

# Climatography of the United States

No. 20

1971-2000

Station: HASTINGS, MI

COOP ID: 203661

Climate Division: MI 9

NWS Call Sign:

Elevation: 820 Feet Lat: 42° 39N Lon: 85° 17W

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	30.3	13.7	22.0	66+	1950	25	32.0	1990	-22	1981	4	11.3	1977	1332	0	.0	.0	1.4	18.2	29.7	4.6
Feb	34.0	14.7	24.4	70	1999	12	33.8	1998	-20+	1996	3	12.1	1978	1139	0	.0	.0	2.1	13.2	26.4	4.2
Mar	44.4	23.2	33.8	80+	1963	29	42.5	2000	-11	1962	2	26.1	1978	967	0	.0	.0	9.6	4.7	24.7	.8
Apr	57.0	33.7	45.4	87	1980	23	52.1	1985	1	1982	7	38.8	1975	590	1	.0	.0	21.6	.2	13.5	.0
May	69.7	44.7	57.2	92	1953	30	63.6+	1991	22	1966	10	49.6	1997	284	42	.0	.4	30.3	.0	2.7	.0
Jun	78.8	54.2	66.5	104	1953	20	71.7	1971	31	1972	11	61.7	1982	63	107	.0	2.4	30.0	.0	@	.0
Jul	82.7	58.5	70.6	102+	1988	7	74.6	1999	40+	1963	4	66.3	1992	11	185	.3	4.2	31.0	.0	.0	.0
Aug	80.6	56.5	68.6	102	1988	2	74.9	1995	37	1965	29	63.6	1992	40	150	.1	2.1	31.0	.0	.0	.0
Sep	73.1	48.3	60.7	97+	1952	12	65.8	1998	26+	1991	28	55.4	1975	164	35	.0	.7	29.9	.0	1.0	.0
Oct	61.0	37.6	49.3	90+	1951	4	57.1	1971	15+	1976	27	43.8	1976	489	3	.0	@	26.7	.0	9.0	.0
Nov	46.8	29.8	38.3	82	1950	1	44.0	1999	-7	1950	25	31.0	1976	801	0	.0	.0	11.6	2.0	20.2	.0
Dec	35.0	19.8	27.4	70	2001	6	35.9	1982	-22	1976	31	17.1	1989	1166	0	.0	.0	2.7	11.9	28.2	2.0
Ann	57.8	36.2	47.0	104	Jun 1953	20	74.9	Aug 1995	-22+	Jan 1981	4	11.3	Jan 1977	7046	523	.4	9.8	227.9	50.2	155.4	11.6

+ 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

# 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: HASTINGS, MI

COOP ID: 203661

Climate Division: MI 9

NWS Call Sign:

