

Climatography of the United States

No. 20

1971-2000

Station: WEST GLACIER, MT

COOP ID: 248809

Climate Division: MT 1

NWS Call Sign:

Elevation: 3,154 Feet Lat: 48° 30N

Lon: 113° 59W

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	29.3	15.5	22.4	50+	1984	5	30.1	1994	-35	1950	30	4.1	1979	1320	0	.0	.0	.1	16.4	29.9	4.7
Feb	34.8	18.7	26.8	58	1950	26	33.0	1991	-32	1950	1	14.2	1989	1070	0	.0	.0	.3	7.7	27.1	3.0
Mar	43.1	24.2	33.7	66	1986	27	39.5	1986	-30	1960	3	28.2	1996	972	0	.0	.0	5.3	2.3	28.0	.6
Apr	54.2	30.3	42.3	83	1987	29	47.0	1987	3	1954	2	36.2	1997	683	0	.0	.0	19.2	.1	19.9	.0
May	64.5	37.7	51.1	90+	1986	30	56.1	1993	13	1954	1	46.3	1996	431	0	.0	.1	29.3	.0	6.5	.0
Jun	71.8	44.1	58.0	91	1988	20	63.3	1986	24	1959	1	54.0	1981	223	12	.0	.2	29.9	.0	.6	.0
Jul	78.9	48.2	63.6	99	1990	13	69.0	1985	31	1979	3	56.5	1993	114	70	.0	2.2	31.0	.0	.1	.0
Aug	78.8	47.4	63.1	99	1969	24	67.7	1971	26	1992	24	58.1	1980	123	63	.0	1.6	31.0	.0	.1	.0
Sep	67.1	39.1	53.1	95	1988	3	59.4	1998	18+	1985	29	47.9	1985	362	5	.0	.2	28.8	.0	4.8	.0
Oct	53.4	31.7	42.6	77+	1980	5	45.7	1988	-3	1991	30	38.6	1984	695	0	.0	.0	20.4	.5	18.1	@
Nov	37.0	25.0	31.0	65	1999	13	37.7	1999	-29	1959	16	16.9	1985	1019	0	.0	.0	1.7	6.8	25.4	1.0
Dec	29.6	18.0	23.8	52+	1965	4	30.7	1979	-36	1968	30	11.3	1983	1278	0	.0	.0	.1	17.7	30.1	3.2
Ann	53.5	31.7	42.6	99+	Jul 1990	13	69.0	Jul 1985	-36	Dec 1968	30	4.1	Jan 1979	8290	150	.0	4.3	197.1	51.5	190.6	12.5

+ 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

Issue Date: February 2004

(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

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: WEST GLACIER, MT

COOP ID: 248809

Climate Division: MT 1

NWS Call Sign:

Elevation: 3,154 Feet Lat: 48°30N

Lon: 113°59W

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	Med-ian	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	3.16	3.31	1.50	1982	24	5.77	1974	.16	1985	15.6	9.1	1.8	.2	.88	1.18	1.64	2.03	2.42	2.82	3.27	3.80	4.49	5.56	6.57
Feb	2.19	2.02	2.09	1951	9	5.10	1982	.33	1993	12.4	6.7	.9	.1	.53	.74	1.06	1.34	1.62	1.92	2.25	2.65	3.16	3.98	4.75
Mar	1.83	1.65	.90	1950	17	4.13	1997	.43	1992	12.2	6.5	.6	.0	.60	.77	1.03	1.24	1.45	1.67	1.91	2.19	2.54	3.10	3.61
Apr	1.78	1.82	1.41	1974	27	3.23	1993	.33	1977	11.4	5.4	.7	.1	.75	.91	1.14	1.33	1.50	1.68	1.87	2.09	2.36	2.79	3.17
May	2.66	2.19	1.64	1980	23	6.13	1996	.96	1983	13.3	7.1	1.4	.2	1.06	1.31	1.66	1.94	2.22	2.49	2.79	3.13	3.57	4.24	4.85
Jun	3.22	2.93	3.47	1964	8	6.94	1995	.75	1977	14.2	7.7	1.5	.4	1.15	1.45	1.89	2.26	2.61	2.97	3.37	3.83	4.41	5.32	6.15
Jul	1.97	1.79	1.68	1964	5	5.11	1993	.09	1985	10.1	5.2	1.0	.3	.27	.43	.71	.99	1.27	1.59	1.96	2.41	3.01	4.01	4.97
Aug	1.67	1.52	1.73	1954	26	4.48	1978	.15	1994	8.6	4.6	1.1	.1	.29	.43	.67	.90	1.14	1.39	1.68	2.03	2.50	3.27	3.99
Sep	1.87	1.66	1.59	1952	6	4.83	1985	.02	1990	9.4	5.7	.8	.1	.27	.42	.69	.95	1.22	1.52	1.86	2.28	2.84	3.77	4.66
Oct	2.07	1.68	1.81	1994	27	5.18	1995	.14	1974	10.7	6.1	1.0	@	.26	.42	.71	1.00	1.30	1.64	2.04	2.53	3.19	4.27	5.33
Nov	3.10	2.95	1.98	1989	12	7.53	1995	.65	1979	15.2	8.7	1.5	.2	.81	1.10	1.55	1.95	2.34	2.75	3.20	3.74	4.45	5.56	6.59
Dec	3.22	2.95	2.38	1964	22	7.72	1980	.68	1986	16.2	9.4	1.6	.2	1.13	1.43	1.87	2.24	2.60	2.96	3.36	3.82	4.42	5.33	6.17
Ann	28.74	28.27	3.47	Jun 1964	8	7.72	Dec 1980	.02	Sep 1990	149.3	82.2	13.9	1.9	21.05	22.55	24.47	25.92	27.21	28.44	29.72	31.12	32.82	35.28	37.40

