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: SUTTON LAKE, WV **COOP ID: 468662**

Climate Division: WV 3 **NWS Call Sign:** **Elevation: 835 Feet** **Lat: 38˚39N** **Lon: 80˚42W**

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	43.0	21.3	32.2	77	1999	24	42.1	1974	-24	1994	19	19.3	1977	1019	0	.0	.0	8.3	6.2	28.0	.7
Feb	47.0	22.7	34.9	81	2000	27	42.3	1990	-10+	1968	22	22.1	1978	844	0	.0	.0	10.4	4.1	25.5	.4
Mar	57.0	29.6	43.3	90	1989	29	49.9	1973	-7	1980	3	37.5	1999	672	0	.0	@	20.2	1.0	20.5	.2
Apr	68.1	37.7	52.9	92	1996	30	57.4	1999	19	1991	1	48.6	1975	366	2	.0	.2	27.1	@	9.5	.0
May	76.4	48.0	62.2	95	1991	30	69.5	1991	30+	1989	8	56.6	1997	158	71	.0	1.3	30.9	.0	1.2	.0
Jun	84.2	57.3	70.8	101+	1988	23	73.7	1971	38+	1988	6	65.8	1992	16	188	.1	3.9	30.0	.0	.1	.0
Jul	88.2	61.7	75.0	107	1988	17	79.0	1993	42	1988	1	71.5	1971	0	308	.4	8.1	31.0	.0	.0	.0
Aug	86.8	60.7	73.8	104	1988	18	78.6	1995	42	1992	31	69.7	1992	5	276	.3	5.9	31.0	.0	.0	.0
Sep	81.1	54.1	67.6	98	1993	1	71.1+	1980	36	1991	28	64.7	1976	36	115	.0	2.1	30.0	.0	.1	.0
Oct	70.5	41.4	56.0	89+	1997	9	63.5	1971	22+	1988	27	48.9	1988	300	20	.0	.0	29.6	.0	9.4	.0
Nov	58.6	32.3	45.5	86	1999	2	53.0	1985	12+	1991	5	37.8	1976	586	0	.0	.0	20.4	.2	16.8	.0
Dec	47.7	25.5	36.6	78+	1998	1	44.2	1984	-10	1989	22	23.7	1989	881	0	.0	.0	12.3	3.7	23.9	.5
Ann	67.4	41.0	54.2	107	Jul 1988	17	79.0	Jul 1993	-24	Jan 1994	19	19.3	Jan 1977	4883	980	.8	21.5	281.2	15.2	135.0	1.8

+ 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	3.59	3.26	2.22	1998	28	6.59	1996	.97	1986
Feb	3.21	2.95	2.25	1994	9	6.48	1986	.94	1978
Mar	4.10	4.05	2.22	1997	2	9.13	1997	1.72	1987
Apr	3.83	3.76	2.10	1989	26	8.07	1973	1.21	1971
May	4.71	4.62	2.77	2001	19	9.56	1996	1.45	1977
Jun	4.99	4.47	2.35	1975	16	11.07	1998	1.03	1988
Jul	5.53	5.49	3.49	1996	31	11.07	1992	1.91	1987
Aug	4.69	4.36	2.90	1990	22	8.57	1989	1.73	1981
Sep	3.92	3.10	3.43	1971	13	12.03	1971	.67	1985
Oct	3.12	3.22	3.20	1954	16	6.73	1976	.77	2000
Nov	3.90	3.75	4.38	1985	5	12.77	1985	1.38	1981
Dec	3.74	3.27	2.56	1991	3	7.96	1991	1.67	1971
Ann	49.33	48.54	4.38	Nov 1985	5	12.77	Nov 1985	.67	Sep 1985

Mean Number of Days (3)

Daily Precipitation

Month	>= 0.01	>= 0.10	>= 0.50	>= 1.00
Jan	16.2	9.7	2.0	.4
Feb	13.2	8.0	1.7	.3
Mar	14.0	9.3	2.4	.8
Apr	14.5	9.2	2.3	.6
May	14.2	9.4	3.3	.9
Jun	12.6	9.2	3.8	1.1
Jul	12.8	9.3	4.3	1.4
Aug	11.5	7.9	3.5	1.3
Sep	11.3	6.8	2.6	1.0
Oct	10.8	6.8	2.0	.5
Nov	12.8	8.4	2.4	.9
Dec	14.8	8.5	2.1	.6
Ann	158.7	102.5	32.4	9.8

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	1.08	1.42	1.93	2.37	2.80	3.24	3.73	4.30	5.04	6.20	7.27
Feb	1.24	1.53	1.96	2.31	2.65	2.99	3.36	3.79	4.34	5.17	5.94
Mar	1.71	2.09	2.61	3.04	3.45	3.86	4.30	4.81	5.45	6.43	7.32
Apr	1.57	1.92	2.41	2.82	3.21	3.59	4.01	4.50	5.11	6.05	6.90
May	1.94	2.37	2.98	3.48	3.95	4.43	4.94	5.53	6.28	7.43	8.47
Jun	1.55	2.03	2.73	3.34	3.92	4.53	5.19	5.97	6.98	8.55	10.01
Jul	2.20	2.71	3.44	4.04	4.60	5.18	5.80	6.51	7.42	8.82	10.09
Aug	1.81	2.24	2.87	3.38	3.87	4.37	4.91	5.54	6.33	7.55	8.67
Sep	1.21	1.58	2.13	2.61	3.07	3.55	4.08	4.70	5.50	6.75	7.91
Oct	.95	1.24	1.69	2.07	2.44	2.82	3.24	3.74	4.38	5.39	6.31
Nov	1.41	1.77	2.30	2.75	3.17	3.60	4.07	4.62	5.32	6.40	7.39
Dec	1.51	1.85	2.34	2.74	3.12	3.51	3.92	4.40	5.01	5.94	6.78
Ann	37.49	39.84	42.83	45.07	47.05	48.95	50.90	53.04	55.62	59.34	62.53

