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: WASKISH 4 NE, MN **COOP ID: 218700**

Climate Division: MN 2 **NWS Call Sign:** **Elevation: 1,200 Feet** **Lat: 48˚12N** **Lon: 94˚26W**

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	14.4	-10.6	1.9	45	1973	25	14.6	1990	-49+	1996	21	-11.0	1982	1958	0	.0	.0	.0	28.4	31.0	21.3
Feb	23.2	-3.3	10.0	58	1976	24	27.7	1998	-48+	1996	3	-2.3	1989	1543	0	.0	.0	.3	20.3	28.0	15.1
Mar	36.2	10.5	23.4	72	1967	30	35.4	1973	-35	1980	1	12.2	1996	1291	0	.0	.0	3.6	10.6	29.6	6.9
Apr	52.1	27.2	39.7	92	1980	22	48.5	1987	-11	1979	6	31.4	1996	761	0	.0	@	17.5	1.2	21.6	.4
May	67.3	41.1	54.2	95	1964	21	64.1	1977	15+	1997	1	46.7	1979	364	30	.0	.2	29.3	@	5.9	.0
Jun	75.5	50.7	63.1	95+	1995	19	69.7	1988	25	1964	1	57.1	2000	128	70	.0	.8	30.0	.0	.2	.0
Jul	79.6	54.7	67.2	98	1977	20	72.6	1983	35+	1995	1	59.9	1992	60	126	.0	1.6	31.0	.0	.0	.0
Aug	77.4	52.4	64.9	95+	1991	28	71.0	1984	33	1986	28	59.8	1977	95	92	.0	.9	31.0	.0	@	.0
Sep	66.5	42.4	54.5	95+	1976	8	59.1	1978	20+	1995	22	49.6	1993	322	5	.0	.2	29.1	.0	3.1	.0
Oct	53.4	31.4	42.4	85	1963	5	48.1	1973	6	1996	31	38.0	1993	700	0	.0	.0	19.6	.5	16.3	.0
Nov	33.6	15.9	24.8	71+	1999	9	36.7	1981	-27	1985	28	15.4	1985	1208	0	.0	.0	2.9	13.9	28.1	2.8
Dec	20.0	-1.3	9.4	52	1982	2	22.0	1997	-36	1996	26	-3.5	1983	1728	0	.0	.0	.1	26.6	30.9	15.5
Ann	49.9	25.9	38.0	98	Jul 1977	20	72.6	Jul 1983	-49+	Jan 1996	21	-11.0	Jan 1982	10158	323	.0	3.7	194.4	101.5	194.7	62.0

+ 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/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

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: WASKISH 4 NE, MN **COOP ID: 218700**

Climate Division: MN 2 **NWS Call Sign:** **Elevation: 1,200 Feet** **Lat: 48˚12N** **Lon: 94˚26W**

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	.64	.60	.70	1975	11	2.34	1975	.08	1973
Feb	.51	.47	.84	1977	24	1.09	1984	.05	1993
Mar	.79	.78	.94	1999	28	2.08	1999	.10	1978
Apr	1.37	1.27	1.57	1970	20	2.90	1979	.08	1980
May	2.40	1.90	2.48	1985	11	6.34	1999	.35	1976
Jun	3.97	3.71	3.15	1950	25	8.27	1984	1.46	1987
Jul	4.03	4.12	2.95	1972	11	7.64	1995	1.11	1985
Aug	3.65	3.37	4.65	2001	1	6.55	1974	1.03	1971
Sep	2.96	2.71	2.12	1995	30	7.58	1973	.32	1974
Oct	2.14	1.85	2.33	1965	19	6.67	1971	.13	1992
Nov	1.25	1.19	.96	1998	11	3.52	2000	.01	1976
Dec	.57	.52	.67	1965	31	1.25	1996	.12	1979
Ann	24.28	24.81	4.65	Aug 2001	1	8.27	Jun 1984	.01	Nov 1976

Mean Number of Days (3)

Daily Precipitation

Month	>= 0.01	>= 0.10	>= 0.50	>= 1.00
Jan	7.3	1.9	.1	.0
Feb	5.2	2.1	.1	.0
Mar	5.8	2.6	.1	.0
Apr	6.9	3.8	.7	.2
May	10.5	5.5	1.4	.4
Jun	12.5	7.3	2.4	1.1
Jul	11.4	6.7	2.5	.9
Aug	11.3	6.8	2.2	.8
Sep	10.8	5.8	1.6	.6
Oct	9.4	4.6	1.2	.4
Nov	7.4	3.4	.5	.0
Dec	5.7	1.8	.1	.0
Ann	104.2	52.3	12.9	4.4

