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: DRUMMOND, WI **COOP ID: 472240**

Climate Division: WI 1 **NWS Call Sign:** **Elevation: 1,340 Feet** **Lat: 46˚20N** **Lon: 91˚16W**

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	20.6	.1	10.4	54	1981	25	22.4	1990	-44	1970	19	-.5	1977	1694	0	.0	.0	.2	26.4	30.9	15.0
Feb	27.9	6.2	17.1	61	2000	29	31.2	1998	-40	1971	2	7.1	1972	1343	0	.0	.0	.6	18.3	27.7	10.1
Mar	38.6	16.8	27.7	73	2000	7	36.8	2000	-28	1984	7	19.3	1972	1156	0	.0	.0	4.5	8.8	28.7	4.6
Apr	53.9	28.9	41.4	90	1980	21	48.2	1987	-6	1972	8	35.2	1996	708	0	.0	@	18.5	1.0	20.8	.2
May	68.9	40.7	54.8	92	1988	31	63.6	1977	17+	1973	4	47.2	1997	341	25	.0	.2	29.7	.0	7.0	.0
Jun	76.3	50.3	63.3	98	1983	26	67.6	1988	25	1972	10	58.6	1982	107	55	.0	1.2	30.0	.0	.6	.0
Jul	80.3	56.1	68.2	100	1988	27	72.5	1988	29	1972	4	61.5	1992	46	144	@	2.3	31.0	.0	@	.0
Aug	78.0	54.9	66.5	96+	1989	4	71.0	1983	29	1970	31	62.1	1992	62	106	.0	.9	31.0	.0	.1	.0
Sep	68.7	46.5	57.6	91	1983	2	64.0	1998	18	1973	20	51.5	1993	236	15	.0	.1	29.3	.0	2.5	.0
Oct	56.3	35.7	46.0	86	1992	2	52.2	1973	6	1969	23	41.0	1980	589	0	.0	.0	22.6	.2	12.7	.0
Nov	37.3	22.9	30.1	71+	1999	8	38.3	1999	-15	1985	29	21.3	1995	1047	0	.0	.0	4.4	10.5	25.9	1.5
Dec	24.5	7.7	16.1	59+	1982	3	25.2	1997	-36	1983	20	4.3	1983	1517	0	.0	.0	.3	23.4	30.7	9.8
Ann	52.6	30.6	41.6	100	Jul 1988	27	72.5	Jul 1988	-44	Jan 1970	19	-.5	Jan 1977	8846	345	@	4.7	202.1	88.6	187.6	41.2

\+ 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	1.27	1.11	1.55	1996	18	3.15	1996	.11	1981
Feb	.85	.61	1.31	1998	27	2.86	1981	.12	1993
Mar	1.79	1.62	1.61	1966	4	4.81	1998	.63+	1978
Apr	2.32	2.48	2.65	2001	23	3.97	1994	.33	1987
May	3.69	3.46	2.87	1964	6	6.50	1993	.82	1990
Jun	3.99	3.54	3.25	1949	30	8.71	1981	1.27	1995
Jul	4.86	4.53	6.00	1992	2	11.35	1999	.89	1990
Aug	4.33	4.54	3.79	1989	31	7.50	1972	1.02	1991
Sep	4.22	3.66	5.09	1990	6	8.27	1990	1.03	1976
Oct	3.18	2.62	2.97	1985	4	6.91	1971	1.15	1976
Nov	2.45	2.39	2.48	1991	1	6.80	1991	.32	1976
Dec	1.30	1.24	1.12	1965	12	3.44	1996	.31	1979
Ann	34.25	34.84	6.00	Jul 1992	2	11.35	Jul 1999	.11	Jan 1981

Mean Number of Days (3)

Daily Precipitation

Month	>= 0.01	>= 0.10	>= 0.50	>= 1.00
Jan	8.7	4.2	.4	@
Feb	6.8	2.6	.3	.1
Mar	8.9	4.7	1.1	.3
Apr	9.0	6.0	1.1	.2
May	9.6	6.7	2.2	.7
Jun	12.8	8.0	2.7	.8
Jul	10.9	7.7	3.0	1.3
Aug	11.9	7.7	2.3	1.0
Sep	12.1	8.1	2.6	1.0
Oct	11.3	6.7	1.7	.6
Nov	9.0	5.4	1.4	.4
Dec	8.8	4.4	.4	@
Ann	119.8	72.2	19.2	6.4

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	.29	.41	.60	.76	.93	1.11	1.30	1.54	1.85	2.34	2.80
Feb	.14	.21	.33	.45	.57	.70	.85	1.04	1.28	1.68	2.06
Mar	.56	.73	.98	1.20	1.41	1.63	1.87	2.15	2.51	3.08	3.60
Apr	.70	.92	1.25	1.53	1.81	2.09	2.41	2.78	3.27	4.02	4.72
May	1.28	1.63	2.14	2.57	2.98	3.40	3.85	4.39	5.07	6.13	7.11
Jun	1.47	1.85	2.38	2.83	3.26	3.69	4.17	4.72	5.42	6.50	7.49
Jul	1.40	1.86	2.56	3.16	3.75	4.37	5.05	5.85	6.89	8.51	10.02
Aug	1.61	2.01	2.59	3.08	3.54	4.01	4.53	5.12	5.88	7.05	8.12
Sep	1.29	1.69	2.29	2.80	3.30	3.82	4.38	5.05	5.91	7.26	8.50
Oct	1.10	1.40	1.84	2.21	2.56	2.92	3.32	3.78	4.37	5.29	6.13
Nov	.44	.66	1.02	1.35	1.69	2.06	2.48	2.98	3.66	4.74	5.78
Dec	.38	.51	.69	.85	1.01	1.17	1.35	1.57	1.84	2.27	2.67
Ann	25.34	27.09	29.32	31.00	32.49	33.92	35.40	37.02	38.98	41.82	44.26

