

Climatography of the United States No. 20

National Climatic Data Center
Federal Building
151 Patton Avenue
Asheville, North Carolina 28801
www.ncdc.noaa.gov

Station: GILDFORD, MT

1971-2000

COOP ID: 243530

Climate Division: MT 3

NWS Call Sign:

Elevation: 2,820 Feet Lat: 48° 34N

Lon: 110° 18W

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	27.8	4.9	16.4	64	1992	31	32.0	1986	-43	1969	24	-1.1	1982	1507	0	.0	.0	1.3	15.9	29.9	12.5
Feb	34.9	11.0	23.0	75	1992	27	36.2	1991	-44	1994	8	7.1	1994	1178	0	.0	.0	5.0	10.9	26.8	8.0
Mar	45.4	20.1	32.8	76	1999	25	42.5	1986	-33+	1996	6	23.1	1996	1000	0	.0	.0	12.3	5.5	28.1	2.2
Apr	58.5	30.0	44.3	89	1980	20	50.9	1987	-16	1975	6	33.0	1975	622	0	.0	.0	23.3	.9	18.3	.2
May	68.8	39.9	54.4	95	1988	16	59.6	1988	18+	1984	1	49.2	1996	335	4	.0	.4	29.4	.0	5.1	.0
Jun	76.7	47.7	62.2	103	1984	29	71.1	1988	29+	1992	6	57.5	1981	142	58	.1	2.3	30.0	.0	.3	.0
Jul	84.0	51.4	67.7	105	1960	22	72.4	1985	36	1977	14	59.9	1993	50	134	.5	7.4	31.0	.0	.0	.0
Aug	83.4	50.6	67.0	110	1961	5	74.9	1971	29	1992	25	61.1	1980	92	155	.5	8.1	30.9	.0	.1	.0
Sep	71.7	40.5	56.1	100	1967	5	62.5	1998	13	1959	29	48.7	1985	294	26	.0	1.3	28.5	@	4.6	.0
Oct	59.3	30.4	44.9	89	1980	7	48.9	1979	-20	1991	29	38.9	1984	625	0	.0	.0	24.5	.9	17.2	.4
Nov	41.0	17.7	29.4	76	1999	7	40.6	1999	-27+	1985	23	10.9	1985	1070	0	.0	.0	8.3	7.6	26.9	3.5
Dec	31.2	8.2	19.7	64	1987	3	32.4	1999	-44	1983	24	-1.9	1983	1405	0	.0	.0	2.5	13.7	30.0	9.1
Ann	56.9	29.4	43.2	110	Aug 1961	5	74.9	Aug 1971	-44+	Feb 1994	8	-1.9	Dec 1983	8320	377	1.1	19.5	227.0	55.4	187.3	35.9

+ 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: 1958-2001

(3) Derived from 1971-2000 serially complete daily data

062-A

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No. 20 1971-2000

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Station: GILDFORD, MT

COOP ID: 243530

Climate Division: MT 3

NWS Call Sign:

Elevation: 2,820 Feet Lat: 48°34N

Lon: 110°18W

Precipitation (inches)

