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: CASTLE DALE, UT **COOP ID: 421214**

Climate Division: UT 7 **NWS Call Sign:** **Elevation: 5,620 Feet** **Lat: 39˚12N** **Lon: 111˚01W**

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	37.2	9.5	23.4	65	2000	19	34.7	1981	-34	1937	22	13.6	1989	1292	0	.0	.0	3.0	11.0	30.9	7.6
Feb	44.3	15.8	30.1	70	1986	26	39.8	1995	-35	1933	10	18.8	1979	979	0	.0	.0	7.2	3.0	27.8	2.7
Mar	54.3	24.3	39.3	81	1964	31	45.4	1986	3+	1937	1	34.3	1977	797	0	.0	.0	21.4	.1	27.5	.0
Apr	62.7	30.2	46.5	86	2000	27	52.0	2000	11	1999	2	39.1	1975	556	0	.0	.0	27.3	.0	18.4	.0
May	72.4	38.8	55.6	91+	1958	28	60.2	2000	18	1991	1	51.6	1975	299	6	.0	.3	30.8	.0	5.5	.0
Jun	83.1	46.3	64.7	103	1994	25	70.6	1994	25	1990	2	59.9	1975	88	77	.1	7.1	30.0	.0	.3	.0
Jul	88.5	52.8	70.7	103	1973	5	74.2	1994	35	1987	19	66.2	1992	9	185	.3	16.0	31.0	.0	.0	.0
Aug	86.0	51.4	68.7	102	2000	1	73.3	1994	32	1968	23	65.3	1987	21	135	.1	10.2	31.0	.0	.0	.0
Sep	78.0	42.9	60.5	97	2000	14	64.6	1979	22+	1978	19	55.5	1986	162	26	.0	1.8	30.0	.0	2.8	.0
Oct	65.8	32.6	49.2	87+	1979	5	53.7	1988	3	1971	30	44.6	1984	489	0	.0	.0	29.1	.0	16.9	.0
Nov	50.3	21.9	36.1	75+	1999	1	40.7	1999	-7	1931	24	31.3	1993	868	0	.0	.0	14.8	.7	28.4	.1
Dec	40.3	13.0	26.7	67	1995	4	35.9	1980	-28+	1990	22	17.4	1990	1188	0	.0	.0	3.7	5.8	30.8	2.9
Ann	63.6	31.6	47.6	103+	Jun 1994	25	74.2	Jul 1994	-35	Feb 1933	10	13.6	Jan 1989	6748	429	.5	35.4	259.3	20.6	189.3	13.3

\+ 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: 1928-2001

(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	.64	.42	.73+	1949	13	2.32	1993	.00	1972
Feb	.57	.40	1.10	1965	7	2.04	1998	.00+	1988
Mar	.68	.69	1.10	1996	13	1.93	1981	.00+	1999
Apr	.52	.37	.92	1988	17	1.96	1988	.00+	1982
May	.65	.56	1.65	1993	27	1.85	1993	.00+	1974
Jun	.41	.30	1.09	1952	3	1.61	1997	.00	1978
Jul	.81	.73	1.43	1977	23	2.50	1987	.00	1979
Aug	.97	.83	1.35	1957	24	2.77	1997	.01	1996
Sep	.86	.70	1.39	1991	6	2.63	1980	.00	1979
Oct	.90	.71	1.24	1960	9	2.89	2000	.00+	1999
Nov	.52	.28	1.49	1957	3	2.68	1978	.00+	1999
Dec	.36	.23	.96	1951	29	1.18	1984	.00+	1998
Ann	7.89	7.82	1.65	May 1993	27	2.89	Oct 2000	.00+	Nov 1999

Mean Number of Days (3)

Daily Precipitation

Month	>= 0.01	>= 0.10	>= 0.50	>= 1.00
Jan	4.9	2.4	.1	.0
Feb	4.4	2.2	.1	.0
Mar	5.5	2.2	.3	@
Apr	4.1	1.8	.2	.0
May	5.0	1.9	.2	@
Jun	4.1	1.6	.1	.0
Jul	6.0	2.3	.3	.1
Aug	7.4	2.9	.4	.1
Sep	5.0	2.4	.5	.1
Oct	5.3	2.5	.4	.1
Nov	3.7	1.5	.2	.0
Dec	4.1	1.2	@	.0
Ann	59.5	24.9	2.8	.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	.01	.05	.13	.22	.32	.44	.59	.78	1.05	1.51	1.96
Feb	.00	.00	.10	.19	.29	.40	.54	.71	.94	1.34	1.72
Mar	.00	.00	.05	.18	.31	.46	.63	.85	1.16	1.66	2.18
Apr	.00	.01	.07	.14	.22	.32	.45	.62	.86	1.28	1.70
May	.00	.05	.15	.25	.36	.48	.63	.80	1.05	1.46	1.86
Jun	.01	.04	.09	.15	.22	.29	.38	.50	.66	.93	1.20
Jul	.03	.09	.21	.33	.45	.60	.78	1.00	1.30	1.81	2.30
Aug	.06	.12	.25	.38	.53	.70	.91	1.18	1.55	2.18	2.81
Sep	.03	.09	.21	.33	.47	.63	.82	1.06	1.38	1.94	2.48
Oct	.00	.03	.14	.27	.42	.60	.81	1.09	1.48	2.16	2.84
Nov	.00	.00	.06	.14	.22	.33	.46	.63	.87	1.28	1.69
Dec	.00	.00	.06	.11	.17	.25	.33	.44	.59	.85	1.10
Ann	4.65	5.23	6.00	6.60	7.15	7.69	8.25	8.88	9.66	10.81	11.83

