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: BLACK ROCK, UT **COOP ID: 420730**

Climate Division: UT 1 **NWS Call Sign:** **Elevation: 4,895 Feet** **Lat: 38˚43N** **Lon: 112˚57W**

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	40.6	14.0	27.3	68	1990	9	35.8	1998	-29	1979	30	15.0	1973	1168	0	.0	.0	6.5	6.6	29.2	4.8
Feb	48.0	18.8	33.4	75	1986	25	41.0	1995	-28	1989	7	25.3	1989	884	0	.0	.0	12.7	1.8	25.8	1.6
Mar	57.8	25.2	41.5	83	1997	20	47.0	1989	-27	1966	4	34.3	1976	728	0	.0	.0	24.0	.3	25.1	.1
Apr	66.2	30.1	48.2	88+	1989	19	54.8	1992	7	1975	2	41.6	1975	506	0	.0	.0	27.9	.0	18.2	.0
May	75.2	37.6	56.4	96	1996	13	61.5	2000	19+	1967	2	51.5	1975	278	12	.0	1.3	30.8	.0	7.0	.0
Jun	85.7	44.9	65.3	104+	1954	23	69.9	1994	24	1951	3	61.3	1998	76	85	.5	12.0	30.0	.0	.9	.0
Jul	91.8	52.6	72.2	105+	1960	15	74.9	1996	32	1997	2	69.0	1993	3	226	2.2	23.2	31.0	.0	@	.0
Aug	89.1	51.5	70.3	105	1962	15	73.9	2000	29	1992	27	66.5	1976	13	178	.8	17.8	31.0	.0	.1	.0
Sep	79.9	42.2	61.1	98+	1955	5	65.9	1990	22+	1968	22	56.5	1986	150	31	.0	3.4	30.0	.0	3.5	.0
Oct	67.7	31.2	49.5	90	1963	3	54.8	1988	-6	1971	30	45.0	1984	483	0	.0	.0	29.2	.1	18.1	@
Nov	52.3	22.0	37.2	80	1988	4	42.9	1999	-22	1977	20	30.3	1994	836	0	.0	.0	18.4	1.1	25.6	.6
Dec	41.4	13.6	27.5	67+	1958	5	35.8	1977	-37	1990	23	16.8	1990	1163	0	.0	.0	6.7	5.4	29.3	3.8
Ann	66.3	32.0	49.2	105+	Aug 1962	15	74.9	Jul 1996	-37	Dec 1990	23	15.0	Jan 1973	6288	532	3.5	57.7	278.2	15.3	182.8	10.9

+ 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: 1951-2001

(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	.58	.39	1.07	1997	3	1.76	1993	.01+	1986
Feb	.56	.57	.60	1959	12	1.69	1998	.00	1972
Mar	1.09	.96	1.76	1959	24	2.65	1992	.00+	1997
Apr	.91	.87	1.05	1952	11	1.88	1986	.09	1992
May	1.01	.92	1.90	1975	20	3.11	1995	.00	1974
Jun	.49	.24	1.91	1956	30	2.18	1990	.00+	1996
Jul	.71	.56	3.16	1969	29	2.77	1998	.03	1978
Aug	.92	.70	1.16	1984	14	3.11	1983	.00	1985
Sep	.83	.51	1.47	1970	5	3.82	1982	.00+	1979
Oct	1.00	.87	1.14	1976	2	2.65	1994	.00	1995
Nov	.72	.50	1.13	1963	7	2.26	1978	.00	1992
Dec	.52	.45	1.50	1998	21	1.92	1998	.00+	1989
Ann	9.34	10.12	3.16	Jul 1969	29	3.82	Sep 1982	.00+	Mar 1997

Mean Number of Days (3)

