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: STATE COLLEGE, PA **COOP ID: 368449**

Climate Division: PA 7 **NWS Call Sign:** **Elevation: 1,170 Feet** **Lat: 40˚48N** **Lon: 77˚52W**

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	32.5	18.3	25.4	71	1950	25	36.0	1990	-18+	1994	19	12.1	1977	1228	0	.0	.0	2.4	14.1	28.4	2.0
Feb	36.0	19.9	28.0	73+	1954	16	34.9	1990	-17	1934	9	16.4	1979	1037	0	.0	.0	4.1	10.4	24.7	1.1
Mar	45.7	27.2	36.5	84	1998	31	42.7	2000	-1+	1989	8	29.3	1984	885	0	.0	.0	11.5	3.4	22.7	.3
Apr	58.2	37.6	47.9	94	1976	19	52.1	1994	11+	1982	7	41.1	1975	513	0	.0	.1	22.6	.2	8.8	.0
May	69.1	48.2	58.7	93	1979	10	65.7	1991	27	1966	10	53.9	1997	230	33	.0	.2	30.4	.0	.4	.0
Jun	76.9	57.3	67.1	96+	1933	29	70.3	1987	35+	1929	3	61.2	1972	46	109	.0	.7	30.0	.0	.0	.0
Jul	80.7	61.7	71.2	102+	1936	9	76.3	1988	40	1929	20	67.5	1976	10	203	@	3.2	31.0	.0	.0	.0
Aug	79.1	60.1	69.6	101	1930	4	74.1	1988	36	1982	29	66.2	1982	18	160	.0	1.6	31.0	.0	.0	.0
Sep	71.1	52.5	61.8	98	1953	2	66.2	1998	28	1947	28	57.0	1975	124	29	.0	.3	30.0	.0	@	.0
Oct	60.1	41.0	50.6	90	1941	7	56.2	1984	16	1988	31	45.6	1976	451	4	.0	.0	27.2	.0	5.5	.0
Nov	48.1	32.9	40.5	81	1950	1	46.1	1975	1	1929	30	34.8	1976	735	0	.0	.0	13.7	1.2	16.3	.0
Dec	37.1	24.0	30.6	71	1998	7	38.2	1998	-11+	1983	25	19.5	1989	1068	0	.0	.0	3.7	8.3	26.1	.6
Ann	57.9	40.1	49.0	102+	Jul 1936	9	76.3	Jul 1988	-18+	Jan 1994	19	12.1	Jan 1977	6345	538	@	6.1	237.6	37.6	132.9	4.0

\+ 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

Issue Date: February 2004

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Climate Division: PA 7 **NWS Call Sign:** **Elevation: 1,170 Feet** **Lat: 40˚48N** **Lon: 77˚52W**

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	2.89	2.45	1.78	1996	20	7.59	1978	.46	1981
Feb	2.62	2.44	2.38	1984	15	5.75	1981	.63	1987
Mar	3.37	3.49	2.90	1994	3	6.81	1994	.95	1981
Apr	3.16	2.89	2.08	1937	26	8.51	1993	.34	1971
May	3.70	3.70	2.66	1953	26	6.38	1978	1.54	1977
Jun	4.28	3.57	4.71	1972	23	12.82	1972	.92	1988
Jul	3.59	3.45	2.18	1974	30	5.96	1977	1.21	2000
Aug	3.37	3.14	3.95	1955	13	7.11	1994	.39	1972
Sep	3.65	3.06	2.70	1996	7	11.03	1996	1.19	1980
Oct	2.92	2.35	3.65	1995	21	7.48	1976	.64	1997
Nov	3.37	3.14	3.25	1993	28	7.45	1985	.68	1976
Dec	2.84	2.44	2.05	1992	11	5.93	1990	.54	1998
Ann	39.76	38.27	4.71	Jun 1972	23	12.82	Jun 1972	.34	Apr 1971

Mean Number of Days (3)

Daily Precipitation

Month	>= 0.01	>= 0.10	>= 0.50	>= 1.00
Jan	13.3	6.8	1.7	.5
Feb	11.6	5.9	1.6	.4
Mar	12.7	7.3	2.2	.5
Apr	13.2	7.2	2.0	.4
May	14.2	8.4	2.5	.6
Jun	12.5	7.9	2.9	.9
Jul	12.0	7.5	2.3	.7
Aug	10.3	6.4	2.3	.7
Sep	11.2	7.1	2.3	.7
Oct	10.7	5.3	2.1	.7
Nov	12.2	6.4	2.2	.8
Dec	13.4	6.3	1.8	.4
Ann	147.3	82.5	25.9	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	.76	1.03	1.45	1.82	2.18	2.56	2.99	3.49	4.14	5.17	6.14
Feb	.89	1.14	1.50	1.81	2.10	2.40	2.74	3.12	3.62	4.38	5.09
Mar	1.32	1.63	2.08	2.44	2.79	3.14	3.53	3.97	4.53	5.39	6.18
Apr	.76	1.06	1.52	1.93	2.34	2.77	3.25	3.82	4.57	5.76	6.88
May	1.69	2.01	2.46	2.83	3.17	3.52	3.88	4.30	4.83	5.63	6.36
Jun	1.36	1.77	2.37	2.88	3.38	3.89	4.45	5.11	5.96	7.29	8.51
Jul	1.76	2.07	2.48	2.82	3.13	3.44	3.76	4.14	4.61	5.31	5.94
Aug	.86	1.18	1.67	2.10	2.53	2.98	3.48	4.08	4.85	6.08	7.23
Sep	1.22	1.56	2.07	2.50	2.91	3.34	3.80	4.35	5.05	6.13	7.13
Oct	.66	.93	1.36	1.75	2.13	2.54	3.00	3.54	4.26	5.41	6.48
Nov	.98	1.31	1.79	2.20	2.61	3.03	3.50	4.05	4.76	5.87	6.90
Dec	.90	1.17	1.57	1.91	2.24	2.58	2.96	3.40	3.97	4.85	5.67
Ann	29.84	31.80	34.29	36.16	37.82	39.41	41.05	42.85	45.02	48.15	50.84

