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: CHARLOTTEBURG RESERVOIR, NJ **COOP ID: 281582**

Climate Division: NJ 1 **NWS Call Sign:** **Elevation: 760 Feet** **Lat: 41˚02N** **Lon: 74˚25W**

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	36.3	15.0	25.7	71	1950	26	34.4	1990	-24	1984	22	16.2	1977	1221	0	.0	.0	3.1	11.8	29.3	3.0
Feb	39.1	16.5	27.8	74	1985	25	34.8	1998	-25	1943	16	18.3	1979	1042	0	.0	.0	4.3	8.9	26.2	2.0
Mar	48.4	25.3	36.9	85+	1945	17	41.4	1973	-10	1943	9	31.0	1984	873	0	.0	.0	12.3	2.4	24.7	.0
Apr	59.6	35.0	47.3	92	1976	19	50.3	1981	11+	1943	16	42.4	1975	531	0	.0	.2	23.7	.1	11.2	.0
May	70.8	44.8	57.8	96	1936	9	63.8	1991	24+	1956	9	53.3	1973	240	15	.0	.3	30.6	.0	1.2	.0
Jun	78.9	53.6	66.3	99	1934	29	69.6	1976	29	1957	10	62.5	1980	48	86	.0	1.4	30.0	.0	.0	.0
Jul	84.1	58.6	71.4	105	1936	9	74.7	1999	36	1945	12	67.4	2000	4	200	@	3.8	31.0	.0	.0	.0
Aug	82.5	56.6	69.6	100	1933	1	72.9	1973	32	1940	25	65.6	1982	17	158	.0	2.0	31.0	.0	.0	.0
Sep	75.1	48.7	61.9	100	1953	3	66.4	1971	24+	1947	27	57.5	1984	119	26	.0	.4	30.0	.0	.8	.0
Oct	64.3	37.4	50.9	92	1927	1	57.1	1971	10	1936	28	46.3	1987	441	3	.0	.0	29.1	.0	8.7	.0
Nov	52.5	30.2	41.4	81+	1950	1	46.0	1975	-1	1938	26	36.7	1976	710	0	.0	.0	16.3	.4	18.6	.0
Dec	41.1	20.9	31.0	73	1998	8	37.2	1982	-17	1933	29	18.9	1989	1055	0	.0	.0	5.4	6.7	27.3	.7
Ann	61.1	36.9	49.0	105	Jul 1936	9	74.7	Jul 1999	-25	Feb 1943	16	16.2	Jan 1977	6301	488	@	8.1	246.8	30.3	148.0	5.7

\+ 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: 1926-2001

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

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Precipitation (inches)

Precipitation Totals

Means/Medians(1)

Month	Mean	Median
Jan	4.34	3.91
Feb	3.31	3.08
Mar	4.56	4.36
Apr	4.54	3.96
May	4.79	4.42
Jun	4.51	3.91
Jul	4.64	4.32
Aug	4.43	4.14
Sep	5.11	4.40
Oct	4.10	4.06
Nov	4.53	4.08
Dec	4.08	3.64
Ann	52.94	50.64

Extremes

Month	Highest Daily(2)	Year	Day	Highest Monthly(1)	Year	Lowest Monthly(1)	Year
Jan	3.33	1979	25	11.97	1979	.51	1981
Feb	2.75	1958	28	7.39	1981	.86	1987
Mar	4.00	1983	19	10.28	1983	1.00	1981
Apr	3.52	1980	29	10.86	1983	.94	1985
May	3.89	1981	12	12.41	1989	.74	1993
Jun	4.36	1973	30	12.57	1972	.56	1988
Jul	4.52	1946	22	11.57	1975	.67	1999
Aug	7.32	1971	28	11.23	1971	1.62	1984
Sep	6.81	1999	17	11.56	1999	1.39	1998
Oct	4.77	1996	20	9.42	1995	.86	2000
Nov	4.30	1972	9	11.47	1972	.75	1976
Dec	3.75	1957	21	9.87	1973	.60	1980
Ann	7.32	Aug 1971	28	12.57	Jun 1972	.51	Jan 1981