Daily Precipitation

Month	>= 0.01	>= 0.10	>= 0.50	>= 1.00
Jan	4.6	1.9	.1	@
Feb	4.8	2.2	.1	.0
Mar	6.2	3.5	.4	.1
Apr	5.7	3.2	.2	.0
May	5.5	3.0	.4	@
Jun	2.9	1.5	.2	@
Jul	4.3	2.2	.3	@
Aug	5.0	2.5	.4	@
Sep	4.0	2.2	.4	.1
Oct	4.4	2.6	.5	.1
Nov	4.2	2.1	.4	.1
Dec	4.0	2.1	@	@
Ann	55.6	29.0	3.4	.4

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	.03	.06	.12	.20	.29	.39	.52	.69	.93	1.33	1.74
Feb	.05	.12	.21	.29	.37	.46	.56	.69	.85	1.12	1.38
Mar	.00	.19	.41	.58	.75	.93	1.13	1.36	1.68	2.18	2.65
Apr	.14	.22	.35	.48	.61	.75	.91	1.11	1.37	1.80	2.21
May	.05	.15	.30	.45	.61	.78	.99	1.24	1.59	2.17	2.73
Jun	.00	.00	.00	.07	.16	.27	.40	.58	.84	1.29	1.74
Jul	.08	.13	.23	.33	.43	.55	.70	.87	1.11	1.50	1.89
Aug	.04	.12	.25	.39	.53	.70	.89	1.13	1.45	1.99	2.53
Sep	.00	.03	.13	.25	.39	.55	.75	1.01	1.37	1.99	2.61
Oct	.13	.26	.43	.57	.71	.86	1.03	1.24	1.50	1.93	2.33
Nov	.03	.09	.20	.31	.42	.55	.70	.89	1.14	1.57	1.99
Dec	.00	.07	.17	.26	.34	.43	.53	.65	.82	1.08	1.34
Ann	5.62	6.30	7.18	7.87	8.49	9.11	9.75	10.46	11.35	12.65	13.80

\+ 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: 1951-2001
(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	5.9	4.3	2	1
Feb	6.3	5.1	1	#
Mar	7.5	4.0	#	#
Apr	2.7	1.5	#	0
May	.5	.0	#	0
Jun	.0	.0	0	0
Jul	.0	.0	0	0
Aug	.0	.0	0	0
Sep	.1	.0	0	0
Oct	.2	.0	#	0
Nov	4.0	1.5	#	#
Dec	5.4	5.0	1	#
Ann	32.6	21.4	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	1988	18	29.0	1988	24	1988	19	9	1988
Feb	8.0	1984	17	20.5	1990	10	1989	9	5	1989
Mar	18.8	1988	16	23.9	1980	16	1985	28	2	1985
Apr	8.0	1977	2	9.5+	1983	4	1999	1	#+	1999
May	6.0	1978	6	6.0	1978	14	1975	20	1	1975
Jun	1.0	1990	1	1.0	1990	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	2.0	1978	18	2.0+	1982	0	0	0	0	0
Oct	3.0	1991	27	3.0	1991	5	1971	29	1	1971
Nov	8.0	1983	21	18.0	1994	12	1983	25	2	1994
Dec	9.0	1982	7	16.1	1988	10	1984	25	4	1988
Ann	18.8	Mar 1988	16	29.0	Jan 1988	24	Jan 1988	19	9	Jan 1988

Mean Number of Days (1)

Snow Fall >= Thresholds

Month	0.1	1.0	3.0	5.0	10.0
Jan	3.1	2.7	.8	.1	@
Feb	2.0	1.7	.9	.4	.0
Mar	1.9	1.8	.8	.4	.1
Apr	.9	.8	.3	.1	.0
May	.2	.1	.1	@	.0
Jun	@	@	.0	.0	.0
Jul	.0	.0	.0	.0	.0
Aug	.0	.0	.0	.0	.0
Sep	.1	.1	.0	.0	.0
Oct	.1	.1	@	.0	.0
Nov	1.1	1.0	.6	.3	.0
Dec	2.0	1.7	.6	.4	.0
Ann	11.4	10.0	4.1	1.7	.1

