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: EMMITSBURG 2 SE, MD **COOP ID: 182906**

Climate Division: MD 6 **NWS Call Sign:** **Elevation: 416 Feet** **Lat: 39˚41N** **Lon: 77˚18W**

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	39.3	22.7	31.0	74	1967	25	39.5	1998	-27	1994	21	20.2	1994	1055	0	.0	.0	5.0	8.1	26.7	1.3
Feb	43.6	24.5	34.1	78+	1985	24	42.6	1976	-13+	1983	13	23.7	1978	866	0	.0	.0	7.8	4.3	22.7	.6
Mar	53.5	32.4	43.0	85	1998	30	49.2	1977	-5	1960	11	37.1	1994	684	0	.0	.0	18.8	.7	18.7	.0
Apr	64.8	40.7	52.8	92	1960	23	56.7	1974	15	1982	7	49.0	1975	369	1	.0	.1	28.6	.0	7.1	.0
May	73.8	50.6	62.2	94+	1962	15	66.8	1991	26	1968	7	55.5	1994	139	52	.0	.3	31.0	.0	.8	.0
Jun	81.7	59.3	70.5	101	1959	30	74.8	1973	35	1997	3	66.6	1992	12	178	.0	2.9	30.0	.0	.0	.0
Jul	85.8	64.1	75.0	103	1966	3	78.3	1999	42	1979	6	70.8	2000	0	309	.2	7.8	31.0	.0	.0	.0
Aug	84.2	62.3	73.3	103	1983	20	76.8	1978	36	1982	29	68.7	1994	7	263	.1	5.3	31.0	.0	.0	.0
Sep	77.3	55.4	66.4	98+	1980	2	71.0	1980	24	1963	25	63.1	1984	61	101	.0	1.7	30.0	.0	.1	.0
Oct	66.4	43.4	54.9	90+	1959	4	61.7	1971	16	1969	24	48.9	1988	328	14	.0	.0	30.4	.0	5.3	.0
Nov	54.5	35.0	44.8	82	1971	2	50.3	1975	9	1964	23	39.0	1995	608	0	.0	.0	19.8	.1	14.6	.0
Dec	43.9	27.8	35.9	77	1982	4	42.4	1999	-19	1960	23	22.3	1989	903	0	.0	.0	8.1	3.5	22.8	.3
Ann	64.1	43.2	53.7	103+	Aug 1983	20	78.3	Jul 1999	-27	Jan 1994	21	20.2	Jan 1994	5032	918	.3	18.1	271.5	16.7	118.8	2.2

\+ 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: 1956-2001

(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	3.66	3.56	3.20	1998	8	8.92	1979	.65	1981
Feb	2.97	2.72	2.27	1966	13	6.23	1984	.47	1977
Mar	3.95	3.56	2.80	1965	5	7.96	1993	1.00	1995
Apr	3.80	3.53	2.30	1993	22	9.00	1983	.60	1985
May	4.52	4.34	2.25	1968	28	10.59	1989	1.24	1977
Jun	4.35	3.93	6.10	1972	22	14.20	1972	.86	1991
Jul	3.64	3.38	3.20	1964	13	10.82	1996	1.01	1974
Aug	3.60	3.30	3.64	1981	31	10.56	1979	1.04	1995
Sep	4.26	3.09	7.50	1966	14	11.63	1975	.88	1986
Oct	3.48	2.94	5.38	1976	9	12.66	1976	.63	2000
Nov	3.80	3.76	2.50	1992	23	9.59	1972	.26	1981
Dec	3.31	2.57	3.20	1993	4	6.56	1973	.62	1998
Ann	45.34	44.56	7.50	Sep 1966	14	14.20	Jun 1972	.26	Nov 1981

Mean Number of Days (3)

Month	Daily Precipitation >= 0.01	>= 0.10	>= 0.50	>= 1.00
Jan	8.9	7.4	2.7	1.0
Feb	7.9	6.5	2.1	.7
Mar	9.1	7.8	3.2	1.1
Apr	9.5	7.4	3.0	.9
May	11.7	9.3	3.4	1.0
Jun	10.3	7.9	3.1	.9
Jul	9.4	6.9	2.7	.9
Aug	9.0	6.5	2.6	1.0
Sep	8.2	6.2	2.8	1.2
Oct	7.5	5.6	2.4	1.0
Nov	8.7	7.1	2.6	1.1
Dec	8.3	6.4	2.5	1.0
Ann	108.5	85.0	33.1	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	1.05	1.40	1.92	2.37	2.82	3.28	3.79	4.39	5.18	6.40	7.54
Feb	.73	1.01	1.44	1.83	2.21	2.61	3.05	3.59	4.28	5.39	6.42
Mar	1.31	1.69	2.23	2.70	3.15	3.61	4.12	4.71	5.47	6.65	7.73
Apr	1.14	1.51	2.05	2.51	2.96	3.43	3.95	4.56	5.35	6.57	7.71
May	1.51	1.94	2.57	3.10	3.61	4.14	4.72	5.39	6.26	7.60	8.84
Jun	1.10	1.51	2.14	2.70	3.25	3.83	4.48	5.25	6.26	7.85	9.34
Jul	1.05	1.40	1.92	2.37	2.81	3.27	3.78	4.38	5.16	6.37	7.51
Aug	1.08	1.42	1.93	2.37	2.80	3.25	3.74	4.31	5.06	6.22	7.30
Sep	.95	1.34	1.97	2.53	3.09	3.69	4.36	5.17	6.23	7.91	9.51
Oct	.84	1.16	1.67	2.13	2.58	3.05	3.59	4.22	5.05	6.37	7.61
Nov	.80	1.14	1.70	2.21	2.72	3.26	3.88	4.61	5.59	7.14	8.61
Dec	.77	1.07	1.56	1.99	2.43	2.89	3.40	4.02	4.83	6.11	7.32
Ann	31.89	34.48	37.80	40.33	42.58	44.76	47.01	49.50	52.52	56.90	60.70

