

# Climatography of the United States No. 20

National Climatic Data Center  
Federal Building  
151 Patton Avenue  
Asheville, North Carolina 28801  
www.ncdc.noaa.gov

Station: PELLSTON RGNL AP, MI

1971-2000

COOP ID: 206438

Climate Division: MI 3

NWS Call Sign: PLN

Elevation: 715 Feet

Lat: 45° 34N

Lon: 84° 48W

## 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	25.7	8.5	17.1	53	1996	18	26.3	1990	-35	1981	4	5.4	1994	1484	0	.0	.0	.1	23.4	30.5	8.5
Feb	28.4	7.6	18.0	61	2000	26	30.8	1998	-37+	1959	20	8.1	1979	1317	0	.0	.0	.5	18.4	27.3	9.4
Mar	37.8	17.4	27.6	78	2000	8	37.1	2000	-34	1962	2	19.8	1972	1159	0	.0	.0	4.2	8.8	28.0	3.8
Apr	51.4	29.6	40.5	91	1986	27	46.2	1987	-5+	1954	4	34.3	1972	735	0	.0	@	15.9	1.2	19.9	.1
May	66.1	40.3	53.2	94	1998	15	59.0	1998	11	1966	7	46.4	1983	383	17	.0	.2	28.9	.0	6.6	.0
Jun	74.7	49.3	62.0	99	1995	19	67.7	1995	25+	1949	8	56.0	1982	141	51	.0	1.0	30.0	.0	.7	.0
Jul	79.2	54.6	66.9	98+	1977	19	72.0	1983	28	1965	6	60.6	1992	50	108	.0	2.2	31.0	.0	.0	.0
Aug	76.7	53.0	64.9	98+	1976	27	70.0	1995	29	1976	30	61.0	1982	90	85	.0	.9	31.0	.0	.2	.0
Sep	67.5	45.6	56.6	96	1953	3	61.0	1998	19	2000	28	51.9	1974	260	6	.0	.2	29.6	.0	2.8	.0
Oct	55.8	36.1	46.0	85+	1949	8	53.7	1971	4	1969	23	41.6	1981	591	0	.0	.0	22.2	.0	11.5	.0
Nov	41.8	28.0	34.9	74	1990	1	40.1	1999	-23+	1950	24	29.4	1976	903	0	.0	.0	6.3	4.7	21.8	.2
Dec	30.7	16.8	23.8	64+	1951	3	32.2	1994	-31	1958	20	11.2	1989	1279	0	.0	.0	.7	16.9	29.2	3.2
Ann	53.0	32.2	42.6	99	Jun 1995	19	72.0	Jul 1983	-37+	Feb 1959	20	5.4	Jan 1994	8392	267	.0	4.5	200.4	73.4	178.5	25.2

+ 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](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

083-A

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**Elevation: 715 Feet Lat: 45°34N**

