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: CATOCTIN MOUNTAIN PARK, MD **COOP ID: 181530**

Climate Division: MD 6 **NWS Call Sign:** **Elevation: 1,610 Feet** **Lat: 39˚39N** **Lon: 77˚29W**

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	36.6	21.4	29.0	67	1973	18	38.0	1990	-18	1994	19	16.8	1977	1116	0	.0	.0	3.5	11.0	26.9	.9
Feb	40.5	23.9	32.2	75	1997	27	39.4	1976	-5+	1968	21	21.6	1979	918	0	.0	.0	6.0	7.8	22.5	.5
Mar	50.4	31.4	40.9	86	1998	30	47.0	1973	1	1980	1	33.6	1984	748	0	.0	.0	15.3	1.6	18.1	.0
Apr	63.0	40.7	51.9	89+	1976	18	57.5	1994	12	1982	7	46.3	1975	396	2	.0	.0	26.1	.0	6.2	.0
May	72.2	51.0	61.6	92+	1996	19	67.7	1991	26	1970	7	57.5	1997	154	48	.0	.1	30.9	.0	.3	.0
Jun	78.8	59.5	69.2	91	1999	7	73.3	1987	34	1975	10	65.7	1982	21	145	.0	.2	30.0	.0	.0	.0
Jul	82.1	64.0	73.1	98+	1973	14	76.9	1999	48+	1979	5	69.0	2000	3	253	.0	1.7	31.0	.0	.0	.0
Aug	80.3	62.7	71.5	94+	1974	2	74.4	1983	42	1982	29	67.9	1992	7	207	.0	.7	31.0	.0	.0	.0
Sep	73.7	56.4	65.1	91	1983	11	69.7	1998	34	1974	24	61.4	1975	66	68	.0	.1	30.0	.0	.0	.0
Oct	63.8	45.2	54.5	88	1979	21	59.8	1971	19	1969	24	49.1	1988	335	10	.0	.0	29.0	.0	1.9	.0
Nov	51.9	35.7	43.8	78+	1994	4	49.5	1999	6	1976	30	37.1	1995	637	0	.0	.0	16.8	.9	12.7	.0
Dec	41.2	26.3	33.8	75	2001	5	41.5	1984	-11	1983	25	21.4	1989	969	0	.0	.0	6.5	6.5	23.3	.3
Ann	61.2	43.2	52.2	98+	Jul 1973	14	76.9	Jul 1999	-18	Jan 1994	19	16.8	Jan 1977	5370	733	.0	2.8	256.1	27.8	111.9	1.7

\+ 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: 1968-2001

(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	3.95	3.49	4.20	1987	10	10.09	1996	.45	1981
Feb	3.33	3.08	5.27	1984	14	9.61	1984	.36	1978
Mar	4.32	4.30	3.67	1975	19	7.39	1980	1.36	1995
Apr	3.96	3.50	3.03	1987	4	9.17	1983	.55	1985
May	5.14	5.27	4.65	1988	19	12.83	1988	.48	1977
Jun	4.61	4.54	6.08	1972	22	15.33	1972	.76	1988
Jul	3.82	3.56	4.08	1989	5	11.11	1996	.93	1983
Aug	3.92	3.42	4.75	1984	11	10.79	1984	.92	1989
Sep	4.91	3.36	6.30	1979	6	15.47	1979	1.07	1986
Oct	3.89	3.18	3.72	1976	9	11.70	1976	.22	1992
Nov	3.87	3.46	4.04	1993	28	9.55	1985	.62	1998
Dec	3.44	2.86	3.43	1992	11	7.01	1992	.44	1988
Ann	49.16	48.64	6.30	Sep 1979	6	15.47	Sep 1979	.22	Oct 1992

Mean Number of Days (3)

Daily Precipitation

Month	>= 0.01	>= 0.10	>= 0.50	>= 1.00
Jan	10.9	6.7	2.6	.9
Feb	9.7	5.9	2.1	.8
Mar	11.0	7.5	3.4	1.2
Apr	12.4	7.6	2.8	.9
May	13.6	9.3	3.6	1.3
Jun	11.8	7.7	3.0	1.2
Jul	11.4	7.2	2.7	.8
Aug	10.9	6.4	2.7	.9
Sep	10.6	6.7	3.1	1.4
Oct	8.8	5.8	2.6	1.2
Nov	10.5	6.4	2.3	1.3
Dec	10.5	6.0	2.2	1.0
Ann	132.1	83.2	33.1	12.9

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	1.25	1.82	2.35	2.87	3.42	4.05	4.79	5.77	7.34	8.81
Feb	.56	.85	1.34	1.79	2.26	2.77	3.36	4.06	5.01	6.54	8.01
Mar	1.76	2.16	2.72	3.18	3.61	4.05	4.53	5.07	5.77	6.83	7.79
Apr	1.10	1.48	2.05	2.55	3.03	3.54	4.10	4.76	5.63	6.98	8.24
May	1.34	1.82	2.57	3.22	3.87	4.55	5.31	6.21	7.38	9.22	10.95
Jun	1.34	1.78	2.44	3.01	3.57	4.15	4.79	5.54	6.52	8.06	9.48
Jul	1.15	1.52	2.06	2.52	2.98	3.45	3.97	4.58	5.37	6.60	7.74
Aug	1.01	1.38	1.95	2.45	2.95	3.47	4.05	4.74	5.64	7.06	8.40
Sep	.90	1.33	2.05	2.72	3.40	4.14	4.98	5.99	7.33	9.50	11.57
Oct	.71	1.06	1.62	2.15	2.69	3.27	3.94	4.74	5.80	7.51	9.15
Nov	.93	1.29	1.85	2.36	2.86	3.39	3.98	4.68	5.61	7.07	8.44
Dec	.76	1.08	1.59	2.04	2.50	2.98	3.52	4.18	5.03	6.40	7.68
Ann	35.66	38.29	41.65	44.20	46.45	48.63	50.87	53.35	56.34	60.68	64.42

