

# Climatology of the United States

No. 20

1971-2000

Station: WINCHESTER 7 SE, VA

COOP ID: 449186

Climate Division: VA 4

NWS Call Sign:

Elevation: 680 Feet Lat: 39° 11N

Lon: 78° 07W

## 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	40.8	20.0	30.4	80	1950	26	38.6	1974	-18	1994	19	19.6	1977	1073	0	.0	.0	6.5	7.6	27.0	1.2
Feb	44.7	22.2	33.5	80	1985	25	42.5	1976	-16	1996	5	22.3	1979	884	0	.0	.0	8.8	4.8	23.0	.3
Mar	53.9	30.3	42.1	89	1989	29	49.1	1977	-6	1993	15	35.2	1984	711	0	.0	.0	19.0	.8	18.0	@
Apr	64.8	38.5	51.7	93	1960	23	56.8	1981	18	1950	14	47.7	1997	401	1	.0	.2	27.7	.0	7.7	.0
May	74.2	48.7	61.5	96+	1996	21	68.2	1991	28	1966	11	56.8	1997	156	47	.0	1.1	30.9	.0	.6	.0
Jun	82.6	57.3	70.0	100	1959	30	73.4	1994	36+	1986	3	65.6	1992	17	165	.0	4.5	30.0	.0	.0	.0
Jul	87.1	62.0	74.6	107	1988	17	78.1	1991	42+	1988	2	70.5	2000	0	296	.5	10.1	31.0	.0	.0	.0
Aug	85.7	60.1	72.9	105	1988	18	76.0	1977	36	1982	30	68.6	1992	7	251	.2	7.2	31.0	.0	.0	.0
Sep	78.8	52.9	65.9	103	1953	2	70.7	1998	30	1983	24	63.1	1988	62	88	.0	2.0	30.0	.0	.2	.0
Oct	67.5	40.6	54.1	95	1986	2	60.4	1971	16	1988	31	48.9	1987	347	7	.0	.1	30.3	.0	6.2	.0
Nov	56.2	32.5	44.4	85	1950	1	50.0	1985	9	1986	14	38.7	1996	620	0	.0	.0	20.5	.1	15.7	.0
Dec	45.7	24.5	35.1	80	2001	6	43.2	1971	-6+	1989	24	21.9	1989	926	0	.0	.0	9.7	3.5	24.4	.5
Ann	65.2	40.8	53.0	107	Jul 1988	17	78.1	Jul 1991	-18	Jan 1994	19	19.6	Jan 1977	5204	855	.7	25.2	275.4	16.8	122.8	2.0

+ 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/normal/usnormals.html](http://www.ncdc.noaa.gov/oa/climate/normal/usnormals.html)

Issue Date: February 2004

(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

066-A

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## No. 20 1971-2000

National Climatic Data Center  
Federal Building  
151 Patton Avenue  
Asheville, North Carolina 28801  
www.ncdc.noaa.gov

