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: GLENN DALE BELL STN, MD **COOP ID: 183675**

Climate Division: MD 4 **NWS Call Sign:** **Elevation: 150 Feet** **Lat: 38˚58N** **Lon: 76˚48W**

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	42.4	21.2	31.8	78+	1950	25	39.7	1990	-11	1987	27	21.6	1977	1029	0	.0	.0	9.0	4.2	25.5	.8
Feb	46.0	22.8	34.4	80	1985	24	42.6	1976	-10+	1979	10	23.0	1979	857	0	.0	.0	12.3	2.6	21.5	.3
Mar	55.4	31.2	43.3	95	1998	30	48.7	1977	-6	1960	11	36.8	1993	673	0	.0	.1	23.2	.4	16.9	.0
Apr	64.9	39.0	52.0	95	1976	18	57.8	1994	18+	1964	2	47.3	1975	393	1	.0	.7	29.2	.0	6.6	.0
May	73.9	49.5	61.7	97	1996	21	67.9	1991	27+	1957	4	58.3	1992	138	36	.0	1.7	31.0	.0	.5	.0
Jun	82.0	58.5	70.3	102	1994	15	75.7	1994	35	1977	8	66.3	1972	20	178	.1	6.7	30.0	.0	.0	.0
Jul	87.1	63.3	75.2	103	1954	31	79.6	1994	40	1988	1	71.2	2000	1	319	.4	13.9	31.0	.0	.0	.0
Aug	85.5	62.0	73.8	104	1997	16	78.8	1995	38	1986	29	70.3	1976	3	273	.2	9.5	31.0	.0	.0	.0
Sep	78.6	54.8	66.7	100	1953	1	71.8	1998	30	1956	21	63.4	1975	46	96	.0	3.3	30.0	.0	.1	.0
Oct	68.0	42.2	55.1	93	1954	13	60.9	1995	19	1969	24	49.6	1988	321	14	.0	.0	30.8	.0	5.0	.0
Nov	56.9	32.8	44.9	87	1950	1	50.7	1985	9	1989	24	37.9	1976	605	0	.0	.0	24.0	@	13.7	.0
Dec	47.0	25.9	36.5	79+	1984	29	44.2	1984	-5	1960	23	24.5	1989	884	0	.0	.0	14.0	2.0	21.8	.1
Ann	65.6	41.9	53.8	104	Aug 1997	16	79.6	Jul 1994	-11	Jan 1987	27	21.6	Jan 1977	4970	917	.7	35.9	295.5	9.2	111.6	1.2

\+ 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: 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	3.45	3.21	2.17	1998	28	8.39	1979	.57	1981
Feb	2.83	2.79	1.90	1958	16	6.02	1998	.61	1978
Mar	3.95	3.97	3.39	1958	20	8.91	1994	.94	1986
Apr	3.41	3.04	2.10	1970	2	7.64	1983	.31	1985
May	4.69	4.71	5.18	1997	26	10.28	1989	.80	1999
Jun	3.73	2.73	5.87	1983	20	11.27	1983	.55	1988
Jul	4.18	4.62	10.01	1949	8	8.48	1994	.59	1998
Aug	4.09	3.88	6.98	1955	13	12.12	1971	.70	1989
Sep	4.03	2.99	4.72	1985	27	11.02	1999	1.09	1990
Oct	3.61	3.41	4.00	1955	14	7.18	1976	.12	2000
Nov	3.42	3.07	3.76	1993	28	7.18	1972	.35	1981
Dec	3.27	2.75	2.38	1977	18	6.67	1983	.85	1988
Ann	44.66	42.75	10.01	Jul 1949	8	12.12	Aug 1971	.12	Oct 2000

Mean Number of Days (3)

Daily Precipitation

Month	>= 0.01	>= 0.10	>= 0.50	>= 1.00
Jan	10.0	6.7	2.3	.7
Feb	8.4	5.5	2.1	.6
Mar	9.6	6.9	2.7	1.1
Apr	9.7	7.0	2.6	.6
May	11.0	7.9	3.5	1.0
Jun	9.0	5.9	2.7	.9
Jul	10.3	6.9	2.7	1.1
Aug	9.5	6.4	2.6	1.1
Sep	8.8	5.7	2.2	1.1
Oct	8.1	5.3	2.6	1.2
Nov	9.0	5.8	2.2	.8
Dec	9.4	6.3	2.2	.9
Ann	112.8	76.3	30.4	11.1

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	1.13	1.46	1.94	2.35	2.74	3.15	3.60	4.12	4.79	5.83	6.79
Feb	.68	.94	1.36	1.72	2.09	2.48	2.91	3.43	4.11	5.18	6.19
Mar	1.32	1.69	2.24	2.70	3.15	3.61	4.11	4.70	5.46	6.63	7.72
Apr	1.18	1.50	1.97	2.36	2.74	3.13	3.56	4.05	4.68	5.66	6.57
May	1.63	2.08	2.72	3.26	3.78	4.32	4.90	5.58	6.45	7.79	9.03
Jun	.89	1.23	1.78	2.26	2.75	3.26	3.83	4.51	5.41	6.82	8.16
Jul	.76	1.13	1.74	2.31	2.89	3.52	4.24	5.10	6.25	8.11	9.89
Aug	1.03	1.41	2.01	2.54	3.06	3.61	4.22	4.95	5.90	7.41	8.82
Sep	1.04	1.42	2.01	2.53	3.03	3.57	4.16	4.87	5.79	7.24	8.60
Oct	.77	1.10	1.63	2.11	2.59	3.11	3.69	4.39	5.30	6.77	8.16
Nov	.88	1.20	1.70	2.14	2.57	3.03	3.53	4.14	4.92	6.16	7.32
Dec	.80	1.10	1.58	2.00	2.42	2.87	3.37	3.96	4.73	5.96	7.11
Ann	33.07	35.35	38.25	40.44	42.37	44.23	46.15	48.26	50.81	54.50	57.67

