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: MORONI, UT **COOP ID: 425837**

Climate Division: UT 4 **NWS Call Sign:** **Elevation: 5,560 Feet** **Lat: 39˚32N** **Lon: 111˚35W**

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	35.8	11.7	23.8	66	1956	11	33.7	2000	-27	1971	6	14.7	1989	1279	0	.0	.0	2.3	9.8	30.5	5.3
Feb	41.4	16.9	29.2	69	1986	25	37.6	1995	-25	1989	7	20.8	1974	1004	0	.0	.0	5.5	4.1	27.6	2.1
Mar	51.0	24.1	37.6	76	1953	27	42.7	1972	-8	1964	8	32.6	1977	850	0	.0	.0	18.2	.3	27.8	.1
Apr	59.6	29.1	44.4	84+	1949	25	51.5	1992	10+	1970	10	36.5	1975	619	0	.0	.0	25.1	.0	21.4	.0
May	68.8	36.3	52.6	92	1951	27	57.8	1992	19	1955	16	47.9	1975	388	3	.0	.1	30.0	.0	8.1	.0
Jun	79.8	42.8	61.3	100	1954	23	66.0+	1994	24	1976	14	56.0	1975	152	42	.0	5.8	30.0	.0	1.0	.0
Jul	86.7	49.4	68.1	102	1985	5	71.3	1989	33	1982	6	64.6	1993	29	123	.2	15.0	31.0	.0	.0	.0
Aug	84.9	48.6	66.8	102	1979	4	71.0	2000	28	1964	30	62.2	1975	49	104	@	10.6	31.0	.0	.1	.0
Sep	76.8	40.7	58.8	98	1950	2	63.9	1990	15+	1965	18	54.0	1971	208	20	.0	1.8	29.9	.0	4.1	.0
Oct	64.4	31.0	47.7	89	1979	7	54.5	1999	8	1971	30	40.5	1984	537	0	.0	.0	27.8	.1	18.7	.0
Nov	48.1	21.5	34.8	79	1960	1	42.1	1999	-9	1977	20	28.0	1979	905	0	.0	.0	14.1	2.6	27.9	.4
Dec	37.8	13.0	25.4	66	1995	1	34.6	1980	-26	1990	23	19.0	1990	1228	0	.0	.0	3.5	7.8	30.5	3.9
Ann	61.3	30.4	45.9	102+	Jul 1985	5	71.3	Jul 1989	-27	Jan 1971	6	14.7	Jan 1989	7248	292	.2	33.3	248.4	24.7	197.7	11.8

\+ 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

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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	.93	.76	1.10	1982	5	2.32	1997	.09+	1986
Feb	.90	.61	1.03	1996	20	3.21	1980	.11	1972
Mar	.97	.98	1.90	2000	1	2.90	2000	.00	1997
Apr	.69	.61	.73	1973	18	2.39	1999	.00+	1990
May	.86	.83	1.58	1975	20	1.95	1975	.05	1998
Jun	.54	.42	1.48	1984	7	2.55	1984	.00+	1994
Jul	.73	.56	1.24	1974	16	2.58	1998	.00	1996
Aug	.81	.71	1.01	1964	15	3.11	2000	.03	1985
Sep	.93	.72	1.15	1982	29	4.52	1982	.00+	1996
Oct	1.07	.96	.92	1992	28	2.89	1972	.03	1999
Nov	.86	.66	.92	1978	2	2.21	1978	.02+	1995
Dec	.83	.65	2.36	1983	21	3.02	1983	.00	1976
Ann	10.12	9.26	2.36	Dec 1983	21	4.52	Sep 1982	.00+	Mar 1997

Mean Number of Days (3)

Daily Precipitation

Month	>= 0.01	>= 0.10	>= 0.50	>= 1.00
Jan	5.6	2.5	.4	.1
Feb	5.7	2.5	.1	@
Mar	6.1	2.9	.1	@
Apr	5.3	2.3	.2	.0
May	5.4	2.6	.3	@
Jun	3.6	1.5	.1	.1
Jul	4.2	2.2	.3	@
Aug	5.2	2.7	.3	.0
Sep	4.7	2.8	.5	@
Oct	5.1	3.3	.4	.0
Nov	5.0	2.4	.3	.0
Dec	5.6	2.2	.1	@
Ann	61.5	29.9	3.1	.2

