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: COTTONWOOD WEIR, UT **COOP ID: 421759**

Climate Division: UT 3 **NWS Call Sign:** **Elevation: 4,960 Feet** **Lat: 40˚37N** **Lon: 111˚47W**

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	38.7	22.1	30.4	65+	1953	12	38.4	1998	-15	1963	12	21.3	1984	1072	0	.0	.0	4.2	8.0	26.7	.5
Feb	45.1	26.5	35.8	72	1958	19	45.8	1995	-8	1989	6	25.0	1984	819	0	.0	.0	9.6	2.6	21.0	.3
Mar	53.5	33.7	43.6	78	1956	24	49.5	1992	6	1966	4	36.2	1976	664	0	.0	.0	20.1	.2	14.0	.0
Apr	61.6	40.5	51.1	89	1987	27	59.7	1992	16	1955	5	42.0	1975	434	15	.0	.0	25.7	@	5.9	.0
May	71.5	48.2	59.9	97	1958	19	65.7	1992	23	1967	1	55.2	1983	204	44	.0	.2	30.2	.0	.9	.0
Jun	82.8	57.8	70.3	103+	1954	23	75.7	1977	33+	1954	5	63.9	1998	42	201	.2	7.7	30.0	.0	.0	.0
Jul	90.9	66.0	78.5	108	1958	11	82.4	2000	44	1963	1	71.6	1993	1	418	.9	20.4	31.0	.0	.0	.0
Aug	89.1	64.7	76.9	104+	1957	3	80.5	1994	29	1963	21	73.3	1976	1	370	.4	16.7	31.0	.0	.0	.0
Sep	78.4	54.8	66.6	100+	1950	3	72.1	1990	30+	1970	25	60.0	1986	82	130	.0	2.5	29.9	.0	.3	.0
Oct	65.4	43.7	54.6	90+	1957	1	62.5	1988	15+	1961	29	47.4	1984	343	19	.0	.0	28.5	.1	3.1	.0
Nov	49.5	31.5	40.5	77	1999	6	49.0	1995	-9	1955	16	32.3	2000	734	0	.0	.0	15.2	1.3	16.3	.0
Dec	39.7	22.9	31.3	69	1981	9	38.5	1995	-12	1990	23	23.2	1990	1045	0	.0	.0	4.7	6.1	27.2	.4
Ann	63.9	42.7	53.3	108	Jul 1958	11	82.4	Jul 2000	-15	Jan 1963	12	21.3	Jan 1984	5441	1197	1.5	47.5	260.1	18.3	115.4	1.2

\+ 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	2.05	1.75	3.20	1953	14	4.50	1996	.62	1984
Feb	2.19	2.04	1.87	1998	25	6.39	1998	.40	1988
Mar	2.92	2.86	2.18	1986	9	5.42	1983	.93	1992
Apr	3.17	3.14	1.86	1957	23	7.02	1986	.85	1977
May	3.06	2.51	2.61	1968	23	6.96	1993	.27	1972
Jun	1.27	1.04	2.12	1985	25	4.85	1998	.00	1994
Jul	1.11	.96	1.60	1998	25	3.28	1984	.00	1978
Aug	1.20	1.21	1.66	1965	26	3.74	1983	.00+	1985
Sep	2.12	1.37	4.65	1982	26	11.73	1982	.00	1979
Oct	2.62	2.52	2.33	1991	27	6.51	1981	.00	1978
Nov	2.45	2.47	1.77	1958	16	4.65	1983	.13	1976
Dec	2.03	1.97	1.90	1956	6	4.86	1972	.02	1976
Ann	26.19	26.53	4.65	Sep 1982	26	11.73	Sep 1982	.00+	Jun 1994

Mean Number of Days (3)

Month	Daily Precipitation >= 0.01	>= 0.10	>= 0.50	>= 1.00
Jan	9.1	5.3	1.1	.1
Feb	8.3	5.3	1.6	.1
Mar	9.5	6.5	1.9	.3
Apr	9.7	6.6	2.4	.4
May	9.9	6.0	2.2	.7
Jun	5.4	2.9	.7	.2
Jul	4.6	2.3	.7	.3
Aug	5.7	3.0	.7	.1
Sep	6.2	3.8	1.3	.5
Oct	7.6	5.1	1.7	.5
Nov	8.7	5.6	1.8	.3
Dec	8.2	5.1	1.2	.2
Ann	92.9	57.5	17.3	3.7

