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: LOGAN, WV **COOP ID: 465353**

Climate Division: WV 3 **NWS Call Sign:** **Elevation: 640 Feet** **Lat: 37˚52N** **Lon: 82˚00W**

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	43.1	25.1	34.1	81	1950	26	44.2	1974	-15+	1985	21	20.1	1977	958	0	.0	.0	9.4	5.9	23.1	1.0
Feb	48.4	26.7	37.6	81	2000	27	45.9	1990	-8+	1996	5	24.6	1978	769	0	.0	.0	13.1	3.7	19.5	.3
Mar	58.8	34.0	46.4	90	1989	29	51.9	1973	-2	1980	3	41.2	1971	576	0	.0	@	22.5	.6	13.9	.1
Apr	69.4	41.6	55.5	95	1957	29	61.2	1981	19	1969	1	49.8	1975	295	10	.0	.5	27.9	@	4.2	.0
May	77.5	51.3	64.4	96	1991	27	73.0	1991	29	1966	10	59.5	1973	123	105	.0	1.6	31.0	.0	.3	.0
Jun	84.2	60.8	72.5	101	1957	17	76.3	1994	35	1966	1	65.2	1972	17	243	.0	6.5	30.0	.0	.0	.0
Jul	87.6	65.8	76.7	104	1954	15	80.8	1993	46+	1988	1	72.7	1976	0	363	@	12.2	31.0	.0	.0	.0
Aug	86.2	64.6	75.4	102+	1953	31	81.3	1995	44	1965	29	70.7	1976	2	325	.1	8.8	31.0	.0	.0	.0
Sep	79.7	57.7	68.7	103+	1953	1	73.2	1980	34	1963	25	63.8	1976	37	148	.1	3.0	30.0	.0	.0	.0
Oct	68.4	44.9	56.7	96	1953	1	63.8	1984	18	1962	27	49.9	1976	287	28	.0	.0	30.4	.0	1.7	.0
Nov	57.3	35.7	46.5	87+	1948	6	54.7	1985	7	1950	25	38.1	1976	556	1	.0	.0	21.8	.2	12.1	.0
Dec	46.6	28.8	37.7	78	1971	16	44.9	1971	-8	1983	25	27.1	1989	847	0	.0	.0	13.2	3.5	20.1	.2
Ann	67.3	44.8	56.0	104	Jul 1954	15	81.3	Aug 1995	-15+	Jan 1985	21	20.1	Jan 1977	4467	1223	.2	32.6	291.3	13.9	94.9	1.6

\+ 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	3.40	3.10	2.40	1974	11	7.08	1979	1.26	1981
Feb	3.37	3.36	2.49	1962	27	6.56	1972	.95	1977
Mar	4.10	3.42	3.03	1963	12	10.11	1994	1.48	1988
Apr	3.71	3.83	2.32	1972	14	8.23	1972	.85	1976
May	5.02	4.57	3.91	1974	30	10.40	1996	1.36	1999
Jun	4.68	4.26	3.04	1963	29	9.35	1979	1.18	1988
Jul	5.11	4.81	2.75	1954	22	9.31	1971	1.64	1995
Aug	4.11	4.04	4.02	1976	14	7.22	1977	.85	1981
Sep	3.52	3.41	3.26	1954	20	6.75	1976	.47	1978
Oct	3.00	2.85	2.10	1982	11	5.91	1976	.95	2000
Nov	3.36	3.20	2.38	1973	28	7.39	1985	1.15	1976
Dec	3.78	3.10	3.20	1991	3	9.98	1978	1.97	1994
Ann	47.16	46.16	4.02	Aug 1976	14	10.40	May 1996	.47	Sep 1978

Mean Number of Days (3)

Daily Precipitation

Month	>= 0.01	>= 0.10	>= 0.50	>= 1.00
Jan	14.4	8.2	2.3	.3
Feb	12.7	7.9	2.2	.6
Mar	14.0	9.4	2.6	.7
Apr	12.9	8.4	2.6	.6
May	14.8	9.4	3.4	1.1
Jun	12.1	8.7	3.3	1.1
Jul	11.9	8.7	3.8	1.4
Aug	9.8	7.1	3.2	.9
Sep	9.9	6.8	2.7	.8
Oct	9.4	6.1	2.2	.6
Nov	11.3	7.1	2.2	.7
Dec	13.9	7.8	2.6	.7
Ann	147.1	95.6	33.1	9.5

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	1.15	1.47	1.95	2.34	2.73	3.12	3.55	4.05	4.70	5.70	6.62
Feb	1.32	1.63	2.07	2.44	2.79	3.14	3.53	3.97	4.54	5.40	6.19
Mar	1.54	1.92	2.47	2.93	3.36	3.81	4.29	4.85	5.56	6.66	7.66
Apr	1.25	1.60	2.12	2.55	2.97	3.40	3.87	4.42	5.13	6.23	7.24
May	2.07	2.53	3.18	3.71	4.21	4.72	5.26	5.89	6.69	7.91	9.02
Jun	1.62	2.06	2.70	3.25	3.77	4.30	4.89	5.57	6.44	7.79	9.03
Jul	2.24	2.70	3.34	3.86	4.35	4.84	5.36	5.97	6.73	7.88	8.93
Aug	1.37	1.76	2.33	2.81	3.28	3.76	4.29	4.90	5.70	6.92	8.06
Sep	.97	1.31	1.81	2.26	2.69	3.14	3.65	4.24	5.01	6.23	7.36
Oct	1.04	1.33	1.74	2.08	2.42	2.76	3.13	3.57	4.12	4.98	5.77
Nov	1.21	1.53	1.99	2.37	2.73	3.11	3.51	3.99	4.59	5.52	6.38
Dec	1.37	1.72	2.24	2.67	3.08	3.50	3.96	4.49	5.17	6.21	7.17
Ann	35.99	38.21	41.03	43.15	45.02	46.81	48.65	50.67	53.11	56.61	59.62

