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: MOUNT WEATHER, VA **COOP ID: 445851**

Climate Division: VA 4 **NWS Call Sign:** **Elevation: 1,720 Feet** **Lat: 39˚04N** **Lon: 77˚53W**

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	36.5	21.0	28.8	74	1950	26	38.6	1990	-15+	1994	20	17.7	1977	1124	0	.0	.0	4.5	12.8	27.2	1.0
Feb	39.1	23.2	31.2	74+	1985	25	38.8	1976	-6	1958	17	19.6	1979	947	0	.0	.0	5.3	9.3	22.8	.5
Mar	47.4	30.4	38.9	84	1998	31	45.3	1977	-3	1980	1	32.2	1984	809	0	.0	.0	13.4	3.4	18.6	@
Apr	58.4	40.2	49.3	89	1960	23	54.8	1994	12	1950	14	44.1	1975	472	0	.0	.0	23.6	.1	6.5	.0
May	67.3	50.9	59.1	91+	1996	21	66.4	1991	26	1966	10	54.4	1997	212	30	.0	.1	30.3	.0	.2	.0
Jun	75.4	59.8	67.6	98	1954	27	71.3	1994	38	1972	11	62.5	1974	40	118	.0	.5	30.0	.0	.0	.0
Jul	79.9	64.2	72.1	99	1988	17	76.2	1999	43	1963	9	68.1	2000	8	227	.0	2.2	31.0	.0	.0	.0
Aug	78.6	62.9	70.8	96+	1988	18	74.3	1988	41	1965	29	67.7	1992	10	188	.0	1.0	31.0	.0	.0	.0
Sep	71.9	56.3	64.1	98	1953	2	69.6	1998	31	1983	23	59.5	1975	84	57	.0	.3	29.9	.0	@	.0
Oct	60.9	45.0	53.0	88	1951	5	58.6	1984	20	1965	29	47.4	1976	379	5	.0	.0	27.4	@	2.0	.0
Nov	50.6	35.7	43.2	78+	1971	3	49.1	1999	4+	1950	27	36.3	1996	655	0	.0	.0	15.1	1.5	11.9	.0
Dec	41.1	25.9	33.5	82	1964	5	41.9	1984	-8	1983	25	21.3	1989	976	0	.0	.0	6.8	7.6	23.6	.3
Ann	58.9	43.0	51.0	99	Jul 1988	17	76.2	Jul 1999	-15+	Jan 1994	20	17.7	Jan 1977	5716	625	.0	4.1	248.3	34.7	112.8	1.8

\+ 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	3.19	2.71	3.71	1998	8	8.22	1998	.29	1981
Feb	2.40	2.06	3.27	1984	14	7.59	1984	.44	1978
Mar	3.54	3.51	3.25	1984	29	7.43	1993	.92	1981
Apr	3.55	3.32	4.55	1992	22	8.53	1983	.43	1985
May	4.54	4.31	3.20	1989	2	11.63	1989	.89	1991
Jun	4.13	3.17	7.67	1972	22	14.31	1972	1.00	1986
Jul	3.90	3.99	7.90	1956	27	7.87	1975	1.10	1983
Aug	3.66	3.30	5.55	1979	24	11.46	1979	.82	1991
Sep	4.30	3.28	4.34	1966	14	13.12	1999	1.02	1972
Oct	3.67	3.00	4.12	1976	9	12.07	1976	.35	2000
Nov	3.40	3.20	4.73	1963	7	7.46	1977	.41	1981
Dec	3.01	2.50	4.73	1974	2	7.56	1974	.27	1971
Ann	43.29	43.70	7.90	Jul 1956	27	14.31	Jun 1972	.27	Dec 1971

Mean Number of Days (3)

Daily Precipitation

Month	>= 0.01	>= 0.10	>= 0.50	>= 1.00
Jan	9.8	6.6	2.1	.7
Feb	8.5	5.2	1.6	.4
Mar	9.8	6.3	2.6	.9
Apr	10.3	6.4	2.3	.9
May	12.9	8.4	3.2	1.0
Jun	10.9	7.1	2.8	1.1
Jul	10.5	6.8	2.6	1.0
Aug	10.0	6.3	2.6	.9
Sep	9.5	6.6	2.6	1.3
Oct	8.3	5.5	2.6	1.2
Nov	9.1	6.0	2.4	1.0
Dec	8.7	5.5	2.0	.9
Ann	118.3	76.7	29.4	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	.67	.97	1.43	1.86	2.29	2.74	3.26	3.87	4.69	5.99	7.22
Feb	.49	.71	1.06	1.38	1.71	2.06	2.45	2.92	3.55	4.55	5.50
Mar	1.19	1.53	2.02	2.44	2.83	3.24	3.69	4.22	4.89	5.93	6.89
Apr	1.01	1.35	1.86	2.30	2.73	3.18	3.69	4.28	5.04	6.24	7.36
May	1.44	1.87	2.51	3.05	3.58	4.13	4.73	5.43	6.34	7.75	9.06
Jun	1.09	1.48	2.08	2.60	3.12	3.66	4.26	4.98	5.91	7.38	8.75
Jul	1.29	1.66	2.20	2.66	3.11	3.57	4.07	4.66	5.41	6.58	7.66
Aug	1.02	1.37	1.90	2.35	2.80	3.27	3.79	4.40	5.20	6.45	7.61
Sep	.98	1.38	2.01	2.58	3.14	3.74	4.41	5.21	6.27	7.95	9.52
Oct	.57	.88	1.41	1.92	2.44	3.01	3.67	4.48	5.56	7.31	8.99
Nov	.70	1.01	1.51	1.97	2.43	2.92	3.47	4.14	5.02	6.43	7.77
Dec	.54	.80	1.24	1.65	2.07	2.53	3.04	3.67	4.50	5.85	7.13
Ann	31.39	33.71	36.68	38.92	40.91	42.83	44.80	46.99	49.63	53.45	56.75

