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: ARLINGTON UNIV FARM, WI **COOP ID: 470308**

Climate Division: WI 8 **NWS Call Sign:** **Elevation: 1,080 Feet** **Lat: 43˚18N** **Lon: 89˚21W**

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	23.0	8.4	15.7	55	1989	31	27.8	1990	-36	1994	18	2.0	1977	1528	0	.0	.0	.2	21.7	30.6	10.0
Feb	28.6	13.3	21.0	61	2000	27	33.6	1998	-30+	1996	3	9.4	1979	1235	0	.0	.0	.9	15.0	26.9	5.9
Mar	40.4	24.7	32.6	81	1986	29	40.9	2000	-9	1993	12	24.3	1975	1006	0	.0	.0	7.7	5.6	25.7	1.1
Apr	55.1	35.7	45.4	90	1980	22	51.8	1977	7	1982	6	39.2	1975	590	1	.0	@	22.4	.4	12.1	.0
May	67.6	46.6	57.1	91+	1991	29	64.4	1977	23+	1978	1	51.5	1997	278	33	.0	.1	30.7	.0	1.7	.0
Jun	77.4	55.7	66.6	100+	1988	21	71.3	1988	34+	1994	9	60.9	1982	60	106	.1	2.5	30.0	.0	.0	.0
Jul	80.7	60.3	70.5	100+	1995	13	74.5	1988	38	1965	6	65.6	1992	16	186	.1	4.1	31.0	.0	.0	.0
Aug	78.5	58.5	68.5	102	1988	16	74.6	1995	34	1986	28	63.3	1986	45	153	.2	2.1	31.0	.0	.0	.0
Sep	70.7	50.3	60.5	96	1978	8	66.1	1998	25+	1993	30	55.4	1993	168	33	.0	.5	29.9	.0	.8	.0
Oct	59.0	39.8	49.4	90	1963	6	57.3	1971	14	1992	19	44.5	1980	486	3	.0	.0	26.3	@	8.4	.0
Nov	41.6	27.4	34.5	75	1999	9	42.6	1999	-9	1976	29	27.0	1995	914	0	.0	.0	8.7	4.6	21.6	.3
Dec	28.2	15.1	21.7	63+	2001	6	30.8	1998	-26	1983	19	9.9	1983	1345	0	.0	.0	1.0	17.5	29.8	5.2
Ann	54.2	36.3	45.3	102	Aug 1988	16	74.6	Aug 1995	-36	Jan 1994	18	2.0	Jan 1977	7671	515	.4	9.3	219.8	64.8	157.6	22.5

+ 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: 1962-2001

(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	1.06	.96	1.30	1965	26	2.81	1999	.13	1981
Feb	1.15	.99	1.60	1981	22	3.32	1971	.00	1987
Mar	1.99	2.04	2.41	1973	7	5.01	1973	.10	1994
Apr	3.24	3.13	2.10	1993	15	7.06	1993	.65	1997
May	3.43	3.21	3.70	1978	13	10.46	2000	.33	1981
Jun	4.04	3.56	3.40	1978	25	8.03	1978	.61	1987
Jul	3.86	3.59	5.10	1985	25	9.40	1993	1.55	1988
Aug	4.24	3.68	3.85	1979	10	12.92	1980	1.02	1978
Sep	3.64	3.27	3.26	1980	22	10.73	1986	.15	1979
Oct	2.43	2.28	2.44	1984	19	6.75	1991	.50	1994
Nov	2.39	2.06	2.25	1985	1	5.33	1985	.10	1976
Dec	1.33	1.30	1.88	1982	2	4.08	1982	.13	1993
Ann	32.80	33.36	5.10	Jul 1985	25	12.92	Aug 1980	.00	Feb 1987

Mean Number of Days (3)

Daily Precipitation

Month	>= 0.01	>= 0.10	>= 0.50	>= 1.00
Jan	8.0	3.9	.5	.0
Feb	5.8	3.7	.6	.1
Mar	8.0	5.2	1.3	.2
Apr	10.4	6.9	2.1	.8
May	10.7	6.9	2.3	.7
Jun	10.0	6.8	2.5	1.1
Jul	10.2	7.0	2.8	.7
Aug	10.0	7.5	2.9	1.0
Sep	9.8	6.6	2.0	1.0
Oct	8.8	5.8	1.5	.3
Nov	8.7	5.6	1.4	.3
Dec	7.6	4.2	.6	.1
Ann	108.0	70.1	20.5	6.3

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	.24	.34	.50	.64	.78	.92	1.09	1.29	1.55	1.97	2.36
Feb	.06	.17	.35	.52	.69	.89	1.12	1.41	1.80	2.44	3.07
Mar	.29	.46	.75	1.02	1.31	1.62	1.99	2.43	3.03	4.01	4.94
Apr	1.26	1.56	1.99	2.34	2.68	3.02	3.40	3.83	4.37	5.21	5.98
May	.78	1.10	1.60	2.05	2.50	2.98	3.51	4.15	4.99	6.33	7.59
Jun	.90	1.28	1.87	2.40	2.94	3.50	4.14	4.90	5.91	7.51	9.02
Jul	1.44	1.80	2.32	2.75	3.16	3.58	4.03	4.56	5.23	6.27	7.22
Aug	1.38	1.78	2.38	2.88	3.37	3.87	4.42	5.06	5.89	7.18	8.36
Sep	.49	.79	1.31	1.81	2.34	2.93	3.61	4.44	5.57	7.42	9.20
Oct	.66	.89	1.24	1.55	1.85	2.16	2.51	2.92	3.46	4.30	5.09
Nov	.48	.70	1.05	1.37	1.69	2.04	2.43	2.91	3.54	4.54	5.49
Dec	.22	.33	.53	.71	.90	1.11	1.34	1.63	2.01	2.63	3.23
Ann	25.31	26.81	28.69	30.11	31.36	32.56	33.78	35.13	36.75	39.08	41.07

