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: BRYCE CANYON NATL PK HDQ, UT **COOP ID: 421008**

Climate Division: UT 4 **NWS Call Sign:** **Elevation: 7,915 Feet** **Lat: 37˚38N** **Lon: 112˚10W**

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	34.1	9.3	21.7	59	1986	11	28.9	1986	-26	1963	13	14.4	1979	1343	0	.0	.0	1.6	10.7	30.9	5.4
Feb	36.6	12.0	24.3	64	1986	26	31.7	1995	-26	1989	6	19.6	1985	1141	0	.0	.0	2.8	6.6	28.2	3.4
Mar	42.4	18.5	30.5	67+	1966	31	36.5	1972	-11+	1962	14	25.0	1980	1072	0	.0	.0	9.6	2.7	30.2	.6
Apr	50.9	24.2	37.6	75+	1992	29	44.8	1992	-3	1975	2	29.2	1975	824	0	.0	.0	19.6	1.1	26.7	.1
May	61.2	31.7	46.5	84	2000	30	52.6	2000	13	1977	18	42.1	1975	574	0	.0	.0	28.6	@	17.9	.0
Jun	72.5	39.8	56.2	92	1981	21	61.7	1981	21	1976	15	51.8	1995	276	11	.0	.2	29.8	.0	4.5	.0
Jul	78.3	46.6	62.5	95	1976	9	65.9	1996	28	1982	6	59.2	1992	99	20	.0	.4	31.0	.0	.2	.0
Aug	75.9	45.2	60.6	90+	1972	11	64.1	1994	23	1962	31	58.3	1976	145	8	.0	.2	31.0	.0	.4	.0
Sep	68.4	37.3	52.9	86+	1974	10	55.8	1979	16	1971	19	47.9	1986	364	0	.0	.0	29.5	.0	7.5	.0
Oct	57.2	27.3	42.3	79	1980	1	47.4	1988	0	1971	30	36.8	1984	705	0	.0	.0	24.9	.5	24.8	@
Nov	42.4	17.5	30.0	68	1976	3	36.7	1995	-12	1964	17	22.6	2000	1051	0	.0	.0	9.3	4.5	29.3	1.2
Dec	35.1	10.0	22.6	60+	1980	26	31.2	1980	-23	1990	22	15.2	1990	1316	0	.0	.0	2.6	9.0	31.0	4.6
Ann	54.6	26.6	40.6	95	Jul 1976	9	65.9	Jul 1996	-26+	Feb 1989	6	14.4	Jan 1979	8910	39	.0	.8	220.3	35.1	231.6	15.3

\+ 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: 1959-2001

(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	1.50	.99	2.27	1995	26	7.38	1993	.09	1972
Feb	1.66	1.23	2.29	1993	9	6.07	1993	.00	1972
Mar	1.64	1.39	1.75	1983	3	4.95	1983	.05	1972
Apr	.84	.51	1.19	1965	4	2.89	1988	.00	1989
May	1.05	.90	1.15	1990	29	3.55	1992	.00+	1986
Jun	.60	.46	1.17	1972	7	3.28	1972	.00+	1980
Jul	1.43	1.27	1.35	1986	23	5.66	1984	.08	1979
Aug	2.16	1.81	2.17	1997	10	5.35	1997	.08	1985
Sep	1.65	1.15	3.15	1963	18	5.40	1997	.00	1979
Oct	1.70	1.45	2.07	1972	19	6.36	2000	.00+	1999
Nov	1.20	.97	2.05	1978	2	5.98	1978	.07	1999
Dec	.97	.68	1.39	1967	15	2.63	1971	.00+	1989
Ann	16.40	15.92	3.15	Sep 1963	18	7.38	Jan 1993	.00+	Oct 1999

Mean Number of Days (3)

