

# Climatology of the United States

No. 20

1971-2000

Station: PHOENIXVILLE 1 E, PA

COOP ID: 366927

Climate Division: PA 3

NWS Call Sign:

Elevation: 105 Feet Lat: 40°07N Lon: 75°30W

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	40.0	20.4	30.2	77	1950	26	39.3	1998	-19	1961	22	20.1	1977	1079	0	.0	.0	4.7	6.1	27.9	1.0
Feb	43.7	22.3	33.0	78	1976	26	40.0	1984	-11+	1962	11	20.8	1979	896	0	.0	.0	7.4	4.3	23.5	.4
Mar	53.1	30.3	41.7	83+	1977	30	47.3	1977	-2	1960	7	36.6	1984	722	0	.0	.0	18.4	.6	18.2	.0
Apr	64.3	39.3	51.8	95	1976	18	55.9	1985	16	1964	2	47.3	1975	397	1	.0	.4	27.8	.0	6.4	.0
May	74.8	49.5	62.2	96	1962	19	67.1	1991	27	1966	5	58.0	1997	133	45	.0	1.1	31.0	.0	.4	.0
Jun	82.6	58.9	70.8	100+	1957	16	74.5	1987	33	1986	3	68.0	1972	10	183	.0	4.2	30.0	.0	.0	.0
Jul	86.6	63.5	75.1	105	1957	21	79.0	1999	42	1986	4	72.4	1996	0	312	.2	8.8	31.0	.0	.0	.0
Aug	84.9	61.4	73.2	103+	1953	31	76.4	1980	34	1986	30	69.3	1982	2	254	@	5.7	31.0	.0	.0	.0
Sep	77.7	54.1	65.9	105	1953	2	69.9	1998	29	1957	28	63.5	1984	48	76	.0	1.2	30.0	.0	.1	.0
Oct	66.8	42.1	54.5	90+	1949	10	61.5	1984	19	1972	20	49.3	1988	340	13	.0	@	30.6	.0	5.1	.0
Nov	55.6	33.5	44.6	86	1950	1	50.5	1975	8	1989	24	39.3	1996	613	0	.0	.0	21.2	.1	15.3	.0
Dec	44.7	25.1	34.9	77	1998	7	40.5	1984	-8	1951	17	21.9	1989	934	0	.0	.0	8.2	3.4	25.0	.1
Ann	64.6	41.7	53.2	105+	Jul 1957	21	79.0	Jul 1999	-19	Jan 1961	22	20.1	Jan 1977	5174	884	.2	21.4	271.3	14.5	121.9	1.5

+ 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/normal/usnormals.html](http://www.ncdc.noaa.gov/oa/climate/normal/usnormals.html)

Issue Date: February 2004

(1) From the 1971-2000 Monthly Normals

(2) Derived from station's available digital record: 1948-2001

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

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## No. 20 1971-2000

National Climatic Data Center  
Federal Building  
151 Patton Avenue  
Asheville, North Carolina 28801  
www.ncdc.noaa.gov

