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: CHAMPION VAN RIPER PRK, MI **COOP ID: 201439**

Climate Division: MI 1 **NWS Call Sign:** **Elevation: 1,565 Feet** **Lat: 46˚31N** **Lon: 87˚59W**

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	22.4	.2	11.3	54	1973	26	22.6	1990	-40	1977	9	1.9	1994	1664	0	.0	.0	@	26.5	31.0	15.0
Feb	28.2	2.1	15.2	61+	1976	24	27.1	1998	-44	1979	17	5.9	1979	1396	0	.0	.0	.9	19.1	28.1	12.3
Mar	38.2	11.0	24.6	69	1989	27	33.6	1973	-33	1989	2	18.2	1972	1253	0	.0	.0	4.3	9.3	29.8	7.8
Apr	51.9	23.4	37.7	92	1980	22	45.4	1987	-17	1954	4	30.5	1975	819	0	.0	@	16.1	1.6	24.6	1.2
May	67.1	35.3	51.2	93	1969	28	60.1	1977	11	1954	6	42.7	1997	444	15	.0	.1	28.7	.0	13.2	.0
Jun	74.6	44.3	59.5	97	1963	30	64.3	1976	17	1998	5	53.5	1982	190	22	.0	.5	30.0	.0	3.4	.0
Jul	78.8	49.7	64.3	98	1988	28	69.4	1983	26	2000	19	59.0	1992	96	71	.0	1.3	31.0	.0	.5	.0
Aug	76.6	48.4	62.5	96	1976	19	67.7	1983	27	1992	13	58.3	1977	128	51	.0	.6	31.0	.0	1.1	.0
Sep	67.1	41.2	54.2	94+	1976	7	58.5	1978	15	2000	28	49.7	1974	328	3	.0	.2	29.1	.0	6.3	.0
Oct	55.1	31.8	43.5	86+	1976	1	51.2	1971	5	1969	23	38.8	1980	669	0	.0	.0	21.2	.3	18.0	.0
Nov	38.3	20.5	29.4	73	1978	3	35.2	1999	-13	1976	29	19.4	1995	1068	0	.0	.0	3.9	9.8	27.2	1.3
Dec	26.3	7.4	16.9	60	1998	3	23.9	1997	-38	1983	19	7.5	2000	1493	0	.0	.0	.3	22.9	30.9	9.3
Ann	52.1	26.3	39.2	98	Jul 1988	28	69.4	Jul 1983	-44	Feb 1979	17	1.9	Jan 1994	9548	162	.0	2.7	196.5	89.5	214.1	46.9

\+ 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/normals/usnormals.html

(1) From the 1971-2000 Monthly Normals

(2) Derived from station's available digital record: 1949-2001

(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: CHAMPION VAN RIPER PRK, MI **COOP ID: 201439**

Climate Division: MI 1 **NWS Call Sign:** **Elevation: 1,565 Feet** **Lat: 46˚31N** **Lon: 87˚59W**

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	1.82	1.50	1.52	1996	27	4.74	1997	.72	1995
Feb	1.32	.98	1.27	1984	12	3.53	1971	.46	1994
Mar	2.32	2.25	2.13	1984	22	4.19	1979	.52	1993
Apr	2.42	2.36	2.49	1985	19	7.42	1985	.76	1971
May	3.10	2.83	1.79	1975	20	6.77	1999	.17	1986
Jun	3.35	3.17	2.96	1989	8	6.27	1981	1.00	1988
Jul	3.80	3.66	3.61	1992	2	7.50	1992	.90	1989
Aug	3.74	3.54	3.33	1951	31	8.92	1988	.48	1976
Sep	3.88	3.50	4.41	1957	2	7.81	1972	.75	1976
Oct	3.29	3.06	2.49	1966	15	5.73	1979	1.19	1976
Nov	2.44	2.18	1.49	1992	20	4.94	1988	.71	1997
Dec	1.82	1.93	2.05	1949	11	3.38	1996	.28	1994
Ann	33.30	33.10	4.41	Sep 1957	2	8.92	Aug 1988	.17	May 1986

Mean Number of Days (3)