Daily Precipitation

Month	>= 0.01	>= 0.10	>= 0.50	>= 1.00
Jan	6.2	3.4	.9	.3
Feb	6.4	3.7	1.0	.3
Mar	7.5	4.2	.9	.2
Apr	5.0	2.2	.3	.1
May	6.0	3.0	.6	.1
Jun	4.3	1.9	.2	@
Jul	7.5	4.0	.8	.2
Aug	10.0	5.5	1.3	.2
Sep	6.7	3.4	1.0	.3
Oct	5.7	3.8	1.2	.3
Nov	4.9	2.6	.7	.2
Dec	5.3	2.6	.5	@
Ann	75.5	40.3	9.4	2.2

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	.07	.15	.32	.52	.75	1.02	1.36	1.80	2.43	3.50	4.57
Feb	.06	.20	.44	.68	.94	1.24	1.59	2.04	2.65	3.67	4.67
Mar	.11	.21	.42	.64	.90	1.19	1.54	1.99	2.61	3.67	4.71
Apr	.02	.07	.18	.30	.43	.59	.78	1.02	1.36	1.94	2.51
May	.00	.00	.20	.38	.56	.77	1.01	1.32	1.73	2.42	3.10
Jun	.00	.00	.06	.15	.26	.38	.54	.74	1.02	1.49	1.97
Jul	.16	.26	.46	.66	.88	1.12	1.40	1.75	2.23	3.02	3.79
Aug	.33	.51	.83	1.12	1.43	1.77	2.16	2.64	3.27	4.31	5.30
Sep	.03	.13	.33	.56	.82	1.13	1.51	1.99	2.68	3.85	5.02
Oct	.00	.11	.36	.62	.90	1.23	1.61	2.09	2.76	3.88	4.99
Nov	.07	.14	.28	.45	.63	.85	1.11	1.45	1.93	2.74	3.54
Dec	.00	.05	.19	.33	.49	.68	.90	1.18	1.58	2.25	2.91
Ann	9.65	10.86	12.47	13.72	14.85	15.97	17.14	18.46	20.08	22.48	24.59

\+ 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: 1959-2001
(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	17.6	12.0	12	12	20.0	1995	26	82.0	1993	52	1979	31	36	1979	5.7	4.5	2.1	1.1	.4	23.1	20.3	18.8	16.0
Feb	17.0	13.3	16	14	18.0	1993	9	55.0	1993	61	1993	21	53	1993	5.7	4.2	2.5	1.1	.3	23.8	21.3	20.5	14.9
Mar	15.4	11.5	10	5	13.0	1975	6	46.0	1983	57+	1993	1	46	1979	5.9	4.6	2.3	1.1	.1	17.5	14.0	12.0	9.2
Apr	7.4	3.0	3	#	14.0	1997	3	32.0	1997	44	1979	1	24	1979	2.7	2.4	.8	.3	.1	5.2	3.9	3.1	2.1
May	1.4	.5	#	#	9.0	1979	8	9.0	1979	4	1975	21	#+	2000	.8	.5	.2	@	.0	.4	.0	.0	.0
Jun	.2	.0	#	0	2.5	1998	17	2.5	1998	1	1995	18	#	1995	.1	.1	.0	.0	.0	@	.0	.0	.0
Jul	.0	.0	#	0	.0	0	0	.0	0	#	1996	7	#	1996	.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	.1	.0	#	0	2.0	1988	13	2.0	1988	1	1988	13	#	1988	.1	@	.0	.0	.0	@	.0	.0	.0
Oct	2.0	.0	#	#	7.0	1996	28	15.5	2000	7	1996	31	1+	2000	1.1	.8	.3	.1	.0	.8	.4	.2	.0
Nov	11.3	7.9	3	2	16.0	1991	16	35.2	1972	22	1978	15	14	1972	3.6	2.8	1.2	.8	.2	8.9	6.1	4.8	2.5
Dec	11.0	9.6	5	3	18.0	1984	16	28.0	1992	37	1978	19	24	1978	4.3	3.3	1.7	.9	.2	17.9	14.1	9.1	4.8
Ann	83.4	57.8	N/A	N/A	20.0	Jan 1995	26	82.0	Jan 1993	61	Feb 1993	21	53	Feb 1993	30.0	23.2	11.1	5.4	1.3	97.6	80.1	68.5	49.5

