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: MATAMORAS, PA **COOP ID: 365470**

Climate Division: PA 1 **NWS Call Sign:** **Elevation: 420 Feet** **Lat: 41˚22N** **Lon: 74˚42W**

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	34.3	15.7	25.0	66	1998	10	33.3	1990	-18	1981	13	16.6	1977	1240	0	.0	.0	2.3	12.3	28.9	2.7
Feb	37.7	17.0	27.4	74	1985	25	35.0	1998	-12	1971	1	17.2	1979	1055	0	.0	.0	3.9	7.8	25.6	1.8
Mar	47.8	25.9	36.9	88	1998	31	43.1	1973	-8	1967	19	31.3	1993	873	0	.0	.0	13.6	2.1	23.0	.1
Apr	59.7	35.7	47.7	95	1976	18	51.8	1974	11	1982	7	43.4	1975	519	0	.0	.3	24.9	@	11.8	.0
May	71.0	46.0	58.5	95	1969	29	64.0	1991	25+	1966	10	52.9	1997	223	21	.0	.6	30.7	.0	1.1	.0
Jun	78.7	54.9	66.8	98	1964	30	70.1	1973	34+	1965	1	63.1	1985	41	93	.0	2.0	30.0	.0	.0	.0
Jul	83.4	59.5	71.5	102	1966	3	74.1	1999	41+	1963	9	65.9	2000	7	208	@	5.9	31.0	.0	.0	.0
Aug	81.4	58.5	70.0	99	2001	10	73.8	1980	36+	1965	30	66.5	1992	17	171	.0	3.0	31.0	.0	.0	.0
Sep	73.6	50.5	62.1	98	1964	11	66.2	1980	26+	1963	24	58.7	1975	113	25	.0	.7	30.0	.0	.2	.0
Oct	63.2	38.7	51.0	92	1963	7	56.7	1971	19+	1966	31	46.3	1988	439	2	.0	.0	29.2	.0	7.9	.0
Nov	50.2	30.4	40.3	81+	1974	1	45.4	1975	8+	2000	24	34.4	1976	741	0	.0	.0	15.6	.5	17.7	.0
Dec	38.8	21.8	30.3	73	1998	8	36.8	1984	-10+	1980	26	16.6	1989	1076	0	.0	.0	4.1	7.3	27.0	.8
Ann	60.0	37.9	49.0	102	Jul 1966	3	74.1	Jul 1999	-18	Jan 1981	13	16.6+	Dec 1989	6344	520	@	12.5	246.3	30.0	143.2	5.4

+ 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: 1948-2001

(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	3.47	3.45	2.18	1979	25	8.55	1979	.60	1981
Feb	2.83	2.65	1.97	1977	25	6.23	1981	.55	1987
Mar	3.53	3.21	3.23	1977	23	8.43	1977	.50	1981
Apr	4.13	3.87	2.72	1968	25	9.65	1983	1.29	1978
May	4.18	3.73	3.21	1981	12	8.96	1989	1.02	1993
Jun	4.43	4.27	3.82	1998	1	10.22	1998	.37	1988
Jul	4.18	4.22	3.28	1952	10	9.07	1986	1.22	1983
Aug	3.65	3.40	5.83	1955	19	7.66	1990	1.02	1981
Sep	4.55	3.78	6.02	1999	17	10.97	1999	1.09	1984
Oct	3.41	3.33	3.68	1955	15	8.25	1995	1.09	2000
Nov	3.70	3.67	3.83	1972	9	9.53	1972	1.35	1976
Dec	3.40	3.07	2.61	2000	18	8.56	1973	.51	1989
Ann	45.46	45.44	6.02	Sep 1999	17	10.97	Sep 1999	.37	Jun 1988

Mean Number of Days (3)