\+ 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)

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	5.0	4.0	1	#	10.0	1987	26	16.5	1988	16	1987	27	4	1988	2.1	1.5	.8	.3	@	5.2	2.8	1.2	@
Feb	5.5	3.4	1	#	13.5	1979	19	23.8	1979	21	1979	19	6	1979	1.9	1.4	.8	.3	.1	3.6	2.1	1.1	.3
Mar	1.0	.0	#	0	7.0	1993	13	8.9	1978	7	1993	13	1	1993	.7	.5	.2	.1	.0	.8	.5	.2	.0
Apr	#	.0	#	0	#	1992	2	#+	1992	#	1972	8	#	1972	.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	.1	.0	#	0	1.5	1979	10	1.5	1979	1	1979	10	#	1979	@	@	.0	.0	.0	@	.0	.0	.0
Nov	.4	.0	#	0	5.0	1989	23	5.0	1989	10	1987	12	1	1987	.2	.1	.1	@	.0	.1	.1	.0	.0
Dec	1.7	.0	#	0	7.0	1973	17	11.0	1989	8	1989	16	4	1989	.7	.6	.2	.1	.0	1.0	.4	.2	.0
Ann	13.7	7.4	N/A	N/A	13.5	Feb 1979	19	23.8	Feb 1979	21	Feb 1979	19	6	Feb 1979	5.6	4.1	2.1	.8	.1	10.7	5.9	2.7	.3

+ 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	5/26	5/21	5/17	5/14	5/10	5/07	5/04	4/30	4/25
32	5/13	5/08	5/05	5/02	4/29	4/26	4/23	4/20	4/15
28	4/27	4/22	4/19	4/16	4/14	4/11	4/09	4/05	4/01
24	4/14	4/09	4/06	4/04	4/01	3/30	3/27	3/24	3/20
20	4/01	3/27	3/23	3/20	3/17	3/15	3/12	3/08	3/03
16	3/23	3/15	3/09	3/04	2/28	2/23	2/19	2/13	2/05

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	9/20	9/24	9/28	10/01	10/03	10/06	10/09	10/12	10/17
32	10/01	10/05	10/09	10/12	10/14	10/17	10/20	10/23	10/28
28	10/13	10/17	10/21	10/23	10/26	10/29	10/31	11/04	11/08
24	10/21	10/26	10/30	11/03	11/06	11/10	11/13	11/17	11/23
20	11/07	11/13	11/16	11/19	11/22	11/25	11/28	12/02	12/07
16	11/20	11/27	12/02	12/06	12/10	12/13	12/17	12/22	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	165	158	153	149	145	141	137	132	125
32	188	181	176	172	168	164	159	154	147
28	214	207	203	198	195	191	186	182	175
24	241	233	228	223	218	214	209	204	196
20	268	262	257	253	249	245	241	237	230
16	314	304	296	290	284	278	271	264	253

***** 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	1029	857	673	393	138	20	1	3	46	321	605	884	4970
60	874	717	518	252	53	3	0	0	11	198	456	729	3811
57	781	633	427	178	25	0	0	0	4	139	370	636	3193
55	719	577	370	136	13	0	0	0	2	106	316	580	2819
50	572	447	235	57	2	0	0	0	0	47	194	437	1991
32	147	96	11	0	0	0	0	0	0	0	6	83	343

Base — Cooling Degree Days (1)

Above	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Ann
32	141	163	361	598	922	1147	1340	1293	1041	716	391	222	8335
55	0	0	7	43	221	457	627	580	352	109	11	6	2413
57	0	0	2	26	171	397	565	518	294	80	5	0	2058
60	0	0	0	10	107	310	472	425	212	46	1	0	1583
65	0	0	0	1	36	178	319	273	96	14	0	0	917
70	0	0	0	0	7	80	179	140	27	2	0	0	435

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	48	84	210	433	727	953	1129	1080	845	516	241	89	48	132	342	775	1502	2455	3584	4664	5509	6025	6266	6355
45	24	40	117	293	572	803	974	925	695	368	140	44	24	64	181	474	1046	1849	2823	3748	4443	4811	4951	4995
50	3	18	62	173	418	653	819	770	545	229	74	19	3	21	83	256	674	1327	2146	2916	3461	3690	3764	3783
55	0	3	25	93	275	504	664	615	398	129	33	3	0	3	28	121	396	900	1564	2179	2577	2706	2739	2742
60	0	0	9	43	157	358	509	461	260	59	8	0	0	0	9	52	209	567	1076	1537	1797	1856	1864	1864
Base	**Growing Degree Units for Corn (Monthly)**												**Growing Degree Units for Corn (Accumulated Monthly)**											
50/86	34	66	156	287	467	634	760	730	556	337	162	60	34	100	256	543	1010	1644	2404	3134	3690	4027	4189	4249

(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