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: JOHN H KERR DAM, VA **COOP ID: 444414**

Climate Division: VA 2 **NWS Call Sign:** **Elevation: 250 Feet** **Lat: 36˚36N** **Lon: 78˚17W**

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	48.1	27.4	37.8	77+	1975	30	46.7	1974	-5	1985	21	26.9	1977	846	0	.0	.0	13.4	2.4	22.3	.1
Feb	51.8	29.0	40.4	81+	1996	27	47.6	1990	0	1965	1	30.2	1979	689	0	.0	.0	15.7	1.1	19.2	.0
Mar	60.2	36.1	48.2	90	1985	30	53.2	1990	12	1980	2	43.7	1980	523	0	.0	@	25.6	.2	11.9	.0
Apr	70.1	44.3	57.2	94	1980	24	61.6	1994	21	1972	9	53.4	1975	242	8	.0	.5	29.2	.0	2.8	.0
May	77.7	53.8	65.8	99+	1970	25	71.6	1991	27	1963	2	61.3	1971	74	97	.0	1.6	31.0	.0	.0	.0
Jun	85.2	62.6	73.9	104	1952	27	77.2	1981	37	1972	11	69.0	1979	6	273	.1	8.4	30.0	.0	.0	.0
Jul	89.2	67.5	78.4	105	1952	30	81.8	1993	47	1975	2	74.9	1979	0	414	.7	15.3	31.0	.0	.0	.0
Aug	87.7	66.1	76.9	105	1988	19	80.4	1980	44+	1986	31	72.8	1981	0	369	.4	12.2	31.0	.0	.0	.0
Sep	81.7	59.4	70.6	103	1954	7	74.7	1980	33	1976	23	67.6	1976	18	184	@	4.2	30.0	.0	.0	.0
Oct	71.7	46.3	59.0	96	1954	6	66.0	1984	19	1965	30	52.9	1987	223	36	.0	.3	30.8	.0	2.3	.0
Nov	61.9	37.9	49.9	85	1961	1	58.2	1985	13	1967	16	43.3	1976	455	2	.0	.0	26.3	.0	10.6	.0
Dec	52.1	30.8	41.5	81	1998	7	48.4	1971	5+	1983	26	32.2	1989	730	0	.0	.0	17.9	.9	18.6	.0
Ann	69.8	46.8	58.3	105+	Aug 1988	19	81.8	Jul 1993	-5	Jan 1985	21	26.9	Jan 1977	3806	1383	1.2	42.5	311.9	4.6	87.7	.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/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

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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	3.87	3.76	2.43	1999	3	7.68	1978	.67	1981
Feb	3.00	2.94	1.65	1983	11	6.02	1989	.61	1978
Mar	4.26	3.46	2.86	2001	30	9.02	1989	1.15	1985
Apr	3.26	3.08	3.30	1987	16	9.28	1987	.68	1995
May	3.98	3.85	3.52	1987	13	8.26	1971	.95	1997
Jun	3.54	2.92	3.15	1956	2	6.77	1972	.74	1986
Jul	4.63	3.92	4.50	1999	8	13.93	1975	.89	1983
Aug	4.01	3.70	3.60	1989	18	7.90	1992	.38	1980
Sep	3.76	3.00	4.81	1999	16	11.77	1999	.34	1990
Oct	3.67	3.34	4.15	1972	6	11.12	1971	.00	2000
Nov	3.10	3.06	3.12	1959	7	8.44	1985	.56	1991
Dec	3.00	2.84	3.20	1958	29	6.40	1973	.57	1994
Ann	44.08	43.38	4.81	Sep 1999	16	13.93	Jul 1975	.00	Oct 2000

Mean Number of Days (3)

Daily Precipitation

Month	>= 0.01	>= 0.10	>= 0.50	>= 1.00
Jan	10.7	7.4	2.8	.9
Feb	9.1	6.4	2.1	.5
Mar	10.9	7.6	3.0	1.2
Apr	9.7	6.2	2.2	.7
May	10.3	7.3	2.9	1.0
Jun	9.1	6.0	2.3	.9
Jul	10.3	7.1	3.0	1.5
Aug	9.3	6.3	2.6	1.4
Sep	8.2	5.6	2.3	1.0
Oct	7.4	4.9	2.3	1.3
Nov	8.8	5.3	2.1	.8
Dec	9.8	5.6	2.3	.6
Ann	113.6	75.7	29.9	11.8

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	1.44	1.81	2.32	2.76	3.17	3.59	4.05	4.58	5.26	6.30	7.25
Feb	1.05	1.34	1.75	2.09	2.42	2.76	3.13	3.56	4.11	4.96	5.74
Mar	1.37	1.78	2.37	2.88	3.37	3.88	4.43	5.09	5.92	7.22	8.43
Apr	.79	1.10	1.57	2.00	2.41	2.86	3.35	3.94	4.72	5.94	7.09
May	1.54	1.91	2.44	2.87	3.29	3.71	4.17	4.70	5.37	6.40	7.35
Jun	1.24	1.58	2.06	2.47	2.86	3.26	3.70	4.21	4.86	5.86	6.79
Jul	1.12	1.55	2.23	2.83	3.43	4.06	4.77	5.60	6.70	8.45	10.08
Aug	.90	1.27	1.86	2.39	2.92	3.48	4.11	4.87	5.87	7.45	8.95
Sep	.53	.84	1.39	1.91	2.45	3.05	3.74	4.59	5.74	7.60	9.40
Oct	.57	1.06	1.69	2.19	2.70	3.23	3.82	4.51	5.42	6.87	8.22
Nov	.72	1.01	1.47	1.87	2.28	2.71	3.19	3.76	4.51	5.71	6.83
Dec	.85	1.13	1.56	1.94	2.31	2.69	3.11	3.62	4.27	5.29	6.24
Ann	33.09	35.27	38.02	40.10	41.94	43.70	45.51	47.51	49.91	53.38	56.37

