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: ALPINE, UT **COOP ID: 420061**

Climate Division: UT 3 **NWS Call Sign:** **Elevation: 5,070 Feet** **Lat: 40˚27N** **Lon: 111˚46W**

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	37.7	17.8	27.8	61	1987	27	36.0	1998	-15	1979	31	19.9	1984	1154	0	.0	.0	3.1	7.4	28.7	2.1
Feb	44.2	21.2	32.7	70	1986	25	41.8	1995	-20+	1982	6	23.7	1984	905	0	.0	.0	7.8	2.3	25.1	.7
Mar	53.2	28.9	41.1	78	1986	28	46.5	1986	5+	1976	5	35.6	1976	743	0	.0	.0	20.0	.3	21.2	.0
Apr	62.1	34.6	48.4	87	1989	20	55.2	1992	12	1983	7	40.7	1975	502	2	.0	.0	26.2	@	10.8	.0
May	71.8	41.6	56.7	92+	1984	23	61.8	1992	24	1990	9	51.0	1975	273	15	.0	.2	30.4	.0	3.2	.0
Jun	83.4	48.5	66.0	100+	1988	25	71.5	1988	30	1968	30	60.6	1975	78	106	.1	7.5	30.0	.0	.2	.0
Jul	91.0	55.6	73.3	104	1989	20	77.5	1989	39	1983	11	67.7	1993	4	260	.9	18.9	31.0	.0	.0	.0
Aug	89.3	54.8	72.1	105	1979	4	74.5	2000	32	1965	31	67.2	1975	7	225	.5	14.8	31.0	.0	.0	.0
Sep	79.2	45.9	62.6	96	1979	7	68.3	1990	25+	1985	29	57.1	1971	129	56	.0	2.2	29.9	.0	1.0	.0
Oct	65.9	36.0	51.0	87+	1979	1	57.9	1988	17	1975	25	45.0	1984	438	2	.0	.0	28.7	@	9.2	.0
Nov	49.2	26.8	38.0	74	1999	15	47.1	1999	-1	1993	26	31.2	2000	811	0	.0	.0	14.8	1.5	23.6	.1
Dec	39.0	18.9	29.0	66	1995	1	35.6	1995	-7+	1978	8	20.6	1990	1119	0	.0	.0	4.4	6.9	28.6	1.2
Ann	63.8	35.9	49.9	105	Aug 1979	4	77.5	Jul 1989	-20+	Feb 1982	6	19.9	Jan 1984	6163	666	1.5	43.6	257.3	18.4	151.6	4.1

\+ 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	1.99	1.44	1.56	1996	17	4.58	1996	.65	1972
Feb	1.74	1.59	1.03	1976	9	5.10	1980	.07	1972
Mar	1.92	1.73	1.91	1978	3	5.83	1978	.28	1974
Apr	1.85	1.85	1.77	1957	23	5.23	1999	.19	1977
May	2.17	1.83	2.00	1968	23	6.31	1995	.03	1972
Jun	.88	.59	1.85	1998	13	4.24	1998	.00+	1994
Jul	.74	.66	1.20	1995	3	2.06	1995	.00	1978
Aug	1.00	.89	1.43	1978	14	2.92	1983	.00	1974
Sep	1.38	1.28	1.62	1978	17	6.61	1982	.00	1974
Oct	1.89	1.68	1.75	1974	31	4.10	1981	.02	1978
Nov	1.66	1.68	1.26	1996	22	3.61	1994	.12	1976
Dec	1.67	1.62	1.70	1983	13	8.37	1983	.06	1976
Ann	18.89	19.84	2.00	May 1968	23	8.37	Dec 1983	.00+	Jun 1994

Mean Number of Days (3)

Daily Precipitation

Month	>= 0.01	>= 0.10	>= 0.50	>= 1.00
Jan	9.1	5.7	1.1	.1
Feb	8.6	5.2	.9	.1
Mar	10.1	5.7	1.0	@
Apr	9.0	5.6	.9	.1
May	9.4	5.5	1.2	.2
Jun	4.6	2.2	.5	.1
Jul	5.1	2.3	.2	.1
Aug	6.4	2.9	.4	.1
Sep	6.0	3.5	.8	.2
Oct	6.9	4.8	1.3	.1
Nov	8.4	4.6	.9	.2
Dec	7.7	4.6	.9	@
Ann	91.3	52.6	10.1	1.3

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	.58	.77	1.06	1.30	1.54	1.79	2.07	2.39	2.81	3.47	4.08
Feb	.31	.47	.72	.96	1.20	1.46	1.76	2.12	2.60	3.37	4.11
Mar	.48	.66	.94	1.19	1.44	1.69	1.98	2.32	2.77	3.48	4.14
Apr	.24	.39	.66	.91	1.18	1.48	1.83	2.26	2.84	3.78	4.70
May	.23	.40	.70	1.00	1.33	1.69	2.12	2.65	3.38	4.58	5.76
Jun	.00	.02	.11	.22	.37	.54	.76	1.05	1.46	2.19	2.92
Jul	.06	.14	.26	.37	.48	.61	.75	.92	1.15	1.52	1.88
Aug	.06	.16	.31	.46	.61	.79	.99	1.23	1.57	2.12	2.65
Sep	.07	.20	.42	.62	.83	1.07	1.35	1.70	2.17	2.95	3.71
Oct	.29	.44	.72	.98	1.25	1.55	1.89	2.31	2.87	3.78	4.65
Nov	.31	.46	.71	.93	1.16	1.41	1.69	2.02	2.47	3.19	3.87
Dec	.21	.34	.57	.80	1.05	1.32	1.64	2.03	2.57	3.44	4.29
Ann	10.96	12.38	14.26	15.73	17.06	18.37	19.76	21.31	23.22	26.06	28.56

