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: WAH WAH RANCH, UT **COOP ID: 429152**

Climate Division: UT 1 **NWS Call Sign:** **Elevation: 4,880 Feet** **Lat: 38˚29N** **Lon: 113˚26W**

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	43.2	15.4	29.3	74	1969	7	37.4	2000	-27	1962	24	19.0	1988	1106	0	.0	.0	8.4	4.8	29.1	3.3
Feb	49.7	20.5	35.1	76	1986	25	42.1	1995	-29	1989	7	27.1	1984	837	0	.0	.0	14.4	1.6	25.2	1.4
Mar	58.6	27.0	42.8	88	1966	17	48.1	1989	-3	1971	2	36.9	1977	689	0	.0	.0	25.2	.1	22.7	@
Apr	66.4	32.5	49.5	89	1989	19	56.0	1992	5	1967	15	41.8	1975	469	3	.0	.0	28.3	.0	15.5	.0
May	75.9	40.8	58.4	99	2000	28	64.6	2000	18+	1967	3	53.8	1975	232	26	.0	1.4	30.8	.0	5.0	.0
Jun	87.5	49.9	68.7	106	1970	25	74.6	1994	25+	1967	2	62.0	1995	51	162	1.7	13.3	30.0	.0	.4	.0
Jul	94.2	57.9	76.1	106+	1960	26	79.2	1981	30	1968	1	73.3	1987	1	344	5.5	25.3	31.0	.0	.0	.0
Aug	92.0	56.3	74.2	104+	1978	6	78.3	2000	31	1962	31	70.6	1976	2	287	2.3	21.4	31.0	.0	.0	.0
Sep	83.3	46.0	64.7	100+	1977	6	68.7	1979	20	1968	22	60.2	1971	85	75	.1	7.1	30.0	.0	2.1	.0
Oct	70.4	33.9	52.2	92	1978	1	57.6	1988	-5	1971	30	46.7	1984	401	2	.0	.3	29.8	.1	13.6	@
Nov	54.7	23.3	39.0	82	1980	6	45.6	1995	-11	1977	20	31.8	1994	781	0	.0	.0	20.1	.5	25.2	.5
Dec	44.4	14.5	29.5	71+	1958	5	38.6	1977	-30	1990	23	20.7	1990	1103	0	.0	.0	10.2	4.1	29.1	3.4
Ann	68.4	34.8	51.6	106+	Jun 1970	25	79.2	Jul 1981	-30	Dec 1990	23	19.0	Jan 1988	5757	899	9.6	68.8	289.2	11.2	167.9	8.6

\+ 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: 1955-2001

(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	.35	.25	.78	1974	21	1.20	1980	.00+	1989
Feb	.33	.17	.68	1971	20	1.55	1998	.00+	1992
Mar	.60	.45	1.50	1992	8	2.43	1992	.00+	1997
Apr	.60	.51	1.02	1990	24	1.98	1978	.00+	1992
May	.76	.49	1.55	1975	20	2.96	1991	.00+	1974
Jun	.37	.14	.70	1962	30	2.10	1995	.00+	1996
Jul	.63	.59	1.30	1963	21	3.10	1985	.00+	1990
Aug	.96	.82	1.45	1984	14	3.27	1984	.00	1976
Sep	.80	.43	1.22	1982	27	4.26	1982	.00+	1995
Oct	.82	.66	1.25	1976	2	2.94	2000	.00	1995
Nov	.48	.42	1.09	1963	7	1.74	1978	.00+	1997
Dec	.21	.17	.65	1998	20	.87	1972	.00+	1996
Ann	6.91	7.12	1.55	May 1975	20	4.26	Sep 1982	.00+	Nov 1997

Mean Number of Days (3)

