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: CHILO MELDAHL L&D, OH **COOP ID: 331536**

Climate Division: OH 8 **NWS Call Sign:** **Elevation: 500 Feet** **Lat: 38˚48N** **Lon: 84˚10W**

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	38.9	21.0	30.0	76	1950	25	39.8	1990	-22+	1994	20	13.8	1977	1086	0	.0	.0	6.0	9.5	26.3	1.8
Feb	43.4	23.1	33.3	75	1954	15	40.5	1990	-16	1951	2	18.0	1978	889	0	.0	.0	9.0	6.0	22.5	.8
Mar	53.3	31.0	42.2	82	1977	31	48.8	1973	-4	1980	1	35.4	1984	708	0	.0	.0	18.5	1.0	17.6	.1
Apr	64.1	39.6	51.9	89+	1984	28	57.3	1981	16	1969	1	47.5	1975	396	2	.0	.0	26.8	.0	6.1	.0
May	73.6	50.0	61.8	96+	1962	18	68.7	1991	26	1966	10	56.9	1997	170	69	.0	.2	30.9	.0	.2	.0
Jun	81.4	59.0	70.2	99+	1954	26	73.5	1991	38	1966	1	64.9	1972	20	176	.0	3.1	30.0	.0	.0	.0
Jul	85.6	63.9	74.8	105	1954	14	79.0	1999	44+	1950	11	70.7	1984	0	302	.1	8.5	31.0	.0	.0	.0
Aug	84.5	62.8	73.7	107	1983	22	79.6	1983	42+	1965	29	69.1	1992	7	276	.1	6.0	31.0	.0	.0	.0
Sep	78.7	55.9	67.3	103	1954	5	71.4	1998	31+	1942	29	62.3	1974	50	119	.0	2.1	30.0	.0	.0	.0
Oct	67.6	44.4	56.0	93	1959	4	64.0	1971	19+	1952	22	49.1	1976	303	24	.0	@	30.3	.0	2.4	.0
Nov	55.1	35.7	45.4	82+	1987	2	51.0	1985	-3	1958	30	37.7	1976	587	0	.0	.0	19.3	.2	12.1	.0
Dec	43.9	26.6	35.3	73+	2001	6	43.9	1982	-15+	1989	23	22.4	1989	922	0	.0	.0	9.2	5.1	22.6	.5
Ann	64.2	42.8	53.5	107	Aug 1983	22	79.6	Aug 1983	-22+	Jan 1994	20	13.8	Jan 1977	5138	968	.2	19.9	272.0	21.8	109.8	3.2

\+ 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/normals/usnormals.html

(1) From the 1971-2000 Monthly Normals

(2) Derived from station's available digital record: 1938-2001

(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	3.02	3.21	2.88	1982	23	5.41	1978	.43	1981
Feb	3.01	2.96	2.40	1950	9	6.94	1989	.25	1978
Mar	4.01	3.69	7.20	1997	2	12.47	1997	1.78	1983
Apr	3.74	3.52	3.94	1939	15	7.25	1996	.59	1985
May	4.52	4.16	4.10	1961	8	12.70	1996	.74	1988
Jun	4.30	3.87	3.21	1946	16	9.55	1979	.32	1984
Jul	3.90	3.58	4.90	1938	13	8.22	1979	.71	1999
Aug	3.89	3.59	4.90	1965	31	8.79	1977	1.05	1984
Sep	3.09	2.49	4.90	1965	1	9.10	1979	.46	1997
Oct	2.73	2.26	5.00	1985	21	10.52	1983	.37	1987
Nov	3.29	3.17	2.98	1957	19	8.00	1972	.35	1999
Dec	3.30	3.08	3.35	1948	15	7.65	1990	.68	1985
Ann	42.80	43.29	7.20	Mar 1997	2	12.70	May 1996	.25	Feb 1978

Mean Number of Days (3)

Month	Daily Precipitation >= 0.01	>= 0.10	>= 0.50	>= 1.00
Jan	10.4	6.6	1.8	.6
Feb	9.7	5.4	1.9	.6
Mar	12.0	7.6	2.7	.9
Apr	11.6	7.7	2.6	.7
May	10.9	7.7	3.5	1.2
Jun	10.1	6.8	2.8	1.4
Jul	9.4	6.3	2.5	1.0
Aug	8.8	6.0	2.8	1.1
Sep	7.5	5.0	1.8	.9
Oct	7.4	4.8	1.8	.5
Nov	9.6	6.6	2.2	.7
Dec	10.8	6.4	2.2	.7
Ann	118.2	76.9	28.6	10.3

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	.82	1.10	1.54	1.92	2.30	2.69	3.12	3.64	4.31	5.36	6.35
Feb	.61	.89	1.33	1.73	2.14	2.58	3.07	3.66	4.45	5.70	6.90
Mar	1.58	1.95	2.48	2.91	3.33	3.75	4.20	4.73	5.40	6.42	7.36
Apr	.90	1.25	1.79	2.28	2.76	3.28	3.85	4.53	5.42	6.83	8.16
May	1.31	1.74	2.39	2.95	3.49	4.06	4.69	5.44	6.40	7.91	9.31
Jun	.81	1.20	1.83	2.41	3.00	3.64	4.36	5.24	6.40	8.26	10.04
Jul	1.15	1.52	2.07	2.55	3.02	3.51	4.05	4.68	5.50	6.79	7.98
Aug	1.39	1.76	2.29	2.73	3.15	3.59	4.06	4.61	5.31	6.40	7.39
Sep	.52	.78	1.23	1.66	2.09	2.57	3.11	3.77	4.65	6.07	7.44
Oct	.55	.80	1.20	1.57	1.94	2.33	2.78	3.32	4.04	5.18	6.27
Nov	.68	.98	1.46	1.90	2.35	2.82	3.36	4.00	4.85	6.22	7.51
Dec	1.06	1.37	1.83	2.23	2.61	3.00	3.44	3.94	4.60	5.61	6.55
Ann	30.33	32.74	35.83	38.18	40.26	42.28	44.36	46.67	49.46	53.52	57.03