Mean Number of Days (3)

Daily Precipitation

Month	>= 0.01	>= 0.10	>= 0.50	>= 1.00
Jan	10.9	7.1	3.0	1.2
Feb	8.9	6.2	2.3	.8
Mar	10.3	6.6	3.2	1.5
Apr	11.2	7.2	3.0	1.5
May	12.0	7.7	3.0	1.4
Jun	11.4	7.3	2.9	1.2
Jul	10.0	6.8	3.4	1.5
Aug	9.6	6.5	2.9	1.2
Sep	9.3	6.4	3.0	1.7
Oct	8.9	5.8	2.7	1.1
Nov	9.4	6.3	2.8	1.6
Dec	10.4	6.2	2.9	1.3
Ann	122.3	80.1	35.1	16.0

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	.96	1.37	2.00	2.58	3.15	3.76	4.45	5.27	6.35	8.07	9.70
Feb	1.20	1.51	1.96	2.34	2.69	3.06	3.46	3.92	4.51	5.42	6.26
Mar	1.60	2.03	2.66	3.18	3.68	4.20	4.77	5.42	6.26	7.56	8.75
Apr	1.44	1.87	2.51	3.05	3.58	4.12	4.72	5.42	6.33	7.73	9.03
May	1.28	1.73	2.43	3.03	3.63	4.26	4.95	5.77	6.85	8.53	10.10
Jun	1.23	1.66	2.31	2.88	3.43	4.02	4.67	5.44	6.43	8.00	9.46
Jul	1.37	1.81	2.47	3.05	3.60	4.18	4.82	5.57	6.54	8.06	9.47
Aug	1.62	2.04	2.63	3.13	3.61	4.10	4.63	5.24	6.03	7.24	8.35
Sep	1.48	1.96	2.69	3.33	3.94	4.59	5.30	6.14	7.22	8.92	10.50
Oct	1.17	1.56	2.15	2.66	3.16	3.68	4.26	4.93	5.81	7.19	8.48
Nov	1.33	1.76	2.41	2.97	3.51	4.08	4.70	5.44	6.39	7.88	9.27
Dec	.79	1.16	1.75	2.30	2.86	3.46	4.15	4.97	6.06	7.80	9.47
Ann	38.89	41.64	45.15	47.80	50.14	52.40	54.73	57.29	60.39	64.87	68.73

\+ 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	9.9	8.8	3	1
Feb	9.3	7.8	3	3
Mar	5.7	5.5	1	#
Apr	2.0	.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
Nov	.9	.0	#	#
Dec	4.6	3.6	1	#
Ann	32.5	25.7	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	12.0	1973	29	30.0	1987	35	1996	13	15	1996
Feb	26.0	1983	12	33.5	1983	28	1983	12	13	1978
Mar	18.0	1993	14	25.3	1984	22	1993	16	8	1978
Apr	12.5	1997	1	12.5	1997	13	1997	1	1	1997
May	#	1977	9	#	1977	#	1977	9	#	1977
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	1.5	1979	10	2.5	1979	2	1979	10	#+	1979
Nov	6.0	1971	25	7.0	1971	6	1971	25	1	1971
Dec	15.0	2000	31	19.0	1995	18	2000	31	5	1995
Ann	26.0	Feb 1983	12	33.5	Feb 1983	35	Jan 1996	13	15	Jan 1996

Mean Number of Days (1)

Snow Fall >= Thresholds

Month	0.1	1.0	3.0	5.0	10.0
Jan	4.1	3.3	1.4	.5	.1
Feb	3.6	2.7	1.2	.6	.1
Mar	2.3	1.7	.8	.5	.1
Apr	.5	.4	.3	.1	@
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	.0	.0	.0
Nov	.4	.3	.2	@	.0
Dec	2.2	1.6	.5	.2	@
Ann	13.2	10.1	4.4	1.9	.3

