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: ASSATEAGUE, MD **COOP ID: 180335**

Climate Division: MD 1 **NWS Call Sign:** **Elevation: 10 Feet** **Lat: 38˚04N** **Lon: 75˚13W**

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	44.5	28.1	36.3	71	1999	28	43.0+	1998	-2	1982	17	25.3	1977	890	0	.0	.0	9.9	2.8	21.3	.1
Feb	46.3	29.6	38.0	78	2000	26	44.9	1990	3	1979	14	26.9	1979	757	0	.0	.0	10.1	2.0	18.0	.0
Mar	52.8	35.0	43.9	89	1985	29	49.1	2000	10	1989	12	39.7	1978	653	0	.0	.0	20.6	.3	12.5	.0
Apr	61.4	43.5	52.5	90+	1976	16	56.0+	1985	20	1971	1	48.2	1975	376	0	.0	.2	28.8	.0	1.6	.0
May	69.9	53.1	61.5	99	1996	20	64.5	1991	36	1976	27	56.8	1978	140	31	.0	.5	31.0	.0	.0	.0
Jun	78.5	61.8	70.2	102	1989	3	74.4	1981	41	1972	12	64.3	1992	18	173	@	2.0	30.0	.0	.0	.0
Jul	83.7	67.5	75.6	102	1999	5	79.4	1993	49	2001	3	72.5	1984	0	328	.1	5.1	31.0	.0	.0	.0
Aug	83.3	67.4	75.4	100	1980	1	78.8	1978	48	1986	29	71.5	1994	0	321	@	4.2	31.0	.0	.0	.0
Sep	78.1	62.4	70.3	96	1983	7	74.5	1998	41	1970	29	67.6+	1991	13	170	.0	1.1	30.0	.0	.0	.0
Oct	68.3	50.8	59.6	94	1986	3	65.1	1985	26+	1974	21	53.4	1992	209	40	.0	.2	30.9	.0	.6	.0
Nov	58.4	41.0	49.7	81	1993	15	58.8	1985	15	1970	24	41.9	1976	463	3	.0	.0	25.9	.0	5.3	.0
Dec	49.4	32.4	40.9	76+	1982	4	47.6	1984	2	1989	24	29.3	1989	747	0	.0	.0	16.5	1.0	15.3	.0
Ann	64.6	47.7	56.2	102+	Jul 1999	5	79.4	Jul 1993	-2	Jan 1982	17	25.3	Jan 1977	4266	1066	.1	13.3	295.7	6.1	74.6	.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

Issue Date: February 2004

(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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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	4.34	4.09	3.54	1998	28	9.24	1987	.46	1981
Feb	3.59	3.46	2.87	1998	4	7.15	1979	1.15	1980
Mar	4.26	3.68	3.17	1999	14	8.73	1994	.38	1986
Apr	3.25	3.30	2.63	1995	30	6.20	1983	.63	1985
May	3.60	3.57	1.85	1984	31	6.88	1978	.76	1991
Jun	2.85	2.26	2.73	1979	4	7.64	1972	.60	1994
Jul	3.62	3.75	6.23	1969	23	7.36	1982	.87	1983
Aug	4.18	3.16	8.87	1985	19	12.73	1985	.50	1984
Sep	3.70	3.75	3.66	1971	11	9.86	1996	1.03	1973
Oct	3.30	3.11	3.86+	1996	8	7.95	1971	.00	2000
Nov	3.16	3.04	2.84	1972	8	7.32	1997	.87	1974
Dec	3.21	3.24	2.72	1977	19	7.98	1977	.05	1989
Ann	43.06	41.59	8.87	Aug 1985	19	12.73	Aug 1985	.00	Oct 2000

Mean Number of Days (3)

Daily Precipitation

Month	>= 0.01	>= 0.10	>= 0.50	>= 1.00
Jan	10.2	7.4	3.2	1.4
Feb	9.1	6.3	2.6	.9
Mar	10.9	7.6	3.2	1.0
Apr	10.3	5.9	2.2	.8
May	10.5	6.4	2.1	1.0
Jun	9.2	5.6	1.8	.6
Jul	9.0	5.8	2.5	.9
Aug	8.3	5.1	2.3	1.2
Sep	7.2	5.4	2.6	1.1
Oct	8.2	5.0	2.3	1.0
Nov	8.9	5.4	2.1	.7
Dec	10.2	6.1	2.2	.9
Ann	112.0	72.0	29.1	11.5

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	1.31	1.73	2.34	2.87	3.39	3.92	4.51	5.20	6.09	7.48	8.78
Feb	1.50	1.83	2.29	2.67	3.02	3.38	3.76	4.21	4.77	5.62	6.40
Mar	1.18	1.59	2.20	2.73	3.26	3.80	4.41	5.13	6.06	7.52	8.88
Apr	1.14	1.45	1.90	2.27	2.63	3.00	3.40	3.87	4.46	5.39	6.24
May	1.22	1.56	2.06	2.48	2.89	3.30	3.76	4.29	4.97	6.02	7.00
Jun	.80	1.07	1.48	1.83	2.18	2.55	2.95	3.43	4.04	5.01	5.92
Jul	.96	1.30	1.82	2.28	2.74	3.21	3.74	4.37	5.18	6.47	7.67
Aug	.65	1.00	1.61	2.18	2.78	3.44	4.19	5.11	6.34	8.34	10.26
Sep	.91	1.26	1.80	2.28	2.75	3.25	3.81	4.48	5.35	6.74	8.03
Oct	.69	1.15	1.71	2.15	2.57	3.01	3.48	4.04	4.75	5.87	6.91
Nov	.88	1.18	1.64	2.03	2.42	2.82	3.27	3.80	4.48	5.56	6.56
Dec	.50	.77	1.24	1.68	2.14	2.64	3.22	3.92	4.87	6.40	7.87
Ann	32.18	34.33	37.05	39.11	40.92	42.67	44.46	46.44	48.82	52.26	55.22

