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: BALL MOUNTAIN LAKE, VT **COOP ID: 430277**

Climate Division: VT 3 **NWS Call Sign:** **Elevation: 1,130 Feet** **Lat: 43˚07N** **Lon: 72˚48W**

Temperature (˚F)

Month	Mean (1)			Extremes										Degree Days (1) Base Temp 65		Mean Number of Days (3)					
	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	27.3	4.8	16.1	59	1974	28	25.9	1990	-26+	1976	19	7.3	1994	1518	0	.0	.0	.5	20.4	30.7	10.4
Feb	30.7	5.8	18.3	66	1985	25	26.7	1984	-25+	1971	1	8.5	1979	1309	0	.0	.0	1.1	15.5	27.9	8.5
Mar	39.3	16.3	27.8	75	1977	31	34.4	2000	-13+	1980	2	22.6	1984	1154	0	.0	.0	5.1	6.6	29.2	2.3
Apr	51.3	28.7	40.0	90	1990	29	45.6	1986	9	1982	7	34.0	1975	750	0	.0	@	16.1	.4	21.2	.0
May	64.9	39.9	52.4	89	1975	24	57.5	1998	21+	1976	5	47.4	1997	394	3	.0	.0	29.1	.0	5.0	.0
Jun	72.9	48.6	60.8	92	1969	28	64.6	1976	28	2001	1	56.5	1985	146	18	.0	.3	30.0	.0	.4	.0
Jul	77.7	52.7	65.2	95+	1988	9	68.4	1994	34+	2000	1	61.7	1992	52	57	.0	.8	31.0	.0	.0	.0
Aug	75.0	50.3	62.7	94	1975	3	66.3	1984	30	1976	31	59.6	1982	104	32	.0	.3	31.0	.0	.1	.0
Sep	67.0	41.6	54.3	91	1973	1	59.4	1999	20+	2000	29	51.2	1978	322	1	.0	@	29.9	.0	4.0	.0
Oct	55.6	30.1	42.9	82	1990	9	49.5	1971	11	2001	31	38.3	1974	687	0	.0	.0	23.7	@	17.1	.0
Nov	42.9	23.3	33.1	73	1982	3	38.7	1999	-1+	1972	23	27.9	1972	957	0	.0	.0	8.3	2.9	24.3	.1
Dec	31.8	12.0	21.9	69	2001	7	28.5	1998	-23	1983	21	8.7	1989	1336	0	.0	.0	1.1	15.0	29.8	4.4
Ann	53.0	29.5	41.3	95+	Jul 1988	9	68.4	Jul 1994	-26+	Jan 1976	19	7.3	Jan 1994	8729	111	.0	1.4	206.9	60.8	189.7	25.7

\+ 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: 1969-2001

(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	4.17	4.13	2.08	1990	30	9.00	1979	.87	1981
Feb	3.26	2.88	2.28	1970	11	10.52	1981	.30	1987
Mar	4.42	4.19	2.45	2001	6	7.85	1980	1.30	1981
Apr	4.21	4.09	3.14	1988	29	7.98	1983	1.13	1999
May	4.26	3.54	2.90	1979	25	11.91	1984	1.35	1980
Jun	4.09	3.71	5.60	1973	30	9.77	1998	1.23+	1988
Jul	3.96	3.62	2.85	1988	18	8.51	1988	1.15	1982
Aug	4.29	4.30	3.30	1975	8	8.10	1975	1.50	1981
Sep	3.70	3.28	4.36	1999	17	8.67	1987	1.68	1972
Oct	4.24	3.96	2.55	1980	26	8.99	1995	1.10	1994
Nov	4.32	4.37	2.10	1986	27	7.85	1972	1.10	1976
Dec	4.30	4.30	3.02	2000	18	9.50	1973	1.36	1989
Ann	49.22	48.55	5.60	Jun 1973	30	11.91	May 1984	.30	Feb 1987

Mean Number of Days (3)

Daily Precipitation

Month	>= 0.01	>= 0.10	>= 0.50	>= 1.00
Jan	9.7	6.6	2.2	.9
Feb	10.5	7.2	2.2	.7
Mar	12.9	8.8	2.9	1.1
Apr	12.3	8.3	2.8	1.0
May	11.1	7.8	2.5	.8
Jun	13.1	8.6	2.7	.7
Jul	9.2	6.3	2.1	.9
Aug	12.5	7.9	3.0	1.0
Sep	11.6	7.9	2.5	.9
Oct	11.7	7.6	2.7	1.2
Nov	13.1	8.3	3.0	1.2
Dec	13.3	8.5	3.0	1.1
Ann	141.0	93.8	31.6	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	1.28	1.68	2.27	2.77	3.27	3.78	4.34	5.00	5.85	7.18	8.42
Feb	.88	1.19	1.66	2.07	2.48	2.90	3.37	3.93	4.66	5.80	6.86
Mar	2.13	2.51	3.03	3.45	3.84	4.22	4.64	5.11	5.70	6.59	7.38
Apr	1.76	2.14	2.68	3.12	3.54	3.96	4.41	4.94	5.60	6.61	7.53
May	1.22	1.62	2.23	2.76	3.28	3.82	4.42	5.13	6.04	7.47	8.81
Jun	1.07	1.45	2.05	2.57	3.08	3.63	4.23	4.94	5.87	7.33	8.70
Jul	1.46	1.83	2.36	2.81	3.23	3.67	4.14	4.69	5.39	6.47	7.46
Aug	1.85	2.24	2.78	3.22	3.63	4.05	4.50	5.01	5.66	6.65	7.55
Sep	1.40	1.75	2.24	2.65	3.04	3.44	3.87	4.37	5.01	5.99	6.88
Oct	1.41	1.82	2.40	2.90	3.38	3.88	4.42	5.05	5.86	7.12	8.28
Nov	1.81	2.20	2.75	3.21	3.63	4.06	4.52	5.06	5.73	6.76	7.70
Dec	1.47	1.88	2.47	2.97	3.45	3.95	4.49	5.12	5.92	7.17	8.32
Ann	38.24	40.44	43.22	45.30	47.13	48.88	50.68	52.65	55.02	58.42	61.34

