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: ADRIAN 2 NNE, MI **COOP ID: 200032**

Climate Division: MI10 **NWS Call Sign:** **Elevation: 760 Feet** **Lat: 41˚55N** **Lon: 84˚01W**

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	32.1	14.8	23.5	68	1950	25	33.2	1990	-22	1994	19	12.6	1977	1288	0	.0	.0	1.3	16.0	29.2	4.5
Feb	35.6	16.8	26.2	70	1999	11	36.0	1998	-18	1979	17	14.4	1978	1086	0	.0	.0	2.4	12.1	26.0	3.6
Mar	46.4	25.7	36.1	80	1998	30	43.1	1973	-6	1978	2	28.9	1984	898	0	.0	.0	10.6	3.5	23.9	.2
Apr	58.7	35.3	47.0	88	1990	25	52.1	1977	8	1982	7	41.1	1975	541	1	.0	.0	23.1	.1	11.9	.0
May	71.1	45.7	58.4	94+	1962	17	64.8	1998	20	1978	1	52.1	1997	247	43	.0	.4	30.6	.0	1.4	.0
Jun	80.0	55.0	67.5	104	1988	25	71.9	1971	34	1972	11	62.4	1985	48	124	.1	2.7	30.0	.0	.0	.0
Jul	84.0	59.2	71.6	100+	1949	2	76.2	1999	41+	1988	1	67.5	1992	6	211	.1	5.2	31.0	.0	.0	.0
Aug	81.7	57.2	69.5	101	1948	27	73.8	1995	32+	1986	29	64.8	1992	25	163	@	2.5	31.0	.0	.1	.0
Sep	74.1	49.4	61.8	99+	1953	2	66.5	1971	27+	1991	28	56.8	1993	138	40	.0	.9	30.0	.0	.6	.0
Oct	61.7	38.4	50.1	91	1951	4	58.4	1971	15	1988	31	44.1	1988	468	4	.0	.0	27.4	.0	7.9	.0
Nov	48.0	29.9	39.0	80	1950	1	44.7	1975	0	1950	24	32.4	1995	782	0	.0	.0	12.7	1.4	19.7	.0
Dec	36.1	20.4	28.3	69	2001	5	36.9	1982	-14	1983	24	17.1	1989	1140	0	.0	.0	2.8	10.4	28.0	1.9
Ann	59.1	37.3	48.3	104	Jun 1988	25	76.2	Jul 1999	-22	Jan 1994	19	12.6	Jan 1977	6667	586	.2	11.7	232.9	43.5	148.7	10.2

\+ 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/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

Issue Date: February 2004

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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	1.93	1.65	2.25	1982	31	4.29	1982	.32	1981
Feb	1.81	1.25	2.35	1990	22	4.81	1990	.29	1979
Mar	2.65	2.63	1.95	1953	3	4.65	1976	.58	1981
Apr	3.30	3.36	2.50	1956	29	5.80	1983	.97	1971
May	3.40	3.24	3.16	1968	26	7.95	2000	.96	1994
Jun	3.77	3.70	3.12	1968	25	6.54	1981	.57	1988
Jul	3.05	2.94	3.61	1951	22	7.08	1992	.56	1987
Aug	3.78	3.25	4.20	1987	26	9.20	1980	.10	1976
Sep	3.50	3.14	4.74	1981	3	9.47	1981	.30	1979
Oct	2.51	2.52	2.82	1959	6	4.61	1991	.69	1974
Nov	2.88	2.68	1.83	1996	7	6.41	1985	.81	1980
Dec	2.63	2.65	2.17	1965	24	5.11	1990	.51	1976
Ann	35.21	34.87	4.74	Sep 1981	3	9.47	Sep 1981	.10	Aug 1976

Mean Number of Days (3)

Daily Precipitation

Month	>= 0.01	>= 0.10	>= 0.50	>= 1.00
Jan	10.1	5.3	1.0	.2
Feb	8.0	4.5	1.1	.3
Mar	10.9	7.0	1.6	.4
Apr	11.9	7.5	2.3	.5
May	10.7	7.1	2.2	.8
Jun	9.7	7.0	2.9	1.0
Jul	8.9	5.8	2.0	.7
Aug	8.5	6.0	2.2	1.1
Sep	9.5	6.5	2.4	1.0
Oct	9.8	5.7	1.7	.5
Nov	10.6	6.6	1.7	.5
Dec	11.5	6.5	1.6	.3
Ann	120.1	75.5	22.7	7.3

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	.50	.68	.96	1.21	1.45	1.71	2.00	2.33	2.78	3.48	4.13
Feb	.30	.46	.72	.97	1.23	1.50	1.82	2.21	2.72	3.55	4.35
Mar	1.06	1.31	1.65	1.94	2.21	2.48	2.77	3.11	3.55	4.21	4.81
Apr	1.42	1.71	2.13	2.47	2.79	3.11	3.46	3.86	4.36	5.13	5.82
May	1.21	1.53	1.99	2.38	2.75	3.14	3.55	4.03	4.65	5.61	6.49
Jun	1.17	1.53	2.06	2.52	2.96	3.42	3.93	4.52	5.28	6.47	7.58
Jul	.90	1.19	1.62	2.00	2.36	2.74	3.17	3.66	4.30	5.30	6.24
Aug	.53	.84	1.38	1.91	2.46	3.06	3.76	4.62	5.78	7.66	9.48
Sep	.97	1.30	1.80	2.24	2.68	3.13	3.63	4.22	4.99	6.20	7.33
Oct	1.13	1.35	1.66	1.91	2.15	2.38	2.64	2.93	3.29	3.85	4.35
Nov	.95	1.23	1.63	1.97	2.30	2.64	3.01	3.44	4.00	4.86	5.66
Dec	.74	.99	1.37	1.70	2.02	2.36	2.73	3.17	3.74	4.63	5.47
Ann	27.62	29.15	31.07	32.52	33.78	35.00	36.24	37.60	39.24	41.58	43.59

