

Climatography of the United States

No. 20

1971-2000

Station: MARQUETTE CO AP, MI

COOP ID: 205184

Climate Division: MI 1

NWS Call Sign: MQT

Elevation: 1,415 Feet Lat: 46° 32N

Lon: 87° 33W

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	19.7	3.3	11.5	53	1973	26	21.3	1990	-32	1977	9	1.8	1977	1659	0	.0	.0	@	27.2	31.0	12.2
Feb	24.2	5.4	14.8	61	1981	17	28.4	1998	-34	1979	17	5.4	1979	1405	0	.0	.0	.4	21.2	27.9	10.5
Mar	33.1	14.3	23.7	71	2000	8	32.9	2000	-27	1962	1	16.7	1984	1280	0	.0	.0	2.9	13.6	29.1	4.6
Apr	45.8	26.9	36.4	92	1980	22	43.8	1987	-5+	1964	1	29.7	1972	859	0	.0	@	11.6	3.3	22.5	.2
May	61.5	39.1	50.3	95	1969	28	58.3	1977	17	1983	9	43.4	1983	468	12	.0	.1	26.2	.1	8.7	.0
Jun	70.3	48.3	59.3	99	1963	30	65.6	1995	25	1964	4	53.3	1982	200	30	.0	.7	29.7	.0	.6	.0
Jul	75.2	53.5	64.4	99+	1977	19	69.5	1983	34+	1967	5	57.7	1992	92	72	.0	1.4	31.0	.0	.0	.0
Aug	72.6	52.0	62.3	96	2001	6	67.4	1995	31	1976	30	57.5	1977	134	50	.0	.6	31.0	.0	@	.0
Sep	63.2	43.8	53.5	92+	1983	3	58.3	1998	21	1965	27	47.3	1974	348	3	.0	.1	28.3	.0	2.7	.0
Oct	50.9	34.0	42.5	87	1992	2	50.1	1971	9	1969	23	37.2	1976	700	0	.0	.0	17.6	.6	15.0	.0
Nov	35.4	22.4	28.9	73	1999	9	37.2	1999	-13	1976	29	21.7	1995	1083	0	.0	.0	3.6	11.1	26.4	.6
Dec	24.1	10.2	17.2	59+	1982	3	26.8	1994	-28	1983	20	7.0	1976	1484	0	.0	.0	.3	23.9	30.5	7.1
Ann	48.0	29.4	38.7	99+	Jul 1977	19	69.5	Jul 1983	-34	Feb 1979	17	1.8	Jan 1977	9712	167	.0	2.9	182.6	101.0	194.4	35.2

