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: PAINTER 2 W, VA **COOP ID: 446475**

Climate Division: VA 1 **NWS Call Sign:** **Elevation: 30 Feet** **Lat: 37˚35N** **Lon: 75˚49W**

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	47.1	30.3	38.7	74	1970	29	46.4	1974	-5	1965	17	27.3	1977	815	0	.0	.0	12.5	2.9	18.6	.0
Feb	49.3	31.4	40.4	78	1997	27	48.4	1976	-1	1971	2	29.8	1978	690	0	.0	.0	13.3	2.2	16.5	@
Mar	57.0	38.1	47.6	85+	1998	30	51.4	1976	9	1960	12	43.2	1984	541	0	.0	.0	23.7	.2	9.9	.0
Apr	66.4	45.9	56.2	93	1960	27	61.5	1994	24+	1969	1	51.6	1975	273	7	.0	.1	29.3	.0	2.1	.0
May	74.8	55.5	65.2	95+	1996	20	70.6	1991	31+	1966	11	61.5	1992	69	73	.0	.6	31.0	.0	.0	.0
Jun	82.6	64.3	73.5	98	1964	10	77.2	1981	36	1967	2	68.7	1979	5	257	.0	4.1	30.0	.0	.0	.0
Jul	87.0	69.5	78.3	99+	1999	6	81.6	1993	47	1972	8	74.5	2000	0	412	.0	10.5	31.0	.0	.0	.0
Aug	85.2	67.7	76.5	98+	1977	12	79.1	1978	44+	1986	29	74.0	1996	0	355	.0	6.0	31.0	.0	.0	.0
Sep	79.9	61.9	70.9	98	1983	11	74.3	1998	39	1963	24	68.7	1988	10	186	.0	1.8	30.0	.0	.0	.0
Oct	69.8	50.5	60.2	91	1986	4	66.6	1971	24+	1972	21	54.9	1988	193	42	.0	.1	30.8	.0	.7	.0
Nov	60.3	42.2	51.3	82	1974	1	58.3	1985	16	1967	29	43.9	1976	415	2	.0	.0	25.9	.0	5.8	.0
Dec	51.3	34.4	42.9	77	1998	7	50.1	1971	-1	1958	16	32.1	1989	687	0	.0	.0	17.5	1.3	14.6	.0
Ann	67.6	49.3	58.5	99+	Jul 1999	6	81.6	Jul 1993	-5	Jan 1965	17	27.3	Jan 1977	3698	1334	.0	23.2	306.0	6.6	68.2	@

\+ 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: 1955-2001

(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	3.99	3.86	3.36	1998	28	8.79	1987	.97	1981
Feb	3.29	3.04	2.22	1973	2	7.20	1998	1.06	1991
Mar	4.44	4.30	2.84	1993	13	9.23	1994	.55	1986
Apr	3.11	3.02	1.89	1978	27	6.50	1983	.45	1985
May	3.51	3.19	2.70	1962	31	7.38	1990	.28	1986
Jun	3.06	3.10	3.01	1967	19	6.01	1972	1.01	1980
Jul	4.37	3.52	5.38	1982	31	14.37	1996	.21	1983
Aug	3.93	3.35	6.18	1958	4	9.39	1990	.70	1984
Sep	3.69	2.98	4.40	1960	12	10.28	1999	.69	1986
Oct	3.52	3.49	4.68	1956	31	8.16	1971	.04	2000
Nov	3.10	2.90	2.90	1992	26	6.10	1997	.93	1999
Dec	3.34	3.12	3.12	1977	18	7.12	1977	.85	1988
Ann	43.35	40.74	6.18	Aug 1958	4	14.37	Jul 1996	.04	Oct 2000

Mean Number of Days (3)

Month	Daily Precipitation >= 0.01	>= 0.10	>= 0.50	>= 1.00
Jan	10.3	7.3	2.8	1.0
Feb	8.7	6.2	2.4	.6
Mar	10.4	8.0	3.1	1.1
Apr	8.7	5.4	2.3	.9
May	9.5	6.5	2.5	.9
Jun	8.1	5.5	2.4	.7
Jul	9.3	6.4	2.6	1.2
Aug	8.4	5.9	2.5	1.2
Sep	7.0	5.0	2.1	1.3
Oct	7.4	5.3	2.5	.9
Nov	8.3	5.3	2.1	.8
Dec	10.0	6.6	2.3	.7
Ann	106.1	73.4	29.6	11.3

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	1.62	1.98	2.50	2.93	3.33	3.74	4.18	4.69	5.34	6.32	7.22
Feb	1.25	1.56	2.00	2.36	2.71	3.06	3.44	3.88	4.45	5.31	6.10
Mar	1.44	1.86	2.49	3.02	3.53	4.05	4.63	5.31	6.18	7.53	8.78
Apr	1.08	1.38	1.80	2.16	2.50	2.86	3.24	3.69	4.27	5.16	5.97
May	.79	1.12	1.63	2.10	2.56	3.05	3.60	4.25	5.12	6.49	7.79
Jun	1.27	1.55	1.94	2.26	2.57	2.87	3.21	3.59	4.07	4.80	5.47
Jul	.71	1.08	1.72	2.32	2.94	3.61	4.39	5.33	6.59	8.64	10.60
Aug	.89	1.25	1.83	2.35	2.87	3.42	4.03	4.77	5.74	7.28	8.74
Sep	.93	1.28	1.82	2.29	2.76	3.25	3.80	4.46	5.31	6.66	7.92
Oct	.57	.87	1.38	1.87	2.37	2.91	3.54	4.30	5.32	6.98	8.56
Nov	.98	1.28	1.72	2.09	2.45	2.82	3.23	3.71	4.33	5.29	6.18
Dec	1.21	1.52	1.97	2.35	2.72	3.09	3.49	3.96	4.56	5.48	6.33
Ann	31.38	33.72	36.69	38.95	40.95	42.88	44.87	47.06	49.72	53.57	56.89

