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WEATHER BUREAU

U. S. DEPARTMENT OF COMMERCE, WEATHER BUREAU
IN COOPERATION WITH Michigan Weather Service
CLIMATOGRAPHY OF THE UNITED STATES NO. 20 — 20

CLIMATOLOGICAL SUMMARY

STATION Munising, Michigan

LATITUDE 46° 24'
LONGITUDE 86° 39'
ELEV. (GROUND) 654 feet

MEANS AND EXTREMES FOR PERIOD 1934 - 1963

Month	Temperature (°F) Means: Daily maximum	Daily minimum	Monthly	Extremes: Record highest	Year	Record lowest	Year	** Mean degree days	Precipitation Totals (Inches): Mean	Greatest daily	Year	Snow, Sleet: Mean	Maximum monthly	Year	Greatest daily	Year	Mean number of days: Precip. .10 inch or more	Temperatures Max. 90° and above	Max. 32° and below	Min. 32° and below	Min. 0° and below	Month
(a)	30	30	30	30		30		30	30	30		30	30		30		30	30	30	30	30	
JANUARY	26.0	10.1	18.1	50	1944	-27	1948	1430	2.49	1.75	1938	32.2	70.9	1938	17.5	1938	9	0	23	31	7	
FEBRUARY	27.5	9.1	18.3	55	1961	-29	1938	1360	1.92	2.67	1937	23.0	43.2	1958	12.0	1939	7	0	20	28	7	
MARCH	35.3	15.5	25.4	80	1946	-26	1943+	1200	1.87	2.75	1939	16.4	47.0	1939	20.0	1939	5	0	12	30	4	
APRIL	48.6	28.3	38.5	85	1942	- 4	1950	790	2.26	2.04	1953	8.9	30.6	1953	11.0	1937	6	0	1	22	*	
MAY	61.3	37.1	49.2	92	1962	17	1954	480	2.85	1.99	1960	0.8	8.6	1954	7.0	1954	7	*	*	10	0	
JUNE	71.4	46.3	58.9	96	1963+	24	1947	210	3.58	2.20	1939	T	T	1945	T	1945+	7	1	0	2	0	
JULY	77.4	52.5	65.0	103	1936+	31	1960	90	2.84	2.22	1960	0.0					6	2	0	*	0	
AUGUST	76.5	52.7	64.6	103	1947	28	1934	100	3.21	2.09	1954	0.0					7	2	0	*	0	
SEPTEMBER	67.1	46.2	56.7	98	1953	24	1939	270	3.64	2.45	1934	0.2	4.2	1942	4.0	1942	8	1	0	2	0	
OCTOBER	57.3	37.5	47.4	84	1960+	15	1936	540	2.78	2.64	1959	2.8	11.8	1937	9.0	1938	8	0	*	10	0	
NOVEMBER	41.1	26.6	33.9	70	1961	-10	1938	930	3.40	1.74	1945	18.8	34.0	1959	10.0	1945+	10	0	5	23	*	
DECEMBER	30.2	15.9	23.1	60	1962	-18	1960+	1280	2.67	1.24	1961	32.5	84.4	1958	13.9	1961	9	0	19	30	3	
Year	51.6	31.5	41.6	103	Aug. 1947+	-29	Feb. 1938	8680	33.51	2.75	Mar. 1939	135.6	84.4	Dec. 1958	20.0	Mar. 1939	89	6	80	188	21	Year

(a) Average length of record, years.

T Trace, an amount too small to measure.

** Base 65°F

+ Also on earlier dates, months, or years.

* Less than one half.

CLIMATE OF MUNISING, MICHIGAN

Munising is located in the Upper Peninsula of Michigan on the Lake Superior shoreline. The terrain in this area is hilly and the land is mostly forested.

Weather data for the Munising area show that the highest temperature ever recorded here is 103° on July 7, 8, and 9, 1936 and again on August 6, 1947. The lowest temperature on record is -40° on February 10, 1899. Temperature reach the 90° mark on an average of six days during the summer season and seldom reach 100°. At the other extreme, temperatures fall to zero or lower on an average of twenty-one days during the winter season.

