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: TIMPANOGOS CAVE, UT **COOP ID: 428733**

Climate Division: UT 3 **NWS Call Sign:** **Elevation: 5,640 Feet** **Lat: 40˚27N** **Lon: 111˚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	34.1	20.0	27.1	59	2000	13	34.0	1998	-12	1963	12	18.8	1979	1177	0	.0	.0	.5	12.3	29.4	.6
Feb	40.7	23.1	31.9	66	1951	10	39.9	1995	-10+	1982	5	25.1	1985	928	0	.0	.0	3.6	4.7	24.9	.5
Mar	50.5	28.5	39.5	77	1986	29	45.6	1986	1	1976	5	32.9	1976	791	0	.0	.0	16.3	.5	21.4	.0
Apr	60.6	34.2	47.4	85+	1992	27	54.9	1992	12	1975	2	39.5	1975	532	4	.0	.0	24.7	.0	11.9	.0
May	70.8	41.8	56.3	91+	1967	23	61.7	1992	22	1967	2	50.7	1995	288	19	.0	.1	29.8	.0	2.5	.0
Jun	82.5	49.6	66.1	101	1970	26	71.3	1974	28	1999	3	59.9	1993	88	118	.1	6.6	30.0	.0	.1	.0
Jul	91.6	56.9	74.3	112	2001	2	78.5	1989	39	1992	2	67.7	1993	6	292	2.0	21.4	31.0	.0	.0	.0
Aug	90.6	55.8	73.2	106	1996	17	77.3	1994	33	1980	28	69.1	1975	5	259	1.0	18.7	31.0	.0	.0	.0
Sep	79.0	47.6	63.3	98+	1976	3	69.9	1979	24	1965	18	57.2	1986	127	77	.0	3.6	29.9	.0	.7	.0
Oct	62.6	38.1	50.4	88	1992	1	57.7	1988	13	1975	25	42.9	1984	460	5	.0	.0	27.1	.2	6.4	.0
Nov	43.0	27.7	35.4	70	1958	9	43.8	1999	-2	1955	16	26.7	2000	890	0	.0	.0	7.9	4.5	21.0	.0
Dec	34.2	20.7	27.5	64	1999	1	34.6	1977	-14	1990	23	20.6	1990	1164	0	.0	.0	1.0	12.8	29.1	.6
Ann	61.7	37.0	49.4	112	Jul 2001	2	78.5	Jul 1989	-14	Dec 1990	23	18.8	Jan 1979	6456	774	3.1	50.4	232.8	35.0	147.4	1.7

\+ 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: 1948-2001

(3) Derived from 1971-2000 serially complete daily data

Issue Date: February 2004

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: TIMPANOGOS CAVE, UT

COOP ID: 428733

Climate Division: UT 3 **NWS Call Sign:** **Elevation: 5,640 Feet** **Lat: 40°27N** **Lon: 111°42W**

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	2.41	2.19	2.23	1963	31	6.99	1980	.58	1989
Feb	2.34	2.15	1.43	1958	25	7.36	1980	.19	1972
Mar	2.82	2.14	2.17	1952	24	10.67	1982	.41	1999
Apr	2.26	2.02	2.05	1951	29	7.32	1978	.24	1987
May	3.06	2.56	2.80	1966	10	8.86	1995	.07	1972
Jun	1.48	1.04	1.87	1998	13	7.13	1998	.01	1980
Jul	1.08	1.18	2.87	1965	19	2.43	1982	.00+	1978
Aug	1.44	1.55	1.87	1959	19	4.05	1983	.04	1974
Sep	2.05	1.62	1.89	1986	25	7.96	1982	.00	1974
Oct	2.54	2.03	1.77	1981	11	6.54	1981	.13	1978
Nov	2.02	1.83	2.28	1949	10	4.93	1978	.10	1976
Dec	1.96	1.86	2.05	1966	3	6.23	1983	.06	1976
Ann	25.46	24.79	2.87	Jul 1965	19	10.67	Mar 1982	.00+	Jul 1978

Mean Number of Days (3)