+ 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: 1959-2001

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

070-A

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: MARQUETTE CO AP, MI

COOP ID: 205184

Climate Division: MI 1

NWS Call Sign: MQT

Elevation: 1,415 Feet Lat: 46°32N

Lon: 87°33W

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	2.60	2.41	2.21	1988	20	6.61	1997	.83	1977	17.6	7.3	1.1	.3	.77	1.02	1.39	1.71	2.02	2.34	2.70	3.11	3.66	4.50	5.29
Feb	1.85	1.57	1.53	1983	3	3.68	1984	.48	1994	13.3	5.1	.8	.1	.60	.78	1.04	1.26	1.47	1.69	1.93	2.21	2.58	3.14	3.67
Mar	3.13	3.16	1.98	1975	24	6.08	1979	.32	1974	14.3	7.3	1.8	.7	.70	.99	1.45	1.86	2.27	2.71	3.20	3.79	4.57	5.81	6.97
Apr	2.79	2.34	3.09	1985	19	6.56	1985	.90	1998	11.5	6.4	1.6	.5	.85	1.11	1.51	1.85	2.18	2.53	2.90	3.35	3.93	4.82	5.66
May	3.07	2.73	2.90	1983	29	7.91	1973	.06	1986	10.4	6.1	1.8	.7	.63	.91	1.36	1.77	2.18	2.63	3.13	3.74	4.53	5.81	7.02
Jun	3.21	3.06	4.09	1968	27	6.61	1981	.61	1992	11.5	6.8	2.2	.6	.98	1.28	1.74	2.13	2.51	2.90	3.34	3.85	4.51	5.53	6.49
Jul	3.01	2.98	2.47	1977	14	5.52	1977	.57	1981	11.0	6.3	1.9	.5	.79	1.08	1.51	1.90	2.28	2.67	3.11	3.63	4.31	5.39	6.39
Aug	3.55	3.47	2.39	1974	3	8.59	1988	.81	1991	11.5	6.7	2.1	.8	1.34	1.67	2.15	2.54	2.92	3.30	3.71	4.19	4.80	5.74	6.60
Sep	3.74	3.57	2.61	1978	11	6.94	1980	1.21	1989	13.8	8.2	2.6	.7	1.47	1.82	2.31	2.72	3.10	3.49	3.92	4.41	5.03	5.99	6.86
Oct	3.66	3.57	4.65	1959	24	7.59	1979	.94	1975	14.1	8.2	2.1	.8	1.40	1.74	2.23	2.63	3.02	3.41	3.83	4.32	4.95	5.91	6.79
Nov	3.27	2.89	2.18	1988	6	8.25	1988	1.00	1990	15.9	7.2	1.8	.6	1.10	1.41	1.86	2.25	2.61	2.99	3.41	3.89	4.52	5.48	6.37
Dec	2.43	2.38	2.30	1985	1	5.03	1977	.37	1994	17.2	6.7	1.1	.2	.79	1.02	1.36	1.65	1.92	2.21	2.53	2.90	3.37	4.11	4.79
Ann	36.31	36.43	4.65	Oct 1959	24	8.59	Aug 1988	.06	May 1986	162.1	82.3	20.9	6.5	26.65	28.54	30.95	32.77	34.39	35.94	37.54	39.31	41.44	44.52	47.18

+ 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:
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Station: MARQUETTE CO AP, MI

COOP ID: 205184

Climate Division: MI 1

NWS Call Sign: MQT

Elevation: 1,415 Feet

Lat: 46°32N

Lon: 87°33W

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	35.2	30.2	21	22	22.9	1988	20	91.7	1997	50	1971	27	37	1997	18.4	9.4	4.2	2.0	.5	30.9	30.2	29.8	26.3
Feb	25.6	25.0	25	24	18.4	1983	3	42.9	1983	56	1971	6	46	1971	13.3	6.5	3.2	1.8	.4	28.1	28.0	27.9	27.0
Mar	30.5	28.3	20	20	26.2	1997	14	60.6	1976	63	1997	15	46	1997	11.9	6.5	2.8	1.9	.9	29.6	28.0	27.0	23.8
Apr	13.2	10.8	6	5	15.5	1977	5	43.4	1996	41	1997	1	26	1972	6.5	3.1	1.4	.7	.2	15.2	12.3	10.5	7.1
May	1.6	.0	#	2	14.2	1990	10	22.6	1990	17	1996	1	3	1996	1.0	.3	.1	.1	@	.9	.5	.4	.2
Jun	#	.0	#	0	#	1998	2	#+	1998	0	0	0	#	1997	.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	#	1986	27	#	1986	0	0	0	0	0	.0	.0	.0	.0	.0	.0	.0	.0	.0
Sep	.1	.0	#	0	1.7	1993	29	1.7	1993	1	1974	22	#	1974	.2	.1	.0	.0	.0	@	.0	.0	.0
Oct	6.0	4.5	#	0	11.0	1989	20	18.6	1979	10	1989	21	1+	2000	3.7	1.8	.6	.3	@	2.7	.9	.3	@
Nov	21.6	18.8	3	2	18.1	1991	23	48.9	1991	24	1991	25	7+	1993	12.1	6.1	2.2	1.1	.3	16.7	11.2	7.3	1.9
Dec	37.0	30.9	12	11	23.7	1985	1	82.6	1981	47+	1983	16	25	1985	17.6	8.5	4.0	2.0	.6	29.6	27.8	24.4	15.9
Ann	170.8	148.5	N/A	N/A	26.2	Mar 1997	14	91.7	Jan 1997	63	Mar 1997	15	46+	Mar 1997	84.7	42.3	18.5	9.9	2.9	153.7	138.9	127.6	102.2

