

Climatology of the United States

No. 20

1971-2000

Station: WISDOM, MT

COOP ID: 249067

Climate Division: MT 2

NWS Call Sign:

Elevation: 6,060 Feet Lat: 45° 37N

Lon: 113° 27W

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	27.6	.4	14.0	51	1986	19	22.6	1994	-52	1951	29	-2.0	1979	1580	0	.0	.0	@	19.9	30.7	12.7
Feb	32.6	2.5	17.6	55+	1995	24	27.3	1991	-52	1989	3	4.3	1989	1330	0	.0	.0	.6	12.8	28.0	10.9
Mar	40.8	11.9	26.4	65	1994	15	33.3	1992	-33	1989	4	16.7	1985	1199	0	.0	.0	3.7	4.7	30.8	4.5
Apr	50.7	20.4	35.6	80	1949	29	41.0	1987	-18	1982	8	26.3	1975	884	0	.0	.0	13.8	.8	28.3	.6
May	60.6	28.0	44.3	85	1986	30	49.2	1993	8	1954	1	40.4	1975	642	0	.0	.0	25.7	@	22.3	.0
Jun	69.9	35.0	52.5	91	1988	25	57.9	1988	19+	1979	8	49.2	1998	378	0	.0	.1	29.4	.0	9.4	.0
Jul	78.6	36.6	57.6	94+	2000	31	62.1	1998	20	1949	28	50.8	1993	237	8	.0	.7	30.9	.0	4.9	.0
Aug	78.2	33.9	56.1	96	1949	2	60.0	1983	11	1992	25	52.4	1987	282	4	.0	.5	30.9	.0	12.4	.0
Sep	68.0	26.3	47.2	89+	1998	4	52.9	1998	3+	1985	29	42.4	1971	535	0	.0	.0	27.9	.0	22.2	.0
Oct	55.7	19.2	37.5	79+	1992	2	42.7	1988	-23	1991	30	32.8	1984	855	0	.0	.0	21.5	.8	28.8	.5
Nov	37.5	10.8	24.2	66	1962	4	31.2	1999	-34	1955	16	13.5	2000	1226	0	.0	.0	3.9	9.7	29.0	5.6
Dec	28.0	1.4	14.7	53	1979	18	25.3	1980	-55	1983	23	2.9	1983	1560	0	.0	.0	.2	20.4	30.6	13.0
Ann	52.4	18.9	35.6	96	Aug 1949	2	62.1	Jul 1998	-55	Dec 1983	23	-2.0	Jan 1979	10708	12	.0	1.3	188.5	69.1	277.4	47.8

+ 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/normal/usnormals.html

Issue Date: February 2004

(1) From the 1971-2000 Monthly Normals

(2) Derived from station's available digital record: 1948-2001

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Precipitation (inches)

