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: ECHO DAM, UT **COOP ID: 422385**

Climate Division: UT 5 **NWS Call Sign:** **Elevation: 5,470 Feet** **Lat: 40˚58N** **Lon: 111˚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	34.0	10.0	22.0	59	1969	7	30.9	1981	-34	1949	29	13.3	1989	1333	0	.0	.0	1.6	12.9	30.2	6.5
Feb	39.4	12.5	26.0	67	1963	5	33.6	1995	-34	1982	5	15.9	1989	1093	0	.0	.0	3.8	6.5	27.2	4.6
Mar	49.1	22.3	35.7	72+	1956	25	41.6	1986	-25	1966	4	30.0	1976	909	0	.0	.0	14.3	1.0	27.4	.6
Apr	58.2	29.1	43.7	81	2000	27	49.7	1992	9+	1977	3	37.3	1975	641	0	.0	.0	23.6	.0	19.5	.0
May	67.7	36.5	52.1	90	1954	21	57.0	1992	16	1972	1	47.9	1975	401	1	.0	.0	29.6	.0	6.3	.0
Jun	78.7	42.5	60.6	100	1954	24	65.1	1977	24	1966	5	55.6	1998	162	29	.0	2.4	30.0	.0	1.2	.0
Jul	86.9	48.7	67.8	99+	1954	12	70.2	1989	30+	1948	29	61.2	1993	31	117	.0	10.5	31.0	.0	.0	.0
Aug	85.8	47.5	66.7	99+	1954	3	69.9	2000	23	1965	31	63.0	1975	44	94	.0	7.1	31.0	.0	.2	.0
Sep	76.2	38.8	57.5	97+	1950	1	62.9	1990	14	1965	18	52.6	1986	239	14	.0	.8	29.8	.0	5.5	.0
Oct	63.7	29.6	46.7	85+	1950	6	51.5	1988	6	1970	27	40.4	1984	569	0	.0	.0	27.3	.2	20.1	.0
Nov	46.1	20.7	33.4	75	1958	9	40.7	1999	-21	1955	16	25.5	2000	949	0	.0	.0	11.9	3.5	26.9	.7
Dec	35.4	12.3	23.9	65+	1969	21	32.0	1995	-32	1990	23	13.5	1990	1276	0	.0	.0	2.4	11.0	29.7	4.2
Ann	60.1	29.2	44.7	100	Jun 1954	24	70.2	Jul 1989	-34+	Feb 1982	5	13.3	Jan 1989	7647	255	.0	20.8	236.3	35.1	194.2	16.6

\+ 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: 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	1.14	.99	.85	1980	14	3.92	1980	.23	1984
Feb	1.03	.89	1.39	1950	7	2.80	1980	.24	1984
Mar	1.38	1.33	1.18	1987	16	2.40	1980	.34	1992
Apr	1.52	1.54	1.32	1965	5	3.83	1986	.06	1987
May	1.97	1.90	1.41	1985	10	4.09	1995	.10	1972
Jun	1.05	.83	2.00	1957	16	3.84	1998	.00	1977
Jul	.85	.82	1.55	1969	30	1.95	1993	.01	1978
Aug	.80	.56	1.20	2001	3	3.18	1983	.00	1985
Sep	1.38	1.14	1.69	1978	18	7.05	1982	.00	1974
Oct	1.52	1.45	1.42	1985	7	3.71	1972	.05+	1990
Nov	1.53	1.41	1.30	1973	18	3.78	1985	.03	1976
Dec	1.03	.67	1.02	1964	23	3.35	1983	.04	1976
Ann	15.20	15.76	2.00	Jun 1957	16	7.05	Sep 1982	.00+	Aug 1985

Mean Number of Days (3)

Daily Precipitation

Month	>= 0.01	>= 0.10	>= 0.50	>= 1.00
Jan	10.2	3.8	.2	.0
Feb	8.7	3.6	.3	.0
Mar	9.8	4.4	.4	@
Apr	8.7	4.9	.7	.1
May	9.9	5.6	1.0	.1
Jun	6.1	2.9	.5	.1
Jul	5.5	2.6	.3	@
Aug	5.4	2.4	.3	.1
Sep	6.3	3.6	.7	.1
Oct	7.2	4.3	.9	.1
Nov	9.2	4.7	.6	@
Dec	9.3	3.4	.2	.0
Ann	96.3	46.2	6.1	.6

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	.21	.31	.47	.63	.79	.96	1.15	1.39	1.70	2.20	2.68
Feb	.30	.40	.55	.67	.80	.93	1.07	1.23	1.45	1.79	2.10
Mar	.47	.60	.79	.95	1.11	1.27	1.44	1.64	1.90	2.30	2.67
Apr	.28	.42	.64	.85	1.06	1.29	1.54	1.86	2.27	2.94	3.57
May	.44	.62	.91	1.17	1.43	1.71	2.02	2.38	2.87	3.64	4.37
Jun	.02	.08	.21	.36	.53	.72	.96	1.27	1.70	2.43	3.17
Jul	.07	.13	.25	.36	.49	.64	.81	1.03	1.33	1.83	2.33
Aug	.02	.07	.17	.29	.41	.56	.74	.98	1.30	1.85	2.39
Sep	.04	.14	.33	.53	.75	1.00	1.30	1.68	2.22	3.11	3.99
Oct	.14	.25	.45	.67	.90	1.16	1.47	1.86	2.39	3.28	4.15
Nov	.31	.44	.67	.88	1.08	1.31	1.56	1.86	2.27	2.91	3.52
Dec	.07	.13	.26	.40	.56	.74	.96	1.25	1.65	2.32	2.98
Ann	9.84	10.84	12.14	13.14	14.04	14.91	15.82	16.84	18.08	19.90	21.49