**Lon: 84°48W**

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	2.41	2.31	1.41	1978	26	4.26	1980	.58	1981	20.1	7.7	.7	.1	.92	1.14	1.46	1.73	1.98	2.24	2.52	2.85	3.26	3.90	4.48
Feb	1.64	1.44	2.09	1960	6	4.26	1985	.29	1998	13.3	5.2	.8	.0	.43	.58	.82	1.03	1.24	1.45	1.69	1.98	2.35	2.94	3.49
Mar	2.32	1.85	2.05	1998	9	7.72	1998	.34	1978	12.0	5.6	1.2	.4	.36	.55	.89	1.21	1.54	1.90	2.32	2.83	3.51	4.62	5.68
Apr	2.63	2.31	1.69	1980	8	5.80	1981	.98	1989	11.1	6.3	1.7	.4	1.08	1.32	1.66	1.94	2.20	2.47	2.75	3.08	3.50	4.14	4.72
May	2.70	2.55	2.03	1976	31	7.02	1983	.38	1992	10.3	5.8	1.8	.6	.90	1.15	1.53	1.85	2.15	2.47	2.82	3.22	3.74	4.54	5.29
Jun	2.55	2.38	2.92	1963	19	6.52	1990	.54	1997	10.6	5.6	1.5	.4	.62	.86	1.23	1.56	1.89	2.24	2.63	3.09	3.70	4.66	5.56
Jul	2.71	2.91	2.32	1972	20	5.56	1972	.21	1989	9.5	5.1	1.8	.8	.58	.83	1.23	1.59	1.95	2.34	2.77	3.29	3.98	5.07	6.11
Aug	3.25	3.15	4.17	1968	19	6.13	1978	.72	1991	10.8	6.8	2.2	.7	1.13	1.44	1.88	2.26	2.62	2.99	3.40	3.87	4.47	5.41	6.27
Sep	3.90	3.60	2.78	1961	13	8.10	1978	.66	1979	13.0	8.0	2.5	.8	1.34	1.71	2.24	2.70	3.13	3.58	4.07	4.64	5.37	6.51	7.55
Oct	3.21	2.87	1.77	1984	19	7.24	1991	.89	2000	13.3	7.4	1.9	.5	1.08	1.38	1.83	2.20	2.57	2.94	3.35	3.83	4.44	5.39	6.27
Nov	2.96	2.86	1.84	1992	2	5.36	1992	.89	1980	15.6	7.7	1.5	.3	1.17	1.44	1.83	2.16	2.46	2.77	3.10	3.49	3.98	4.74	5.42
Dec	2.46	2.47	1.92	1984	28	5.03	1971	.24	1994	17.9	7.2	.9	.2	.73	.96	1.31	1.61	1.91	2.22	2.56	2.95	3.47	4.28	5.03
Ann	32.74	32.85	4.17	Aug 1968	19	8.10	Sep 1978	.21	Jul 1989	157.5	78.4	18.5	5.2	24.40	26.05	28.14	29.71	31.11	32.45	33.83	35.35	37.18	39.83	42.11

+ 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

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**Climate Division: MI 3**

**NWS Call Sign: PLN**

**Elevation: 715 Feet**

**Lat: 45°34N**

**Lon: 84°48W**

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	31.7	26.4	16	15	16.0	1978	26	66.0	1979	53	1971	30	32	1979	19.9	9.8	3.3	1.5	.2	30.0	28.7	26.8	21.1
Feb	19.6	21.1	17	16	10.4	1979	6	39.7	1989	50	1971	1	42	1971	12.4	5.7	2.3	.9	@	28.1	27.6	25.8	18.5
Mar	12.0	9.4	10	9	12.0	1989	3	41.3	1972	57	1972	5	36	1971	8.4	3.5	1.4	.5	.1	24.3	21.0	17.7	12.9
Apr	5.7	3.7	2	2	12.0	1992	10	17.6	1971	35	1971	4	11	1975	3.9	1.8	.6	.2	@	6.5	4.2	2.7	1.3
May	.3	.0	#	0	2.9	1979	5	3.4	1979	1+	1990	11	#	2000	.2	.1	.0	.0	.0	.1	.0	.0	.0
Jun	.0	.0	#	0	.0	0	0	.0	0	0	0	0	#	1990	.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	#	1995	23	#+	1995	0	0	0	0	0	.0	.0	.0	.0	.0	.0	.0	.0	.0
Oct	.8	.0	#	0	3.1	1992	20	7.0	1992	2+	1992	21	#	1992	1.0	.4	@	.0	.0	.2	.0	.0	.0
Nov	11.9	11.4	1	1	11.2	1989	17	28.8	1995	24+	1989	19	5	1991	8.4	4.0	1.3	.4	@	8.3	4.2	1.9	.4
Dec	25.0	27.1	7	6	11.5	1971	17	47.1	1977	34+	1983	28	21	1983	14.8	7.1	2.9	1.3	.1	23.2	19.3	15.3	8.2
Ann	107.0	99.1	N/A	N/A	16.0	Jan 1978	26	66.0	Jan 1979	57	Mar 1972	5	42	Feb 1971	69.0	32.4	11.8	4.8	.4	120.7	105.0	90.2	62.4