+ 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: 1968-2001
(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	12.8	10.2	3	2	17.0	1996	7	43.6	1996	42	1996	12	15	1996	4.9	2.8	1.6	.5	.1	15.2	10.2	5.9	3.0
Feb	8.7	4.5	4	2	24.2	1983	11	34.3	1983	32	1979	19	17	1978	3.4	1.9	.9	.6	.1	12.5	9.0	6.1	2.1
Mar	4.6	4.3	1	#	8.0	1999	14	12.5	1994	28	1993	13	11	1978	2.1	1.4	.7	.3	.0	4.6	2.7	1.8	.4
Apr	1.1	.0	#	0	5.3	1996	9	8.0	1987	5	1982	9	#+	1996	.5	.4	.2	@	.0	.4	.2	.1	.0
May	#	.0	0	0	#	1973	18	#	1973	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	.2	.0	#	0	3.0	1972	19	3.0	1972	3	1972	19	#+	1993	.1	.1	@	.0	.0	.1	@	.0	.0
Nov	2.0	.2	#	0	20.0	1971	25	26.5	1971	23	1971	25	5	1995	1.0	.6	.2	.1	.1	1.5	.9	.6	.3
Dec	4.1	2.6	1	#	8.0	1996	6	12.7	1996	12	1990	28	2	1995	2.5	1.2	.5	.1	.0	5.6	2.8	1.4	@
Ann	33.5	21.8	N/A	N/A	24.2	Feb 1983	11	43.6	Jan 1996	42	Jan 1996	12	17	Feb 1978	14.5	8.4	4.1	1.6	.3	39.9	25.8	15.9	5.8

+ 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	5/19	5/14	5/10	5/07	5/05	5/02	4/29	4/25	4/20
32	5/05	5/01	4/28	4/25	4/22	4/20	4/17	4/14	4/09
28	4/20	4/16	4/14	4/12	4/10	4/08	4/06	4/03	3/31
24	4/16	4/11	4/07	4/04	4/01	3/29	3/26	3/22	3/17
20	4/07	4/02	3/29	3/26	3/23	3/20	3/17	3/13	3/08
16	3/26	3/21	3/16	3/13	3/09	3/06	3/02	2/26	2/20

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	9/30	10/05	10/08	10/11	10/13	10/16	10/19	10/22	10/26
32	10/11	10/16	10/19	10/22	10/24	10/27	10/29	11/02	11/06
28	10/20	10/25	10/28	10/31	11/03	11/06	11/09	11/13	11/18
24	10/30	11/05	11/10	11/13	11/17	11/20	11/24	11/28	12/05
20	11/11	11/17	11/22	11/26	11/30	12/03	12/07	12/12	12/18
16	11/24	11/29	12/03	12/06	12/09	12/13	12/16	12/20	12/25

Freeze Free Period

Temp (F)	Probability of longer than indicated freeze free period (Days)								
	.10	.20	.30	.40	.50	.60	.70	.80	.90
36	182	174	169	165	161	157	153	148	141
32	206	199	193	188	184	180	175	169	162
28	223	218	214	210	207	203	200	196	190
24	255	246	240	234	229	224	219	212	203
20	276	267	261	256	251	246	241	235	226
16	299	290	284	279	274	270	264	258	250

***** 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	1116	918	748	396	154	21	3	7	66	335	637	969	5370
60	961	778	593	258	70	3	0	0	18	207	489	814	4191
57	868	694	504	185	38	1	0	0	6	145	404	721	3566
55	806	638	446	143	23	0	0	0	3	111	350	663	3183
50	660	503	310	64	5	0	0	0	0	49	228	520	2339
32	217	123	32	0	0	0	0	0	0	0	14	135	521

Cooling Degree Days (1)

Base Above	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Ann
32	124	129	308	595	917	1114	1273	1224	992	698	367	189	7930
55	0	0	8	48	226	424	560	511	305	96	14	4	2196
57	0	0	4	30	179	365	498	449	248	68	8	0	1849
60	0	0	0	13	119	277	405	356	170	37	2	0	1379
65	0	0	0	2	48	145	253	207	68	10	0	0	733
70	0	0	0	0	12	52	119	89	15	1	0	0	288

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	25	45	136	354	656	859	1009	961	728	444	177	49	25	70	206	560	1216	2075	3084	4045	4773	5217	5394	5443
45	9	18	69	230	502	709	854	806	578	298	97	21	9	27	96	326	828	1537	2391	3197	3775	4073	4170	4191
50	2	3	38	134	352	559	699	651	430	175	48	5	2	5	43	177	529	1088	1787	2438	2868	3043	3091	3096
55	0	1	16	73	218	410	544	496	288	86	18	3	0	1	17	90	308	718	1262	1758	2046	2132	2150	2153
60	0	0	4	31	116	266	390	341	166	33	5	0	0	0	4	35	151	417	807	1148	1314	1347	1352	1352
Base	**Growing Degree Units for Corn (Monthly)**												**Growing Degree Units for Corn (Accumulated Monthly)**											
50/86	13	24	80	210	391	558	690	648	442	233	83	25	13	37	117	327	718	1276	1966	2614	3056	3289	3372	3397

(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