

Climatology of the United States

No. 20

1971-2000

Station: MATHEWS 4 SE, VA

COOP ID: 445338

Climate Division: VA 1

NWS Call Sign:

Elevation: 5 Feet

Lat: 37° 24N

Lon: 76° 16W

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	47.0	26.1	36.6	75+	1999	29	43.7	1974	-5	1985	21	25.0	1977	883	0	.0	.0	12.8	2.5	20.4	.1
Feb	49.0	27.1	38.1	82	1997	28	46.0	1990	5	1996	6	26.8	1979	755	0	.0	.0	13.7	1.2	17.3	.0
Mar	57.0	34.9	46.0	86+	1998	30	51.7	2000	12	1980	4	41.2	1984	591	0	.0	.0	24.6	.1	8.6	.0
Apr	65.4	42.5	54.0	93+	1985	22	60.2	1994	26+	1985	10	48.7	1975	337	4	.0	.1	29.5	.0	1.6	.0
May	73.8	53.6	63.7	95	1991	31	69.6	1991	30	1956	9	60.5	1997	97	58	.0	.6	31.0	.0	.0	.0
Jun	81.6	62.3	72.0	100	1952	26	75.6	1989	44+	1961	17	67.4	1972	9	218	.0	3.7	30.0	.0	.0	.0
Jul	86.3	67.3	76.8	102	1952	23	80.1	1995	50	1988	2	74.1	2000	0	366	.0	8.5	31.0	.0	.0	.0
Aug	84.7	66.0	75.4	100	1980	1	78.3	1995	46	1982	30	72.4	1981	0	320	@	7.0	31.0	.0	.0	.0
Sep	79.2	59.7	69.5	99	1983	11	74.2	1998	37+	1983	23	67.0	1982	18	151	.0	2.1	30.0	.0	.0	.0
Oct	69.7	47.7	58.7	95	1954	4	64.4	1984	28+	1987	22	53.2	1987	225	30	.0	.1	30.9	.0	1.1	.0
Nov	60.5	37.7	49.1	85	1993	15	56.1	1985	16	1955	29	41.6	1976	477	1	.0	.0	26.8	.0	7.7	.0
Dec	51.8	30.1	41.0	81	1998	8	47.5	1971	0	1958	16	31.6	1989	746	0	.0	.0	17.8	.8	17.0	.0
Ann	67.2	46.3	56.7	102	Jul 1952	23	80.1	Jul 1995	-5	Jan 1985	21	25.0	Jan 1977	4138	1148	@	22.1	309.1	4.6	73.7	.1

+ 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: 1950-2000

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

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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: MATHEWS 4 SE, VA

COOP ID: 445338

Climate Division: VA 1

NWS Call Sign:

Elevation: 5 Feet

Lat: 37°24N

Lon: 76°16W

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	4.16	3.84	2.41	1987	19	8.33	1978	.80	1981	12.6	7.8	2.8	.9	1.54	1.93	2.49	2.96	3.40	3.86	4.35	4.92	5.65	6.78	7.81
Feb	3.48	2.99	5.11	1998	5	11.75	1998	.87	1978	10.2	6.2	2.2	.5	.90	1.22	1.73	2.17	2.61	3.07	3.59	4.20	4.99	6.25	7.43
Mar	4.76	4.38	2.93	1993	13	9.63	1994	.79	1986	11.9	7.8	3.4	1.2	1.87	2.31	2.94	3.46	3.95	4.45	4.99	5.61	6.40	7.62	8.72
Apr	3.10	3.15	2.22	1983	16	6.18	1983	.46	1985	10.8	5.9	2.3	.7	1.15	1.44	1.86	2.21	2.54	2.88	3.25	3.68	4.22	5.06	5.83
May	3.92	4.01	3.10	1960	31	7.87	1993	.89	1991	12.1	7.7	2.7	.8	1.17	1.54	2.10	2.58	3.05	3.53	4.07	4.70	5.51	6.79	7.97
Jun	3.65	3.72	3.18	1957	5	6.63	1972	.68	1990	10.7	6.3	2.3	.5	1.16	1.51	2.02	2.46	2.88	3.32	3.80	4.37	5.10	6.23	7.28
Jul	4.12	3.90	3.66	1997	25	7.99	1992	.46	1983	12.5	7.8	3.0	1.1	1.22	1.61	2.20	2.70	3.20	3.71	4.28	4.95	5.81	7.17	8.42
Aug	3.90	2.72	9.05	1955	12	12.61	1992	.47	1997	11.9	6.8	3.1	1.2	.70	1.04	1.61	2.15	2.69	3.27	3.94	4.75	5.83	7.57	9.22
Sep	4.00	2.66	7.42	1999	16	13.95	1999	.83	1986	9.2	5.5	2.8	1.4	.73	1.09	1.67	2.22	2.77	3.37	4.05	4.87	5.97	7.73	9.41
Oct	3.51	3.10	4.50	1999	18	8.38	1971	.08	2000	9.3	5.1	2.6	1.2	.54	.84	1.34	1.83	2.33	2.88	3.51	4.29	5.32	7.01	8.62
Nov	3.19	3.10	3.25	1952	21	6.45	1997	.54	1991	9.9	5.5	2.3	.8	.80	1.10	1.56	1.97	2.38	2.81	3.29	3.85	4.59	5.77	6.86
Dec	3.57	3.58	2.65	1958	29	7.00	1973	.89	1988	12.7	6.6	2.4	.6	1.10	1.44	1.95	2.38	2.80	3.23	3.71	4.27	5.00	6.13	7.17
Ann	45.36	43.82	9.05	Aug 1955	12	13.95	Sep 1999	.08	Oct 2000	133.8	79.0	31.9	10.9	32.61	35.09	38.26	40.66	42.79	44.84	46.96	49.31	52.15	56.26	59.81

