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: CRANFORD, NJ **COOP ID: 282023**

Climate Division: NJ 1 **NWS Call Sign:** **Elevation: 75 Feet** **Lat: 40˚39N** **Lon: 74˚18W**

Temperature (˚F)

Month	Mean (1) Daily Max	Mean (1) Daily Min	Mean (1) Mean	Extremes Highest Daily(2)	Year	Day	Highest Month(1) Mean	Year	Lowest Daily(2)	Year	Day	Lowest Month(1) Mean	Year	Degree Days (1) Base Temp 65 Heating	Cooling	Mean Number of Days (3) Max >= 100	Max >= 90	Max >= 50	Max <= 32	Min <= 32	Min <= 0
Jan	39.3	19.8	29.6	70	1995	14	39.0	1998	-10	1985	21	20.3	1977	1100	0	.0	.0	5.7	6.8	26.3	.9
Feb	42.0	20.9	31.5	75	1985	24	39.3	1998	-6+	1979	12	21.2	1979	939	0	.0	.0	8.2	3.8	22.6	.4
Mar	51.2	29.0	40.1	90	1998	31	45.1	2000	1	1986	8	32.6	1984	772	0	.0	@	18.2	.5	18.3	.0
Apr	61.7	38.3	50.0	96	1976	18	53.2	1994	12	1995	6	45.4	1975	449	0	.0	.3	28.2	@	7.1	.0
May	72.0	48.2	60.1	96+	1969	29	65.9	1991	24	1986	4	57.1	1971	178	25	.0	1.3	31.0	.0	.8	.0
Jun	80.9	58.3	69.6	98	1988	22	73.3	1984	32	1979	12	65.5	1985	21	159	.0	4.7	30.0	.0	@	.0
Jul	85.7	63.3	74.5	102+	1980	21	79.7	1999	42	1979	5	71.4	2000	0	296	.5	10.5	31.0	.0	.0	.0
Aug	83.7	62.0	72.9	103	2001	10	76.7	1988	39	1986	30	69.8	1992	2	244	.0	5.8	31.0	.0	.0	.0
Sep	76.0	53.9	65.0	99+	1983	10	68.1	1980	33	1974	24	61.2	1975	58	57	.0	1.5	30.0	.0	.0	.0
Oct	65.4	41.8	53.6	87+	1979	22	59.4	1971	22+	1974	19	48.8	1988	358	6	.0	.0	30.6	.0	4.3	.0
Nov	54.4	33.2	43.8	80+	1974	1	48.5	1975	14+	1976	30	37.9	1976	636	0	.0	.0	22.0	.1	13.7	.0
Dec	43.9	25.7	34.8	76	1998	8	41.6	1998	-5	1980	26	23.1	1989	937	0	.0	.0	9.2	3.2	22.9	.1
Ann	63.0	41.2	52.1	103	Aug 2001	10	79.7	Jul 1999	-10	Jan 1985	21	20.3	Jan 1977	5450	787	.5	24.1	275.1	14.4	116.0	1.4

\+ 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: 1969-2001

(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	4.07	3.71	2.76	1982	4	9.59	1979	.62	1981
Feb	3.09	2.73	2.75	1973	2	6.03	1998	.93	1980
Mar	4.18	3.98	3.02	1969	25	9.44	1983	1.33	1981
Apr	4.15	3.51	3.07	1984	5	10.37	1983	1.14	1985
May	4.92	4.22	3.10	1983	6	9.91	1984	1.47+	1993
Jun	4.16	3.77	3.96	1973	29	8.76	1972	.59	1999
Jul	5.19	4.55	7.05	1997	25	13.96	1975	.72	1999
Aug	4.33	3.74	6.74	1973	2	10.64	1971	.67	1980
Sep	4.55	3.65	9.76	1999	17	13.51	1999	1.18	1972
Oct	3.93	3.77	5.60	1996	20	8.56	1996	.80	2000
Nov	4.38	3.70	3.55	1977	8	11.21	1972	.45	1976
Dec	3.99	3.57	2.69	1983	13	11.31	1983	.60	1989
Ann	50.94	48.39	9.76	Sep 1999	17	13.96	Jul 1975	.45	Nov 1976