January, 1912 with a mean temperature of 3.6° is the coldest month of record and August, 1947 with a mean temperature of 72.1° is the warmest month of record. The average dates of the last freezing temperature in the spring and the first in the fall are June 13th and September 11th, respectively.

Precipitation is heaviest during the growing season and averages 55% of the annual total for the six months period, April through September. The wettest month is September with an average rainfall of 3.64 inches. The greatest total monthly precipitation of record is 9.10 inches in June, 1943. The driest month of record is May, 1911 when only 0.27 inch was recorded. Hourly amounts of as much as 1.00 inch may be expected about once in two years and two hourly amounts of as much as 1.25 inches may be expected about once in two years. Twenty-four hour amounts of as much as 3.50 inches occur about once in 25 years and twenty-four hourly amounts of 4.00 inches will occur about once in fifty years.

Snowfall averages 135.4 inches per winter season with considerable variation over the years. Totals in the last thrity years have ranged from 204 inches in the 1938-39 season to 90 inches during the 1948-49 season. The most frequent seasonal amount is between 130 and 140 inches. Seven months of the year usually have measurable amounts of snowfall. December has the highest average of 32.5 inches. The heaviest amount recorded in a single day is 20.0 inches on March 15, 1939. Heaviest monthly snowfall of record is 84.4 inches in December, 1958.

Cloudiness is greatest in the late fall and early winter, while sunshine percentage is highest in the spring and summer. Winds, except from the west to south quadrant, must pass over portions of the Great Lakes, and pick up warmth and moisture during late fall and early winter when the air is considerably colder than the water with increased cloudiness resulting. Marquette Weather Bureau records which are representative for the area show that November averages 22 cloudy days, 6 partly cloudy days and 2 clear days. July has 10 cloudy days, 13 partly cloudy days and 8 clear days. Sunshine percentage of possible goes from only 24 percent in November to 65 percent in July.

Degree day data is provided as an index of heating for buildings. For example, May averages 480 degree days and November 930, which means that for an average November, fuel necessary for heating will be approximately twice that required for May. Degree days for a single day are obtained by subtracting the mean temperature from 65°. The need for the heating of buildings is considered none or slight if a day has an average temperature of 65° or higher.

A. H. Eichmeier
State Climatologist
Weather Bureau Office
East Lansing, Michigan

Total Precipitation (Inches)