+ 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:

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NWS Call Sign: MQT

Elevation: 1,415 Feet

Lat: 46°32N

Lon: 87°33W

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	7/01	6/25	6/20	6/16	6/12	6/09	6/05	5/31	5/24
32	6/15	6/09	6/06	6/02	5/30	5/27	5/24	5/20	5/15
28	5/26	5/21	5/18	5/15	5/12	5/09	5/06	5/03	4/28
24	5/12	5/07	5/05	5/02	4/30	4/27	4/25	4/22	4/18
20	5/03	4/28	4/24	4/21	4/18	4/16	4/12	4/09	4/04
16	4/22	4/18	4/15	4/13	4/11	4/09	4/06	4/03	3/30
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	8/20	8/26	8/30	9/03	9/06	9/09	9/13	9/17	9/22
32	9/07	9/11	9/15	9/18	9/21	9/23	9/26	9/30	10/05
28	9/18	9/23	9/27	10/01	10/04	10/07	10/10	10/14	10/20
24	9/30	10/07	10/12	10/16	10/19	10/23	10/27	11/01	11/07
20	10/19	10/25	10/28	10/31	11/03	11/06	11/10	11/13	11/18
16	10/31	11/04	11/07	11/09	11/12	11/14	11/16	11/19	11/23
Freeze Free Period									
Temp (F)	Probability of longer than indicated freeze free period (Days)								
	.10	.20	.30	.40	.50	.60	.70	.80	.90
36	112	102	96	90	85	80	74	67	58
32	133	126	121	117	112	108	104	99	91
28	163	156	152	148	144	140	136	132	125
24	197	188	182	177	172	167	162	156	147
20	221	213	208	203	198	194	189	183	175
16	232	226	221	218	214	211	207	203	197

* 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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Station: MARQUETTE CO AP, MI

COOP ID: 205184

Climate Division: MI 1 NWS Call Sign: MQT Elevation: 1,415 Feet Lat: 46°32N Lon: 87°33W

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	1659	1405	1280	859	468	200	92	134	348	700	1083	1484	9712
60	1504	1265	1125	709	334	106	28	55	216	547	933	1329	8151
57	1411	1181	1032	621	264	65	11	26	150	458	843	1236	7298
55	1349	1125	970	563	223	44	6	14	113	401	783	1174	6765
50	1194	985	815	422	135	14	0	2	47	271	633	1019	5537
32	645	499	301	71	6	0	0	0	0	21	170	486	2199

Base	Cooling Degree Days (1)												
Above	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Ann
32	10	18	44	202	573	820	1003	940	645	344	77	25	4701
55	0	0	0	4	77	174	296	241	67	12	0	0	871
57	0	0	0	2	56	135	240	190	44	7	0	0	674
60	0	0	0	0	33	86	164	126	21	2	0	0	432
65	0	0	0	0	12	30	72	50	3	0	0	0	167
70	0	0	0	0	3	8	19	13	0	0	0	0	43

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	1	15	91	363	608	785	722	438	165	18	0	0	1	16	107	470	1078	1863	2585	3023	3188	3206	3206
45	0	0	1	49	242	459	630	567	298	87	6	0	0	0	1	50	292	751	1381	1948	2246	2333	2339	2339
50	0	0	0	23	150	319	475	412	183	39	0	0	0	0	0	23	173	492	967	1379	1562	1601	1601	1601
55	0	0	0	12	87	198	323	266	97	10	0	0	0	0	0	12	99	297	620	886	983	993	993	993
60	0	0	0	3	43	108	188	148	47	2	0	0	0	0	0	3	46	154	342	490	537	539	539	539
Base	Growing Degree Units for Corn (Monthly)												Growing Degree Units for Corn (Accumulated Monthly)											
50/86	0	0	7	65	230	369	490	442	245	92	9	0	0	0	7	72	302	671	1161	1603	1848	1940	1949	1949

(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 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