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: BELLEFONTAINE, OH **COOP ID: 330563**

Climate Division: OH 4 **NWS Call Sign:** **Elevation: 1,185 Feet** **Lat: 40˚21N** **Lon: 83˚46W**

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	32.2	15.4	23.8	70	1950	26	34.5	1990	-27	1994	19	8.8	1977	1277	0	.0	.0	2.5	14.9	28.2	3.8
Feb	37.0	19.1	28.1	72+	2000	27	37.5	1998	-17	1944	13	13.7	1978	1034	0	.0	.0	4.8	10.6	24.1	2.4
Mar	47.9	28.1	38.0	82+	1986	30	45.8	1973	-12	1984	9	27.9	1984	838	0	.0	.0	14.0	3.3	20.1	.1
Apr	59.6	38.2	48.9	89	1942	30	54.8	1985	9	1982	7	43.4	1975	485	1	.0	.0	24.6	.1	8.2	.0
May	70.8	49.6	60.2	91+	1962	18	67.3	1991	23	1966	10	53.9	1997	212	62	.0	.1	30.6	.0	.7	.0
Jun	79.3	58.4	68.9	101	1988	26	73.0	1991	37+	1998	6	64.1	1972	35	150	@	1.9	30.0	.0	.0	.0
Jul	83.1	62.2	72.7	106	1936	14	76.0	1988	42	1943	1	69.9	1984	2	239	.0	4.0	31.0	.0	.0	.0
Aug	81.0	60.5	70.8	101+	1983	20	75.9	1995	38	1965	29	67.2	1976	18	197	@	2.0	31.0	.0	.0	.0
Sep	75.2	53.3	64.3	98	1953	2	68.1	1978	25	1942	28	59.2	1975	93	71	.0	.7	30.0	.0	.1	.0
Oct	63.2	41.6	52.4	89	1939	8	59.9	1971	17+	1981	24	45.8	1988	400	9	.0	.0	28.2	@	5.1	.0
Nov	49.4	32.0	40.7	77	1987	3	46.1	1975	-6	1958	30	31.7	1976	730	0	.0	.0	15.0	1.8	16.0	.0
Dec	37.6	21.6	29.6	71	1998	7	38.1	1982	-22+	1989	23	16.5	1989	1097	0	.0	.0	5.2	9.5	25.6	1.5
Ann	59.7	40.0	49.9	106	Jul 1936	14	76.0	Jul 1988	-27	Jan 1994	19	8.8	Jan 1977	6221	729	.0	8.7	246.9	40.2	128.1	7.8

\+ 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	2.28	2.03	3.23	1959	21	4.90	1982	.62	1981
Feb	2.02	1.80	1.96	1975	23	4.08	1975	.36	1978
Mar	2.70	2.73	1.89	1964	9	4.70	1980	.79	1981
Apr	3.46	3.69	2.75	1972	13	8.31	1972	.85	1971
May	4.02	3.70	2.88	1969	18	8.18	1995	1.26	1999
Jun	4.11	3.92	3.66	1971	26	8.44	1981	1.24	1984
Jul	3.93	3.38	4.45	1992	13	11.28	1992	.40	1974
Aug	3.64	3.78	4.15	1943	4	7.73	1974	.48	1996
Sep	2.78	2.52	2.35	1996	28	7.83	1986	.52	1997
Oct	2.46	2.02	2.47	1995	6	7.12	1983	.50	1994
Nov	3.08	2.49	2.66	1955	16	9.00	1985	.51	1976
Dec	2.94	2.61	2.76	1990	30	9.59	1990	.62	1976
Ann	37.42	37.19	4.45	Jul 1992	13	11.28	Jul 1992	.36	Feb 1978

Mean Number of Days (3)

Daily Precipitation

Month	>= 0.01	>= 0.10	>= 0.50	>= 1.00
Jan	12.1	6.0	1.2	.2
Feb	11.0	5.2	1.0	.1
Mar	11.9	6.7	1.6	.2
Apr	12.9	8.1	2.1	.5
May	12.1	8.2	2.7	.8
Jun	10.5	7.1	2.9	1.0
Jul	9.4	6.4	2.8	1.0
Aug	9.4	6.6	2.3	.9
Sep	8.7	5.1	1.8	.8
Oct	9.4	5.8	1.4	.4
Nov	11.3	6.8	2.1	.5
Dec	12.7	6.5	1.7	.5
Ann	131.4	78.5	23.6	6.9

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	.91	1.24	1.52	1.79	2.07	2.37	2.74	3.20	3.93	4.61
Feb	.57	.76	1.05	1.30	1.55	1.81	2.09	2.43	2.86	3.55	4.19
Mar	1.11	1.36	1.71	1.99	2.26	2.53	2.83	3.17	3.59	4.25	4.84
Apr	1.12	1.45	1.94	2.35	2.75	3.16	3.61	4.13	4.81	5.86	6.83
May	1.48	1.85	2.40	2.85	3.28	3.72	4.20	4.76	5.47	6.56	7.57
Jun	1.63	2.01	2.55	2.99	3.41	3.84	4.30	4.84	5.52	6.56	7.50
Jul	1.04	1.41	1.98	2.48	2.97	3.49	4.06	4.74	5.63	7.03	8.33
Aug	1.16	1.51	2.02	2.45	2.87	3.31	3.79	4.35	5.07	6.19	7.23
Sep	.52	.77	1.18	1.56	1.94	2.35	2.82	3.39	4.14	5.35	6.50
Oct	.74	.97	1.32	1.62	1.91	2.22	2.56	2.95	3.46	4.26	5.00
Nov	.85	1.15	1.59	1.98	2.35	2.75	3.19	3.70	4.38	5.43	6.41
Dec	1.01	1.29	1.70	2.04	2.37	2.70	3.07	3.50	4.05	4.90	5.68
Ann	26.36	28.49	31.23	33.31	35.16	36.95	38.80	40.84	43.33	46.93	50.05

