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: CHIPPEWA LAKE, OH **COOP ID: 331541**

Climate Division: OH 3 **NWS Call Sign:** **Elevation: 1,180 Feet** **Lat: 41˚03N** **Lon: 81˚56W**

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	31.2	16.2	23.7	72	1950	25	33.4	1990	-26+	1994	20	9.8	1977	1280	0	.0	.0	2.3	15.2	28.6	4.0
Feb	34.9	18.0	26.5	74	2000	27	36.2	1998	-19	1963	27	12.4	1978	1079	0	.0	.0	4.3	11.3	24.8	2.9
Mar	45.3	26.7	36.0	83	1986	30	44.1	1973	-14	1984	9	26.6	1984	900	0	.0	.0	12.8	4.2	22.4	.4
Apr	57.4	36.4	46.9	90	1942	30	52.2	1985	4	1964	1	41.0	1975	543	0	.0	.0	23.4	.2	11.4	.0
May	68.8	47.3	58.1	93	1941	22	65.6	1991	21	1966	10	50.9	1997	252	38	.0	.1	30.5	.0	1.5	.0
Jun	77.8	56.5	67.2	102	1988	26	70.3	1999	28	1972	11	61.5	1972	51	115	@	1.4	30.0	.0	@	.0
Jul	82.0	60.5	71.3	103	1936	9	74.7	1999	38	1963	9	67.4	2000	6	200	.1	4.0	31.0	.0	.0	.0
Aug	79.9	58.9	69.4	99	1988	18	74.8	1995	34	1982	29	65.7	1992	24	160	.0	1.9	31.0	.0	.0	.0
Sep	73.0	52.1	62.6	99	1939	15	67.2	1978	25	1942	29	58.5	1975	115	41	.0	.5	30.0	.0	.2	.0
Oct	61.4	41.0	51.2	92	1946	5	57.3	1971	16	1988	31	45.1	1988	432	4	.0	.0	28.1	.0	5.6	.0
Nov	48.1	32.3	40.2	81	1950	1	45.7	1975	-2	1976	30	32.8	1976	743	0	.0	.0	14.5	1.7	17.0	@
Dec	36.4	22.6	29.5	75	1982	3	38.0	1982	-18	1989	22	16.6	1989	1100	0	.0	.0	4.6	9.8	26.1	1.3
Ann	58.0	39.0	48.6	103	Jul 1936	9	74.8	Aug 1995	-26+	Jan 1994	20	9.8	Jan 1977	6525	558	.1	7.9	242.5	42.4	137.6	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: 1936-2001

(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	2.37	2.22	1.93	1995	15	5.42	1995	.85	1981
Feb	2.14	2.06	2.20	1959	10	4.95	1990	.42	1978
Mar	2.98	3.08	2.15	1964	5	4.81	1974	.66	1990
Apr	3.38	3.53	1.80	1940	20	5.51	1981	.85	1971
May	3.69	3.74	3.23	1979	25	6.61	1990	.86	1998
Jun	3.76	3.80	3.90	1946	16	6.72	1989	.42	1991
Jul	3.98	3.93	4.31	1969	5	12.43	1992	.94	1991
Aug	3.62	3.18	2.78	1998	26	6.87	1974	.52	1971
Sep	3.63	3.35	3.60	1979	14	9.09	1996	.56	1978
Oct	2.48	2.39	2.29	1995	6	4.73	1995	1.04	1994
Nov	3.31	3.21	2.16	1985	5	9.11	1985	.77	1976
Dec	3.00	2.87	1.90	1968	28	7.75	1990	1.40	1976
Ann	38.34	37.99	4.31	Jul 1969	5	12.43	Jul 1992	.42+	Jun 1991

Mean Number of Days (3)

Daily Precipitation

Month	>= 0.01	>= 0.10	>= 0.50	>= 1.00
Jan	12.7	7.1	.9	.3
Feb	10.2	5.7	1.0	.2
Mar	12.6	7.9	1.5	.4
Apr	12.8	8.4	1.6	.5
May	12.0	7.9	2.2	.6
Jun	10.5	7.6	2.6	.8
Jul	9.7	7.1	2.7	1.0
Aug	9.3	6.6	2.6	.9
Sep	9.6	6.5	2.2	.9
Oct	10.3	6.6	1.3	.3
Nov	12.5	7.9	1.9	.5
Dec	12.9	7.5	1.6	.3
Ann	135.1	86.8	22.1	6.7

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	.90	1.12	1.44	1.70	1.95	2.21	2.48	2.80	3.21	3.84	4.41
Feb	.62	.82	1.12	1.39	1.65	1.92	2.22	2.57	3.03	3.74	4.41
Mar	1.40	1.66	2.02	2.31	2.57	2.84	3.13	3.46	3.87	4.49	5.05
Apr	1.43	1.74	2.17	2.52	2.85	3.19	3.55	3.96	4.48	5.28	6.01
May	1.24	1.59	2.10	2.54	2.95	3.38	3.85	4.40	5.10	6.19	7.20
Jun	1.12	1.48	2.02	2.48	2.93	3.39	3.90	4.51	5.29	6.51	7.64
Jul	1.26	1.64	2.20	2.68	3.14	3.62	4.15	4.76	5.56	6.80	7.94
Aug	1.04	1.39	1.91	2.35	2.79	3.25	3.75	4.35	5.12	6.33	7.45
Sep	1.11	1.46	1.97	2.41	2.84	3.28	3.77	4.35	5.09	6.24	7.32
Oct	1.11	1.33	1.63	1.88	2.12	2.35	2.60	2.89	3.25	3.80	4.30
Nov	.96	1.27	1.75	2.16	2.56	2.98	3.44	3.98	4.68	5.79	6.81
Dec	1.42	1.68	2.04	2.33	2.59	2.86	3.15	3.48	3.89	4.51	5.07
Ann	28.96	30.82	33.18	34.96	36.53	38.03	39.58	41.28	43.34	46.29	48.83