Daily Precipitation

Month	>= 0.01	>= 0.10	>= 0.50	>= 1.00
Jan	9.8	6.2	1.3	.4
Feb	8.8	5.5	1.6	.3
Mar	9.7	6.3	1.6	.4
Apr	9.1	5.6	1.5	.3
May	10.3	6.6	2.0	.6
Jun	5.3	2.9	1.1	.3
Jul	5.7	2.8	.6	.1
Aug	6.3	3.6	.8	.2
Sep	6.8	4.3	1.4	.3
Oct	7.1	4.8	1.8	.6
Nov	8.4	5.0	1.0	.3
Dec	8.0	4.7	.9	.2
Ann	95.3	58.3	15.6	4.0

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	.65	.88	1.23	1.53	1.83	2.15	2.49	2.91	3.44	4.28	5.07
Feb	.42	.63	.97	1.29	1.61	1.97	2.37	2.86	3.50	4.55	5.54
Mar	.41	.64	1.05	1.44	1.85	2.29	2.81	3.44	4.30	5.69	7.02
Apr	.37	.57	.89	1.20	1.52	1.87	2.27	2.75	3.40	4.45	5.46
May	.44	.69	1.14	1.56	2.00	2.49	3.05	3.74	4.67	6.18	7.64
Jun	.03	.08	.21	.39	.61	.89	1.24	1.72	2.43	3.67	4.95
Jul	.00	.14	.34	.51	.69	.88	1.09	1.35	1.69	2.26	2.80
Aug	.15	.26	.46	.66	.87	1.12	1.40	1.76	2.25	3.05	3.84
Sep	.08	.24	.54	.83	1.16	1.53	1.97	2.52	3.28	4.54	5.78
Oct	.42	.64	1.01	1.36	1.72	2.11	2.55	3.10	3.82	5.00	6.12
Nov	.40	.59	.88	1.15	1.43	1.72	2.05	2.45	2.98	3.83	4.63
Dec	.27	.44	.72	.99	1.27	1.59	1.95	2.39	2.99	3.97	4.91
Ann	13.94	15.95	18.64	20.76	22.71	24.63	26.66	28.94	31.78	36.01	39.77

\+ 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

Complete documentation available from:
www.ncdc.noaa.gov/oa/climate/normals/usnormals.html

U.S. Department of Commerce
National Oceanic & Atmospheric Administration
National Environmental Satellite, Data,
and Information Services

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: TIMPANOGOS CAVE, UT **COOP ID: 428733**

Climate Division: UT 3 **NWS Call Sign:** **Elevation: 5,640 Feet** **Lat: 40°27N** **Lon: 111°42W**

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	21.6	21.5	14	13	15.0	1980	29	35.0	1982	35+	1993	13	26	1993	7.3	5.6	2.5	1.2	.2	29.1	28.3	26.9	22.6
Feb	14.9	13.1	15	15	11.0	1973	12	29.5	1979	42	1993	25	30	1979	5.3	4.2	1.7	1.0	.2	22.5	22.2	21.9	19.3
Mar	8.1	3.8	7	4	16.0	1983	25	36.5	1982	36	1979	2	21	1984	3.6	2.6	1.2	.6	@	12.6	11.1	9.7	7.5
Apr	2.9	1.0	1	#	8.0	1974	10	18.0	1974	15	1984	2	4	1983	1.2	1.0	.3	.1	.0	1.9	1.6	1.4	.7
May	.4	.0	#	0	3.0	1986	8	3.0	1986	5	1975	20	#+	1986	.2	.2	@	.0	.0	@	@	.0	.0
Jun	.1	.0	0	0	4.0	1998	17	4.0	1998	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	.1	.0	#	0	2.0	1978	18	2.0	1978	2	1978	18	#	1978	.1	.1	.0	.0	.0	.1	.0	.0	.0
Oct	1.3	.0	#	0	8.5	1984	18	15.6	1971	15	1971	31	2	1971	.7	.4	.2	.1	.0	.5	.3	.1	@
Nov	12.1	9.1	2	1	13.0	1985	12	45.0	1978	24	1978	14	10	1978	3.4	2.8	1.3	.6	.1	6.5	3.9	3.2	1.4
Dec	14.5	12.2	7	6	13.0	1982	1	30.4	1973	28	1983	27	19	1983	5.8	4.3	1.8	.9	.1	22.4	20.7	15.1	8.0
Ann	76.0	60.7	N/A	N/A	16.0	Mar 1983	25	45.0	Nov 1978	42	Feb 1993	25	30	Feb 1979	27.6	21.2	9.0	4.5	.6	95.6	88.1	78.3	59.5

