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: MALTA 35 S, MT **COOP ID: 245340**

Climate Division: MT 3 **NWS Call Sign:** **Elevation: 2,650 Feet** **Lat: 47˚51N** **Lon: 107˚57W**

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	28.5	2.3	15.4	65	1968	24	30.9	1986	-51	1969	24	-2.8	1982	1538	0	.0	.0	2.2	16.2	30.0	12.4
Feb	36.2	8.8	22.5	75+	1995	25	36.0	1991	-45	1994	8	5.9	1989	1189	0	.0	.0	5.9	10.5	26.6	7.9
Mar	46.8	19.1	33.0	80	1993	24	42.3	1986	-35+	1996	7	19.8	1996	993	0	.0	.0	13.3	5.0	27.7	2.2
Apr	59.5	29.0	44.3	92	2001	29	51.2	1987	-6	1986	14	35.5	1975	622	0	.0	.0	23.7	.9	18.2	.1
May	69.2	39.3	54.3	97	1988	29	59.8	1988	14	1984	1	46.8	1974	342	9	.0	.7	29.6	.0	5.0	.0
Jun	78.5	49.3	63.9	107	1988	26	74.5	1988	29	1985	4	59.2	1993	117	85	.4	3.6	30.0	.0	.2	.0
Jul	86.0	53.3	69.7	105+	1966	16	74.5	1985	35	1972	4	61.3	1993	45	189	1.3	10.7	31.0	.0	.0	.0
Aug	85.8	51.6	68.7	109	1983	6	76.3	1971	32	1988	28	61.8	1974	79	193	1.1	11.4	30.9	.0	@	.0
Sep	73.7	39.3	56.5	103+	1991	1	64.7	1998	15+	1995	21	49.3	1985	288	33	.1	2.3	28.9	.0	4.6	.0
Oct	61.2	29.0	45.1	91	1992	1	49.4	1986	-10	1984	30	39.6	1984	617	0	.0	.1	25.7	.5	17.7	.2
Nov	42.0	15.7	28.9	81+	1999	13	38.8	1999	-32	1985	28	9.1	1985	1085	0	.0	.0	10.2	7.3	27.8	3.1
Dec	32.7	6.3	19.5	68+	1980	16	31.8	1999	-51	1983	24	-2.3	1983	1412	0	.0	.0	3.9	13.1	30.2	9.2
Ann	58.3	28.6	43.5	109	Aug 1983	6	76.3	Aug 1971	-51+	Dec 1983	24	-2.8	Jan 1982	8327	509	2.9	28.8	235.3	53.5	188.0	35.1

+ 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: 1959-2001

(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: MALTA 35 S, MT **COOP ID: 245340**

Climate Division: MT 3 **NWS Call Sign:** **Elevation: 2,650 Feet** **Lat: 47°51N** **Lon: 107°57W**

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	.32	.25	.90	1970	24	1.56	1971	.00	1973
Feb	.28	.18	.31	1984	14	1.02	1979	.00	1990
Mar	.63	.54	.81	1977	29	1.90	1975	.07	1992
Apr	.98	.92	1.60	1969	26	2.82	1973	.11	1977
May	2.38	2.39	3.00	1988	7	4.90	1978	.21	1993
Jun	2.25	2.22	1.85	1974	21	6.19	1991	.49	1979
Jul	1.86	1.74	2.66	1983	10	4.60	1993	.00	1971
Aug	1.27	1.01	2.45	1968	15	4.27	1985	.06	1996
Sep	1.10	.75	5.01	1986	25	8.74	1986	.00	1990
Oct	.56	.40	1.43	1981	12	1.95	1981	.00+	1990
Nov	.38	.26	.60	1989	4	1.24	1998	.00	1972
Dec	.39	.30	.82	1989	5	2.00	1977	.00+	1991
Ann	12.40	11.98	5.01	Sep 1986	25	8.74	Sep 1986	.00+	Dec 1991

Mean Number of Days (3)

Daily Precipitation

Month	>= 0.01	>= 0.10	>= 0.50	>= 1.00
Jan	5.0	1.0	.0	.0
Feb	3.9	.9	.0	.0
Mar	5.2	1.9	.2	.0
Apr	6.4	2.9	.5	.1
May	9.0	5.3	1.4	.3
Jun	8.9	5.1	1.3	.3
Jul	7.2	4.4	1.1	.2
Aug	5.6	2.9	.6	.3
Sep	4.2	2.2	.4	.1
Oct	3.3	1.8	.2	@
Nov	3.8	1.4	@	.0
Dec	3.8	1.0	.1	.0
Ann	66.3	30.8	5.8	1.3

