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: STAFFORDSVILLE 3 ENE, VA **COOP ID: 448022**

Climate Division: VA 6 **NWS Call Sign:** **Elevation: 1,950 Feet** **Lat: 37˚16N** **Lon: 80˚43W**

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	40.3	21.0	30.7	72	1975	29	39.9	1990	-18	1985	21	17.9	1977	1065	0	.0	.0	9.0	5.5	25.2	.9
Feb	44.7	23.1	33.9	76	1974	14	42.0	1990	-13	1996	6	24.1	1978	872	0	.0	.0	12.1	3.4	21.3	.3
Mar	54.0	30.5	42.3	82	1985	30	47.7	1976	-5	1980	3	36.9	1996	705	0	.0	.0	22.9	.6	15.6	@
Apr	63.5	38.1	50.8	90	1976	18	55.7	1981	15+	1975	4	45.8	1973	427	1	.0	@	28.1	@	6.7	.0
May	71.8	47.3	59.6	90	1989	31	66.1	1991	26+	1983	10	54.5	1997	203	34	.0	@	30.9	.0	1.2	.0
Jun	78.6	55.5	67.1	96+	1988	26	70.6	1987	34+	1977	8	60.6	1972	46	108	.0	.8	30.0	.0	.0	.0
Jul	82.4	60.2	71.3	100	1988	16	75.2	1986	40+	1988	1	67.1	1972	9	204	@	4.0	31.0	.0	.0	.0
Aug	81.1	58.4	69.8	100+	1988	18	74.6	1987	39	1976	31	65.5	1972	17	164	.1	2.9	31.0	.0	.0	.0
Sep	75.0	51.8	63.4	95	1983	11	68.0	1998	29	1983	25	58.4	1976	95	46	.0	.6	30.0	.0	.3	.0
Oct	65.4	39.0	52.2	85+	1998	1	60.4	1984	16	1972	20	45.7	1976	402	7	.0	.0	30.2	.0	7.5	.0
Nov	55.1	31.0	43.1	79+	1974	4	51.2	1985	8+	1986	14	36.8	1972	659	0	.0	.0	22.4	.3	16.0	.0
Dec	44.8	24.7	34.8	74	1978	8	41.8	1984	-12	1989	23	24.3	1989	938	0	.0	.0	13.4	3.2	22.4	.4
Ann	63.1	40.1	51.6	100+	Aug 1988	18	75.2	Jul 1986	-18	Jan 1985	21	17.9	Jan 1977	5438	564	.1	8.3	291.0	13.0	116.2	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

(1) From the 1971-2000 Monthly Normals

(2) Derived from station's available digital record: 1951-2001

(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	3.16	3.10	2.16	1998	8	6.87	1996	.26	1981
Feb	2.87	2.90	2.37	1994	11	5.35	1982	.92	1978
Mar	3.56	3.45	2.40	1954	1	7.67	1993	1.14	1988
Apr	3.47	3.34	2.69	1977	5	7.19	1987	.74	1976
May	4.16	4.46	2.76	1976	30	8.02	1971	1.05	1977
Jun	3.93	3.32	4.92	1995	28	12.23	1995	.69	1999
Jul	3.91	3.90	2.63	1966	30	7.67	1999	1.37	1996
Aug	3.24	3.38	2.99	1999	24	6.32	1996	.97	1995
Sep	3.20	3.20	3.40	1966	14	8.30	1989	.38	1984
Oct	2.75	2.28	2.75	1977	2	6.54	1976	.00	2000
Nov	2.82	2.75	2.36	1989	16	6.10	1985	1.21	1981
Dec	2.58	2.40	2.06	1996	1	5.04	1993	.23	1985
Ann	39.65	39.35	4.92	Jun 1995	28	12.23	Jun 1995	.00	Oct 2000

Mean Number of Days (3)

Daily Precipitation

Month	>= 0.01	>= 0.10	>= 0.50	>= 1.00
Jan	9.6	6.4	2.1	.7
Feb	9.3	6.4	1.8	.4
Mar	10.4	7.6	2.2	.8
Apr	9.6	7.2	2.3	.7
May	11.3	8.9	2.7	.9
Jun	9.5	6.9	2.1	1.1
Jul	10.9	8.5	2.3	.7
Aug	8.8	6.3	2.1	.7
Sep	7.9	6.3	2.3	.8
Oct	6.6	5.0	1.6	.7
Nov	8.2	5.8	2.0	.4
Dec	8.7	5.9	1.6	.4
Ann	110.8	81.2	25.1	8.3

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	.70	.99	1.45	1.87	2.29	2.73	3.23	3.83	4.62	5.87	7.06
Feb	1.18	1.44	1.81	2.11	2.40	2.69	3.00	3.36	3.82	4.52	5.15
Mar	1.46	1.79	2.25	2.62	2.98	3.34	3.73	4.17	4.74	5.60	6.39
Apr	1.08	1.41	1.90	2.32	2.73	3.15	3.61	4.15	4.85	5.93	6.94
May	1.44	1.84	2.41	2.89	3.35	3.82	4.34	4.94	5.71	6.91	8.00
Jun	1.12	1.50	2.06	2.55	3.03	3.53	4.08	4.73	5.57	6.89	8.12
Jul	1.66	2.01	2.51	2.91	3.30	3.68	4.10	4.57	5.18	6.10	6.93
Aug	1.12	1.43	1.87	2.25	2.61	2.98	3.38	3.85	4.45	5.38	6.24
Sep	.61	.90	1.37	1.80	2.24	2.71	3.25	3.90	4.76	6.14	7.45
Oct	.38	.73	1.20	1.58	1.97	2.38	2.84	3.39	4.10	5.25	6.32
Nov	1.06	1.32	1.70	2.02	2.31	2.62	2.95	3.34	3.82	4.58	5.27
Dec	.63	.87	1.25	1.58	1.91	2.26	2.65	3.12	3.73	4.69	5.60
Ann	30.07	31.97	34.37	36.18	37.77	39.31	40.88	42.61	44.70	47.70	50.27