Mean Number of Days (3)

Month	Daily Precipitation >= 0.01	>= 0.10	>= 0.50	>= 1.00
Jan	10.0	6.9	3.0	1.1
Feb	8.5	6.2	1.9	.6
Mar	9.8	7.1	3.1	1.1
Apr	10.8	6.8	2.7	1.2
May	11.7	8.4	3.5	1.5
Jun	10.6	7.2	2.8	1.1
Jul	10.1	7.4	3.3	1.4
Aug	9.3	6.5	2.7	1.3
Sep	9.0	6.2	2.8	1.1
Oct	8.4	5.8	2.3	1.2
Nov	9.8	6.2	3.0	1.3
Dec	10.4	6.7	2.8	1.2
Ann	118.4	81.4	33.9	14.1

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	1.29	1.68	2.25	2.74	3.21	3.70	4.24	4.87	5.68	6.94	8.11
Feb	1.11	1.40	1.82	2.17	2.51	2.85	3.23	3.67	4.22	5.08	5.87
Mar	1.55	1.94	2.50	2.97	3.42	3.87	4.37	4.95	5.68	6.82	7.85
Apr	1.41	1.80	2.37	2.86	3.32	3.80	4.33	4.94	5.73	6.94	8.06
May	1.73	2.19	2.86	3.43	3.97	4.53	5.14	5.84	6.75	8.15	9.43
Jun	1.22	1.62	2.21	2.73	3.23	3.75	4.32	4.99	5.87	7.24	8.51
Jul	1.24	1.72	2.48	3.16	3.83	4.54	5.34	6.29	7.53	9.50	11.35
Aug	.93	1.33	1.97	2.54	3.12	3.74	4.43	5.26	6.36	8.10	9.76
Sep	1.39	1.82	2.46	3.02	3.55	4.11	4.73	5.45	6.38	7.83	9.18
Oct	1.17	1.54	2.10	2.58	3.05	3.54	4.08	4.71	5.53	6.81	8.00
Nov	1.03	1.44	2.08	2.66	3.22	3.83	4.50	5.31	6.36	8.04	9.61
Dec	.80	1.16	1.75	2.29	2.83	3.41	4.07	4.86	5.90	7.58	9.17
Ann	37.73	40.33	43.63	46.12	48.33	50.45	52.64	55.04	57.95	62.15	65.76

\+ 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: 1969-2001
(3) Derived from 1971-2000 serially complete daily data

Complete documentation available from:
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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	7.2	5.6	2	1
Feb	6.2	4.3	2	2
Mar	3.0	1.5	1	#
Apr	.4	.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	.5	.0	#	0
Dec	2.7	1.0	#	#
Ann	20.0	12.4	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	19.0	1996	8	24.5	1978	23	1996	12	10	1996
Feb	15.0	1983	12	19.2	1978	18	1983	12	14	1978
Mar	10.0	1993	13	11.3	1984	18	1978	3	7	1978
Apr	6.0	1982	6	6.5	1982	6	1982	7	1	1982
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	#	1972	19	#	1972	0	0	0	0	0
Nov	6.0	1989	23	6.0	1989	6	1989	23	#+	1995
Dec	8.0	1990	28	14.8	2000	14	2000	31	4	1995
Ann	19.0	Jan 1996	8	24.5	Jan 1978	23	Jan 1996	12	14	Feb 1978

Mean Number of Days (1)

Snow Fall >= Thresholds

Month	0.1	1.0	3.0	5.0	10.0
Jan	3.2	2.4	.9	.3	.1
Feb	2.3	1.7	.7	.3	.1
Mar	1.1	.9	.6	.3	@
Apr	.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	.0	.0	.0	.0	.0
Nov	.2	.2	.1	@	.0
Dec	1.2	.8	.3	.1	.0
Ann	8.2	6.1	2.6	1.0	.2