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	.01	.03	.08	.12	.17	.23	.30	.39	.51	.71	.91
Feb	.01	.04	.08	.13	.17	.22	.28	.35	.45	.61	.77
Mar	.07	.12	.21	.30	.39	.49	.62	.77	.97	1.31	1.63
Apr	.17	.25	.40	.53	.67	.82	.99	1.20	1.48	1.93	2.37
May	.50	.72	1.07	1.39	1.71	2.05	2.43	2.90	3.50	4.48	5.40
Jun	.53	.74	1.06	1.36	1.65	1.96	2.31	2.72	3.27	4.13	4.94
Jul	.06	.20	.46	.72	1.02	1.36	1.77	2.28	2.99	4.18	5.36
Aug	.11	.19	.36	.54	.73	.95	1.21	1.55	2.01	2.78	3.53
Sep	.01	.05	.15	.29	.46	.67	.94	1.30	1.82	2.73	3.66
Oct	.00	.04	.14	.22	.32	.42	.54	.69	.90	1.24	1.58
Nov	.01	.04	.09	.15	.21	.28	.36	.47	.61	.86	1.10
Dec	.00	.03	.09	.14	.21	.28	.37	.48	.63	.88	1.13
Ann	7.53	8.41	9.58	10.49	11.31	12.11	12.95	13.90	15.05	16.76	18.27

\+ 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: 1959-2001
(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: MALTA 35 S, MT **COOP ID: 245340**

Climate Division: MT 3 **NWS Call Sign:** **Elevation: 2,650 Feet** **Lat: 47°51N** **Lon: 107°57W**

Snow (inches)

Snow Totals

Means/Medians (1)

Month	Snow Fall Mean	Snow Fall Median	Snow Depth Mean	Snow Depth Median
Jan	6.4	2.5	4	2
Feb	3.9	3.2	3	1
Mar	6.2	4.0	2	1
Apr	4.1	2.0	#	#
May	1.1	.0	#	0
Jun	.0	.0	0	0
Jul	.0	.0	0	0
Aug	.0	.0	0	0
Sep	.0	.0	#	0
Oct	1.3	.0	#	0
Nov	4.5	3.0	1	#
Dec	5.0	4.5	3	1
Ann	32.5	19.2	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	8.0	1971	30	38.0	1971	25	1971	31	12	1989
Feb	8.0	1986	15	14.0	1986	28	1971	8	17	1971
Mar	12.0	1977	29	23.5	1975	17	1975	29	9	1982
Apr	8.0	1973	21	15.0	1973	11	1975	8	2	1997
May	8.0	1983	12	9.0	1983	9	1983	13	1	1983
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	1.0	1984	23	1.0	1984	#+	2000	23	#+	2000
Oct	8.0	1981	12	8.0	1981	8	1981	12	1	1985
Nov	8.5	1978	13	17.0	1993	16	1975	30	4	1985
Dec	8.0	1989	9	15.0	1989	16	1975	1	7	1989
Ann	12.0	Mar 1977	29	38.0	Jan 1971	28	Feb 1971	8	17	Feb 1971

Mean Number of Days (1)

Snow Fall >= Thresholds

Month	0.1	1.0	3.0	5.0	10.0
Jan	3.6	3.2	.9	.1	.0
Feb	2.3	2.0	.6	.2	.0
Mar	2.0	1.9	.9	.2	@
Apr	1.2	1.2	.5	.3	.0
May	.4	.4	.2	.1	.0
Jun	.0	.0	.0	.0	.0
Jul	.0	.0	.0	.0	.0
Aug	.0	.0	.0	.0	.0
Sep	@	@	.0	.0	.0
Oct	.3	.3	.2	.1	.0
Nov	2.3	2.0	.6	.2	.0
Dec	2.4	2.1	.6	.1	.0
Ann	14.5	13.1	4.5	1.3	@

