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: ELYRIA 3 E, OH **COOP ID: 332599**

Climate Division: OH 2 **NWS Call Sign:** **Elevation: 730 Feet** **Lat: 41˚23N** **Lon: 82˚03W**

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	19.3	27.1	74	1950	25	36.2	1990	-22	1994	19	13.4	1977	1174	0	.0	.0	3.0	13.4	27.4	2.8
Feb	38.5	21.1	29.8	76	2000	26	38.1	1998	-19	1963	26	16.5	1978	986	0	.0	.0	4.6	10.0	23.8	2.3
Mar	49.0	29.1	39.1	84+	1998	30	46.5	1973	-10	1984	9	30.0	1984	804	0	.0	.0	13.0	3.1	20.6	.2
Apr	61.3	38.4	49.9	89	1990	27	56.6	1985	6	1964	1	43.3	1975	458	2	.0	.0	24.5	.1	8.9	.0
May	72.5	48.6	60.6	93+	1988	30	67.2	1991	25	1966	10	54.1	1997	198	60	.0	.7	30.9	.0	.8	.0
Jun	81.2	58.0	69.6	104	1988	25	72.6	1971	33	1972	11	64.5	1992	27	165	.1	3.7	30.0	.0	.0	.0
Jul	85.0	62.5	73.8	102	1988	7	77.5	1999	42+	1968	4	70.3	2000	1	272	.1	7.3	31.0	.0	.0	.0
Aug	82.9	61.1	72.0	100+	2001	8	76.6	1995	40+	1982	29	67.7	1992	9	226	@	3.9	31.0	.0	.0	.0
Sep	76.4	54.7	65.6	102	1953	3	70.3	1978	32	1995	24	61.2	1975	66	83	.0	1.1	30.0	.0	@	.0
Oct	64.7	43.9	54.3	91+	1953	3	60.7	1971	18	1988	31	48.2	1988	342	10	.0	.0	28.8	.0	2.3	.0
Nov	51.4	35.1	43.3	83	1950	1	48.7	1975	6	1958	30	35.5	1976	653	0	.0	.0	15.9	.5	13.7	.0
Dec	39.5	25.1	32.3	76	1982	3	40.8	1982	-14+	1989	22	19.1	1989	1013	0	.0	.0	5.3	7.8	24.2	.8
Ann	61.4	41.4	51.5	104	Jun 1988	25	77.5	Jul 1999	-22	Jan 1994	19	13.4	Jan 1977	5731	818	.2	16.7	248.0	34.9	121.7	6.1

\+ 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: 1949-2001

(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	2.39	2.08	2.35	1959	21	5.78	1995	.74	1981
Feb	2.18	2.09	1.94	1959	10	4.75	1990	.32	1987
Mar	2.72	2.84	1.85	1954	1	4.80	1985	.71	1990
Apr	3.24	3.32	2.12	1961	25	6.54	1998	.77	1971
May	3.47	3.27	2.45	1989	26	7.99	1989	1.01	1988
Jun	4.07	3.78	3.13	1972	23	8.03	1987	.63	1988
Jul	3.63	3.38	3.34	1969	5	8.69	1992	1.29	1997
Aug	3.89	3.79	3.25	1994	13	8.03	1997	.66	1996
Sep	3.54	3.15	5.75	1996	7	12.84	1996	.73	1985
Oct	2.67	2.66	3.10	1983	5	5.10	1983	.76	1982
Nov	3.14	3.03	2.35	1958	17	7.47	1985	.78	1976
Dec	3.08	3.02	2.04	1990	30	7.77	1990	1.55	1976
Ann	38.02	38.04	5.75	Sep 1996	7	12.84	Sep 1996	.32	Feb 1987

Mean Number of Days (3)

Daily Precipitation

Month	>= 0.01	>= 0.10	>= 0.50	>= 1.00
Jan	12.8	6.8	1.0	.2
Feb	11.0	6.3	1.2	.2
Mar	11.7	7.1	1.5	.3
Apr	12.9	8.0	2.0	.4
May	12.3	8.3	2.2	.5
Jun	11.4	7.3	2.6	1.0
Jul	9.8	6.9	2.6	1.0
Aug	10.4	7.1	2.7	.8
Sep	10.0	6.9	2.3	.8
Oct	11.3	6.7	1.5	.3
Nov	13.1	8.0	1.9	.4
Dec	13.7	8.3	1.7	.3
Ann	140.4	87.7	23.2	6.2

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	.78	1.01	1.34	1.63	1.90	2.18	2.49	2.86	3.33	4.05	4.72
Feb	.69	.90	1.21	1.47	1.72	1.99	2.27	2.61	3.05	3.72	4.35
Mar	1.14	1.39	1.74	2.02	2.29	2.56	2.85	3.19	3.62	4.27	4.86
Apr	1.23	1.53	1.96	2.32	2.66	3.01	3.39	3.82	4.38	5.24	6.02
May	1.26	1.58	2.05	2.45	2.82	3.21	3.63	4.11	4.73	5.69	6.57
Jun	1.26	1.64	2.22	2.71	3.19	3.69	4.23	4.87	5.70	6.99	8.18
Jul	1.25	1.59	2.09	2.52	2.92	3.34	3.79	4.32	5.00	6.06	7.02
Aug	1.12	1.49	2.05	2.53	3.00	3.49	4.04	4.68	5.51	6.81	8.02
Sep	.94	1.28	1.79	2.24	2.68	3.15	3.66	4.27	5.07	6.31	7.48
Oct	1.07	1.31	1.66	1.95	2.22	2.50	2.80	3.14	3.58	4.25	4.86
Nov	.98	1.28	1.72	2.10	2.47	2.85	3.27	3.76	4.39	5.38	6.30
Dec	1.60	1.85	2.19	2.46	2.71	2.96	3.23	3.52	3.89	4.45	4.95
Ann	30.04	31.65	33.68	35.19	36.52	37.79	39.10	40.52	42.23	44.69	46.78

