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: EPHRAIM SORENSENS FLD, UT **COOP ID: 422578**

Climate Division: UT 4 **NWS Call Sign:** **Elevation: 5,510 Feet** **Lat: 39˚22N** **Lon: 111˚35W**

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	37.4	13.7	25.6	59+	1981	2	33.5	1981	-28	1982	7	17.9	1989	1222	0	.0	.0	2.1	10.0	30.3	4.0
Feb	43.7	18.8	31.3	70	1972	28	38.8	1995	-22	1982	6	23.6	1974	945	0	.0	.0	5.8	3.7	26.9	1.5
Mar	53.1	26.4	39.8	76	1997	20	46.8	1986	-9	1997	1	35.1	1977	784	0	.0	.0	16.7	.9	24.9	.1
Apr	62.1	32.0	47.1	88	2000	27	53.7	1992	9	1975	2	40.5	1975	540	1	.0	.0	24.1	.1	16.2	.0
May	72.6	39.4	56.0	94+	1989	7	60.8	1974	20	1978	5	49.9	1995	294	15	.0	.3	29.8	.0	4.6	.0
Jun	84.5	47.0	65.8	102	2001	30	70.5	1994	26	1976	14	58.1	1995	89	112	.1	6.1	30.0	.0	.5	.0
Jul	91.7	53.7	72.7	108	1998	18	75.8	1994	34	1983	11	68.7	1995	6	244	1.0	17.4	31.0	.0	.0	.0
Aug	88.9	52.4	70.7	104	2000	2	75.9	1994	34+	1964	30	68.1	1975	7	182	.5	12.8	31.0	.0	.0	.0
Sep	78.5	44.0	61.3	97+	2000	14	65.8	1990	16	1965	18	56.7	1986	148	36	.0	1.9	29.8	.0	2.2	.0
Oct	65.5	34.0	49.8	90	1996	9	56.5	1988	12+	1991	31	42.5	1984	476	2	.0	@	27.4	.2	13.2	.0
Nov	49.3	23.8	36.6	76	1999	6	41.7	1995	-5	1994	23	30.3	1979	854	0	.0	.0	14.0	2.2	26.3	.3
Dec	38.9	14.9	26.9	66	1995	1	36.9	1980	-34	1990	23	17.3	1990	1182	0	.0	.0	3.3	8.5	30.2	3.1
Ann	63.9	33.3	48.6	108	Jul 1998	18	75.9	Aug 1994	-34	Dec 1990	23	17.3	Dec 1990	6547	592	1.6	38.5	245.0	25.6	175.3	9.0

\+ 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: 1949-2001

(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	1.01	.80	1.10	2000	25	2.18	1993	.16	1972
Feb	1.08	.95	1.45	1980	18	3.82	1980	.17	1972
Mar	1.39	1.45	.95	1993	28	2.52	1983	.03	1997
Apr	1.14	1.04	.82	1957	1	2.75	1999	.06	1977
May	1.29	1.09	1.18	1964	7	4.25	1995	.06	1974
Jun	.67	.56	1.92	1970	10	2.63	1984	.00+	1978
Jul	.76	.70	1.08	1953	15	2.06	1987	.04	2000
Aug	.85	.82	1.00	1992	6	1.93	1986	.01	1985
Sep	1.19	1.06	1.10	1982	29	4.52	1982	.07	1974
Oct	1.34	1.11	.85	1988	12	3.18	1984	.00	1976
Nov	1.10	.90	1.05	1996	21	3.07	1983	.11	1976
Dec	.88	.93	2.21	1966	6	2.60	1983	.00	1976
Ann	12.70	12.89	2.21	Dec 1966	6	4.52	Sep 1982	.00+	Jun 1978

Mean Number of Days (3)

