

Climatography of the United States

No. 20

1971-2000

Station: WARREN 3 S, OH

COOP ID: 338769

Climate Division: OH 3

NWS Call Sign:

Elevation: 900 Feet

Lat: 41° 12N

Lon: 80° 49W

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	32.7	15.3	24.0	70	1952	13	33.9	1990	-26	1984	21	7.9	1977	1272	0	.0	.0	3.1	13.7	28.9	4.3
Feb	36.0	16.4	26.2	75	2000	27	36.5	1998	-20+	1979	11	12.2	1978	1087	0	.0	.0	4.6	10.0	24.9	3.2
Mar	46.8	24.2	35.5	82+	1998	31	43.8	1973	-12	1948	12	27.7	1984	916	0	.0	.0	13.6	3.4	23.6	.4
Apr	58.6	33.3	46.0	90+	1986	28	51.7	1985	10	1982	8	40.0	1975	571	0	.0	@	23.5	.2	13.6	.0
May	69.8	44.6	57.2	94+	1962	18	64.9	1991	20	1970	7	50.8	1997	272	30	.0	@	30.6	.0	3.5	.0
Jun	78.3	53.7	66.0	100	1952	26	69.2	1973	28	1972	11	61.5	1972	60	89	.0	1.8	30.0	.0	.1	.0
Jul	82.4	57.9	70.2	105	1936	9	74.1	1987	37	1968	4	66.8	2000	10	169	.1	4.2	31.0	.0	.0	.0
Aug	80.8	56.0	68.4	99+	1988	17	73.7	1995	30	1982	29	64.7	1976	31	136	.0	2.2	31.0	.0	@	.0
Sep	73.5	49.2	61.4	100	1954	5	65.6	1971	26	1944	24	57.1	1974	141	31	.0	.5	30.0	.0	.7	.0
Oct	62.1	37.8	50.0	89+	1951	5	56.3	1971	16+	1988	31	44.0	1988	469	3	.0	.0	28.2	.0	8.7	.0
Nov	49.2	30.2	39.7	81+	1961	3	44.6	1985	-7	1976	30	30.4	1976	759	0	.0	.0	14.8	1.0	18.9	@
Dec	37.9	21.8	29.9	76	1982	3	37.1	1982	-17	1989	17	17.6	1989	1090	0	.0	.0	5.5	8.4	25.9	1.3
Ann	59.0	36.7	47.9	105	Jul 1936	9	74.1	Jul 1987	-26	Jan 1984	21	7.9	Jan 1977	6678	458	.1	8.7	245.9	36.7	148.8	9.2

+ 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

Issue Date: February 2004

(1) From the 1971-2000 Monthly Normals

(2) Derived from station's available digital record: 1936-2001

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

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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: WARREN 3 S, OH

COOP ID: 338769

Climate Division: OH 3

NWS Call Sign:

Elevation: 900 Feet Lat: 41°12N

Lon: 80°49W

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	2.25	2.23	2.82	1959	21	5.26	1982	.79	1981	14.6	6.1	1.1	.2	.72	.94	1.25	1.52	1.78	2.05	2.34	2.69	3.13	3.82	4.46
Feb	1.69	1.62	2.48	1959	10	3.75	1981	.26	1987	11.9	5.3	.7	.0	.55	.71	.95	1.15	1.34	1.54	1.76	2.01	2.34	2.86	3.33
Mar	2.94	3.07	2.11	1954	1	6.06	1985	.78	1990	13.7	7.4	1.6	.3	1.15	1.42	1.81	2.13	2.43	2.74	3.08	3.47	3.96	4.72	5.41
Apr	3.31	3.11	2.46	1972	15	6.88	1998	.96	1971	14.7	8.4	1.8	.6	1.26	1.57	2.01	2.38	2.73	3.08	3.47	3.91	4.48	5.35	6.15
May	3.59	4.05	2.85	1942	16	6.54	1989	.78	1977	14.2	8.6	2.0	.6	1.25	1.59	2.08	2.50	2.89	3.30	3.75	4.27	4.94	5.97	6.92
Jun	3.99	3.94	2.65	1970	26	9.93	1989	.80	1988	12.6	8.0	2.8	.7	1.13	1.51	2.08	2.58	3.06	3.57	4.13	4.80	5.66	7.01	8.26
Jul	4.21	3.62	2.76	1985	14	11.55	1992	.65	1982	11.0	7.1	2.9	1.0	1.28	1.68	2.28	2.79	3.29	3.81	4.38	5.05	5.91	7.26	8.51
Aug	3.35	3.10	2.96	1994	14	7.16	1974	.92	1991	10.8	6.7	2.2	.7	.95	1.27	1.75	2.17	2.58	3.00	3.48	4.03	4.76	5.89	6.95
Sep	4.00	3.62	4.92	1972	2	8.82	1972	1.38	1995	12.6	7.6	2.7	1.0	1.71	2.07	2.58	2.99	3.38	3.77	4.20	4.68	5.29	6.23	7.07
Oct	2.60	2.43	3.10	1954	15	5.30	1995	.97	1982	13.0	6.5	1.5	.2	1.01	1.25	1.60	1.88	2.15	2.43	2.72	3.07	3.50	4.17	4.79
Nov	3.05	2.68	4.03	1955	16	9.82	1985	.37	1976	14.9	7.2	1.7	.4	.83	1.12	1.56	1.94	2.32	2.72	3.15	3.67	4.34	5.40	6.39
Dec	2.82	2.78	1.90	1979	25	6.25	1990	1.25	1976	15.1	6.7	1.5	.4	1.31	1.55	1.89	2.17	2.42	2.68	2.96	3.27	3.66	4.26	4.79
Ann	37.80	37.89	4.92	Sep 1972	2	11.55	Jul 1992	.26	Feb 1987	159.1	85.6	22.5	6.1	30.35	31.86	33.76	35.17	36.41	37.59	38.80	40.13	41.71	43.98	45.91

