

Climatology of the United States

No. 20

1971-2000

Station: YPSILANTI E MICH UNIV, MI

COOP ID: 209218

Climate Division: MI10

NWS Call Sign:

Elevation: 780 Feet Lat: 42°15N Lon: 83°38W

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	31.6	17.6	24.6	69	1950	25	34.7	1990	-20	1994	19	13.1	1977	1252	0	.0	.0	1.4	16.7	28.5	2.5
Feb	35.7	20.0	27.9	69+	1999	11	37.3	1998	-9+	1971	2	17.3	1979	1040	0	.0	.0	2.6	11.8	24.6	1.4
Mar	47.0	28.3	37.7	80+	1998	30	45.8	2000	0+	1980	2	29.4	1984	849	0	.0	.0	11.1	3.9	21.6	.1
Apr	59.9	38.3	49.1	87+	1980	22	54.7	1985	10	1982	7	42.5	1975	479	3	.0	.0	24.2	.1	7.9	.0
May	72.3	49.5	60.9	92+	1949	6	67.8	1998	28+	1974	7	53.0	1997	204	77	.0	.7	30.8	.0	.4	.0
Jun	81.0	58.6	69.8	102	1988	25	74.1	1987	38	1980	10	65.4	1985	27	171	.1	3.0	30.0	.0	.0	.0
Jul	84.7	63.1	73.9	100	1988	7	77.7	1988	44+	2001	2	69.6	2000	1	276	.1	5.9	31.0	.0	.0	.0
Aug	82.3	61.4	71.9	99	2001	8	76.6	1995	38	1986	28	68.2	1992	10	223	.0	2.7	31.0	.0	.0	.0
Sep	75.2	53.8	64.5	96	1978	8	69.1	1998	33+	1991	28	59.5	1975	85	69	.0	1.1	30.0	.0	.0	.0
Oct	62.6	42.7	52.7	86+	1949	9	60.3	1971	21+	1974	21	47.0	1988	393	9	.0	.0	27.8	.0	3.1	.0
Nov	48.3	33.3	40.8	75	1975	6	47.2	1975	6	1949	26	33.8	1976	726	0	.0	.0	13.0	1.6	15.2	.0
Dec	36.0	23.0	29.5	68	1998	6	37.6	1982	-10+	1983	23	17.8	1989	1101	0	.0	.0	2.7	11.0	26.4	.9
Ann	59.7	40.8	50.3	102	Jun 1988	25	77.7	Jul 1988	-20	Jan 1994	19	13.1	Jan 1977	6167	828	.2	13.4	235.6	45.1	127.7	4.9

+ 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

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

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No. 20 1971-2000

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

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COOP ID: 209218

Climate Division: MI10

NWS Call Sign:

Elevation: 780 Feet Lat: 42°15N

Lon: 83°38W

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	1.77	1.71	1.57	1993	4	3.61	1993	.34	1981	11.6	5.2	.9	.1	.53	.69	.95	1.16	1.37	1.59	1.84	2.12	2.49	3.07	3.60
Feb	1.65	1.19	2.10	1990	22	4.83	1990	.13	1987	9.6	4.3	.8	.2	.30	.44	.68	.91	1.14	1.39	1.67	2.01	2.47	3.21	3.91
Mar	2.46	2.19	1.51	1997	14	4.68	1974	.80	1981	10.9	6.3	1.4	.3	.85	1.08	1.42	1.70	1.97	2.26	2.56	2.92	3.38	4.09	4.74
Apr	3.08	3.10	1.87	2000	20	4.82	1983	.66	1971	12.0	7.1	1.8	.4	1.35	1.62	2.01	2.32	2.62	2.91	3.23	3.60	4.06	4.75	5.39
May	3.20	3.19	2.92	2000	9	7.58	2000	1.19	1994	10.1	6.7	2.2	.6	1.10	1.40	1.85	2.22	2.58	2.94	3.34	3.81	4.41	5.34	6.19
Jun	3.29	3.45	2.17	1994	24	6.12	2000	.11	1995	9.5	6.7	2.4	.7	.96	1.27	1.74	2.15	2.54	2.96	3.41	3.95	4.65	5.74	6.75
Jul	2.93	2.62	2.06	2000	10	7.90	1973	.49	1974	8.6	6.3	2.1	.7	.80	1.08	1.50	1.87	2.23	2.61	3.03	3.53	4.18	5.20	6.15
Aug	3.35	3.06	4.66	1975	30	8.82	1975	.18	1976	8.3	6.0	2.2	.8	.41	.67	1.14	1.61	2.10	2.65	3.29	4.09	5.16	6.94	8.65
Sep	3.49	3.47	2.43	1971	27	7.58	1986	.81	1979	9.2	6.4	2.5	.7	1.21	1.54	2.02	2.42	2.81	3.21	3.64	4.15	4.80	5.80	6.72
Oct	2.35	2.31	2.43	2001	16	4.20	1988	.49	1974	8.9	5.1	1.4	.5	.89	1.11	1.42	1.68	1.93	2.18	2.46	2.78	3.19	3.81	4.38
Nov	2.79	2.75	1.70	1996	7	5.87	1982	.77	1976	11.3	6.5	1.9	.4	.97	1.23	1.62	1.94	2.25	2.57	2.92	3.32	3.84	4.65	5.39
Dec	2.44	2.41	1.45	1990	29	4.36	1987	.66	1976	12.7	5.9	1.2	.3	.94	1.17	1.49	1.76	2.01	2.27	2.55	2.88	3.29	3.92	4.50
Ann	32.80	31.98	4.66	Aug 1975	30	8.82	Aug 1975	.11	Jun 1995	122.7	72.5	20.8	5.7	25.18	26.70	28.62	30.06	31.33	32.55	33.80	35.17	36.82	39.20	41.23

+ 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

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Climate Division: MI10

NWS Call Sign:

Elevation: 780 Feet

Lat: 42°15N

Lon: 83°38W

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	12.3	12.7	4	3	8.5	1982	31	26.7	1978	23	1999	14	11	1999	8.8	3.7	1.1	.3	.0	20.4	15.4	11.3	2.0
Feb	7.3	6.9	4	3	7.2	1981	10	15.8	1986	24	1982	12	15	1982	5.4	2.6	.6	.1	.0	16.6	11.9	7.7	2.5
Mar	5.5	5.3	1	1	8.0	1992	22	12.0	1993	16	1978	3	9	1978	4.1	1.6	.6	.3	.0	6.0	3.0	1.3	.4
Apr	1.1	.4	#	#	4.5	1993	1	5.0+	1993	5	1993	2	1	1993	1.1	.3	.1	.0	.0	.7	.2	.1	.0
May	#	.0	#	0	#	1996	12	#+	1996	#	1996	12	#	1996	.0	.0	.0	.0	.0	.0	.0	.0	.0
Jun	.0	.0	#	0	.0	0	0	.0	0	#	1998	5	#	1998	.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	1.3	1980	28	1.3	1980	1	1989	19	#+	2000	.1	.1	.0	.0	.0	@	.0	.0	.0
Nov	2.3	2.3	#	#	4.8	1974	14	6.5	1977	6	1996	28	1	1997	2.1	.9	.1	.0	.0	2.0	.5	.2	.0
Dec	10.9	9.5	2	2	14.0	1974	1	33.1	2000	20	2000	21	12	2000	7.4	3.1	1.1	.4	.1	13.1	6.9	4.3	1.5
Ann	39.5	37.1	N/A	N/A	14.0	Dec 1974	1	33.1	Dec 2000	24	Feb 1982	12	15	Feb 1982	29.0	12.3	3.6	1.1	.1	58.8	37.9	24.9	6.4