\+ 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)

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	14.1	11.7	3	2	16.2	1996	8	41.7	1978	28	1978	21	11+	1996	9.4	3.9	1.5	.7	.1	17.4	9.5	5.1	1.6
Feb	11.2	10.4	3	2	10.5	1998	24	30.5	1994	18	1994	12	11	1994	7.3	2.9	1.1	.5	@	14.7	9.4	5.7	1.6
Mar	10.2	7.1	1	#	26.6	1994	3	42.4	1993	31	1994	3	13	1994	5.1	2.5	1.1	.5	.1	7.1	4.4	2.9	1.1
Apr	1.3	.4	#	#	5.2	1982	10	10.5	1982	4	1982	10	#+	2000	1.7	.4	.1	@	.0	.5	.1	.0	.0
May	#	.0	0	0	#	1996	14	#+	1996	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	.1	#	#	0	2.5	1972	19	2.5	1972	#+	2000	10	#+	2000	.1	.1	.0	.0	.0	.0	.0	.0	.0
Nov	2.9	1.5	#	#	15.1	1995	15	23.4	1995	13	1995	15	3	1995	2.4	.9	.2	.1	@	1.8	.7	.3	.2
Dec	7.3	7.7	1	1	12.5	1992	11	22.2	1977	12	1992	12	4	1995	6.2	1.9	.7	.3	@	7.8	2.9	1.2	.1
Ann	47.1	38.8	N/A	N/A	26.6	Mar 1994	3	42.4	Mar 1993	31	Mar 1994	3	13	Mar 1994	32.2	12.6	4.7	2.1	.2	49.3	27.0	15.2	4.6

+ 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	5/24	5/19	5/16	5/13	5/10	5/08	5/05	5/01	4/27
32	5/11	5/06	5/03	4/30	4/27	4/25	4/22	4/18	4/13
28	4/25	4/21	4/18	4/15	4/13	4/10	4/08	4/05	3/31
24	4/15	4/11	4/07	4/05	4/02	3/30	3/28	3/24	3/20
20	4/07	4/02	3/30	3/27	3/25	3/22	3/20	3/17	3/12
16	3/29	3/24	3/20	3/17	3/14	3/11	3/08	3/04	2/27

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	9/15	9/20	9/24	9/28	10/01	10/05	10/08	10/12	10/18
32	10/02	10/07	10/10	10/13	10/16	10/19	10/22	10/25	10/30
28	10/12	10/17	10/21	10/24	10/27	10/30	11/02	11/06	11/11
24	10/26	10/31	11/03	11/06	11/09	11/11	11/14	11/17	11/22
20	11/01	11/08	11/14	11/19	11/23	11/27	12/02	12/07	12/15
16	11/17	11/24	11/29	12/03	12/07	12/11	12/16	12/21	12/28

Freeze Free Period

Temp (F)	Probability of longer than indicated freeze free period (Days)								
	.10	.20	.30	.40	.50	.60	.70	.80	.90
36	166	158	153	148	143	139	134	128	120
32	191	184	179	175	171	167	163	158	151
28	216	209	204	200	197	193	189	184	177
24	242	234	229	224	220	216	211	206	198
20	271	261	254	248	242	237	230	223	213
16	293	284	278	272	267	262	256	250	241

***** 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	1228	1037	885	513	230	46	10	18	124	451	735	1068	6345
60	1073	897	730	367	128	11	0	1	46	310	585	913	5061
57	980	813	637	283	82	4	0	0	21	235	496	820	4371
55	918	757	576	232	58	1	0	0	11	191	438	758	3940
50	763	617	431	124	19	0	0	0	2	102	299	611	2968
32	288	193	71	1	0	0	0	0	0	1	20	178	752

Cooling Degree Days (1)

Base Above	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Ann
32	83	80	209	478	827	1053	1216	1164	895	576	275	133	6989
55	0	0	0	19	172	364	503	451	216	53	2	0	1780
57	0	0	0	10	134	307	441	389	166	35	1	0	1483
60	0	0	0	4	87	224	348	298	100	17	0	0	1078
65	0	0	0	0	33	109	203	160	29	4	0	0	538
70	0	0	0	0	9	35	91	64	3	0	0	0	202

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	13	21	87	274	589	822	978	927	670	346	122	29	13	34	121	395	984	1806	2784	3711	4381	4727	4849	4878
45	4	6	45	164	435	672	823	772	520	217	62	9	4	10	55	219	654	1326	2149	2921	3441	3658	3720	3729
50	1	0	19	93	294	522	668	617	371	120	25	5	1	1	20	113	407	929	1597	2214	2585	2705	2730	2735
55	0	0	4	45	177	377	513	462	236	53	8	0	0	0	4	49	226	603	1116	1578	1814	1867	1875	1875
60	0	0	2	18	89	240	359	309	128	16	1	0	0	0	2	20	109	349	708	1017	1145	1161	1162	1162
Base	**Growing Degree Units for Corn (Monthly)**												**Growing Degree Units for Corn (Accumulated Monthly)**											
50/86	3	11	61	170	349	526	654	614	409	197	65	8	3	14	75	245	594	1120	1774	2388	2797	2994	3059	3067

(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