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: CENTERBURG 2 SE, OH **COOP ID: 331404**

Climate Division: OH 6 **NWS Call Sign:** **Elevation: 1,205 Feet** **Lat: 40˚18N** **Lon: 82˚39W**

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	15.6	24.2	66	1999	23	34.5	1990	-29	1994	19	9.4	1977	1266	0	.0	.0	2.6	15.3	28.8	4.3
Feb	37.0	18.7	27.9	73+	2000	27	37.5	1998	-16	1985	3	13.9	1978	1039	0	.0	.0	4.4	11.4	24.7	2.7
Mar	48.1	27.9	38.0	82	1986	31	46.9	1973	-11	1960	8	29.0	1984	837	0	.0	.0	13.1	4.1	21.5	.3
Apr	60.1	37.7	48.9	86+	1994	27	54.6	1985	5	1964	1	42.7	1975	485	1	.0	.0	23.2	.2	9.7	.0
May	70.6	48.3	59.5	92	1964	19	67.5	1991	20	1966	10	53.5	1997	227	55	.0	.0	30.4	.0	.9	.0
Jun	78.9	57.4	68.2	99	1988	26	72.0	1991	32	1972	11	62.4	1972	44	137	.0	1.4	30.0	.0	@	.0
Jul	82.5	61.2	71.9	100	1954	14	75.6	1988	40	1963	10	68.5	1979	5	216	.0	2.9	31.0	.0	.0	.0
Aug	80.8	59.4	70.1	98	1953	30	75.4	1995	36	1965	29	66.4	1982	21	179	.0	1.8	31.0	.0	.0	.0
Sep	74.2	52.1	63.2	97	1954	6	67.1	1998	28+	1959	18	58.3	1975	105	49	.0	.5	30.0	.0	.2	.0
Oct	62.5	40.3	51.4	87	1986	1	58.7	1971	18	1962	26	44.7	1988	429	8	.0	.0	27.7	.0	6.3	.0
Nov	49.4	31.6	40.5	78	1987	4	46.4	1975	-10	1958	30	32.5	1976	735	0	.0	.0	14.3	1.9	17.2	@
Dec	37.6	21.7	29.7	70	1998	7	38.3	1982	-23	1989	22	16.0	1989	1096	0	.0	.0	4.9	10.3	26.2	1.3
Ann	59.5	39.3	49.5	100	Jul 1954	14	75.6	Jul 1988	-29	Jan 1994	19	9.4	Jan 1977	6289	645	.0	6.6	242.6	43.2	135.5	8.6

\+ 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: 1950-2001

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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	2.53	1.98	4.66	1959	21	5.48	1995	1.07	1981
Feb	2.20	1.97	2.75	1988	2	5.63	1988	.32	1978
Mar	3.04	3.00	2.46	1963	4	5.11	1997	1.17	1981
Apr	3.74	3.79	2.48	1961	25	7.00	2000	1.16	1971
May	4.11	4.08	2.84	1968	27	9.78	1990	1.50	1993
Jun	4.53	4.18	3.46	1980	2	8.83	1998	.73	1999
Jul	4.50	4.11	4.13	1972	13	10.07	1992	1.71	1982
Aug	3.84	3.38	3.09	1972	17	10.32	1979	1.10	1990
Sep	3.30	2.89	5.18	1979	14	7.79	1986	.27	1978
Oct	2.78	2.35	3.00	1977	1	6.35	1990	.56	1994
Nov	3.56	3.17	3.07	1955	16	10.49	1985	.65	1976
Dec	3.08	2.82	2.31	2000	17	7.86	1990	.82	1976
Ann	41.21	40.68	5.18	Sep 1979	14	10.49	Nov 1985	.27	Sep 1978

Mean Number of Days (3)

Month	Daily Precipitation >= 0.01	>= 0.10	>= 0.50	>= 1.00
Jan	10.4	6.6	1.3	.3
Feb	9.1	5.7	1.1	.3
Mar	10.7	7.5	2.0	.3
Apr	12.1	8.2	2.2	.7
May	11.1	7.5	2.9	.9
Jun	9.7	7.6	2.9	1.3
Jul	9.1	7.6	3.2	1.2
Aug	8.7	6.4	2.9	.9
Sep	8.0	5.6	2.2	.7
Oct	8.6	5.7	1.7	.5
Nov	10.4	7.3	2.6	.8
Dec	11.1	7.4	1.8	.5
Ann	119.0	83.1	26.8	8.4

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	.83	1.07	1.43	1.73	2.02	2.31	2.64	3.02	3.51	4.27	4.98
Feb	.58	.79	1.10	1.39	1.66	1.95	2.28	2.66	3.16	3.95	4.68
Mar	1.48	1.74	2.09	2.38	2.64	2.91	3.19	3.51	3.91	4.51	5.05
Apr	1.24	1.59	2.11	2.56	2.98	3.42	3.90	4.46	5.19	6.31	7.34
May	1.45	1.84	2.40	2.87	3.32	3.79	4.29	4.88	5.63	6.80	7.87
Jun	1.36	1.79	2.43	2.99	3.53	4.09	4.71	5.44	6.38	7.86	9.22
Jul	1.48	1.91	2.53	3.07	3.58	4.11	4.69	5.37	6.25	7.61	8.86
Aug	1.10	1.46	2.01	2.49	2.96	3.45	3.98	4.62	5.45	6.74	7.94
Sep	.70	1.00	1.48	1.92	2.37	2.84	3.37	4.01	4.86	6.21	7.48
Oct	.81	1.07	1.47	1.81	2.15	2.50	2.88	3.34	3.93	4.85	5.71
Nov	1.04	1.38	1.89	2.33	2.76	3.20	3.70	4.28	5.03	6.20	7.30
Dec	1.27	1.55	1.95	2.27	2.58	2.89	3.23	3.61	4.10	4.85	5.53
Ann	30.83	32.88	35.49	37.45	39.19	40.86	42.57	44.46	46.74	50.03	52.85

