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: VIENNA, MD **COOP ID: 189140**

Climate Division: MD 2 **NWS Call Sign:** **Elevation: 10 Feet** **Lat: 38˚29N** **Lon: 75˚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	45.1	27.1	36.1	76	1967	24	44.3	1998	-6	1987	28	26.3	1977	896	0	.0	.0	10.5	3.2	21.7	.1
Feb	47.5	28.8	38.2	78	1976	17	46.1	1976	-6	1996	6	26.2	1979	752	0	.0	.0	12.3	2.2	18.8	.1
Mar	56.8	36.0	46.4	87	1990	14	51.9	2000	8+	1960	7	40.8	1996	578	0	.0	.0	24.4	.1	11.4	.0
Apr	66.9	44.3	55.6	95+	1976	17	60.8	1994	23	1965	5	51.9	1975	286	4	.0	.4	29.4	.0	1.9	.0
May	75.9	53.8	64.9	99	1991	31	68.8	1986	32	1966	11	62.0	1978	75	71	.0	1.6	31.0	.0	.0	.0
Jun	84.1	62.5	73.3	102+	1959	29	76.4	1994	42	1996	3	67.6	1974	6	255	.1	7.8	30.0	.0	.0	.0
Jul	88.7	67.4	78.1	103	1987	21	81.9	1993	48	1985	24	74.2	1974	0	403	.7	15.9	31.0	.0	.0	.0
Aug	86.6	65.6	76.1	100	1987	18	79.3	1988	43	1986	30	73.0	1982	0	344	@	10.9	31.0	.0	.0	.0
Sep	80.8	58.9	69.9	98+	1964	10	74.3	1998	32	1956	21	66.8	1991	17	163	.0	2.7	30.0	.0	.0	.0
Oct	70.1	47.4	58.8	92+	1986	1	65.1	1984	24	1990	30	53.0	1988	227	33	.0	.1	30.8	.0	1.3	.0
Nov	59.5	39.0	49.3	82+	1950	1	57.1	1985	14	1989	24	42.9	1976	474	1	.0	.0	25.8	.0	7.7	.0
Dec	49.8	31.1	40.5	78+	1971	16	47.4	1971	-3	1958	16	26.1	1989	762	0	.0	.0	16.5	1.6	17.5	@
Ann	67.7	46.8	57.3	103	Jul 1987	21	81.9	Jul 1993	-6+	Feb 1996	6	26.1	Dec 1989	4073	1274	.8	39.4	302.7	7.1	80.3	.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: 1949-2001

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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	3.74	3.14	3.70	1998	28	7.71	1998	.53	1981
Feb	3.33	3.03	2.20	1979	19	7.14	1979	.85	2000
Mar	4.07	3.66	3.33	1994	28	9.74	1994	1.34	1977
Apr	3.33	3.24	2.00+	1952	27	6.61	1983	.78	1985
May	3.52	3.14	5.52	1984	30	8.90	1984	.66	1986
Jun	3.72	3.18	4.03	1967	19	11.81	1989	.45	1988
Jul	3.86	3.84	5.50	1996	13	8.87	1996	.38	1983
Aug	4.37	4.15	5.08	1959	8	13.44	1973	.70	1987
Sep	3.52	3.25	6.50	1977	10	10.83	1977	.52	1978
Oct	3.14	2.98	3.10	1971	26	7.58	1971	.08	2000
Nov	3.12	2.92	2.90	1975	13	6.90	1997	.27	1991
Dec	3.28	3.10	3.34	1986	25	6.91	1977	.34	1989
Ann	43.00	40.58	6.50	Sep 1977	10	13.44	Aug 1973	.08	Oct 2000

Mean Number of Days (3)

Daily Precipitation

Month	>= 0.01	>= 0.10	>= 0.50	>= 1.00
Jan	8.9	6.6	2.9	.8
Feb	7.9	5.9	2.4	.8
Mar	9.6	6.7	3.0	1.2
Apr	8.7	6.3	2.4	.8
May	9.4	6.4	2.5	.8
Jun	7.8	5.8	2.5	1.1
Jul	8.9	6.1	2.5	.9
Aug	7.7	5.7	2.9	1.4
Sep	7.2	4.8	2.5	1.2
Oct	7.1	4.6	2.0	.8
Nov	7.9	5.2	2.5	.8
Dec	9.2	6.0	2.5	.8
Ann	100.3	70.1	30.6	11.4

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	1.28	1.64	2.15	2.59	3.00	3.43	3.90	4.45	5.15	6.23	7.23
Feb	1.01	1.33	1.80	2.21	2.60	3.01	3.46	3.99	4.68	5.75	6.74
Mar	1.34	1.72	2.29	2.77	3.24	3.71	4.24	4.85	5.64	6.86	7.99
Apr	1.27	1.58	2.03	2.40	2.74	3.10	3.49	3.93	4.50	5.38	6.17
May	1.03	1.36	1.87	2.30	2.73	3.17	3.66	4.23	4.97	6.14	7.22
Jun	.71	1.04	1.59	2.09	2.60	3.15	3.77	4.53	5.52	7.13	8.65
Jul	.93	1.29	1.86	2.36	2.86	3.39	3.98	4.68	5.60	7.06	8.43
Aug	1.17	1.59	2.22	2.77	3.31	3.89	4.52	5.27	6.25	7.78	9.22
Sep	.71	1.03	1.54	2.02	2.49	3.01	3.59	4.28	5.21	6.69	8.09
Oct	.70	.99	1.46	1.87	2.28	2.73	3.22	3.81	4.59	5.83	7.00
Nov	.73	1.02	1.47	1.88	2.29	2.72	3.20	3.78	4.53	5.73	6.86
Dec	.70	1.00	1.48	1.91	2.35	2.82	3.35	3.99	4.82	6.16	7.43
Ann	31.78	33.98	36.79	38.91	40.78	42.58	44.44	46.49	48.96	52.53	55.60

