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: WILMINGTON 3 N, OH **COOP ID: 339219**

Climate Division: OH 8 **NWS Call Sign:** **Elevation: 1,030 Feet** **Lat: 39˚29N** **Lon: 83˚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	34.9	18.6	26.8	74	1950	25	37.4	1990	-25+	1984	22	12.1	1977	1186	0	.0	.0	4.0	13.0	27.4	3.5
Feb	39.1	21.2	30.2	73+	2000	27	37.3+	1998	-20	1985	3	15.9	1978	976	0	.0	.0	6.3	9.1	23.1	2.6
Mar	50.1	29.8	40.0	87	1938	22	49.4	1973	-10	1984	10	31.4	1984	776	0	.0	.0	15.2	2.6	19.7	.3
Apr	61.3	39.0	50.2	92	1942	30	55.1	1985	12	1972	8	45.4	1975	447	1	.0	.0	24.7	.1	7.8	.0
May	71.6	50.1	60.9	97	1936	10	67.0	1991	24	1966	10	56.2	1997	187	57	.0	.1	30.7	.0	.9	.0
Jun	80.1	59.1	69.6	104	1944	28	73.3	1994	37	1972	11	65.3	1972	24	160	.0	1.7	30.0	.0	.0	.0
Jul	83.8	62.7	73.3	109	1936	14	77.0	1999	40	1988	1	69.8	2000	2	257	.0	4.6	31.0	.0	.0	.0
Aug	82.3	60.0	71.2	105	1951	31	76.4	1983	37+	1986	30	65.0	1976	19	210	.0	3.3	31.0	.0	.0	.0
Sep	76.4	52.6	64.5	104	1939	14	68.2+	1998	27	1942	28	57.5	1976	91	76	.0	.8	30.0	.0	.1	.0
Oct	64.7	41.6	53.2	91+	1939	9	60.4	1971	12+	1976	29	42.8	1976	383	15	.0	.0	28.7	.0	5.7	.0
Nov	51.5	33.3	42.4	82	1946	3	47.8	1994	-6	1958	30	32.4	1976	678	0	.0	.0	16.0	.8	15.6	.0
Dec	39.9	24.4	32.2	73	1982	4	41.5	1982	-24	1989	22	16.4	1989	1018	0	.0	.0	7.1	7.6	24.4	1.3
Ann	61.3	41.0	51.2	109	Jul 1936	14	77.0	Jul 1999	-25+	Jan 1984	22	12.1	Jan 1977	5787	776	.0	10.5	254.7	33.2	124.7	7.7

\+ 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: 1936-2001

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

Issue Date: February 2004

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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	2.67	2.50	3.43	1959	22	5.14	1978	.23	1981
Feb	2.48	2.29	2.23	1988	2	5.43	1971	.44	1978
Mar	3.35	3.05	3.63	1964	5	5.93	1997	1.10	1979
Apr	3.97	3.51	3.88	1940	20	9.13	1998	.92	1971
May	4.90	4.81	4.38	1968	24	10.92	1990	1.13	1988
Jun	4.28	3.70	3.47	1939	21	9.99	1974	.40	1988
Jul	4.29	4.32	5.35	1954	21	8.29	1992	.66	1972
Aug	3.42	3.06	3.03	1994	29	7.95	1979	.71	1993
Sep	2.91	2.39	4.06	1979	14	6.64	1972	.58	1985
Oct	2.85	2.47	2.40	1950	9	6.46	1983	.51	1982
Nov	3.36	2.97	2.25	1948	6	9.51	1985	.50	1976
Dec	2.90	2.78	2.40	1998	22	7.60	1990	.57	1976
Ann	41.38	41.54	5.35	Jul 1954	21	10.92	May 1990	.23	Jan 1981

Mean Number of Days (3)

Month	Daily Precipitation >= 0.01	>= 0.10	>= 0.50	>= 1.00
Jan	11.7	6.3	1.4	.5
Feb	10.4	5.6	1.3	.5
Mar	12.7	7.4	2.3	.6
Apr	13.6	8.8	2.7	.6
May	13.0	8.8	3.4	1.4
Jun	11.4	8.0	2.6	1.1
Jul	11.1	7.7	3.0	1.1
Aug	9.3	6.2	2.6	.7
Sep	8.9	5.5	1.8	.8
Oct	9.4	5.7	1.7	.7
Nov	11.7	7.0	2.2	.7
Dec	12.0	6.4	1.9	.4
Ann	135.2	83.4	26.9	9.1

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	.70	.95	1.34	1.68	2.01	2.37	2.76	3.22	3.82	4.77	5.66
Feb	.57	.80	1.16	1.49	1.81	2.16	2.55	3.01	3.61	4.58	5.49
Mar	1.48	1.78	2.20	2.54	2.85	3.17	3.51	3.90	4.40	5.15	5.82
Apr	1.25	1.63	2.19	2.67	3.13	3.61	4.14	4.75	5.55	6.79	7.93
May	1.41	1.87	2.58	3.18	3.78	4.40	5.08	5.88	6.93	8.57	10.09
Jun	1.29	1.70	2.31	2.83	3.34	3.86	4.44	5.13	6.01	7.38	8.66
Jul	1.64	2.04	2.61	3.08	3.53	3.99	4.49	5.06	5.80	6.92	7.95
Aug	1.16	1.48	1.96	2.36	2.74	3.14	3.57	4.07	4.72	5.72	6.64
Sep	.66	.93	1.36	1.74	2.12	2.53	2.99	3.53	4.25	5.38	6.46
Oct	.79	1.06	1.47	1.83	2.18	2.54	2.95	3.43	4.05	5.03	5.95
Nov	.94	1.26	1.74	2.16	2.57	3.00	3.48	4.04	4.77	5.91	6.97
Dec	.97	1.24	1.64	1.99	2.32	2.65	3.03	3.46	4.02	4.88	5.68
Ann	29.61	31.89	34.81	37.02	38.99	40.88	42.84	45.01	47.63	51.43	54.72