\+ 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	5.3	3.8	1	#
Feb	5.9	4.0	1	#
Mar	2.2	1.0	#	#
Apr	.0	.0	#	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	.0	.0	0	0
Nov	.2	.0	#	0
Dec	2.0	.3	#	#
Ann	15.6	9.1	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	14.0	1971	1	14.7	1984	20	1996	9	3	1996
Feb	18.0	1985	13	26.5	1985	20	1985	15	7	1985
Mar	10.0	1993	14	15.0	1993	15	1993	15	2	1993
Apr	.5	1985	10	.5	1985	1	1985	10	#+	1985
May	.0	0	0	.0	0	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	.0	0	0	.0	0	0	0	0	0	0
Nov	1.5	1976	29	2.5	1976	1+	1989	24	#+	1989
Dec	6.0	1982	12	12.5	1976	6	1982	12	1	1989
Ann	18.0	Feb 1985	13	26.5	Feb 1985	20+	Jan 1996	9	7	Feb 1985

Mean Number of Days (1)

Snow Fall >= Thresholds

Month	0.1	1.0	3.0	5.0	10.0
Jan	3.8	2.0	.5	.2	.1
Feb	2.6	1.6	.6	.2	@
Mar	1.1	.7	.3	.2	@
Apr	@	.0	.0	.0	.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	.0	.0	.0	.0	.0
Nov	.3	.1	.0	.0	.0
Dec	1.8	.9	.2	@	.0
Ann	9.6	5.3	1.6	.6	.1

Snow Depth >= Thresholds

Month	1	3	5	10
Jan	6.2	2.3	.6	.1
Feb	4.3	2.3	1.2	.4
Mar	1.4	.7	.4	.1
Apr	@	.0	.0	.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	.0	.0	.0	.0
Nov	.2	.0	.0	.0
Dec	1.8	.3	.1	.0
Ann	13.9	5.6	2.3	.6

+ 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	5/14	5/09	5/05	5/02	4/29	4/26	4/23	4/20	4/15
32	5/06	4/30	4/25	4/21	4/17	4/13	4/09	4/05	3/29
28	4/19	4/14	4/10	4/07	4/04	4/01	3/29	3/25	3/20
24	4/02	3/25	3/20	3/16	3/12	3/07	3/03	2/26	2/18
20	3/24	3/17	3/12	3/08	3/04	2/28	2/23	2/18	2/11
16	3/13	3/05	2/27	2/22	2/18	2/13	2/08	2/03	1/26

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	10/03	10/08	10/12	10/15	10/18	10/21	10/25	10/29	11/03
32	10/15	10/20	10/24	10/27	10/29	11/01	11/04	11/08	11/13
28	10/21	10/27	11/01	11/04	11/08	11/12	11/15	11/20	11/26
24	11/05	11/12	11/17	11/21	11/25	11/29	12/03	12/08	12/14
20	11/15	11/22	11/27	12/02	12/06	12/10	12/14	12/19	12/26
16	11/26	12/04	12/10	12/15	12/20	12/24	12/29	1/04	1/13

Freeze Free Period

Temp (F)	Probability of longer than indicated freeze free period (Days)								
	.10	.20	.30	.40	.50	.60	.70	.80	.90
36	194	186	181	176	172	167	162	157	149
32	220	211	205	200	194	189	184	177	169
28	243	234	228	222	217	212	206	200	191
24	285	276	269	263	257	252	246	239	230
20	304	294	287	282	276	271	265	258	249
16	336	323	315	308	302	296	289	282	272

***** 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	958	769	576	295	123	17	0	2	37	287	556	847	4467
60	803	629	430	173	56	4	0	0	9	177	411	692	3384
57	719	552	345	116	30	1	0	0	3	124	330	605	2825
55	659	499	293	84	19	0	0	0	2	95	278	546	2475
50	517	372	183	30	5	0	0	0	0	42	169	405	1723
32	146	72	9	0	0	0	0	0	0	0	5	74	306

Base — Cooling Degree Days (1)

Above	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Ann
32	211	227	456	705	1005	1216	1386	1346	1101	763	440	250	9106
55	11	10	27	99	311	526	673	633	413	146	23	9	2881
57	8	7	17	70	260	467	611	571	354	113	15	6	2499
60	0	0	9	38	193	380	518	478	270	72	6	0	1964
65	0	0	0	10	105	243	363	325	148	28	1	0	1223
70	0	0	0	1	45	132	217	185	60	8	0	0	648

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	66	102	257	479	761	978	1142	1105	877	532	247	105	66	168	425	904	1665	2643	3785	4890	5767	6299	6546	6651
45	33	51	156	342	606	828	987	950	727	383	153	51	33	84	240	582	1188	2016	3003	3953	4680	5063	5216	5267
50	8	20	85	224	453	678	832	795	577	247	83	24	8	28	113	337	790	1468	2300	3095	3672	3919	4002	4026
55	0	4	37	132	312	528	677	640	430	137	34	2	0	4	41	173	485	1013	1690	2330	2760	2897	2931	2933
60	0	0	12	63	188	384	522	485	287	63	8	0	0	0	12	75	263	647	1169	1654	1941	2004	2012	2012
Base	**Growing Degree Units for Corn (Monthly)**												**Growing Degree Units for Corn (Accumulated Monthly)**											
50/86	40	75	177	312	487	661	788	762	575	326	154	62	40	115	292	604	1091	1752	2540	3302	3877	4203	4357	4419

(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