

**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: ROANOKE WOODRUM AP, VA

1971-2000

COOP ID: 447285

Climate Division: VA 5

NWS Call Sign: ROA

Elevation: 1,149 Feet Lat: 37° 19N

Lon: 79° 58W

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	45.0	26.6	35.8	78+	1952	1	45.4	1974	-11	1985	21	23.8	1977	911	0	.0	.0	10.0	4.4	22.3	.4
Feb	49.1	29.0	39.1	80	1985	24	47.0	1976	-1	1996	5	29.7	1979	741	0	.0	.0	13.4	2.6	19.0	@
Mar	57.9	36.5	47.2	87	1986	31	52.8	1977	9+	1996	10	41.7	1996	569	4	.0	.0	23.1	.3	11.5	.0
Apr	68.0	44.2	56.1	95	1957	27	61.7	1985	20+	1985	10	50.9	1982	290	20	.0	.4	28.6	.0	2.5	.0
May	75.9	52.3	64.1	96	1962	19	69.8	1991	31	1966	11	60.3	1997	107	74	.0	.6	31.0	.0	.1	.0
Jun	83.3	60.4	71.9	100+	1959	30	75.1	1994	39	1977	8	67.6	1972	13	217	.0	5.2	30.0	.0	.0	.0
Jul	87.5	64.9	76.2	104	1954	14	80.1	1993	47	1988	2	73.1	1984	1	355	.5	10.8	31.0	.0	.0	.0
Aug	86.0	63.4	74.7	105	1983	21	78.6	1995	42+	1986	30	71.9	1976	2	309	.2	8.1	31.0	.0	.0	.0
Sep	78.8	56.6	67.7	101+	1954	5	73.6	1998	34	1983	24	63.8	1984	48	136	.0	2.3	30.0	.0	.0	.0
Oct	68.6	44.6	56.6	93	1951	5	64.0	1984	22+	1976	28	49.9	1976	276	17	.0	.0	30.3	.0	2.2	.0
Nov	58.0	36.6	47.3	83	1950	1	54.9	1985	9	1950	25	40.0	1976	528	2	.0	.0	23.0	.1	10.3	.0
Dec	48.6	29.6	39.1	80	1998	6	47.1	1984	-4	1983	25	29.9	1989	798	0	.0	.0	14.4	2.3	19.3	.2
Ann	67.2	45.4	56.3	105	Aug 1983	21	80.1	Jul 1993	-11	Jan 1985	21	23.8	Jan 1977	4284	1134	.7	27.4	295.8	9.7	87.2	.6

+ 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

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

048-A

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Climate Division: VA 5

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Elevation: 1,149 Feet Lat: 37°19N