\+ 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: 1949-2001
(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	12.0	11.6	3	2	7.5	1986	27	35.2	1978	18	1978	21	10	1978	9.1	4.6	1.2	.2	.0	15.5	9.5	5.8	1.2
Feb	10.3	9.3	2	2	9.1	1991	15	24.0	1993	16	1977	7	9	1978	7.1	3.8	.9	.4	.0	13.2	6.9	5.0	1.0
Mar	7.2	5.5	1	#	9.6	1987	31	17.6	1987	14	1984	2	5	1984	4.9	2.7	.7	.2	.0	4.3	2.1	1.1	.2
Apr	1.7	.8	#	0	6.1	1982	6	7.1	1996	6	1982	6	#+	1996	1.5	.6	.1	@	.0	.4	.1	.1	.0
May	#	.0	0	0	#	1989	7	#+	1989	0	0	0	0	0	.0	.0	.0	.0	.0	.0	.0	.0	.0
Jun	.0	.0	#	0	.0	0	0	.0	0	#	1982	16	#	1982	.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	0	1.5	1972	19	1.5	1972	0	0	0	0	0	.2	@	.0	.0	.0	.0	.0	.0	.0
Nov	3.3	3.1	#	#	4.1	1973	9	10.5	1996	4	1977	28	1	1996	2.9	1.4	.2	.0	.0	1.5	.3	.0	.0
Dec	9.6	9.7	1	1	9.1	1974	1	20.3	1981	13	1977	10	5	1989	7.4	4.1	.7	.3	.0	9.4	4.4	2.0	.3
Ann	44.2	40.0	N/A	N/A	9.6	Mar 1987	31	35.2	Jan 1978	18	Jan 1978	21	10	Jan 1978	33.1	17.2	3.8	1.1	.0	44.3	23.3	14.0	2.7

+ 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

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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	5/27	5/22	5/18	5/14	5/11	5/08	5/04	4/30	4/25
32	5/12	5/08	5/05	5/02	4/30	4/28	4/25	4/22	4/18
28	4/29	4/25	4/22	4/19	4/16	4/14	4/11	4/08	4/04
24	4/19	4/14	4/11	4/08	4/05	4/03	3/31	3/28	3/23
20	4/04	3/30	3/27	3/24	3/22	3/19	3/16	3/13	3/09
16	3/31	3/24	3/20	3/16	3/12	3/08	3/04	2/27	2/21

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	9/25	9/29	10/02	10/05	10/07	10/09	10/11	10/14	10/18
32	10/06	10/11	10/14	10/17	10/20	10/23	10/26	10/29	11/03
28	10/23	10/27	10/30	11/02	11/04	11/06	11/09	11/11	11/15
24	11/04	11/09	11/12	11/15	11/18	11/20	11/23	11/27	12/02
20	11/12	11/18	11/22	11/26	11/30	12/04	12/07	12/12	12/18
16	11/22	11/28	12/02	12/06	12/10	12/13	12/17	12/22	12/28

Freeze Free Period

Temp (F)	Probability of longer than indicated freeze free period (Days)								
	.10	.20	.30	.40	.50	.60	.70	.80	.90
36	167	161	156	152	148	144	140	135	129
32	189	183	179	176	172	169	165	161	155
28	217	211	207	204	201	197	194	190	184
24	249	241	235	230	226	221	216	210	202
20	275	268	262	257	252	248	243	237	229
16	298	289	283	277	272	267	262	255	246

***** 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	1174	986	804	458	198	27	1	9	66	342	653	1013	5731
60	1019	846	649	316	110	6	0	0	19	214	503	858	4540
57	926	762	561	239	70	2	0	0	7	151	417	765	3900
55	864	706	504	193	50	1	0	0	3	116	362	706	3505
50	718	572	366	100	17	0	0	0	0	52	235	563	2623
32	258	178	59	1	0	0	0	0	0	0	14	163	673

Cooling Degree Days (1)

Base Above	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Ann
32	106	117	279	535	885	1128	1294	1240	1006	691	352	173	7806
55	0	0	10	37	222	439	581	527	320	94	10	4	2244
57	0	0	6	24	180	380	519	465	263	67	4	0	1908
60	0	0	0	10	126	294	426	372	186	37	1	0	1452
65	0	0	0	2	60	165	272	226	83	10	0	0	818
70	0	0	0	0	22	69	135	107	24	1	0	0	358

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	21	31	119	308	634	887	1046	993	763	442	165	40	21	52	171	479	1113	2000	3046	4039	4802	5244	5409	5449
45	5	12	70	195	480	737	891	838	613	298	89	19	5	17	87	282	762	1499	2390	3228	3841	4139	4228	4247
50	0	3	36	116	334	587	736	683	463	179	44	4	0	3	39	155	489	1076	1812	2495	2958	3137	3181	3185
55	0	0	12	58	211	438	581	528	321	88	17	1	0	0	12	70	281	719	1300	1828	2149	2237	2254	2255
60	0	0	5	28	116	298	426	375	195	38	3	0	0	0	5	33	149	447	873	1248	1443	1481	1484	1484
Base	**Growing Degree Units for Corn (Monthly)**												**Growing Degree Units for Corn (Accumulated Monthly)**											
50/86	7	21	79	190	389	580	710	667	485	249	86	21	7	28	107	297	686	1266	1976	2643	3128	3377	3463	3484

(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