

# Climatology of the United States

No. 20

1971-2000

Station: EAU CLAIRE 4 NE, MI

COOP ID: 202445

Climate Division: MI 8

NWS Call Sign:

Elevation: 870 Feet Lat: 42°01N Lon: 86°15W

## 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	31.1	17.2	24.2	67	1950	25	34.3	1990	-22	1994	19	12.8	1977	1267	0	.0	.0	1.3	17.5	29.1	2.8
Feb	35.5	20.2	27.9	71+	1999	11	37.7	1998	-15	1951	2	17.4	1979	1040	0	.0	.0	2.5	12.0	24.7	1.4
Mar	46.8	28.7	37.8	82	1986	31	45.5	1973	-2	1962	2	29.9	1984	845	0	.0	.0	11.4	3.5	21.7	.1
Apr	59.3	38.2	48.8	87+	1980	22	54.8	1985	10+	1972	8	43.8	1982	489	2	.0	.0	23.4	.1	8.5	.0
May	71.4	49.0	60.2	92	1977	25	67.6	1977	24	1978	1	53.5	1997	219	70	.0	.5	30.5	.0	.6	.0
Jun	80.3	58.3	69.3	100	1988	25	74.6	1971	36+	1956	2	64.1	1982	37	168	@	2.9	30.0	.0	.0	.0
Jul	84.0	62.9	73.5	103	1999	30	78.4	1999	42	2001	2	69.3	1992	4	265	.1	5.0	31.0	.0	.0	.0
Aug	81.5	61.6	71.6	101	1988	1	77.3	1995	42	1965	29	67.3	1992	15	217	@	2.5	31.0	.0	.0	.0
Sep	73.9	54.4	64.2	100+	1953	1	68.2	1978	32+	1949	29	58.2	1975	92	67	.0	.8	30.0	.0	.0	.0
Oct	61.9	43.7	52.8	90	1963	6	60.1	1971	20	1960	25	47.0	1988	387	8	.0	.0	27.6	.0	2.3	.0
Nov	47.9	33.4	40.7	81	1950	1	46.6	1999	-6	1950	25	32.9	1976	732	0	.0	.0	13.0	2.0	15.3	.0
Dec	35.6	22.8	29.2	69	2001	5	38.0	1982	-12	1983	23	18.7	2000	1110	0	.0	.0	2.8	11.2	26.9	1.0
Ann	59.1	40.9	50.0	103	Jul 1999	30	78.4	Jul 1999	-22	Jan 1994	19	12.8	Jan 1977	6237	797	.1	11.7	234.5	46.3	129.1	5.3

+ 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](http://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: 1948-2001

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

030-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: EAU CLAIRE 4 NE, MI**

**COOP ID: 202445**

**Climate Division: MI 8**

**NWS Call Sign:**

**Elevation: 870 Feet Lat: 42°01N**

**Lon: 86°15W**

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	2.02	1.67	3.06	1960	12	4.13	1978	.88	1980	15.9	5.7	.6	.2	.71	.90	1.18	1.41	1.63	1.86	2.11	2.40	2.77	3.35	3.88
Feb	1.59	1.31	1.70	1997	21	4.19	1997	.35	1987	11.5	5.1	.5	.1	.49	.64	.87	1.06	1.25	1.44	1.65	1.90	2.23	2.73	3.20
Mar	2.53	2.71	1.93	1974	9	5.21	1974	.62	1994	11.7	6.5	1.3	.3	.88	1.12	1.47	1.76	2.04	2.33	2.64	3.01	3.48	4.20	4.86
Apr	3.33	3.51	3.88	1950	24	5.96	1981	.55	1971	12.5	8.0	2.0	.5	1.40	1.70	2.13	2.48	2.80	3.14	3.49	3.90	4.42	5.22	5.94
May	3.50	3.65	2.10	1973	23	6.23	1973	.87	1994	10.9	7.0	2.5	.8	1.10	1.43	1.93	2.35	2.76	3.18	3.64	4.19	4.89	5.98	6.99
Jun	3.51	3.70	4.77	1968	25	7.21	1993	.41	1988	9.7	6.9	2.4	.8	1.05	1.38	1.88	2.31	2.73	3.17	3.65	4.22	4.95	6.09	7.16
Jul	3.37	2.88	3.00	1954	7	7.84	1992	.72	1977	8.6	5.8	2.3	.8	1.05	1.37	1.85	2.26	2.65	3.06	3.51	4.04	4.72	5.79	6.77
Aug	3.72	3.14	3.50	1955	30	7.56	1987	.63	1976	9.0	6.3	2.5	.9	.99	1.34	1.88	2.35	2.82	3.30	3.84	4.48	5.32	6.63	7.86
Sep	3.75	3.62	2.35	1961	23	7.89	1972	.01	1979	9.5	6.7	2.8	1.0	.52	.83	1.36	1.88	2.43	3.03	3.72	4.58	5.73	7.61	9.42
Oct	3.14	2.71	3.32	1955	6	7.73	1991	1.07	1975	10.8	7.3	1.7	.7	1.13	1.42	1.85	2.21	2.55	2.90	3.29	3.73	4.30	5.18	5.98
Nov	3.27	2.82	2.14	1988	10	6.68	1985	1.05	1980	12.4	7.7	1.9	.5	1.17	1.48	1.93	2.30	2.65	3.02	3.42	3.88	4.47	5.38	6.21
Dec	2.78	2.61	2.03	1965	24	5.64	1972	1.30	1995	15.3	7.5	1.3	.3	1.28	1.52	1.86	2.13	2.39	2.64	2.92	3.23	3.62	4.22	4.75
Ann	36.51	36.40	4.77	Jun 1968	25	7.89	Sep 1972	.01	Sep 1979	137.8	80.5	21.8	6.9	29.87	31.23	32.93	34.20	35.30	36.36	37.43	38.61	40.01	42.01	43.72