\+ 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	14.8	12.5	5	5	10.0	1996	17	33.5	1997	20	1996	31	13	1984	5.3	4.8	2.0	.7	.1	22.0	20.7	16.9	7.0
Feb	10.0	9.5	5	4	13.0	1982	3	17.0	1979	20	1996	1	16	1984	4.3	3.5	1.4	.6	.1	16.2	12.0	8.0	2.5
Mar	5.1	5.0	1	#	8.0	1996	6	15.0	1998	15	1984	1	5	1984	1.9	1.6	.7	.3	.0	2.6	1.0	.4	.0
Apr	2.1	.0	#	0	10.0	1999	8	20.4	1999	8	1999	8	1	1999	.7	.6	.2	.1	.1	.3	.2	.2	.0
May	.2	.0	#	0	3.0	1999	5	3.0	1999	#+	2000	12	#+	2000	.1	.1	@	.0	.0	.0	.0	.0	.0
Jun	.0	.0	0	0	1.0	1998	17	1.0	1998	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	#	1986	26	#	1986	0	0	0	0	0	.0	.0	.0	.0	.0	.0	.0	.0	.0
Oct	.5	.0	#	0	5.0	1997	12	6.0	1997	6	1995	22	#+	1999	.4	.3	.1	@	.0	.1	.1	.0	.0
Nov	6.3	4.9	1	#	11.0	1985	12	20.0	1985	11	1985	19	4	1985	2.9	2.6	.9	.2	.1	5.4	4.0	1.9	.1
Dec	9.1	10.5	2	2	9.0	1999	3	28.5	1999	15	1983	27	8	1983	3.4	2.9	1.5	.5	.0	14.8	10.3	5.9	.7
Ann	48.1	42.4	N/A	N/A	13.0	Feb 1982	3	33.5	Jan 1997	20+	Feb 1996	1	16	Feb 1984	19.0	16.4	6.8	2.4	.4	61.4	48.3	33.3	10.3

+ 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	6/20	6/13	6/08	6/04	6/01	5/28	5/24	5/19	5/13
32	6/07	5/31	5/27	5/23	5/19	5/15	5/12	5/07	5/01
28	5/19	5/13	5/08	5/04	4/30	4/27	4/23	4/18	4/12
24	4/26	4/19	4/14	4/10	4/06	4/02	3/29	3/24	3/17
20	4/12	4/04	3/29	3/24	3/19	3/14	3/09	3/03	2/23
16	4/01	3/24	3/17	3/12	3/07	3/02	2/25	2/19	2/10

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	9/11	9/16	9/19	9/22	9/25	9/28	10/01	10/05	10/10
32	9/18	9/22	9/26	9/29	10/01	10/04	10/07	10/11	10/15
28	9/29	10/05	10/10	10/13	10/17	10/21	10/24	10/29	11/04
24	10/18	10/22	10/25	10/28	10/31	11/02	11/05	11/08	11/12
20	10/24	10/29	11/02	11/06	11/09	11/12	11/15	11/19	11/25
16	11/06	11/11	11/15	11/18	11/21	11/24	11/27	12/01	12/06

Freeze Free Period

Temp (F)	Probability of longer than indicated freeze free period (Days)								
	.10	.20	.30	.40	.50	.60	.70	.80	.90
36	142	133	126	121	116	111	105	99	90
32	157	150	144	139	135	130	125	120	112
28	200	189	182	175	169	163	156	149	138
24	232	223	217	212	207	202	197	190	182
20	262	253	246	240	234	229	223	216	206
16	290	279	271	264	258	251	244	236	225

***** 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	1154	905	743	502	273	78	4	7	129	438	811	1119	6163
60	999	765	588	362	155	28	0	1	56	294	661	964	4873
57	906	681	497	283	101	12	0	0	29	218	571	871	4169
55	844	625	437	236	72	7	0	0	17	173	513	809	3733
50	694	491	296	139	25	1	0	0	3	84	373	654	2760
32	234	115	19	3	0	0	0	0	0	1	48	176	596

Cooling Degree Days (1)

Base Above	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Ann
32	103	134	299	493	766	1018	1279	1241	917	587	227	81	7145
55	0	0	4	36	125	334	566	528	243	46	2	0	1884
57	0	0	1	23	91	280	504	466	195	29	1	0	1590
60	0	0	0	12	52	206	411	374	132	12	0	0	1199
65	0	0	0	2	15	106	260	225	56	2	0	0	666
70	0	0	0	0	2	42	128	103	16	0	0	0	291

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	5	26	116	278	523	781	1034	993	696	361	83	12	5	31	147	425	948	1729	2763	3756	4452	4813	4896	4908
45	0	4	49	162	376	631	879	838	549	229	32	1	0	4	53	215	591	1222	2101	2939	3488	3717	3749	3750
50	0	0	13	79	240	482	724	683	399	120	6	0	0	0	13	92	332	814	1538	2221	2620	2740	2746	2746
55	0	0	0	30	128	341	569	528	262	44	0	0	0	0	0	30	158	499	1068	1596	1858	1902	1902	1902
60	0	0	0	10	53	209	414	375	138	9	0	0	0	0	0	10	63	272	686	1061	1199	1208	1208	1208
Base	**Growing Degree Units for Corn (Monthly)**												**Growing Degree Units for Corn (Accumulated Monthly)**											
50/86	1	24	93	198	351	504	647	634	456	265	65	8	1	25	118	316	667	1171	1818	2452	2908	3173	3238	3246

(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