\+ 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	15.8	15.8	13	13	12.0	1988	20	32.8	1996	30+	1997	31	27	1997	7.5	5.5	2.0	.8	@	29.0	27.9	24.9	17.8
Feb	8.7	7.0	16	15	8.5	2000	15	18.0	1971	37	1971	5	32	1971	4.4	3.3	1.0	.2	.0	-9.9	-9.9	-9.9	-9.9
Mar	11.2	10.0	11	9	22.0	1985	4	37.0	1985	33	1997	14	28	1997	4.3	3.2	1.4	.7	.1	24.2	21.5	17.7	11.8
Apr	5.9	6.0	2	#	9.0	1983	14	23.1	1983	27	1996	4	13	1996	2.3	1.9	.8	.4	.0	5.8	3.5	2.6	1.5
May	.2	.0	#	0	2.0	1989	5	4.0	1989	4	1984	1	#+	1997	.1	.1	.0	.0	.0	.2	@	.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	1.0	1995	22	1.0	1995	0	0	0	0	0	@	@	.0	.0	.0	.0	.0	.0	.0
Oct	.7	.0	#	#	4.0	1993	29	5.0	1987	7	1982	20	1	1982	.6	.4	.1	.0	.0	.2	.0	.0	.0
Nov	11.8	8.5	2	1	15.0	1991	30	49.5	1991	20	1991	30	9	1991	4.8	3.8	1.5	.7	.1	10.4	4.7	2.7	.7
Dec	14.9	14.5	7	6	16.0	1982	28	41.3	1996	27	1985	28	23	1985	7.8	5.8	1.3	.4	@	25.5	20.1	14.6	6.2
Ann	69.2	61.8	N/A	N/A	22.0	Mar 1985	4	49.5	Nov 1991	37	Feb 1971	5	32	Feb 1971	31.8	24.0	8.1	3.2	.2	-9.9	-9.9	-9.9	-9.9

+ 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	7/02	6/24	6/19	6/15	6/10	6/06	6/02	5/27	5/20
32	6/15	6/09	6/05	6/02	5/29	5/26	5/23	5/18	5/13
28	6/01	5/26	5/22	5/18	5/15	5/12	5/08	5/04	4/28
24	5/16	5/11	5/07	5/04	5/01	4/28	4/25	4/21	4/15
20	5/03	4/28	4/24	4/21	4/18	4/15	4/12	4/08	4/03
16	4/21	4/17	4/14	4/11	4/09	4/06	4/03	3/31	3/27

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	8/19	8/26	8/31	9/05	9/09	9/13	9/17	9/22	9/30
32	9/03	9/09	9/13	9/17	9/20	9/23	9/27	10/01	10/07
28	9/20	9/24	9/27	9/30	10/02	10/05	10/07	10/10	10/15
24	9/27	10/03	10/07	10/11	10/14	10/17	10/21	10/25	10/31
20	10/07	10/14	10/19	10/23	10/26	10/30	11/03	11/08	11/15
16	10/22	10/27	10/31	11/03	11/06	11/09	11/12	11/15	11/20

Freeze Free Period

Temp (F)	Probability of longer than indicated freeze free period (Days)								
	.10	.20	.30	.40	.50	.60	.70	.80	.90
36	127	114	105	97	90	82	75	65	53
32	141	131	124	118	113	107	102	95	85
28	164	156	150	144	140	135	130	124	115
24	194	184	177	171	165	160	154	147	137
20	220	210	203	197	191	185	179	172	162
16	231	224	219	215	211	207	202	197	190

***** 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	1694	1343	1156	708	341	107	46	62	236	589	1047	1517	8846
60	1539	1203	1001	561	225	39	11	16	126	438	897	1362	7418
57	1446	1119	908	476	168	18	5	6	77	352	807	1269	6651
55	1384	1063	846	420	135	9	0	2	53	299	747	1207	6165
50	1229	923	692	294	71	2	0	0	15	183	601	1052	5062
32	689	456	226	31	1	0	0	0	0	8	174	526	2111

Cooling Degree Days (1)

Base Above	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Ann
32	18	37	93	314	709	938	1122	1068	769	441	117	33	5659
55	0	0	0	13	130	258	409	356	131	19	0	0	1316
57	0	0	0	8	101	206	351	299	96	11	0	0	1072
60	0	0	0	4	65	137	265	216	54	4	0	0	745
65	0	0	0	0	25	55	144	106	15	0	0	0	345
70	0	0	0	0	8	13	63	38	2	0	0	0	124

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	2	18	135	460	699	870	816	524	222	25	0	0	2	20	155	615	1314	2184	3000	3524	3746	3771	3771
45	0	1	4	72	316	549	715	661	377	128	10	0	0	1	5	77	393	942	1657	2318	2695	2823	2833	2833
50	0	0	1	34	201	405	560	506	244	60	2	0	0	0	1	35	236	641	1201	1707	1951	2011	2013	2013
55	0	0	0	14	112	265	406	354	140	22	0	0	0	0	0	14	126	391	797	1151	1291	1313	1313	1313
60	0	0	0	6	57	144	259	214	70	5	0	0	0	0	0	6	63	207	466	680	750	755	755	755
Base	**Growing Degree Units for Corn (Monthly)**												**Growing Degree Units for Corn (Accumulated Monthly)**											
50/86	0	1	14	113	310	445	565	528	315	135	12	0	0	1	15	128	438	883	1448	1976	2291	2426	2438	2438

(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