Daily Precipitation

Month	>= 0.01	>= 0.10	>= 0.50	>= 1.00
Jan	8.2	3.4	.4	@
Feb	8.5	3.8	.2	@
Mar	10.7	5.1	.4	.0
Apr	9.0	4.2	.4	.0
May	8.4	4.0	.5	.1
Jun	4.5	2.2	.3	.0
Jul	6.0	2.3	.3	.0
Aug	6.7	2.9	.4	@
Sep	6.7	3.6	.5	.1
Oct	7.0	4.1	.5	.0
Nov	6.9	3.2	.5	@
Dec	6.7	3.1	.3	.0
Ann	89.3	41.9	4.7	.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	.16	.25	.40	.54	.68	.84	1.02	1.23	1.53	2.00	2.45
Feb	.17	.26	.42	.57	.72	.89	1.08	1.32	1.63	2.14	2.63
Mar	.23	.35	.56	.75	.94	1.16	1.40	1.70	2.10	2.74	3.35
Apr	.21	.32	.48	.64	.80	.97	1.16	1.39	1.70	2.20	2.68
May	.22	.34	.52	.70	.88	1.08	1.30	1.57	1.93	2.52	3.07
Jun	.00	.00	.11	.21	.33	.46	.62	.83	1.11	1.59	2.07
Jul	.10	.16	.27	.38	.49	.61	.75	.93	1.17	1.56	1.94
Aug	.11	.18	.30	.42	.55	.69	.85	1.04	1.31	1.75	2.17
Sep	.16	.26	.43	.60	.77	.96	1.18	1.46	1.82	2.42	3.00
Oct	.22	.41	.63	.82	1.00	1.19	1.40	1.64	1.96	2.47	2.95
Nov	.17	.26	.42	.57	.73	.90	1.10	1.34	1.66	2.18	2.69
Dec	.12	.23	.38	.51	.63	.76	.91	1.08	1.31	1.67	2.01
Ann	7.62	8.54	9.76	10.70	11.55	12.39	13.27	14.25	15.47	17.26	18.83

\+ 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: 1949-2001
(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	.3	-99.9	0	0	1.0	2000	18	1.0	2000	0	0	0	0	0	-9.9	-9.9	-9.9	-9.9	-9.9	-9.9	-9.9	-9.9	-9.9
Feb	1.0	-99.9	0	0	2.0	1999	10	4.0+	2000	0	0	0	0	0	-9.9	-9.9	-9.9	-9.9	-9.9	-9.9	-9.9	-9.9	-9.9
Mar	.8	-99.9	0	0	3.0	2000	20	3.0	2000	0	0	0	0	0	-9.9	-9.9	-9.9	-9.9	-9.9	.0	.0	.0	.0
Apr	-99.9	-99.9	0	0	#	1992	1	#	1992	0	0	0	0	0	-9.9	-9.9	-9.9	-9.9	-9.9	.0	.0	.0	.0
May	-99.9	-99.9	0	0	.0	0	0	.0	0	0	0	0	0	0	-9.9	-9.9	-9.9	-9.9	-9.9	.0	.0	.0	.0
Jun	-99.9	-99.9	0	0	.0	0	0	.0	0	0	0	0	0	0	-9.9	-9.9	-9.9	-9.9	-9.9	.0	.0	.0	.0
Jul	-99.9	-99.9	0	0	.0	0	0	.0	0	0	0	0	0	0	-9.9	-9.9	-9.9	-9.9	-9.9	.0	.0	.0	.0
Aug	-99.9	-99.9	0	0	.0	0	0	.0	0	0	0	0	0	0	-9.9	-9.9	-9.9	-9.9	-9.9	.0	.0	.0	.0
Sep	-99.9	-99.9	0	0	.0	0	0	.0	0	0	0	0	0	0	-9.9	-9.9	-9.9	-9.9	-9.9	.0	.0	.0	.0
Oct	-99.9	-99.9	0	0	.0	0	0	.0	0	0	0	0	0	0	-9.9	-9.9	-9.9	-9.9	-9.9	.0	.0	.0	.0
Nov	1.4	-99.9	0	0	5.0	2000	10	5.5	2000	0	0	0	0	0	-9.9	-9.9	-9.9	-9.9	-9.9	.0	.0	.0	.0
Dec	2.8	-99.9	#	0	8.0	1998	18	11.0	1998	#	1998	4	#	1998	-9.9	-9.9	-9.9	-9.9	-9.9	-9.9	-9.9	-9.9	-9.9
Ann	-9.9	-9.9	N/A	N/A	8.0	Dec 1998	18	11.0	Dec 1998	#	Dec 1998	4	#	Dec 1998	-9.9	-9.9	-9.9	-9.9	-9.9	-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	6/28	6/22	6/17	6/13	6/09	6/05	6/01	5/28	5/21
32	6/12	6/07	6/03	5/30	5/27	5/24	5/21	5/17	5/11
28	5/24	5/19	5/16	5/13	5/10	5/07	5/04	4/30	4/25
24	5/13	5/06	5/01	4/27	4/23	4/19	4/15	4/09	4/03
20	4/26	4/18	4/12	4/07	4/02	3/28	3/23	3/17	3/09
16	4/07	3/29	3/23	3/17	3/12	3/07	3/01	2/23	2/14