+ 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

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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	7.5	4.3	2	1
Feb	5.7	4.4	2	1
Mar	3.2	2.1	1	1
Apr	.7	.0	#	0
May	#	.0	#	0
Jun	.0	.0	0	0
Jul	.0	.0	0	0
Aug	.0	.0	0	0
Sep	.0	.0	0	0
Oct	.2	.0	#	0
Nov	1.4	.5	#	0
Dec	3.1	2.4	#	0
Ann	21.8	13.7	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	7.0	1977	10	29.5	1978	22+	1978	22	10	1978
Feb	7.0	1971	9	14.5	1971	23+	1978	18	22	1978
Mar	7.0	1999	9	12.5	1971	22+	1978	8	8	1978
Apr	4.0	1987	5	7.0	1973	5	1987	5	#	1996
May	#	1989	7	#	1989	0	0	0	#	2000
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	3.5	1993	31	3.8	1993	2+	1993	31	#	1993
Nov	5.5	1972	30	12.5	1972	6	1972	30	#	1997
Dec	6.0	1984	6	8.5	1981	7+	1989	28	4	1989
Ann	7.0+	Mar 1999	9	29.5	Jan 1978	23+	Feb 1978	18	22	Feb 1978

Mean Number of Days (1)

Snow Fall >= Thresholds

Month	0.1	1.0	3.0	5.0	10.0
Jan	6.6	3.0	.6	.1	.0
Feb	5.1	2.2	.5	.1	.0
Mar	2.7	1.2	.3	@	.0
Apr	.5	.3	.1	.0	.0
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	.1	.1	@	.0	.0
Nov	1.2	.4	.1	.1	.0
Dec	4.0	1.1	.1	@	.0
Ann	20.2	8.3	1.7	.3	.0

Snow Depth >= Thresholds

Month	1	3	5	10
Jan	10.9	6.2	4.2	1.6
Feb	9.1	5.4	3.9	2.1
Mar	3.0	1.8	1.2	.4
Apr	.3	@	@	.0
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	.1	.0	.0	.0
Nov	.8	.2	.1	.0
Dec	5.0	1.4	.9	.0
Ann	29.2	15.0	10.3	4.1

+ 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	5/13	5/10	5/08	5/05	5/03	5/02	4/29	4/27	4/24
32	5/10	5/05	5/01	4/28	4/25	4/22	4/18	4/14	4/09
28	4/25	4/21	4/18	4/15	4/12	4/10	4/07	4/04	3/30
24	4/14	4/09	4/06	4/03	4/01	3/29	3/26	3/23	3/18
20	4/05	3/30	3/26	3/22	3/19	3/15	3/12	3/07	3/01
16	3/28	3/21	3/16	3/12	3/08	3/04	2/28	2/23	2/16

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

Freeze Free Period

Temp (F)	Probability of longer than indicated freeze free period (Days)								
	.10	.20	.30	.40	.50	.60	.70	.80	.90
36	165	160	156	153	150	147	144	140	135
32	191	184	179	174	170	166	162	156	149
28	219	211	205	200	195	190	185	179	171
24	246	237	230	225	220	214	209	202	193
20	276	266	259	253	248	242	236	229	219
16	296	287	281	275	270	265	260	254	245

***** 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	1186	976	776	447	187	24	2	19	91	383	678	1018	5787
60	1031	836	621	303	99	5	0	3	34	256	530	863	4581
57	938	752	536	225	61	2	0	0	16	193	443	778	3944
55	876	697	478	177	42	1	0	0	9	156	389	720	3545
50	732	567	342	84	13	0	0	0	2	82	260	577	2659
32	278	184	52	0	0	0	0	0	0	0	21	190	725

Cooling Degree Days (1)

Base Above	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Ann
32	115	132	298	544	893	1127	1279	1215	975	655	333	195	7761
55	0	1	11	31	222	437	566	502	293	98	10	12	2183
57	0	0	8	19	179	378	504	440	240	73	5	7	1853
60	0	0	0	7	124	291	411	350	169	43	1	0	1396
65	0	0	0	1	57	160	257	210	76	15	0	0	776
70	0	0	0	0	20	64	122	105	23	4	0	0	338

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	32	43	146	333	646	884	1024	968	734	420	169	51	32	75	221	554	1200	2084	3108	4076	4810	5230	5399	5450
45	6	19	85	214	493	734	869	813	584	285	99	27	6	25	110	324	817	1551	2420	3233	3817	4102	4201	4228
50	0	5	45	127	349	584	714	658	436	174	51	7	0	5	50	177	526	1110	1824	2482	2918	3092	3143	3150
55	0	0	23	66	218	437	559	503	300	89	18	1	0	0	23	89	307	744	1303	1806	2106	2195	2213	2214
60	0	0	7	30	120	296	406	350	182	41	3	0	0	0	7	37	157	453	859	1209	1391	1432	1435	1435
Base	**Growing Degree Units for Corn (Monthly)**												**Growing Degree Units for Corn (Accumulated Monthly)**											
50/86	10	28	93	207	395	588	700	649	473	259	97	27	10	38	131	338	733	1321	2021	2670	3143	3402	3499	3526

(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.
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