\+ 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: 1956-2001
(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	11.8	9.5	2	1	17.0	1996	7	43.0	1996	40	1996	12	15	1996	4.1	3.4	1.6	.6	.2	10.6	5.6	2.5	1.1
Feb	8.7	5.5	2	1	19.0	1979	19	34.5	1979	28	1983	12	6	1983	3.0	2.6	1.2	.7	.2	8.4	5.6	3.2	.6
Mar	4.5	3.0	1	#	20.0	1993	13	20.0	1993	22	1993	14	5	1993	1.7	1.6	.7	.3	@	2.5	1.5	.4	.0
Apr	.7	.0	#	0	4.0	1993	22	5.0	1987	2	1987	3	#+	1996	.4	.4	.1	.0	.0	.1	.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	.1	.0	0	0	2.0	1979	10	2.0	1979	0	0	0	0	0	.1	.1	.0	.0	.0	.0	.0	.0	.0
Nov	1.4	.0	#	0	8.0	1971	25	11.5	1971	6	1971	26	1	1971	.6	.5	.2	@	.0	.6	.3	.1	.0
Dec	3.6	2.3	#	#	10.0	1990	28	11.5	1981	9	1990	28	2	2000	2.2	1.5	.4	.1	@	3.7	1.0	.4	.0
Ann	30.8	20.3	N/A	N/A	20.0	Mar 1993	13	43.0	Jan 1996	40	Jan 1996	12	15	Jan 1996	12.1	10.1	4.2	1.7	.4	25.9	14.0	6.6	1.7

+ 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	5/29	5/23	5/20	5/16	5/13	5/10	5/07	5/03	4/28
32	5/15	5/09	5/05	5/02	4/29	4/26	4/22	4/18	4/13
28	4/28	4/24	4/21	4/19	4/17	4/15	4/12	4/10	4/06
24	4/16	4/11	4/08	4/05	4/02	3/30	3/27	3/23	3/18
20	3/31	3/27	3/23	3/21	3/18	3/16	3/13	3/10	3/06
16	3/28	3/21	3/15	3/10	3/06	3/02	2/25	2/20	2/12

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	9/13	9/18	9/22	9/26	9/29	10/02	10/06	10/10	10/15
32	9/29	10/03	10/07	10/09	10/12	10/15	10/18	10/21	10/26
28	10/08	10/14	10/18	10/22	10/25	10/29	11/01	11/05	11/11
24	10/16	10/22	10/27	10/31	11/03	11/07	11/10	11/15	11/21
20	11/01	11/07	11/11	11/15	11/18	11/22	11/25	11/30	12/06
16	11/23	11/29	12/03	12/07	12/11	12/15	12/18	12/23	12/29

Freeze Free Period

Temp (F)	Probability of longer than indicated freeze free period (Days)								
	.10	.20	.30	.40	.50	.60	.70	.80	.90
36	160	152	147	142	138	134	129	124	117
32	187	179	174	170	166	161	157	152	145
28	214	206	200	195	191	186	181	175	167
24	237	229	224	219	215	210	206	200	193
20	263	257	252	248	244	240	236	232	225
16	308	298	291	285	279	273	267	260	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	1055	866	684	369	139	12	0	7	61	328	608	903	5032
60	900	726	529	226	58	2	0	0	18	205	460	748	3872
57	807	642	440	152	29	0	0	0	7	145	376	659	3257
55	746	586	383	110	16	0	0	0	3	111	321	602	2878
50	603	456	250	38	3	0	0	0	0	50	200	459	2059
32	188	103	17	0	0	0	0	0	0	0	8	104	420

Cooling Degree Days (1)

Base Above	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Ann
32	157	162	357	622	936	1156	1332	1279	1030	710	389	224	8354
55	1	0	9	42	239	466	619	566	343	108	13	9	2415
57	0	0	5	24	190	406	557	504	287	79	8	4	2064
60	0	0	0	8	126	317	464	411	208	46	2	0	1582
65	0	0	0	1	52	178	309	263	101	14	0	0	918
70	0	0	0	0	14	71	162	137	35	3	0	0	422

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	53	155	373	669	903	1073	1018	779	455	183	60	28	81	236	609	1278	2181	3254	4272	5051	5506	5689	5749
45	11	19	81	237	514	753	918	863	629	307	99	24	11	30	111	348	862	1615	2533	3396	4025	4332	4431	4455
50	2	4	36	131	362	603	763	708	480	183	47	7	2	6	42	173	535	1138	1901	2609	3089	3272	3319	3326
55	0	0	13	64	226	454	608	553	335	93	15	3	0	0	13	77	303	757	1365	1918	2253	2346	2361	2364
60	0	0	4	22	119	307	453	398	208	40	4	0	0	0	4	26	145	452	905	1303	1511	1551	1555	1555
Base	**Growing Degree Units for Corn (Monthly)**												**Growing Degree Units for Corn (Accumulated Monthly)**											
50/86	21	35	110	239	422	599	730	688	504	285	108	33	21	56	166	405	827	1426	2156	2844	3348	3633	3741	3774

(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