\+ 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	3.2	3.1	0	0	5.5	1988	8	7.5	1987	6	1988	9	1	1988	-9.9	-9.9	-9.9	-9.9	-9.9	.0	.0	.0	.0
Feb	1.3	.0	#	0	4.3	1980	10	4.8	1980	14	1989	19	2+	1989	.6	.2	.1	.0	.0	.0	.0	.0	.0
Mar	1.5	.4	#	0	6.0	1971	27	6.0	1971	12	1980	3	1	1980	.6	.4	.2	.1	.0	.0	.0	.0	.0
Apr	.0	.0	0	0	.0	0	0	.0	0	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	.2	.0	0	0	2.0	1987	12	2.0	1987	0	0	0	0	0	.1	.1	.0	.0	.0	.0	.0	.0	.0
Dec	.9	.0	#	0	6.0	1973	17	6.0	1973	4	1973	18	#+	1989	.2	.2	.1	.1	.0	.1	.1	.0	.0
Ann	7.1	3.5	N/A	N/A	6.0+	Dec 1973	17	7.5	Jan 1987	14	Feb 1989	19	2+	Feb 1989	-9.9	-9.9	-9.9	-9.9	-9.9	.1	.1	.0	.0

+ Also occurred on an earlier date(s) #Denotes trace amounts

(1) Derived from Snow Climatology and 1971-2000 daily data

@ Denotes mean number of days greater than 0 but less than .05

(2) Derived from 1971-2000 daily data

-9/-9.9 represents missing values

Annual statistics for Mean/Median snow depths are not appropriate

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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	5/11	5/06	5/03	4/30	4/27	4/24	4/21	4/18	4/13
32	4/24	4/19	4/16	4/13	4/11	4/08	4/05	4/02	3/29
28	4/12	4/06	4/03	3/31	3/28	3/25	3/22	3/18	3/13
24	3/31	3/25	3/21	3/18	3/15	3/12	3/08	3/04	2/27
20	3/22	3/13	3/06	3/01	2/24	2/19	2/13	2/07	1/29
16	3/08	2/26	2/19	2/13	2/08	2/02	1/27	1/20	1/08

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	10/01	10/06	10/10	10/13	10/16	10/19	10/22	10/26	10/31
32	10/12	10/16	10/20	10/23	10/25	10/28	10/31	11/04	11/08
28	10/17	10/24	10/28	11/01	11/05	11/09	11/13	11/18	11/25
24	11/06	11/13	11/17	11/21	11/24	11/28	12/02	12/06	12/12
20	11/20	11/28	12/04	12/08	12/13	12/17	12/22	12/28	1/05
16	12/06	12/13	12/18	12/23	12/27	12/31	1/05	1/11	1/19

Freeze Free Period

Temp (F)	Probability of longer than indicated freeze free period (Days)								
	.10	.20	.30	.40	.50	.60	.70	.80	.90
36	192	185	180	176	172	168	163	158	151
32	215	209	205	201	197	194	190	185	179
28	248	239	232	227	222	217	211	205	196
24	278	269	264	259	254	249	244	238	230
20	325	312	303	296	289	282	275	267	256
16	>365	343	333	326	319	313	306	299	289

***** 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	846	689	523	242	74	6	0	0	18	223	455	730	3806
60	691	549	374	125	22	0	0	0	3	124	315	576	2779
57	605	467	290	73	8	0	0	0	1	80	238	491	2253
55	546	416	238	48	4	0	0	0	0	57	193	433	1935
50	405	289	133	11	0	0	0	0	0	20	102	299	1259
32	71	27	2	0	0	0	0	0	0	0	1	31	132

Cooling Degree Days (1)

Base Above	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Ann
32	248	263	502	756	1046	1258	1437	1392	1156	836	537	324	9755
55	10	7	25	113	337	568	724	679	467	180	39	12	3161
57	7	2	15	79	279	508	662	617	407	141	25	8	2750
60	0	0	6	40	200	418	569	524	319	91	12	1	2180
65	0	0	0	8	97	273	414	369	184	36	2	0	1383
70	0	0	0	1	34	147	260	220	79	10	0	0	751

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	91	126	292	527	808	1027	1200	1152	924	595	322	144	91	217	509	1036	1844	2871	4071	5223	6147	6742	7064	7208
45	37	69	178	383	653	877	1045	997	774	442	205	76	37	106	284	667	1320	2197	3242	4239	5013	5455	5660	5736
50	15	29	92	250	499	727	890	842	624	299	115	37	15	44	136	386	885	1612	2502	3344	3968	4267	4382	4419
55	1	9	42	147	352	578	735	687	476	182	55	12	1	10	52	199	551	1129	1864	2551	3027	3209	3264	3276
60	0	0	18	67	214	428	580	532	331	91	19	1	0	0	18	85	299	727	1307	1839	2170	2261	2280	2281
Base	**Growing Degree Units for Corn (Monthly)**												**Growing Degree Units for Corn (Accumulated Monthly)**											
50/86	60	92	189	330	517	699	822	793	618	381	205	93	60	152	341	671	1188	1887	2709	3502	4120	4501	4706	4799

(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