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: WANSHIP DAM, UT **COOP ID: 429165**

Climate Division: UT 5 **NWS Call Sign:** **Elevation: 5,940 Feet** **Lat: 40˚47N** **Lon: 111˚24W**

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	11.2	23.5	57+	1961	17	30.4	2000	-35	1963	12	15.1	1979	1286	0	.0	.0	1.7	10.0	30.2	6.8
Feb	40.5	14.2	27.4	66	1963	5	33.5	1995	-37	1982	5	20.4	1989	1054	0	.0	.0	3.6	4.6	27.0	4.4
Mar	48.9	22.5	35.7	73	1986	28	42.3	1986	-25	1964	7	30.2+	1977	908	0	.0	.0	13.3	.9	27.4	.6
Apr	59.0	28.1	43.6	81+	1992	29	48.9	1987	1	1963	18	37.4	1983	642	0	.0	.0	23.5	@	21.8	.0
May	69.3	35.0	52.2	88	1997	14	56.6	1994	15	1972	1	47.3	1995	401	2	.0	.0	29.7	.0	11.0	.0
Jun	80.4	40.9	60.7	97+	1981	29	65.9	1988	21	1966	5	56.1	1998	164	33	.0	2.0	30.0	.0	3.2	.0
Jul	88.0	46.4	67.2	99+	2000	31	71.0	1988	26	1997	1	58.9	1993	44	112	.0	9.5	31.0	.0	.5	.0
Aug	86.9	45.1	66.0	99	2000	1	69.6	2000	22	1964	30	61.1	1993	53	84	.0	8.2	31.0	.0	1.1	.0
Sep	77.2	37.3	57.3	93	1990	12	61.0	1979	12	1985	30	52.1	1986	240	8	.0	.9	29.8	.0	8.4	.0
Oct	64.1	28.3	46.2	85	1996	11	51.6	1988	2	1991	30	40.1	1984	584	0	.0	.0	27.1	.1	22.8	.0
Nov	46.8	20.1	33.5	72+	1980	6	39.5	1999	-21	1984	28	24.3	2000	947	0	.0	.0	12.4	3.2	26.6	1.3
Dec	37.3	12.2	24.8	65	1995	1	31.3	1980	-28+	1990	22	15.5	1990	1247	0	.0	.0	3.1	8.6	29.9	4.9
Ann	61.2	28.4	44.8	99+	Aug 2000	1	71.0	Jul 1988	-37	Feb 1982	5	15.1	Jan 1979	7570	239	.0	20.6	236.2	27.4	209.9	18.0

\+ 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	1.22	1.07	.88	1980	29	4.54	1980	.28	1984
Feb	1.08	.99	.95	1977	22	3.13	1980	.32	1984
Mar	1.50	1.38	.99	1972	3	2.39	1995	.44	1992
Apr	1.76	1.74	1.06	1986	2	3.86	1978	.13	1977
May	2.02	1.62	1.47	1985	10	5.10	1995	.14	1974
Jun	1.01	.86	1.09	1998	4	3.93	1998	.00	1977
Jul	1.07	.95	1.76	1982	26	2.95	1982	.06	1972
Aug	1.03	1.01	1.43	1986	21	3.60	1983	.02+	1996
Sep	1.49	1.44	1.70	1996	17	6.18	1982	.00	1979
Oct	1.71	1.63	1.47	1985	7	4.54	1994	.02	1978
Nov	1.68	1.38	1.30	1985	12	3.90	1985	.02	1976
Dec	1.05	.80	1.75	1956	6	3.48	1983	.01	1979
Ann	16.62	16.86	1.76	Jul 1982	26	6.18	Sep 1982	.00+	Sep 1979

Mean Number of Days (3)