\+ 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	7.9	5.8	2	1
Feb	5.5	4.2	2	1
Mar	2.3	1.4	#	#
Apr	.6	.0	#	0
May	#	.0	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	.8	.0	#	0
Dec	5.2	4.5	1	#
Ann	22.5	15.9	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	7.5	1978	26	24.4	1978	19	1996	12	7	1996
Feb	6.8	1984	27	14.4	1984	14	1985	14	10	1985
Mar	6.2	1973	17	7.5+	1984	10	1984	1	3	1984
Apr	4.2	1973	12	6.0	1982	1+	1992	1	#+	1992
May	#	1976	3	#	1976	0	0	0	0	0
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	4.0	1989	19	5.0	1989	1	1993	31	#+	1993
Nov	3.9	1980	17	5.6	1980	4	1980	17	#+	1999
Dec	10.5	1974	1	13.2	1974	10	1974	2	5	1974
Ann	10.5	Dec 1974	1	24.4	Jan 1978	19	Jan 1996	12	10	Feb 1985

Mean Number of Days (1)

Snow Fall >= Thresholds

Month	0.1	1.0	3.0	5.0	10.0
Jan	4.6	3.0	.6	.2	.0
Feb	2.9	1.7	.3	.1	.0
Mar	1.0	.5	.2	.2	.0
Apr	.2	.2	.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	.6	.3	.1	.0	.0
Dec	2.6	1.4	.3	.1	.1
Ann	12.0	7.2	1.6	.6	.1

Snow Depth >= Thresholds

Month	1	3	5	10
Jan	11.8	6.5	4.1	.2
Feb	5.2	2.4	.9	.1
Mar	1.4	.7	.5	.1
Apr	.1	.0	.0	.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	.0	.0	.0	.0
Nov	.3	@	.0	.0
Dec	3.3	1.6	.6	.1
Ann	22.1	11.2	6.1	.5

+ 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	5/20	5/16	5/12	5/10	5/07	5/05	5/02	4/29	4/24
32	5/15	5/09	5/05	5/02	4/29	4/25	4/22	4/18	4/12
28	4/28	4/23	4/20	4/17	4/14	4/11	4/08	4/05	3/31
24	4/18	4/14	4/11	4/08	4/06	4/03	4/01	3/29	3/24
20	4/13	4/07	4/03	3/30	3/27	3/23	3/20	3/15	3/10
16	4/01	3/26	3/22	3/19	3/15	3/12	3/08	3/04	2/26

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	9/21	9/24	9/27	9/29	10/01	10/04	10/06	10/09	10/12
32	9/27	10/02	10/05	10/08	10/11	10/14	10/17	10/20	10/25
28	10/08	10/14	10/18	10/22	10/25	10/29	11/01	11/06	11/12
24	10/20	10/25	10/29	11/02	11/05	11/08	11/12	11/16	11/21
20	11/02	11/08	11/12	11/16	11/20	11/23	11/27	12/02	12/08
16	11/11	11/17	11/22	11/26	11/30	12/03	12/07	12/12	12/18

Freeze Free Period

Temp (F)	Probability of longer than indicated freeze free period (Days)								
	.10	.20	.30	.40	.50	.60	.70	.80	.90
36	164	158	154	150	147	143	139	135	129
32	185	178	173	169	164	160	156	151	144
28	217	209	203	198	193	189	184	178	170
24	233	226	221	217	213	209	204	199	192
20	263	254	248	242	238	233	227	221	212
16	284	275	269	264	258	253	248	241	233

***** 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.

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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	1277	1034	838	485	212	35	2	18	93	400	730	1097	6221
60	1122	894	683	341	122	9	0	3	34	268	580	942	4998
57	1029	810	593	262	81	4	0	0	15	200	492	849	4335
55	967	754	536	214	59	2	0	0	8	161	435	787	3923
50	813	621	395	114	22	0	0	0	1	84	301	645	2996
32	335	217	71	1	0	0	0	0	0	0	29	218	871

Cooling Degree Days (1)

Base Above	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Ann
32	82	107	256	508	873	1105	1260	1202	968	633	290	144	7428
55	0	0	9	30	219	417	547	489	286	80	5	0	2082
57	0	0	3	19	179	359	485	427	233	58	2	0	1765
60	0	0	0	8	127	274	392	337	162	32	0	0	1332
65	0	0	0	1	62	150	239	197	71	9	0	0	729
70	0	0	0	0	24	62	106	92	21	1	0	0	306

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	15	33	134	318	647	880	1027	975	748	422	150	37	15	48	182	500	1147	2027	3054	4029	4777	5199	5349	5386
45	3	12	78	204	492	730	872	820	599	285	83	17	3	15	93	297	789	1519	2391	3211	3810	4095	4178	4195
50	0	2	41	116	346	580	717	665	450	176	43	3	0	2	43	159	505	1085	1802	2467	2917	3093	3136	3139
55	0	0	17	62	222	432	562	510	308	94	15	0	0	0	17	79	301	733	1295	1805	2113	2207	2222	2222
60	0	0	4	26	124	290	407	356	189	42	2	0	0	0	4	30	154	444	851	1207	1396	1438	1440	1440
Base	**Growing Degree Units for Corn (Monthly)**												**Growing Degree Units for Corn (Accumulated Monthly)**											
50/86	2	19	81	193	394	583	703	657	473	247	78	17	2	21	102	295	689	1272	1975	2632	3105	3352	3430	3447

(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