\+ 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	1.1	.0	#	0
Feb	2.0	.6	#	0
Mar	.2	.0	#	0
Apr	#	.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
Nov	.1	.0	#	0
Dec	.8	.0	#	0
Ann	4.2	.6	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	3.0	1977	7	4.5	1977	3	1977	8	1	1977
Feb	22.0	1979	19	22.0	1979	24	1979	20	6	1979
Mar	2.9	1971	26	2.9	1971	3	1971	26	#	1971
Apr	#	1972	8	#	1972	0	0	0	0	0
May	.0	0	0	.0	0	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	#	1972	19	#	1972	0	0	0	0	0
Nov	1.0	1976	12	1.0	1976	#	1996	14	#	1996
Dec	6.0	1982	12	9.0	1982	3	1993	29	#+	1993
Ann	22.0	Feb 1979	19	22.0	Feb 1979	24	Feb 1979	20	6	Feb 1979

Mean Number of Days (1)

Snow Fall >= Thresholds

Month	0.1	1.0	3.0	5.0	10.0
Jan	.7	.5	.1	.0	.0
Feb	.8	.7	.1	.1	.1
Mar	.1	.1	.0	.0	.0
Apr	.0	.0	.0	.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	.0	.0	.0	.0	.0
Nov	.1	.1	.0	.0	.0
Dec	.1	.1	.1	.1	.0
Ann	1.8	1.5	.3	.2	.1

Snow Depth >= Thresholds

Month	1	3	5	10
Jan	.2	.0	.0	.0
Feb	1.0	.7	.3	.2
Mar	.1	.1	.0	.0
Apr	.0	.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	.0	.0	.0	.0
Dec	.0	.0	.0	.0
Ann	1.3	.8	.3	.2

+ 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	5/03	4/29	4/26	4/23	4/21	4/19	4/16	4/14	4/10
32	4/23	4/18	4/14	4/11	4/08	4/05	4/02	3/29	3/25
28	4/14	4/07	4/03	3/30	3/26	3/22	3/18	3/14	3/07
24	3/30	3/24	3/19	3/15	3/12	3/08	3/05	2/28	2/22
20	3/15	3/07	3/02	2/25	2/21	2/17	2/12	2/07	1/30
16	3/07	2/28	2/22	2/18	2/13	2/09	2/04	1/29	1/20

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	10/01	10/06	10/09	10/12	10/15	10/18	10/21	10/24	10/29
32	10/12	10/18	10/23	10/27	10/30	11/03	11/06	11/11	11/17
28	10/21	10/28	11/02	11/06	11/10	11/14	11/18	11/23	11/30
24	11/10	11/17	11/21	11/26	11/29	12/03	12/07	12/12	12/19
20	12/01	12/07	12/11	12/14	12/17	12/20	12/24	12/28	1/02
16	12/05	12/14	12/20	12/26	12/31	1/05	1/11	1/18	1/29

Freeze Free Period

Temp (F)	Probability of longer than indicated freeze free period (Days)								
	.10	.20	.30	.40	.50	.60	.70	.80	.90
36	197	190	185	180	176	172	168	163	156
32	227	219	214	209	204	200	195	190	182
28	260	249	242	235	228	222	215	207	196
24	291	281	274	268	262	256	250	243	233
20	327	317	310	304	298	293	287	280	270
16	>365	345	333	325	318	311	305	297	287

***** 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	896	752	578	286	75	6	0	0	17	227	474	762	4073
60	741	612	425	158	20	0	0	0	3	126	333	612	3030
57	648	529	339	98	6	0	0	0	1	82	255	526	2484
55	593	478	284	67	3	0	0	0	0	58	208	469	2160
50	448	350	167	19	0	0	0	0	0	20	114	336	1454
32	87	52	5	0	0	0	0	0	0	0	2	49	195

Base — Cooling Degree Days (1)

Above	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Ann
32	215	224	450	707	1019	1239	1426	1367	1135	829	519	310	9440
55	7	6	16	84	308	549	713	654	445	174	35	16	3007
57	1	1	9	55	250	489	651	592	386	136	22	11	2603
60	0	0	2	25	171	399	558	499	298	87	10	5	2054
65	0	0	0	4	71	255	403	344	163	33	1	0	1274
70	0	0	0	0	19	132	253	196	60	8	0	0	668

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	70	98	245	488	792	1021	1202	1142	908	596	299	124	70	168	413	901	1693	2714	3916	5058	5966	6562	6861	6985
45	32	43	139	344	637	871	1047	987	758	443	185	58	32	75	214	558	1195	2066	3113	4100	4858	5301	5486	5544
50	6	16	69	215	482	721	892	832	608	297	100	26	6	22	91	306	788	1509	2401	3233	3841	4138	4238	4264
55	0	2	29	115	332	571	737	677	459	171	45	6	0	2	31	146	478	1049	1786	2463	2922	3093	3138	3144
60	0	0	7	48	199	422	582	522	313	85	10	0	0	0	7	55	254	676	1258	1780	2093	2178	2188	2188
Base	**Growing Degree Units for Corn (Monthly)**												**Growing Degree Units for Corn (Accumulated Monthly)**											
50/86	39	59	145	289	498	692	824	793	608	366	175	70	39	98	243	532	1030	1722	2546	3339	3947	4313	4488	4558

(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