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	.33	.30	.32+	1996	3	1.35	1971	.00+	1995	4.1	1.3	.0	.0	.00	.02	.08	.13	.18	.24	.32	.41	.53	.74	.95
Feb	.21	.13	.58	1963	1	.92	1978	.02+	1996	2.8	.7	.0	.0	.01	.02	.04	.07	.10	.14	.19	.26	.35	.50	.66
Mar	.48	.38	1.50	1977	29	1.74	1977	.00+	1994	4.4	1.4	.1	.1	.00	.05	.14	.22	.30	.38	.48	.60	.76	1.02	1.27
Apr	.78	.67	1.28	1989	26	2.40	1975	.00	1988	5.7	2.5	.2	@	.08	.17	.30	.41	.52	.65	.79	.96	1.18	1.55	1.90
May	2.01	1.79	2.38	1974	13	6.06	1974	.14	1988	8.3	4.7	1.3	.3	.36	.54	.84	1.11	1.39	1.69	2.03	2.45	3.00	3.89	4.73
Jun	2.17	1.90	2.36	1962	14	5.25	1995	.18	1985	8.6	5.1	1.3	.4	.46	.66	.98	1.27	1.56	1.87	2.22	2.64	3.20	4.09	4.93
Jul	1.39	1.15	1.80	1997	28	4.68	1993	.07	1977	6.1	3.7	.6	.1	.18	.29	.49	.68	.89	1.11	1.38	1.70	2.14	2.85	3.55
Aug	1.30	1.06	2.63	1968	15	4.02	1974	.07+	2000	6.5	3.6	.6	.1	.12	.21	.38	.56	.76	.98	1.25	1.58	2.04	2.81	3.56
Sep	1.10	.80	2.00	1986	25	4.74	1986	.01	1990	5.2	2.8	.5	.2	.09	.17	.31	.47	.63	.82	1.05	1.34	1.73	2.39	3.04
Oct	.60	.53	.90	1999	27	1.44	1994	.02	1974	3.6	2.0	.3	.0	.06	.10	.19	.27	.36	.46	.58	.73	.93	1.27	1.60
Nov	.36	.26	.69	1997	8	.99	1998	.00	1987	3.3	1.3	.1	.0	.02	.05	.10	.16	.21	.28	.35	.44	.57	.78	.99
Dec	.33	.25	.40	1989	14	1.95	1989	.00+	1991	3.9	1.2	.0	.0	.00	.01	.06	.11	.16	.23	.30	.40	.54	.78	1.01
Ann	11.06	10.81	2.63	Aug 1968	15	6.06	May 1974	.00+	Jan 1995	62.5	30.3	5.0	1.2	6.90	7.66	8.67	9.44	10.14	10.82	11.54	12.33	13.31	14.75	16.01

+ 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: 1958-2001

(3) Derived from 1971-2000 serially complete daily data

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

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No. 20

1971-2000

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Station: GILDFORD, MT

COOP ID: 243530

Climate Division: MT 3

NWS Call Sign:

Elevation: 2,820 Feet

Lat: 48°34N

Lon: 110°18W

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	2.4	#	3	#	6.0	1988	11	9.0	1989	20	1971	31	13	1972	1.0	.9	.3	.1	.0	-9.9	-9.9	-9.9	-9.9
Feb	2.1	1.0	#	#	5.0	1972	23	7.0	1972	5	1988	10	1	1974	.8	.6	.2	.1	.0	-9.9	-9.9	-9.9	-9.9
Mar	3.0	3.0	#	0	6.0	1990	13	6.0	1985	8	1996	5	1+	1996	1.2	1.1	.3	.2	.0	1.0	.4	.0	.0
Apr	.5	.0	#	0	6.0	1982	7	6.0	1982	4	1975	5	#+	1975	.3	.2	.1	.1	.0	.0	.0	.0	.0
May	.3	.0	0	0	5.0	1982	9	5.0	1982	0	0	0	0	0	.1	.1	.1	.1	.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	.1	.0	0	0	2.0	1992	23	2.0	1992	0	0	0	0	0	.1	.1	.0	.0	.0	.0	.0	.0	.0
Sep	.0	.0	0	0	.5	1983	30	.5	1983	0	0	0	0	0	.1	.0	.0	.0	.0	.0	.0	.0	.0
Oct	.2	.0	#	0	3.0	1988	27	3.0	1988	4	1984	27	1	1984	.1	.1	.1	.0	.0	.0	.0	.0	.0
Nov	1.7	.0	#	0	8.0	1988	14	8.0	1988	8	1988	14	2	1988	.7	.7	.3	.1	.0	3.5	1.7	.3	.0
Dec	1.6	.0	2	0	8.0	1989	14	8.0	1989	18	1989	23	9	1989	1.8	1.4	.5	.1	.0	-9.9	-9.9	-9.9	-9.9
Ann	11.9	4.0	N/A	N/A	8.0+	Dec 1989	14	9.0	Jan 1989	20	Jan 1971	31	13	Jan 1972	6.2	5.2	1.9	.8	.0	-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