Snow Depth >= Thresholds

Month	1	3	5	10
Jan	10.4	6.9	3.9	.6
Feb	9.6	6.6	4.4	1.3
Mar	3.2	2.1	1.1	.5
Apr	.3	.2	.1	.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	.0
Nov	.2	.1	@	.0
Dec	2.1	1.1	.7	.1
Ann	25.8	17.0	10.2	2.5

+ 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	5/26	5/22	5/19	5/16	5/14	5/11	5/08	5/05	5/01
32	5/17	5/11	5/07	5/03	4/30	4/27	4/23	4/19	4/14
28	5/02	4/26	4/22	4/19	4/15	4/12	4/09	4/04	3/30
24	4/20	4/14	4/09	4/05	4/01	3/28	3/24	3/19	3/13
20	4/05	3/30	3/26	3/22	3/19	3/15	3/12	3/07	3/01
16	3/27	3/20	3/15	3/10	3/06	3/02	2/26	2/21	2/14

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	9/21	9/26	9/29	10/02	10/05	10/08	10/11	10/14	10/19
32	10/02	10/07	10/10	10/13	10/16	10/18	10/21	10/24	10/29
28	10/14	10/19	10/22	10/25	10/28	10/30	11/02	11/06	11/10
24	10/24	10/30	11/03	11/07	11/10	11/14	11/17	11/21	11/27
20	11/13	11/18	11/23	11/26	11/29	12/03	12/06	12/10	12/16
16	11/27	12/04	12/09	12/13	12/17	12/21	12/25	12/30	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	163	157	152	148	144	140	136	131	124
32	192	183	177	172	168	163	158	152	143
28	219	210	204	199	195	190	185	179	170
24	248	240	233	228	223	217	212	206	197
20	281	272	266	260	255	250	244	238	229
16	312	303	296	290	285	279	274	267	258

***** 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	1100	939	772	449	178	21	0	2	58	358	636	937	5450
60	945	799	617	301	78	3	0	0	14	224	486	782	4249
57	852	715	524	217	40	1	0	0	5	158	397	689	3598
55	790	659	463	167	23	0	0	0	2	120	338	627	3189
50	638	524	321	69	3	0	0	0	0	52	205	482	2294
32	193	137	28	0	0	0	0	0	0	0	4	98	460

Cooling Degree Days (1)

Base Above	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Ann
32	117	122	279	541	870	1128	1318	1265	989	670	358	185	7842
55	0	0	1	17	180	438	605	552	300	77	3	0	2173
57	0	0	0	8	135	378	543	490	243	53	1	0	1851
60	0	0	0	2	80	291	450	397	163	26	0	0	1409
65	0	0	0	0	25	159	296	244	57	6	0	0	787
70	0	0	0	0	4	64	155	113	8	0	0	0	344

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	30	43	141	345	665	909	1099	1039	785	464	198	56	30	73	214	559	1224	2133	3232	4271	5056	5520	5718	5774
45	10	12	73	215	510	759	944	884	635	316	106	22	10	22	95	310	820	1579	2523	3407	4042	4358	4464	4486
50	1	2	31	115	360	609	789	729	485	186	49	5	1	3	34	149	509	1118	1907	2636	3121	3307	3356	3361
55	0	0	11	52	221	459	634	574	341	94	20	1	0	0	11	63	284	743	1377	1951	2292	2386	2406	2407
60	0	0	4	20	116	313	479	419	208	38	5	0	0	0	4	24	140	453	932	1351	1559	1597	1602	1602
Base	**Growing Degree Units for Corn (Monthly)**												**Growing Degree Units for Corn (Accumulated Monthly)**											
50/86	18	34	97	222	417	601	743	703	506	287	116	33	18	52	149	371	788	1389	2132	2835	3341	3628	3744	3777

(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