	6.52
Aug	1.11	1.42	1.87	2.26	2.63	3.01	3.43	3.92	4.54	5.51	6.40
Sep	1.31	1.64	2.12	2.51	2.89	3.28	3.70	4.18	4.80	5.75	6.63
Oct	.76	1.03	1.43	1.78	2.13	2.49	2.89	3.36	3.98	4.95	5.86
Nov	1.07	1.36	1.77	2.11	2.44	2.78	3.15	3.58	4.13	4.97	5.75
Dec	.83	1.05	1.37	1.64	1.90	2.17	2.45	2.79	3.21	3.88	4.48
Ann	26.22	27.95	30.14	31.79	33.24	34.64	36.08	37.67	39.58	42.33	44.70

\+ 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

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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	10.0	7.5	3	2
Feb	9.6	6.8	3	2
Mar	9.3	5.0	2	2
Apr	1.6	.0	#	0
May	.1	.0	#	0
Jun	.0	.0	#	0
Jul	.0	.0	0	0
Aug	.0	.0	0	0
Sep	.0	.0	0	0
Oct	.2	.0	#	0
Nov	2.7	1.5	#	0
Dec	9.3	7.6	1	1
Ann	42.8	28.4	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	11.5	1978	18	31.5	1978	25	1978	21	11	1994
Feb	17.5	1972	20	37.5	1972	25	1972	20	12	1994
Mar	17.0	1971	4	37.5	1993	35	1994	4	20	1994
Apr	7.0	1974	9	9.0	1974	9	1974	10	1+	1982
May	3.0	1977	10	3.0	1977	3	1977	10	#	2000
Jun	.0	0	0	.0	0	0	0	0	#	1977
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	2.0	1988	21	3.0	1988	2	1988	21	#	1988
Nov	8.0	1980	18	12.5	1995	10+	1995	16	3	1995
Dec	18.0	1997	30	25.0	1997	18	1997	30	3+	1995
Ann	18.0	Dec 1997	30	37.5+	Mar 1993	35	Mar 1994	4	20	Mar 1994

Mean Number of Days (1)

Snow Fall >= Thresholds

Month	0.1	1.0	3.0	5.0	10.0
Jan	5.2	4.0	1.3	.5	.1
Feb	4.3	3.5	1.3	.4	@
Mar	3.3	2.6	1.1	.5	.1
Apr	.8	.7	.3	@	.0
May	.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	.0	.0	.0
Nov	1.4	1.0	.3	.2	.0
Dec	4.4	3.3	.9	.5	.1
Ann	19.5	15.2	5.2	2.1	.3

Snow Depth >= Thresholds

Month	1	3	5	10
Jan	17.1	9.2	5.6	2.2
Feb	16.2	10.8	6.4	1.8
Mar	7.7	5.3	3.6	1.8
Apr	1.0	.4	.2	.0
May	@	@	.0	.0
Jun	.0	.0	.0	.0
Jul	.0	.0	.0	.0
Aug	.0	.0	.0	.0
Sep	.0	.0	.0	.0
Oct	.1	.0	.0	.0
Nov	2.1	1.2	.5	.1
Dec	9.8	4.3	2.0	.4
Ann	54.0	31.2	18.3	6.3

+ 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	6/09	6/03	5/30	5/26	5/23	5/19	5/16	5/12	5/06
32	5/22	5/18	5/14	5/11	5/09	5/06	5/03	4/30	4/25
28	5/12	5/07	5/03	4/29	4/26	4/23	4/20	4/16	4/10
24	4/30	4/24	4/20	4/16	4/13	4/09	4/06	4/02	3/27
20	4/15	4/10	4/07	4/04	4/01	3/30	3/27	3/24	3/19
16	4/04	3/31	3/28	3/25	3/23	3/20	3/17	3/14	3/10

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	9/11	9/15	9/18	9/20	9/23	9/25	9/27	9/30	10/05
32	9/19	9/24	9/27	9/30	10/03	10/06	10/09	10/13	10/18
28	10/02	10/07	10/11	10/15	10/18	10/21	10/25	10/29	11/03
24	10/15	10/20	10/24	10/27	10/30	11/03	11/06	11/10	11/15
20	10/25	10/31	11/05	11/09	11/13	11/17	11/21	11/26	12/02
16	11/06	11/13	11/19	11/23	11/28	12/02	12/07	12/12	12/20

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	126	122	118	114	110	103
32	168	161	156	151	147	143	138	133	125
28	199	190	184	179	174	169	164	158	149
24	229	219	212	206	200	194	188	181	171
20	249	241	235	230	225	220	215	209	201
16	274	265	259	254	250	245	240	234	226

***** 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	1275	1105	955	585	276	69	14	27	145	487	763	1105	6806
60	1120	965	800	437	163	21	0	4	55	341	613	950	5469
57	1027	881	707	351	110	8	0	0	26	261	523	857	4751
55	965	825	645	296	82	4	0	0	15	213	464	795	4304
50	810	685	496	176	32	0	0	0	2	115	322	643	3281
32	313	243	100	3	0	0	0	0	0	1	23	197	880

Cooling Degree Days (1)

Base Above	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Ann
32	61	63	168	408	770	1009	1187	1132	866	538	249	115	6566
55	0	0	0	11	139	323	474	419	190	37	1	0	1594
57	0	0	0	6	105	267	412	357	142	23	0	0	1312
60	0	0	0	2	65	190	320	268	81	10	0	0	936
65	0	0	0	0	23	88	178	136	20	1	0	0	446
70	0	0	0	0	6	26	75	50	2	0	0	0	159

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	9	10	60	208	523	768	941	884	628	310	103	18	9	19	79	287	810	1578	2519	3403	4031	4341	4444	4462
45	1	0	30	118	378	618	786	729	478	185	47	4	1	1	31	149	527	1145	1931	2660	3138	3323	3370	3374
50	0	0	10	63	245	469	631	574	336	97	19	1	0	0	10	73	318	787	1418	1992	2328	2425	2444	2445
55	0	0	2	29	137	327	476	419	208	41	4	0	0	0	2	31	168	495	971	1390	1598	1639	1643	1643
60	0	0	0	10	67	199	322	271	111	11	0	0	0	0	0	10	77	276	598	869	980	991	991	991
Base	**Growing Degree Units for Corn (Monthly)**												**Growing Degree Units for Corn (Accumulated Monthly)**											
50/86	1	9	44	141	331	490	618	574	388	188	61	7	1	10	54	195	526	1016	1634	2208	2596	2784	2845	2852

(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