\+ 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: 1950-2001
(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	6.7	5.5	2	1	9.0	1995	21	19.0	1995	23	1996	13	12	1977	4.0	3.0	.8	.2	.0	3.2	.8	.4	.2
Feb	3.9	3.5	1	#	7.0	1985	13	11.0	1985	16	1977	8	6	1977	2.6	1.5	.3	@	.0	4.6	2.4	1.1	.0
Mar	2.2	1.7	#	#	7.0	1987	31	7.0	1988	7	1987	31	1	1999	1.8	1.0	.4	.1	.0	2.2	.5	.2	.0
Apr	.3	.0	#	#	3.0	1973	12	3.0	1973	7	1987	5	#+	2000	.4	.1	@	.0	.0	.3	@	.0	.0
May	.0	.0	#	0	.0	0	0	.0	0	1	1989	7	#+	1989	.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	.1	.0	#	0	2.0	1989	19	2.0	1989	1	1993	30	#+	1997	.1	@	.0	.0	.0	.1	.0	.0	.0
Nov	.9	.3	#	#	3.0	1980	18	6.0	1980	4	2000	21	#+	2000	1.1	.3	.2	.0	.0	1.0	@	.0	.0
Dec	3.2	2.2	1	#	5.0	1981	22	14.2	1995	11	1974	6	4	1995	2.7	1.5	.3	.1	.0	1.7	.1	.0	.0
Ann	17.3	13.2	N/A	N/A	9.0	Jan 1995	21	19.0	Jan 1995	23	Jan 1996	13	12	Jan 1977	12.7	7.4	2.0	.4	.0	13.1	3.8	1.7	.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	5/23	5/17	5/14	5/10	5/07	5/04	5/01	4/27	4/21
32	5/17	5/12	5/08	5/05	5/01	4/28	4/25	4/21	4/15
28	4/30	4/25	4/22	4/19	4/17	4/14	4/11	4/08	4/04
24	4/19	4/15	4/12	4/09	4/07	4/04	4/02	3/30	3/26
20	4/11	4/06	4/02	3/31	3/28	3/25	3/22	3/19	3/14
16	4/04	3/29	3/25	3/21	3/18	3/15	3/11	3/07	3/01

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	9/23	9/26	9/28	9/29	10/01	10/03	10/06	10/09
32	10/01	10/04	10/07	10/09	10/11	10/13	10/16	10/18	10/22
28	10/10	10/15	10/19	10/22	10/25	10/28	10/31	11/04	11/09
24	10/21	10/26	10/30	11/02	11/06	11/09	11/12	11/16	11/22
20	11/01	11/07	11/12	11/16	11/20	11/24	11/28	12/03	12/09
16	11/11	11/17	11/21	11/25	11/29	12/02	12/06	12/11	12/17

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	157	152	148	145	141	137	132	126
32	182	175	170	166	162	158	154	149	142
28	211	204	199	195	191	187	182	177	170
24	234	227	221	216	212	208	203	197	190
20	261	253	247	241	236	232	226	220	212
16	281	272	266	260	255	250	244	238	229

***** 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	1266	1039	837	485	227	44	5	21	105	429	735	1096	6289
60	1111	899	682	340	133	12	0	3	38	294	585	941	5038
57	1018	815	594	260	90	5	0	0	17	224	497	848	4368
55	956	759	536	210	66	3	0	0	9	183	439	786	3947
50	802	625	396	109	25	0	0	0	2	101	305	644	3009
32	322	218	74	1	0	0	0	0	0	2	30	218	865

Cooling Degree Days (1)

Base Above	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Ann
32	79	103	260	507	851	1083	1235	1181	933	604	285	146	7267
55	0	0	9	26	203	396	522	468	253	72	5	0	1954
57	0	0	5	16	165	338	460	406	201	51	2	0	1644
60	0	0	0	6	116	256	367	317	132	28	0	0	1222
65	0	0	0	1	55	137	216	179	49	8	0	0	645
70	0	0	0	0	21	55	92	81	10	1	0	0	260

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	14	27	117	293	605	849	993	942	703	375	137	36	14	41	158	451	1056	1905	2898	3840	4543	4918	5055	5091
45	3	8	68	188	455	699	838	787	554	243	78	14	3	11	79	267	722	1421	2259	3046	3600	3843	3921	3935
50	0	1	33	106	314	550	683	632	405	139	35	4	0	1	34	140	454	1004	1687	2319	2724	2863	2898	2902
55	0	0	15	53	192	402	528	477	269	71	13	0	0	0	15	68	260	662	1190	1667	1936	2007	2020	2020
60	0	0	3	23	104	262	374	324	154	27	2	0	0	0	3	26	130	392	766	1090	1244	1271	1273	1273
Base	**Growing Degree Units for Corn (Monthly)**												**Growing Degree Units for Corn (Accumulated Monthly)**											
50/86	3	17	75	179	362	550	674	630	437	221	74	16	3	20	95	274	636	1186	1860	2490	2927	3148	3222	3238

(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