+ 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	7/14	7/09	7/05	7/02	6/29	6/26	6/23	6/20	6/15
32	7/04	6/28	6/23	6/19	6/16	6/12	6/08	6/04	5/29
28	6/26	6/20	6/15	6/11	6/08	6/04	5/31	5/26	5/20
24	6/10	6/04	5/30	5/25	5/22	5/18	5/14	5/09	5/02
20	5/24	5/18	5/14	5/10	5/07	5/04	4/30	4/26	4/21
16	5/10	5/02	4/27	4/22	4/18	4/13	4/09	4/03	3/26

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	8/09	8/15	8/20	8/24	8/27	8/31	9/03	9/08	9/14
32	8/19	8/26	8/30	9/04	9/07	9/11	9/15	9/20	9/26
28	9/05	9/10	9/14	9/17	9/19	9/22	9/25	9/29	10/04
24	9/14	9/20	9/24	9/27	9/30	10/03	10/07	10/11	10/16
20	9/27	10/04	10/08	10/12	10/15	10/19	10/23	10/27	11/03
16	10/06	10/13	10/18	10/22	10/26	10/30	11/03	11/08	11/14

Freeze Free Period

Temp (F)	Probability of longer than indicated freeze free period (Days)								
	.10	.20	.30	.40	.50	.60	.70	.80	.90
36	83	75	68	63	58	53	48	41	33
32	114	103	95	89	83	77	70	62	52
28	125	117	112	107	103	99	94	88	81
24	157	148	142	136	131	126	120	114	105
20	190	180	172	166	161	155	149	142	132
16	224	212	204	197	190	184	177	169	157

***** 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	1343	1141	1072	824	574	276	99	145	364	705	1051	1316	8910
60	1188	1001	917	674	421	158	23	43	219	550	901	1161	7256
57	1095	917	824	584	333	104	6	14	143	459	811	1068	6358
55	1033	861	762	526	278	75	2	5	101	399	751	1006	5799
50	878	721	608	387	158	26	0	0	33	260	601	851	4523
32	338	237	151	56	2	0	0	0	0	12	139	320	1255

Cooling Degree Days (1)

Base Above	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Ann
32	19	20	103	222	451	724	945	886	626	330	78	27	4431
55	0	0	0	3	14	109	234	178	37	4	0	0	579
57	0	0	0	0	7	78	176	125	19	1	0	0	406
60	0	0	0	0	2	42	99	61	5	0	0	0	209
65	0	0	0	0	0	11	20	8	0	0	0	0	39
70	0	0	0	0	0	1	1	0	0	0	0	0	2

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	1	16	83	250	520	721	657	409	154	12	0	0	1	17	100	350	870	1591	2248	2657	2811	2823	2823
45	0	0	0	28	131	370	566	502	269	64	0	0	0	0	0	28	159	529	1095	1597	1866	1930	1930	1930
50	0	0	0	4	51	234	411	347	139	16	0	0	0	0	0	4	55	289	700	1047	1186	1202	1202	1202
55	0	0	0	0	8	118	256	196	54	0	0	0	0	0	0	0	8	126	382	578	632	632	632	632
60	0	0	0	0	0	44	116	76	11	0	0	0	0	0	0	0	0	44	160	236	247	247	247	247
Base	**Growing Degree Units for Corn (Monthly)**												**Growing Degree Units for Corn (Accumulated Monthly)**											
50/86	0	1	28	97	218	372	473	431	301	160	28	0	0	1	29	126	344	716	1189	1620	1921	2081	2109	2109

(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