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: SOMERVILLE 4 NW, NJ **COOP ID: 288194**

Climate Division: NJ 1 **NWS Call Sign:** **Elevation: 134 Feet** **Lat: 40˚37N** **Lon: 74˚39W**

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	36.9	19.1	28.0	74	1950	26	36.5	1998	-16	1984	22	18.0	1977	1147	0	.0	.0	3.4	9.8	28.1	1.7
Feb	39.8	20.6	30.2	76	1949	15	37.2	1998	-12	1933	13	20.1	1979	975	0	.0	.0	5.4	6.8	24.7	.8
Mar	49.2	28.3	38.8	86+	1945	17	43.9	1973	-1	1967	18	32.1	1984	814	0	.0	.0	14.5	1.3	21.7	.0
Apr	60.4	37.3	48.9	94	1976	19	51.4	1994	16	1954	4	43.2	1975	484	0	.0	.2	25.9	.1	8.3	.0
May	71.0	47.2	59.1	99	1962	19	64.8	1991	26+	1931	1	54.7	1971	202	18	.0	.6	30.8	.0	.6	.0
Jun	79.3	56.5	67.9	101	1952	26	71.3	1994	34	1932	8	64.3	1972	31	118	.0	2.6	30.0	.0	.0	.0
Jul	84.4	61.9	73.2	104	1949	4	78.0	1999	44	1957	3	69.0	2000	3	256	.3	7.2	31.0	.0	.0	.0
Aug	82.3	60.7	71.5	105	1955	2	75.9	1980	38	1976	31	68.2	1982	7	208	.0	3.9	31.0	.0	.0	.0
Sep	74.9	52.8	63.9	105	1953	2	67.8	1980	29+	1947	27	60.3	1975	85	50	.0	1.0	30.0	.0	@	.0
Oct	63.6	40.7	52.2	92	1941	5	58.0	1971	12	1933	17	47.8	1987	402	4	.0	.0	30.0	.0	5.7	.0
Nov	52.9	32.8	42.9	84+	1950	1	47.2	1994	5	1938	26	37.5	1976	664	0	.0	.0	19.0	.1	17.1	.0
Dec	41.7	24.8	33.3	73	1984	30	38.8	1998	-10	1950	28	21.5	1989	984	0	.0	.0	6.6	5.1	25.8	.2
Ann	61.4	40.2	50.8	105+	Aug 1955	2	78.0	Jul 1999	-16	Jan 1984	22	18.0	Jan 1977	5798	654	.3	15.5	257.6	23.2	132.0	2.7

\+ 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: 1931-2001

(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	4.01	3.78	2.33	1986	26	9.66	1979	.53	1981
Feb	2.85	2.82	2.11	1966	13	4.85	1971	1.01	1980
Mar	3.93	3.54	2.67	1969	25	7.46	1993	1.34	1985
Apr	4.00	3.61	2.75	1986	17	9.14	1983	1.04	1985
May	4.34	4.13	2.97	1968	29	9.64	1984	.83	1993
Jun	3.98	3.47	4.20	1967	19	9.19	1972	1.18	1988
Jul	4.63	4.32	4.54	1951	28	11.53	1975	.85	1999
Aug	4.39	4.15	8.89	1971	28	11.67	1990	.60	1980
Sep	4.58	3.94	4.10	1971	12	11.48	1999	1.42	1984
Oct	3.69	3.84	4.53	1996	20	8.59	1996	1.06	1992
Nov	3.70	3.11	3.33	1950	25	8.46	1972	.71	1976
Dec	3.61	3.36	2.90	1938	5	8.43	1973	.29	1989
Ann	47.71	46.33	8.89	Aug 1971	28	11.67	Aug 1990	.29	Dec 1989

Mean Number of Days (3)

Daily Precipitation

Month	>= 0.01	>= 0.10	>= 0.50	>= 1.00
Jan	10.8	7.1	2.9	1.1
Feb	9.5	6.0	2.0	.5
Mar	10.7	6.7	2.8	1.1
Apr	11.6	6.9	3.0	1.1
May	12.5	7.9	3.0	1.4
Jun	10.8	6.8	2.5	1.3
Jul	10.5	7.6	3.2	1.3
Aug	9.9	6.7	2.9	1.3
Sep	8.5	6.3	3.1	1.3
Oct	8.7	5.7	2.5	1.0
Nov	9.7	5.9	2.6	1.1
Dec	10.9	6.6	2.7	1.0
Ann	124.1	80.2	33.2	13.5

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	1.13	1.51	2.09	2.59	3.08	3.59	4.15	4.82	5.69	7.04	8.31
Feb	1.26	1.52	1.87	2.16	2.43	2.70	2.99	3.33	3.75	4.39	4.96
Mar	1.53	1.89	2.41	2.84	3.25	3.66	4.11	4.63	5.29	6.30	7.22
Apr	1.44	1.81	2.36	2.81	3.25	3.69	4.18	4.74	5.47	6.58	7.60
May	1.25	1.66	2.28	2.82	3.35	3.89	4.50	5.21	6.14	7.59	8.93
Jun	1.40	1.78	2.32	2.78	3.22	3.67	4.16	4.73	5.46	6.59	7.63
Jul	1.22	1.66	2.33	2.92	3.50	4.11	4.79	5.59	6.64	8.29	9.83
Aug	.90	1.30	1.95	2.53	3.13	3.76	4.48	5.34	6.48	8.31	10.04
Sep	1.36	1.79	2.45	3.01	3.56	4.13	4.76	5.50	6.45	7.95	9.34
Oct	1.08	1.43	1.95	2.41	2.85	3.32	3.83	4.43	5.21	6.43	7.56
Nov	1.08	1.43	1.96	2.41	2.86	3.32	3.84	4.44	5.23	6.45	7.59
Dec	.66	.98	1.51	2.00	2.51	3.05	3.66	4.40	5.39	6.98	8.50
Ann	34.85	37.36	40.57	43.00	45.14	47.21	49.35	51.70	54.55	58.66	62.21

