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: PHILO 3 SW, OH **COOP ID: 336600**

Climate Division: OH10 **NWS Call Sign:** **Elevation: 1,020 Feet** **Lat: 39˚50N** **Lon: 81˚55W**

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	32.2	16.3	24.3	75	1950	25	33.4	1998	-27	1994	19	9.3	1977	1264	0	.0	.0	4.3	13.2	27.5	2.4
Feb	36.9	18.9	27.9	73+	1976	29	35.9	1998	-12	1951	3	13.6	1978	1039	0	.0	.0	6.7	9.2	22.7	1.4
Mar	47.8	27.2	37.5	84	1950	27	45.9	1973	-2	1980	2	30.8	1984	853	0	.0	.0	15.7	2.6	18.6	.1
Apr	58.9	36.5	47.7	89	1986	28	54.1	1985	12	1995	5	43.5	1980	519	0	.0	.0	25.7	.1	7.7	.0
May	68.0	46.1	57.1	92	1962	16	64.4	1991	25+	1996	14	51.7	1997	273	27	.0	.0	30.6	.0	.8	.0
Jun	75.3	54.3	64.8	100	1952	28	68.6	1994	33	1972	11	60.3	1980	77	69	.0	.5	30.0	.0	.0	.0
Jul	78.7	58.0	68.4	103	1954	14	74.0	1999	43+	1996	11	63.9	1971	30	133	@	2.8	31.0	.0	.0	.0
Aug	77.2	56.7	67.0	100+	1953	30	71.4	1983	39+	1986	29	62.7	1992	51	111	.0	1.4	31.0	.0	.0	.0
Sep	70.8	50.1	60.5	102+	1953	4	65.1	1998	28	1995	23	56.6	1975	165	29	.0	.6	30.0	.0	.2	.0
Oct	60.0	39.3	49.7	90	1951	4	56.3	1971	19	1972	20	42.8	1988	479	4	.0	.0	28.5	@	5.5	.0
Nov	47.6	30.9	39.3	84	1950	1	44.8	1985	-3	1958	30	31.4	1976	773	0	.0	.0	15.9	1.8	15.1	.0
Dec	36.5	21.5	29.0	76	1982	3	37.1	1982	-18	1989	22	15.1	1989	1116	0	.0	.0	6.3	8.5	24.0	.9
Ann	57.5	38.0	47.8	103	Jul 1954	14	74.0	Jul 1999	-27	Jan 1994	19	9.3	Jan 1977	6639	373	@	5.3	255.7	35.4	122.1	4.8

\+ 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

Means/Medians(1)

Month	Mean	Median
Jan	2.14	2.02
Feb	2.12	2.09
Mar	2.72	2.65
Apr	3.06	2.74
May	4.15	4.16
Jun	4.20	3.79
Jul	4.09	3.92
Aug	3.75	3.40
Sep	2.78	2.71
Oct	2.42	2.02
Nov	2.93	2.37
Dec	2.55	2.28
Ann	36.91	36.59

Extremes

Month	Highest Daily(2)	Year	Day	Highest Monthly(1)	Year	Lowest Monthly(1)	Year
Jan	1.62	2000	4	4.72	1999	.31	1981
Feb	1.82	1966	13	4.19	1989	.15	1978
Mar	2.30	1964	9	5.24	1997	.94	1983
Apr	1.88	1970	24	6.67	1983	.14	1971
May	3.53	1956	27	7.18	1996	.87	1991
Jun	2.52	1979	21	9.01	1981	1.13	1988
Jul	3.42	1976	12	9.23	1992	.74	1991
Aug	3.06	2001	12	10.03	1980	.64	1983
Sep	3.41	1970	8	5.75	1975	.28	1985
Oct	1.99	1975	17	5.80	1983	.97	1974
Nov	3.12	1985	16	12.51	1985	.30	1976
Dec	2.08	1986	2	6.73	1990	1.01	1980
Ann	3.53	May 1956	27	12.51	Nov 1985	.14	Apr 1971

Mean Number of Days (3)

Daily Precipitation

Month	>= 0.01	>= 0.10	>= 0.50	>= 1.00
Jan	10.1	6.3	1.2	.3
Feb	8.7	5.4	1.1	.3
Mar	10.1	7.2	1.7	.2
Apr	10.3	7.1	2.1	.5
May	11.1	8.3	3.2	.8
Jun	9.9	7.6	3.0	1.0
Jul	9.1	6.9	2.9	1.1
Aug	8.5	6.6	2.8	.9
Sep	7.6	5.6	2.1	.5
Oct	7.8	5.4	1.8	.4
Nov	9.6	6.7	1.9	.4
Dec	10.2	6.1	1.6	.4
Ann	113.0	79.2	25.4	6.8

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	.69	.89	1.19	1.45	1.70	1.95	2.23	2.56	2.98	3.64	4.25
Feb	.48	.68	.99	1.27	1.55	1.84	2.17	2.56	3.08	3.91	4.68
Mar	1.07	1.32	1.68	1.97	2.25	2.54	2.84	3.20	3.65	4.34	4.97
Apr	.80	1.09	1.53	1.92	2.31	2.71	3.16	3.70	4.39	5.49	6.52
May	1.50	1.89	2.46	2.93	3.38	3.84	4.34	4.93	5.67	6.82	7.88
Jun	1.49	1.88	2.46	2.94	3.40	3.87	4.39	4.99	5.76	6.95	8.04
Jul	1.17	1.56	2.15	2.66	3.15	3.67	4.24	4.92	5.80	7.17	8.45
Aug	.88	1.23	1.78	2.27	2.76	3.28	3.85	4.54	5.45	6.89	8.24
Sep	.78	1.05	1.45	1.79	2.13	2.49	2.88	3.35	3.95	4.90	5.78
Oct	.84	1.07	1.40	1.68	1.95	2.22	2.52	2.87	3.32	4.02	4.65
Nov	.74	1.01	1.44	1.82	2.19	2.59	3.03	3.55	4.23	5.30	6.31
Dec	.97	1.21	1.55	1.83	2.10	2.37	2.67	3.02	3.46	4.13	4.75
Ann	27.91	29.69	31.96	33.66	35.17	36.61	38.10	39.73	41.70	44.53	46.96