+ 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	5/18	5/13	5/10	5/08	5/05	5/02	4/30	4/27	4/22
32	5/08	5/03	4/30	4/27	4/24	4/21	4/19	4/15	4/10
28	4/26	4/21	4/18	4/15	4/12	4/10	4/07	4/03	3/30
24	4/16	4/11	4/08	4/06	4/03	4/01	3/29	3/26	3/21
20	4/08	4/02	3/29	3/26	3/23	3/20	3/17	3/13	3/07
16	3/30	3/25	3/21	3/18	3/15	3/12	3/08	3/04	2/27
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	9/24	9/28	10/01	10/03	10/05	10/07	10/10	10/13	10/17
32	10/07	10/11	10/15	10/17	10/20	10/22	10/25	10/28	11/02
28	10/18	10/23	10/26	10/29	11/01	11/04	11/07	11/11	11/16
24	10/27	11/02	11/07	11/11	11/14	11/18	11/22	11/26	12/02
20	11/09	11/15	11/19	11/23	11/26	11/30	12/03	12/08	12/13
16	11/20	11/26	11/29	12/02	12/05	12/08	12/11	12/15	12/20
Freeze Free Period									
Temp (F)	Probability of longer than indicated freeze free period (Days)								
	.10	.20	.30	.40	.50	.60	.70	.80	.90
36	170	164	159	156	152	149	145	141	135
32	200	193	187	182	178	174	169	163	156
28	225	217	212	207	202	198	193	187	179
24	249	241	234	229	224	220	214	208	200
20	273	265	258	253	248	243	237	231	222
16	287	279	274	269	265	260	256	250	243

* 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)													
Base	Heating Degree Days (1)												
Below	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Ann
65	1252	1040	849	479	204	27	1	10	85	393	726	1101	6167
60	1097	900	694	338	119	6	0	0	29	260	576	946	4965
57	1004	816	602	261	80	2	0	0	13	193	488	853	4312
55	942	760	543	214	59	1	0	0	7	154	430	791	3901
50	787	621	401	116	24	0	0	0	1	78	296	645	2969
32	298	203	66	1	0	0	0	0	0	0	26	211	805

Base	Cooling Degree Days (1)												
Above	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Ann
32	69	87	240	515	895	1134	1298	1236	974	639	290	132	7509
55	0	0	4	37	241	445	585	523	291	80	4	0	2210
57	0	0	1	24	200	386	523	461	237	57	2	0	1891
60	0	0	0	11	146	300	430	368	164	31	0	0	1450
65	0	0	0	3	77	171	276	223	69	9	0	0	828
70	0	0	0	0	32	74	138	106	19	1	0	0	370

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	14	93	298	647	893	1050	988	734	397	123	21	5	19	112	410	1057	1950	3000	3988	4722	5119	5242	5263
45	0	3	47	184	493	743	895	833	584	262	61	6	0	3	50	234	727	1470	2365	3198	3782	4044	4105	4111
50	0	0	25	100	347	593	740	678	435	152	24	3	0	0	25	125	472	1065	1805	2483	2918	3070	3094	3097
55	0	0	9	48	222	444	585	523	294	73	9	0	0	0	9	57	279	723	1308	1831	2125	2198	2207	2207
60	0	0	1	23	122	305	430	369	177	29	0	0	0	0	1	24	146	451	881	1250	1427	1456	1456	1456
Base	Growing Degree Units for Corn (Monthly)												Growing Degree Units for Corn (Accumulated Monthly)											
50/86	0	8	59	171	394	590	718	670	459	217	58	7	0	8	67	238	632	1222	1940	2610	3069	3286	3344	3351

(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

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
- 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">a. Temperature/ Precipitation Tables<ol style="list-style-type: none">1. 1971-2000 Monthly Normals2. Cooperative Summary of the Day3. National Weather Service station records4. 1971-2000 serially complete daily datab. Degree Day Table<ol style="list-style-type: none">1. Monthly and Annual Heating and Cooling Degree Days Normals to Selected Bases derived from 1971-2000 Monthly Normals2. Daily Normal Growing Degree Units to Selected Base Temperatures derived from 1971-2000 serially complete daily data | <ol style="list-style-type: none">c. Snow Tables<ol style="list-style-type: none">1. Snow Climatology2. Cooperative Summary of the Dayd. Freeze Data Table
1971-2000 serially complete daily data |
|---|---|

References

U.S. Climate Normals 1971-2000, www.ncdc.noaa.gov/normal.html
U.S. Climate Normals 1971-2000-Products Clim20, www.ncdc.noaa.gov/oa/climate/normal/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