+ 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

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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	7/07	6/29	6/24	6/19	6/14	6/10	6/05	5/30	5/22
32	6/13	6/08	6/04	6/01	5/29	5/26	5/23	5/19	5/14
28	5/25	5/20	5/17	5/14	5/11	5/08	5/05	5/02	4/27
24	5/11	5/06	5/03	4/30	4/27	4/25	4/22	4/19	4/14
20	4/26	4/22	4/19	4/16	4/14	4/12	4/10	4/07	4/03
16	4/18	4/13	4/10	4/07	4/05	4/02	3/31	3/28	3/23
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	8/14	8/20	8/24	8/28	9/01	9/04	9/08	9/13	9/19
32	8/29	9/04	9/08	9/11	9/14	9/17	9/21	9/25	9/30
28	9/19	9/24	9/28	10/01	10/03	10/06	10/09	10/13	10/18
24	10/03	10/10	10/15	10/19	10/23	10/27	10/31	11/05	11/12
20	10/16	10/23	10/29	11/02	11/07	11/11	11/16	11/21	11/29
16	11/01	11/06	11/10	11/14	11/17	11/20	11/24	11/28	12/04
Freeze Free Period									
Temp (F)	Probability of longer than indicated freeze free period (Days)								
	.10	.20	.30	.40	.50	.60	.70	.80	.90
36	110	99	91	84	78	71	65	57	45
32	128	121	116	111	107	103	99	93	86
28	164	158	153	149	145	141	137	132	125
24	203	194	188	183	178	173	167	161	153
20	232	223	217	211	206	200	195	188	179
16	244	238	233	229	226	222	218	214	207

\* 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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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	1484	1317	1159	735	383	141	50	90	260	591	903	1279	8392
60	1329	1177	1004	587	258	65	10	29	137	440	753	1124	6913
57	1236	1093	911	499	195	35	3	12	82	353	663	1031	6113
55	1174	1037	849	442	158	22	0	6	55	299	603	969	5614
50	1019	897	694	308	84	5	0	0	15	181	454	814	4471
32	480	418	218	28	1	0	0	0	0	4	55	323	1527

Base	Cooling Degree Days (1)												
Above	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Ann
32	19	25	81	283	657	900	1082	1018	736	437	142	67	5447
55	0	0	0	7	101	231	369	311	101	18	0	0	1138
57	0	0	0	4	76	184	309	256	68	11	0	0	908
60	0	0	0	1	46	124	224	180	34	4	0	0	613
65	0	0	0	0	17	51	108	85	6	0	0	0	267
70	0	0	0	0	5	14	35	28	0	0	0	0	82

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	21	123	424	667	844	780	506	220	45	2	0	1	22	145	569	1236	2080	2860	3366	3586	3631	3633
45	0	0	6	60	283	517	689	625	359	120	17	0	0	0	6	66	349	866	1555	2180	2539	2659	2676	2676
50	0	0	1	30	172	370	534	470	231	57	4	0	0	0	1	31	203	573	1107	1577	1808	1865	1869	1869
55	0	0	0	15	93	235	379	319	130	24	0	0	0	0	0	15	108	343	722	1041	1171	1195	1195	1195
60	0	0	0	5	43	127	234	183	59	5	0	0	0	0	0	5	48	175	409	592	651	656	656	656
Base	Growing Degree Units for Corn (Monthly)												Growing Degree Units for Corn (Accumulated Monthly)											
50/86	0	1	19	92	269	420	545	496	298	125	24	0	0	1	20	112	381	801	1346	1842	2140	2265	2289	2289

(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:  
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## 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.

- 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/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)