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: PANDORA, OH **COOP ID: 336405**

Climate Division: OH 1 **NWS Call Sign:** **Elevation: 770 Feet** **Lat: 40˚57N** **Lon: 83˚59W**

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	31.0	16.4	23.7	70	1950	25	34.3	1990	-21	1994	19	7.9	1977	1280	0	.0	.0	2.5	15.7	28.3	4.4
Feb	35.1	19.3	27.2	73	2000	25	37.4	1998	-23	1963	26	11.9	1978	1059	0	.0	.0	3.8	11.8	24.1	2.8
Mar	46.8	28.2	37.5	82	1986	31	43.8	1973	-13	1984	9	27.0	1984	853	0	.0	.0	12.4	3.5	20.9	.3
Apr	59.3	37.7	48.5	89	1985	22	55.3	1985	6	1982	7	42.5	1975	497	1	.0	.0	24.2	.1	8.6	.0
May	71.2	49.1	60.2	96+	1962	18	67.8	1991	25	1974	7	54.0	1997	215	65	.0	.8	30.7	.0	.6	.0
Jun	80.1	58.5	69.3	103	1988	25	72.8	1984	37+	1972	11	64.7	1972	29	157	.1	3.3	30.0	.0	.0	.0
Jul	83.5	62.0	72.8	101	1988	7	76.9	1999	42	1963	10	69.6	1971	4	245	.2	5.9	31.0	.0	.0	.0
Aug	81.1	59.8	70.5	101	1951	31	76.3	1995	36	1965	29	66.6	1976	21	189	@	2.7	31.0	.0	.0	.0
Sep	74.6	52.7	63.7	100	1953	2	68.2	1978	28+	1974	23	58.9	1975	99	59	.0	1.1	30.0	.0	.2	.0
Oct	62.2	41.9	52.1	91	1953	3	59.8	1971	18+	1964	11	45.7	1976	409	8	.0	.0	27.8	.0	4.6	.0
Nov	48.0	32.8	40.4	78+	1987	2	46.4	1975	-3	1958	30	32.2	1976	737	0	.0	.0	13.7	1.7	15.7	.0
Dec	35.8	22.5	29.2	71	1982	2	37.5	1982	-19	1989	22	16.4	1989	1112	0	.0	.0	4.1	10.4	25.9	1.5
Ann	59.1	40.1	49.6	103	Jun 1988	25	76.9	Jul 1999	-23	Feb 1963	26	7.9	Jan 1977	6315	724	.3	13.8	241.2	43.2	128.9	9.0

\+ 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

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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	2.05	1.88	1.73	1959	21	4.17+	1982	.59	1983
Feb	1.90	1.93	3.04	1959	10	4.90	1990	.29	1987
Mar	2.71	2.55	2.22	1955	4	5.09	1973	1.06	1994
Apr	3.29	3.39	1.74	1969	18	6.15	1984	1.04	1971
May	3.67	3.51	2.58	1973	25	7.59	1997	.60	1988
Jun	4.16	3.89	3.69	1981	13	9.26	1981	.31	1988
Jul	3.85	3.70	2.58	1997	9	7.88	1992	.42	1974
Aug	3.42	3.16	2.25	1997	16	9.19	1975	.37	1996
Sep	2.95	2.50	3.24	1959	1	9.33	1992	.55	1987
Oct	2.27	1.81	3.31	1950	9	6.50	1983	.63	1974
Nov	2.83	2.48	2.51	1958	17	6.30	1982	.33	1976
Dec	2.69	2.64	1.82	1967	21	7.09	1990	.82	1976
Ann	35.79	36.80	3.69	Jun 1981	13	9.33	Sep 1992	.29	Feb 1987

Mean Number of Days (3)