**Station: WINCHESTER 7 SE, VA**

**COOP ID: 449186**

**Climate Division: VA 4**

**NWS Call Sign:**

**Elevation: 680 Feet Lat: 39°11N**

**Lon: 78°07W**

Precipitation (inches)																								
	Precipitation Totals									Mean Number of Days (3)				Precipitation Probabilities (1) Probability that the monthly/annual precipitation will be equal to or less than the indicated amount										
	Means/ Medians(1)		Extremes							Daily Precipitation				Monthly/Annual Precipitation vs Probability Levels These values were determined from the incomplete gamma distribution										
Month	Mean	Med- ian	Highest Daily(2)	Year	Day	Highest Monthly(1)	Year	Lowest Monthly(1)	Year	>= 0.01	>= 0.10	>= 0.50	>= 1.00	.05	.10	.20	.30	.40	.50	.60	.70	.80	.90	.95
Jan	2.66	2.25	2.49	1976	1	5.92	1978	.39	1981	8.9	6.0	1.6	.4	.63	.88	1.27	1.62	1.96	2.33	2.74	3.23	3.87	4.88	5.84
Feb	2.40	2.07	2.20	1998	5	5.67	1998	.40	1977	8.2	5.4	1.5	.5	.49	.70	1.06	1.38	1.71	2.05	2.45	2.92	3.55	4.56	5.51
Mar	3.33	3.15	3.51	1984	29	8.36	1993	.98	1981	9.8	6.6	2.3	.7	1.05	1.37	1.84	2.24	2.63	3.03	3.47	3.99	4.65	5.69	6.65
Apr	3.01	2.50	4.24	1992	22	7.07	1987	.34	1985	10.1	6.3	2.2	.5	.82	1.11	1.54	1.92	2.29	2.68	3.11	3.62	4.29	5.33	6.31
May	3.93	4.25	2.79	1988	6	9.40	1988	.48	1977	12.6	7.8	2.4	.8	.93	1.30	1.87	2.39	2.90	3.43	4.04	4.76	5.70	7.20	8.61
Jun	4.10	4.09	4.87	1972	22	12.67	1972	.73	1990	10.7	6.4	2.7	1.2	.91	1.28	1.89	2.43	2.97	3.55	4.20	4.97	6.00	7.62	9.16
Jul	3.66	3.68	2.95	1990	13	7.35	1978	.42	1983	10.6	6.8	2.7	1.0	1.05	1.39	1.92	2.37	2.82	3.28	3.79	4.40	5.18	6.41	7.55
Aug	3.60	3.24	4.72	1975	31	7.89	1975	1.15	1993	10.1	6.1	2.4	.8	1.15	1.49	1.99	2.42	2.84	3.27	3.74	4.30	5.01	6.12	7.15
Sep	3.59	2.65	3.47	1996	7	11.31	1999	.80	1986	9.3	5.9	2.2	1.0	.63	.94	1.47	1.96	2.46	3.00	3.62	4.38	5.38	6.99	8.54
Oct	3.16	2.60	3.72	1954	16	9.01	1976	.15	2000	8.3	5.2	1.9	.9	.35	.59	1.03	1.47	1.95	2.47	3.09	3.86	4.91	6.65	8.33
Nov	3.06	2.92	3.46	1993	28	7.33	1997	.26	1998	8.4	5.3	2.1	.8	.58	.86	1.31	1.72	2.14	2.60	3.11	3.73	4.55	5.87	7.13
Dec	2.60	2.17	2.72	1974	2	5.55	1973	.42	1989	8.7	5.3	1.9	.6	.53	.77	1.15	1.50	1.85	2.23	2.65	3.16	3.84	4.91	5.94
Ann	39.10	39.69	4.87	Jun 1972	22	12.67	Jun 1972	.15	Oct 2000	115.7	73.1	25.9	9.2	27.38	29.64	32.53	34.74	36.70	38.59	40.56	42.73	45.37	49.20	52.52

+ 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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**NWS Call Sign:**

**Elevation: 680 Feet**

**Lat: 39° 11N**

**Lon: 78° 07W**

Snow (inches)																							
Snow Totals															Mean Number of Days (1)								
Means/Medians (1)					Extremes (2)										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	7.9	4.8	1	#	18.0	1971	1	24.3	1978	22	1996	12	7	1978	2.1	1.9	.8	.4	.1	6.5	4.6	3.2	1.1
Feb	6.7	4.3	1	1	16.0	1983	12	29.4	1983	27	1983	12	11	1978	2.0	1.4	.7	.2	.1	6.8	4.0	2.4	1.2
Mar	2.4	.3	#	#	14.0	1994	3	17.0	1984	20	1993	15	3	1978	1.0	.7	.5	.2	.1	1.7	1.3	.9	.3
Apr	.2	.0	#	0	3.0	1971	7	3.0	1971	3	1971	7	#+	1990	.1	.1	@	.0	.0	.1	@	.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	#	.0	#	0	#	1974	20	#+	1974	#	1972	19	#	1972	.0	.0	.0	.0	.0	.0	.0	.0	.0
Nov	1.0	.0	#	0	9.5	1971	25	9.5	1971	10	1971	25	1	1971	.4	.2	.1	@	.0	.5	.2	.1	@
Dec	2.3	.5	#	#	7.5	1990	28	16.3	1973	12	1973	18	3	1973	1.0	.7	.3	.1	.0	1.2	.5	.3	@
Ann	20.5	9.9	N/A	N/A	18.0	Jan 1971	1	29.4	Feb 1983	27	Feb 1983	12	11	Feb 1978	6.6	5.0	2.4	.9	.3	16.8	10.6	6.9	2.6

+ 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	5/15	5/12	5/10	5/06	5/03	4/28
32	5/13	5/08	5/05	5/02	4/29	4/26	4/24	4/20	4/16
28	4/23	4/20	4/17	4/15	4/12	4/10	4/08	4/05	4/01
24	4/17	4/12	4/08	4/04	4/01	3/29	3/26	3/22	3/17
20	4/05	3/31	3/27	3/23	3/20	3/17	3/13	3/09	3/04
16	3/22	3/16	3/12	3/09	3/06	3/02	2/27	2/23	2/17
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	9/15	9/20	9/24	9/27	9/30	10/03	10/06	10/10	10/15
32	9/25	10/01	10/05	10/09	10/12	10/16	10/19	10/23	10/29
28	10/10	10/15	10/18	10/21	10/24	10/27	10/30	11/02	11/07
24	10/19	10/24	10/28	11/01	11/04	11/07	11/10	11/14	11/20
20	11/02	11/08	11/12	11/16	11/20	11/23	11/27	12/01	12/07
16	11/14	11/22	11/28	12/02	12/07	12/11	12/16	12/22	12/30
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	154	149	144	140	136	131	125	118
32	191	182	176	170	165	160	155	149	140
28	212	206	201	198	194	190	187	182	176
24	239	231	225	220	216	211	206	200	193
20	272	262	255	249	244	238	232	225	215
16	305	295	287	281	276	270	264	257	247