\+ 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: 1969-2001
(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	27.8	25.0	14	12	16.0	1990	30	53.8	1987	47	1987	31	32	1987	7.0	5.8	2.9	2.0	.4	-9.9	-9.9	-9.9	-9.9
Feb	13.0	13.0	20	19	18.0	1988	13	20.5	1978	45	1978	8	39	1987	5.6	4.1	1.9	.8	.2	-9.9	-9.9	-9.9	-9.9
Mar	17.8	12.5	17	20	31.0	1984	14	49.0	1984	47	1984	14	34	1987	4.6	4.0	1.8	.9	.3	-9.9	-9.9	-9.9	-9.9
Apr	6.2	2.5	1	#	20.0	1982	7	22.0+	1983	39	1982	7	13	1982	1.5	1.4	.6	.5	.1	.2	.1	.0	.0
May	.0	.0	#	0	.5	1977	9	.5	1977	1	1977	9	#	1977	.1	.0	.0	.0	.0	.1	.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	.4	.0	#	0	4.0	1987	5	4.5	1987	4	1987	5	#+	2000	.2	.1	.1	.0	.0	.2	.1	.0	.0
Nov	5.3	2.5	1	#	11.0	1980	18	13.0	1987	11	1980	19	2	1986	2.1	1.8	.6	.2	.1	3.4	1.5	.7	.1
Dec	16.1	12.8	5	4	10.0	1978	25	40.1	1981	27	1981	29	16	1977	6.5	4.7	1.9	1.1	.1	-9.9	-9.9	-9.9	-9.9
Ann	86.6	68.3	N/A	N/A	31.0	Mar 1984	14	53.8	Jan 1987	47+	Jan 1987	31	39	Feb 1987	27.6	21.9	9.8	5.5	1.2	-9.9	-9.9	-9.9	-9.9

+ 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	6/26	6/19	6/13	6/09	6/05	6/01	5/27	5/22	5/15
32	6/11	6/04	5/31	5/27	5/23	5/19	5/15	5/11	5/05
28	5/18	5/13	5/10	5/08	5/05	5/03	4/30	4/27	4/23
24	5/05	4/30	4/27	4/24	4/21	4/19	4/16	4/13	4/08
20	4/21	4/17	4/14	4/11	4/09	4/06	4/04	4/01	3/27
16	4/12	4/07	4/04	4/02	3/30	3/27	3/25	3/21	3/17

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	8/19	8/25	8/30	9/03	9/06	9/10	9/14	9/18	9/25
32	9/02	9/07	9/11	9/14	9/17	9/20	9/23	9/26	10/01
28	9/18	9/22	9/25	9/28	10/01	10/03	10/06	10/09	10/13
24	10/01	10/07	10/11	10/14	10/17	10/20	10/24	10/27	11/02
20	10/09	10/15	10/19	10/23	10/27	10/30	11/03	11/08	11/14
16	10/25	10/31	11/04	11/08	11/11	11/15	11/18	11/23	11/29

Freeze Free Period

Temp (F)	Probability of longer than indicated freeze free period (Days)								
	.10	.20	.30	.40	.50	.60	.70	.80	.90
36	127	115	106	99	93	86	79	70	59
32	140	132	126	121	116	111	106	101	92
28	166	159	155	151	148	144	140	136	130
24	198	191	186	182	178	174	170	165	157
20	220	214	209	204	200	196	192	187	180
16	249	241	235	230	226	221	216	210	202

***** 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	1518	1309	1154	750	394	146	52	104	322	687	957	1336	8729
60	1363	1169	999	600	253	56	6	28	183	532	807	1181	7177
57	1270	1085	906	510	181	25	0	9	115	441	717	1088	6347
55	1208	1029	844	452	140	13	0	3	79	382	657	1026	5833
50	1053	889	689	310	62	2	0	0	25	246	507	871	4654
32	510	402	186	18	0	0	0	0	0	9	77	352	1554

Cooling Degree Days (1)

Base Above	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Ann
32	14	17	56	258	632	862	1028	950	668	345	110	39	4979
55	0	0	0	2	59	185	315	241	57	5	0	0	864
57	0	0	0	1	38	137	254	184	33	2	0	0	649
60	0	0	0	0	17	78	167	111	11	0	0	0	384
65	0	0	0	0	3	18	57	32	1	0	0	0	111
70	0	0	0	0	0	1	8	4	0	0	0	0	13

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	0	0	15	104	420	653	817	742	474	187	46	1	0	0	15	119	539	1192	2009	2751	3225	3412	3458	3459
45	0	0	3	50	278	503	662	587	328	95	21	0	0	0	3	53	331	834	1496	2083	2411	2506	2527	2527
50	0	0	1	21	162	358	507	433	200	40	6	0	0	0	1	22	184	542	1049	1482	1682	1722	1728	1728
55	0	0	0	7	79	219	352	285	103	10	0	0	0	0	0	7	86	305	657	942	1045	1055	1055	1055
60	0	0	0	1	32	111	214	153	45	0	0	0	0	0	0	1	33	144	358	511	556	556	556	556
Base	**Growing Degree Units for Corn (Monthly)**												**Growing Degree Units for Corn (Accumulated Monthly)**											
50/86	0	0	16	84	263	402	522	467	297	134	31	1	0	0	16	100	363	765	1287	1754	2051	2185	2216	2217

(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