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: EMPORIUM, PA **COOP ID: 362629**

Climate Division: PA 7 **NWS Call Sign:** **Elevation: 1,040 Feet** **Lat: 41˚30N** **Lon: 78˚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	32.4	14.5	23.5	64	1998	8	33.3	1998	-28	1994	19	11.2	1977	1288	0	.0	.0	1.4	14.8	29.2	4.3
Feb	36.4	15.5	26.0	70	1976	26	35.0	1998	-22+	1979	11	13.2	1979	1094	0	.0	.0	3.5	10.2	26.2	3.8
Mar	46.5	24.4	35.5	84	1977	31	42.1	1973	-9	1993	15	28.7	1984	916	0	.0	.0	11.7	3.0	25.4	.8
Apr	59.0	33.9	46.5	92	1976	19	50.5	1985	10+	1982	7	40.6	1975	556	0	.0	.1	22.8	.1	15.8	.0
May	70.5	43.6	57.1	93	1996	20	63.9	1991	22	1970	7	51.4	1997	271	24	.0	.4	30.4	.0	4.4	.0
Jun	78.1	52.6	65.4	97	1987	16	69.1	1976	32+	1977	8	61.3	1972	68	78	.0	1.2	30.0	.0	.1	.0
Jul	82.0	57.7	69.9	101	1988	9	73.6	1988	37	1988	1	66.6	1985	13	163	.1	3.6	31.0	.0	.0	.0
Aug	80.4	56.6	68.5	98	1988	1	72.2	1995	34	1982	29	62.8	1982	25	134	.0	1.7	31.0	.0	.0	.0
Sep	73.0	49.5	61.3	91+	1971	7	65.6	1971	27	1975	14	58.0	1975	134	21	.0	.3	30.0	.0	.5	.0
Oct	61.9	37.7	49.8	86	1986	1	56.5	1971	12	1972	20	45.4	1976	473	1	.0	.0	27.8	.0	9.7	.0
Nov	48.2	29.9	39.1	80	1982	3	44.5	1975	3	1976	30	32.5	1976	778	0	.0	.0	13.4	1.1	19.8	.0
Dec	36.5	20.5	28.5	70	1998	7	34.2	1982	-15+	1981	21	16.2	1989	1131	0	.0	.0	2.8	8.7	27.2	1.8
Ann	58.7	36.4	47.6	101	Jul 1988	9	73.6	Jul 1988	-28	Jan 1994	19	11.2	Jan 1977	6747	421	.1	7.3	235.8	37.9	158.3	10.7

\+ 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: 1969-2001

(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	2.66	2.58	1.53	1978	18	6.32	1999	.55	1981
Feb	2.19	2.10	1.42	1976	17	4.24	1971	.46	1987
Mar	3.16	2.87	1.83	1974	31	6.80	1974	.89	1981
Apr	3.38	3.49	2.46	1983	26	5.95	1993	.87	1971
May	3.92	3.68	2.24	2000	19	7.81	1989	1.20	1977
Jun	4.93	5.11	3.66	1972	23	9.96	1972	1.06	1988
Jul	4.04	3.71	2.75	1992	16	12.36	1992	1.02	2000
Aug	3.85	3.84	2.52	1994	14	9.35	1994	1.20	1972
Sep	4.17	3.78	4.07	1975	26	10.83	1975	1.12	1984
Oct	3.09	2.90	2.90	1995	21	7.02	1995	.93	1994
Nov	3.44	3.23	2.35	1993	28	8.17	1985	.70	1976
Dec	2.99	2.40	1.69	1998	22	6.03	1990	.76	1980
Ann	41.82	40.71	4.07	Sep 1975	26	12.36	Jul 1992	.46	Feb 1987

Mean Number of Days (3)

Daily Precipitation

Month	>= 0.01	>= 0.10	>= 0.50	>= 1.00
Jan	13.3	6.8	1.4	.3
Feb	11.1	5.9	1.1	.2
Mar	12.1	7.7	1.9	.5
Apr	13.4	8.4	1.9	.3
May	13.5	9.2	2.6	.5
Jun	12.4	8.8	3.7	1.1
Jul	11.4	7.6	3.0	.8
Aug	10.9	7.1	2.9	.8
Sep	11.7	7.9	2.8	.9
Oct	12.4	7.0	1.7	.6
Nov	13.0	7.0	2.6	.7
Dec	14.5	7.1	1.8	.4
Ann	149.7	90.5	27.4	7.1

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	.81	1.06	1.44	1.76	2.08	2.41	2.76	3.19	3.73	4.58	5.37
Feb	.76	.97	1.27	1.52	1.76	2.01	2.28	2.60	3.00	3.62	4.20
Mar	1.38	1.66	2.06	2.38	2.68	2.99	3.32	3.69	4.17	4.89	5.54
Apr	1.37	1.68	2.12	2.48	2.82	3.17	3.54	3.97	4.52	5.35	6.11
May	1.71	2.06	2.55	2.95	3.33	3.70	4.11	4.57	5.16	6.04	6.85
Jun	1.65	2.11	2.80	3.38	3.93	4.51	5.14	5.87	6.82	8.28	9.63
Jul	1.41	1.79	2.34	2.81	3.26	3.72	4.22	4.80	5.54	6.70	7.76
Aug	1.44	1.80	2.31	2.74	3.15	3.57	4.03	4.55	5.23	6.26	7.21
Sep	1.57	1.96	2.52	2.98	3.43	3.88	4.37	4.93	5.66	6.77	7.78
Oct	1.04	1.33	1.76	2.12	2.47	2.83	3.22	3.68	4.27	5.18	6.02
Nov	1.10	1.43	1.91	2.32	2.72	3.13	3.58	4.11	4.79	5.85	6.82
Dec	1.08	1.36	1.76	2.10	2.43	2.76	3.12	3.54	4.08	4.91	5.67
Ann	32.49	34.35	36.71	38.47	40.03	41.51	43.04	44.71	46.72	49.61	52.08