+ 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: 1948-2001

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

Complete documentation available from:  
[www.ncdc.noaa.gov/oa/climate/normals/usnormals.html](http://www.ncdc.noaa.gov/oa/climate/normals/usnormals.html)

# 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](http://www.ncdc.noaa.gov)

**Station: EAU CLAIRE 4 NE, MI**

**COOP ID: 202445**

**Climate Division: MI 8**

**NWS Call Sign:**

**Elevation: 870 Feet**

**Lat: 42°01N**

**Lon: 86°15W**

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	22.9	20.1	7	5	15.0	1978	26	59.5	1979	31+	1999	6	21	1979	11.7	8.9	2.7	1.0	.1	22.4	18.0	14.6	7.9
Feb	15.2	14.5	7	5	8.0	1972	4	32.0	1985	29	1978	7	24	1979	7.2	5.7	2.1	.7	.0	19.6	15.1	12.5	6.7
Mar	7.7	5.0	2	1	8.5	1998	9	22.5	1975	19	1978	5	10	1978	4.2	3.0	.8	.4	.0	7.2	3.9	2.6	.9
Apr	1.5	.8	#	#	4.5	1982	6	9.0	1982	4	1975	3	1	1975	1.3	.7	.1	.0	.0	.5	.1	.0	.0
May	#	.0	0	0	#	1989	7	#	1989	0	0	0	0	0	.0	.0	.0	.0	.0	.0	.0	.0	.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	.0	.0	0	0	.0	0	0	.0	0	0	0	0	0	0	.0	.0	.0	.0	.0	.0	.0	.0	.0
Oct	.4	.0	#	0	7.0	1989	19	8.0	1989	5	1989	19	#+	1997	.2	.1	@	@	.0	.1	.1	@	.0
Nov	7.9	6.0	#	#	8.5	1996	9	25.5	1976	10	1996	11	2	1996	3.3	2.5	1.1	.4	.0	3.7	1.9	.7	@
Dec	21.8	21.5	4	3	12.0	1985	24	62.0	2000	25	2000	24	15	2000	9.2	7.1	2.9	1.1	.1	15.9	10.0	6.4	2.5
Ann	77.4	67.9	N/A	N/A	15.0	Jan 1978	26	62.0	Dec 2000	31+	Jan 1999	6	24	Feb 1979	37.1	28.0	9.7	3.6	.2	69.4	49.1	36.8	18.0

+ 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](http://www.ncdc.noaa.gov/oa/climate/normals/usnormals.html)

# Climatography of the United States

## No. 20 1971-2000

**Station: EAU CLAIRE 4 NE, MI**

**COOP ID: 202445**

**Climate Division: MI 8**

**NWS Call Sign:**

**Elevation: 870 Feet**

**Lat: 42°01N**

**Lon: 86°15W**

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	5/27	5/21	5/17	5/13	5/10	5/07	5/03	4/29	4/23
32	5/14	5/09	5/05	5/02	4/29	4/26	4/22	4/19	4/13
28	4/28	4/24	4/21	4/18	4/16	4/13	4/11	4/08	4/04
24	4/19	4/14	4/11	4/08	4/05	4/02	3/30	3/27	3/22
20	4/09	4/05	4/01	3/29	3/27	3/24	3/21	3/18	3/13
16	4/02	3/27	3/22	3/18	3/15	3/11	3/07	3/02	2/24
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	9/27	10/02	10/05	10/08	10/11	10/14	10/16	10/20	10/24
32	10/07	10/12	10/15	10/19	10/22	10/24	10/28	10/31	11/05
28	10/23	10/28	10/31	11/03	11/05	11/08	11/10	11/14	11/18
24	10/30	11/05	11/09	11/13	11/16	11/19	11/23	11/27	12/03
20	11/11	11/16	11/20	11/23	11/26	11/29	12/02	12/06	12/11
16	11/18	11/24	11/28	12/02	12/05	12/09	12/12	12/17	12/23
Freeze Free Period									
Temp (F)	Probability of longer than indicated freeze free period (Days)								
	.10	.20	.30	.40	.50	.60	.70	.80	.90
36	173	166	161	157	153	149	145	140	133
32	197	190	184	179	175	171	166	161	153
28	222	215	211	206	203	199	195	190	183
24	247	239	234	229	224	220	215	209	201
20	267	259	253	248	244	239	234	228	220
16	290	282	275	270	265	260	255	248	240

