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: ZORTMAN, MT **COOP ID: 249900**

Climate Division: MT 3 **NWS Call Sign:** **Elevation: 3,873 Feet** **Lat: 47˚55N** **Lon: 108˚32W**

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	.0	.0	.0	68	1974	16	.0	0	-35+	1991	3	.0	0	0	0	.0	.0	3.1	13.9	28.9	10.3
Feb	.0	.0	.0	67	1996	8	.0	0	-42	1996	2	.0	0	0	0	.0	.0	4.6	9.9	26.4	5.9
Mar	.0	.0	.0	73	1993	24	.0	0	-22	1976	3	.0	0	0	0	.0	.0	11.5	5.6	28.1	2.1
Apr	.0	.0	.0	85	1980	20	.0	0	-6	1975	3	.0	0	0	0	.0	.0	19.3	1.2	20.6	.2
May	.0	.0	.0	90+	1992	20	.0	0	14	1967	3	.0	0	0	0	.0	.2	28.2	.1	5.7	.0
Jun	.0	.0	.0	99	1987	15	.0	0	19	1999	28	.0	0	0	0	.0	1.5	29.8	.0	.6	.0
Jul	.0	.0	.0	97+	1971	16	.0	0	20	1999	26	.0	0	0	0	.2	5.0	31.0	.0	.3	.0
Aug	.0	.0	.0	101	1971	6	.0	0	26	1999	22	.0	0	0	0	.1	2.7	30.9	.0	.2	.0
Sep	.0	.0	.0	93	1998	8	.0	0	14	1995	21	.0	0	0	0	.0	.8	28.2	.1	4.5	.0
Oct	.0	.0	.0	87	1992	2	.0	0	-8	1991	30	.0	0	0	0	.0	.0	20.5	1.1	20.8	.1
Nov	.0	.0	.0	81	1999	8	.0	0	-26	1985	27	.0	0	0	0	.0	.0	8.9	6.7	27.0	2.9
Dec	.0	.0	.0	67+	1988	4	.0	0	-51	1990	22	.0	0	0	0	.0	.0	3.6	12.3	29.2	6.9
Ann	.0	.0	.0	101	Aug 1971	6	-99.9	0	-51	Dec 1990	22	99.9	0	0	0	.3	10.2	219.6	50.9	192.3	28.4

\+ 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: 1965-2001

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

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: ZORTMAN, MT **COOP ID: 249900**

Climate Division: MT 3 **NWS Call Sign:** **Elevation: 3,873 Feet** **Lat: 47°55N** **Lon: 108°32W**

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	.68	.61	.84	1969	6	2.07	1994	.00+	1992
Feb	.54	.44	.43	1972	27	1.39	1989	.00	1983
Mar	1.10	.95	1.11	1973	23	2.62	1974	.09	1981
Apr	1.73	1.86	2.41	1970	28	4.36	1991	.14	1983
May	3.28	2.85	5.00	1988	8	8.22	1997	.77	1992
Jun	3.62	3.34	4.24	1969	26	8.20	1998	.75	1979
Jul	2.34	1.57	2.01	1993	20	10.32	1993	.08	1971
Aug	1.70	1.21	1.80	1989	25	6.24	1985	.00+	1994
Sep	1.52	1.16	3.55	1967	13	6.43	1978	.00	1990
Oct	.67	.59	1.32	1969	6	1.79	1981	.00	1987
Nov	.60	.59	.66	1991	5	2.00	1998	.00+	1987
Dec	.73	.45	.60	1993	23	2.94	1989	.13	1985
Ann	18.51	17.17	5.00	May 1988	8	10.32	Jul 1993	.00+	Aug 1994

Mean Number of Days (3)

Month	Daily Precipitation >= 0.01	>= 0.10	>= 0.50	>= 1.00
Jan	6.3	2.3	.1	.0
Feb	3.5	1.9	.0	.0
Mar	6.4	2.7	.5	.1
Apr	6.1	3.2	.8	.2
May	9.5	5.8	1.7	.7
Jun	10.0	5.9	1.9	.7
Jul	8.0	4.6	1.1	.5
Aug	7.4	3.8	.9	.3
Sep	6.0	3.1	.8	.2
Oct	4.2	1.9	.4	@
Nov	5.2	1.4	@	.0
Dec	5.7	2.0	@	.0
Ann	78.3	38.6	8.2	2.7