Daily Precipitation

Month	>= 0.01	>= 0.10	>= 0.50	>= 1.00
Jan	10.3	3.9	.3	.0
Feb	8.7	3.7	.2	.0
Mar	10.1	4.9	.5	.0
Apr	9.8	5.4	.9	@
May	11.0	5.9	.9	@
Jun	5.9	3.0	.4	.1
Jul	6.5	3.1	.4	.1
Aug	6.6	3.0	.4	.1
Sep	6.5	3.8	.9	.1
Oct	7.3	4.6	.9	.2
Nov	9.8	5.0	.7	.1
Dec	9.4	3.6	.4	.0
Ann	101.9	49.9	6.9	.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	.26	.37	.55	.71	.88	1.05	1.24	1.48	1.78	2.27	2.74
Feb	.34	.45	.60	.73	.85	.98	1.12	1.29	1.51	1.84	2.15
Mar	.63	.76	.96	1.11	1.26	1.41	1.57	1.75	1.99	2.34	2.66
Apr	.41	.57	.83	1.06	1.29	1.53	1.81	2.14	2.57	3.25	3.89
May	.45	.64	.93	1.20	1.47	1.75	2.07	2.46	2.96	3.76	4.51
Jun	.03	.10	.23	.38	.54	.72	.95	1.23	1.63	2.30	2.97
Jul	.14	.23	.38	.53	.68	.86	1.06	1.31	1.65	2.20	2.73
Aug	.06	.12	.24	.38	.54	.73	.95	1.24	1.64	2.33	3.02
Sep	.13	.29	.53	.75	.97	1.22	1.50	1.83	2.29	3.02	3.73
Oct	.19	.32	.55	.79	1.05	1.33	1.67	2.09	2.66	3.60	4.52
Nov	.28	.42	.67	.90	1.14	1.39	1.69	2.05	2.52	3.30	4.04
Dec	.06	.12	.25	.39	.55	.74	.97	1.26	1.68	2.37	3.07
Ann	10.61	11.72	13.17	14.29	15.30	16.28	17.31	18.45	19.84	21.89	23.69

\+ 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

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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	14.8	14.0	8	7
Feb	15.9	16.5	6	4
Mar	9.4	9.5	1	#
Apr	5.1	3.5	#	#
May	.9	.0	#	0
Jun	.1	.0	#	0
Jul	.0	.0	0	0
Aug	.0	.0	0	0
Sep	.5	.0	#	0
Oct	1.9	.8	#	0
Nov	7.7	7.5	1	1
Dec	11.1	9.5	3	3
Ann	67.4	61.3	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	14.0	1972	12	21.5	2000	33	1993	12	19	1974
Feb	10.0	1982	3	24.0	1993	29	1976	20	16	1974
Mar	8.0	1998	6	17.0	1991	14	1993	1	8	1993
Apr	8.0	1973	1	20.5	1991	4	1980	7	#+	2000
May	6.0	1999	4	6.0	1999	4	1999	4	#+	1999
Jun	1.0	1990	1	1.0	1990	#+	1998	17	#+	1998
Jul	.0	0	0	.0	0	0	0	0	0	0
Aug	.0	0	0	.0	0	0	0	0	0	0
Sep	7.0	2000	23	7.0	2000	4	2000	23	#	2000
Oct	3.0	1991	23	9.0	1991	2	1997	24	1	1998
Nov	9.0	1985	12	13.0	1992	14	1994	28	5	1979
Dec	7.0	1996	2	21.4	1990	22	1971	16	11	1971
Ann	14.0	Jan 1972	12	24.0	Feb 1993	33	Jan 1993	12	19	Jan 1974

Mean Number of Days (1)