Daily Precipitation

Month	>= 0.01	>= 0.10	>= 0.50	>= 1.00
Jan	2.5	1.3	.1	.0
Feb	2.1	1.2	.1	.0
Mar	3.6	2.2	.2	.1
Apr	3.5	2.1	.3	@
May	3.4	2.2	.4	.1
Jun	1.9	1.4	.1	.0
Jul	3.1	2.3	.3	.0
Aug	4.2	2.8	.6	.1
Sep	3.0	2.1	.5	.1
Oct	3.4	2.9	.4	@
Nov	2.5	1.6	.3	.0
Dec	1.8	.8	.1	.0
Ann	35.0	22.9	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	.00	.00	.03	.09	.15	.22	.31	.42	.58	.86	1.13
Feb	.00	.00	.01	.07	.13	.20	.29	.40	.57	.85	1.14
Mar	.00	.05	.14	.24	.34	.45	.58	.75	.98	1.35	1.72
Apr	.00	.00	.13	.23	.33	.45	.58	.75	.97	1.35	1.71
May	.00	.06	.18	.30	.43	.57	.74	.94	1.23	1.70	2.16
Jun	.00	.00	.00	.00	.09	.18	.30	.45	.67	1.02	1.38
Jul	.00	.00	.11	.21	.32	.44	.59	.78	1.03	1.47	1.89
Aug	.03	.11	.24	.38	.53	.70	.91	1.17	1.53	2.13	2.73
Sep	.00	.00	.05	.19	.34	.52	.73	1.00	1.37	1.99	2.63
Oct	.11	.22	.36	.47	.59	.71	.85	1.01	1.22	1.56	1.88
Nov	.00	.00	.10	.19	.27	.36	.47	.61	.79	1.09	1.38
Dec	.00	.00	.00	.04	.10	.16	.22	.29	.38	.53	.66
Ann	3.61	4.18	4.94	5.54	6.10	6.65	7.24	7.90	8.72	9.96	11.06

\+ 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: 1955-2001
(3) Derived from 1971-2000 serially complete daily data

Complete documentation available from:
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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	#	1	#
Feb	1.3	.0	#	#
Mar	.3	.0	#	#
Apr	.1	.0	#	0
May	.0	.0	0	0
Jun	.0	.0	#	0
Jul	.0	.0	0	0
Aug	.0	.0	0	0
Sep	.0	.0	#	0
Oct	#	.0	#	0
Nov	.5	.0	#	0
Dec	.1	.0	1	#
Ann	2.8	#	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	5.0	1971	2	5.0	1971	15	1988	18	8	1988
Feb	12.0	1989	4	12.0	1989	12	1989	5	3	1989
Mar	3.0	1989	3	3.6	1989	18	1985	28	2	1985
Apr	2.0	1975	1	2.0+	1975	6	1976	16	#+	1998
May	.0	0	0	.0	0	18	1975	20	1	1975
Jun	.0	0	0	.0	0	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	1971	30	1.0	1971	3	1982	30	#+	1982
Oct	#	1975	23	#+	1975	10	1971	28	1	1971
Nov	8.0	1983	21	8.0	1983	8	1983	23	2	1994
Dec	2.0	1992	15	2.0	2000	10	1998	21	3	1998
Ann	12.0	Feb 1989	4	12.0	Feb 1989	18+	Mar 1985	28	8	Jan 1988

Mean Number of Days (1)

Snow Fall >= Thresholds

Month	0.1	1.0	3.0	5.0	10.0
Jan	.2	.2	.1	.1	.0
Feb	.1	.1	.1	.1	@
Mar	.2	.1	@	.0	.0
Apr	@	@	.0	.0	.0
May	.0	.0	.0	.0	.0
Jun	.0	.0	.0	.0	.0
Jul	.0	.0	.0	.0	.0
Aug	.0	.0	.0	.0	.0
Sep	@	@	.0	.0	.0
Oct	.0	.0	.0	.0	.0
Nov	.1	.1	@	@	.0
Dec	.1	.1	.0	.0	.0
Ann	.7	.6	.2	.2	@

