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: FLINT BISHOP INTL AP, MI **COOP ID: 202846**

Climate Division: MI10 **NWS Call Sign: FNT** **Elevation: 770 Feet** **Lat: 42˚58N** **Lon: 83˚45W**

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	29.2	13.3	21.3	65	1950	25	31.2	1990	-25	1976	18	9.4	1977	1341	0	.0	.0	1.1	18.5	29.0	4.6
Feb	32.3	15.3	23.8	68	1999	11	34.5	1998	-22+	1959	2	11.5	1979	1147	0	.0	.0	1.8	14.4	25.3	3.6
Mar	43.1	24.3	33.7	80	2000	8	41.4	2000	-12	1978	2	25.6	1978	957	1	.0	.0	8.7	5.3	23.0	.5
Apr	56.2	34.6	45.4	87	1990	25	51.3	1985	6	1982	7	39.3	1975	577	5	.0	.0	20.8	.4	11.1	.0
May	69.0	45.2	57.1	93	1988	31	64.3	1982	22	1966	10	48.8	1997	267	33	.0	.3	30.3	.0	1.6	.0
Jun	77.7	54.6	66.2	101	1988	25	69.9	1987	33+	1966	1	61.0	1980	66	110	@	1.7	30.0	.0	.0	.0
Jul	82.0	59.1	70.6	101+	1988	6	75.2	1987	40+	1965	1	66.5	1992	13	199	.1	3.2	31.0	.0	.0	.0
Aug	79.5	57.4	68.5	98+	1948	27	74.3	1995	37	1982	29	64.8	1992	28	151	.0	1.5	31.0	.0	.0	.0
Sep	71.9	49.4	60.7	97+	1953	1	65.3	1998	26	1991	28	55.7	1993	168	52	.0	.6	30.0	.0	.4	.0
Oct	59.7	38.6	49.2	89+	1953	3	56.2	1971	19+	1966	30	42.9	1980	478	4	.0	.0	26.4	.0	5.8	.0
Nov	46.3	29.8	38.1	79	1950	1	45.7	1975	-7	1949	26	31.7	1976	791	0	.0	.0	10.8	2.2	17.1	.0
Dec	34.2	19.1	26.7	70	2001	5	35.6	1982	-13	2000	25	15.4	1989	1172	0	.0	.0	2.3	12.0	27.2	1.8
Ann	56.8	36.7	46.8	101+	Jul 1988	6	75.2	Jul 1987	-25	Jan 1976	18	9.4	Jan 1977	7005	555	.1	7.3	224.2	52.8	140.5	10.5

\+ 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: 1948-2001

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

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Climate Division: MI10 **NWS Call Sign: FNT** **Elevation: 770 Feet** **Lat: 42˚58N** **Lon: 83˚45W**

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	1.57	1.44	1.34	1949	18	3.05	1998	.46	1971
Feb	1.35	1.18	2.85	1954	16	3.12	1997	.34	1979
Mar	2.22	2.16	1.46	1974	4	4.20	1973	.75	1999
Apr	3.13	3.22	2.69	1975	18	5.59	1976	1.03	1978
May	2.74	2.89	2.23+	1950	25	6.34	2000	.34	1988
Jun	3.07	3.04	2.52	1958	13	6.52	1994	.63	1988
Jul	3.17	2.77	3.72	1957	8	9.35	1992	.73	1978
Aug	3.43	3.23	4.45	1968	16	11.04	1975	.68	1996
Sep	3.76	3.05	6.04	1950	10	10.86	1986	.32	1979
Oct	2.34	2.22	1.90	2001	16	4.06	1990	.57	1982
Nov	2.65	2.73	1.93	1952	17	4.94	1988	.66	1980
Dec	2.18	2.03	1.74	1971	15	4.66	1971	.51	1993
Ann	31.61	31.78	6.04	Sep 1950	10	11.04	Aug 1975	.32	Sep 1979

Mean Number of Days (3)

Month	Daily Precipitation >= 0.01	>= 0.10	>= 0.50	>= 1.00
Jan	13.8	4.5	.8	.1
Feb	10.9	4.2	.4	.1
Mar	12.2	5.8	1.1	.3
Apr	12.9	6.7	1.7	.5
May	10.7	6.0	1.7	.4
Jun	10.5	6.2	2.2	.6
Jul	9.7	6.0	2.1	.8
Aug	10.1	6.6	2.3	.5
Sep	10.5	6.8	2.5	1.0
Oct	10.1	5.7	1.4	.3
Nov	12.6	6.6	1.3	.4
Dec	13.8	5.9	1.0	.2
Ann	137.8	71.0	18.5	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	.53	.67	.89	1.08	1.26	1.44	1.64	1.87	2.18	2.64	3.07
Feb	.34	.47	.67	.84	1.01	1.19	1.39	1.63	1.95	2.44	2.90
Mar	.86	1.06	1.36	1.60	1.83	2.07	2.32	2.62	2.99	3.57	4.10
Apr	1.30	1.59	1.99	2.32	2.63	2.94	3.28	3.67	4.16	4.92	5.60
May	.79	1.05	1.45	1.79	2.12	2.46	2.84	3.29	3.87	4.79	5.63
Jun	.89	1.18	1.62	2.00	2.37	2.76	3.18	3.69	4.34	5.36	6.30
Jul	.98	1.28	1.73	2.11	2.49	2.87	3.29	3.79	4.43	5.43	6.35
Aug	1.12	1.44	1.92	2.33	2.72	3.13	3.57	4.10	4.77	5.81	6.77
Sep	.81	1.15	1.70	2.20	2.71	3.24	3.84	4.57	5.52	7.05	8.49
Oct	1.11	1.31	1.59	1.82	2.03	2.24	2.46	2.71	3.03	3.51	3.95
Nov	.82	1.08	1.45	1.77	2.08	2.40	2.76	3.18	3.71	4.55	5.32
Dec	.73	.94	1.24	1.50	1.74	2.00	2.27	2.60	3.01	3.65	4.25
Ann	23.51	25.11	27.14	28.67	30.02	31.32	32.66	34.14	35.92	38.49	40.70

