

# Climatography of the United States No. 20

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

Station: COVINGTON FILTER PLANT, VA

1971-2000

COOP ID: 442044

Climate Division: VA 5

NWS Call Sign:

Elevation: 1,230 Feet Lat: 37°49N

Lon: 79°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	42.6	21.4	32.0	74+	1999	28	42.7	1974	-19	1985	21	19.4	1977	1022	0	.0	.0	10.6	3.6	25.2	.8
Feb	47.9	22.9	35.4	79+	2000	26	42.4	1990	-5	1996	4	25.6	1978	829	0	.0	.0	14.6	1.7	21.2	.2
Mar	57.3	29.9	43.6	87+	1989	29	49.1	1973	1+	1993	15	38.8	1996	663	0	.0	.0	24.8	.2	16.3	.0
Apr	68.1	37.8	53.0	93+	1985	22	57.5	1981	15	1985	10	49.4	1997	362	1	.0	.5	28.8	.0	7.7	.0
May	77.1	47.9	62.5	99+	1996	21	68.1	1991	26	1963	2	57.0	1997	136	57	.0	2.0	31.0	.0	1.1	.0
Jun	83.8	56.4	70.1	100	1998	27	73.1	1981	34+	1972	11	66.0	1972	17	169	@	6.7	30.0	.0	.0	.0
Jul	87.7	60.8	74.3	102	1988	17	77.6	1987	41+	1988	1	71.5	2000	0	287	.4	14.2	31.0	.0	.0	.0
Aug	86.1	59.0	72.6	102+	1999	1	76.8	1987	39	1986	30	69.6	1976	3	237	.3	10.1	31.0	.0	.0	.0
Sep	79.3	52.5	65.9	97	1983	10	69.6	1978	28+	1991	28	62.2	1984	58	84	.0	3.2	30.0	.0	.1	.0
Oct	70.0	40.2	55.1	89+	1998	1	62.1	1984	14	1962	27	50.0	1976	318	11	.0	.0	30.8	.0	6.3	.0
Nov	57.8	31.2	44.5	84+	1994	4	52.2	1985	9+	1971	23	36.2	1976	615	0	.0	.0	24.1	.1	15.5	.0
Dec	47.5	24.6	36.1	80	1982	4	44.2	1971	-10	1983	25	25.7	1989	897	0	.0	.0	15.2	1.7	22.6	.2
Ann	67.1	40.4	53.8	102+	Aug 1999	1	77.6	Jul 1987	-19	Jan 1985	21	19.4	Jan 1977	4920	846	.7	36.7	301.9	7.3	116.0	1.2

+ 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/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: 1960-2001

(3) Derived from 1971-2000 serially complete daily data

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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	2.56	2.10	2.65	1995	15	6.54	1996	.36	1981	10.1	6.0	1.5	.4	.67	.91	1.28	1.61	1.93	2.27	2.65	3.09	3.67	4.59	5.45
Feb	2.42	2.22	2.04	1984	14	5.19	1984	.45	1978	9.4	5.5	1.6	.5	.68	.91	1.26	1.56	1.86	2.17	2.51	2.91	3.44	4.26	5.03
Mar	3.34	3.26	2.25	1963	12	7.04	1993	.75	1972	11.4	7.4	2.4	.6	1.21	1.52	1.97	2.35	2.72	3.09	3.49	3.96	4.56	5.49	6.34
Apr	3.03	2.90	3.22	1978	26	7.92	1987	.60	1976	10.6	6.4	1.8	.6	.99	1.28	1.70	2.06	2.41	2.77	3.16	3.62	4.22	5.14	5.99
May	4.10	4.12	3.88	1981	28	7.34	1981	1.05	1977	13.0	8.6	2.7	.7	2.00	2.35	2.83	3.21	3.56	3.92	4.30	4.73	5.26	6.07	6.80
Jun	3.26	2.90	3.42	1972	21	8.10	1972	.78	1999	11.2	7.0	2.0	.4	.95	1.26	1.73	2.13	2.52	2.93	3.39	3.92	4.61	5.70	6.71
Jul	3.66	3.31	3.29	1970	9	7.41	1988	.92	1996	11.8	7.6	2.6	.9	1.51	1.84	2.31	2.70	3.07	3.44	3.84	4.29	4.88	5.77	6.57
Aug	3.34	3.24	3.45+	1984	11	9.69	1984	.95	1987	9.4	6.1	2.1	.8	.99	1.31	1.78	2.19	2.59	3.01	3.47	4.00	4.70	5.79	6.80
Sep	3.02	2.42	3.22	1996	6	7.41	1989	.05	1985	8.3	5.0	2.2	.8	.37	.61	1.03	1.46	1.90	2.40	2.97	3.69	4.65	6.24	7.78
Oct	2.85	2.45	2.80	1968	19	7.77	1976	.02	2000	8.0	5.0	1.9	.8	.29	.50	.89	1.29	1.72	2.20	2.77	3.48	4.45	6.06	7.64
Nov	3.13	2.89	8.00	1985	4	15.29	1985	.88	1981	9.8	6.0	1.8	.5	.77	1.07	1.52	1.93	2.33	2.75	3.22	3.78	4.52	5.68	6.77
Dec	2.52	2.08	1.65	1996	1	5.98	1973	.46	1985	9.8	5.4	1.7	.5	.79	1.03	1.38	1.69	1.98	2.29	2.62	3.01	3.52	4.31	5.04
Ann	37.23	36.09	8.00	Nov 1985	4	15.29	Nov 1985	.02	Oct 2000	122.8	76.0	24.3	7.5	29.34	30.93	32.93	34.43	35.74	37.00	38.29	39.70	41.39	43.82	45.89

