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: SPRINGFIELD NEW WTR WKS, OH **COOP ID: 337935**

Climate Division: OH 4 **NWS Call Sign:** **Elevation: 930 Feet** **Lat: 39˚58N** **Lon: 83˚49W**

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	34.0	18.2	26.1	68+	1999	24	36.1	1990	-26	1994	19	10.6	1977	1206	0	.0	.0	3.4	13.4	28.1	4.1
Feb	38.2	20.5	29.4	74	2000	26	37.9	1998	-18+	1985	3	14.2	1978	999	0	.0	.0	5.7	9.7	24.0	3.0
Mar	49.1	29.9	39.5	81+	1998	31	47.8	1973	-13	1984	9	30.5	1984	792	0	.0	.0	14.3	3.1	20.7	.2
Apr	60.6	38.6	49.6	93	1976	21	55.0	1985	14	1995	5	44.3	1975	463	1	.0	.1	24.3	.1	9.6	.0
May	71.4	49.8	60.6	91+	1988	31	68.1	1991	26	1974	7	54.3	1997	202	64	.0	.2	30.6	.0	.9	.0
Jun	80.1	59.3	69.7	98	1994	19	73.7	1984	34	1972	11	64.4	1972	27	168	@	2.5	30.0	.0	.0	.0
Jul	83.8	63.1	73.5	98+	1982	8	77.3	1983	43	1972	6	70.0	2000	1	264	.0	5.0	31.0	.0	.0	.0
Aug	82.3	60.5	71.4	100	1983	21	76.3	1995	39	1986	29	66.7	1992	17	215	@	3.0	31.0	.0	.0	.0
Sep	76.1	52.7	64.4	95	1983	11	68.4	1978	29+	1983	24	59.8	1974	93	74	.0	.9	30.0	.0	.2	.0
Oct	63.9	41.2	52.6	86	1971	1	59.9	1971	15	1976	27	46.0	1988	395	10	.0	.0	28.3	.0	6.9	.0
Nov	50.6	33.1	41.9	79	1987	3	47.9	1985	3	1976	30	33.9	1976	694	0	.0	.0	15.4	1.3	16.9	.0
Dec	39.2	24.2	31.7	72+	1998	7	41.1	1982	-26	1983	25	18.1	1989	1032	0	.0	.0	5.9	8.1	25.1	1.2
Ann	60.8	40.9	50.9	100	Aug 1983	21	77.3	Jul 1983	-26+	Jan 1994	19	10.6	Jan 1977	5921	796	.0	11.7	249.9	35.7	132.4	8.5

\+ 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: 1948-2001

(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	2.34	2.00	2.13	2000	4	4.91	1982	.55	1981
Feb	1.83	1.63	2.26	1988	2	4.49	1988	.22	1987
Mar	2.51	2.26	1.46	1989	30	5.06	1982	.94	1981
Apr	3.35	3.20	2.80	2000	8	6.46	1996	.77	1971
May	4.26	3.99	3.77	1970	13	10.06	1981	1.25	1999
Jun	4.35	4.15	5.60	1971	26	9.22	1980	.81	1988
Jul	4.11	3.67	3.78+	1990	12	9.62	1990	.72	1974
Aug	3.72	3.38	2.77	1995	6	8.71	1978	.16	1996
Sep	2.93	2.78	3.87	1979	14	5.98	1981	.45	1978
Oct	2.62	2.42	2.65	1986	1	7.53	1986	.83	1994
Nov	2.98	2.48	2.55	1985	11	9.81	1985	.74	1976
Dec	2.70	2.66	1.83	1998	22	6.39	1990	.54	1976
Ann	37.70	38.21	5.60	Jun 1971	26	10.06	May 1981	.16	Aug 1996

Mean Number of Days (3)

Daily Precipitation

Month	>= 0.01	>= 0.10	>= 0.50	>= 1.00
Jan	10.5	5.6	1.4	.3
Feb	9.2	4.8	.9	.2
Mar	10.0	6.3	1.8	.2
Apr	11.9	7.4	2.1	.6
May	12.2	8.2	3.0	.9
Jun	10.8	7.7	2.7	.9
Jul	9.9	6.7	2.9	1.1
Aug	9.2	6.2	2.5	1.1
Sep	8.5	5.1	1.7	.8
Oct	8.9	5.4	1.5	.6
Nov	9.9	6.1	2.3	.5
Dec	11.0	6.5	1.6	.5
Ann	122.0	76.0	24.4	7.7

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	.66	.88	1.22	1.51	1.79	2.09	2.42	2.81	3.32	4.11	4.85
Feb	.39	.55	.82	1.07	1.31	1.57	1.87	2.22	2.69	3.43	4.14
Mar	.93	1.17	1.50	1.78	2.05	2.32	2.62	2.97	3.41	4.08	4.70
Apr	1.04	1.36	1.83	2.24	2.63	3.04	3.49	4.01	4.69	5.75	6.73
May	1.35	1.75	2.35	2.87	3.36	3.87	4.44	5.10	5.95	7.27	8.50
Jun	1.39	1.81	2.42	2.94	3.44	3.96	4.53	5.19	6.05	7.39	8.63
Jul	1.36	1.75	2.32	2.81	3.28	3.76	4.29	4.90	5.69	6.92	8.05
Aug	.64	.97	1.51	2.02	2.54	3.11	3.76	4.54	5.59	7.28	8.90
Sep	.67	.94	1.37	1.75	2.14	2.55	3.01	3.56	4.28	5.43	6.52
Oct	.78	1.02	1.40	1.72	2.03	2.36	2.72	3.14	3.69	4.55	5.34
Nov	.85	1.13	1.56	1.93	2.29	2.67	3.09	3.59	4.23	5.24	6.18
Dec	.88	1.14	1.52	1.84	2.15	2.47	2.82	3.23	3.76	4.57	5.33
Ann	26.80	28.91	31.61	33.67	35.49	37.25	39.07	41.09	43.53	47.07	50.13