Snow Depth >= Thresholds

Month	1	3	5	10
Jan	8.7	4.8	3.0	.1
Feb	5.9	3.2	1.7	.2
Mar	1.9	1.0	.6	.2
Apr	.3	.1	.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	.2	@	.0	.0
Nov	2.8	1.7	1.1	@
Dec	6.9	4.0	2.5	.2
Ann	26.7	14.8	8.9	.7

+ 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	7/04	6/28	6/24	6/20	6/17	6/14	6/10	6/06	5/31
32	6/20	6/13	6/09	6/05	6/01	5/29	5/25	5/20	5/14
28	5/29	5/24	5/21	5/18	5/15	5/13	5/10	5/07	5/02
24	5/12	5/07	5/03	4/30	4/27	4/24	4/21	4/17	4/12
20	5/05	4/28	4/22	4/18	4/14	4/10	4/05	3/31	3/24
16	4/21	4/12	4/06	4/01	3/27	3/22	3/17	3/11	3/02

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	8/27	9/01	9/05	9/08	9/10	9/13	9/16	9/20	9/25
32	9/08	9/12	9/15	9/18	9/21	9/23	9/26	9/29	10/04
28	9/12	9/18	9/21	9/25	9/28	10/01	10/04	10/08	10/13
24	9/25	9/30	10/05	10/08	10/12	10/15	10/19	10/23	10/29
20	10/11	10/16	10/20	10/23	10/26	10/29	11/01	11/05	11/10
16	10/20	10/24	10/28	10/31	11/03	11/05	11/08	11/12	11/17

Freeze Free Period

Temp (F)	Probability of longer than indicated freeze free period (Days)								
	.10	.20	.30	.40	.50	.60	.70	.80	.90
36	108	100	94	89	85	80	75	69	61
32	130	124	119	115	111	107	103	98	91
28	152	146	142	138	135	131	127	123	117
24	192	183	177	172	167	162	157	151	142
20	223	213	206	200	194	189	183	176	166
16	251	240	232	226	220	214	207	199	189

***** 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	1168	884	728	506	278	76	3	13	150	483	836	1163	6288
60	1013	744	573	363	156	25	0	1	62	332	686	1008	4963
57	920	660	483	282	101	10	0	0	31	247	596	915	4245
55	864	604	424	233	71	5	0	0	17	197	536	853	3804
50	719	471	286	132	23	0	0	0	2	95	392	698	2818
32	282	107	19	1	0	0	0	0	0	0	50	225	684

Cooling Degree Days (1)

Base Above	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Ann
32	136	147	314	486	757	999	1246	1188	871	540	204	86	6974
55	5	0	6	27	115	314	533	475	198	24	0	0	1697
57	0	0	3	17	82	259	471	413	152	12	0	0	1409
60	0	0	0	7	45	184	378	321	93	4	0	0	1032
65	0	0	0	0	12	85	226	178	31	0	0	0	532
70	0	0	0	0	1	27	97	70	6	0	0	0	201

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	9	43	134	275	528	783	1027	970	655	329	81	14	9	52	186	461	989	1772	2799	3769	4424	4753	4834	4848
45	0	9	53	158	377	633	872	815	507	198	30	0	0	9	62	220	597	1230	2102	2917	3424	3622	3652	3652
50	0	0	17	69	238	485	717	660	360	93	8	0	0	0	17	86	324	809	1526	2186	2546	2639	2647	2647
55	0	0	0	22	122	339	562	505	226	31	0	0	0	0	0	22	144	483	1045	1550	1776	1807	1807	1807
60	0	0	0	2	48	204	407	351	112	3	0	0	0	0	0	2	50	254	661	1012	1124	1127	1127	1127
Base	**Growing Degree Units for Corn (Monthly)**												**Growing Degree Units for Corn (Accumulated Monthly)**											
50/86	20	58	149	254	401	513	626	610	461	293	97	18	20	78	227	481	882	1395	2021	2631	3092	3385	3482	3500

(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

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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