+ 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: 1950-2000

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

Complete documentation available from:
www.ncdc.noaa.gov/oa/climate/normals/usnormals.html

Climatography of the United States

No. 20 1971-2000

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151 Patton Avenue
Asheville, North Carolina 28801
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Station: MATHEWS 4 SE, VA

COOP ID: 445338

Climate Division: VA 1

NWS Call Sign:

Elevation: 5 Feet

Lat: 37°24N

Lon: 76°16W

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	1.8	.0	0	0	5.0	1982	14	9.0	1985	0	0	0	0	0	.6	.6	.2	.1	.0	.0	.0	.0	.0
Feb	2.1	#	#	0	8.0	1980	10	12.0	1980	#	1997	11	#	1997	.4	.2	.1	.1	.0	.0	.0	.0	.0
Mar	#	.0	#	0	#	1992	22	#+	1992	#	1987	10	#	1987	.0	.0	.0	.0	.0	.0	.0	.0	.0
Apr	#	.0	0	0	#	1989	12	#+	1989	0	0	0	0	0	.0	.0	.0	.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	.0	.0	0	0	.0	0	0	.0	0	0	0	0	0	0	.0	.0	.0	.0	.0	.0	.0	.0	.0
Nov	#	.0	0	0	#	1983	26	#	1983	0	0	0	0	0	.0	.0	.0	.0	.0	.0	.0	.0	.0
Dec	.2	#	#	0	2.0	1982	11	2.0	1982	#+	1999	25	#+	1999	.1	.1	.0	.0	.0	.0	.0	.0	.0
Ann	4.1	#	N/A	N/A	8.0	Feb 1980	10	12.0	Feb 1980	#+	Dec 1999	25	#+	Dec 1999	1.1	.9	.3	.2	.0	.0	.0	.0	.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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No. 20
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Station: MATHEWS 4 SE, VA

COOP ID: 445338

Climate Division: VA 1

NWS Call Sign:

Elevation: 5 Feet

Lat: 37°24N

Lon: 76°16W

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	4/28	4/23	4/19	4/16	4/13	4/09	4/06	4/02	3/28
32	4/24	4/16	4/11	4/06	4/01	3/28	3/23	3/17	3/10
28	4/08	4/01	3/27	3/23	3/19	3/15	3/11	3/06	2/27
24	3/23	3/16	3/11	3/07	3/03	2/27	2/23	2/18	2/11
20	3/13	3/05	2/27	2/21	2/16	2/12	2/06	1/31	1/23
16	3/03	2/21	2/13	2/06	1/31	1/24	1/17	1/08	12/22
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	10/07	10/12	10/15	10/18	10/21	10/24	10/27	10/30	11/04
32	10/13	10/18	10/22	10/25	10/28	10/31	11/04	11/08	11/13
28	10/29	11/04	11/07	11/11	11/14	11/17	11/20	11/24	11/29
24	11/13	11/20	11/25	11/29	12/02	12/06	12/10	12/15	12/21
20	11/28	12/05	12/09	12/13	12/17	12/21	12/25	12/30	1/05
16	12/08	12/16	12/22	12/27	1/01	1/06	1/12	1/19	2/01
Freeze Free Period									
Temp (F)	Probability of longer than indicated freeze free period (Days)								
	.10	.20	.30	.40	.50	.60	.70	.80	.90
36	210	203	198	194	191	187	183	178	172
32	235	226	220	214	209	204	199	192	183
28	263	255	249	244	239	234	229	223	215
24	296	288	283	278	274	269	264	259	251
20	334	323	316	309	303	297	290	283	272
16	>365	>365	357	339	330	321	314	305	294

* 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: 445338

Climate Division: VA 1 NWS Call Sign: Elevation: 5 Feet Lat: 37° 24N Lon: 76° 16W

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	883	755	591	337	97	9	0	0	18	225	477	746	4138
60	728	615	437	205	33	1	0	0	3	123	335	591	3071
57	642	531	350	140	13	0	0	0	1	79	256	506	2518
55	583	483	293	104	6	0	0	0	0	56	208	448	2181
50	440	354	171	40	1	0	0	0	0	19	112	313	1450
32	91	57	4	0	0	0	0	0	0	0	1	35	188

Base	Cooling Degree Days (1)												
Above	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Ann
32	232	225	436	657	984	1198	1389	1343	1123	827	515	313	9242
55	10	7	12	72	277	508	676	630	433	170	32	12	2839
57	7	0	7	47	222	448	614	568	374	131	19	8	2445
60	0	0	1	22	149	359	521	475	286	82	8	0	1903
65	0	0	0	4	58	218	366	320	151	30	1	0	1148
70	0	0	0	0	14	104	217	173	51	7	0	0	566

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	98	129	262	502	791	1006	1184	1135	926	616	347	153	98	227	489	991	1782	2788	3972	5107	6033	6649	6996	7149
45	46	71	147	358	636	856	1029	980	776	463	224	80	46	117	264	622	1258	2114	3143	4123	4899	5362	5586	5666
50	16	29	72	224	481	706	874	825	626	316	128	38	16	45	117	341	822	1528	2402	3227	3853	4169	4297	4335
55	1	12	30	120	331	556	719	670	476	187	61	10	1	13	43	163	494	1050	1769	2439	2915	3102	3163	3173
60	0	2	9	54	195	406	564	515	328	95	24	1	0	2	11	65	260	666	1230	1745	2073	2168	2192	2193
Base	Growing Degree Units for Corn (Monthly)												Growing Degree Units for Corn (Accumulated Monthly)											
50/86	59	80	155	291	493	693	834	796	623	376	202	89	59	139	294	585	1078	1771	2605	3401	4024	4400	4602	4691

(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/normal/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