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Ann'l
1934	2.11	1.59	2.21	2.85	1.42	2.84	1.66	2.42	7.12	2.20	5.76	3.39	35.57
1935	3.62	1.03	1.73	1.61	1.44	4.22	3.51	3.51	2.22	2.99	3.16	1.79	30.83
1936	3.37	2.56	1.71	0.95	3.54	0.93	0.39	4.51	1.89	1.84	3.14	1.74	26.57
1937	2.77	4.45	0.50	2.17	2.01	0.78	5.48	1.25	3.77	3.83	3.63	3.36	34.00
1938	6.73	1.38	2.09	2.10	2.66	3.92	2.67	3.78	2.91	2.41	3.98	3.67	38.30
1939	3.26	3.06	4.88	2.78	4.23	5.88	1.06	3.87	2.69	2.57	1.59	2.02	37.89
1940	5.10	1.74	1.52	2.34	4.33	4.05	2.62	1.28	2.39	3.21	4.85	2.51	35.94
1941	2.04	2.07	0.83	3.10	4.27	5.07	2.48	4.94	4.99	5.37	3.29	3.14	41.59
1942	1.74	1.56	1.87	0.84	2.04	2.31	1.87	2.63	4.78	4.39	2.72	3.80	30.55
1943	2.01	2.46	2.54	1.65	3.25	9.10	1.15	2.27	2.17	3.28	3.13	2.39	35.40
1944	0.92	1.32	2.67	1.76	3.31	4.67	4.83	2.59	5.31	1.71	3.41	2.40	34.90
1945	2.96	2.71	1.31	3.65	3.30	2.30	2.46	2.20	3.77	3.34	5.95	2.69	36.64
1946	2.75	1.80	1.31	1.03	4.16	2.71	0.97	4.08	4.10	2.64	2.42	2.15	30.12
1947	1.65	2.95	1.30	3.14	3.84	2.44	2.86	2.55	4.08	1.18	2.47	1.34	29.80
1948	2.20	1.93	1.21	1.79	0.86	2.25	1.73	1.19	1.12	2.92	6.91	1.66	25.77
1949	2.10	1.30	1.68	0.53	3.41	5.75	6.09	3.42	3.75	3.28	3.44	2.27	37.02
1950	3.56	1.83	2.47	3.25	2.33	3.34	1.76	4.24	1.54	1.87	3.65	3.12	32.96
1951	1.59	2.34	2.99	1.99	2.06	5.06	4.78	4.07	4.40	3.70	1.90	2.68	37.56
1952	2.21	0.45	0.96	1.29	1.99	4.67	4.30	4.83	3.30	1.11	2.56	2.20	29.87
1953	2.15	2.87	1.86	4.60	3.23	3.66	3.35	2.18	4.88	1.59	2.94	2.74	36.05
1954	2.50	1.26	2.26	4.14	2.66	2.86	0.87	3.86	5.44	3.10	0.65	1.69	31.29
1955	2.04	1.28	3.57	1.91	2.47	3.25	1.72	4.31	1.11	4.52	2.51	3.27	31.96
1956	0.76	0.74	0.85	2.54	3.13	4.08	5.02	2.87	2.45	0.51	3.79	1.94	28.68
1957	1.57	1.38	1.02	2.02	2.71	1.66	1.85	3.13	5.38	1.47	5.49	2.62	30.30
1958	2.56	2.88	0.93	1.78	1.80	2.96	3.39	2.82	2.57	2.13	4.51	4.78	33.11
1959	1.64	0.74	3.74	1.76	3.15	3.35	3.96	5.93	5.41	7.12	2.94	1.41	41.15
1960	2.53	2.43	2.25	4.18	6.18	4.38	6.75	3.42	4.40	2.54	3.83	2.51	45.40
1961	1.67	1.42	2.20	1.49	1.59	4.42	1.66	2.51	5.59	3.22	2.93	3.70	32.40
1962	2.84	2.75	0.79	1.87	2.29	1.72	0.95	3.64	3.58	2.17	1.20	3.76	27.56
1963	1.64	1.22	0.85	2.71	1.78	2.82	3.10	2.02	1.98	1.05	3.39	3.27	25.83

Average Temperature (°F)