Elevation: 820 Feet Lat: 42°39N

Lon: 85°17W

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	1.99	1.65	1.43	1985	1	4.22	1975	.47	1981	13.9	5.8	.9	.2	.52	.71	1.00	1.25	1.50	1.76	2.05	2.40	2.85	3.56	4.22
Feb	1.56	1.33	2.20	1954	16	4.82	1997	.08	1987	10.6	4.4	.6	.1	.31	.45	.68	.89	1.10	1.33	1.59	1.90	2.31	2.97	3.59
Mar	2.42	2.14	2.15	1954	25	5.65	1991	.81	1986	11.3	6.1	1.4	.3	.89	1.12	1.44	1.72	1.98	2.24	2.53	2.87	3.29	3.95	4.55
Apr	3.43	3.25	2.82	1975	19	6.64	1981	1.46	1982	12.8	8.0	1.9	.5	1.43	1.75	2.18	2.54	2.88	3.23	3.59	4.02	4.56	5.38	6.12
May	3.06	2.84	2.61	1981	11	9.17	2000	.28	1977	11.3	6.8	1.7	.6	.72	1.01	1.46	1.85	2.25	2.67	3.14	3.70	4.44	5.60	6.70
Jun	3.89	3.94	3.60	1987	22	7.75	1994	.48	1988	10.6	6.5	2.7	1.0	1.00	1.37	1.94	2.44	2.93	3.45	4.02	4.70	5.60	7.00	8.32
Jul	3.25	3.16	2.33	1957	8	6.33	1992	1.01	1996	9.6	6.1	2.3	.8	1.04	1.35	1.81	2.20	2.57	2.96	3.38	3.88	4.52	5.52	6.44
Aug	3.76	3.83	2.64	1989	5	9.57	1987	.89	1976	10.8	7.0	2.4	.9	1.25	1.60	2.13	2.57	3.00	3.44	3.92	4.48	5.20	6.33	7.36
Sep	3.86	3.93	3.71	1988	23	8.86	1986	.00	1979	10.7	6.8	2.7	.9	.94	1.49	2.12	2.62	3.09	3.57	4.09	4.69	5.46	6.66	7.76
Oct	2.94	2.53	2.80	1954	4	6.80	1990	1.10	1975	11.7	6.3	2.0	.5	1.17	1.45	1.83	2.15	2.45	2.75	3.08	3.46	3.94	4.68	5.35
Nov	3.08	2.73	2.57	1990	28	7.82	1990	.98	1976	12.3	6.8	1.9	.5	.84	1.13	1.57	1.96	2.34	2.74	3.18	3.71	4.39	5.46	6.45
Dec	2.50	2.61	1.65	1982	3	5.04	1982	.82	1981	14.2	6.6	1.1	.3	.83	1.07	1.42	1.71	2.00	2.29	2.61	2.98	3.46	4.21	4.90
Ann	35.74	35.08	3.71	Sep 1988	23	9.57	Aug 1987	.00	Sep 1979	139.8	77.2	21.6	6.6	29.10	30.45	32.15	33.41	34.51	35.56	36.63	37.81	39.21	41.21	42.92

+ 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

# 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: HASTINGS, MI

COOP ID: 203661

Climate Division: MI 9

NWS Call Sign:

Elevation: 820 Feet

Lat: 42°39N

Lon: 85°17W

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	12.0	11.0	5	4	12.3	1978	26	28.3	1995	27	1978	29	12	1979	12.7	5.7	1.3	.4	.1	19.9	15.2	9.1	1.1
Feb	9.3	7.6	5	4	8.1	1990	23	24.8	1990	24+	1985	13	18	1978	8.5	3.9	.9	.3	.0	18.1	13.4	7.2	2.7
Mar	6.4	4.8	2	1	12.0	1973	17	15.4	1992	14	1978	8	7	1990	5.1	2.1	.8	.2	@	7.0	3.9	2.4	.6
Apr	2.6	1.5	#	#	13.0	1975	3	13.1	1975	13	1975	3	2	1975	1.7	.6	.2	.1	@	1.1	.6	.2	.1
May	#	.0	0	0	#	1976	4	#+	1976	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	.3	.0	#	0	4.7	1989	20	5.9	1989	4	1997	27	#+	1997	.3	.2	.1	.0	.0	.2	.1	.0	.0
Nov	5.4	4.7	#	#	6.7	1992	14	19.6	2000	10	1989	19	1+	2000	3.7	2.1	.6	.2	.0	3.3	1.3	.4	@
Dec	13.6	13.3	2	2	12.0	2000	12	49.1	2000	17	2000	30	11	2000	10.2	4.9	1.2	.3	@	16.4	8.5	3.8	1.0
Ann	49.6	42.9	N/A	N/A	13.0	Apr 1975	3	49.1	Dec 2000	27	Jan 1978	29	18	Feb 1978	42.2	19.5	5.1	1.5	.1	66.0	43.0	23.1	5.5