\+ 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: 1948-2001
(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	2.7	1.7	2	#	7.5	1996	3	8.5	1982	18	1996	8	18	1996	1.2	.8	.1	.0	.0	-9.9	-9.9	-9.9	-9.9
Feb	3.7	2.0	2	0	8.0	1993	16	12.3	1980	22	1978	2	9	1979	1.1	1.0	.3	.1	.0	-9.9	-9.9	-9.9	-9.9
Mar	.8	-99.9	#	0	3.0	1973	18	3.0	1973	5	1978	9	1	1978	.3	.2	.1	.0	.0	.1	.0	.0	.0
Apr	.1	.0	#	0	2.0	1973	12	2.0	1973	6	1974	9	#+	1974	.1	.1	.0	.0	.0	.1	.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	.1	.0	#	0	1.5	1974	20	1.5	1974	2	1974	20	#	1974	.1	.1	.0	.0	.0	@	.0	.0	.0
Nov	.4	#	#	0	6.0	1980	18	6.0+	1980	#+	2000	30	#+	2000	.2	.1	.0	.0	.0	.0	.0	.0	.0
Dec	4.0	.3	#	0	6.0	1981	21	18.0	1981	7	1974	2	1	1974	1.3	.7	.3	.3	.0	.1	.1	.1	.0
Ann	11.8	-9.9	N/A	N/A	8.0	Feb 1993	16	18.0	Dec 1981	22	Feb 1978	2	18	Jan 1996	4.3	3.0	.8	.4	.0	-9.9	-9.9	-9.9	-9.9

+ 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	5/26	5/21	5/17	5/14	5/11	5/07	5/04	4/30	4/25
32	5/13	5/08	5/04	5/01	4/28	4/25	4/22	4/18	4/13
28	4/30	4/26	4/23	4/20	4/18	4/16	4/13	4/11	4/07
24	4/19	4/14	4/11	4/08	4/06	4/03	3/31	3/28	3/23
20	4/11	4/06	4/02	3/30	3/27	3/24	3/21	3/17	3/12
16	3/31	3/25	3/20	3/16	3/13	3/09	3/05	3/01	2/23

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	9/19	9/23	9/26	9/28	9/30	10/02	10/05	10/07	10/11
32	9/29	10/03	10/05	10/07	10/10	10/12	10/14	10/17	10/20
28	10/05	10/11	10/16	10/19	10/23	10/26	10/30	11/04	11/10
24	10/17	10/22	10/26	10/29	11/02	11/05	11/08	11/12	11/17
20	10/28	11/04	11/09	11/13	11/17	11/21	11/25	11/30	12/06
16	11/08	11/16	11/21	11/26	11/30	12/05	12/09	12/15	12/22

Freeze Free Period

Temp (F)	Probability of longer than indicated freeze free period (Days)								
	.10	.20	.30	.40	.50	.60	.70	.80	.90
36	162	155	150	146	142	138	134	129	122
32	182	176	171	167	164	160	156	152	145
28	211	203	197	192	187	182	177	171	163
24	231	224	218	214	209	205	200	195	188
20	260	251	245	239	234	229	224	217	209
16	291	281	274	267	262	256	250	243	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.

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	1206	999	792	463	202	27	1	17	93	395	694	1032	5921
60	1051	859	637	318	113	6	0	2	34	263	545	877	4705
57	958	775	552	239	73	2	0	0	16	196	458	784	4053
55	896	719	494	191	52	1	0	0	8	157	403	728	3649
50	749	588	358	95	19	0	0	0	1	81	272	584	2747
32	284	196	61	0	0	0	0	0	0	0	23	183	747

Base — Cooling Degree Days (1)

Above	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Ann
32	101	122	292	529	885	1130	1286	1221	971	638	319	174	7668
55	0	1	13	30	224	441	573	508	289	82	9	6	2176
57	0	0	9	18	183	383	511	446	237	59	3	0	1849
60	0	0	0	7	130	297	418	356	165	33	1	0	1407
65	0	0	0	1	64	168	264	215	74	10	0	0	796
70	0	0	0	0	24	72	128	106	23	1	0	0	354

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	19	34	129	310	629	879	1026	963	721	393	154	44	19	53	182	492	1121	2000	3026	3989	4710	5103	5257	5301
45	6	10	73	199	475	729	871	808	571	255	84	22	6	16	89	288	763	1492	2363	3171	3742	3997	4081	4103
50	0	2	40	114	334	579	716	653	425	150	45	5	0	2	42	156	490	1069	1785	2438	2863	3013	3058	3063
55	0	0	18	60	207	431	561	498	291	79	16	1	0	0	18	78	285	716	1277	1775	2066	2145	2161	2162
60	0	0	4	24	113	290	407	347	174	32	4	0	0	0	4	28	141	431	838	1185	1359	1391	1395	1395
Base	**Growing Degree Units for Corn (Monthly)**												**Growing Degree Units for Corn (Accumulated Monthly)**											
50/86	9	20	88	193	385	576	695	645	466	244	92	26	9	29	117	310	695	1271	1966	2611	3077	3321	3413	3439

(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