\+ 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
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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	1.4	.0	#	#	5.5	1982	15	7.5	1985	6	1987	28	1	1987	.8	.7	.3	.1	.0	.9	.2	.0	.0
Feb	2.8	.0	#	0	7.0	1989	24	13.7	1989	6	1979	20	1	1979	1.1	.9	.3	.1	.0	.9	.2	.0	.0
Mar	.5	.0	#	0	3.9	1980	2	3.9	1980	4	1980	2	#+	1999	.3	.3	.1	.0	.0	.2	.1	.0	.0
Apr	#	.0	#	0	#	1972	8	#	1972	#	1996	10	#	1996	.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	#	.0	#	0	#	1996	14	#	1996	#	1996	14	#	1996	.0	.0	.0	.0	.0	.0	.0	.0	.0
Dec	.2	.0	#	0	3.8	1982	12	3.8	1982	7	1995	8	#+	2000	.1	.1	.1	.0	.0	@	@	.0	.0
Ann	4.9	.0	N/A	N/A	7.0	Feb 1989	24	13.7	Feb 1989	7	Dec 1995	8	1+	Jan 1987	2.3	2.0	.8	.2	.0	2.0	.5	.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	5/01	4/26	4/22	4/19	4/16	4/13	4/10	4/06	4/01
32	4/20	4/15	4/12	4/08	4/05	4/02	3/30	3/26	3/21
28	4/12	4/05	3/31	3/27	3/24	3/20	3/16	3/11	3/05
24	3/31	3/25	3/21	3/17	3/13	3/10	3/06	3/01	2/23
20	3/25	3/17	3/11	3/06	3/01	2/24	2/18	2/12	2/02
16	3/10	3/01	2/22	2/17	2/11	2/06	1/31	1/23	1/09

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	10/15	10/20	10/23	10/27	10/29	11/01	11/04	11/08	11/13
32	10/20	10/26	10/31	11/04	11/08	11/11	11/15	11/20	11/26
28	11/04	11/11	11/16	11/20	11/24	11/28	12/03	12/08	12/15
24	11/17	11/24	11/29	12/03	12/07	12/11	12/15	12/20	12/27
20	12/01	12/07	12/12	12/16	12/19	12/23	12/27	1/01	1/09
16	12/13	12/21	12/27	1/02	1/07	1/12	1/18	1/25	2/08

Freeze Free Period

Temp (F)	Probability of longer than indicated freeze free period (Days)								
	.10	.20	.30	.40	.50	.60	.70	.80	.90
36	220	212	206	200	196	191	186	180	171
32	244	234	227	221	215	210	204	196	187
28	273	263	256	250	245	239	233	226	216
24	296	287	279	273	268	262	256	249	239
20	328	312	304	297	292	286	280	273	263
16	>365	>365	347	335	327	319	311	302	291

***** 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)

Base	Heating Degree Days (1)												
Below	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Ann
65	890	757	653	376	140	18	0	0	13	209	463	747	4266
60	735	617	498	232	52	2	0	0	2	114	325	592	3169
57	644	533	405	156	23	0	0	0	0	73	250	506	2590
55	589	483	344	113	11	0	0	0	0	52	205	448	2245
50	446	354	206	38	1	0	0	0	0	18	114	312	1489
32	92	53	4	0	0	0	0	0	0	0	1	34	184

Base	Cooling Degree Days (1)												
Above	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Ann
32	225	220	375	615	915	1144	1351	1344	1147	854	531	310	9031
55	9	6	2	37	213	454	638	631	457	193	45	11	2696
57	2	0	0	20	162	394	576	569	397	152	30	7	2309
60	0	0	0	6	98	307	483	476	309	100	15	1	1795
65	0	0	0	0	31	173	328	321	170	40	3	0	1066
70	0	0	0	0	5	74	184	173	63	11	0	0	510

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	63	80	172	408	687	929	1115	1114	926	627	322	134	63	143	315	723	1410	2339	3454	4568	5494	6121	6443	6577
45	24	31	79	264	532	779	960	959	776	473	203	60	24	55	134	398	930	1709	2669	3628	4404	4877	5080	5140
50	0	8	32	146	378	629	805	804	626	325	104	23	0	8	40	186	564	1193	1998	2802	3428	3753	3857	3880
55	0	0	7	61	230	479	650	649	476	193	48	3	0	0	7	68	298	777	1427	2076	2552	2745	2793	2796
60	0	0	1	19	113	330	495	495	328	93	9	0	0	0	1	20	133	463	958	1453	1781	1874	1883	1883
Base	Growing Degree Units for Corn (Monthly)												Growing Degree Units for Corn (Accumulated Monthly)											
50/86	30	38	99	205	388	624	785	790	626	366	165	65	30	68	167	372	760	1384	2169	2959	3585	3951	4116	4181

(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

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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