\+ 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: 1955-2001
(3) Derived from 1971-2000 serially complete daily data

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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	1.8	1.0	#	#
Feb	2.1	.0	#	0
Mar	1.1	.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	#	.0	0	0
Dec	.7	.0	#	0
Ann	5.7	1.0	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	5.0	1982	15	6.8	1971	6	1986	30	1+	2000
Feb	8.0	1989	18	10.0	1978	10	1989	25	4	1979
Mar	11.0	1980	2	12.0	1980	12	1980	4	1	1980
Apr	#	1997	1	#+	1997	#	1997	1	#	1997
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	.0	0	0	.0	0	0	0	0	0	0
Nov	#	1976	12	#	1976	0	0	0	0	0
Dec	4.0	1982	12	5.0	1993	7	1989	10	1	1989
Ann	11.0	Mar 1980	2	12.0	Mar 1980	12	Mar 1980	4	4	Feb 1979

Mean Number of Days (1)

Snow Fall >= Thresholds

Month	0.1	1.0	3.0	5.0	10.0
Jan	1.0	.8	.4	@	.0
Feb	.8	.8	.5	.1	.0
Mar	.4	.4	.1	.1	@
Apr	.0	.0	.0	.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	.0	.0	.0
Nov	.0	.0	.0	.0	.0
Dec	.4	.3	.1	.0	.0
Ann	2.6	2.3	1.1	.2	@

Snow Depth >= Thresholds

Month	1	3	5	10
Jan	2.0	.9	.1	.0
Feb	1.1	.8	.2	.0
Mar	.4	.2	.2	.1
Apr	.0	.0	.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	.0	.0	.0	.0
Dec	.7	.1	.0	.0
Ann	4.2	2.0	.5	.1

+ 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	5/07	5/02	4/29	4/25	4/23	4/20	4/16	4/13	4/08
32	4/20	4/16	4/13	4/11	4/09	4/06	4/04	4/01	3/28
28	4/09	4/03	3/30	3/27	3/24	3/21	3/18	3/14	3/08
24	3/24	3/17	3/13	3/09	3/05	3/02	2/26	2/21	2/15
20	3/10	3/03	2/26	2/22	2/18	2/14	2/09	2/04	1/26
16	2/26	2/17	2/11	2/05	1/31	1/26	1/20	1/11	0/00

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	10/09	10/14	10/18	10/21	10/24	10/27	10/31	11/03	11/09
32	10/18	10/24	10/28	10/31	11/04	11/07	11/10	11/14	11/20
28	10/29	11/05	11/10	11/14	11/18	11/22	11/26	12/01	12/07
24	11/16	11/24	11/29	12/04	12/09	12/13	12/18	12/24	12/31
20	12/04	12/10	12/15	12/20	12/24	12/28	1/01	1/06	1/15
16	12/13	12/22	12/29	1/04	1/09	1/16	1/23	2/03	0/00

Freeze Free Period

Temp (F)	Probability of longer than indicated freeze free period (Days)								
	.10	.20	.30	.40	.50	.60	.70	.80	.90
36	209	200	194	189	184	179	174	168	159
32	230	223	217	213	208	204	199	194	187
28	267	257	250	244	238	233	227	220	210
24	304	295	288	283	278	272	267	260	251
20	>365	324	316	310	305	300	295	289	281
16	>365	>365	>365	351	340	331	323	314	303

***** 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	815	690	541	273	69	5	0	0	10	193	415	687	3698
60	660	550	387	151	18	0	0	0	1	102	278	538	2685
57	575	473	301	94	6	0	0	0	0	63	205	451	2168
55	516	420	246	65	2	0	0	0	0	43	163	395	1850
50	377	296	132	19	0	0	0	0	0	13	80	269	1186
32	59	35	2	0	0	0	0	0	0	0	0	26	122

Cooling Degree Days (1)

Base Above	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Ann
32	267	269	484	724	1027	1242	1435	1378	1166	872	577	362	9803
55	11	10	15	99	316	552	722	665	476	202	50	18	3136
57	8	7	8	68	258	492	660	603	416	160	32	12	2724
60	0	0	1	34	177	402	567	510	328	105	15	6	2145
65	0	0	0	7	73	257	412	355	186	42	2	0	1334
70	0	0	0	0	19	132	258	203	72	11	0	0	695

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	102	129	267	491	784	1003	1187	1131	928	626	350	165	102	231	498	989	1773	2776	3963	5094	6022	6648	6998	7163
45	49	67	159	348	629	853	1032	976	778	474	228	90	49	116	275	623	1252	2105	3137	4113	4891	5365	5593	5683
50	21	30	83	215	475	703	877	821	628	325	129	44	21	51	134	349	824	1527	2404	3225	3853	4178	4307	4351
55	1	8	39	121	326	553	722	666	479	195	65	16	1	9	48	169	495	1048	1770	2436	2915	3110	3175	3191
60	0	0	13	57	191	404	567	511	330	102	26	1	0	0	13	70	261	665	1232	1743	2073	2175	2201	2202
Base	**Growing Degree Units for Corn (Monthly)**												**Growing Degree Units for Corn (Accumulated Monthly)**											
50/86	54	71	146	279	489	691	835	798	625	376	188	84	54	125	271	550	1039	1730	2565	3363	3988	4364	4552	4636

(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