\+ 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)

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	7.8	6.3	2	1	8.0	1996	7	26.0	1978	19	1978	21	11	1977	5.1	3.5	.9	.3	.0	11.8	6.3	3.8	2.0
Feb	5.4	5.0	2	1	7.0	1971	8	11.5	1971	17	1985	16	9	1985	3.1	2.0	.7	.2	.0	8.1	4.5	2.8	1.2
Mar	3.3	2.8	#	#	6.5	1993	13	11.0	1971	9	1978	5	3	1978	2.2	1.4	.5	.1	.0	2.2	1.0	.5	.0
Apr	1.1	.0	#	0	15.0	1987	4	16.5	1987	15	1987	4	1	1987	.5	.2	.1	.1	@	.2	.1	.1	@
May	#	.0	0	0	#	1989	7	#	1989	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	.5	1993	30	.5+	1993	0	0	0	0	0	@	.0	.0	.0	.0	.0	.0	.0	.0
Nov	1.0	.5	#	#	3.5	1980	17	5.2	1995	4	1980	17	#+	2000	1.0	.5	.1	.0	.0	.8	.1	.0	.0
Dec	3.9	3.0	1	#	9.0	1974	1	14.5	1974	9	1981	21	3	1989	3.0	1.4	.3	.1	.0	4.1	1.7	.8	.0
Ann	22.5	17.6	N/A	N/A	15.0	Apr 1987	4	26.0	Jan 1978	19	Jan 1978	21	11	Jan 1977	14.9	9.0	2.6	.8	@	27.2	13.7	8.0	3.2

+ 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	6/02	5/26	5/20	5/16	5/12	5/08	5/03	4/28	4/21
32	5/16	5/11	5/07	5/03	4/30	4/27	4/23	4/19	4/14
28	5/04	4/29	4/25	4/22	4/19	4/16	4/13	4/10	4/05
24	4/16	4/12	4/09	4/07	4/04	4/02	3/30	3/27	3/23
20	4/10	4/05	4/01	3/29	3/26	3/23	3/20	3/16	3/11
16	3/31	3/25	3/21	3/17	3/14	3/10	3/07	3/03	2/25

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	9/19	9/22	9/25	9/27	9/30	10/02	10/04	10/07	10/11
32	9/24	9/29	10/03	10/07	10/10	10/13	10/17	10/21	10/27
28	10/03	10/09	10/14	10/18	10/21	10/25	10/28	11/02	11/08
24	10/19	10/25	10/29	11/02	11/05	11/09	11/13	11/17	11/23
20	11/01	11/07	11/12	11/15	11/19	11/22	11/26	12/01	12/07
16	11/14	11/20	11/24	11/28	12/02	12/06	12/10	12/14	12/21

Freeze Free Period

Temp (F)	Probability of longer than indicated freeze free period (Days)								
	.10	.20	.30	.40	.50	.60	.70	.80	.90
36	163	155	149	145	140	136	131	125	117
32	187	179	173	167	163	158	152	146	138
28	212	202	195	189	184	178	173	166	156
24	237	229	224	219	214	210	205	200	192
20	263	254	248	242	237	232	226	220	211
16	292	282	275	268	263	257	250	243	233

***** 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	1264	1039	853	519	273	77	30	51	165	479	773	1116	6639
60	1109	899	698	373	164	23	5	11	75	338	623	961	5279
57	1016	815	605	290	113	9	0	3	41	262	534	868	4556
55	954	759	548	238	84	4	0	0	26	216	476	806	4111
50	800	624	406	130	34	0	0	0	6	123	338	659	3120
32	326	215	71	1	0	0	0	0	0	2	36	216	867

Cooling Degree Days (1)

Base Above	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Ann
32	85	100	241	472	777	983	1127	1084	854	551	253	123	6650
55	0	0	5	20	149	297	414	371	190	51	3	0	1500
57	0	0	0	11	115	241	352	312	145	35	1	0	1212
60	0	0	0	4	73	165	264	227	90	18	0	0	841
65	0	0	0	0	27	69	133	111	29	4	0	0	373
70	0	0	0	0	8	17	49	38	5	0	0	0	117

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	31	49	162	349	630	836	977	940	716	411	172	50	31	80	242	591	1221	2057	3034	3974	4690	5101	5273	5323
45	7	22	94	232	476	686	822	785	566	274	99	26	7	29	123	355	831	1517	2339	3124	3690	3964	4063	4089
50	1	6	53	144	333	536	667	630	419	164	52	6	1	7	60	204	537	1073	1740	2370	2789	2953	3005	3011
55	0	1	30	77	208	389	512	475	284	85	20	2	0	1	31	108	316	705	1217	1692	1976	2061	2081	2083
60	0	0	9	35	112	254	359	320	166	34	5	0	0	0	9	44	156	410	769	1089	1255	1289	1294	1294
Base	**Growing Degree Units for Corn (Monthly)**												**Growing Degree Units for Corn (Accumulated Monthly)**											
50/86	11	27	100	211	381	546	662	626	448	240	90	27	11	38	138	349	730	1276	1938	2564	3012	3252	3342	3369

(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