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	.00	.04	.15	.25	.36	.49	.65	.84	1.11	1.56	2.01
Feb	.05	.10	.19	.27	.35	.44	.54	.66	.83	1.09	1.35
Mar	.17	.26	.42	.57	.73	.90	1.10	1.34	1.66	2.18	2.68
Apr	.28	.42	.68	.91	1.16	1.43	1.73	2.11	2.61	3.42	4.19
May	.75	1.06	1.54	1.97	2.40	2.86	3.37	3.98	4.79	6.06	7.26
Jun	.93	1.27	1.79	2.26	2.72	3.20	3.74	4.37	5.20	6.52	7.75
Jul	.20	.36	.67	.99	1.35	1.76	2.24	2.85	3.69	5.09	6.48
Aug	.00	.22	.54	.81	1.09	1.39	1.73	2.13	2.68	3.57	4.43
Sep	.07	.20	.43	.65	.89	1.16	1.48	1.88	2.42	3.32	4.21
Oct	.08	.16	.27	.37	.47	.57	.69	.83	1.01	1.31	1.59
Nov	.00	.05	.16	.25	.35	.46	.59	.75	.96	1.32	1.66
Dec	.10	.16	.27	.37	.47	.59	.73	.89	1.11	1.48	1.83
Ann	10.94	12.30	14.11	15.51	16.78	18.04	19.35	20.82	22.64	25.33	27.69

+ 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: 1965-2001
(3) Derived from 1971-2000 serially complete daily data

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

U.S. Department of Commerce
National Oceanic & Atmospheric Administration
National Environmental Satellite, Data,
and Information Services

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: ZORTMAN, MT **COOP ID: 249900**

Climate Division: MT 3 **NWS Call Sign:** **Elevation: 3,873 Feet** **Lat: 47°55N** **Lon: 108°32W**

Snow (inches)

Snow Totals

Means/Medians (1)

Month	Snow Fall Mean	Snow Fall Median	Snow Depth Mean	Snow Depth Median
Jan	2.0	-99.9	4	#
Feb	4.9	2.7	4	#
Mar	3.3	3.0	1	#
Apr	2.8	.3	1	0
May	.3	.0	1	0
Jun	.0	.0	0	0
Jul	.0	.0	0	0
Aug	.0	.0	0	0
Sep	.0	.0	0	0
Oct	.5	.0	#	0
Nov	1.7	-99.9	1	#
Dec	3.3	-99.9	3	#
Ann	18.8	-9.9	N/A	N/A

Extremes (2)

Month	Highest Daily Snow Fall	Year	Day	Highest Monthly Snow Fall	Year	Highest Daily Snow Depth	Year	Day	Highest Monthly Mean Snow Depth	Year
Jan	6.0	1989	10	6.0	1989	41	1978	31	31	1978
Feb	4.5	2000	15	14.8	1978	47	1978	18	38	1978
Mar	20.0	1985	28	20.0	1985	25	1978	7	12	1978
Apr	8.0	1979	23	14.0	1979	11	1975	10	4	1975
May	3.0	1979	7	3.0	1979	38	1974	21	11	1974
Jun	.0	0	0	.0	0	0	0	0	0	0
Jul	.0	0	0	.0	0	0	0	0	0	0
Aug	.0	0	0	.0	0	0	0	0	0	0
Sep	.0	0	0	.0	0	0	0	0	0	0
Oct	2.9	1976	23	2.9	1976	6	1975	8	1	1975
Nov	4.0	1977	24	6.7	1977	15	1978	20	7	1978
Dec	10.0	1977	17	10.0	1977	24	1977	31	13	1978
Ann	20.0	Mar 1985	28	20.0	Mar 1985	47	Feb 1978	18	38	Feb 1978

Mean Number of Days (1)

Snow Fall >= Thresholds

Month	0.1	1.0	3.0	5.0	10.0
Jan	1.5	1.3	.6	.1	.0
Feb	2.6	1.8	.4	.0	.0
Mar	1.9	1.3	.4	.1	.1
Apr	.7	.4	.3	.1	.0
May	.1	.1	.1	.0	.0
Jun	.0	.0	.0	.0	.0
Jul	.0	.0	.0	.0	.0
Aug	.0	.0	.0	.0	.0
Sep	.0	.0	.0	.0	.0
Oct	.4	.2	.0	.0	.0
Nov	1.6	1.3	.4	.0	.0
Dec	-9.9	-9.9	-9.9	-9.9	-9.9
Ann	-9.9	-9.9	-9.9	-9.9	-9.9

