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: MATHIAS, WV **COOP ID: 465739**

Climate Division: WV 6 **NWS Call Sign:** **Elevation: 1,540 Feet** **Lat: 38˚52N** **Lon: 78˚52W**

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	38.8	17.8	28.3	72	1975	29	37.9	1974	-20	1984	22	15.9	1977	1139	0	.0	.0	6.8	7.5	27.7	2.0
Feb	42.6	19.2	30.9	77	1985	24	39.0	1976	-20+	1996	5	18.7	1978	954	0	.0	.0	9.3	4.9	23.9	.8
Mar	51.6	27.0	39.3	84+	1986	30	44.8	1977	-7	1960	11	34.0	1996	796	0	.0	.0	18.7	1.1	20.0	.1
Apr	62.1	34.7	48.4	90+	1960	23	53.6	1994	11	1985	10	44.0	1975	498	0	.0	@	27.0	@	10.6	.0
May	71.4	45.4	58.4	95+	1996	19	66.0	1991	23	1966	11	52.9	1997	226	22	.0	.3	30.9	.0	2.5	.0
Jun	79.2	53.5	66.4	95+	1969	27	69.5	1994	30	1977	8	62.8	1974	44	84	.0	2.5	30.0	.0	@	.0
Jul	83.4	58.1	70.8	106	1988	16	75.0	1987	37	1988	1	66.6	2000	10	189	.2	6.0	31.0	.0	.0	.0
Aug	81.9	56.5	69.2	100+	1953	31	73.2	1988	31	1986	30	66.4	1976	18	149	@	3.7	31.0	.0	@	.0
Sep	75.2	49.4	62.3	99+	1953	1	66.6	1998	22	1963	24	59.0	1984	116	34	.0	1.1	30.0	.0	.7	.0
Oct	65.1	37.8	51.5	88	1986	1	57.5	1984	14	1969	24	45.0	1988	424	3	.0	.0	29.6	.0	8.8	.0
Nov	53.4	29.4	41.4	80+	1961	5	48.6	1985	4	1956	24	34.9	1976	708	0	.0	.0	19.4	.3	17.7	.0
Dec	43.9	22.3	33.1	76	1998	7	41.8	1984	-15	1989	23	19.3	1989	989	0	.0	.0	10.2	4.1	25.0	.8
Ann	62.4	37.6	50.0	106	Jul 1988	16	75.0	Jul 1987	-20+	Feb 1996	5	15.9	Jan 1977	5922	481	.2	13.6	273.9	17.9	136.9	3.7

\+ 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: 1948-2001

(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	2.35	1.88	1.68	1996	8	6.90	1996	.31	1981
Feb	2.25	2.01	2.27	1998	5	6.00	1998	.35	1978
Mar	3.07	2.91	3.73	1954	1	7.66	1993	.77	1972
Apr	2.77	2.21	2.46	1987	16	6.63	1987	.47	1985
May	4.01	3.65	3.14	1960	8	9.15	1988	1.39	1977
Jun	3.31	3.04	3.50	1949	28	9.43	1972	.41	1999
Jul	3.79	4.03	3.55	1970	9	7.70	1989	.95	1998
Aug	3.88	3.53	3.30	1955	18	11.79	1978	1.47	1972
Sep	3.54	3.01	5.75	1996	7	10.64	1996	.53	1985
Oct	2.97	2.32	6.25	1954	15	8.21	1972	.03	2000
Nov	3.06	2.76	4.00	1985	4	10.42	1985	.52	1998
Dec	2.31	1.98	2.01	1974	1	5.15	1983	.44	1980
Ann	37.31	35.34	6.25	Oct 1954	15	11.79	Aug 1978	.03	Oct 2000

Mean Number of Days (3)