\+ 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

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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	10.1	6.5	3	3	8.0	1994	5	35.9	1999	23	1978	21	9+	1996	6.8	4.1	1.1	.4	.0	15.4	7.2	4.8	1.1
Feb	8.7	7.5	4	3	7.0	1994	26	24.5	1972	18	1979	20	14	1978	4.9	3.2	.8	.4	.0	14.9	11.5	6.8	1.4
Mar	9.4	7.0	2	1	16.0	1993	14	29.0	1993	22	1993	14	14	1994	3.7	2.5	.9	.5	.1	6.0	3.0	1.4	.2
Apr	.6	.0	#	#	4.0	1974	9	4.0	1974	4	1974	9	#+	1997	.4	.2	.1	.0	.0	.5	.1	.0	.0
May	#	.0	0	0	#	1977	10	#+	1977	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	.3	1978	8	.3	1978	#+	1997	24	#+	1997	@	.0	.0	.0	.0	.0	.0	.0	.0
Nov	2.0	.8	#	#	9.2	1995	15	17.2	1995	10	1995	15	2	1995	1.6	.8	.1	.1	.0	2.3	.6	.3	@
Dec	7.4	6.5	2	1	13.2	1995	20	23.5	1995	16	1995	20	6	1995	5.5	2.7	.5	.2	@	10.1	5.0	1.9	.6
Ann	38.2	28.3	N/A	N/A	16.0	Mar 1993	14	35.9	Jan 1999	23	Jan 1978	21	14+	Mar 1994	22.9	13.5	3.5	1.6	.1	49.2	27.4	15.2	3.3

+ 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	6/14	6/08	6/04	5/31	5/27	5/24	5/20	5/16	5/10
32	5/29	5/24	5/20	5/17	5/14	5/12	5/09	5/05	4/30
28	5/14	5/10	5/07	5/04	5/01	4/29	4/26	4/23	4/18
24	5/02	4/26	4/22	4/19	4/16	4/13	4/10	4/06	4/01
20	4/15	4/11	4/08	4/05	4/02	3/31	3/28	3/25	3/20
16	4/05	4/01	3/29	3/26	3/24	3/22	3/19	3/16	3/12

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	9/11	9/16	9/19	9/22	9/25	9/27	9/30	10/04	10/08
32	9/24	9/29	10/03	10/05	10/08	10/11	10/14	10/17	10/22
28	10/03	10/08	10/12	10/15	10/18	10/21	10/24	10/28	11/02
24	10/14	10/19	10/23	10/26	10/28	10/31	11/03	11/07	11/12
20	10/28	11/02	11/06	11/10	11/13	11/16	11/20	11/24	11/29
16	11/06	11/13	11/17	11/22	11/25	11/29	12/03	12/08	12/15

Freeze Free Period

Temp (F)	Probability of longer than indicated freeze free period (Days)								
	.10	.20	.30	.40	.50	.60	.70	.80	.90
36	138	131	127	123	119	116	112	108	101
32	163	157	153	150	146	143	139	135	129
28	191	184	178	173	169	164	159	154	146
24	220	211	205	200	195	190	184	178	170
20	248	240	234	229	224	219	214	208	200
16	269	261	255	250	246	241	236	230	222

***** 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	1288	1094	916	556	271	68	13	25	134	473	778	1131	6747
60	1133	954	761	407	160	20	0	3	48	328	628	976	5418
57	1040	870	668	320	107	7	0	0	21	249	538	883	4703
55	978	814	606	265	79	4	0	0	11	202	479	821	4259
50	823	674	456	145	29	0	0	0	2	107	337	669	3242
32	325	229	75	1	0	0	0	0	0	1	30	216	877

Cooling Degree Days (1)

Base Above	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Ann
32	60	59	181	435	775	1000	1173	1133	877	551	241	107	6592
55	0	0	0	9	141	314	460	420	198	39	1	0	1582
57	0	0	0	5	108	258	398	358	148	24	0	0	1299
60	0	0	0	1	67	180	305	267	85	10	0	0	915
65	0	0	0	0	24	78	163	134	21	1	0	0	421
70	0	0	0	0	6	20	62	48	2	0	0	0	138

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	5	11	69	227	524	759	925	883	639	315	97	13	5	16	85	312	836	1595	2520	3403	4042	4357	4454	4467
45	0	0	32	131	373	609	770	728	490	191	46	4	0	0	32	163	536	1145	1915	2643	3133	3324	3370	3374
50	0	0	11	66	242	459	615	573	345	96	17	1	0	0	11	77	319	778	1393	1966	2311	2407	2424	2425
55	0	0	3	29	134	313	460	419	214	41	4	0	0	0	3	32	166	479	939	1358	1572	1613	1617	1617
60	0	0	0	9	63	186	308	268	113	10	0	0	0	0	0	9	72	258	566	834	947	957	957	957
Base	**Growing Degree Units for Corn (Monthly)**												**Growing Degree Units for Corn (Accumulated Monthly)**											
50/86	0	10	59	164	343	491	609	574	401	206	60	7	0	10	69	233	576	1067	1676	2250	2651	2857	2917	2924

(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