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: MERCER, PA **COOP ID: 365651**

Climate Division: PA10 **NWS Call Sign:** **Elevation: 1,220 Feet** **Lat: 41˚13N** **Lon: 80˚14W**

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	35.0	16.5	25.8	65+	1985	1	36.0	1990	-32+	1961	22	12.8	1977	1217	0	.0	.0	2.8	13.5	28.5	3.7
Feb	39.0	18.6	28.8	74	2000	26	36.5	1976	-28	1963	27	17.8	1979	1013	0	.0	.0	4.4	9.9	24.7	2.5
Mar	49.5	26.6	38.1	82	1986	30	46.9	1973	-13	1999	8	30.5	1984	835	0	.0	.0	13.4	3.0	22.1	.6
Apr	60.7	35.4	48.1	88	1990	27	53.1	1985	11	1997	10	42.8	1975	508	0	.0	.0	23.8	.1	12.6	.0
May	70.6	45.5	58.1	90	1991	29	65.6	1991	19	1961	28	51.1	1994	252	35	.0	@	30.6	.0	2.8	.0
Jun	77.8	53.9	65.9	98	1952	26	69.7	1971	28	1958	7	61.4	1992	66	91	.0	.9	30.0	.0	.2	.0
Jul	81.6	57.9	69.8	100	1954	14	73.1	1988	33	1963	9	65.3	2000	14	162	.0	2.6	31.0	.0	.0	.0
Aug	80.8	56.6	68.7	100	1953	30	73.3	1995	31	1982	29	64.0	1994	33	147	.0	1.5	31.0	.0	@	.0
Sep	74.5	49.9	62.2	101	1953	2	67.3	1971	23+	1957	27	58.0	1993	124	41	.0	.3	30.0	.0	.9	.0
Oct	63.3	39.3	51.3	86	1952	1	59.6	1971	15	1965	29	45.7	1987	431	6	.0	.0	27.7	.0	8.2	.0
Nov	50.6	31.5	41.1	81	1961	3	47.6	1975	-1	1958	30	33.5	1976	719	0	.0	.0	14.5	1.0	18.1	@
Dec	39.5	22.3	30.9	73	1982	3	39.5	1982	-18	1989	24	18.6	1989	1059	0	.0	.0	4.8	8.8	26.1	1.2
Ann	60.2	37.8	49.1	101	Sep 1953	2	73.3	Aug 1995	-32+	Jan 1961	22	12.8	Jan 1977	6271	482	.0	5.3	244.0	36.3	144.2	8.0

\+ 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: 1950-2001

(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	2.74	2.70	1.95	1959	22	5.04	1999	1.06	1981
Feb	2.56	2.45	2.00	1959	10	5.59	1981	.32	1987
Mar	3.25	3.25	1.98	1987	31	5.45	1985	.97	1999
Apr	3.63	3.39	2.20	1963	20	7.30	1998	1.24	1971
May	3.72	3.51	2.38	1974	12	7.14	1983	1.29	1977
Jun	4.62	4.62	3.29	1986	12	8.51	1986	.90	1991
Jul	4.24	4.28	3.42	1999	29	10.98	1992	.80	1997
Aug	3.86	3.89	4.00	1955	11	7.47	1987	.88	1995
Sep	4.37	4.33	3.34	1977	14	8.29	1977	1.35	1995
Oct	2.73	2.55	2.54	1968	19	5.47	1978	.53	1982
Nov	3.70	3.59	2.77	1985	5	11.01	1985	.89	1976
Dec	3.36	3.11	1.77	1991	3	6.17	1990	1.93	1976
Ann	42.78	42.18	4.00	Aug 1955	11	11.01	Nov 1985	.32	Feb 1987

Mean Number of Days (3)

Daily Precipitation

Month	>= 0.01	>= 0.10	>= 0.50	>= 1.00
Jan	15.7	7.3	1.3	.2
Feb	13.3	6.9	1.2	.2
Mar	13.8	8.3	1.7	.6
Apr	13.7	8.5	2.3	.5
May	13.5	8.6	2.4	.7
Jun	12.5	8.2	3.4	1.2
Jul	11.3	7.5	2.7	1.1
Aug	10.9	6.8	2.4	.9
Sep	11.4	7.8	2.9	1.2
Oct	12.2	6.4	1.8	.2
Nov	14.3	8.4	1.9	.5
Dec	15.9	8.7	2.0	.4
Ann	158.5	93.4	26.0	7.7

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	1.19	1.44	1.78	2.06	2.33	2.59	2.88	3.21	3.62	4.25	4.82
Feb	.83	1.07	1.43	1.73	2.03	2.33	2.66	3.05	3.55	4.33	5.05
Mar	1.29	1.59	2.01	2.37	2.70	3.04	3.41	3.83	4.37	5.19	5.94
Apr	1.64	1.97	2.41	2.77	3.11	3.44	3.81	4.22	4.74	5.53	6.24
May	1.38	1.73	2.23	2.65	3.04	3.45	3.89	4.40	5.05	6.06	6.98
Jun	1.60	2.03	2.67	3.21	3.72	4.25	4.82	5.49	6.36	7.69	8.91
Jul	1.39	1.79	2.38	2.88	3.37	3.87	4.42	5.06	5.88	7.16	8.34
Aug	1.43	1.79	2.31	2.75	3.16	3.58	4.04	4.57	5.24	6.28	7.24
Sep	1.75	2.15	2.72	3.19	3.64	4.09	4.58	5.14	5.86	6.96	7.95
Oct	.99	1.25	1.62	1.93	2.22	2.52	2.85	3.23	3.72	4.47	5.16
Nov	1.31	1.66	2.16	2.59	3.00	3.41	3.87	4.40	5.08	6.13	7.09
Dec	1.85	2.12	2.47	2.75	3.00	3.25	3.52	3.81	4.18	4.73	5.22
Ann	35.25	36.79	38.72	40.15	41.40	42.60	43.81	45.14	46.72	48.98	50.90