+ 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: 1936-2001

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

Complete documentation available from:

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Station: WARREN 3 S, OH

COOP ID: 338769

Climate Division: OH 3

NWS Call Sign:

Elevation: 900 Feet

Lat: 41°12N

Lon: 80°49W

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	9.2	7.4	2	1	13.0	1999	14	34.1	1999	18	1978	21	10	1977	7.4	3.7	1.2	.4	.1	10.4	5.1	2.8	.4
Feb	7.3	6.8	2	1	6.5	1972	6	15.9	1984	14	1977	6	6	1985	5.1	2.8	.8	.2	.0	8.8	3.2	1.2	.1
Mar	3.9	3.9	#	#	8.0	1975	14	9.8	1973	12	1993	14	4	1984	2.9	1.5	.6	.3	.0	3.1	1.5	.5	.1
Apr	.3	.0	#	0	6.1	1987	4	6.1	1987	6	1987	4	#+	1997	.4	.1	@	@	.0	.2	@	@	.0
May	#	.0	0	0	#	1976	3	#+	1976	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	#	1997	23	#+	1997	#+	1997	23	#+	1997	.0	.0	.0	.0	.0	.0	.0	.0	.0
Nov	1.5	.4	#	#	3.0	1977	12	8.8	1977	4	1977	27	1	1977	1.3	.5	.1	.0	.0	1.0	.3	.0	.0
Dec	5.6	5.3	1	1	6.0	1995	19	11.6	1976	13	1995	21	4	1995	5.1	2.7	.6	.2	.0	6.7	3.0	.8	.1
Ann	27.8	23.8	N/A	N/A	13.0	Jan 1999	14	34.1	Jan 1999	18	Jan 1978	21	10	Jan 1977	22.2	11.3	3.3	1.1	.1	30.2	13.1	5.3	.7

+ 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	6/14	6/08	6/04	6/01	5/28	5/25	5/21	5/17	5/12
32	6/01	5/27	5/23	5/20	5/17	5/13	5/10	5/06	5/01
28	5/17	5/11	5/07	5/03	4/29	4/25	4/21	4/17	4/10
24	5/04	4/29	4/25	4/22	4/19	4/16	4/12	4/08	4/03
20	4/21	4/16	4/13	4/10	4/07	4/04	4/01	3/28	3/24
16	4/11	4/07	4/03	3/31	3/28	3/25	3/22	3/19	3/14
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	9/06	9/11	9/15	9/18	9/21	9/24	9/27	10/01	10/05
32	9/18	9/23	9/27	9/30	10/03	10/05	10/09	10/12	10/17
28	10/03	10/08	10/12	10/15	10/18	10/20	10/23	10/27	11/01
24	10/18	10/23	10/26	10/29	11/01	11/03	11/06	11/10	11/15
20	10/26	11/01	11/04	11/08	11/11	11/14	11/17	11/21	11/27
16	11/10	11/17	11/22	11/26	11/30	12/04	12/09	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	133	127	122	119	115	111	107	103	97
32	157	150	146	142	138	135	131	126	120
28	194	186	180	176	171	166	161	156	148
24	217	210	204	200	195	191	186	181	173
20	243	234	228	222	217	212	207	201	192
16	272	263	257	252	246	241	236	230	221

* 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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Elevation: 900 Feet Lat: 41°12N Lon: 80°49W

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	1272	1087	916	571	272	60	10	31	141	469	759	1090	6678
60	1117	947	761	424	164	16	0	5	57	326	609	935	5361
57	1024	863	668	338	113	6	0	1	28	249	519	842	4651
55	962	807	606	285	85	3	0	0	16	203	460	780	4207
50	808	668	461	167	35	0	0	0	3	110	321	634	3207
32	326	243	88	3	0	0	0	0	0	1	28	201	890

Base	Cooling Degree Days (1)												
Above	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Ann
32	77	80	195	422	781	1020	1182	1128	880	558	259	135	6717
55	0	0	0	14	152	333	469	415	206	46	2	0	1637
57	0	0	0	8	118	276	407	354	159	30	0	0	1352
60	0	0	0	3	76	196	314	265	97	14	0	0	965
65	0	0	0	0	30	89	169	136	31	3	0	0	458
70	0	0	0	0	9	25	65	51	5	0	0	0	155

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	16	25	102	262	558	802	954	909	659	350	128	40	16	41	143	405	963	1765	2719	3628	4287	4637	4765	4805
45	2	9	54	159	407	652	799	754	509	219	68	19	2	11	65	224	631	1283	2082	2836	3345	3564	3632	3651
50	0	0	28	88	269	502	644	599	364	116	26	4	0	0	28	116	385	887	1531	2130	2494	2610	2636	2640
55	0	0	8	42	158	358	489	444	236	51	10	0	0	0	8	50	208	566	1055	1499	1735	1786	1796	1796
60	0	0	2	15	78	223	335	294	132	17	1	0	0	0	2	17	95	318	653	947	1079	1096	1097	1097
Base	Growing Degree Units for Corn (Monthly)												Growing Degree Units for Corn (Accumulated Monthly)											
50/86	6	19	77	181	358	517	631	599	422	219	77	23	6	25	102	283	641	1158	1789	2388	2810	3029	3106	3129

(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

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
- 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.

- 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/normal.html
U.S. Climate Normals 1971-2000-Products Clim20, www.ncdc.noaa.gov/oa/climate/normal/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