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Ann'l
1934	24.1	11.2	19.6	35.3	52.7	59.2	62.3	59.2	54.2	45.7	35.9	21.3	40.1
1935	16.5	19.7	27.4	36.0	43.9	53.8	67.7	66.7	53.7	44.7	30.4	22.0	40.2
1936	16.6	4.8	26.2	32.9	51.1	55.2	66.3	65.1	57.5	41.8	28.2	24.7	39.2
1937	15.7	20.1	19.9	37.3	49.6	58.9	65.2	68.9	56.3	43.3	32.6	19.7	40.6
1938	15.2	20.5	29.5	38.9	49.4	57.6	63.9	68.1	55.6	49.7	34.7	23.7	42.2
1939	19.7	13.4	22.3	33.3	50.3	60.4	65.4	63.3	56.5	43.1	33.7	29.0	40.9
1940	16.7	21.1	21.6	33.9	44.6	57.1	64.6	64.2	58.1	45.8	31.4	24.5	40.3
1941	20.6	21.4	23.5	44.4	54.6	59.4	65.6	62.5	58.4	46.1	35.3	27.3	43.3
1942	18.6	20.4	29.8	46.0	48.7	59.2	63.9	64.3	54.3	45.5	33.0	20.0	42.0
1943	16.2	19.4	18.8	35.4	49.5	59.5	67.0	63.3	53.4	45.5	31.0	21.3	40.0
1944	25.9	20.2	22.7	34.6	53.2	59.4	65.5	65.8	57.3	46.0	37.5	20.6	42.4
1945	12.2	18.3	35.6	40.3	42.5	56.5	61.8	64.3	56.4	44.9	32.6	18.7	40.3
1946	18.7	16.5	37.1	40.5	47.9	57.9	64.4	61.5	57.2	50.3	35.8	23.4	42.6
1947	20.6	15.0	20.2	33.5	46.2	57.8	65.4	72.1	58.8	56.1	31.8	24.3	41.8
1948	13.5	16.3	24.2	43.8	48.2	58.3	66.0	65.1	61.1	46.7	37.8	23.2	42.0
1949	21.8	20.6	26.1	41.7	50.0	63.7	67.9	66.4	55.1	50.9	33.4	23.1	43.4
1950	16.0	18.1	22.1	31.3	48.1	59.5	62.0	57.6	55.5	49.5	30.3	20.9	39.2
1951	18.0	20.3	25.9	38.5	52.1	56.9	64.3	60.3	54.2	46.7	28.4	20.7	40.5
1952	20.3	22.5	26.0	43.0	48.6	60.3	67.5	63.7	59.7	42.3	35.9	29.0	43.2
1953	22.5	21.9	29.8	37.2	48.1	59.0	65.9	67.0	57.7	51.8	39.5	26.7	43.9
1954	17.8	28.6	25.5	38.9	44.7	62.1	63.0	62.4	55.1	45.6	37.3	24.5	42.1
1955	20.5	20.3	24.4	45.2	54.0	61.5	70.9	69.0	56.6	49.9	30.0	20.9	43.6
1956	21.5	20.2	23.6	36.4	46.4	61.9	59.4	62.9	53.9	52.1	35.3	24.5	41.5
1957	13.5	19.0	24.8	41.0	50.0	59.5	65.7	63.1	55.7	46.3	34.6	26.0	41.6
1958	23.3	18.0	29.9	42.0	47.8	55.8	63.5	64.6	57.7	48.3	36.4	17.1	42.0
1959	14.3	13.4	24.9	38.3	54.7	62.4	67.5	68.8	59.9	43.4	27.1	28.9	42.0
1960	21.4	22.5	20.1	39.2	49.1	57.8	63.0	66.0	58.8	47.9	37.3	20.7	42.0
1961	16.1	22.6	29.9	38.5	47.5	58.4	65.1	66.5	60.4	48.8	35.1	23.3	42.7
1962	14.8	13.8	26.5	37.8	54.0	56.8	61.9	63.5	54.1	47.6	35.4	22.2	40.7
1963	9.1	9.4	25.5	39.2	48.8	60.2	67.7	62.7	56.8	55.3	39.0	19.6	41.1

DATES OF FREEZING TEMPERATURES IN THE SPRING AND FALL (1921-1950)

	Spring			Fall		
Minimum Temperature	Earliest	Average	Latest	Earliest	Average	Latest
32° or lower	5/20/44	6/13	7/04/22	07/30/25	09/11	10/06/32
28° or lower	5/13/43*	5/26	6/19/26	08/29/34	10/03	10/24/49
24° or lower	4/16/21	5/12	6/13/47	09/26/26	10/22	11/25/31
20° or lower	4/01/21	4/23	5/14/26	10/06/23	11/04	11/26/31
16° or lower	3/24/42	4/10	5/13/23	10/18/48	11/13	12/02/44

*Also on 5/13/38.

Example in using table: The average date of the last temperature of 32° or colder in the spring is June 13th. The earliest date of this event in all springs of the 1921-1950 period was May 20th in 1944. The latest date was July 4th in 1922. In the fall, 32° or colder occurred for the first time as early as July 30, 1925 and as late as October 6, 1932. The average date is September 11th.

STATION HISTORY

Station established at 222 E. Chocolay Street 0.2 mile southeast of Munising Post Office in 1911 with Mr. Albert Oas as the observer. Mr. Oas continued as observer until his death in 1959. His 48 years of service make him the dean of cooperative observers in Michigan up to the present time. Mr. Oas gave outstanding service to the Weather Bureau during this entire period. After his death, his daughter Mrs. Brynhild Mitchell continued the observations until August, 1963 when the station was moved to the U. S. Forest Ranger Station 0.4 mile southeast of the Post Office where it is located at the present time (1964).