Daily Precipitation

Month	>= 0.01	>= 0.10	>= 0.50	>= 1.00
Jan	13.8	5.7	1.0	.2
Feb	11.2	5.3	.9	.1
Mar	13.1	6.8	1.5	.1
Apr	13.8	7.9	2.2	.4
May	12.3	7.6	2.4	.8
Jun	11.5	7.2	2.8	1.2
Jul	10.3	6.5	2.8	1.2
Aug	10.1	6.3	2.6	.8
Sep	9.2	5.9	1.9	.6
Oct	9.9	5.2	1.3	.3
Nov	12.2	6.5	2.0	.4
Dec	13.8	6.5	1.8	.2
Ann	141.2	77.4	23.2	6.3

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	.65	.84	1.13	1.38	1.62	1.87	2.14	2.46	2.87	3.51	4.10
Feb	.50	.68	.96	1.20	1.44	1.69	1.96	2.29	2.72	3.39	4.02
Mar	1.15	1.40	1.74	2.02	2.29	2.55	2.84	3.17	3.58	4.22	4.79
Apr	1.27	1.57	2.01	2.37	2.72	3.07	3.45	3.89	4.45	5.31	6.09
May	1.27	1.61	2.12	2.55	2.95	3.37	3.83	4.37	5.05	6.11	7.09
Jun	1.05	1.45	2.05	2.59	3.12	3.67	4.29	5.03	5.99	7.52	8.94
Jul	1.19	1.56	2.10	2.57	3.02	3.49	4.00	4.61	5.38	6.60	7.72
Aug	.83	1.15	1.65	2.09	2.53	3.00	3.52	4.14	4.95	6.24	7.45
Sep	.65	.92	1.35	1.74	2.13	2.55	3.02	3.58	4.32	5.50	6.61
Oct	.70	.92	1.24	1.51	1.78	2.05	2.36	2.72	3.18	3.89	4.56
Nov	.82	1.09	1.49	1.84	2.19	2.54	2.94	3.40	4.01	4.95	5.83
Dec	1.11	1.36	1.70	1.99	2.26	2.53	2.82	3.16	3.59	4.24	4.83
Ann	27.13	28.85	31.03	32.67	34.11	35.50	36.93	38.50	40.39	43.11	45.45

\+ 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)

Month	Snow Fall Mean	Snow Fall Median	Snow Depth Mean	Snow Depth Median
Jan	9.9	8.3	3	2
Feb	7.1	6.7	3	1
Mar	4.3	4.2	1	#
Apr	1.3	.3	#	#
May	.0	.0	0	0
Jun	.0	.0	0	0
Jul	.0	.0	0	0
Aug	.0	.0	0	0
Sep	#	.0	0	0
Oct	.1	.0	#	0
Nov	1.9	1.5	#	#
Dec	7.3	5.1	1	1
Ann	31.9	26.1	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	9.0	1978	26	33.9	1978	20	1978	29	9	1978
Feb	8.0	1976	5	14.5	1985	18	1978	14	16	1978
Mar	5.7	1984	8	12.4	1984	16	1978	5	9	1978
Apr	5.5	1982	5	13.7	1982	7	1982	8	1	1982
May	.7	1989	7	.7	1989	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	#	1993	29	#	1993	0	0	0	0	0
Oct	1.3	1989	19	1.8	1989	#+	1993	30	#+	1993
Nov	3.5	1986	18	6.0	1980	4	1986	18	1	1997
Dec	8.0	1977	5	24.5	1977	16	1977	8	6	1977
Ann	9.0	Jan 1978	26	33.9	Jan 1978	20	Jan 1978	29	16	Feb 1978

Mean Number of Days (1)

Snow Fall >= Thresholds

Month	0.1	1.0	3.0	5.0	10.0
Jan	9.0	3.4	.9	.2	.0
Feb	6.4	2.2	.8	.2	.0
Mar	4.2	1.4	.3	.1	.0
Apr	1.3	.5	.1	@	.0
May	@	.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	.2	.1	.0	.0	.0
Nov	2.8	.7	.1	.0	.0
Dec	6.8	2.2	.6	.2	.0
Ann	30.7	10.5	2.8	.7	.0