+ 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

Complete documentation available from:
www.ncdc.noaa.gov/oa/climate/normals/usnormals.html

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: TIMPANOGOS CAVE, UT **COOP ID: 428733**

Climate Division: UT 3 **NWS Call Sign:** **Elevation: 5,640 Feet** **Lat: 40˚27N** **Lon: 111˚42W**

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	5/31	5/27	5/23	5/18	5/12
32	5/28	5/22	5/18	5/15	5/11	5/08	5/04	4/30	4/25
28	5/14	5/06	5/01	4/26	4/22	4/18	4/13	4/07	3/31
24	4/27	4/19	4/14	4/09	4/05	4/01	3/27	3/22	3/15
20	4/14	4/07	4/02	3/28	3/24	3/20	3/16	3/11	3/04
16	4/06	3/27	3/21	3/15	3/09	3/04	2/26	2/20	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	9/12	9/17	9/21	9/24	9/27	9/30	10/03	10/07	10/12
32	9/18	9/26	10/01	10/06	10/10	10/14	10/19	10/25	11/01
28	10/06	10/12	10/16	10/20	10/24	10/27	10/31	11/04	11/10
24	10/22	10/26	10/30	11/01	11/04	11/07	11/10	11/13	11/18
20	10/28	11/02	11/05	11/08	11/11	11/13	11/16	11/19	11/24
16	11/03	11/10	11/15	11/19	11/23	11/27	12/01	12/06	12/13

Freeze Free Period

Temp (F)	Probability of longer than indicated freeze free period (Days)								
	.10	.20	.30	.40	.50	.60	.70	.80	.90
36	147	137	130	124	118	112	106	99	89
32	183	172	164	157	151	145	138	130	120
28	216	205	197	190	184	178	171	163	152
24	239	230	223	217	212	207	201	195	185
20	254	246	240	235	230	226	221	215	207
16	292	281	272	265	258	251	244	235	223

***** 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

Complete documentation available from:
www.ncdc.noaa.gov/oa/climate/normals/usnormals.html

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: TIMPANOGOS CAVE, UT **COOP ID: 428733**

Climate Division: UT 3 **NWS Call Sign:** **Elevation: 5,640 Feet** **Lat: 40˚27N** **Lon: 111˚42W**

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	1177	928	791	532	288	88	6	5	127	460	890	1164	6456
60	1022	788	636	393	172	35	1	0	60	320	740	1009	5176
57	929	704	544	315	118	17	0	0	33	246	650	916	4472
55	867	648	484	268	88	10	0	0	21	201	591	854	4032
50	712	508	341	168	36	2	0	0	6	111	447	699	3030
32	217	103	28	8	0	0	0	0	0	2	77	188	623

Cooling Degree Days (1)

Base Above	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Ann
32	62	99	260	469	754	1020	1309	1277	940	571	177	47	6985
55	0	0	4	39	129	340	596	564	271	57	2	0	2002
57	0	0	2	27	97	287	534	502	223	39	0	0	1711
60	0	0	0	15	58	215	442	409	159	20	0	0	1318
65	0	0	0	4	19	118	292	259	77	5	0	0	774
70	0	0	0	0	4	52	161	128	28	1	0	0	374

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	15	84	253	517	785	1069	1039	709	345	49	1	0	15	99	352	869	1654	2723	3762	4471	4816	4865	4866
45	0	2	33	145	372	635	914	884	559	217	12	0	0	2	35	180	552	1187	2101	2985	3544	3761	3773	3773
50	0	0	7	66	236	487	759	729	413	112	0	0	0	0	7	73	309	796	1555	2284	2697	2809	2809	2809
55	0	0	0	22	133	345	604	574	277	45	0	0	0	0	0	22	155	500	1104	1678	1955	2000	2000	2000
60	0	0	0	4	55	221	449	421	157	10	0	0	0	0	0	4	59	280	729	1150	1307	1317	1317	1317
Base	**Growing Degree Units for Corn (Monthly)**												**Growing Degree Units for Corn (Accumulated Monthly)**											
50/86	0	8	66	181	337	501	664	650	450	217	19	1	0	8	74	255	592	1093	1757	2407	2857	3074	3093	3094

(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:
www.ncdc.noaa.gov/oa/climate/normals/usnormals.html

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