**Station: PHOENIXVILLE 1 E, PA**

**COOP ID: 366927**

**Climate Division: PA 3**

**NWS Call Sign:**

**Elevation: 105 Feet Lat: 40°07N**

**Lon: 75°30W**

Precipitation (inches)																								
	Precipitation Totals									Mean Number of Days (3)				Precipitation Probabilities (1) Probability that the monthly/annual precipitation will be equal to or less than the indicated amount										
	Means/ Medians(1)		Extremes							Daily Precipitation				Monthly/Annual Precipitation vs Probability Levels These values were determined from the incomplete gamma distribution										
Month	Mean	Med-ian	Highest Daily(2)	Year	Day	Highest Monthly(1)	Year	Lowest Monthly(1)	Year	>= 0.01	>= 0.10	>= 0.50	>= 1.00	.05	.10	.20	.30	.40	.50	.60	.70	.80	.90	.95
Jan	3.53	3.28	2.37	1979	24	10.02	1979	.43	1981	8.5	5.5	2.5	.7	.92	1.26	1.77	2.22	2.66	3.13	3.65	4.27	5.07	6.34	7.52
Feb	2.75	2.56	2.16	1950	14	5.58	1971	.74	1980	7.6	4.8	1.7	.5	.94	1.20	1.58	1.90	2.21	2.53	2.87	3.27	3.79	4.58	5.32
Mar	4.00	3.76	2.66	1958	20	7.50	1980	1.46	1981	8.8	5.5	2.4	.9	1.49	1.87	2.40	2.85	3.28	3.71	4.19	4.73	5.43	6.51	7.49
Apr	3.50	3.57	2.23	1970	2	7.96	1983	.42	1985	9.7	5.8	2.7	.8	1.05	1.38	1.88	2.31	2.72	3.16	3.64	4.20	4.93	6.06	7.12
May	4.25	4.05	3.25	1990	29	8.81	1984	.67	1993	9.9	6.5	2.5	1.0	1.31	1.72	2.32	2.83	3.33	3.85	4.42	5.09	5.96	7.31	8.56
Jun	3.67	3.06	3.70	1968	12	11.04	1982	.62	1988	8.8	5.6	2.0	.9	.69	1.02	1.56	2.05	2.56	3.10	3.72	4.47	5.46	7.06	8.58
Jul	4.13	4.13	4.37	1975	13	9.26	1975	1.24	1983	8.8	6.1	2.6	1.0	1.33	1.73	2.30	2.80	3.27	3.76	4.30	4.93	5.75	7.01	8.17
Aug	3.53	3.37	5.02	1971	27	9.28	1971	1.12	1995	7.9	5.3	2.1	.9	1.15	1.49	1.98	2.40	2.80	3.22	3.68	4.21	4.90	5.97	6.96
Sep	4.32	3.70	5.96	1960	12	11.09	1999	.95	1978	7.9	5.2	2.6	1.0	1.06	1.47	2.10	2.66	3.21	3.79	4.45	5.22	6.24	7.85	9.36
Oct	3.08	2.72	3.44	1996	19	6.90	1995	.93	1982	7.5	5.2	2.1	.9	1.19	1.48	1.89	2.22	2.55	2.87	3.23	3.64	4.16	4.96	5.69
Nov	3.52	2.99	5.98	1950	25	9.96	1972	.47	1976	8.1	5.1	2.1	1.0	.73	1.06	1.57	2.04	2.52	3.03	3.60	4.28	5.19	6.64	8.01
Dec	3.59	2.87	2.87	1993	5	9.03	1973	.65	1980	9.1	5.4	2.0	.9	.65	.97	1.50	1.99	2.48	3.02	3.63	4.38	5.36	6.95	8.46
Ann	43.87	43.06	5.98	Nov 1950	25	11.09	Sep 1999	.42	Apr 1985	102.6	66.0	27.3	10.5	31.43	33.84	36.94	39.28	41.36	43.37	45.45	47.74	50.52	54.54	58.02

+ 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: 1948-2001

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

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**Climate Division: PA 3**

**NWS Call Sign:**

**Elevation: 105 Feet**

**Lat: 40°07N**

**Lon: 75°30W**

Snow (inches)																							
Snow Totals															Mean Number of Days (1)								
Means/Medians (1)					Extremes (2)										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	2.9	2.0	#	0	5.0	1983	15	6.5	1985	13	1978	20	3	1985	1.8	1.5	.3	.1	.0	1.7	.6	.0	.0
Feb	3.8	-99.9	1	0	15.0	1972	19	19.2	1972	15	1972	19	6	1979	-9.9	-9.9	-9.9	-9.9	-9.9	-9.9	-9.9	-9.9	-9.9
Mar	1.3	.0	#	0	6.5	1976	9	6.5	1976	6	1981	5	#+	1981	.5	.5	.3	.1	.0	.3	.2	.1	.0
Apr	#	.0	0	0	#	1972	7	#	1972	0	0	0	0	0	.0	.0	.0	.0	.0	.0	.0	.0	.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	0	.0	0	0	.0	0	0	0	0	0	0	.0	.0	.0	.0	.0	.0	.0	.0	.0
Nov	.2	.0	0	0	3.0	1978	27	3.0	1978	0	0	0	0	0	.1	.1	.1	.0	.0	.0	.0	.0	.0
Dec	1.2	.5	#	0	4.5	1973	17	4.5	1973	4	1979	19	#+	1979	.5	.3	.2	.0	.0	.1	.0	.0	.0
Ann	9.4	-9.9	N/A	N/A	15.0	Feb 1972	19	19.2	Feb 1972	15	Feb 1972	19	6	Feb 1979	-9.9	-9.9	-9.9	-9.9	-9.9	-9.9	-9.9	-9.9	-9.9

+ 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

Complete documentation available from:

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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	5/25	5/19	5/15	5/11	5/07	5/03	4/30	4/25	4/19
32	5/10	5/04	4/30	4/27	4/23	4/20	4/17	4/13	4/07
28	4/22	4/18	4/14	4/11	4/09	4/06	4/03	3/30	3/26
24	4/11	4/06	4/03	3/30	3/27	3/25	3/21	3/18	3/12
20	3/28	3/24	3/21	3/18	3/16	3/13	3/11	3/08	3/04
16	3/19	3/12	3/07	3/02	2/26	2/22	2/17	2/12	2/05
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	9/13	9/20	9/25	9/29	10/03	10/06	10/11	10/15	10/22
32	9/28	10/04	10/08	10/12	10/15	10/19	10/22	10/27	11/02
28	10/11	10/17	10/21	10/25	10/28	11/01	11/04	11/08	11/14
24	10/28	11/03	11/07	11/11	11/14	11/18	11/21	11/26	12/02
20	11/08	11/14	11/19	11/22	11/26	11/30	12/04	12/08	12/14
16	11/25	12/01	12/06	12/10	12/14	12/18	12/22	12/26	1/02
Freeze Free Period									
Temp (F)	Probability of longer than indicated freeze free period (Days)								
	.10	.20	.30	.40	.50	.60	.70	.80	.90
36	180	169	161	154	148	141	135	127	116
32	204	194	187	180	174	168	162	155	145
28	224	217	211	206	202	197	193	187	180
24	257	248	242	236	231	226	221	214	205
20	276	269	263	259	255	250	246	241	233
16	324	312	304	297	290	284	277	268	257

\* 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

Complete documentation available from:

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Degree Days to Selected Base Temperatures (°F)													
Base	Heating Degree Days (1)												
Below	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Ann
65	1079	896	722	397	133	10	0	2	48	340	613	934	5174
60	924	756	567	255	53	1	0	0	12	216	465	779	4028
57	831	672	474	181	25	0	0	0	4	155	377	686	3405
55	769	616	414	138	14	0	0	0	2	121	321	624	3019
50	622	486	275	58	2	0	0	0	0	57	196	481	2177
32	187	121	17	0	0	0	0	0	0	0	5	102	432

Base	Cooling Degree Days (1)												
Above	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Ann
32	132	149	319	595	935	1163	1335	1275	1018	696	381	191	8189
55	0	0	2	42	236	473	622	562	330	104	8	0	2379
57	0	0	1	26	185	413	560	500	272	76	4	0	2037
60	0	0	0	10	120	323	467	407	190	44	1	0	1562
65	0	0	0	1	45	183	312	254	76	13	0	0	884
70	0	0	0	0	10	74	164	120	15	2	0	0	385

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	25	42	136	357	678	917	1077	1010	769	450	175	43	25	67	203	560	1238	2155	3232	4242	5011	5461	5636	5679
45	4	15	67	225	523	767	922	855	619	303	94	22	4	19	86	311	834	1601	2523	3378	3997	4300	4394	4416
50	0	1	29	125	372	617	767	700	470	179	41	3	0	1	30	155	527	1144	1911	2611	3081	3260	3301	3304
55	0	0	12	59	232	468	612	545	323	88	14	0	0	0	12	71	303	771	1383	1928	2251	2339	2353	2353
60	0	0	3	24	124	319	457	390	197	34	6	0	0	0	3	27	151	470	927	1317	1514	1548	1554	1554
Base	Growing Degree Units for Corn (Monthly)												Growing Degree Units for Corn (Accumulated Monthly)											
50/86	19	33	91	222	419	603	729	682	492	280	114	31	19	52	143	365	784	1387	2116	2798	3290	3570	3684	3715

(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](http://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.  
Complete documentation for the 1971-2000 Normals is available on the internet from:  
[www.ncdc.noaa.gov/oa/climate/normal/usnormals.html](http://www.ncdc.noaa.gov/oa/climate/normal/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 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.

- |   |   |
|---|---|
| <ol style="list-style-type: none"><li>a. Temperature/ Precipitation Tables<ol style="list-style-type: none"><li>1. 1971-2000 Monthly Normals</li><li>2. Cooperative Summary of the Day</li><li>3. National Weather Service station records</li><li>4. 1971-2000 serially complete daily data</li></ol></li><li>b. Degree Day Table<ol style="list-style-type: none"><li>1. Monthly and Annual Heating and Cooling Degree Days Normals to Selected Bases derived from 1971-2000 Monthly Normals</li><li>2. Daily Normal Growing Degree Units to Selected Base Temperatures derived from 1971-2000 serially complete daily data</li></ol></li></ol> | <ol style="list-style-type: none"><li>c. Snow Tables<ol style="list-style-type: none"><li>1. Snow Climatology</li><li>2. Cooperative Summary of the Day</li></ol></li><li>d. Freeze Data Table<br/>1971-2000 serially complete daily data</li></ol> |
|---|---|

## References

U.S. Climate Normals 1971-2000, [www.ncdc.noaa.gov/normal.html](http://www.ncdc.noaa.gov/normal.html)  
U.S. Climate Normals 1971-2000-Products Clim20, [www.ncdc.noaa.gov/oa/climate/normal/usnormalsprods.html](http://www.ncdc.noaa.gov/oa/climate/normal/usnormalsprods.html)  
Snow Climatology Project Description, [www.ncdc.noaa.gov/oa/climate/monitoring/snowclim/mainpage.html](http://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](http://www1.ncdc.noaa.gov/pub/data/special/serialcomplete_jam_0900.pdf)