		Precipitation Totals								Mean Number of Days (3)				Precipitation Probabilities (1) Probability that the monthly/annual precipitation will be equal to or less than the indicated amount										
		Means/Medians(1)		Extremes						Daily Precipitation				Monthly/Annual Precipitation vs Probability Levels These values were determined from the incomplete gamma distribution										
Month	Mean	Median	Highest Daily(2)	Year	Day	Highest Monthly(1)	Year	Lowest Monthly(1)	Year	>= 0.01	>= 0.10	>= 0.50	>= 1.00	.05	.10	.20	.30	.40	.50	.60	.70	.80	.90	.95
Jan	.62	.60	.77	2000	11	1.48	1997	.04	1981	9.5	1.9	@	.0	.12	.18	.27	.35	.44	.52	.63	.75	.91	1.17	1.42
Feb	.51	.46	.46	1979	14	1.25	1996	.02	1977	8.1	1.8	.0	.0	.06	.10	.18	.25	.32	.41	.50	.62	.78	1.05	1.31
Mar	.67	.65	.56	1993	30	1.34	1999	.23	1978	10.3	2.1	.1	.0	.28	.34	.43	.50	.56	.63	.70	.78	.89	1.05	1.19
Apr	.98	1.00	.67	1975	26	2.01	1975	.13	1977	10.8	3.5	.1	.0	.24	.33	.48	.60	.73	.86	1.01	1.19	1.42	1.78	2.12
May	1.70	1.73	1.26	1953	24	4.32	1981	.42+	1979	13.0	5.7	.6	@	.42	.58	.83	1.05	1.27	1.50	1.75	2.05	2.45	3.08	3.67
Jun	1.78	1.50	1.35	1950	18	3.88	1993	.20	1974	11.9	5.6	.6	.0	.49	.65	.91	1.13	1.35	1.58	1.84	2.14	2.53	3.15	3.72
Jul	1.28	1.21	1.70	1983	10	3.02	1983	.05	1999	8.6	3.9	.5	.1	.17	.28	.46	.64	.82	1.03	1.27	1.57	1.97	2.62	3.25
Aug	1.12	1.00	.98	1960	1	2.33	1985	.02	2000	8.3	3.8	.3	.0	.19	.29	.45	.60	.76	.93	1.13	1.36	1.68	2.19	2.68
Sep	.99	.82	1.70	1970	8	2.53	1976	.01	1987	7.5	3.2	.3	@	.05	.11	.22	.35	.51	.69	.91	1.19	1.59	2.27	2.95
Oct	.74	.68	1.32	1992	4	2.17	2000	.00	1987	6.9	2.4	.2	@	.05	.13	.25	.35	.47	.59	.73	.91	1.14	1.53	1.90
Nov	.81	.78	.53	1991	27	2.22	1995	.19	1976	10.6	3.0	.1	.0	.21	.29	.40	.51	.61	.72	.84	.98	1.16	1.45	1.73
Dec	.70	.63	.71	1955	23	2.17	1996	.05	1976	10.3	2.4	.1	.0	.12	.18	.28	.37	.47	.58	.71	.86	1.06	1.39	1.70
Ann	11.90+	12.35+	1.70+	Jul 1983	10	4.32	May 1981	.00	Oct 1987	115.8	39.3	2.9	.1	7.36	8.19	9.28	10.12	10.88	11.62	12.40	13.27	14.34	15.91	17.28

+ 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

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Lon: 113° 27W

Snow (inches)																							
Snow Totals															Mean Number of Days (1)								
Means/Medians (1)					Extremes (2)										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	5.1	-99.9	10	10	9.0	1979	11	15.3	1971	20	1997	27	13	1985	5.4	4.3	1.4	.4	.0	-9.9	-9.9	-9.9	-9.9
Feb	9.8	11.8	10	8	6.0	1979	14	18.6	1999	22	1999	22	19	1999	3.7	2.9	.8	.2	.0	-9.9	-9.9	-9.9	-9.9
Mar	9.7	8.0	8	9	4.0	1973	10	15.5	1999	24	1989	4	16	1989	2.9	2.3	.5	.0	.0	-9.9	-9.9	-9.9	-9.9
Apr	3.4	3.0	1	0	9.0	1976	26	10.0	1971	15	1989	2	6	1999	1.1	.9	.2	.1	.0	-9.9	-9.9	-9.9	-9.9
May	1.0	.0	0	0	8.0	1981	11	13.8	1981	0	0	0	0	0	.2	.2	.1	.1	.0	.0	.0	.0	.0
Jun	#	.0	0	0	#	1979	8	#+	1979	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	#	1977	30	#	1977	0	0	0	0	0	.0	.0	.0	.0	.0	.0	.0	.0	.0
Sep	.2	.0	#	0	4.0	1978	18	4.0	1978	1+	1992	6	#+	1992	.1	.1	.1	.0	.0	.1	.0	.0	.0
Oct	.4	.0	#	0	3.5	1973	31	4.0	1973	5	1994	15	#+	1994	.6	.3	.2	.0	.0	.0	.0	.0	.0
Nov	6.7	4.1	2	1	7.5	1983	25	13.2	1998	8	1994	30	5	1994	4.4	3.3	.8	.1	.0	-9.9	-9.9	-9.9	-9.9
Dec	6.0	-99.9	6	7	6.0	1981	15	18.0	1973	14	1996	28	11	1984	3.9	3.0	1.1	.2	.0	-9.9	-9.9	-9.9	-9.9
Ann	42.3	-9.9	N/A	N/A	9.0+	Jan 1979	11	18.6	Feb 1999	24	Mar 1989	4	19	Feb 1999	22.3	17.3	5.2	1.1	.0	-9.9	-9.9	-9.9	-9.9