Month	Daily Precipitation >= 0.01	>= 0.10	>= 0.50	>= 1.00
Jan	10.5	5.8	1.5	.3
Feb	9.4	5.2	1.2	.6
Mar	11.3	6.6	2.2	.7
Apr	11.1	6.5	1.8	.4
May	13.0	8.7	2.7	.8
Jun	12.3	7.4	2.4	.6
Jul	12.0	8.1	2.6	.8
Aug	11.6	7.3	2.6	.8
Sep	9.6	5.9	2.5	1.0
Oct	8.7	5.1	1.9	.8
Nov	8.9	5.7	1.9	.9
Dec	9.0	5.0	1.6	.4
Ann	127.4	77.3	24.9	8.1

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	.53	.75	1.09	1.40	1.71	2.04	2.41	2.85	3.43	4.36	5.23
Feb	.59	.81	1.13	1.42	1.70	2.00	2.33	2.72	3.23	4.03	4.78
Mar	.87	1.16	1.60	1.99	2.36	2.75	3.18	3.69	4.35	5.39	6.35
Apr	.73	.99	1.39	1.74	2.09	2.46	2.87	3.35	3.98	4.97	5.90
May	1.52	1.90	2.43	2.88	3.30	3.73	4.20	4.74	5.42	6.48	7.45
Jun	.86	1.17	1.65	2.07	2.49	2.93	3.42	4.00	4.75	5.94	7.06
Jul	1.23	1.59	2.12	2.57	3.00	3.45	3.94	4.52	5.26	6.41	7.47
Aug	1.43	1.79	2.32	2.75	3.17	3.59	4.06	4.59	5.28	6.33	7.30
Sep	.72	1.04	1.56	2.03	2.51	3.03	3.61	4.31	5.23	6.71	8.12
Oct	.31	.53	.94	1.36	1.80	2.31	2.90	3.63	4.63	6.30	7.92
Nov	.69	.97	1.42	1.82	2.22	2.65	3.13	3.71	4.47	5.68	6.81
Dec	.67	.89	1.22	1.50	1.78	2.07	2.40	2.78	3.27	4.04	4.75
Ann	27.50	29.43	31.88	33.73	35.37	36.95	38.57	40.36	42.52	45.65	48.34

\+ 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	9.7	8.7	2	1
Feb	9.7	10.0	2	1
Mar	5.8	5.4	1	#
Apr	1.8	.0	#	0
May	#	.0	0	0
Jun	.0	.0	0	0
Jul	.0	.0	0	0
Aug	.0	.0	0	0
Sep	.0	.0	0	0
Oct	.5	.0	#	0
Nov	2.2	1.0	#	#
Dec	5.7	2.3	1	#
Ann	35.4	27.4	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	17.0	1996	8	33.8	1996	26	1996	8	10	1978
Feb	18.0	1983	11	26.0	1972	18	1983	11	13	1978
Mar	16.0	1993	13	17.7	1999	15	1993	4	5	1978
Apr	8.0	1971	7	16.0	1987	5	1987	6	1	1987
May	#	1989	7	#	1989	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	8.0	1979	10	8.0	1979	3	1979	10	#+	1980
Nov	9.0	1995	15	13.6	1995	10	1995	15	1	1995
Dec	17.0	1992	10	28.0	1992	13	1997	30	5	1989
Ann	18.0	Feb 1983	11	33.8	Jan 1996	26	Jan 1996	8	13	Feb 1978

Mean Number of Days (1)

Snow Fall >= Thresholds

Month	0.1	1.0	3.0	5.0	10.0
Jan	3.9	3.0	1.1	.4	.1
Feb	3.4	2.8	1.1	.4	.2
Mar	2.6	2.0	.9	.4	.1
Apr	.6	.5	.3	.1	.0
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	.2	.1	.1	@	.0
Nov	1.2	.9	.3	.1	.0
Dec	2.2	1.8	.5	.4	.2
Ann	14.1	11.1	4.3	1.8	.6