+ 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: 1950-2001
(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	12.5	9.9	4	3
Feb	10.3	9.9	3	2
Mar	8.6	7.1	1	1
Apr	2.1	1.3	#	#
May	#	.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
Nov	4.7	3.7	#	#
Dec	10.8	8.5	2	1
Ann	49.1	40.4	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	6.8	1985	26	33.0	1978	15+	1985	26	12	1977
Feb	10.0	1971	9	22.0	1972	18	1977	5	11	1977
Mar	10.0	1973	18	26.5	1971	10+	1978	7	5	1978
Apr	5.0	1974	9	9.6	1985	5+	1997	9	1	1987
May	#	1989	8	#+	1989	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	1.2	1993	31	1.2	1993	1	1993	31	#+	1997
Nov	8.0	1971	22	15.6	1971	9	1971	22	1+	2000
Dec	8.0	1989	16	20.8	1981	14	1995	21	6	1989
Ann	10.0+	Mar 1973	18	33.0	Jan 1978	18	Feb 1977	5	12	Jan 1977

Mean Number of Days (1)

Snow Fall >= Thresholds

Month	0.1	1.0	3.0	5.0	10.0
Jan	11.5	5.0	1.2	.2	.0
Feb	8.2	3.8	.9	.2	@
Mar	5.9	2.7	.8	.3	@
Apr	1.7	.8	.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	.2	@	.0	.0	.0
Nov	3.5	1.7	.4	.1	.0
Dec	8.4	4.0	.8	.1	.0
Ann	39.4	18.0	4.2	.9	@

Snow Depth >= Thresholds

Month	1	3	5	10
Jan	19.2	12.6	7.4	1.8
Feb	14.0	9.0	5.2	1.5
Mar	7.7	3.1	1.3	.1
Apr	1.2	.3	.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
Nov	3.0	1.0	.3	.0
Dec	12.3	6.3	2.4	.1
Ann	57.4	32.3	16.7	3.5

+ 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	6/15	6/10	6/06	6/03	5/31	5/28	5/25	5/21	5/16
32	6/02	5/27	5/23	5/19	5/16	5/13	5/09	5/05	4/29
28	5/17	5/11	5/08	5/04	5/01	4/28	4/25	4/21	4/16
24	5/02	4/27	4/23	4/20	4/17	4/14	4/10	4/07	4/01
20	4/21	4/17	4/13	4/10	4/08	4/05	4/02	3/30	3/25
16	4/11	4/06	4/03	3/31	3/29	3/26	3/23	3/20	3/16

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	8/28	9/04	9/09	9/13	9/17	9/21	9/25	9/30	10/06
32	9/10	9/16	9/21	9/25	9/29	10/03	10/07	10/11	10/18
28	9/28	10/04	10/08	10/12	10/15	10/19	10/22	10/26	11/01
24	10/12	10/18	10/22	10/26	10/29	11/02	11/05	11/09	11/15
20	10/25	10/31	11/05	11/09	11/12	11/16	11/20	11/24	12/01
16	11/08	11/15	11/20	11/24	11/28	12/01	12/05	12/10	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	131	123	118	113	108	104	99	93	85
32	159	151	145	140	135	131	125	120	111
28	191	183	176	171	166	161	156	150	141
24	219	210	205	200	195	190	185	179	171
20	244	235	229	223	218	213	207	201	192
16	267	259	253	248	243	238	233	228	220

***** 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	1217	1013	835	508	252	66	14	33	124	431	719	1059	6271
60	1062	873	680	362	149	20	0	7	48	293	570	904	4968
57	969	789	591	280	100	8	0	1	23	222	482	811	4276
55	907	733	532	229	74	4	0	0	13	181	426	749	3848
50	752	594	391	123	28	0	0	0	2	97	293	603	2883
32	278	180	65	1	0	0	0	0	0	1	26	179	730

Cooling Degree Days (1)

Base Above	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Ann
32	84	91	253	483	806	1016	1171	1137	907	600	297	143	6988
55	0	0	7	21	167	330	458	424	229	66	7	0	1709
57	0	0	3	12	131	274	396	363	180	46	3	0	1408
60	0	0	0	4	86	195	303	276	115	24	1	0	1004
65	0	0	0	0	35	91	162	147	41	6	0	0	482
70	0	0	0	0	11	27	63	61	8	0	0	0	170

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	14	28	109	270	563	782	924	890	664	347	129	32	14	42	151	421	984	1766	2690	3580	4244	4591	4720	4752
45	3	8	63	164	410	632	769	735	514	221	67	13	3	11	74	238	648	1280	2049	2784	3298	3519	3586	3599
50	0	1	32	94	271	482	614	580	367	123	28	3	0	1	33	127	398	880	1494	2074	2441	2564	2592	2595
55	0	0	11	45	159	336	459	426	233	53	10	0	0	0	11	56	215	551	1010	1436	1669	1722	1732	1732
60	0	0	1	18	78	203	308	274	126	16	0	0	0	0	1	19	97	300	608	882	1008	1024	1024	1024
Base	**Growing Degree Units for Corn (Monthly)**												**Growing Degree Units for Corn (Accumulated Monthly)**											
50/86	5	18	74	182	353	507	614	585	422	215	74	18	5	23	97	279	632	1139	1753	2338	2760	2975	3049	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