Snow Depth >= Thresholds

Month	1	3	5	10
Jan	.2	.1	.1	.0
Feb	.6	.6	.4	.2
Mar	.1	@	.0	.0
Apr	@	.0	.0	.0
May	.0	.0	.0	.0
Jun	.0	.0	.0	.0
Jul	.0	.0	.0	.0
Aug	.0	.0	.0	.0
Sep	@	.0	.0	.0
Oct	.0	.0	.0	.0
Nov	.4	.4	.3	.0
Dec	.0	.0	.0	.0
Ann	1.3	1.1	.8	.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	6/26	6/20	6/15	6/12	6/08	6/04	5/31	5/27	5/20
32	6/13	6/07	6/03	5/31	5/27	5/24	5/20	5/16	5/10
28	5/28	5/22	5/17	5/14	5/10	5/07	5/03	4/29	4/22
24	5/13	5/06	5/02	4/27	4/23	4/19	4/15	4/10	4/04
20	5/04	4/26	4/21	4/16	4/11	4/06	4/01	3/26	3/18
16	4/19	4/11	4/05	3/30	3/26	3/21	3/16	3/10	3/01

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	9/06	9/10	9/13	9/15	9/17	9/19	9/22	9/24	9/28
32	9/12	9/17	9/20	9/23	9/26	9/29	10/02	10/06	10/10
28	9/16	9/22	9/26	9/30	10/04	10/07	10/11	10/16	10/22
24	9/26	10/03	10/07	10/11	10/15	10/19	10/22	10/27	11/02
20	10/13	10/18	10/22	10/25	10/28	10/31	11/03	11/07	11/12
16	10/21	10/27	10/31	11/04	11/07	11/11	11/14	11/19	11/25

Freeze Free Period

Temp (F)	Probability of longer than indicated freeze free period (Days)								
	.10	.20	.30	.40	.50	.60	.70	.80	.90
36	126	117	111	106	101	96	90	84	75
32	143	135	130	125	121	117	112	107	99
28	173	164	157	151	146	141	135	128	119
24	202	192	185	179	174	168	162	155	146
20	230	219	212	205	199	193	187	179	169
16	257	246	239	232	226	220	213	206	195

***** 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	1106	837	689	469	232	51	1	2	85	401	781	1103	5757
60	951	697	535	330	126	16	0	0	29	259	631	948	4522
57	858	613	445	254	79	7	0	0	12	186	541	855	3850
55	796	557	388	209	55	4	0	0	6	143	483	793	3434
50	653	424	254	119	17	0	0	0	0	65	345	640	2517
32	220	77	14	1	0	0	0	0	0	0	41	192	545

Base — Cooling Degree Days (1)

Above	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Ann
32	137	165	348	525	818	1101	1367	1308	980	624	250	112	7735
55	0	0	9	43	160	414	654	595	296	55	3	0	2229
57	0	0	5	28	122	357	592	533	242	35	1	0	1915
60	0	0	1	14	75	277	499	440	169	15	0	0	1490
65	0	0	0	3	26	162	344	287	75	2	0	0	899
70	0	0	0	0	6	77	196	149	23	0	0	0	451

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	20	51	148	307	578	870	1130	1070	749	395	100	20	20	71	219	526	1104	1974	3104	4174	4923	5318	5418	5438
45	0	17	64	185	431	720	975	915	599	256	41	2	0	17	81	266	697	1417	2392	3307	3906	4162	4203	4205
50	0	1	22	93	286	571	820	760	451	145	11	0	0	1	23	116	402	973	1793	2553	3004	3149	3160	3160
55	0	0	3	37	162	424	665	605	310	65	0	0	0	0	3	40	202	626	1291	1896	2206	2271	2271	2271
60	0	0	0	7	73	284	510	450	186	15	0	0	0	0	0	7	80	364	874	1324	1510	1525	1525	1525
Base	**Growing Degree Units for Corn (Monthly)**												**Growing Degree Units for Corn (Accumulated Monthly)**											
50/86	31	65	156	259	410	554	690	667	504	327	117	36	31	96	252	511	921	1475	2165	2832	3336	3663	3780	3816

(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