\+ 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	9.8	8.0	2	1	9.5	1994	18	29.2	1978	17	1996	12	6	1978	5.7	4.5	1.0	.4	.0	9.1	5.7	3.5	.3
Feb	5.7	4.0	1	#	8.0	1971	14	17.0	1979	11	1985	15	6	1978	3.0	2.5	.6	.2	.0	5.2	3.3	2.1	@
Mar	3.4	2.2	#	#	8.0	1999	4	16.0	1971	20	1993	14	2	1993	1.6	1.2	.4	.2	.0	1.9	.9	.4	@
Apr	.6	.0	#	0	8.5	1987	4	12.2	1987	12	1987	5	1	1987	.2	.2	.1	@	.0	.2	.1	.1	@
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	#	1972	19	#	1972	1	1993	31	#	1993	.0	.0	.0	.0	.0	.0	.0	.0	.0
Nov	.9	.0	#	0	5.5	1995	15	8.0	1976	6	1995	15	1	1995	.8	.5	.1	@	.0	.6	@	@	.0
Dec	2.8	2.0	#	#	4.0	1997	30	12.3	1993	8	1997	31	2	1989	2.5	2.1	.4	.0	.0	3.0	.6	.1	.0
Ann	23.2	16.2	N/A	N/A	9.5	Jan 1994	18	29.2	Jan 1978	20	Mar 1993	14	6+	Feb 1978	13.8	11.0	2.6	.8	.0	20.0	10.6	6.2	.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	5/28	5/23	5/19	5/15	5/12	5/09	5/06	5/02	4/27
32	5/21	5/15	5/11	5/08	5/04	5/01	4/28	4/23	4/18
28	5/01	4/26	4/22	4/19	4/16	4/13	4/10	4/07	4/02
24	4/21	4/15	4/11	4/08	4/05	4/02	3/30	3/26	3/20
20	4/09	4/03	3/30	3/26	3/23	3/20	3/16	3/12	3/06
16	4/04	3/22	3/12	3/04	2/25	2/18	2/10	1/31	1/18

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	9/24	9/28	9/30	10/03	10/05	10/07	10/09	10/12	10/15
32	9/29	10/03	10/07	10/09	10/12	10/14	10/17	10/20	10/24
28	10/06	10/12	10/17	10/20	10/24	10/27	10/31	11/05	11/11
24	10/14	10/21	10/25	10/29	11/02	11/06	11/10	11/15	11/21
20	10/25	11/02	11/08	11/13	11/18	11/22	11/28	12/04	12/12
16	11/07	11/16	11/22	11/27	12/02	12/07	12/12	12/18	12/27

Freeze Free Period

Temp (F)	Probability of longer than indicated freeze free period (Days)								
	.10	.20	.30	.40	.50	.60	.70	.80	.90
36	164	157	152	148	145	141	137	132	125
32	183	175	169	164	160	155	150	144	136
28	218	208	201	196	190	185	179	172	162
24	239	229	222	216	210	205	198	191	181
20	272	261	252	245	239	232	225	217	206
16	326	310	298	289	279	270	260	249	233

***** 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	1019	844	672	366	158	16	0	5	36	300	586	881	4883
60	864	704	518	228	79	3	0	0	8	184	439	726	3753
57	771	620	432	157	46	1	0	0	3	129	356	640	3155
55	710	566	375	116	30	0	0	0	1	99	303	582	2782
50	567	436	247	44	8	0	0	0	0	44	187	441	1974
32	162	95	19	0	0	0	0	0	0	0	7	97	380

Cooling Degree Days (1)

Base Above	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Ann
32	166	175	369	627	936	1162	1331	1294	1069	743	412	238	8522
55	1	2	13	53	253	472	618	581	380	128	17	11	2529
57	0	0	8	33	207	412	556	519	321	96	11	7	2170
60	0	0	1	15	147	324	463	426	237	59	3	0	1675
65	0	0	0	2	71	188	308	276	115	20	0	0	980
70	0	0	0	0	26	82	166	144	36	4	0	0	458

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	31	45	178	390	672	890	1055	1024	796	423	198	76	31	76	254	644	1316	2206	3261	4285	5081	5504	5702	5778
45	12	16	100	258	519	740	900	869	646	279	115	35	12	28	128	386	905	1645	2545	3414	4060	4339	4454	4489
50	4	4	48	158	370	591	745	714	496	162	54	14	4	8	56	214	584	1175	1920	2634	3130	3292	3346	3360
55	0	1	21	85	239	442	590	559	350	78	19	0	0	1	22	107	346	788	1378	1937	2287	2365	2384	2384
60	0	0	6	36	128	298	436	405	222	27	3	0	0	0	6	42	170	468	904	1309	1531	1558	1561	1561
Base	**Growing Degree Units for Corn (Monthly)**												**Growing Degree Units for Corn (Accumulated Monthly)**											
50/86	35	54	142	271	432	582	711	686	514	301	145	56	35	89	231	502	934	1516	2227	2913	3427	3728	3873	3929

(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