\+ 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: 1931-2001
(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	8.3	7.8	2	1	16.0	1996	8	22.5	1978	24	1996	9	11	1996	3.8	2.7	1.0	.3	.1	11.4	7.5	4.4	1.0
Feb	8.2	5.6	2	1	20.3	1983	12	24.9	1983	23	1983	12	13	1978	3.4	2.5	.9	.4	.1	10.3	6.3	4.3	1.4
Mar	4.3	2.9	1	#	8.7	1993	14	15.0	1984	14	1993	14	5	1978	1.9	1.6	.6	.2	.0	3.8	2.5	1.7	.5
Apr	1.5	.0	#	0	7.0	1997	1	10.3	1982	8	1982	7	1	1982	.4	.4	.3	.1	.0	.4	.2	.1	.0
May	.0	.0	0	0	.0	0	0	.0	0	0	0	0	0	0	.0	.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	0	.0	0	0	.0	0	0	0	0	0	0	.0	.0	.0	.0	.0	.0	.0	.0	.0
Oct	.0	.0	#	0	.7	1972	19	.7	1972	1	1972	19	#+	2000	@	.0	.0	.0	.0	@	.0	.0	.0
Nov	.7	.0	#	0	5.7	1989	23	5.7	1989	6	1989	23	1	1989	.4	.2	.1	@	.0	.4	.2	@	.0
Dec	3.2	2.2	#	#	16.2	2000	31	16.2	2000	18	2000	31	4	1995	2.0	1.0	.4	.2	@	3.8	1.5	1.0	.1
Ann	26.2	18.5	N/A	N/A	20.3	Feb 1983	12	24.9	Feb 1983	24	Jan 1996	9	13	Feb 1978	11.9	8.4	3.3	1.2	.2	30.1	18.2	11.5	3.0

+ 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	5/21	5/18	5/15	5/13	5/11	5/08	5/06	5/03	4/30
32	5/12	5/07	5/03	4/30	4/28	4/25	4/22	4/19	4/14
28	4/24	4/20	4/17	4/14	4/12	4/10	4/07	4/04	3/31
24	4/14	4/09	4/05	4/02	3/30	3/26	3/23	3/19	3/14
20	3/30	3/26	3/23	3/21	3/18	3/16	3/13	3/10	3/06
16	3/24	3/18	3/15	3/11	3/08	3/05	3/02	2/26	2/21

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	9/22	9/26	9/28	10/01	10/03	10/05	10/07	10/10	10/14
32	10/01	10/05	10/09	10/12	10/15	10/17	10/20	10/24	10/29
28	10/19	10/23	10/26	10/28	10/30	11/01	11/04	11/06	11/10
24	10/27	11/01	11/04	11/07	11/10	11/13	11/16	11/20	11/25
20	11/11	11/17	11/21	11/24	11/28	12/01	12/04	12/08	12/14
16	11/20	11/28	12/03	12/08	12/13	12/18	12/23	12/28	1/06

Freeze Free Period

Temp (F)	Probability of longer than indicated freeze free period (Days)								
	.10	.20	.30	.40	.50	.60	.70	.80	.90
36	160	155	151	148	145	142	138	134	129
32	189	182	177	173	169	165	161	156	149
28	220	213	208	204	200	197	193	188	181
24	246	239	234	229	225	221	217	211	204
20	272	266	261	257	254	250	246	241	235
16	309	299	291	285	279	273	267	259	249

***** 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	1147	975	814	484	202	31	3	7	85	402	664	984	5798
60	992	835	659	335	95	5	0	0	26	263	514	829	4553
57	899	751	566	249	51	1	0	0	11	192	425	736	3881
55	837	695	504	196	31	0	0	0	5	150	366	674	3458
50	684	555	357	88	5	0	0	0	1	72	230	527	2519
32	226	145	33	0	0	0	0	0	0	0	6	121	531

Cooling Degree Days (1)

Base Above	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Ann
32	102	94	243	506	839	1077	1276	1225	955	625	332	160	7434
55	0	0	0	12	157	387	563	512	270	62	2	0	1965
57	0	0	0	5	115	328	501	450	216	42	1	0	1658
60	0	0	0	1	66	242	408	357	142	20	0	0	1236
65	0	0	0	0	18	118	256	208	50	4	0	0	654
70	0	0	0	0	3	38	123	90	8	0	0	0	262

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	19	26	97	297	615	857	1043	988	727	391	157	34	19	45	142	439	1054	1911	2954	3942	4669	5060	5217	5251
45	4	6	46	176	461	707	888	833	577	248	80	12	4	10	56	232	693	1400	2288	3121	3698	3946	4026	4038
50	0	0	18	90	312	557	733	678	429	140	32	3	0	0	18	108	420	977	1710	2388	2817	2957	2989	2992
55	0	0	4	37	182	407	578	523	287	65	10	0	0	0	4	41	223	630	1208	1731	2018	2083	2093	2093
60	0	0	1	14	90	264	425	369	166	23	3	0	0	0	1	15	105	369	794	1163	1329	1352	1355	1355
Base	**Growing Degree Units for Corn (Monthly)**												**Growing Degree Units for Corn (Accumulated Monthly)**											
50/86	12	19	70	186	371	555	704	664	460	237	94	25	12	31	101	287	658	1213	1917	2581	3041	3278	3372	3397

(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