Snow Depth >= Thresholds

Month	1	3	5	10
Jan	15.9	9.6	5.6	.9
Feb	12.3	7.7	5.0	2.1
Mar	4.5	2.2	1.1	.4
Apr	.5	.2	.2	.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	1.3	.2	.0	.0
Dec	8.8	4.4	1.8	.3
Ann	43.3	24.3	13.7	3.7

+ 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	5/17	5/13	5/11	5/08	5/06	5/04	5/02	4/30	4/26
32	5/12	5/08	5/05	5/02	4/30	4/27	4/24	4/21	4/17
28	4/27	4/23	4/19	4/17	4/14	4/12	4/09	4/06	4/01
24	4/15	4/11	4/08	4/05	4/02	3/31	3/28	3/25	3/20
20	4/09	4/04	3/31	3/28	3/25	3/22	3/19	3/15	3/10
16	3/31	3/26	3/22	3/18	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	9/20	9/24	9/27	9/30	10/03	10/05	10/08	10/11	10/16
32	9/27	10/02	10/06	10/09	10/11	10/14	10/17	10/21	10/26
28	10/09	10/14	10/18	10/21	10/24	10/27	10/31	11/03	11/09
24	10/23	10/28	10/31	11/03	11/06	11/09	11/12	11/16	11/21
20	11/01	11/08	11/13	11/18	11/22	11/26	11/30	12/05	12/12
16	11/15	11/21	11/26	11/29	12/03	12/07	12/11	12/15	12/21

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	159	155	152	149	145	142	138	133
32	183	177	172	168	164	160	156	152	145
28	215	207	202	197	192	188	183	178	170
24	237	230	225	221	217	213	209	204	198
20	267	258	252	246	241	236	230	224	215
16	286	278	272	267	263	258	253	247	239

***** 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	1059	853	497	215	29	4	21	99	409	737	1112	6315
60	1125	919	698	353	126	7	0	3	36	275	587	957	5086
57	1032	835	605	273	84	3	0	0	16	206	499	864	4417
55	970	779	551	224	62	1	0	0	8	165	441	802	4003
50	818	649	408	121	25	0	0	0	1	86	307	659	3074
32	341	243	75	1	0	0	0	0	0	0	30	226	916

Base	Cooling Degree Days (1)												
Above	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Ann
32	85	108	245	495	873	1118	1264	1192	950	622	283	137	7372
55	0	0	7	28	222	429	551	479	268	74	4	0	2062
57	0	0	0	17	182	371	489	417	216	52	2	0	1746
60	0	0	0	7	130	285	396	327	146	28	0	0	1319
65	0	0	0	1	65	157	245	189	59	8	0	0	724
70	0	0	0	0	26	65	115	88	15	1	0	0	310

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	30	112	302	648	897	1033	963	725	404	139	36	15	45	157	459	1107	2004	3037	4000	4725	5129	5268	5304
45	2	10	65	189	494	747	878	808	575	269	77	14	2	12	77	266	760	1507	2385	3193	3768	4037	4114	4128
50	0	2	33	111	348	597	723	653	429	159	42	4	0	2	35	146	494	1091	1814	2467	2896	3055	3097	3101
55	0	0	14	56	219	449	568	498	293	82	13	0	0	0	14	70	289	738	1306	1804	2097	2179	2192	2192
60	0	0	4	25	126	306	413	345	172	36	3	0	0	0	4	29	155	461	874	1219	1391	1427	1430	1430
Base	Growing Degree Units for Corn (Monthly)												Growing Degree Units for Corn (Accumulated Monthly)											
50/86	2	14	74	185	392	589	702	644	461	234	72	14	2	16	90	275	667	1256	1958	2602	3063	3297	3369	3383

(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