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	.67	.86	1.15	1.39	1.63	1.87	2.14	2.45	2.85	3.47	4.04
Feb	.69	.90	1.21	1.47	1.73	1.99	2.28	2.62	3.06	3.75	4.38
Mar	1.04	1.31	1.71	2.05	2.37	2.70	3.06	3.47	4.01	4.83	5.58
Apr	.84	1.14	1.60	2.00	2.40	2.81	3.27	3.82	4.53	5.65	6.70
May	.61	.89	1.33	1.75	2.16	2.61	3.12	3.73	4.53	5.83	7.06
Jun	.05	.14	.32	.51	.71	.94	1.22	1.56	2.04	2.83	3.61
Jul	.04	.13	.29	.45	.63	.83	1.06	1.36	1.77	2.45	3.13
Aug	.00	.10	.30	.49	.69	.91	1.17	1.49	1.93	2.65	3.36
Sep	.07	.24	.54	.84	1.18	1.57	2.02	2.60	3.39	4.72	6.02
Oct	.30	.62	1.06	1.44	1.82	2.23	2.68	3.23	3.96	5.13	6.23
Nov	.59	.81	1.17	1.49	1.81	2.14	2.52	2.96	3.55	4.47	5.34
Dec	.28	.45	.74	1.02	1.32	1.64	2.02	2.48	3.10	4.12	5.10
Ann	16.29	18.11	20.49	22.34	24.00	25.63	27.33	29.23	31.56	35.00	38.00

\+ 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	22.9	18.3	6	6
Feb	16.9	16.0	5	3
Mar	16.1	11.0	1	1
Apr	7.5	3.0	#	#
May	.9	.0	#	0
Jun	.0	.0	0	0
Jul	.0	.0	0	0
Aug	.0	.0	0	0
Sep	.1	.0	0	0
Oct	3.2	.0	#	0
Nov	10.3	9.8	1	1
Dec	19.3	20.5	4	4
Ann	97.2	78.6	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	20.0	1993	2	58.5	1996	36	1996	25	16	1993
Feb	21.0	1998	25	50.5	1994	35	1998	25	14	1996
Mar	20.0	1983	25	41.6	1980	26+	1998	1	9	1998
Apr	12.0	1999	1	30.0	1984	10+	1983	3	2	1974
May	6.0	1983	11	12.0	1983	9	1975	5	1	1975
Jun	.0	0	0	.0	0	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	2.1	1978	18	2.1	1978	0	0	0	0	0
Oct	25.0	1984	18	28.5	1984	20	1984	18	2	1984
Nov	13.0	1994	13	29.0	1996	18	1992	23	8	1994
Dec	20.0	1985	8	41.5	1982	26	1997	9	10	1997
Ann	25.0	Oct 1984	18	58.5	Jan 1996	36	Jan 1996	25	16	Jan 1993

Mean Number of Days (1)

Snow Fall >= Thresholds

Month	0.1	1.0	3.0	5.0	10.0
Jan	5.4	5.0	3.3	1.7	.3
Feb	4.5	4.3	2.5	1.4	.5
Mar	3.4	3.2	2.0	1.0	.2
Apr	1.9	1.8	1.0	.6	.1
May	.3	.3	.2	@	.0
Jun	.0	.0	.0	.0	.0
Jul	.0	.0	.0	.0	.0
Aug	.0	.0	.0	.0	.0
Sep	.1	.1	.0	.0	.0
Oct	.9	.8	.4	.1	.1
Nov	3.6	3.4	1.9	1.0	.2
Dec	5.4	4.7	2.8	1.5	.5
Ann	25.5	23.6	14.1	7.3	1.9