Snow Fall >= Thresholds

Month	0.1	1.0	3.0	5.0	10.0
Jan	7.4	5.9	2.8	.6	.1
Feb	5.9	5.2	1.9	.7	.1
Mar	5.1	4.6	1.1	.1	.0
Apr	2.6	2.3	.4	.2	.0
May	.4	.4	.1	.1	.0
Jun	.1	.1	.0	.0	.0
Jul	.0	.0	.0	.0	.0
Aug	.0	.0	.0	.0	.0
Sep	.1	.1	.1	.1	.0
Oct	.9	.8	.3	.0	.0
Nov	5.3	4.6	1.9	.5	.0
Dec	6.1	4.4	1.7	.3	.0
Ann	33.9	28.4	10.3	2.6	.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	3.8	2.1	1.0	.1
Apr	.4	.1	.0	.0
May	.1	@	.0	.0
Jun	.0	.0	.0	.0
Jul	.0	.0	.0	.0
Aug	.0	.0	.0	.0
Sep	@	@	.0	.0
Oct	.2	.0	.0	.0
Nov	7.5	2.5	.9	.2
Dec	19.1	8.7	3.4	.0
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	7/24	7/18	7/14	7/11	7/08	7/05	7/01	6/27	6/22
32	7/09	7/02	6/28	6/23	6/20	6/16	6/12	6/07	5/31
28	6/29	6/20	6/14	6/09	6/04	5/29	5/24	5/18	5/09
24	5/31	5/25	5/20	5/16	5/12	5/09	5/05	4/30	4/23
20	5/16	5/09	5/04	4/30	4/26	4/22	4/18	4/13	4/07
16	4/27	4/21	4/16	4/13	4/09	4/06	4/02	3/28	3/22

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	8/02	8/08	8/12	8/15	8/19	8/22	8/25	8/29	9/04
32	8/12	8/19	8/25	8/29	9/02	9/06	9/11	9/16	9/23
28	8/30	9/05	9/08	9/12	9/15	9/18	9/21	9/25	10/01
24	9/11	9/15	9/19	9/22	9/25	9/27	9/30	10/04	10/08
20	9/19	9/25	9/30	10/03	10/06	10/10	10/13	10/18	10/23
16	10/05	10/12	10/17	10/21	10/24	10/28	11/01	11/06	11/13

Freeze Free Period

Temp (F)	Probability of longer than indicated freeze free period (Days)								
	.10	.20	.30	.40	.50	.60	.70	.80	.90
36	67	58	52	46	41	36	30	24	15
32	108	96	88	80	74	67	60	51	40
28	133	122	115	109	103	97	90	83	73
24	159	150	144	139	135	130	125	119	110
20	189	180	174	168	162	157	151	145	135
16	225	216	209	203	198	192	186	179	170

***** 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	1286	1054	908	642	401	164	44	53	240	584	947	1247	7570
60	1131	914	753	492	258	75	9	11	122	430	797	1092	6084
57	1038	830	660	405	183	39	2	2	71	340	707	999	5276
55	976	774	598	349	140	24	1	1	46	283	647	937	4776
50	821	634	446	219	61	4	0	0	10	161	501	782	3639
32	302	181	58	7	0	0	0	0	0	3	103	267	921

Cooling Degree Days (1)

Base Above	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Ann
32	40	51	173	354	624	859	1091	1054	758	442	146	42	5634
55	0	0	0	7	51	193	378	342	113	9	0	0	1093
57	0	0	0	3	32	148	318	281	78	4	0	0	864
60	0	0	0	0	14	94	232	197	40	1	0	0	578
65	0	0	0	0	2	33	112	84	8	0	0	0	239
70	0	0	0	0	0	7	37	22	1	0	0	0	67

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	3	43	152	370	604	833	797	513	221	38	4	0	3	46	198	568	1172	2005	2802	3315	3536	3574	3578
45	0	0	8	69	238	455	678	642	370	114	12	0	0	0	8	77	315	770	1448	2090	2460	2574	2586	2586
50	0	0	0	23	122	310	523	487	233	41	0	0	0	0	0	23	145	455	978	1465	1698	1739	1739	1739
55	0	0	0	3	48	179	369	334	122	9	0	0	0	0	0	3	51	230	599	933	1055	1064	1064	1064
60	0	0	0	0	8	79	216	188	39	0	0	0	0	0	0	0	8	87	303	491	530	530	530	530
Base	**Growing Degree Units for Corn (Monthly)**												**Growing Degree Units for Corn (Accumulated Monthly)**											
50/86	0	5	51	151	291	439	555	540	405	234	52	4	0	5	56	207	498	937	1492	2032	2437	2671	2723	2727

(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