+ 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

Complete documentation available from:
www.ncdc.noaa.gov/oa/climate/normals/usnormals.html

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: WEST GLACIER, MT

COOP ID: 248809

Climate Division: MT 1

NWS Call Sign:

Elevation: 3,154 Feet

Lat: 48° 30N

Lon: 113° 59W

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	33.5	32.0	18	14	20.0	1994	7	84.9	1972	58	1972	25	41	1972	11.7	9.9	4.7	2.0	.3	29.9	29.4	28.1	23.8
Feb	17.9	17.8	20	18	15.0	1980	20	43.0	1972	55	1972	15	49	1972	7.3	6.3	2.7	1.2	.1	27.1	27.1	27.1	22.9
Mar	12.0	11.6	17	17	12.0	1989	14	45.5	1997	60	1997	6	50	1997	5.6	4.8	1.8	.6	.1	29.3	28.4	27.2	20.7
Apr	2.4	1.0	6	4	9.0	1996	1	14.0	2000	41	1997	8	34	1997	1.4	1.1	.2	.1	.0	9.1	7.9	7.2	5.1
May	.1	.0	#	0	1.0	1996	1	3.0	1996	17	1997	3	3	1997	.1	.1	.0	.0	.0	@	.0	.0	.0
Jun	.1	.0	0	0	1.5	1971	29	1.5	1971	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	.2	1972	27	.2	1972	1	1972	27	#	1972	@	.0	.0	.0	.0	@	.0	.0	.0
Oct	1.5	.0	#	0	6.0	1984	28	15.0	1984	8	1984	31	1	1991	.8	.7	.2	.1	.0	.8	.5	.2	.0
Nov	13.8	10.5	3	2	11.5	1996	19	37.0	1986	26	1996	30	10	1996	6.8	6.0	2.4	1.1	.1	14.4	9.3	5.5	1.7
Dec	32.1	33.0	10	9	20.0	1992	20	65.5	1984	45	1996	30	33	1996	12.2	10.3	5.5	2.2	.5	27.7	24.1	19.7	10.2
Ann	113.4	105.9	N/A	N/A	20.0+	Jan 1994	7	84.9	Jan 1972	60	Mar 1997	6	50	Mar 1997	45.9	39.2	17.5	7.3	1.1	138.3	126.7	115.0	84.4

+ 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

Complete documentation available from:

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

**Climatography
of the United States
No. 20
1971-2000**

Station: WEST GLACIER, MT

COOP ID: 248809

Climate Division: MT 1

NWS Call Sign:

Elevation: 3,154 Feet

Lat: 48°30N

Lon: 113°59W

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	7/08	7/03	6/29	6/26	6/22	6/19	6/16	6/12	6/07
32	6/24	6/16	6/10	6/06	6/01	5/28	5/23	5/18	5/10
28	5/24	5/19	5/16	5/13	5/11	5/08	5/05	5/02	4/27
24	5/01	4/27	4/24	4/21	4/19	4/16	4/14	4/11	4/06
20	4/20	4/14	4/10	4/07	4/04	3/31	3/28	3/24	3/18
16	4/11	4/04	3/30	3/26	3/22	3/18	3/14	3/09	3/02
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	8/14	8/19	8/23	8/26	8/29	9/01	9/04	9/08	9/13
32	9/02	9/06	9/09	9/12	9/14	9/17	9/19	9/22	9/26
28	9/11	9/17	9/21	9/24	9/27	10/01	10/04	10/08	10/14
24	9/22	9/29	10/04	10/09	10/13	10/17	10/22	10/27	11/03
20	10/09	10/17	10/22	10/27	11/01	11/05	11/10	11/15	11/23
16	10/24	10/31	11/06	11/11	11/15	11/19	11/24	11/30	12/07
Freeze Free Period									
Temp (F)	Probability of longer than indicated freeze free period (Days)								
	.10	.20	.30	.40	.50	.60	.70	.80	.90
36	91	83	77	72	67	62	57	51	43
32	129	120	114	109	104	99	94	88	80
28	164	156	150	144	139	134	129	123	114
24	199	191	186	181	176	172	167	162	154
20	235	226	220	215	210	205	200	194	186
16	268	257	250	243	237	231	225	217	207

* 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

Complete documentation available from:

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

**Climatography
of the United States
No. 20
1971-2000**

Station: WEST GLACIER, MT

COOP ID: 248809

Climate Division: MT 1

NWS Call Sign:

Elevation: 3,154 Feet Lat: 48° 30N Lon: 113° 59W

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	1320	1070	972	683	431	223	114	123	362	695	1019	1278	8290
60	1165	930	817	533	283	111	43	49	229	540	869	1123	6692
57	1072	846	724	443	203	64	20	23	161	447	779	1030	5812
55	1010	790	662	385	157	40	11	13	122	386	719	968	5263
50	855	650	507	246	69	8	0	2	49	236	569	813	4004
32	357	212	74	6	0	0	0	0	0	4	148	307	1108

Base	Cooling Degree Days (1)												
Above	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Ann
32	60	66	125	313	592	779	979	963	633	332	119	52	5013
55	0	0	0	2	36	128	277	263	65	0	0	0	771
57	0	0	0	1	21	92	223	211	44	0	0	0	592
60	0	0	0	0	8	50	154	144	22	0	0	0	378
65	0	0	0	0	0	12	70	63	5	0	0	0	150
70	0	0	0	0	0	1	21	18	0	0	0	0	40

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	9	116	347	539	729	712	395	128	12	0	0	0	9	125	472	1011	1740	2452	2847	2975	2987	2987
45	0	0	0	47	209	390	574	557	253	49	0	0	0	0	0	47	256	646	1220	1777	2030	2079	2079	2079
50	0	0	0	11	104	249	419	402	136	9	0	0	0	0	0	11	115	364	783	1185	1321	1330	1330	1330
55	0	0	0	1	39	128	270	254	55	0	0	0	0	0	0	1	40	168	438	692	747	747	747	747
60	0	0	0	0	8	52	142	132	12	0	0	0	0	0	0	0	8	60	202	334	346	346	346	346
Base	Growing Degree Units for Corn (Monthly)												Growing Degree Units for Corn (Accumulated Monthly)											
50/86	0	0	10	95	234	340	461	459	263	91	1	0	0	0	10	105	339	679	1140	1599	1862	1953	1954	1954

(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/normals/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 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.

- | | |
|---|---|
| <ol style="list-style-type: none">a. Temperature/ Precipitation Tables<ol style="list-style-type: none">1. 1971-2000 Monthly Normals2. Cooperative Summary of the Day3. National Weather Service station records4. 1971-2000 serially complete daily datab. Degree Day Table<ol style="list-style-type: none">1. Monthly and Annual Heating and Cooling Degree Days Normals to Selected Bases derived from 1971-2000 Monthly Normals2. Daily Normal Growing Degree Units to Selected Base Temperatures derived from 1971-2000 serially complete daily data | <ol style="list-style-type: none">c. Snow Tables<ol style="list-style-type: none">1. Snow Climatology2. Cooperative Summary of the Dayd. 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