Lon: 79°58W

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	3.23	2.56	2.66	1968	13	7.97	1998	.29	1981	10.1	6.4	2.3	.7	.71	1.01	1.48	1.91	2.34	2.79	3.31	3.92	4.73	6.02	7.24
Feb	3.08	2.82	2.44+	1998	4	8.00	1998	.65	1978	9.8	6.1	2.0	.6	.78	1.07	1.52	1.91	2.31	2.72	3.18	3.73	4.44	5.58	6.64
Mar	3.84	3.25	2.96	1998	20	7.91	1993	.88	1988	10.8	6.8	2.6	.9	1.17	1.53	2.08	2.55	3.00	3.48	4.00	4.61	5.40	6.63	7.78
Apr	3.61	2.74	5.01	1978	26	11.35	1987	.48	1976	10.1	5.8	2.0	.8	.81	1.14	1.67	2.15	2.63	3.14	3.70	4.39	5.28	6.71	8.05
May	4.24	4.48	3.89	1976	29	7.50	1971	1.04	1997	12.2	7.9	2.9	1.0	1.53	1.93	2.51	2.99	3.45	3.92	4.44	5.03	5.80	6.98	8.06
Jun	3.68	2.49	3.45	1992	4	10.32	1995	.62	1986	10.4	6.3	2.4	.8	.67	.99	1.53	2.03	2.54	3.09	3.72	4.48	5.49	7.12	8.67
Jul	4.00	3.89	2.36	1989	6	10.09	1989	.45	1977	11.5	7.1	2.8	1.1	.98	1.35	1.93	2.45	2.97	3.51	4.12	4.84	5.78	7.28	8.68
Aug	3.74	3.25	3.29	1948	4	9.54	1984	.74	1995	9.6	6.0	2.1	1.2	.94	1.30	1.84	2.32	2.80	3.30	3.85	4.52	5.38	6.75	8.03
Sep	3.85	3.03	6.56	1987	7	11.09	1987	.15	1991	8.9	6.0	2.6	1.0	.46	.76	1.30	1.84	2.41	3.04	3.78	4.70	5.94	7.99	9.99
Oct	3.15	2.53	4.95	1954	15	9.89	1990	.02	2000	7.8	5.0	2.2	1.0	.20	.39	.78	1.21	1.69	2.26	2.94	3.81	5.02	7.08	9.13
Nov	3.21	2.58	6.61	1985	4	12.36	1985	.68	1981	8.3	5.4	2.1	.8	.72	1.02	1.49	1.91	2.33	2.78	3.29	3.89	4.69	5.96	7.15
Dec	2.86	2.56	3.40	1948	3	5.61	1983	.60	1980	9.4	5.8	2.3	.4	.88	1.15	1.55	1.90	2.24	2.59	2.97	3.42	4.01	4.92	5.76
Ann	42.49	43.28	6.61	Nov 1985	4	12.36	Nov 1985	.02	Oct 2000	118.9	74.6	28.3	10.3	30.51	32.84	35.81	38.07	40.07	42.00	44.00	46.20	48.87	52.74	56.08

+ 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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Climate Division: VA 5

NWS Call Sign: ROA

Elevation: 1,149 Feet

Lat: 37° 19N

Lon: 79° 58W

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	5.9	2.9	1	0	14.0	1996	7	28.2	1996	23+	1996	8	4+	1996	2.9	1.4	.7	.3	.2	4.7	2.7	1.6	.6
Feb	7.4	3.9	1	1	16.9	1987	28	36.0	1987	18	1983	12	3+	1983	3.0	1.7	.7	.5	.2	4.0	2.3	1.3	.3
Mar	3.2	.8	#	0	14.1	1993	13	16.0	1993	16	1993	14	2	1993	1.6	.7	.3	.2	@	1.4	.7	.5	.1
Apr	.7	.0	#	0	4.2	1971	6	7.3	1971	3+	1987	4	#	1992	.5	.2	.1	.0	.0	.1	.1	.0	.0
May	#	.0	#	0	#	1989	7	#	1989	0	0	0	#	1995	.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	0	0	.3	1979	10	.3	1979	#	1979	10	0	0	.0	.0	.0	.0	.0	.0	.0	.0	.0
Nov	1.2	#	#	0	8.1	1971	24	10.2	1971	5	1971	25	#	1981	.4	.4	.2	@	.0	.3	.1	@	.0
Dec	2.8	.8	#	0	10.2	1995	7	11.1	1989	10	1995	7	3	1989	1.6	.7	.3	.2	@	2.4	1.2	.6	@
Ann	21.2	8.4	N/A	N/A	16.9	Feb 1987	28	36.0	Feb 1987	23+	Jan 1996	8	4+	Jan 1996	10.0	5.1	2.3	1.2	.4	12.9	7.1	4.0	1.0

+ 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

Complete documentation available from:

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Climate Division: VA 5

NWS Call Sign: ROA

Elevation: 1,149 Feet

Lat: 37° 19N

Lon: 79° 58W

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	5/14	5/09	5/06	5/03	4/30	4/27	4/23	4/20	4/15
32	4/27	4/22	4/19	4/15	4/13	4/10	4/07	4/03	3/29
28	4/14	4/08	4/05	4/01	3/29	3/26	3/23	3/19	3/13
24	4/06	3/30	3/25	3/21	3/16	3/12	3/08	3/03	2/24
20	3/24	3/17	3/11	3/06	3/02	2/26	2/21	2/16	2/08
16	3/11	3/03	2/25	2/20	2/16	2/11	2/07	2/01	1/24
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	9/27	10/01	10/04	10/06	10/08	10/10	10/13	10/15	10/19
32	10/06	10/12	10/16	10/19	10/22	10/25	10/29	11/01	11/07
28	10/16	10/22	10/26	10/30	11/03	11/06	11/10	11/15	11/21
24	10/31	11/07	11/12	11/16	11/20	11/24	11/28	12/03	12/09
20	11/12	11/19	11/24	11/29	12/03	12/07	12/12	12/17	12/24
16	11/20	11/30	12/07	12/14	12/19	12/25	12/31	1/07	1/17
Freeze Free Period									
Temp (F)	Probability of longer than indicated freeze free period (Days)								
	.10	.20	.30	.40	.50	.60	.70	.80	.90
36	182	175	170	165	161	157	152	147	140
32	214	206	201	196	192	188	183	178	170
28	239	232	227	222	218	214	209	204	196
24	281	270	261	254	247	241	234	225	214
20	304	294	287	281	275	269	263	256	246
16	337	325	316	309	303	297	290	282	272

* 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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COOP ID: 447285

Climate Division: VA 5 NWS Call Sign: ROA Elevation: 1,149 Feet Lat: 37°19N Lon: 79°58W

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	911	741	569	290	107	13	1	2	48	276	528	798	4284
60	750	587	403	151	39	1	0	0	11	173	388	649	3152
57	664	503	319	94	18	0	0	0	4	121	307	563	2593
55	606	452	267	65	10	0	0	0	2	92	257	504	2255
50	464	323	158	19	1	0	0	0	0	39	152	364	1520
32	108	38	4	0	0	0	0	0	0	0	3	54	207

Base	Cooling Degree Days (1)												
Above	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Ann
32	188	232	470	718	994	1196	1374	1328	1076	766	463	259	9064
55	3	6	35	118	291	506	661	615	390	128	31	7	2791
57	2	4	24	90	238	447	599	553	332	94	20	4	2407
60	1	1	14	56	167	358	506	460	251	55	9	2	1880
65	0	0	4	20	74	217	355	309	136	17	2	0	1134
70	0	0	1	4	22	102	204	164	56	3	0	0	556

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	71	108	265	490	755	965	1133	1089	847	529	255	112	71	179	444	934	1689	2654	3787	4876	5723	6252	6507	6619
45	30	55	158	352	600	815	978	934	697	379	156	53	30	85	243	595	1195	2010	2988	3922	4619	4998	5154	5207
50	8	24	83	221	445	665	823	779	547	244	81	25	8	32	115	336	781	1446	2269	3048	3595	3839	3920	3945
55	0	8	39	123	299	515	668	624	401	133	38	6	0	8	47	170	469	984	1652	2276	2677	2810	2848	2854
60	0	1	15	60	173	366	513	470	258	57	10	0	0	1	16	76	249	615	1128	1598	1856	1913	1923	1923
Base	Growing Degree Units for Corn (Monthly)												Growing Degree Units for Corn (Accumulated Monthly)											
50/86	42	71	164	296	474	649	777	748	546	319	154	66	42	113	277	573	1047	1696	2473	3221	3767	4086	4240	4306

(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

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
- 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">a. Temperature/ Precipitation Tables<ol style="list-style-type: none">1. 1971-2000 Monthly Normals2. Cooperative Summary of the Day3. National Weather Service station records4. 1971-2000 serially complete daily datab. Degree Day Table<ol style="list-style-type: none">1. Monthly and Annual Heating and Cooling Degree Days Normals to Selected Bases derived from 1971-2000 Monthly Normals2. Daily Normal Growing Degree Units to Selected Base Temperatures derived from 1971-2000 serially complete daily data | <ol style="list-style-type: none">c. Snow Tables<ol style="list-style-type: none">1. Snow Climatology2. Cooperative Summary of the Dayd. Freeze Data Table
1971-2000 serially complete daily data |
|---|---|

References

U.S. Climate Normals 1971-2000, www.ncdc.noaa.gov/normal.html
U.S. Climate Normals 1971-2000-Products Clim20, www.ncdc.noaa.gov/oa/climate/normal/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