Snow Depth >= Thresholds

Month	1	3	5	10
Jan	21.5	17.7	14.8	6.9
Feb	14.4	11.4	8.9	3.6
Mar	6.3	4.4	3.0	1.0
Apr	1.6	.9	.3	.1
May	.2	.1	@	.0
Jun	.0	.0	.0	.0
Jul	.0	.0	.0	.0
Aug	.0	.0	.0	.0
Sep	.0	.0	.0	.0
Oct	1.0	.6	.4	.2
Nov	5.4	4.4	3.2	.6
Dec	19.5	15.1	11.2	4.8
Ann	69.9	54.6	41.8	17.2

+ 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	5/31	5/26	5/22	5/18	5/15	5/12	5/08	5/04	4/29
32	5/20	5/12	5/07	5/02	4/27	4/23	4/18	4/13	4/05
28	5/07	4/27	4/21	4/15	4/10	4/05	3/30	3/23	3/14
24	4/14	4/06	3/31	3/26	3/21	3/16	3/11	3/05	2/25
20	3/29	3/21	3/15	3/10	3/05	3/01	2/24	2/18	2/10
16	3/13	3/05	2/27	2/22	2/18	2/13	2/08	2/02	1/25

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	9/21	9/27	10/01	10/05	10/09	10/13	10/16	10/21	10/27
32	9/29	10/06	10/11	10/15	10/18	10/22	10/26	10/31	11/07
28	10/20	10/25	10/29	11/01	11/03	11/06	11/09	11/13	11/18
24	10/30	11/03	11/07	11/10	11/12	11/15	11/18	11/21	11/26
20	11/06	11/12	11/16	11/19	11/23	11/26	11/30	12/04	12/10
16	11/11	11/18	11/23	11/27	12/01	12/05	12/10	12/15	12/22

Freeze Free Period

Temp (F)	Probability of longer than indicated freeze free period (Days)								
	.10	.20	.30	.40	.50	.60	.70	.80	.90
36	172	163	157	151	146	141	136	130	121
32	204	193	186	179	173	167	161	153	143
28	236	226	219	213	207	201	195	188	178
24	262	253	246	241	236	230	225	218	209
20	295	284	275	268	262	255	248	240	228
16	321	309	300	293	286	279	272	263	251

***** 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.

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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	1072	819	664	434	204	42	1	1	82	343	734	1045	5441
60	917	679	512	306	111	13	0	0	34	222	587	890	4271
57	824	595	425	241	71	5	0	0	17	163	501	797	3639
55	762	539	369	202	50	3	0	0	10	128	446	735	3244
50	613	409	242	122	17	0	0	0	2	64	317	582	2368
32	178	75	14	4	0	0	0	0	0	0	39	147	457

Base	Cooling Degree Days (1)												
Above	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Ann
32	129	181	374	575	863	1150	1439	1392	1038	700	295	125	8261
55	0	1	16	83	200	462	726	679	358	114	11	0	2650
57	0	0	9	61	159	405	664	617	305	87	7	0	2314
60	0	0	4	37	106	322	571	524	232	54	3	0	1853
65	0	0	0	15	44	201	418	370	130	19	0	0	1197
70	0	0	0	4	14	109	271	223	59	5	0	0	685

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	19	59	177	354	629	920	1201	1156	810	471	131	29	19	78	255	609	1238	2158	3359	4515	5325	5796	5927	5956
45	0	18	90	230	476	770	1046	1001	662	336	64	8	0	18	108	338	814	1584	2630	3631	4293	4629	4693	4701
50	0	4	36	136	338	620	891	846	516	212	25	2	0	4	40	176	514	1134	2025	2871	3387	3599	3624	3626
55	0	0	11	73	212	475	736	691	375	114	2	0	0	0	11	84	296	771	1507	2198	2573	2687	2689	2689
60	0	0	0	31	117	336	581	536	245	49	0	0	0	0	0	31	148	484	1065	1601	1846	1895	1895	1895
Base	Growing Degree Units for Corn (Monthly)												Growing Degree Units for Corn (Accumulated Monthly)											
50/86	6	31	98	206	387	601	803	781	528	276	70	11	6	37	135	341	728	1329	2132	2913	3441	3717	3787	3798

(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