Daily Precipitation

Month	>= 0.01	>= 0.10	>= 0.50	>= 1.00
Jan	14.9	5.4	.5	.1
Feb	10.9	3.8	.4	.1
Mar	11.3	5.7	1.2	.2
Apr	9.8	5.3	1.5	.5
May	10.6	6.5	2.0	.3
Jun	12.3	7.4	2.2	.6
Jul	12.3	7.1	2.5	.9
Aug	12.2	6.9	2.6	.9
Sep	14.2	8.5	2.3	.7
Oct	14.2	7.6	1.9	.7
Nov	13.8	6.7	1.4	.2
Dec	14.2	5.6	.7	.0
Ann	150.7	76.5	19.2	5.2

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	.54	.71	.97	1.19	1.41	1.64	1.89	2.19	2.57	3.17	3.73
Feb	.35	.47	.66	.83	1.00	1.17	1.36	1.59	1.89	2.36	2.79
Mar	.70	.92	1.25	1.53	1.81	2.09	2.41	2.78	3.26	4.00	4.70
Apr	.78	1.01	1.35	1.64	1.92	2.21	2.52	2.89	3.37	4.12	4.80
May	.83	1.12	1.57	1.96	2.35	2.76	3.21	3.74	4.44	5.53	6.56
Jun	1.28	1.59	2.03	2.41	2.76	3.12	3.51	3.96	4.53	5.42	6.23
Jul	1.04	1.40	1.94	2.42	2.89	3.39	3.93	4.58	5.42	6.74	7.97
Aug	1.30	1.66	2.17	2.60	3.02	3.44	3.90	4.44	5.14	6.20	7.19
Sep	1.53	1.89	2.40	2.82	3.22	3.62	4.06	4.56	5.21	6.19	7.08
Oct	1.33	1.63	2.06	2.41	2.74	3.08	3.44	3.86	4.39	5.20	5.94
Nov	.77	1.01	1.35	1.64	1.93	2.22	2.54	2.92	3.41	4.17	4.87
Dec	.58	.76	1.01	1.23	1.44	1.66	1.90	2.18	2.54	3.10	3.62
Ann	24.18	25.96	28.23	29.95	31.47	32.94	34.46	36.13	38.15	41.08	43.61

\+ 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: 1949-2001
(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: CHAMPION VAN RIPER PRK, MI **COOP ID: 201439**

Climate Division: MI 1 **NWS Call Sign:** **Elevation: 1,565 Feet** **Lat: 46°31N** **Lon: 87°59W**

Snow (inches)

Snow Totals

Means/Medians (1)

Extremes (2)

Mean Number of Days (1)

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	29.1	27.3	20	20	21.5	1996	27	63.4	1997	54	1996	31	33+	1997	14.9	8.0	3.0	1.4	.1	30.5	30.5	30.5	29.5
Feb	20.1	19.7	24	23	13.3	1975	25	40.0	1971	60	1996	20	55	1996	10.2	5.4	1.7	.7	.2	27.9	27.9	27.9	27.6
Mar	22.8	20.5	22	22	17.0	1986	19	45.5	1976	53	1996	8	41	1997	8.4	5.3	2.5	1.4	.3	28.1	27.2	26.7	25.2
Apr	9.7	8.3	8	6	19.3	1977	5	31.5	1996	44	1996	5	33	1996	3.9	2.5	.9	.5	.1	14.5	12.4	11.3	8.8
May	1.1	.0	#	0	8.7	1990	10	11.7	1990	19	1996	1	5	1996	.6	.2	.1	@	.0	.4	.2	.1	.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	.0	.0	0	0	.0	0	0	.0	0	0	0	0	0	0	.0	.0	.0	.0	.0	.0	.0	.0	.0
Sep	.1	.0	#	0	2.1	1989	23	2.1	1989	#+	1995	22	#+	1995	.1	@	.0	.0	.0	.0	.0	.0	.0
Oct	5.4	2.2	#	#	11.9	1989	21	19.6	1979	7	1990	18	1	1992	2.6	1.5	.5	.3	@	1.6	.8	.2	.0
Nov	19.1	17.3	3	2	21.3	1991	24	56.1	1991	24	1991	27	9	1991	8.7	5.6	2.0	.9	.1	16.5	9.2	5.4	1.5
Dec	25.4	26.8	11	10	18.7	1990	4	43.4	1977	31	1996	25	26	1995	13.4	8.1	2.6	1.2	.2	29.2	28.0	24.5	16.5
Ann	132.8	122.1	N/A	N/A	21.5	Jan 1996	27	63.4	Jan 1997	60	Feb 1996	20	55	Feb 1996	62.8	36.6	13.3	6.4	1.0	148.7	136.2	126.6	109.1