+ 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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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	12.4	10.8	3	3	10.4	1979	13	28.5	1976	18	1999	13	8	1976	12.7	4.0	.8	.2	@	21.9	13.8	8.1	1.4
Feb	9.6	8.1	3	3	5.6	1994	8	20.8	1990	15	1976	2	11	1978	9.6	3.1	.9	.1	.0	16.9	11.5	7.5	1.4
Mar	7.7	5.8	1	2	12.6	1973	17	17.7	1996	13+	1973	19	5	1978	6.5	2.5	.6	.2	@	8.1	4.2	2.3	.3
Apr	2.6	1.4	#	0	12.2	1975	2	17.3	1975	17	1975	3	2	1975	2.4	.5	.2	.2	@	1.2	.7	.3	.1
May	.0	.0	#	0	.3	1973	4	.3+	1994	#	1994	23	#	2000	.1	.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	3.5	1989	19	4.4	1989	2	1997	27	#	1997	.3	.1	@	.0	.0	.1	.0	.0	.0
Nov	3.6	2.4	#	0	4.8	1989	16	10.5	1975	8	1975	27	1+	1989	3.8	1.2	.3	.0	.0	2.4	.5	.2	.0
Dec	11.6	10.4	2	1	10.8	2000	11	35.3	2000	20	2000	19	11	2000	9.8	3.9	1.0	.3	@	14.2	7.0	3.2	.8
Ann	47.9	38.9	N/A	N/A	12.6	Mar 1973	17	35.3	Dec 2000	20	Dec 2000	19	11+	Dec 2000	45.2	15.3	3.8	1.0	@	64.8	37.7	21.6	4.0

+ 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

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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	6/07	6/01	5/28	5/24	5/21	5/18	5/14	5/10	5/04
32	5/19	5/15	5/11	5/09	5/06	5/03	4/30	4/27	4/22
28	5/02	4/28	4/26	4/24	4/22	4/20	4/17	4/15	4/12
24	4/19	4/15	4/12	4/10	4/08	4/06	4/03	4/01	3/28
20	4/09	4/05	4/03	3/31	3/29	3/27	3/25	3/22	3/18
16	4/02	3/29	3/26	3/24	3/21	3/19	3/16	3/14	3/10

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	9/17	9/20	9/23	9/25	9/28	9/30	10/02	10/05	10/08
32	9/26	10/01	10/05	10/08	10/11	10/14	10/18	10/21	10/27
28	10/03	10/09	10/13	10/17	10/20	10/24	10/27	11/01	11/07
24	10/20	10/26	10/30	11/02	11/05	11/09	11/12	11/16	11/22
20	11/01	11/07	11/11	11/14	11/18	11/21	11/25	11/29	12/05
16	11/14	11/19	11/23	11/27	11/30	12/03	12/06	12/10	12/16

Freeze Free Period

Temp (F)	Probability of longer than indicated freeze free period (Days)								
	.10	.20	.30	.40	.50	.60	.70	.80	.90
36	149	142	137	133	129	125	121	116	109
32	179	172	166	162	158	154	149	144	137
28	201	194	189	185	181	177	173	168	161
24	230	223	219	215	211	207	203	198	192
20	254	247	241	237	233	229	224	219	212
16	276	268	262	257	253	248	244	238	230

***** 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

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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	1341	1147	957	577	267	66	13	28	168	478	791	1172	7005
60	1202	1014	815	442	182	20	0	6	71	351	659	1035	5797
57	1109	930	722	357	131	9	0	1	38	274	569	942	5082
55	1047	874	660	303	103	5	0	0	23	227	510	880	4632
50	892	734	512	183	48	1	0	0	5	130	369	728	3602
32	383	293	114	4	0	0	0	0	0	3	42	265	1104

Cooling Degree Days (1)

Base Above	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Ann
32	31	46	171	424	791	1034	1206	1146	878	558	239	64	6588
55	0	0	7	32	151	349	493	433	218	49	8	1	1741
57	0	0	5	23	118	294	431	372	174	34	4	0	1455
60	0	0	2	14	78	217	338	282	119	17	2	0	1069
65	0	0	1	5	33	110	199	151	52	4	0	0	555
70	0	0	0	1	10	43	88	60	17	1	0	0	220

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	3	9	70	225	555	802	967	903	647	328	102	18	3	12	82	307	862	1664	2631	3534	4181	4509	4611	4629
45	1	0	36	131	402	652	812	748	497	205	53	5	1	1	37	168	570	1222	2034	2782	3279	3484	3537	3542
50	0	0	16	69	267	502	657	593	355	113	20	2	0	0	16	85	352	854	1511	2104	2459	2572	2592	2594
55	0	0	8	32	158	357	502	440	224	53	7	0	0	0	8	40	198	555	1057	1497	1721	1774	1781	1781
60	0	0	1	12	83	220	347	292	126	20	1	0	0	0	1	13	96	316	663	955	1081	1101	1102	1102
Base	**Growing Degree Units for Corn (Monthly)**												**Growing Degree Units for Corn (Accumulated Monthly)**											
50/86	0	2	47	137	334	515	646	595	395	180	53	6	0	2	49	186	520	1035	1681	2276	2671	2851	2904	2910

(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.
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