\+ 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: 1962-2001
(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	8.3	6.8	6	5	8.0	1988	25	19.2	1988	33	1979	31	22	1979	5.5	4.3	1.3	.4	.0	21.7	14.9	9.7	2.2
Feb	7.2	5.0	6	4	7.0	1976	21	28.0	1994	35	1979	12	30	1979	3.9	3.0	.9	.2	.0	20.0	13.4	9.2	3.5
Mar	5.5	5.1	2	1	12.0	1971	19	14.0+	1972	20	1979	1	10	1975	3.0	2.2	.6	.1	@	9.2	6.2	4.2	.9
Apr	2.0	.5	#	#	9.5	1973	10	15.5	1973	6+	1997	13	1	1993	1.0	.7	.3	.1	.0	1.2	.5	.1	.0
May	.1	.0	0	0	3.0	1994	1	3.0	1994	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	1997	27	3.0	1997	2	1990	10	#+	1995	.1	.1	@	.0	.0	@	.0	.0	.0
Nov	4.3	3.5	1	#	6.0	1985	9	17.5	1985	12	1985	10	2+	2000	2.3	1.8	.4	.1	.0	4.1	2.2	.8	.1
Dec	8.6	8.1	4	2	14.0	1990	3	22.0	1987	25	2000	26	15+	2000	4.7	3.6	1.1	.4	.1	16.4	11.1	6.5	1.5
Ann	36.1	29.0	N/A	N/A	14.0	Dec 1990	3	28.0	Feb 1994	35	Feb 1979	12	30	Feb 1979	20.5	15.7	4.6	1.3	.1	72.6	48.3	30.5	8.2

+ 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	6/08	6/01	5/28	5/24	5/20	5/16	5/12	5/07	4/30
32	5/20	5/15	5/11	5/08	5/05	5/02	4/29	4/26	4/20
28	5/05	4/30	4/27	4/24	4/21	4/19	4/16	4/12	4/08
24	4/23	4/19	4/16	4/13	4/11	4/08	4/06	4/03	3/30
20	4/16	4/11	4/08	4/05	4/02	3/31	3/28	3/24	3/20
16	4/11	4/05	4/02	3/29	3/26	3/23	3/20	3/16	3/11

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	9/15	9/19	9/21	9/24	9/26	9/29	10/02	10/07
32	9/20	9/25	9/28	10/01	10/03	10/06	10/09	10/12	10/16
28	9/25	10/02	10/07	10/11	10/15	10/18	10/22	10/27	11/03
24	10/11	10/17	10/21	10/24	10/28	10/31	11/03	11/08	11/13
20	10/23	10/28	11/01	11/04	11/07	11/10	11/14	11/18	11/23
16	10/29	11/04	11/09	11/12	11/16	11/19	11/23	11/27	12/03

Freeze Free Period

Temp (F)	Probability of longer than indicated freeze free period (Days)								
	.10	.20	.30	.40	.50	.60	.70	.80	.90
36	151	142	136	131	126	121	116	110	102
32	171	164	159	154	150	146	142	137	130
28	200	192	186	180	176	171	166	159	151
24	217	211	206	203	199	196	192	188	182
20	240	232	227	223	218	214	210	204	197
16	259	251	244	239	234	229	223	217	208

***** 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	1528	1235	1006	590	278	60	16	45	168	486	914	1345	7671
60	1373	1095	851	444	171	18	1	12	78	342	764	1190	6339
57	1280	1011	758	362	121	7	0	4	43	265	674	1097	5622
55	1218	955	696	310	92	4	0	1	27	219	615	1035	5172
50	1063	815	551	196	41	0	0	0	6	124	472	880	4148
32	546	368	145	8	0	0	0	0	0	3	100	386	1556

Base — Cooling Degree Days (1)

Above	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Ann
32	41	57	162	410	778	1036	1194	1131	855	543	176	64	6447
55	0	0	0	21	157	350	481	420	191	46	1	0	1667
57	0	0	0	13	123	293	419	360	147	30	0	0	1385
60	0	0	0	6	81	214	327	275	93	14	0	0	1010
65	0	0	0	1	33	106	186	153	33	3	0	0	515
70	0	0	0	0	10	37	84	69	7	0	0	0	207

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	3	54	238	571	826	976	916	644	328	65	4	0	3	57	295	866	1692	2668	3584	4228	4556	4621	4625
45	0	0	25	138	420	676	821	761	496	202	29	2	0	0	25	163	583	1259	2080	2841	3337	3539	3568	3570
50	0	0	11	73	281	526	666	606	351	113	7	0	0	0	11	84	365	891	1557	2163	2514	2627	2634	2634
55	0	0	3	33	166	379	511	451	225	53	2	0	0	0	3	36	202	581	1092	1543	1768	1821	1823	1823
60	0	0	0	12	82	239	357	300	124	18	0	0	0	0	0	12	94	333	690	990	1114	1132	1132	1132
Base	**Growing Degree Units for Corn (Monthly)**												**Growing Degree Units for Corn (Accumulated Monthly)**											
50/86	0	0	34	153	356	531	651	598	398	190	33	2	0	0	34	187	543	1074	1725	2323	2721	2911	2944	2946

(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