\+ 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: 1938-2001
(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	2.2	1.3	1	#	3.0	1976	20	8.0	1976	17	1978	21	7	1978	.7	.5	.1	.0	.0	.7	.1	.0	.0
Feb	2.2	1.0	1	#	6.0	1971	9	10.0	1971	9	1977	2	5	1978	1.5	1.1	.1	.1	.0	1.9	.2	.1	.0
Mar	1.0	.3	#	0	3.0	1972	3	3.0+	1995	11	1980	2	6	1980	.5	.4	.1	.0	.0	.2	.1	.0	.0
Apr	.0	.0	#	0	.0	0	0	.0	0	#	1978	9	#	1978	.0	.0	.0	.0	.0	.0	.0	.0	.0
May	.0	.0	0	0	.0	0	0	.0	0	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	.0	0	0	.0	0	0	0	0	0	0	.0	.0	.0	.0	.0	.0	.0	.0	.0
Nov	.1	.0	#	0	1.5	1976	29	1.5	1976	3	1977	28	#+	1977	.1	.1	.0	.0	.0	.1	.0	.0	.0
Dec	.5	.0	#	0	6.0	1990	28	6.0	1990	5	1984	7	2	1989	.4	.4	.1	.1	.0	.2	.0	.0	.0
Ann	6.0	2.6	N/A	N/A	6.0+	Dec 1990	28	10.0	Feb 1971	17	Jan 1978	21	7	Jan 1978	3.2	2.5	.4	.2	.0	3.1	.4	.1	.0

+ 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	5/17	5/12	5/08	5/04	5/01	4/28	4/25	4/21	4/16
32	5/02	4/27	4/23	4/20	4/17	4/14	4/11	4/08	4/03
28	4/19	4/15	4/11	4/09	4/06	4/03	4/01	3/28	3/24
24	4/09	4/04	3/30	3/27	3/24	3/20	3/17	3/13	3/07
20	3/31	3/25	3/21	3/17	3/14	3/11	3/07	3/03	2/25
16	3/17	3/10	3/06	3/01	2/26	2/22	2/18	2/13	2/06

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	9/28	10/03	10/07	10/10	10/13	10/16	10/20	10/23	10/28
32	10/12	10/17	10/21	10/24	10/27	10/30	11/02	11/06	11/11
28	10/20	10/26	10/30	11/03	11/06	11/10	11/13	11/18	11/23
24	10/31	11/06	11/10	11/14	11/18	11/21	11/25	11/29	12/06
20	11/09	11/16	11/21	11/26	11/30	12/04	12/08	12/13	12/20
16	11/30	12/05	12/09	12/12	12/15	12/18	12/21	12/24	12/30

Freeze Free Period

Temp (F)	Probability of longer than indicated freeze free period (Days)								
	.10	.20	.30	.40	.50	.60	.70	.80	.90
36	188	180	174	169	164	160	155	149	141
32	216	207	202	197	192	187	182	176	168
28	235	228	222	218	214	209	205	200	192
24	264	255	249	243	238	233	228	221	213
20	284	276	270	265	260	255	250	244	236
16	317	308	302	296	291	286	281	274	265

***** 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	1086	889	708	396	170	20	0	7	50	303	587	922	5138
60	931	749	553	255	88	4	0	0	14	188	441	767	3990
57	838	665	466	181	53	1	0	0	5	133	358	682	3382
55	780	611	408	138	35	0	0	0	3	103	305	623	3006
50	637	481	274	57	11	0	0	0	0	46	189	482	2177
32	220	127	24	0	0	0	0	0	0	0	8	125	504

Base — Cooling Degree Days (1)

Above	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Ann
32	157	163	339	596	923	1145	1325	1292	1059	744	411	227	8381
55	4	2	10	43	245	456	612	579	372	134	18	11	2486
57	0	0	6	27	200	397	550	517	314	103	11	8	2133
60	0	0	0	11	142	309	457	424	233	64	3	0	1643
65	0	0	0	2	69	176	302	276	119	24	0	0	968
70	0	0	0	0	26	75	162	147	44	6	0	0	460

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	38	57	173	384	693	925	1102	1065	831	501	209	68	38	95	268	652	1345	2270	3372	4437	5268	5769	5978	6046
45	11	24	95	255	538	775	947	910	681	356	123	31	11	35	130	385	923	1698	2645	3555	4236	4592	4715	4746
50	3	3	50	151	388	625	792	755	532	225	63	12	3	6	56	207	595	1220	2012	2767	3299	3524	3587	3599
55	0	0	23	78	250	475	637	600	384	125	24	4	0	0	23	101	351	826	1463	2063	2447	2572	2596	2600
60	0	0	4	31	136	334	482	445	250	57	5	0	0	0	4	35	171	505	987	1432	1682	1739	1744	1744
Base	**Growing Degree Units for Corn (Monthly)**												**Growing Degree Units for Corn (Accumulated Monthly)**											
50/86	24	42	115	236	435	620	753	726	541	304	120	40	24	66	181	417	852	1472	2225	2951	3492	3796	3916	3956

(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