Snow Depth >= Thresholds

Month	1	3	5	10
Jan	18.3	13.6	9.7	4.3
Feb	10.7	8.6	6.3	2.6
Mar	5.5	4.1	2.5	.5
Apr	1.9	1.1	.8	@
May	.2	.2	.1	.0
Jun	.0	.0	.0	.0
Jul	.0	.0	.0	.0
Aug	.0	.0	.0	.0
Sep	.0	.0	.0	.0
Oct	.5	.2	.2	.0
Nov	6.1	3.4	2.2	.3
Dec	16.1	11.1	6.9	.7
Ann	59.3	42.3	28.7	8.4

+ 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

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: MALTA 35 S, MT **COOP ID: 245340**

Climate Division: MT 3 **NWS Call Sign:** **Elevation: 2,650 Feet** **Lat: 47˚51N** **Lon: 107˚57W**

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	6/22	6/15	6/10	6/06	6/03	5/30	5/26	5/21	5/14
32	6/03	5/29	5/25	5/22	5/19	5/16	5/13	5/09	5/04
28	5/22	5/16	5/12	5/09	5/06	5/03	4/30	4/26	4/20
24	5/07	5/02	4/29	4/26	4/23	4/20	4/17	4/13	4/08
20	5/01	4/25	4/21	4/17	4/14	4/10	4/07	4/03	3/28
16	4/24	4/16	4/11	4/07	4/03	3/30	3/25	3/20	3/13

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	8/28	9/01	9/04	9/06	9/09	9/11	9/13	9/16	9/21
32	9/06	9/09	9/12	9/14	9/16	9/18	9/20	9/22	9/25
28	9/13	9/16	9/19	9/21	9/23	9/26	9/28	10/01	10/04
24	9/19	9/24	9/28	10/01	10/04	10/07	10/11	10/15	10/20
20	9/24	10/01	10/06	10/10	10/14	10/18	10/22	10/26	11/02
16	10/04	10/11	10/16	10/20	10/24	10/27	11/01	11/05	11/12

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	111	106	102	97	93	89	83	76
32	138	131	127	123	119	115	111	107	100
28	160	153	148	144	140	136	131	126	119
24	189	180	174	169	164	159	154	147	139
20	215	204	196	189	182	176	169	161	149
16	233	223	215	209	203	197	191	183	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:
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: MALTA 35 S, MT **COOP ID: 245340**

Climate Division: MT 3 **NWS Call Sign:** **Elevation: 2,650 Feet** **Lat: 47˚51N** **Lon: 107˚57W**

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	1538	1189	993	622	342	117	45	79	288	617	1085	1412	8327
60	1384	1063	838	476	213	50	14	34	179	462	935	1257	6905
57	1294	984	747	392	149	26	6	19	126	371	845	1164	6123
55	1234	931	687	338	113	16	1	12	96	312	790	1103	5633
50	1092	803	543	219	49	3	0	3	40	182	650	962	4546
32	606	415	152	13	0	0	0	0	0	7	240	484	1917

Cooling Degree Days (1)

Base Above	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Ann
32	91	150	182	381	689	958	1167	1138	735	413	145	95	6144
55	6	22	4	17	90	283	455	437	141	5	5	1	1466
57	4	18	2	10	63	233	399	382	111	2	0	0	1224
60	1	13	0	4	34	168	313	304	74	1	0	0	912
65	0	0	0	0	9	85	189	193	33	0	0	0	509
70	0	0	0	0	1	32	101	110	12	0	0	0	256

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	16	50	198	465	710	918	903	532	237	33	7	2	18	68	266	731	1441	2359	3262	3794	4031	4064	4071
45	0	1	16	104	317	560	763	748	390	132	12	1	0	1	17	121	438	998	1761	2509	2899	3031	3043	3044
50	0	0	1	49	191	412	608	594	261	62	2	0	0	0	1	50	241	653	1261	1855	2116	2178	2180	2180
55	0	0	0	14	93	270	454	440	151	20	0	0	0	0	0	14	107	377	831	1271	1422	1442	1442	1442
60	0	0	0	1	36	153	304	296	72	4	0	0	0	0	0	1	37	190	494	790	862	866	866	866
Base	**Growing Degree Units for Corn (Monthly)**												**Growing Degree Units for Corn (Accumulated Monthly)**											
50/86	1	26	60	170	308	442	572	569	360	193	39	9	1	27	87	257	565	1007	1579	2148	2508	2701	2740	2749

(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