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	.14	.20	.29	.38	.46	.55	.66	.78	.94	1.19	1.43
Feb	.09	.14	.21	.28	.35	.43	.51	.62	.76	.99	1.20
Mar	.19	.26	.38	.48	.58	.69	.81	.96	1.15	1.45	1.74
Apr	.30	.42	.62	.80	.99	1.18	1.40	1.66	2.01	2.56	3.08
May	.60	.82	1.17	1.48	1.79	2.11	2.48	2.91	3.47	4.36	5.19
Jun	1.60	1.96	2.48	2.91	3.31	3.72	4.16	4.67	5.32	6.30	7.20
Jul	1.64	2.01	2.53	2.96	3.36	3.78	4.22	4.73	5.38	6.37	7.27
Aug	1.33	1.67	2.16	2.58	2.97	3.37	3.81	4.32	4.97	5.98	6.90
Sep	.75	1.03	1.46	1.84	2.21	2.61	3.05	3.57	4.26	5.34	6.36
Oct	.30	.47	.78	1.08	1.39	1.73	2.13	2.62	3.27	4.35	5.38
Nov	.16	.26	.44	.62	.80	1.00	1.23	1.52	1.91	2.55	3.17
Dec	.15	.20	.29	.36	.43	.51	.59	.69	.82	1.02	1.22
Ann	18.62	19.75	21.17	22.24	23.19	24.09	25.02	26.04	27.26	29.03	30.54

\+ 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

U.S. Department of Commerce
National Oceanic & Atmospheric Administration
National Environmental Satellite, Data,
and Information Services

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: WASKISH 4 NE, MN **COOP ID: 218700**

Climate Division: MN 2 **NWS Call Sign:** **Elevation: 1,200 Feet** **Lat: 48°12N** **Lon: 94°26W**

Snow (inches)

Snow Totals

Means/Medians (1)

Month	Snow Fall Mean	Snow Fall Median	Snow Depth Mean	Snow Depth Median
Jan	10.9	10.0	13	12
Feb	4.8	4.0	14	15
Mar	6.3	5.0	11	13
Apr	2.1	2.1	1	#
May	.0	.0	#	0
Jun	.0	.0	0	0
Jul	.0	.0	0	0
Aug	.0	.0	0	0
Sep	#	.0	#	0
Oct	.9	.0	#	#
Nov	7.9	6.4	2	2
Dec	8.1	8.6	7	5
Ann	41.0	36.1	N/A	N/A

Extremes (2)

Month	Highest Daily Snow Fall	Year	Day	Highest Monthly Snow Fall	Year	Highest Daily Snow Depth	Year	Day	Highest Monthly Mean Snow Depth	Year
Jan	8.0	1982	20	25.2	1975	29	1982	25	21+	1997
Feb	7.0	1996	28	9.0	1992	29	1996	28	26	1996
Mar	9.0	1982	10	13.5	1997	29	1997	4	20	1997
Apr	5.0	1974	1	5.1	1994	16	1971	5	5	1974
May	.2	1976	1	.3	1976	#+	2000	12	#+	2000
Jun	.0	0	0	.0	0	0	0	0	0	0
Jul	.0	0	0	.0	0	0	0	0	0	0
Aug	.0	0	0	.0	0	0	0	0	0	0
Sep	#	1995	21	#+	1995	#	1995	21	#	1995
Oct	3.0	1991	20	4.3	1981	3	1996	18	#+	1999
Nov	9.0	1998	19	19.2	1985	17	1977	21	10	1977
Dec	8.0	1972	30	17.2	1992	21	1995	14	18	1996
Ann	9.0+	Nov 1998	19	25.2	Jan 1975	29+	Mar 1997	4	26	Feb 1996

Mean Number of Days (1)

Snow Fall >= Thresholds

Month	0.1	1.0	3.0	5.0	10.0
Jan	4.8	3.7	1.4	.4	.0
Feb	2.7	2.1	.4	.1	.0
Mar	2.8	2.0	.4	.2	.0
Apr	1.2	.8	.4	.1	.0
May	.1	.0	.0	.0	.0
Jun	.0	.0	.0	.0	.0
Jul	.0	.0	.0	.0	.0
Aug	.0	.0	.0	.0	.0
Sep	.0	.0	.0	.0	.0
Oct	.7	.5	.1	.0	.0
Nov	4.3	3.4	1.3	.5	.0
Dec	4.5	3.4	.9	.2	.0
Ann	21.1	15.9	4.9	1.5	.0