+ 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: 1960-2001

(3) Derived from 1971-2000 serially complete daily data

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**Climate Division: VA 5**

**NWS Call Sign:**

**Elevation: 1,230 Feet**

**Lat: 37°49N**

**Lon: 79°59W**

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	1.6	.1	#	#	10.0	1971	1	13.0	1971	9	1971	1	2	1978	1.3	.9	.3	.1	.1	1.4	.6	.3	.0
Feb	.9	.0	#	0	3.0	1972	17	5.5	1972	10	1983	11	3	1979	.5	.3	.1	.0	.0	.3	.0	.0	.0
Mar	.8	.0	#	0	6.0	1999	15	6.0	1999	10	1980	2	1	1980	.3	.2	.1	.1	.0	.1	.1	@	.0
Apr	.4	.0	#	0	3.2	1987	4	3.2	1987	#	1971	6	#	1971	.2	.2	.1	.0	.0	.0	.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	.5	.0	#	0	10.0	1979	10	10.0	1979	#	1979	10	#	1979	.1	@	@	@	@	.0	.0	.0	.0
Nov	.4	.0	#	0	6.3	1971	24	6.3	1971	6	1971	24	#+	1987	.2	.1	@	@	.0	.2	.1	@	.0
Dec	1.1	.0	#	0	5.0	1973	21	10.5	1989	8	1974	1	1	1982	.6	.4	.3	.1	.0	.1	.1	@	.0
Ann	5.7	.1	N/A	N/A	10.0+	Oct 1979	10	13.0	Jan 1971	10+	Feb 1983	11	3	Feb 1979	3.2	2.1	.9	.3	.1	2.1	.9	.3	.0

+ 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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**Lon: 79° 59W**

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	6/01	5/27	5/23	5/19	5/16	5/13	5/09	5/05	4/30
32	5/15	5/11	5/08	5/05	5/03	4/30	4/28	4/25	4/20
28	4/27	4/23	4/20	4/17	4/15	4/12	4/09	4/06	4/02
24	4/16	4/11	4/08	4/05	4/02	3/30	3/27	3/23	3/18
20	4/10	4/03	3/28	3/23	3/19	3/15	3/10	3/05	2/25
16	3/24	3/16	3/11	3/06	3/02	2/25	2/21	2/15	2/08
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	9/25	9/28	9/30	10/02	10/05	10/07	10/10	10/14
32	9/29	10/03	10/06	10/09	10/11	10/13	10/16	10/19	10/23
28	10/08	10/13	10/16	10/19	10/22	10/25	10/28	11/01	11/05
24	10/17	10/24	10/28	11/01	11/05	11/09	11/13	11/17	11/24
20	10/29	11/06	11/11	11/16	11/20	11/24	11/29	12/04	12/11
16	11/12	11/19	11/24	11/28	12/02	12/06	12/10	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	160	152	147	143	139	134	130	125	118
32	178	172	168	164	160	157	153	149	143
28	209	203	198	194	190	186	182	177	171
24	241	232	226	221	217	212	207	201	192
20	275	265	257	251	245	239	233	225	215
16	299	291	285	279	274	269	264	258	249

\* 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:

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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	1022	829	663	362	136	17	0	3	58	318	615	897	4920
60	867	689	508	222	58	2	0	0	15	193	469	742	3765
57	774	605	419	150	29	0	0	0	5	134	385	649	3150
55	712	549	362	109	16	0	0	0	2	101	331	588	2770
50	570	416	230	39	3	0	0	0	0	43	212	444	1957
32	161	70	11	0	0	0	0	0	0	0	10	78	330

Base	Cooling Degree Days (1)												
Above	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Ann
32	162	165	371	629	944	1142	1310	1257	1016	715	385	204	8300
55	0	0	9	48	248	452	597	544	328	103	16	1	2346
57	0	0	4	29	198	393	535	482	271	74	9	0	1995
60	0	0	0	11	134	305	442	389	191	40	3	0	1515
65	0	0	0	1	57	169	287	237	84	11	0	0	846
70	0	0	0	0	16	68	142	108	23	1	0	0	358

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	55	92	246	465	737	931	1084	1038	816	510	232	89	55	147	393	858	1595	2526	3610	4648	5464	5974	6206	6295
45	24	45	142	326	582	781	929	883	666	362	134	42	24	69	211	537	1119	1900	2829	3712	4378	4740	4874	4916
50	3	16	73	208	429	631	774	728	516	226	62	15	3	19	92	300	729	1360	2134	2862	3378	3604	3666	3681
55	0	2	30	112	281	481	619	573	369	120	26	1	0	2	32	144	425	906	1525	2098	2467	2587	2613	2614
60	0	0	7	49	154	332	464	418	233	50	3	0	0	0	7	56	210	542	1006	1424	1657	1707	1710	1710
Base	Growing Degree Units for Corn (Monthly)												Growing Degree Units for Corn (Accumulated Monthly)											
50/86	44	84	185	326	484	613	719	690	533	351	168	67	44	128	313	639	1123	1736	2455	3145	3678	4029	4197	4264

(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> |
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## 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)