\+ 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: 1951-2001
(3) Derived from 1971-2000 serially complete daily data

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Snow (inches)

Snow Totals

Means/Medians (1)

Extremes (2)

Mean Number of Days (1)

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	6.5	4.0	1	#	14.3	1996	7	31.3	1996	24	1996	8	7	1996	3.3	2.1	.6	.3	.1	5.3	2.7	1.3	.4
Feb	5.4	3.6	1	1	12.0	1983	11	19.2	1983	14	1983	12	3	1996	2.7	1.6	.7	.4	@	5.2	2.5	1.2	.2
Mar	3.4	1.1	#	#	12.2	1993	13	19.2	1993	18	1993	14	3	1993	1.7	.9	.3	.2	.1	1.9	.7	.4	.2
Apr	1.0	.0	#	0	8.0	1992	5	8.3	1992	8	1987	4	#+	2000	.5	.2	.1	.1	.0	.3	.1	.1	.0
May	#	.0	0	0	#	1989	7	#	1989	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	.2	1993	31	.2	1993	#+	1993	31	#+	1993	@	.0	.0	.0	.0	.0	.0	.0	.0
Nov	.8	.0	#	#	5.0	1976	12	5.8	1971	5	1976	12	#+	2000	.9	.2	.1	@	.0	.5	.2	@	.0
Dec	3.2	.6	#	#	10.0	1974	1	13.3	1997	11	1997	30	2	1989	2.3	1.1	.3	.2	@	3.1	1.6	.8	.1
Ann	20.3	9.3	N/A	N/A	14.3	Jan 1996	7	31.3	Jan 1996	24	Jan 1996	8	7	Jan 1996	11.4	6.1	2.1	1.2	.2	16.3	7.8	3.8	.9

+ 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	6/02	5/27	5/23	5/19	5/16	5/12	5/08	5/04	4/28
32	5/16	5/11	5/08	5/05	5/02	4/30	4/27	4/24	4/19
28	5/09	5/02	4/27	4/23	4/18	4/14	4/10	4/05	3/29
24	4/15	4/10	4/06	4/03	4/01	3/29	3/26	3/22	3/17
20	4/09	4/03	3/29	3/24	3/20	3/16	3/12	3/07	2/28
16	3/27	3/19	3/13	3/09	3/04	2/27	2/23	2/17	2/09

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	9/19	9/23	9/26	9/29	10/01	10/04	10/06	10/09	10/14
32	9/27	10/01	10/03	10/05	10/08	10/10	10/12	10/15	10/18
28	10/03	10/08	10/12	10/15	10/18	10/20	10/23	10/27	11/01
24	10/18	10/24	10/28	10/31	11/03	11/06	11/10	11/14	11/19
20	10/22	10/29	11/03	11/07	11/11	11/15	11/20	11/25	12/01
16	11/06	11/13	11/18	11/22	11/26	12/01	12/05	12/10	12/17

Freeze Free Period

Temp (F)	Probability of longer than indicated freeze free period (Days)								
	.10	.20	.30	.40	.50	.60	.70	.80	.90
36	159	152	147	142	138	134	129	124	116
32	174	169	164	161	157	154	150	146	140
28	206	197	191	186	181	177	171	165	157
24	236	229	224	220	216	212	208	203	196
20	264	254	247	241	235	229	223	216	206
16	301	289	281	274	267	260	253	244	232

***** 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)

Heating Degree Days (1)

Base Below	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Ann
65	1065	872	705	427	203	46	9	17	95	402	659	938	5438
60	910	732	550	286	106	10	0	1	31	267	510	783	4186
57	817	648	462	209	64	3	0	0	13	198	423	690	3527
55	755	592	405	164	43	1	0	0	7	158	368	628	3121
50	615	460	270	77	12	0	0	0	1	81	240	486	2242
32	200	101	20	0	0	0	0	0	0	0	13	107	441

Cooling Degree Days (1)

Base Above	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Ann
32	157	153	338	564	854	1052	1218	1171	942	627	344	192	7612
55	0	0	10	38	184	363	505	458	258	73	9	0	1898
57	0	0	5	23	143	305	443	396	205	50	5	0	1575
60	0	0	0	10	92	222	350	304	133	26	1	0	1138
65	0	0	0	1	34	108	204	164	46	7	0	0	564
70	0	0	0	0	9	35	89	66	8	0	0	0	207

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	47	77	218	405	652	850	1006	964	752	443	203	82	47	124	342	747	1399	2249	3255	4219	4971	5414	5617	5699
45	18	34	118	270	498	700	851	809	602	297	110	39	18	52	170	440	938	1638	2489	3298	3900	4197	4307	4346
50	3	13	53	157	349	550	696	654	454	170	51	11	3	16	69	226	575	1125	1821	2475	2929	3099	3150	3161
55	0	0	21	78	213	401	541	499	309	82	19	0	0	0	21	99	312	713	1254	1753	2062	2144	2163	2163
60	0	0	3	25	108	261	387	344	182	27	0	0	0	0	3	28	136	397	784	1128	1310	1337	1337	1337
Base	**Growing Degree Units for Corn (Monthly)**												**Growing Degree Units for Corn (Accumulated Monthly)**											
50/86	30	58	144	260	411	560	681	643	482	290	144	56	30	88	232	492	903	1463	2144	2787	3269	3559	3703	3759

(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