U.S. Department of Commerce
National Oceanic & Atmospheric Administration
National Environmental Satellite, Data,
and Information Service

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: TYE RIVER 1 SE, VA **COOP ID: 448600**

Climate Division: VA 3 **NWS Call Sign:** **Elevation: 720 Feet** **Lat: 37˚38N** **Lon: 78˚56W**

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	24.2	34.9	77	1975	30	43.6	1990	-10+	1985	22	23.4	1977	933	0	.0	.0	11.5	3.0	23.7	.5
Feb	49.6	26.3	38.0	82	2000	26	45.0	1976	-5+	1996	6	27.2	1979	758	0	.0	.0	14.4	2.0	21.1	.1
Mar	58.2	32.9	45.6	89+	1998	31	50.7	2000	9	1986	8	40.8	1996	602	0	.0	.0	24.1	.2	15.1	.0
Apr	68.8	41.5	55.2	95+	1985	23	60.4	1994	18	1985	10	50.9	1975	299	3	.0	.8	29.1	.0	4.7	.0
May	75.5	50.4	63.0	95	1996	21	69.5	1991	28	1966	11	58.4	1997	120	57	.0	1.1	31.0	.0	.1	.0
Jun	82.7	59.2	71.0	100+	1964	28	74.2	1989	39+	1997	4	66.6	1974	14	192	.0	5.8	30.0	.0	.0	.0
Jul	86.6	64.1	75.4	103	1988	15	79.3	1993	51+	1997	30	71.2	1984	1	322	.8	11.6	31.0	.0	.0	.0
Aug	85.4	62.3	73.9	105	1983	21	77.4	1988	44+	1986	30	70.9	1992	3	276	.3	9.2	31.0	.0	.0	.0
Sep	79.1	55.3	67.2	101	1983	12	71.6	1980	32	1983	25	63.8	1984	41	107	.1	3.3	30.0	.0	@	.0
Oct	69.9	42.5	56.2	91	1986	4	62.3	1984	22	1969	24	50.3	1976	292	19	.0	.1	30.8	.0	4.0	.0
Nov	60.1	34.2	47.2	86+	1974	3	53.4	1999	11	1970	25	41.5	1976	536	0	.0	.0	24.9	.0	13.1	.0
Dec	49.6	27.1	38.4	82	1998	8	46.9	1971	-3+	1983	26	28.0	1989	826	0	.0	.0	15.6	1.3	21.6	.1
Ann	67.6	43.3	55.5	105	Aug 1983	21	79.3	Jul 1993	-10+	Jan 1985	22	23.4	Jan 1977	4425	976	1.2	31.9	303.4	6.5	103.4	.7

\+ 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

(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

Issue Date: February 2004

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Precipitation (inches)

Precipitation Totals

Month	Means/ Medians(1) Mean	Means/ Medians(1) Median	Extremes Highest Daily(2)	Year	Day	Highest Monthly(1)	Year	Lowest Monthly(1)	Year
Jan	3.75	3.72	2.15	1978	9	8.75	1978	.25	1981
Feb	3.26	3.25	3.15	1965	7	5.92	1971	.41	1978
Mar	4.05	3.78	3.14	1989	7	8.43	1994	1.17	1995
Apr	3.46	3.16	3.25	1992	22	8.84	1987	1.38	1995
May	4.81	5.03	3.65	1989	6	9.69	1990	1.24	1997
Jun	3.56	2.58	6.38	1972	22	10.96	1972	.77	1986
Jul	4.30	3.09	4.30	1964	13	12.89	1989	.68	1977
Aug	3.57	2.72	4.47	1969	20	11.96	1985	.29	1980
Sep	4.35	3.52	6.24	1987	8	15.35	1987	.05	1985
Oct	3.95	2.68	4.89	1972	6	12.58	1976	.00	2000
Nov	3.49	3.13	2.57	1964	25	8.04	1985	.68	1981
Dec	3.39	3.05	3.48	1993	5	7.11	1973	.59	1980
Ann	45.94	45.87	6.38	Jun 1972	22	15.35	Sep 1987	.00	Oct 2000

Mean Number of Days (3)

Month	Daily Precipitation >= 0.01	>= 0.10	>= 0.50	>= 1.00
Jan	8.8	7.1	2.7	.9
Feb	8.3	6.8	2.1	.8
Mar	9.5	7.5	2.7	1.2
Apr	8.5	6.3	2.3	.8
May	10.2	8.2	3.4	1.2
Jun	8.0	6.2	2.1	.8
Jul	8.9	7.4	2.8	1.2
Aug	8.0	6.0	2.2	.9
Sep	7.4	5.8	2.3	1.3
Oct	6.6	5.5	2.5	1.2
Nov	7.9	6.2	2.3	1.0
Dec	8.3	6.3	2.2	.8
Ann	100.4	79.3	29.6	12.1