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	.10	.17	.30	.43	.56	.72	.90	1.13	1.45	1.96	2.47
Feb	.10	.17	.30	.42	.56	.70	.88	1.10	1.39	1.88	2.36
Mar	.04	.12	.26	.40	.56	.73	.94	1.19	1.55	2.13	2.71
Apr	.00	.03	.13	.23	.34	.48	.64	.85	1.14	1.63	2.13
May	.17	.25	.37	.49	.61	.73	.87	1.04	1.27	1.63	1.98
Jun	.00	.00	.04	.13	.22	.33	.47	.66	.92	1.36	1.81
Jul	.04	.11	.22	.33	.44	.57	.72	.90	1.16	1.57	1.98
Aug	.08	.13	.24	.35	.48	.62	.78	.99	1.27	1.74	2.20
Sep	.00	.08	.23	.38	.53	.71	.91	1.15	1.49	2.05	2.60
Oct	.13	.22	.37	.52	.67	.85	1.05	1.30	1.64	2.20	2.74
Nov	.06	.11	.22	.34	.47	.62	.81	1.05	1.38	1.94	2.50
Dec	.08	.18	.32	.44	.56	.69	.84	1.02	1.26	1.65	2.02
Ann	5.22	6.06	7.19	8.09	8.91	9.74	10.61	11.59	12.83	14.67	16.31

\+ 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	7.3	6.5	4	#
Feb	6.5	5.0	5	1
Mar	5.0	4.2	#	0
Apr	1.4	1.0	#	0
May	1.1	.0	#	0
Jun	.0	.0	#	0
Jul	.0	.0	0	0
Aug	.0	.0	0	0
Sep	.1	.0	#	0
Oct	1.2	.0	#	0
Nov	5.8	3.5	#	#
Dec	6.7	6.0	1	#
Ann	35.1	26.2	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	10.0	1997	12	16.6	2000	21	1982	6	16	1982
Feb	8.0	1997	27	16.8	1997	19	1989	7	14	1988
Mar	6.0	1980	6	19.0	1980	8	1989	3	1	1989
Apr	5.0	1972	19	5.0	1972	2	1989	1	#+	2000
May	10.0	1975	20	13.0	1975	#+	1999	16	#+	1999
Jun	.5	1990	1	.5	1990	1	1990	1	#	1990
Jul	.0	0	0	.0	0	0	0	0	0	0
Aug	.0	0	0	.0	0	0	0	0	0	0
Sep	1.0	1982	29	1.0	1982	#	1978	18	#	1978
Oct	6.0	1984	17	8.0	1971	#+	1996	28	#+	1996
Nov	7.0	1973	3	20.5	1973	7	1988	14	1+	2000
Dec	9.0	1979	21	21.0	1982	16	1988	25	12	1981
Ann	10.0+	Jan 1997	12	21.0	Dec 1982	21	Jan 1982	6	16	Jan 1982

Mean Number of Days (1)

Snow Fall >= Thresholds

Month	0.1	1.0	3.0	5.0	10.0
Jan	3.5	3.0	.9	.3	@
Feb	3.5	3.0	.8	.2	.0
Mar	2.5	2.2	.5	@	.0
Apr	1.3	1.2	.2	@	.0
May	.6	.5	.1	@	@
Jun	@	.0	.0	.0	.0
Jul	.0	.0	.0	.0	.0
Aug	.0	.0	.0	.0	.0
Sep	.1	@	.0	.0	.0
Oct	.7	.5	.1	@	.0
Nov	2.7	2.3	.6	.2	.0
Dec	3.5	3.1	.9	.5	.0
Ann	18.4	15.8	4.1	1.2	@