\* 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/normal/usnormals.html](http://www.ncdc.noaa.gov/oa/climate/normal/usnormals.html)

**Climatography  
of the United States  
No. 20  
1971-2000**

**Station: EAU CLAIRE 4 NE, MI**

**COOP ID: 202445**

**Climate Division: MI 8      NWS Call Sign:      Elevation: 870 Feet    Lat: 42°01N    Lon: 86°15W**

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	1267	1040	845	489	219	37	4	15	92	387	732	1110	6237
60	1112	900	690	346	130	11	0	2	33	255	582	955	5016
57	1019	816	598	268	88	4	0	0	14	188	494	862	4351
55	957	760	539	220	66	2	0	0	7	149	437	800	3937
50	802	622	397	120	27	0	0	0	1	75	304	652	3000
32	309	205	64	1	0	0	0	0	0	0	30	212	821

Base	Cooling Degree Days (1)												
Above	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Ann
32	65	89	242	504	874	1120	1284	1226	965	645	288	124	7426
55	0	0	4	33	227	433	571	513	282	80	5	0	2148
57	0	0	1	21	188	375	509	451	229	57	2	0	1833
60	0	0	0	9	136	291	416	359	157	31	0	0	1399
65	0	0	0	2	70	168	265	217	67	8	0	0	797
70	0	0	0	0	29	77	132	106	19	1	0	0	364

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	6	17	104	294	628	883	1034	984	732	411	127	25	6	23	127	421	1049	1932	2966	3950	4682	5093	5220	5245
45	1	5	56	185	475	733	879	829	582	272	68	8	1	6	62	247	722	1455	2334	3163	3745	4017	4085	4093
50	0	0	31	103	335	583	724	674	434	162	29	2	0	0	31	134	469	1052	1776	2450	2884	3046	3075	3077
55	0	0	12	56	210	434	569	519	295	81	9	0	0	0	12	68	278	712	1281	1800	2095	2176	2185	2185
60	0	0	2	20	120	294	414	365	176	33	2	0	0	0	2	22	142	436	850	1215	1391	1424	1426	1426
Base	Growing Degree Units for Corn (Monthly)												Growing Degree Units for Corn (Accumulated Monthly)											
50/86	0	7	63	174	383	580	709	664	453	216	63	6	0	7	70	244	627	1207	1916	2580	3033	3249	3312	3318

(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](http://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.  
Complete documentation for the 1971-2000 Normals is available on the internet from:  
[www.ncdc.noaa.gov/oa/climate/normal/usnormals.html](http://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"><li>a. Temperature/ Precipitation Tables<ol style="list-style-type: none"><li>1. 1971-2000 Monthly Normals</li><li>2. Cooperative Summary of the Day</li><li>3. National Weather Service station records</li><li>4. 1971-2000 serially complete daily data</li></ol></li><li>b. Degree Day Table<ol style="list-style-type: none"><li>1. Monthly and Annual Heating and Cooling Degree Days Normals to Selected Bases derived from 1971-2000 Monthly Normals</li><li>2. Daily Normal Growing Degree Units to Selected Base Temperatures derived from 1971-2000 serially complete daily data</li></ol></li></ol> | <ol style="list-style-type: none"><li>c. Snow Tables<ol style="list-style-type: none"><li>1. Snow Climatology</li><li>2. Cooperative Summary of the Day</li></ol></li><li>d. Freeze Data Table<br/>1971-2000 serially complete daily data</li></ol> |
|---|---|

## References

U.S. Climate Normals 1971-2000, [www.ncdc.noaa.gov/normal.html](http://www.ncdc.noaa.gov/normal.html)  
U.S. Climate Normals 1971-2000-Products Clim20, [www.ncdc.noaa.gov/oa/climate/normal/usnormalsprods.html](http://www.ncdc.noaa.gov/oa/climate/normal/usnormalsprods.html)  
Snow Climatology Project Description, [www.ncdc.noaa.gov/oa/climate/monitoring/snowclim/mainpage.html](http://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](http://www1.ncdc.noaa.gov/pub/data/special/serialcomplete_jam_0900.pdf)