+ 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: HASTINGS, MI**

**COOP ID: 203661**

**Climate Division: MI 9**

**NWS Call Sign:**

**Elevation: 820 Feet**

**Lat: 42°39N**

**Lon: 85°17W**

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	6/13	6/07	6/02	5/29	5/25	5/21	5/17	5/12	5/05
32	5/28	5/22	5/18	5/14	5/11	5/07	5/04	4/30	4/24
28	5/08	5/04	5/01	4/28	4/26	4/23	4/21	4/18	4/14
24	4/28	4/23	4/20	4/17	4/14	4/12	4/09	4/05	4/01
20	4/17	4/12	4/09	4/07	4/04	4/02	3/30	3/27	3/23
16	4/11	4/06	4/02	3/30	3/27	3/24	3/21	3/17	3/12
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	9/13	9/17	9/19	9/21	9/23	9/25	9/27	9/30	10/03
32	9/22	9/27	9/30	10/02	10/05	10/07	10/10	10/13	10/17
28	9/30	10/06	10/10	10/13	10/16	10/20	10/23	10/27	11/02
24	10/15	10/20	10/24	10/28	10/31	11/03	11/06	11/10	11/16
20	10/26	11/01	11/06	11/10	11/13	11/17	11/21	11/25	12/01
16	11/09	11/15	11/20	11/24	11/27	12/01	12/05	12/09	12/15
Freeze Free Period									
Temp (F)	Probability of longer than indicated freeze free period (Days)								
	.10	.20	.30	.40	.50	.60	.70	.80	.90
36	141	134	129	125	121	117	113	108	101
32	167	160	155	151	146	142	138	132	125
28	197	189	183	178	173	168	163	158	149
24	226	216	210	204	199	193	188	181	172
20	245	237	232	227	222	218	213	207	199
16	269	261	255	249	245	240	235	229	220

\* 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: HASTINGS, MI**

**COOP ID: 203661**

**Climate Division: MI 9      NWS Call Sign:      Elevation: 820 Feet    Lat: 42°39N    Lon: 85°17W**

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	1332	1139	967	590	284	63	11	40	164	489	801	1166	7046
60	1177	999	812	444	180	20	0	9	76	346	651	1011	5725
57	1084	915	719	360	130	9	0	3	42	269	561	918	5010
55	1022	859	657	307	101	5	0	1	27	222	502	856	4559
50	867	719	510	190	48	1	0	0	6	126	360	705	3532
32	355	279	112	5	0	0	0	0	0	2	38	243	1034

Base	Cooling Degree Days (1)												
Above	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Ann
32	46	64	169	406	781	1035	1197	1133	861	539	227	100	6558
55	0	0	0	18	169	350	484	421	198	46	1	0	1687
57	0	0	0	10	136	294	422	361	153	31	0	0	1407
60	0	0	0	5	93	215	329	275	97	15	0	0	1029
65	0	0	0	1	42	107	185	150	35	3	0	0	523
70	0	0	0	0	15	37	78	65	7	0	0	0	202

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	9	74	231	559	813	963	909	641	324	95	15	2	11	85	316	875	1688	2651	3560	4201	4525	4620	4635
45	0	2	38	139	408	663	808	754	492	201	48	5	0	2	40	179	587	1250	2058	2812	3304	3505	3553	3558
50	0	0	18	76	273	513	653	599	350	115	21	2	0	0	18	94	367	880	1533	2132	2482	2597	2618	2620
55	0	0	8	42	161	368	498	444	223	54	4	0	0	0	8	50	211	579	1077	1521	1744	1798	1802	1802
60	0	0	0	18	86	235	345	292	126	19	0	0	0	0	0	18	104	339	684	976	1102	1121	1121	1121
Base	Growing Degree Units for Corn (Monthly)												Growing Degree Units for Corn (Accumulated Monthly)											
50/86	0	4	51	153	347	527	643	596	407	204	57	6	0	4	55	208	555	1082	1725	2321	2728	2932	2989	2995

(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)