Snow Depth >= Thresholds

Month	1	3	5	10
Jan	-9.9	-9.9	-9.9	-9.9
Feb	-9.9	-9.9	-9.9	-9.9
Mar	-9.9	-9.9	-9.9	-9.9
Apr	.1	.0	.0	.0
May	.0	.0	.0	.0
Jun	.1	.0	.0	.0
Jul	.0	.0	.0	.0
Aug	.0	.0	.0	.0
Sep	.0	.0	.0	.0
Oct	.0	.0	.0	.0
Nov	1.4	.6	.2	.0
Dec	-9.9	-9.9	-9.9	-9.9
Ann	-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	7/04	6/28	6/24	6/20	6/16	6/13	6/09	6/04	5/29
32	6/21	6/15	6/11	6/07	6/03	5/31	5/27	5/23	5/17
28	6/09	6/01	5/27	5/22	5/18	5/14	5/10	5/04	4/27
24	5/20	5/14	5/10	5/06	5/02	4/29	4/25	4/21	4/15
20	5/04	4/26	4/21	4/16	4/11	4/07	4/02	3/27	3/19
16	4/17	4/09	4/03	3/30	3/25	3/20	3/16	3/10	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	8/20	8/26	8/31	9/04	9/08	9/11	9/15	9/20	9/27
32	8/30	9/05	9/10	9/14	9/17	9/21	9/25	9/29	10/06
28	9/15	9/20	9/24	9/27	9/30	10/03	10/06	10/10	10/15
24	9/23	9/30	10/04	10/08	10/11	10/15	10/18	10/23	10/29
20	10/14	10/19	10/22	10/25	10/27	10/30	11/02	11/05	11/10
16	10/18	10/25	10/29	11/02	11/05	11/09	11/13	11/17	11/23

Freeze Free Period

Temp (F)	Probability of longer than indicated freeze free period (Days)								
	.10	.20	.30	.40	.50	.60	.70	.80	.90
36	114	103	96	89	83	77	70	62	52
32	131	122	116	110	105	100	95	88	79
28	160	151	145	139	134	129	123	117	108
24	188	179	172	167	161	156	150	143	134
20	228	218	211	204	199	193	186	179	169
16	256	245	238	231	225	218	212	204	193

***** 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	1279	1004	850	619	388	152	29	49	208	537	905	1228	7248
60	1124	864	695	473	249	70	4	11	105	387	755	1073	5810
57	1031	780	602	389	178	37	1	3	61	302	665	980	5029
55	969	724	540	335	138	23	0	1	40	251	605	918	4544
50	814	584	391	215	62	5	0	0	10	142	459	763	3445
32	322	177	39	11	0	0	0	0	0	2	77	260	888

Base	Cooling Degree Days (1)												
Above	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Ann
32	66	97	212	381	638	879	1117	1078	803	489	162	55	5977
55	0	0	0	16	63	212	404	366	153	24	0	0	1238
57	0	0	0	10	41	167	343	306	114	14	0	0	995
60	0	0	0	4	19	109	253	221	67	5	0	0	678
65	0	0	0	0	3	42	123	104	20	0	0	0	292
70	0	0	0	0	0	10	40	32	3	0	0	0	85

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	9	62	191	428	676	908	865	591	283	46	0	0	9	71	262	690	1366	2274	3139	3730	4013	4059	4059
45	0	0	18	92	280	526	753	710	442	159	8	0	0	0	18	110	390	916	1669	2379	2821	2980	2988	2988
50	0	0	0	33	155	377	598	555	300	65	0	0	0	0	0	33	188	565	1163	1718	2018	2083	2083	2083
55	0	0	0	5	65	244	443	400	172	17	0	0	0	0	0	5	70	314	757	1157	1329	1346	1346	1346
60	0	0	0	0	14	124	289	248	72	1	0	0	0	0	0	0	14	138	427	675	747	748	748	748
Base	Growing Degree Units for Corn (Monthly)												Growing Degree Units for Corn (Accumulated Monthly)											
50/86	0	17	82	188	329	467	572	562	431	257	63	4	0	17	99	287	616	1083	1655	2217	2648	2905	2968	2972

(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