Snow Depth >= Thresholds

Month	1	3	5	10
Jan	-9.9	-9.9	-9.9	-9.9
Feb	-9.9	-9.9	-9.9	-9.9
Mar	-9.9	-9.9	-9.9	-9.9
Apr	3.2	2.5	2.0	1.2
May	.0	.0	.0	.0
Jun	.0	.0	.0	.0
Jul	.0	.0	.0	.0
Aug	.0	.0	.0	.0
Sep	.0	.0	.0	.0
Oct	.3	.1	.0	.0
Nov	-9.9	-9.9	-9.9	-9.9
Dec	-9.9	-9.9	-9.9	-9.9
Ann	-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

Complete documentation available from:
www.ncdc.noaa.gov/oa/climate/normals/usnormals.html

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: WASKISH 4 NE, MN **COOP ID: 218700**

Climate Division: MN 2 **NWS Call Sign:** **Elevation: 1,200 Feet** **Lat: 48˚12N** **Lon: 94˚26W**

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	7/05	6/27	6/21	6/15	6/10	6/05	5/31	5/25	5/16
32	6/04	5/30	5/26	5/23	5/21	5/18	5/15	5/11	5/07
28	5/23	5/18	5/14	5/11	5/08	5/05	5/02	4/28	4/23
24	5/13	5/08	5/04	5/01	4/28	4/25	4/22	4/18	4/13
20	4/29	4/24	4/21	4/18	4/15	4/13	4/10	4/07	4/02
16	4/24	4/19	4/15	4/12	4/09	4/06	4/03	3/30	3/25

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	8/21	8/27	8/31	9/03	9/06	9/09	9/12	9/16	9/22
32	9/07	9/12	9/15	9/17	9/20	9/22	9/25	9/28	10/02
28	9/14	9/19	9/22	9/25	9/27	9/30	10/02	10/05	10/10
24	9/26	10/01	10/05	10/08	10/12	10/15	10/18	10/22	10/27
20	10/05	10/11	10/15	10/19	10/22	10/25	10/29	11/02	11/08
16	10/20	10/25	10/28	10/31	11/03	11/06	11/09	11/12	11/17

Freeze Free Period

Temp (F)	Probability of longer than indicated freeze free period (Days)								
	.10	.20	.30	.40	.50	.60	.70	.80	.90
36	119	108	100	93	87	81	74	66	55
32	138	132	128	125	121	118	114	110	105
28	162	155	150	146	142	138	133	128	121
24	189	181	175	170	166	161	156	150	142
20	212	204	199	194	189	184	179	173	165
16	230	222	217	212	207	203	198	193	185

***** 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:
www.ncdc.noaa.gov/oa/climate/normals/usnormals.html

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: WASKISH 4 NE, MN **COOP ID: 218700**

Climate Division: MN 2 **NWS Call Sign:** **Elevation: 1,200 Feet** **Lat: 48˚12N** **Lon: 94˚26W**

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	1958	1543	1291	761	364	128	60	95	322	700	1208	1728	10158
60	1803	1403	1136	614	249	57	16	34	192	545	1058	1573	8680
57	1710	1319	1043	529	191	31	7	15	127	453	968	1480	7873
55	1648	1263	981	473	157	19	2	9	91	393	908	1418	7362
50	1493	1123	827	345	88	5	0	1	31	254	758	1263	6188
32	947	645	342	54	2	0	0	0	0	16	294	728	3028

Cooling Degree Days (1)

Base Above	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Ann
32	12	25	75	284	691	933	1089	1019	673	339	76	23	5239
55	0	0	0	13	133	262	378	315	74	2	0	0	1177
57	0	0	0	8	105	213	321	260	50	1	0	0	958
60	0	0	0	4	70	150	237	186	25	0	0	0	672
65	0	0	0	0	30	70	126	92	5	0	0	0	323
70	0	0	0	0	11	22	51	33	0	0	0	0	117

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	0	7	121	458	693	834	769	464	164	13	0	0	0	7	128	586	1279	2113	2882	3346	3510	3523	3523
45	0	0	0	60	321	543	679	614	319	84	4	0	0	0	0	60	381	924	1603	2217	2536	2620	2624	2624
50	0	0	0	27	201	395	524	459	193	35	0	0	0	0	0	27	228	623	1147	1606	1799	1834	1834	1834
55	0	0	0	10	112	255	369	309	100	12	0	0	0	0	0	10	122	377	746	1055	1155	1167	1167	1167
60	0	0	0	0	56	138	222	172	41	0	0	0	0	0	0	0	56	194	416	588	629	629	629	629
Base	**Growing Degree Units for Corn (Monthly)**												**Growing Degree Units for Corn (Accumulated Monthly)**											
50/86	0	0	7	96	299	431	537	480	280	108	9	0	0	0	7	103	402	833	1370	1850	2130	2238	2247	2247

(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.
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