Complete documentation available from:

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

Climatography of the United States

No. 20 1971-2000

Station: GILDFORD, MT

COOP ID: 243530

Climate Division: MT 3

NWS Call Sign:

Elevation: 2,820 Feet

Lat: 48° 34N

Lon: 110° 18W

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	6/21	6/15	6/11	6/08	6/05	6/02	5/29	5/25	5/20
32	6/08	6/02	5/29	5/26	5/23	5/20	5/16	5/12	5/07
28	5/21	5/16	5/13	5/11	5/09	5/06	5/04	5/01	4/26
24	5/06	4/30	4/27	4/24	4/21	4/18	4/15	4/11	4/06
20	4/28	4/23	4/19	4/16	4/13	4/09	4/06	4/02	3/28
16	4/22	4/17	4/13	4/09	4/06	4/03	3/30	3/26	3/21
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	8/20	8/25	8/29	9/02	9/05	9/09	9/14	9/20
32	9/04	9/08	9/11	9/14	9/16	9/18	9/21	9/24	9/28
28	9/13	9/16	9/19	9/21	9/23	9/26	9/28	10/01	10/04
24	9/17	9/22	9/25	9/28	10/01	10/04	10/07	10/10	10/15
20	9/27	10/03	10/07	10/11	10/14	10/17	10/21	10/25	10/31
16	10/06	10/12	10/16	10/19	10/23	10/26	10/29	11/03	11/08
Freeze Free Period									
Temp (F)	Probability of longer than indicated freeze free period (Days)								
	.10	.20	.30	.40	.50	.60	.70	.80	.90
36	113	104	98	93	88	83	78	72	63
32	134	128	123	119	116	112	108	103	97
28	154	148	144	141	137	134	130	126	120
24	182	176	171	166	163	159	154	149	143
20	211	202	195	189	184	178	173	166	156
16	225	216	209	204	199	194	189	182	173

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

Station: GILDFORD, MT

COOP ID: 243530

Climate Division: MT 3

NWS Call Sign:

Elevation: 2,820 Feet Lat: 48° 34N

Lon: 110° 18W

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	1507	1178	1000	622	335	142	50	92	294	625	1070	1405	8320
60	1354	1049	845	477	201	65	13	40	182	470	920	1250	6866
57	1265	970	753	394	136	34	5	22	126	378	830	1157	6070
55	1208	918	692	341	100	21	1	15	95	318	778	1104	5591
50	1065	789	546	224	38	4	0	4	38	185	637	959	4489
32	588	400	143	15	0	0	0	0	0	7	236	490	1879

Base	Cooling Degree Days (1)												
Above	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Ann
32	104	146	166	383	692	906	1107	1085	722	405	157	108	5981
55	11	20	2	19	79	237	395	387	127	3	8	9	1297
57	6	16	1	12	53	190	337	333	99	1	0	0	1048
60	2	11	0	5	25	131	252	257	64	0	0	0	747
65	0	0	0	0	4	58	134	155	26	0	0	0	377
70	0	0	0	0	0	18	56	79	9	0	0	0	162

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	2	10	38	182	449	669	858	839	485	212	33	2	2	12	50	232	681	1350	2208	3047	3532	3744	3777	3779
45	0	0	10	95	303	519	703	684	348	114	12	0	0	0	10	105	408	927	1630	2314	2662	2776	2788	2788
50	0	0	0	41	174	370	548	529	219	48	3	0	0	0	0	41	215	585	1133	1662	1881	1929	1932	1932
55	0	0	0	12	84	228	393	377	116	14	0	0	0	0	0	12	96	324	717	1094	1210	1224	1224	1224
60	0	0	0	1	33	120	246	239	50	3	0	0	0	0	0	1	34	154	400	639	689	692	692	692
Base	Growing Degree Units for Corn (Monthly)												Growing Degree Units for Corn (Accumulated Monthly)											
50/86	1	12	47	154	295	414	543	528	328	175	31	1	1	13	60	214	509	923	1466	1994	2322	2497	2528	2529

(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