Snow Depth >= Thresholds

Month	1	3	5	10
Jan	-9.9	-9.9	-9.9	-9.9
Feb	-9.9	-9.9	-9.9	-9.9
Mar	-9.9	-9.9	-9.9	-9.9
Apr	.9	.5	.4	.0
May	.1	.1	.0	.0
Jun	.0	.0	.0	.0
Jul	.0	.0	.0	.0
Aug	.0	.0	.0	.0
Sep	.0	.0	.0	.0
Oct	.1	.1	.0	.0
Nov	-9.9	-9.9	-9.9	-9.9
Dec	-9.9	-9.9	-9.9	-9.9
Ann	-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/normals/usnormals.html

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: ZORTMAN, MT **COOP ID: 249900**

Climate Division: MT 3 **NWS Call Sign:** **Elevation: 3,873 Feet** **Lat: 47˚55N** **Lon: 108˚32W**

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	7/05	6/26	6/20	6/14	6/09	6/04	5/29	5/23	5/14
32	6/21	6/12	6/06	5/31	5/26	5/21	5/16	5/09	4/30
28	6/07	5/29	5/22	5/16	5/11	5/06	4/30	4/24	4/15
24	5/23	5/14	5/08	5/03	4/28	4/24	4/18	4/12	4/04
20	5/19	5/09	5/02	4/26	4/21	4/15	4/09	4/03	3/24
16	4/21	4/15	4/11	4/08	4/04	4/01	3/28	3/24	3/18

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	8/17	8/23	8/27	8/31	9/04	9/07	9/11	9/15	9/22
32	8/30	9/05	9/09	9/13	9/16	9/20	9/23	9/28	10/04
28	9/11	9/15	9/18	9/21	9/23	9/26	9/28	10/02	10/06
24	9/19	9/23	9/26	9/28	10/01	10/03	10/05	10/08	10/12
20	9/27	10/02	10/05	10/08	10/10	10/13	10/16	10/19	10/24
16	10/05	10/11	10/15	10/18	10/21	10/24	10/28	11/01	11/06

Freeze Free Period

Temp (F)	Probability of longer than indicated freeze free period (Days)								
	.10	.20	.30	.40	.50	.60	.70	.80	.90
36	119	107	99	92	86	79	72	64	53
32	149	136	127	120	112	105	97	88	76
28	170	158	149	141	134	127	120	111	99
24	181	172	166	160	154	149	143	137	127
20	203	192	185	178	172	166	159	151	140
16	225	216	210	204	199	194	189	182	174

***** 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/normals/usnormals.html

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: ZORTMAN, MT **COOP ID: 249900**

Climate Division: MT 3 **NWS Call Sign:** **Elevation: 3,873 Feet** **Lat: 47˚55N** **Lon: 108˚32W**

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	0	0	0	0	0	0	0	0	0	0	0	0	0
60	0	0	0	0	0	0	0	0	0	0	0	0	0
57	0	0	0	0	0	0	0	0	0	0	0	0	0
55	0	0	0	0	0	0	0	0	0	0	0	0	0
50	0	0	0	0	0	0	0	0	0	0	0	0	0
32	0	0	0	0	0	0	0	0	0	0	0	0	0

Base	Cooling Degree Days (1)												
Above	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Ann
32	0	0	0	0	0	0	0	0	0	0	0	0	0
55	0	0	0	0	0	0	0	0	0	0	0	0	0
57	0	0	0	0	0	0	0	0	0	0	0	0	0
60	0	0	0	0	0	0	0	0	0	0	0	0	0
65	0	0	0	0	0	0	0	0	0	0	0	0	0
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	15	12	38	143	375	608	808	772	469	150	36	13	15	27	65	208	583	1191	1999	2771	3240	3390	3426	3439
45	2	0	9	73	242	459	653	617	333	79	13	3	2	2	11	84	326	785	1438	2055	2388	2467	2480	2483
50	0	0	0	30	131	312	498	463	212	34	4	1	0	0	0	30	161	473	971	1434	1646	1680	1684	1685
55	0	0	0	8	59	192	348	314	114	12	0	0	0	0	0	8	67	259	607	921	1035	1047	1047	1047
60	0	0	0	1	21	93	211	180	46	2	0	0	0	0	0	1	22	115	326	506	552	554	554	554
Base	Growing Degree Units for Corn (Monthly)												Growing Degree Units for Corn (Accumulated Monthly)											
50/86	4	9	43	115	245	377	509	486	311	122	28	8	4	13	56	171	416	793	1302	1788	2099	2221	2249	2257

(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.
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