\+ 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

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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	8.0	9.0	2	1
Feb	3.8	3.0	2	1
Mar	2.8	1.0	1	#
Apr	.8	.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	.3	.0	#	0
Nov	1.3	.0	#	#
Dec	2.6	.8	1	#
Ann	19.6	13.8	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	25.0	1996	8	25.0	1996	40	1996	13	12	1996
Feb	14.0	1979	19	14.0	1979	32	1983	13	8	1983
Mar	9.0	1999	10	12.0	1978	28	1993	14	6	1993
Apr	14.0	1971	7	14.0	1971	14	1971	7	1	1971
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	6.0	1979	10	6.0	1979	4	1979	10	#+	1979
Nov	12.0	1971	25	12.0	1971	15	1995	17	4	1995
Dec	8.0	1973	17	19.3	1973	14	1992	12	4	1989
Ann	25.0	Jan 1996	8	25.0	Jan 1996	40	Jan 1996	13	12	Jan 1996

Mean Number of Days (1)

Snow Fall >= Thresholds

Month	0.1	1.0	3.0	5.0	10.0
Jan	2.5	2.0	.9	.4	.2
Feb	1.1	1.0	.4	.2	@
Mar	1.1	.8	.3	.1	.0
Apr	.1	.1	@	@	@
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	.1	.1	.1	@	.0
Nov	.3	.2	.1	.1	@
Dec	.8	.5	.2	.2	.0
Ann	6.0	4.7	2.0	1.0	.2

Snow Depth >= Thresholds

Month	1	3	5	10
Jan	5.7	4.3	1.9	.9
Feb	4.1	2.3	1.3	.0
Mar	.7	.2	.1	@
Apr	.2	.1	.1	@
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	.1	.0	.0
Nov	.5	.3	.1	.1
Dec	1.4	.6	.4	.2
Ann	12.7	7.9	3.9	1.2

+ 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	5/17	5/11	5/08	5/04	5/01	4/28	4/25	4/21	4/16
32	5/07	5/01	4/28	4/25	4/22	4/19	4/15	4/12	4/07
28	4/24	4/20	4/17	4/14	4/12	4/10	4/07	4/05	4/01
24	4/17	4/12	4/08	4/05	4/02	3/31	3/28	3/24	3/19
20	4/08	4/03	3/30	3/27	3/24	3/21	3/18	3/15	3/10
16	3/30	3/23	3/18	3/13	3/09	3/05	3/01	2/24	2/17

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	10/04	10/07	10/10	10/13	10/16	10/19	10/23	10/28
32	10/07	10/13	10/17	10/20	10/23	10/26	10/30	11/03	11/08
28	10/20	10/25	10/30	11/02	11/05	11/09	11/12	11/16	11/22
24	10/30	11/05	11/10	11/13	11/17	11/21	11/24	11/29	12/05
20	11/13	11/19	11/23	11/27	11/30	12/03	12/07	12/11	12/17
16	11/23	11/29	12/04	12/08	12/12	12/15	12/19	12/24	12/30

Freeze Free Period

Temp (F)	Probability of longer than indicated freeze free period (Days)								
	.10	.20	.30	.40	.50	.60	.70	.80	.90
36	185	178	173	168	164	160	155	150	143
32	207	199	193	188	184	179	175	169	161
28	230	222	216	211	207	202	197	192	184
24	251	243	238	233	228	223	218	212	204
20	272	264	259	254	250	246	241	236	228
16	302	294	287	282	277	272	266	260	251

***** 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	1124	947	809	472	212	40	8	10	84	379	655	976	5716
60	969	807	654	327	111	8	0	0	27	244	506	821	4474
57	876	723	561	247	68	2	0	0	10	175	419	728	3809
55	814	667	502	198	46	1	0	0	5	136	365	669	3403
50	666	530	361	100	13	0	0	0	1	64	237	525	2497
32	217	138	45	0	0	0	0	0	0	0	14	135	549

Cooling Degree Days (1)

Base Above	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Ann
32	115	114	259	519	840	1068	1241	1201	963	650	349	182	7501
55	0	0	4	27	173	379	528	488	278	73	10	3	1963
57	0	0	1	15	133	320	466	426	223	50	5	0	1639
60	0	0	0	5	84	236	373	333	149	25	1	0	1206
65	0	0	0	0	30	118	227	188	57	5	0	0	625
70	0	0	0	0	7	41	107	79	12	0	0	0	246

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	28	40	125	316	614	848	1013	965	731	410	174	52	28	68	193	509	1123	1971	2984	3949	4680	5090	5264	5316
45	11	15	63	197	461	698	858	810	582	273	97	23	11	26	89	286	747	1445	2303	3113	3695	3968	4065	4088
50	1	3	32	112	314	548	703	655	435	158	44	9	1	4	36	148	462	1010	1713	2368	2803	2961	3005	3014
55	0	0	15	61	191	400	548	500	292	74	20	2	0	0	15	76	267	667	1215	1715	2007	2081	2101	2103
60	0	0	3	25	103	263	394	347	171	28	5	0	0	0	3	28	131	394	788	1135	1306	1334	1339	1339
Base	**Growing Degree Units for Corn (Monthly)**												**Growing Degree Units for Corn (Accumulated Monthly)**											
50/86	13	25	67	172	347	549	693	649	443	202	80	31	13	38	105	277	624	1173	1866	2515	2958	3160	3240	3271

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

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