\+ 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	8.1	8.0	3	1	15.0	1978	26	34.5	1978	21	1982	12	10	1999	5.3	2.9	.7	.3	@	17.2	11.0	6.5	.3
Feb	6.3	5.5	3	2	8.8	1982	3	18.3	1982	23	1978	5	14	1978	4.0	2.5	.7	.2	.0	15.4	8.2	5.7	1.8
Mar	4.4	2.8	1	#	11.5	1973	17	15.5	1993	13	1973	18	4	1999	2.4	1.6	.4	.1	@	4.6	1.8	1.0	.1
Apr	.8	.0	#	0	8.0	1982	5	8.0	1982	8	1982	5	1	1982	.5	.3	.1	@	.0	.6	.1	.1	.0
May	.0	.0	0	0	.0	0	0	.0	0	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	.1	.0	#	0	3.0	1989	19	3.0	1989	3	1989	19	#+	1997	.1	.1	@	.0	.0	.1	@	.0	.0
Nov	2.3	1.8	#	#	5.5	1974	13	7.8	1971	7	1996	25	1	1997	1.6	.9	.3	.1	.0	1.9	.7	.2	.0
Dec	7.2	6.5	1	1	14.0	1974	1	23.0	1974	14	1974	1	5+	2000	4.5	2.4	.9	.4	.1	10.8	6.2	2.9	.5
Ann	29.2	24.6	N/A	N/A	15.0	Jan 1978	26	34.5	Jan 1978	23	Feb 1978	5	14	Feb 1978	18.4	10.7	3.1	1.1	.1	50.6	28.0	16.4	2.7

+ 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	6/03	5/28	5/24	5/20	5/17	5/14	5/10	5/06	4/30
32	5/18	5/13	5/10	5/07	5/04	5/01	4/28	4/25	4/20
28	5/02	4/28	4/26	4/23	4/21	4/19	4/17	4/14	4/11
24	4/20	4/16	4/13	4/10	4/07	4/05	4/02	3/30	3/26
20	4/16	4/11	4/07	4/04	4/01	3/29	3/25	3/22	3/16
16	4/02	3/29	3/26	3/23	3/21	3/18	3/15	3/12	3/08

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	9/11	9/16	9/19	9/22	9/24	9/27	9/29	10/02	10/07
32	9/19	9/24	9/28	10/01	10/04	10/07	10/11	10/14	10/20
28	9/30	10/06	10/10	10/14	10/17	10/21	10/24	10/29	11/04
24	10/12	10/19	10/23	10/27	10/31	11/04	11/08	11/13	11/19
20	10/27	11/02	11/07	11/11	11/15	11/19	11/23	11/27	12/04
16	11/07	11/14	11/18	11/22	11/26	11/30	12/03	12/08	12/14

Freeze Free Period

Temp (F)	Probability of longer than indicated freeze free period (Days)								
	.10	.20	.30	.40	.50	.60	.70	.80	.90
36	148	142	137	133	129	126	122	117	111
32	174	167	161	157	153	148	144	139	131
28	201	193	188	183	178	174	169	163	156
24	232	223	217	211	206	201	196	189	180
20	252	244	238	232	228	223	218	212	203
16	274	266	260	254	250	245	240	234	225

***** 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	1288	1086	898	541	247	48	6	25	138	468	782	1140	6667
60	1133	946	743	395	147	13	0	4	58	326	632	985	5382
57	1040	862	650	311	100	5	0	0	30	250	542	892	4682
55	978	806	588	259	75	3	0	0	18	205	483	830	4245
50	823	666	442	147	30	0	0	0	4	113	342	681	3248
32	332	241	76	1	0	0	0	0	0	1	33	232	916

Cooling Degree Days (1)

Base Above	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Ann
32	67	79	201	451	819	1066	1227	1161	892	561	241	115	6880
55	0	0	0	19	180	379	514	448	220	52	1	0	1813
57	0	0	0	11	144	321	452	387	172	35	0	0	1522
60	0	0	0	4	98	239	359	297	110	17	0	0	1124
65	0	0	0	1	43	124	211	163	40	4	0	0	586
70	0	0	0	0	15	46	91	70	8	0	0	0	230

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	5	9	73	250	577	831	983	910	659	332	100	17	5	14	87	337	914	1745	2728	3638	4297	4629	4729	4746
45	0	1	37	144	425	681	828	755	510	203	50	6	0	1	38	182	607	1288	2116	2871	3381	3584	3634	3640
50	0	0	13	74	282	531	673	600	364	109	18	3	0	0	13	87	369	900	1573	2173	2537	2646	2664	2667
55	0	0	5	35	165	383	518	445	232	51	4	0	0	0	5	40	205	588	1106	1551	1783	1834	1838	1838
60	0	0	0	11	84	245	364	296	129	18	0	0	0	0	0	11	95	340	704	1000	1129	1147	1147	1147
Base	**Growing Degree Units for Corn (Monthly)**												**Growing Degree Units for Corn (Accumulated Monthly)**											
50/86	0	8	55	163	354	541	652	602	414	209	59	7	0	8	63	226	580	1121	1773	2375	2789	2998	3057	3064

(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