\+ 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: 1928-2001
(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	7.6	5.0	3	2	10.5	1982	5	24.5	1980	17	1988	19	8	1993	3.5	2.9	.7	.1	@	15.5	9.5	5.6	.9
Feb	4.4	3.1	2	#	6.0	1978	11	19.9	1978	14	1978	13	11	1993	2.1	1.7	.5	.2	.0	7.5	4.7	3.0	1.8
Mar	1.4	.0	#	0	7.0	1980	7	7.0	1980	9	1993	1	2	1993	.5	.5	.2	.1	.0	.7	.6	.3	.0
Apr	.5	.0	#	0	6.0	1973	1	6.0+	1985	1	1991	12	#+	1996	.2	.2	.1	.1	.0	@	.0	.0	.0
May	.0	.0	0	0	.5	1988	30	.5	1988	0	0	0	0	0	@	.0	.0	.0	.0	.0	.0	.0	.0
Jun	.0	.0	0	0	.0	0	0	.0	0	0	0	0	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	.0	.0	0	0	.0	0	0	.0	0	0	0	0	0	0	.0	.0	.0	.0	.0	.0	.0	.0	.0
Oct	.3	.0	#	0	4.0	1984	17	4.0	1984	3	1971	29	#+	1991	.1	.1	@	.0	.0	@	.0	.0	.0
Nov	1.7	.5	#	0	5.8	1972	20	12.1	1983	7	1983	25	1	1983	.6	.5	.2	.1	.0	.4	.2	@	.0
Dec	3.8	2.9	#	#	7.5	1984	20	18.4	1983	8	1984	27	3	1983	2.4	1.5	.4	.1	.0	5.1	1.9	.5	.0
Ann	19.7	11.5	N/A	N/A	10.5	Jan 1982	5	24.5	Jan 1980	17	Jan 1988	19	11	Feb 1993	9.4	7.4	2.1	.7	@	29.2	16.9	9.4	2.7

+ 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	6/29	6/23	6/18	6/14	6/10	6/06	6/02	5/29	5/22
32	6/09	6/03	5/30	5/27	5/23	5/20	5/16	5/12	5/06
28	5/24	5/19	5/15	5/12	5/09	5/07	5/04	4/30	4/25
24	5/10	5/04	4/30	4/26	4/23	4/20	4/16	4/12	4/06
20	5/03	4/27	4/22	4/18	4/14	4/10	4/06	4/01	3/25
16	4/16	4/09	4/04	3/31	3/27	3/23	3/18	3/13	3/06

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	8/31	9/05	9/09	9/12	9/15	9/18	9/21	9/25	9/30
32	9/10	9/14	9/18	9/21	9/24	9/26	9/29	10/03	10/08
28	9/19	9/24	9/27	9/30	10/03	10/06	10/09	10/12	10/17
24	10/01	10/07	10/11	10/15	10/18	10/22	10/25	10/30	11/04
20	10/15	10/20	10/24	10/26	10/29	11/01	11/04	11/07	11/12
16	10/25	10/30	11/02	11/05	11/08	11/10	11/13	11/17	11/21

Freeze Free Period

Temp (F)	Probability of longer than indicated freeze free period (Days)								
	.10	.20	.30	.40	.50	.60	.70	.80	.90
36	124	114	107	102	96	91	85	78	68
32	145	137	132	127	123	118	114	108	101
28	165	158	154	150	146	142	138	133	127
24	204	195	188	183	178	173	167	161	152
20	226	216	209	203	198	192	186	179	170
16	252	242	236	230	225	220	214	208	199

***** 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	1292	979	797	556	299	88	9	21	162	489	868	1188	6748
60	1137	839	642	410	170	30	1	2	70	338	718	1033	5390
57	1044	755	549	326	110	12	0	0	36	254	628	940	4654
55	982	699	488	273	78	6	0	0	21	203	568	878	4196
50	835	567	342	160	26	0	0	0	3	99	419	723	3174
32	361	177	28	3	0	0	0	0	0	0	45	222	836

Base	Cooling Degree Days (1)												
Above	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Ann
32	92	122	254	436	730	980	1198	1137	854	535	167	57	6562
55	0	0	1	17	95	296	485	424	185	24	0	0	1527
57	0	0	0	10	65	242	423	363	140	13	0	0	1256
60	0	0	0	3	33	170	331	272	84	4	0	0	897
65	0	0	0	0	6	77	185	135	26	0	0	0	429
70	0	0	0	0	0	24	73	44	4	0	0	0	145

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	11	71	233	498	763	975	913	628	302	34	0	0	11	82	315	813	1576	2551	3464	4092	4394	4428	4428
45	0	0	20	119	346	613	820	758	479	176	8	0	0	0	20	139	485	1098	1918	2676	3155	3331	3339	3339
50	0	0	0	46	208	463	665	603	335	77	0	0	0	0	0	46	254	717	1382	1985	2320	2397	2397	2397
55	0	0	0	13	104	319	510	448	200	21	0	0	0	0	0	13	117	436	946	1394	1594	1615	1615	1615
60	0	0	0	0	30	186	355	296	90	1	0	0	0	0	0	0	30	216	571	867	957	958	958	958
Base	Growing Degree Units for Corn (Monthly)												Growing Degree Units for Corn (Accumulated Monthly)											
50/86	1	25	102	211	360	499	610	584	438	264	59	4	1	26	128	339	699	1198	1808	2392	2830	3094	3153	3157

(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