Daily Precipitation

Month	>= 0.01	>= 0.10	>= 0.50	>= 1.00
Jan	10.4	6.9	2.6	.8
Feb	8.8	6.0	1.9	.5
Mar	9.7	6.6	2.2	.8
Apr	11.4	7.3	2.9	1.1
May	11.8	8.0	2.6	1.0
Jun	10.9	7.6	2.9	1.1
Jul	9.9	7.2	2.7	1.1
Aug	9.6	6.6	2.7	.8
Sep	9.6	6.8	3.0	1.3
Oct	8.9	5.9	2.3	1.1
Nov	9.8	6.6	2.6	1.1
Dec	10.0	6.5	2.6	.6
Ann	120.8	82.0	31.0	11.3

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	.78	1.10	1.61	2.07	2.52	3.01	3.55	4.20	5.06	6.42	7.70
Feb	.99	1.26	1.65	1.97	2.29	2.61	2.96	3.37	3.89	4.70	5.45
Mar	1.26	1.59	2.07	2.48	2.86	3.25	3.68	4.18	4.82	5.81	6.71
Apr	1.47	1.86	2.42	2.89	3.35	3.81	4.31	4.90	5.65	6.81	7.88
May	1.25	1.65	2.24	2.76	3.26	3.77	4.35	5.02	5.89	7.24	8.50
Jun	1.04	1.45	2.10	2.68	3.25	3.87	4.55	5.37	6.45	8.15	9.76
Jul	1.45	1.85	2.42	2.91	3.37	3.85	4.37	4.97	5.75	6.95	8.05
Aug	1.51	1.84	2.31	2.70	3.06	3.43	3.83	4.29	4.87	5.75	6.55
Sep	1.45	1.88	2.52	3.07	3.60	4.14	4.74	5.44	6.34	7.74	9.04
Oct	1.19	1.51	1.98	2.37	2.75	3.14	3.56	4.05	4.68	5.65	6.55
Nov	1.37	1.72	2.22	2.63	3.03	3.43	3.87	4.38	5.03	6.03	6.94
Dec	.77	1.08	1.58	2.03	2.48	2.95	3.49	4.12	4.96	6.30	7.56
Ann	34.01	36.27	39.15	41.31	43.22	45.06	46.94	49.02	51.53	55.15	58.26

\+ 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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Snow (inches)

Snow Totals

Means/Medians (1)

Month	Snow Fall Mean	Snow Fall Median	Snow Depth Mean	Snow Depth Median
Jan	10.5	8.8	3	3
Feb	8.0	6.0	3	2
Mar	4.4	4.0	1	#
Apr	1.7	.0	#	0
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	#	.0	#	0
Nov	1.5	.0	#	0
Dec	5.8	5.2	1	#
Ann	31.9	24.0	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	16.0	1988	26	29.4	1978	18	1978	21	7	1978
Feb	15.0	1978	7	21.0	1983	24	1978	7	17	1978
Mar	20.0	1993	14	20.0	1993	28	1993	15	13	1993
Apr	15.2	1997	1	15.8	1997	15	1997	1	1	1997
May	#	1977	9	#	1977	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	#	1972	19	#	1972	#	1972	19	#	1972
Nov	8.0	1971	25	10.0	1971	10	1971	26	1	1987
Dec	11.7	2000	31	18.0	2000	12	2000	31	3	1989
Ann	20.0	Mar 1993	14	29.4	Jan 1978	28	Mar 1993	15	17	Feb 1978

Mean Number of Days (1)

Snow Fall >= Thresholds

Month	0.1	1.0	3.0	5.0	10.0
Jan	4.6	3.2	1.2	.5	.2
Feb	3.4	2.5	.7	.3	.2
Mar	2.5	1.7	.5	.2	@
Apr	.5	.3	.1	.1	.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	.0	.0	.0	.0	.0
Nov	.6	.4	.2	.1	.0
Dec	3.2	1.7	.7	.3	@
Ann	14.8	9.8	3.4	1.5	.5