\+ 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)

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	11.3	9.0	3	2	7.0	1996	3	35.0	1978	17	1978	21	9	1981	6.1	4.9	1.3	.3	.0	16.3	9.4	5.5	1.1
Feb	8.1	7.5	2	2	8.0	1971	9	17.0	1979	18	1977	7	8	1977	4.9	3.2	.9	.2	.0	13.4	7.3	4.3	.7
Mar	6.6	5.4	1	#	9.0	1983	11	17.5	1975	15	1984	1	4	1984	3.6	2.7	.7	.4	.0	5.8	2.7	1.4	.1
Apr	2.2	.8	#	#	5.0	1982	6	8.5+	1990	6	1987	4	1	1987	1.0	.8	.3	.1	.0	1.0	.5	.1	.0
May	#	.0	#	0	#	1989	7	#	1989	#	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	.2	.0	#	0	2.0	1972	20	3.0	1972	1	1989	19	#+	1993	.2	.1	.0	.0	.0	.1	.0	.0	.0
Nov	3.4	2.9	#	#	6.0	1987	21	12.5	1977	7	1987	21	1	1996	2.1	1.6	.3	.1	.0	2.2	.5	.1	.0
Dec	8.9	9.0	1	1	18.0	1974	2	21.0	1974	24	1995	28	8	1995	4.5	3.1	.9	.3	.1	8.7	4.1	1.4	.4
Ann	40.7	34.6	N/A	N/A	18.0	Dec 1974	2	35.0	Jan 1978	24	Dec 1995	28	9	Jan 1981	22.4	16.4	4.4	1.4	.1	47.5	24.5	12.8	2.3

+ Also occurred on an earlier date(s) #Denotes trace amounts

(1) Derived from Snow Climatology and 1971-2000 daily data

@ Denotes mean number of days greater than 0 but less than .05

(2) Derived from 1971-2000 daily data

-9/-9.9 represents missing values

Annual statistics for Mean/Median snow depths are not appropriate

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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	6/04	5/29	5/25	5/21	5/18	5/14	5/10	5/06	4/30
32	5/19	5/14	5/10	5/07	5/04	4/30	4/27	4/23	4/18
28	5/13	5/06	5/01	4/27	4/23	4/20	4/16	4/11	4/04
24	4/26	4/22	4/18	4/15	4/12	4/09	4/06	4/03	3/29
20	4/15	4/10	4/07	4/04	4/01	3/29	3/26	3/22	3/17
16	4/08	4/02	3/29	3/26	3/23	3/20	3/16	3/13	3/07

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	9/12	9/16	9/19	9/22	9/25	9/27	9/30	10/03	10/07
32	9/27	10/02	10/05	10/08	10/11	10/14	10/17	10/20	10/25
28	10/07	10/13	10/18	10/22	10/25	10/29	11/02	11/06	11/13
24	10/22	10/27	10/31	11/03	11/06	11/09	11/12	11/16	11/21
20	11/02	11/08	11/12	11/16	11/19	11/23	11/26	12/01	12/06
16	11/12	11/18	11/23	11/27	12/01	12/05	12/09	12/13	12/20

Freeze Free Period

Temp (F)	Probability of longer than indicated freeze free period (Days)								
	.10	.20	.30	.40	.50	.60	.70	.80	.90
36	150	143	138	133	129	125	121	116	108
32	181	173	168	164	160	156	151	146	139
28	215	204	197	190	184	178	171	164	153
24	232	224	217	212	207	202	197	191	182
20	255	247	241	236	232	227	222	216	208
16	273	266	261	256	252	248	244	238	231

***** 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)

Base	Heating Degree Days (1)												
Below	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Ann
65	1280	1079	900	543	252	51	6	24	115	432	743	1100	6525
60	1125	939	745	396	150	14	0	4	42	292	593	945	5245
57	1032	855	652	312	102	6	0	0	19	218	505	852	4553
55	970	799	594	260	75	3	0	0	10	175	447	790	4123
50	815	662	451	147	30	0	0	0	1	91	311	643	3151
32	327	242	94	2	0	0	0	0	0	0	30	208	903

Base	Cooling Degree Days (1)												
Above	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Ann
32	70	86	217	449	809	1054	1217	1159	916	595	277	132	6981
55	0	0	4	17	171	367	504	446	236	57	4	0	1806
57	0	0	0	9	135	310	442	384	185	38	1	0	1504
60	0	0	0	3	90	228	349	295	118	19	0	0	1102
65	0	0	0	0	38	115	200	160	41	4	0	0	558
70	0	0	0	0	12	40	83	67	8	0	0	0	210

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	12	25	111	276	587	831	983	929	696	387	140	33	12	37	148	424	1011	1842	2825	3754	4450	4837	4977	5010
45	3	10	63	173	433	681	828	774	546	250	73	12	3	13	76	249	682	1363	2191	2965	3511	3761	3834	3846
50	0	1	31	96	292	531	673	619	398	141	32	3	0	1	32	128	420	951	1624	2243	2641	2782	2814	2817
55	0	0	10	48	177	385	518	465	261	67	11	0	0	0	10	58	235	620	1138	1603	1864	1931	1942	1942
60	0	0	3	16	91	248	363	314	149	22	0	0	0	0	3	19	110	358	721	1035	1184	1206	1206	1206
Base	Growing Degree Units for Corn (Monthly)												Growing Degree Units for Corn (Accumulated Monthly)											
50/86	2	15	75	180	360	545	656	620	436	225	78	16	2	17	92	272	632	1177	1833	2453	2889	3114	3192	3208

(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