

# Climatology of the United States

No. 20

1971-2000

Station: GRUNDY, VA

COOP ID: 443640

Climate Division: VA 6

NWS Call Sign:

Elevation: 1,170 Feet Lat: 37° 17N Lon: 82° 05W

## 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	45.6	23.2	34.4	78	1999	23	46.7	1974	-14+	1985	22	22.2	1977	950	0	.0	.0	12.3	4.7	25.1	.8
Feb	50.4	25.3	37.9	83	2000	27	44.3	1990	-12+	1996	6	26.0	1978	760	0	.0	.0	14.9	3.0	21.1	.5
Mar	59.6	32.1	45.9	89	1967	25	51.9	1973	-3+	1993	16	41.3+	1996	594	0	.0	.0	24.0	.5	17.3	.1
Apr	69.2	39.2	54.2	92+	1995	11	59.8	1981	21+	1990	9	49.8	1987	329	4	.0	.4	27.9	@	8.2	.0
May	76.7	49.0	62.9	98	1969	31	69.5	1991	25	1970	5	58.1	1997	141	74	.0	.8	31.0	.0	.6	.0
Jun	83.6	58.0	70.8	100+	1969	26	74.2	1999	40+	1988	13	66.0	1972	16	191	.0	5.0	30.0	.0	.0	.0
Jul	87.2	63.1	75.2	101+	1988	17	79.3	1999	40	1988	2	72.1	1976	0	314	.1	10.8	31.0	.0	.0	.0
Aug	86.2	62.1	74.2	100	1965	16	77.1	1983	45+	1989	9	70.9	1976	0	285	.0	8.3	31.0	.0	.0	.0
Sep	80.5	55.6	68.1	102	1998	15	73.1	1998	34	1983	24	63.9	1974	43	136	.1	3.2	30.0	.0	.0	.0
Oct	70.5	41.6	56.1	90+	1998	18	63.1	1984	19	1962	27	49.1	1988	306	30	.0	@	30.3	.0	5.2	.0
Nov	60.2	33.0	46.6	85+	1994	5	54.8	1985	9	1970	25	37.7	1976	552	1	.0	.0	23.5	.2	15.8	.0
Dec	49.5	26.0	37.8	80+	1982	5	46.8	1971	-11+	1989	24	26.1	1989	844	0	.0	.0	16.3	2.5	23.3	.2
Ann	68.3	42.4	55.3	102	Sep 1998	15	79.3	Jul 1999	-14+	Jan 1985	22	22.2	Jan 1977	4535	1035	.2	28.5	302.2	10.9	116.6	1.6

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

026-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: GRUNDY, VA**

**COOP ID: 443640**

**Climate Division: VA 6**

**NWS Call Sign:**

**Elevation: 1,170 Feet Lat: 37°17N**

**Lon: 82°05W**

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	3.51	3.34	2.50	1998	28	9.33	1972	1.11	1981	11.8	7.3	2.2	.7	1.00	1.33	1.84	2.27	2.70	3.15	3.64	4.22	4.98	6.16	7.27
Feb	3.12	3.17	2.17	1955	27	6.29	1972	.70	1977	10.6	7.1	2.2	.4	1.04	1.33	1.77	2.13	2.49	2.85	3.25	3.72	4.32	5.25	6.11
Mar	3.98	3.39	3.03	1963	12	10.50	1975	1.16	1988	12.1	8.3	2.7	.8	1.23	1.60	2.17	2.65	3.12	3.61	4.14	4.77	5.58	6.84	8.01
Apr	4.03	3.82	4.14	1987	4	11.69	1987	.55	1976	11.1	8.1	2.7	.9	1.17	1.56	2.13	2.63	3.12	3.62	4.18	4.84	5.70	7.03	8.27
May	4.87	4.80	3.20	1953	19	8.94	1984	1.22	1977	13.3	10.0	3.3	1.3	1.69	2.15	2.82	3.39	3.93	4.48	5.09	5.80	6.70	8.10	9.39
Jun	4.50	4.34	4.00	1964	7	9.25	1979	.85	1986	11.8	8.7	3.0	1.2	1.16	1.59	2.24	2.82	3.38	3.98	4.64	5.43	6.46	8.08	9.60
Jul	4.87	4.54	4.12	1979	15	8.88	1979	1.31	1974	11.7	8.6	3.6	1.1	1.89	2.34	2.98	3.52	4.03	4.54	5.10	5.75	6.57	7.84	8.99
Aug	3.93	4.06	2.68	1993	13	7.21	1977	1.28	1973	10.8	7.0	2.8	.9	1.76	2.11	2.60	2.99	3.35	3.72	4.12	4.57	5.14	6.00	6.78
Sep	3.46	3.48	2.30	1972	28	6.46	1972	1.07	1985	9.5	6.9	2.6	.8	1.26	1.58	2.05	2.45	2.82	3.20	3.62	4.11	4.72	5.68	6.55
Oct	3.15	2.93	2.44	1974	16	6.65	1989	.35	2000	8.8	6.1	2.1	.7	.85	1.15	1.60	2.00	2.39	2.80	3.25	3.79	4.49	5.59	6.62
Nov	3.17	3.06	2.86	1999	26	7.22	1985	.84	1981	9.6	6.9	1.9	.5	.90	1.20	1.65	2.05	2.44	2.84	3.29	3.82	4.50	5.58	6.58
Dec	3.25	2.82	2.49	1993	5	7.78	1991	1.30	1980	11.2	7.3	2.1	.5	1.11	1.41	1.86	2.24	2.61	2.98	3.39	3.87	4.49	5.44	6.31
Ann	45.84	44.82	4.14	Apr 1987	4	11.69	Apr 1987	.35	Oct 2000	132.3	92.3	31.2	9.8	33.28	35.74	38.87	41.23	43.33	45.36	47.45	49.75	52.54	56.57	60.05