\* 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

Complete documentation available from:

[www.ncdc.noaa.gov/oa/climate/normal/usnormals.html](http://www.ncdc.noaa.gov/oa/climate/normal/usnormals.html)

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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	1073	884	711	401	156	17	0	7	62	347	620	926	5204
60	918	744	556	258	71	2	0	0	18	216	471	771	4025
57	825	660	467	183	38	0	0	0	6	151	385	678	3393
55	763	604	410	139	23	0	0	0	3	115	331	620	3008
50	616	471	275	58	5	0	0	0	0	50	206	477	2158
32	184	103	22	0	0	0	0	0	0	0	8	106	423

Base	Cooling Degree Days (1)												
Above	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Ann
32	135	143	335	590	914	1138	1319	1267	1016	683	378	203	8121
55	0	0	9	39	224	448	606	554	329	85	11	4	2309
57	0	0	5	23	177	388	544	492	272	59	5	0	1965
60	0	0	0	8	117	300	451	399	194	31	1	0	1501
65	0	0	0	1	47	165	296	251	88	7	0	0	855
70	0	0	0	0	12	65	155	125	27	1	0	0	385

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	33	57	166	375	674	901	1074	1015	773	436	187	64	33	90	256	631	1305	2206	3280	4295	5068	5504	5691	5755
45	16	24	93	242	520	751	919	860	623	296	105	28	16	40	133	375	895	1646	2565	3425	4048	4344	4449	4477
50	1	11	44	144	371	601	764	705	476	174	53	7	1	12	56	200	571	1172	1936	2641	3117	3291	3344	3351
55	0	2	18	73	236	451	609	550	334	87	21	2	0	2	20	93	329	780	1389	1939	2273	2360	2381	2383
60	0	0	5	30	130	306	454	397	205	32	6	0	0	0	5	35	165	471	925	1322	1527	1559	1565	1565
Base	Growing Degree Units for Corn (Monthly)												Growing Degree Units for Corn (Accumulated Monthly)											
50/86	27	45	121	249	424	596	722	681	503	281	125	42	27	72	193	442	866	1462	2184	2865	3368	3649	3774	3816

(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:  
[www.ncdc.noaa.gov/oa/climate/normals/usnormals.html](http://www.ncdc.noaa.gov/oa/climate/normals/usnormals.html)

## 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.  
Complete documentation for the 1971-2000 Normals is available on the internet from:  
[www.ncdc.noaa.gov/oa/climate/normal/usnormals.html](http://www.ncdc.noaa.gov/oa/climate/normal/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 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.

- |   |   |
|---|---|
| <ol style="list-style-type: none"><li>a. Temperature/ Precipitation Tables<ol style="list-style-type: none"><li>1. 1971-2000 Monthly Normals</li><li>2. Cooperative Summary of the Day</li><li>3. National Weather Service station records</li><li>4. 1971-2000 serially complete daily data</li></ol></li><li>b. Degree Day Table<ol style="list-style-type: none"><li>1. Monthly and Annual Heating and Cooling Degree Days Normals to Selected Bases derived from 1971-2000 Monthly Normals</li><li>2. Daily Normal Growing Degree Units to Selected Base Temperatures derived from 1971-2000 serially complete daily data</li></ol></li></ol> | <ol style="list-style-type: none"><li>c. Snow Tables<ol style="list-style-type: none"><li>1. Snow Climatology</li><li>2. Cooperative Summary of the Day</li></ol></li><li>d. Freeze Data Table<br/>1971-2000 serially complete daily data</li></ol> |
|---|---|

## References

U.S. Climate Normals 1971-2000, [www.ncdc.noaa.gov/normal.html](http://www.ncdc.noaa.gov/normal.html)  
U.S. Climate Normals 1971-2000-Products Clim20, [www.ncdc.noaa.gov/oa/climate/normal/usnormalsprods.html](http://www.ncdc.noaa.gov/oa/climate/normal/usnormalsprods.html)  
Snow Climatology Project Description, [www.ncdc.noaa.gov/oa/climate/monitoring/snowclim/mainpage.html](http://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](http://www1.ncdc.noaa.gov/pub/data/special/serialcomplete_jam_0900.pdf)