Precipitation Probabilities (1)

Probability that the monthly/annual precipitation will be equal to or less than the indicated amount

Monthly/Annual Precipitation vs Probability Levels
These values were determined from the incomplete gamma distribution

Month	.05	.10	.20	.30	.40	.50	.60	.70	.80	.90	.95
Jan	.88	1.23	1.78	2.27	2.76	3.28	3.86	4.55	5.45	6.90	8.25
Feb	.87	1.17	1.65	2.06	2.47	2.90	3.37	3.94	4.67	5.82	6.90
Mar	1.25	1.64	2.21	2.70	3.18	3.67	4.21	4.85	5.67	6.96	8.14
Apr	1.25	1.57	2.04	2.44	2.81	3.20	3.62	4.11	4.73	5.69	6.57
May	1.51	1.97	2.65	3.23	3.79	4.37	5.00	5.75	6.72	8.22	9.61
Jun	.71	1.03	1.56	2.03	2.52	3.04	3.63	4.33	5.27	6.77	8.20
Jul	.93	1.32	1.95	2.53	3.10	3.71	4.40	5.23	6.32	8.06	9.70
Aug	.48	.77	1.28	1.78	2.30	2.88	3.54	4.36	5.47	7.28	9.03
Sep	.34	.63	1.19	1.79	2.46	3.22	4.14	5.29	6.89	9.57	12.22
Oct	.22	.59	1.19	1.78	2.39	3.08	3.88	4.87	6.21	8.43	10.59
Nov	1.14	1.48	1.96	2.38	2.78	3.19	3.64	4.17	4.85	5.90	6.87
Dec	.96	1.29	1.77	2.20	2.61	3.04	3.52	4.08	4.81	5.95	7.02
Ann	32.50	35.10	38.43	40.96	43.21	45.39	47.64	50.13	53.15	57.53	61.32

\+ 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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Snow (inches)

Snow Totals

Means/Medians (1)

Month	Snow Fall Mean	Snow Fall Median	Snow Depth Mean	Snow Depth Median
Jan	3.1	.0	1	#
Feb	1.5	.0	#	#
Mar	1.7	.0	#	#
Apr	.2	.0	#	0
May	.0	.0	0	0
Jun	.0	.0	0	0
Jul	.0	.0	0	0
Aug	.0	.0	0	0
Sep	.0	.0	0	0
Oct	.1	.0	0	0
Nov	.4	.0	#	0
Dec	.7	.0	#	#
Ann	7.7	.0	N/A	N/A

Extremes (2)

Month	Highest Daily Snow Fall	Year	Day	Highest Monthly Snow Fall	Year	Highest Daily Snow Depth	Year	Day	Highest Monthly Mean Snow Depth	Year
Jan	9.0	1971	1	13.0	1977	25	1987	26	5	1980
Feb	6.0	1975	5	7.0	1975	16	1996	3	5	1979
Mar	9.0	1993	14	16.0	1993	12	1980	2	1	1980
Apr	3.0	1971	7	3.0	1971	3	1971	7	#+	1996
May	.0	0	0	.0	0	0	0	0	0	0
Jun	.0	0	0	.0	0	0	0	0	0	0
Jul	.0	0	0	.0	0	0	0	0	0	0
Aug	.0	0	0	.0	0	0	0	0	0	0
Sep	.0	0	0	.0	0	0	0	0	0	0
Oct	3.0	1979	11	3.0	1979	0	0	0	0	0
Nov	3.0	1981	25	4.0	1981	4	1989	23	#+	1996
Dec	3.0	1976	9	3.0+	2000	6	1982	12	1	1989
Ann	9.0+	Mar 1993	14	16.0	Mar 1993	25	Jan 1987	26	5+	Jan 1980

Mean Number of Days (1)

Snow Fall >= Thresholds

Month	0.1	1.0	3.0	5.0	10.0
Jan	.5	.5	.2	.2	.0
Feb	.4	.4	.2	.1	.0
Mar	.2	.2	.1	.1	.0
Apr	@	@	@	.0	.0
May	.0	.0	.0	.0	.0
Jun	.0	.0	.0	.0	.0
Jul	.0	.0	.0	.0	.0
Aug	.0	.0	.0	.0	.0
Sep	.0	.0	.0	.0	.0
Oct	@	@	@	.0	.0
Nov	.2	.2	@	.0	.0
Dec	.2	.2	.1	.0	.0
Ann	1.5	1.5	.6	.4	.0