+ 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

Complete documentation available from:  
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**Climate Division: VA 6**

**NWS Call Sign:**

**Elevation: 1,170 Feet**

**Lat: 37° 17N**

**Lon: 82° 05W**

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	7.0	4.7	1	#	9.5	1971	1	25.0	1978	13	1978	23	6	1978	4.6	1.8	.6	.3	.0	5.0	2.3	1.3	.4
Feb	5.3	5.4	1	#	10.0	1985	13	15.1	1978	10	1985	14	3	1978	3.2	1.9	.4	.1	@	5.4	2.2	.8	.1
Mar	3.0	1.2	#	#	10.1	1993	14	17.3	1993	16	1993	14	2	1993	1.7	1.0	.4	.1	@	1.9	.6	.2	@
Apr	1.1	.0	#	0	10.0	1987	4	24.6	1987	20	1987	5	2	1987	.3	.2	.1	.1	@	.4	.2	.2	.1
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	.5	.0	#	0	3.5	1976	22	5.4	1976	7	1971	24	1	1971	.6	.2	.1	.0	.0	.4	@	.0	.0
Dec	2.8	1.2	#	#	7.5	1995	7	10.7	1989	8	1995	7	1	1997	2.8	1.1	.1	.1	.0	3.3	.5	.2	.0
Ann	19.7	12.5	N/A	N/A	10.1	Mar 1993	14	25.0	Jan 1978	20	Apr 1987	5	6	Jan 1978	13.2	6.2	1.7	.7	@	16.4	5.8	2.7	.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

Complete documentation available from:

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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	5/19	5/14	5/11	5/08	5/05	5/02	4/30	4/26	4/22
32	5/10	5/05	5/01	4/27	4/24	4/21	4/18	4/14	4/08
28	4/24	4/19	4/16	4/13	4/10	4/07	4/04	3/31	3/26
24	4/09	4/04	3/31	3/27	3/24	3/21	3/17	3/13	3/07
20	3/26	3/19	3/15	3/11	3/07	3/03	2/27	2/23	2/16
16	3/17	3/09	3/03	2/26	2/21	2/16	2/11	2/05	1/28
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	9/26	9/30	10/04	10/06	10/09	10/12	10/14	10/18	10/22
32	10/06	10/11	10/15	10/18	10/21	10/24	10/27	10/31	11/05
28	10/17	10/22	10/26	10/30	11/02	11/05	11/09	11/13	11/18
24	10/21	10/27	11/01	11/05	11/09	11/13	11/17	11/22	11/28
20	11/07	11/14	11/19	11/24	11/28	12/02	12/06	12/11	12/18
16	11/19	11/26	12/01	12/05	12/09	12/13	12/17	12/22	12/28
Freeze Free Period									
Temp (F)	Probability of longer than indicated freeze free period (Days)								
	.10	.20	.30	.40	.50	.60	.70	.80	.90
36	172	166	162	159	156	153	150	146	141
32	202	194	188	183	179	174	170	164	156
28	229	221	215	210	206	201	196	190	182
24	255	246	240	234	230	225	219	213	204
20	289	281	275	270	265	260	255	249	241
16	324	312	304	297	290	283	276	268	256

\* 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	950	760	594	329	141	16	0	0	43	306	552	844	4535
60	795	620	442	196	65	3	0	0	13	195	407	689	3425
57	711	537	356	131	36	1	0	0	5	141	325	598	2841
55	652	487	301	95	22	0	0	0	3	111	274	542	2487
50	511	358	183	33	5	0	0	0	0	53	163	400	1706
32	145	58	7	0	0	0	0	0	0	0	3	68	281

Base	Cooling Degree Days (1)												
Above	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Ann
32	218	222	436	666	957	1165	1337	1307	1082	747	441	247	8825
55	12	7	17	71	266	475	624	594	395	144	22	8	2635
57	9	1	11	46	217	415	562	532	338	113	14	2	2260
60	0	0	3	22	154	327	469	439	255	73	5	0	1747
65	0	0	0	4	74	191	314	285	136	30	1	0	1035
70	0	0	0	0	26	85	169	141	51	10	0	0	482

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	62	98	244	437	718	934	1097	1069	843	511	243	96	62	160	404	841	1559	2493	3590	4659	5502	6013	6256	6352
45	30	44	145	306	563	784	942	914	693	361	144	46	30	74	219	525	1088	1872	2814	3728	4421	4782	4926	4972
50	6	15	70	192	413	634	787	759	544	231	74	18	6	21	91	283	696	1330	2117	2876	3420	3651	3725	3743
55	0	4	31	106	271	484	632	604	398	122	29	2	0	4	35	141	412	896	1528	2132	2530	2652	2681	2683
60	0	0	2	46	150	336	477	449	259	56	5	0	0	0	2	48	198	534	1011	1460	1719	1775	1780	1780
Base	Growing Degree Units for Corn (Monthly)												Growing Degree Units for Corn (Accumulated Monthly)											
50/86	51	90	188	301	466	621	745	727	552	346	185	78	51	141	329	630	1096	1717	2462	3189	3741	4087	4272	4350

(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.  
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)