

Climatography of the United States

No. 20

1971-2000

Station: KALKASKA, MI

COOP ID: 204257

Climate Division: MI 3

NWS Call Sign:

Elevation: 1,040 Feet Lat: 44°44N

Lon: 85°10W

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	24.4	7.9	16.2	53	1996	19	25.8	1990	-32	1994	31	6.3	1977	1514	0	.0	.0	.1	23.6	30.8	8.3
Feb	27.5	6.8	17.2	62	2000	27	29.9	1998	-34	1996	4	6.6	1979	1340	0	.0	.0	.6	18.9	27.7	8.9
Mar	37.6	15.7	26.7	78	2000	9	38.3	2000	-19	1996	7	20.2	1972	1189	0	.0	.0	4.6	8.7	28.8	3.8
Apr	51.1	28.8	40.0	80+	1991	8	45.4	1991	1	1996	5	34.5	1975	752	0	.0	.0	16.1	1.6	20.0	.0
May	65.3	40.6	53.0	89	1998	16	60.3	1977	23+	1992	6	45.2	1997	394	20	.0	.1	29.0	.0	6.6	.0
Jun	74.5	50.3	62.4	94	1994	18	67.9	1995	29	1998	5	57.4	1982	129	50	.0	.8	29.9	.0	.8	.0
Jul	77.9	54.0	66.0	96	1995	15	70.1	1983	33	1992	21	60.3	1992	54	83	.0	1.4	31.0	.0	.0	.0
Aug	76.0	52.5	64.3	95	2001	7	70.0	1995	36+	1992	14	60.5	1992	95	71	.0	.6	31.0	.0	.3	.0
Sep	67.2	45.2	56.2	89+	1999	4	59.8	1998	23	2000	29	52.2	1975	268	4	.0	.0	29.6	.0	2.8	.0
Oct	55.3	35.9	45.6	81	1995	13	52.9	1971	21+	1990	26	40.8	1980	602	0	.0	.0	22.1	.1	12.7	.0
Nov	40.8	26.9	33.9	73	1990	2	40.4	1999	-2	1996	15	27.6	1976	935	0	.0	.0	6.7	6.0	23.2	.2
Dec	29.8	16.4	23.1	63	2001	6	30.5	1982	-18+	2000	28	12.8	1989	1298	0	.0	.0	1.0	18.6	30.3	3.8
Ann	52.3	31.8	42.1	96	Jul 1995	15	70.1	Jul 1983	-34	Feb 1996	4	6.3	Jan 1977	8570	228	.0	2.9	201.7	77.5	184.0	25.0

+ 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

059-A

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: KALKASKA, MI

COOP ID: 204257

Climate Division: MI 3

NWS Call Sign:

Elevation: 1,040 Feet Lat: 44°44N

Lon: 85°10W

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	1.79	1.73	1.25	1990	26	3.20	1990	.83	1972	17.6	6.1	.3	@	.91	1.06	1.27	1.43	1.58	1.72	1.88	2.06	2.28	2.61	2.91
Feb	1.32	1.11	.97	1981	28	3.41	1985	.40	1987	12.6	4.7	.2	.0	.45	.58	.76	.91	1.06	1.21	1.38	1.57	1.82	2.21	2.56
Mar	1.77	1.64	2.08	1998	31	4.47	1998	.52	1987	11.8	5.3	.8	.1	.59	.76	1.00	1.21	1.41	1.62	1.84	2.11	2.45	2.97	3.46
Apr	2.39	2.27	2.48	1960	17	4.12	1981	.87	1987	11.2	6.7	1.2	.3	1.11	1.32	1.60	1.84	2.06	2.28	2.51	2.78	3.11	3.62	4.08
May	2.62	2.68	2.14	1991	29	7.40	1983	.33	1992	10.6	6.7	1.7	.4	.62	.87	1.25	1.59	1.93	2.29	2.70	3.18	3.81	4.81	5.75
Jun	3.18	2.71	2.66	1954	25	7.37	1986	.69	1997	10.4	6.3	2.3	.7	.91	1.22	1.67	2.07	2.45	2.86	3.30	3.83	4.51	5.58	6.57
Jul	3.21	2.61	3.25	1948	22	8.53	1994	.95	1989	9.5	6.2	2.1	.7	1.04	1.35	1.80	2.18	2.55	2.93	3.34	3.83	4.46	5.44	6.34
Aug	3.41	3.05	2.78	1987	16	11.14	1987	1.12	1980	10.5	6.8	2.3	.6	1.01	1.33	1.82	2.24	2.65	3.07	3.54	4.09	4.81	5.92	6.96
Sep	3.88	3.48	3.26	1961	14	11.68	1986	.19	1979	12.4	7.9	2.5	.6	1.03	1.40	1.96	2.45	2.94	3.44	4.01	4.68	5.55	6.92	8.20
Oct	3.36	2.97	2.75	1991	25	7.14	1991	1.38	1993	13.3	7.9	1.9	.4	1.48	1.78	2.20	2.54	2.86	3.18	3.53	3.92	4.42	5.18	5.87
Nov	2.74	2.49	2.18	1988	6	5.78	1992	.89	1986	15.1	7.9	1.1	.2	1.00	1.26	1.63	1.94	2.23	2.53	2.86	3.24	3.73	4.47	5.16
Dec	2.07	2.07	1.14	1985	2	4.43	1982	.42	1994	16.9	7.1	.6	.1	.74	.94	1.22	1.46	1.68	1.91	2.16	2.46	2.83	3.41	3.94
Ann	31.74	31.36	3.26	Sep 1961	14	11.68	Sep 1986	.19	Sep 1979	151.9	79.6	17.0	4.1	25.10	26.44	28.13	29.39	30.50	31.56	32.64	33.83	35.25	37.30	39.04

+ 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

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Station: KALKASKA, MI

COOP ID: 204257

Climate Division: MI 3

NWS Call Sign:

Elevation: 1,040 Feet

Lat: 44° 44N

Lon: 85° 10W

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	32.9	32.5	13	12	24.0	1990	26	56.0	1990	40	1982	12	29	1982	14.8	12.4	5.0	1.5	.2	28.6	27.7	24.1	11.2
Feb	20.2	20.0	14	12	11.5	1974	23	41.5	1981	68	1985	15	37	1985	10.6	8.6	3.0	1.1	.1	26.4	25.9	22.9	13.5
Mar	14.5	17.0	7	6	10.0	1989	4	33.0	1998	31	1971	9	26	1971	6.8	5.5	1.9	.6	@	20.0	15.9	13.1	7.7
Apr	5.4	5.6	1	#	6.0	1982	4	18.5	1985	19	1971	4	8	1972	2.7	2.2	.7	.3	.0	4.6	2.0	1.2	.5
May	.4	.0	#	0	5.0	1996	1	5.0	1996	5	1996	1	#+	1996	.2	.1	.1	@	.0	.1	.1	@	.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	.6	.0	#	0	12.0	1992	19	12.0	1992	8	1992	19	1	1992	.7	.6	@	@	@	.7	.1	.1	.0
Nov	16.9	12.8	2	1	16.0	1990	6	64.5	1995	18	2000	23	8	1995	7.0	6.1	2.6	1.1	.1	9.7	5.5	2.9	1.0
Dec	28.5	23.6	7	6	15.0	1992	5	54.7	1972	37	1985	27	23	1985	12.9	10.6	4.8	2.0	.1	23.5	18.2	13.4	5.5
Ann	119.4	111.5	N/A	N/A	24.0	Jan 1990	26	64.5	Nov 1995	68	Feb 1985	15	37	Feb 1985	55.7	46.1	18.1	6.6	.5	113.6	95.4	77.7	39.4

+ 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

Complete documentation available from:

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No. 20 1971-2000

Station: KALKASKA, MI

COOP ID: 204257

Climate Division: MI 3

NWS Call Sign:

Elevation: 1,040 Feet

Lat: 44° 44N

Lon: 85° 10W

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	7/08	6/30	6/24	6/19	6/14	6/10	6/05	5/30	5/22
32	6/15	6/10	6/05	6/02	5/30	5/26	5/23	5/19	5/13
28	5/26	5/21	5/17	5/14	5/11	5/08	5/05	5/01	4/26
24	5/11	5/07	5/04	5/02	4/30	4/27	4/25	4/22	4/18
20	4/28	4/25	4/22	4/19	4/17	4/15	4/13	4/10	4/06
16	4/20	4/16	4/13	4/10	4/08	4/05	4/02	3/30	3/26
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	8/09	8/17	8/23	8/27	9/01	9/05	9/10	9/15	9/23
32	8/28	9/03	9/08	9/12	9/15	9/19	9/23	9/27	10/03
28	9/15	9/22	9/26	10/01	10/05	10/09	10/13	10/18	10/25
24	10/03	10/10	10/15	10/19	10/23	10/27	10/31	11/05	11/12
20	10/19	10/26	10/31	11/05	11/09	11/13	11/17	11/23	11/30
16	11/02	11/08	11/12	11/15	11/18	11/22	11/25	11/29	12/05
Freeze Free Period									
Temp (F)	Probability of longer than indicated freeze free period (Days)								
	.10	.20	.30	.40	.50	.60	.70	.80	.90
36	114	101	92	85	78	71	63	54	42
32	135	126	119	113	108	103	97	90	81
28	169	161	155	150	146	141	136	130	122
24	199	191	185	180	176	171	166	160	152
20	232	222	216	210	205	200	194	187	178
16	247	239	234	229	224	220	215	209	201

* 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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Station: KALKASKA, MI

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Climate Division: MI 3 NWS Call Sign: Elevation: 1,040 Feet Lat: 44° 44N Lon: 85° 10W

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	1514	1340	1189	752	394	129	54	95	268	602	935	1298	8570
60	1359	1200	1034	603	270	55	10	30	142	451	785	1143	7082
57	1266	1116	941	514	207	29	2	12	84	364	695	1050	6280
55	1204	1060	879	457	170	17	0	6	56	309	635	988	5781
50	1049	920	724	319	95	4	0	0	14	189	486	833	4633
32	508	439	236	27	2	0	0	0	0	6	77	325	1620

Base	Cooling Degree Days (1)												
Above	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Ann
32	17	23	71	265	650	911	1053	999	726	427	132	50	5324
55	0	0	0	5	106	238	340	292	92	16	0	0	1089
57	0	0	0	3	81	190	279	236	60	9	0	0	858
60	0	0	0	1	51	126	194	161	28	3	0	0	564
65	0	0	0	0	20	50	83	71	4	0	0	0	228
70	0	0	0	0	6	12	20	20	0	0	0	0	58

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	20	130	434	664	823	738	502	211	43	2	0	1	21	151	585	1249	2072	2810	3312	3523	3566	3568
45	0	0	9	69	298	514	668	583	363	114	17	0	0	0	9	78	376	890	1558	2141	2504	2618	2635	2635
50	0	0	2	36	188	371	513	430	233	53	2	0	0	0	2	38	226	597	1110	1540	1773	1826	1828	1828
55	0	0	0	17	104	241	363	284	128	21	0	0	0	0	0	17	121	362	725	1009	1137	1158	1158	1158
60	0	0	0	5	48	133	220	157	60	4	0	0	0	0	0	5	53	186	406	563	623	627	627	627
Base	Growing Degree Units for Corn (Monthly)												Growing Degree Units for Corn (Accumulated Monthly)											
50/86	0	0	19	94	282	417	526	471	304	125	22	0	0	0	19	113	395	812	1338	1809	2113	2238	2260	2260

(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