Snow Depth >= Thresholds

Month	1	3	5	10
Jan	.3	.1	.1	.0
Feb	.3	.1	@	.0
Mar	.1	.0	.0	.0
Apr	@	@	.0	.0
May	.0	.0	.0	.0
Jun	.0	.0	.0	.0
Jul	.0	.0	.0	.0
Aug	.0	.0	.0	.0
Sep	.0	.0	.0	.0
Oct	.0	.0	.0	.0
Nov	.1	.0	.0	.0
Dec	.1	@	.0	.0
Ann	.9	.2	.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

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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	5/14	5/09	5/06	5/03	5/01	4/28	4/26	4/22	4/18
32	4/28	4/24	4/21	4/18	4/16	4/13	4/11	4/08	4/03
28	4/16	4/11	4/08	4/05	4/02	3/30	3/27	3/23	3/18
24	4/11	4/04	3/31	3/27	3/23	3/20	3/16	3/11	3/05
20	3/29	3/20	3/15	3/10	3/05	2/28	2/23	2/18	2/10
16	3/12	3/05	2/28	2/24	2/20	2/15	2/11	2/06	1/30

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	9/29	10/03	10/05	10/08	10/10	10/13	10/15	10/18	10/22
32	10/02	10/07	10/11	10/14	10/17	10/20	10/23	10/27	11/01
28	10/17	10/23	10/27	10/31	11/03	11/06	11/10	11/14	11/20
24	10/30	11/04	11/08	11/11	11/14	11/17	11/21	11/25	11/30
20	11/11	11/17	11/22	11/25	11/29	12/03	12/06	12/11	12/17
16	11/29	12/05	12/10	12/14	12/18	12/21	12/25	12/30	1/05

Freeze Free Period

Temp (F)	Probability of longer than indicated freeze free period (Days)								
	.10	.20	.30	.40	.50	.60	.70	.80	.90
36	179	173	169	165	162	158	154	150	144
32	204	197	192	188	184	180	175	170	163
28	237	229	224	219	215	210	206	200	193
24	260	251	245	240	235	231	225	219	211
20	293	285	278	273	268	263	258	252	243
16	328	318	312	306	300	295	289	282	273

***** 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

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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	933	758	602	299	120	14	1	3	41	292	536	826	4425
60	778	618	448	168	47	2	0	0	10	176	390	671	3308
57	685	534	362	106	21	0	0	0	3	121	308	583	2723
55	631	480	305	72	11	0	0	0	1	91	256	525	2372
50	487	351	184	21	1	0	0	0	0	38	147	384	1613
32	116	47	6	0	0	0	0	0	0	0	2	62	233

Base — Cooling Degree Days (1)

Above	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Ann
32	206	213	427	694	959	1168	1344	1296	1056	750	456	259	8828
55	8	2	14	76	257	478	631	583	367	129	19	9	2573
57	0	0	8	49	205	418	569	521	309	96	12	5	2192
60	0	0	2	22	138	330	476	428	225	58	4	0	1683
65	0	0	0	3	57	192	322	276	107	19	0	0	976
70	0	0	0	0	15	85	182	142	32	4	0	0	460

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	65	99	243	487	741	960	1129	1085	854	543	273	108	65	164	407	894	1635	2595	3724	4809	5663	6206	6479	6587
45	29	51	142	343	586	810	974	930	704	391	165	50	29	80	222	565	1151	1961	2935	3865	4569	4960	5125	5175
50	7	22	72	217	432	660	819	775	554	255	85	24	7	29	101	318	750	1410	2229	3004	3558	3813	3898	3922
55	0	3	33	123	289	510	664	620	406	144	39	5	0	3	36	159	448	958	1622	2242	2648	2792	2831	2836
60	0	0	13	59	168	365	509	465	267	64	9	1	0	0	13	72	240	605	1114	1579	1846	1910	1919	1920
Base	**Growing Degree Units for Corn (Monthly)**												**Growing Degree Units for Corn (Accumulated Monthly)**											
50/86	47	82	171	310	471	641	771	738	561	349	181	74	47	129	300	610	1081	1722	2493	3231	3792	4141	4322	4396

(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.
Compete documentation for the 1971-2000 Normals is available on the internet from:
www.ncdc.noaa.gov/oa/climate/normals/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 are 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.

a. Temperature/ Precipitation Tables
   1. 1971-2000 Monthly Normals
   2. Cooperative Summary of the Day
   3. National Weather Service station records
   4. 1971-2000 serially complete daily data

b. Degree Day Table
   1. Monthly and Annual Heating and Cooling Degree Days Normals to Selected Bases derived from 1971-2000 Monthly Normals
   2. Daily Normal Growing Degree Units to Selected Base Temperatures derived from 1971-2000 serially complete daily data

c. Snow Tables
   1. Snow Climatology
   2. Cooperative Summary of the Day

d. Freeze Data Table
   1971-2000 serially complete daily data

References

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