+ Also occurred on an earlier date(s) #Denotes trace amounts

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-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	8/05	8/03	8/01	7/30	7/29	7/27	7/25	7/23	7/21
32	8/02	7/29	7/25	7/23	7/20	7/17	7/14	7/11	7/06
28	7/28	7/19	7/12	7/07	7/01	6/26	6/20	6/14	6/05
24	6/30	6/23	6/17	6/13	6/09	6/04	5/31	5/25	5/18
20	6/03	5/29	5/24	5/21	5/18	5/14	5/11	5/06	5/01
16	5/17	5/12	5/08	5/05	5/02	4/29	4/26	4/23	4/18
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	7/31	7/31	8/01	8/02	8/02	8/03	8/04	8/05	8/06
32	7/30	8/01	8/03	8/04	8/06	8/07	8/09	8/11	8/13
28	8/06	8/10	8/13	8/16	8/19	8/21	8/24	8/27	9/01
24	8/17	8/22	8/25	8/28	8/31	9/03	9/06	9/09	9/14
20	8/28	9/01	9/05	9/08	9/10	9/13	9/16	9/19	9/23
16	9/05	9/10	9/13	9/17	9/19	9/22	9/25	9/29	10/04
Freeze Free Period									
Temp (F)	Probability of longer than indicated freeze free period (Days)								
	.10	.20	.30	.40	.50	.60	.70	.80	.90
36	13	10	8	6	4	2	0	0	0
32	33	27	23	19	16	13	9	5	0
28	79	68	60	54	48	42	35	27	17
24	112	102	95	88	83	77	70	63	53
20	139	131	125	120	115	110	105	99	91
16	163	155	149	144	140	135	130	124	116

* 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	1580	1330	1199	884	642	378	237	282	535	855	1226	1560	10708
60	1425	1190	1044	734	487	235	115	149	387	700	1076	1405	8947
57	1332	1106	951	644	394	160	65	90	302	607	986	1312	7949
55	1270	1050	889	584	333	117	39	59	247	545	926	1250	7309
50	1115	910	734	437	194	41	7	15	132	390	776	1095	5846
32	572	423	235	63	2	0	0	0	0	22	284	554	2155

Base	Cooling Degree Days (1)												
Above	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Ann
32	14	17	59	170	384	613	795	745	455	190	48	17	3507
55	0	0	0	0	2	40	120	91	12	0	0	0	265
57	0	0	0	0	0	22	85	60	6	0	0	0	173
60	0	0	0	0	0	8	42	26	2	0	0	0	78
65	0	0	0	0	0	0	8	4	0	0	0	0	12
70	0	0	0	0	0	0	0	0	0	0	0	0	0

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	0	0	44	170	379	557	508	246	63	2	0	0	0	0	44	214	593	1150	1658	1904	1967	1969	1969
45	0	0	0	10	78	243	402	353	130	17	0	0	0	0	0	10	88	331	733	1086	1216	1233	1233	1233
50	0	0	0	0	20	124	250	207	48	1	0	0	0	0	0	0	20	144	394	601	649	650	650	650
55	0	0	0	0	1	47	114	85	7	0	0	0	0	0	0	0	1	48	162	247	254	254	254	254
60	0	0	0	0	0	8	34	17	0	0	0	0	0	0	0	0	0	8	42	59	59	59	59	59
Base	Growing Degree Units for Corn (Monthly)												Growing Degree Units for Corn (Accumulated Monthly)											
50/86	0	0	3	67	172	293	438	432	275	126	9	0	0	0	3	70	242	535	973	1405	1680	1806	1815	1815

(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:

www.ncdc.noaa.gov/oa/climate/normal/usnormals.html

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.
Complete documentation for the 1971-2000 Normals is available on the internet from:
www.ncdc.noaa.gov/oa/climate/normal/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/normal.html
U.S. Climate Normals 1971-2000-Products Clim20, www.ncdc.noaa.gov/oa/climate/normal/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