\+ 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	14.0	12.0	6	5	9.0	1996	19	43.5	1996	22	1996	31	14	1993	7.3	5.6	1.9	.8	.0	24.8	18.3	14.8	4.6
Feb	12.2	12.6	5	4	15.0	1989	2	31.5	1989	24	1989	2	16	1989	6.0	4.7	1.5	.6	@	20.9	15.6	11.2	4.1
Mar	10.1	8.5	2	1	10.0	1981	3	25.0	1985	19	1993	1	8	1993	4.8	4.1	1.3	.5	@	7.5	4.1	2.4	.8
Apr	5.9	4.5	#	#	8.0	1986	13	18.0+	1991	4	1986	13	1	1973	2.6	2.3	.8	.2	.0	.7	.2	.0	.0
May	2.1	.0	#	0	8.0	1975	6	20.0	1975	3	1983	11	#+	2000	.8	.7	.3	.1	.0	.1	@	.0	.0
Jun	.2	.0	0	0	2.5	1998	17	2.5	1998	0	0	0	0	0	.1	.1	.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	.6	.0	#	0	11.0	2000	23	11.0	2000	6	2000	23	#+	2000	.2	.1	.1	@	@	@	@	@	.0
Oct	2.2	.0	#	0	9.0	1989	28	20.0	1984	7	1989	28	1	1984	.7	.7	.3	.2	.0	.9	.5	.2	.0
Nov	12.3	9.1	1	1	17.0	1986	8	31.5	1994	14	1986	8	5	1994	5.0	4.4	1.7	.7	@	9.5	5.0	2.7	@
Dec	12.8	13.0	3	3	11.0	1972	29	47.5	1983	17	1972	30	10	1983	6.1	4.7	1.7	.5	.1	21.2	12.2	7.1	1.1
Ann	72.4	59.7	N/A	N/A	17.0	Nov 1986	8	47.5	Dec 1983	24	Feb 1989	2	16	Feb 1989	33.6	27.4	9.6	3.6	.1	85.6	55.9	38.4	10.6

+ 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	7/11	7/04	6/29	6/25	6/21	6/17	6/13	6/08	6/01
32	6/23	6/18	6/13	6/10	6/06	6/03	5/30	5/26	5/20
28	5/30	5/25	5/20	5/17	5/14	5/10	5/07	5/03	4/27
24	5/15	5/09	5/05	5/01	4/28	4/24	4/21	4/17	4/11
20	4/28	4/22	4/17	4/14	4/10	4/06	4/02	3/29	3/22
16	4/19	4/10	4/04	3/30	3/25	3/20	3/14	3/08	2/27

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	8/10	8/17	8/22	8/26	8/30	9/03	9/07	9/12	9/19
32	8/31	9/05	9/08	9/12	9/14	9/17	9/20	9/24	9/29
28	9/12	9/16	9/20	9/23	9/25	9/28	10/01	10/04	10/09
24	9/20	9/25	9/29	10/02	10/05	10/08	10/11	10/15	10/20
20	10/05	10/11	10/15	10/19	10/22	10/26	10/30	11/03	11/09
16	10/17	10/22	10/26	10/29	11/01	11/04	11/07	11/11	11/16

Freeze Free Period

Temp (F)	Probability of longer than indicated freeze free period (Days)								
	.10	.20	.30	.40	.50	.60	.70	.80	.90
36	100	89	82	75	69	63	56	49	38
32	121	113	108	104	99	95	91	85	78
28	157	149	143	138	134	129	125	119	111
24	185	176	170	165	159	154	149	143	134
20	225	214	207	201	195	189	183	175	165
16	254	242	234	227	221	214	207	199	188

***** 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	1333	1093	909	641	401	162	31	44	239	569	949	1276	7647
60	1178	953	754	491	255	72	5	8	126	415	799	1121	6177
57	1085	869	661	405	177	37	1	2	76	325	709	1028	5375
55	1023	813	599	349	133	21	0	1	51	267	649	966	4872
50	868	673	448	221	54	4	0	0	13	145	502	811	3739
32	363	235	65	8	0	0	0	0	0	2	102	299	1074

Base	Cooling Degree Days (1)												
Above	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Ann
32	53	66	179	358	623	857	1109	1073	765	456	143	46	5728
55	0	0	0	8	43	189	396	361	127	8	0	0	1132
57	0	0	0	4	25	144	335	300	92	4	0	0	904
60	0	0	0	0	10	89	246	213	52	1	0	0	611
65	0	0	0	0	1	29	117	94	14	0	0	0	255
70	0	0	0	0	0	6	36	24	2	0	0	0	68

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	4	49	171	401	641	886	850	546	249	43	3	0	4	53	224	625	1266	2152	3002	3548	3797	3840	3843
45	0	0	10	81	260	491	731	695	400	134	8	0	0	0	10	91	351	842	1573	2268	2668	2802	2810	2810
50	0	0	0	27	139	342	576	540	263	49	0	0	0	0	0	27	166	508	1084	1624	1887	1936	1936	1936
55	0	0	0	4	58	209	421	385	139	9	0	0	0	0	0	4	62	271	692	1077	1216	1225	1225	1225
60	0	0	0	0	11	99	269	232	50	0	0	0	0	0	0	0	11	110	379	611	661	661	661	661
Base	Growing Degree Units for Corn (Monthly)												Growing Degree Units for Corn (Accumulated Monthly)											
50/86	0	8	61	151	286	433	569	559	405	232	53	3	0	8	69	220	506	939	1508	2067	2472	2704	2757	2760

(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