Snow Depth >= Thresholds

Month	1	3	5	10
Jan	16.5	10.4	6.1	1.3
Feb	13.0	9.0	5.7	2.3
Mar	4.2	2.2	1.1	.5
Apr	.6	.2	.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	.0	.0	.0	.0
Nov	1.2	.6	.2	@
Dec	7.3	3.3	1.2	.2
Ann	42.8	25.7	14.5	4.4

+ 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	5/28	5/22	5/18	5/15	5/12	5/09	5/06	5/02	4/27
32	5/18	5/13	5/10	5/06	5/04	5/01	4/28	4/24	4/19
28	5/02	4/28	4/25	4/23	4/20	4/18	4/15	4/13	4/08
24	4/17	4/12	4/09	4/07	4/05	4/02	3/31	3/28	3/23
20	4/07	4/02	3/29	3/26	3/24	3/21	3/18	3/14	3/09
16	3/28	3/23	3/19	3/15	3/12	3/09	3/05	3/01	2/24

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	9/14	9/19	9/22	9/25	9/27	9/30	10/02	10/05	10/10
32	9/26	10/01	10/04	10/07	10/09	10/12	10/14	10/18	10/22
28	10/04	10/09	10/14	10/17	10/21	10/24	10/28	11/01	11/07
24	10/22	10/28	11/01	11/04	11/08	11/11	11/14	11/18	11/24
20	11/01	11/07	11/12	11/16	11/20	11/23	11/27	12/02	12/09
16	11/19	11/25	11/29	12/03	12/06	12/09	12/13	12/17	12/23

Freeze Free Period

Temp (F)	Probability of longer than indicated freeze free period (Days)								
	.10	.20	.30	.40	.50	.60	.70	.80	.90
36	156	150	145	141	137	133	129	125	118
32	175	169	165	161	158	155	151	147	141
28	206	198	192	187	182	178	173	167	159
24	237	230	225	220	216	212	208	203	196
20	265	256	250	245	240	236	230	224	216
16	293	285	278	273	268	263	258	252	244

***** 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	1240	1055	873	519	223	41	7	17	113	439	741	1076	6344
60	1085	915	718	371	116	7	0	1	36	296	591	921	5057
57	992	831	625	285	69	2	0	0	14	220	501	828	4367
55	930	775	563	232	46	1	0	0	7	175	442	766	3937
50	775	635	414	119	12	0	0	0	1	88	300	615	2959
32	279	200	54	0	0	0	0	0	0	0	16	175	724

Cooling Degree Days (1)

Base Above	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Ann
32	62	69	204	471	822	1043	1224	1177	902	586	266	122	6948
55	0	0	0	13	155	353	511	464	219	48	1	0	1764
57	0	0	0	6	116	295	449	402	166	31	0	0	1465
60	0	0	0	2	69	210	356	310	97	14	0	0	1058
65	0	0	0	0	21	93	208	171	25	2	0	0	520
70	0	0	0	0	4	24	91	72	2	0	0	0	193

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	8	16	83	258	595	815	987	942	682	364	121	25	8	24	107	365	960	1775	2762	3704	4386	4750	4871	4896
45	0	3	43	152	441	665	832	787	532	228	61	6	0	3	46	198	639	1304	2136	2923	3455	3683	3744	3750
50	0	0	13	77	295	515	677	632	386	125	23	1	0	0	13	90	385	900	1577	2209	2595	2720	2743	2744
55	0	0	4	38	171	369	522	477	250	55	7	0	0	0	4	42	213	582	1104	1581	1831	1886	1893	1893
60	0	0	1	14	85	228	367	325	137	17	2	0	0	0	1	15	100	328	695	1020	1157	1174	1176	1176
Base	**Growing Degree Units for Corn (Monthly)**												**Growing Degree Units for Corn (Accumulated Monthly)**											
50/86	1	12	64	174	364	526	658	627	424	230	72	10	1	13	77	251	615	1141	1799	2426	2850	3080	3152	3162

(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