Snow Depth >= Thresholds

Month	1	3	5	10
Jan	12.4	7.5	5.0	.9
Feb	11.9	8.2	6.0	1.9
Mar	5.0	2.8	1.9	.8
Apr	.7	.5	.2	.1
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	.1	.0	.0	.0
Nov	.8	.3	.1	.0
Dec	3.9	1.5	.7	.1
Ann	34.8	20.8	13.9	3.8

+ 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	5/30	5/26	5/23	5/21	5/19	5/16	5/14	5/11	5/07
32	5/18	5/14	5/10	5/08	5/05	5/02	4/30	4/26	4/22
28	5/01	4/27	4/24	4/21	4/19	4/16	4/14	4/11	4/07
24	4/21	4/17	4/13	4/11	4/08	4/05	4/03	3/30	3/26
20	4/06	4/01	3/29	3/27	3/25	3/22	3/20	3/17	3/12
16	4/01	3/27	3/23	3/19	3/16	3/13	3/10	3/06	2/28

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	9/09	9/14	9/17	9/20	9/23	9/25	9/28	10/01	10/06
32	9/19	9/24	9/27	9/30	10/03	10/06	10/10	10/13	10/18
28	10/05	10/10	10/13	10/16	10/19	10/22	10/25	10/28	11/02
24	10/20	10/26	10/30	11/03	11/06	11/09	11/13	11/17	11/23
20	11/03	11/08	11/12	11/15	11/18	11/21	11/24	11/28	12/03
16	11/18	11/23	11/27	11/30	12/03	12/05	12/09	12/12	12/17

Freeze Free Period

Temp (F)	Probability of longer than indicated freeze free period (Days)								
	.10	.20	.30	.40	.50	.60	.70	.80	.90
36	142	137	133	129	126	123	120	116	111
32	169	163	158	154	151	147	143	139	132
28	202	195	190	186	183	179	175	170	163
24	229	223	218	215	211	208	204	199	193
20	256	249	245	241	238	234	230	226	219
16	282	275	269	265	261	256	252	246	239

***** 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	1221	1042	873	531	240	48	4	17	119	441	710	1055	6301
60	1066	902	718	381	126	10	0	1	41	298	560	900	5003
57	973	818	625	294	76	3	0	0	17	222	470	807	4305
55	911	762	563	239	50	1	0	0	9	177	411	745	3868
50	756	622	410	121	13	0	0	0	1	89	268	592	2872
32	272	185	46	0	0	0	0	0	0	0	9	157	669

Cooling Degree Days (1)

Base Above	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Ann
32	75	68	196	460	799	1028	1219	1164	897	584	289	126	6905
55	0	0	0	8	136	339	506	451	216	49	1	0	1706
57	0	0	0	4	99	281	444	389	164	31	0	0	1412
60	0	0	0	1	57	198	351	297	97	14	0	0	1015
65	0	0	0	0	15	86	200	158	26	3	0	0	488
70	0	0	0	0	2	21	78	61	3	0	0	0	165

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	12	15	72	236	543	779	958	904	644	341	126	27	12	27	99	335	878	1657	2615	3519	4163	4504	4630	4657
45	0	1	33	129	390	629	803	749	494	208	60	5	0	1	34	163	553	1182	1985	2734	3228	3436	3496	3501
50	0	0	11	66	251	479	648	594	346	105	23	2	0	0	11	77	328	807	1455	2049	2395	2500	2523	2525
55	0	0	3	28	138	334	493	439	214	46	7	0	0	0	3	31	169	503	996	1435	1649	1695	1702	1702
60	0	0	1	8	65	201	340	291	112	14	0	0	0	0	1	9	74	275	615	906	1018	1032	1032	1032
Base	**Growing Degree Units for Corn (Monthly)**												**Growing Degree Units for Corn (Accumulated Monthly)**											
50/86	6	13	57	152	330	495	635	596	403	217	78	15	6	19	76	228	558	1053	1688	2284	2687	2904	2982	2997

(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