+ 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: CHAMPION VAN RIPER PRK, MI **COOP ID: 201439**

Climate Division: MI 1 **NWS Call Sign:** **Elevation: 1,565 Feet** **Lat: 46˚31N** **Lon: 87˚59W**

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	8/01	7/24	7/18	7/14	7/09	7/05	6/30	6/24	6/16
32	7/20	7/11	7/05	6/29	6/24	6/19	6/14	6/07	5/29
28	6/25	6/19	6/14	6/11	6/07	6/03	5/30	5/26	5/19
24	6/09	6/04	5/31	5/27	5/24	5/21	5/17	5/13	5/07
20	5/20	5/16	5/13	5/10	5/07	5/05	5/02	4/29	4/25
16	5/06	5/02	4/28	4/26	4/23	4/21	4/18	4/15	4/10

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	8/01	8/07	8/11	8/14	8/17	8/20	8/24	8/27	9/02
32	8/10	8/16	8/21	8/24	8/28	9/01	9/05	9/09	9/16
28	8/28	9/02	9/06	9/10	9/13	9/16	9/19	9/23	9/29
24	9/14	9/20	9/24	9/28	10/01	10/04	10/08	10/12	10/17
20	9/29	10/04	10/08	10/11	10/14	10/17	10/20	10/24	10/29
16	10/11	10/18	10/23	10/27	10/30	11/03	11/07	11/12	11/18

Freeze Free Period

Temp (F)	Probability of longer than indicated freeze free period (Days)								
	.10	.20	.30	.40	.50	.60	.70	.80	.90
36	64	55	49	43	38	33	28	22	13
32	98	87	78	71	64	57	50	41	30
28	125	115	109	103	97	92	86	79	70
24	152	144	139	134	129	125	120	114	107
20	180	173	168	163	159	155	150	145	138
16	211	204	198	194	190	185	181	176	168

***** 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: CHAMPION VAN RIPER PRK, MI **COOP ID: 201439**

Climate Division: MI 1 **NWS Call Sign:** **Elevation: 1,565 Feet** **Lat: 46˚31N** **Lon: 87˚59W**

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	1664	1396	1253	819	444	190	96	128	328	669	1068	1493	9548
60	1509	1256	1098	672	313	93	30	50	195	515	918	1338	7987
57	1416	1172	1005	585	246	53	12	22	129	425	828	1245	7138
55	1354	1116	943	528	207	34	6	12	93	367	768	1183	6611
50	1199	976	788	393	124	9	0	1	33	235	618	1028	5404
32	651	491	281	68	6	0	0	0	0	11	165	493	2166

Cooling Degree Days (1)

Base Above	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Ann
32	10	19	51	238	600	823	999	946	664	365	87	24	4826
55	0	0	0	9	87	167	292	245	68	8	0	0	876
57	0	0	0	6	65	126	236	193	44	4	0	0	674
60	0	0	0	2	39	76	161	127	20	1	0	0	426
65	0	0	0	0	15	22	71	51	3	0	0	0	162
70	0	0	0	0	4	5	19	12	0	0	0	0	40

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	0	10	92	360	584	753	703	427	168	14	1	0	0	10	102	462	1046	1799	2502	2929	3097	3111	3112
45	0	0	0	50	235	438	598	548	289	85	6	0	0	0	0	50	285	723	1321	1869	2158	2243	2249	2249
50	0	0	0	23	139	295	443	394	175	37	0	0	0	0	0	23	162	457	900	1294	1469	1506	1506	1506
55	0	0	0	10	76	178	291	251	88	8	0	0	0	0	0	10	86	264	555	806	894	902	902	902
60	0	0	0	4	36	86	165	131	36	1	0	0	0	0	0	4	40	126	291	422	458	459	459	459
Base	**Growing Degree Units for Corn (Monthly)**												**Growing Degree Units for Corn (Accumulated Monthly)**											
50/86	0	0	11	94	278	392	495	457	275	122	12	0	0	0	11	105	383	775	1270	1727	2002	2124	2136	2136

(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