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	9/08	9/12	9/15	9/17	9/19	9/21	9/24	9/26	9/30
32	9/13	9/18	9/21	9/23	9/26	9/28	10/01	10/04	10/09
28	9/17	9/22	9/27	9/30	10/04	10/07	10/10	10/15	10/20
24	9/30	10/07	10/12	10/16	10/20	10/23	10/27	11/01	11/08
20	10/14	10/20	10/24	10/28	10/31	11/04	11/07	11/11	11/17
16	10/26	10/31	11/05	11/08	11/12	11/15	11/18	11/23	11/28

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	117	111	106	101	97	92	86	78
32	141	134	129	125	121	117	113	108	101
28	169	161	155	151	146	141	137	131	123
24	207	198	191	185	179	173	167	160	151
20	242	232	224	217	211	205	199	191	181
16	278	266	258	251	244	237	230	222	210

***** 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	1222	945	784	540	294	89	6	7	148	476	854	1182	6547
60	1067	805	629	397	173	35	1	0	65	331	704	1027	5234
57	974	721	536	317	117	17	0	0	35	253	614	934	4518
55	912	665	476	267	86	10	0	0	21	206	554	872	4069
50	757	530	332	161	33	2	0	0	5	110	409	717	3056
32	276	143	27	5	0	0	0	0	0	1	54	232	738

Cooling Degree Days (1)

Base Above	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Ann
32	77	123	267	455	745	1013	1261	1199	878	550	190	73	6831
55	0	0	2	27	118	333	548	486	210	42	1	0	1767
57	0	0	1	18	87	280	486	424	163	27	0	0	1486
60	0	0	0	8	50	208	394	331	103	12	0	0	1106
65	0	0	0	1	15	112	244	182	36	2	0	0	592
70	0	0	0	0	3	47	116	65	7	0	0	0	238

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	16	81	214	468	742	989	938	639	317	61	1	0	16	97	311	779	1521	2510	3448	4087	4404	4465	4466
45	0	1	30	112	322	592	834	783	489	191	16	0	0	1	31	143	465	1057	1891	2674	3163	3354	3370	3370
50	0	0	2	46	194	444	679	628	344	90	0	0	0	0	2	48	242	686	1365	1993	2337	2427	2427	2427
55	0	0	0	15	97	306	524	473	215	32	0	0	0	0	0	15	112	418	942	1415	1630	1662	1662	1662
60	0	0	0	0	31	183	369	319	102	3	0	0	0	0	0	0	31	214	583	902	1004	1007	1007	1007
Base	**Growing Degree Units for Corn (Monthly)**												**Growing Degree Units for Corn (Accumulated Monthly)**											
50/86	0	22	75	170	322	480	617	591	428	251	65	4	0	22	97	267	589	1069	1686	2277	2705	2956	3021	3025

(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