Snow Depth >= Thresholds

Month	1	3	5	10
Jan	7.7	4.6	2.4	1.0
Feb	8.7	5.3	3.2	1.6
Mar	3.1	1.7	1.0	.5
Apr	.4	.2	.1	.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	.1	@	.0	.0
Nov	.9	.4	.3	@
Dec	4.3	2.3	1.4	@
Ann	25.2	14.5	8.4	3.1

+ 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	6/10	6/04	5/31	5/27	5/24	5/20	5/16	5/12	5/06
32	5/26	5/21	5/17	5/14	5/11	5/08	5/04	4/30	4/25
28	5/15	5/10	5/07	5/04	5/01	4/28	4/25	4/22	4/17
24	4/25	4/20	4/16	4/13	4/10	4/07	4/04	3/31	3/26
20	4/14	4/08	4/04	4/01	3/29	3/25	3/22	3/18	3/12
16	4/07	4/01	3/27	3/23	3/19	3/15	3/11	3/07	2/28

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	9/08	9/13	9/16	9/20	9/22	9/25	9/29	10/02	10/07
32	9/15	9/20	9/24	9/27	9/30	10/03	10/06	10/10	10/15
28	9/24	9/29	10/03	10/07	10/10	10/13	10/16	10/20	10/26
24	10/12	10/17	10/21	10/24	10/27	10/30	11/02	11/06	11/11
20	10/16	10/23	10/28	11/01	11/05	11/09	11/13	11/18	11/25
16	11/01	11/08	11/14	11/18	11/23	11/27	12/02	12/07	12/15

Freeze Free Period

Temp (F)	Probability of longer than indicated freeze free period (Days)								
	.10	.20	.30	.40	.50	.60	.70	.80	.90
36	144	136	131	126	121	117	112	106	98
32	163	156	150	146	142	137	133	127	120
28	183	176	170	166	161	157	152	146	139
24	220	213	208	203	199	195	191	186	179
20	250	240	232	226	220	214	208	201	191
16	280	269	261	254	248	241	235	227	216

***** 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	1139	954	796	498	226	44	10	18	116	424	708	989	5922
60	984	814	641	350	119	8	0	1	41	282	558	834	4632
57	891	730	548	265	72	2	0	0	18	208	469	741	3944
55	829	674	486	213	49	1	0	0	9	165	410	679	3515
50	677	537	343	103	13	0	0	0	1	80	273	537	2564
32	224	145	33	0	0	0	0	0	0	0	15	141	558

Cooling Degree Days (1)

Base Above	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Ann
32	108	115	260	492	818	1030	1202	1154	908	602	296	175	7160
55	0	0	0	15	154	341	489	441	227	53	2	0	1722
57	0	0	0	7	116	282	427	379	176	35	0	0	1422
60	0	0	0	2	70	198	334	287	109	16	0	0	1016
65	0	0	0	0	22	84	189	149	34	3	0	0	481
70	0	0	0	0	4	20	79	55	5	0	0	0	163

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	30	52	153	340	616	835	981	933	712	398	166	61	30	82	235	575	1191	2026	3007	3940	4652	5050	5216	5277
45	9	22	79	215	462	685	826	778	562	262	90	26	9	31	110	325	787	1472	2298	3076	3638	3900	3990	4016
50	1	8	36	124	315	535	671	623	413	146	41	10	1	9	45	169	484	1019	1690	2313	2726	2872	2913	2923
55	0	1	11	62	187	388	516	468	272	67	12	0	0	1	12	74	261	649	1165	1633	1905	1972	1984	1984
60	0	0	2	20	96	246	361	315	152	19	1	0	0	0	2	22	118	364	725	1040	1192	1211	1212	1212
Base	**Growing Degree Units for Corn (Monthly)**												**Growing Degree Units for Corn (Accumulated Monthly)**											
50/86	23	44	112	244	395	545	653	617	455	267	111	42	23	67	179	423	818	1363	2016	2633	3088	3355	3466	3508

(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