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: MONTEVIDEO 1 SW, MN **COOP ID: 215563**

Climate Division: MN 4 **NWS Call Sign:** **Elevation: 985 Feet** **Lat: 44˚56N** **Lon: 95˚45W**

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	20.4	1.1	10.8	69	1981	24	25.2	1990	-37	1970	19	-6.0	1982	1682	0	.0	.0	.4	23.1	31.0	15.1
Feb	27.7	8.7	18.2	64	1981	16	32.1	1987	-34+	1996	2	4.8	1979	1312	0	.0	.0	1.3	16.5	27.5	8.6
Mar	39.4	21.5	30.5	80	1968	30	39.3	2000	-25	1962	1	22.5	1984	1072	0	.0	.0	7.1	7.5	25.8	2.3
Apr	56.6	33.6	45.1	100	1980	21	52.9	1987	0	1997	8	37.7	1975	601	3	@	.3	21.3	.6	13.5	@
May	70.7	46.0	58.4	98+	2001	15	65.1	1977	20	1961	1	52.9	1997	247	40	.0	1.1	30.4	.0	1.7	.0
Jun	79.4	55.7	67.6	105	1979	14	73.0	1988	31	1964	2	62.7	1982	51	126	.3	4.0	30.0	.0	.0	.0
Jul	83.5	60.2	71.9	110	1988	31	76.0	1975	35	1971	30	63.7	1992	25	237	.6	7.8	31.0	.0	.0	.0
Aug	81.4	57.8	69.6	110	1988	1	74.9	1976	35	1971	3	64.0	1992	38	180	.4	5.1	31.0	.0	.0	.0
Sep	72.5	47.8	60.2	103	1978	7	65.7	1978	21	1974	22	54.5	1993	180	35	.1	1.8	29.8	.0	1.3	.0
Oct	59.5	35.9	47.7	94	1963	5	54.4	1973	12	1993	31	42.8	1972	537	1	.0	.2	25.6	.2	10.6	.0
Nov	39.1	21.3	30.2	77+	1978	2	39.0	1999	-21	1964	30	20.9	1996	1044	0	.0	.0	7.0	8.9	25.5	1.5
Dec	24.9	7.4	16.2	63	1998	1	27.3	1997	-32	1983	19	.8	1983	1514	0	.0	.0	.5	20.6	30.8	10.3
Ann	54.6	33.1	43.9	110+	Aug 1988	1	76.0	Jul 1975	-37	Jan 1970	19	-6.0	Jan 1982	8303	622	1.4	20.3	215.4	77.4	167.7	37.8

\+ 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	.91	.81	1.86	1996	18	3.12	1982	.00+	1998
Feb	.91	.50	2.50	1984	19	3.30	1984	.05	1999
Mar	1.64	1.34	1.57	1983	27	5.89	1977	.23	1971
Apr	2.24	2.12	2.70	1985	22	5.53	1986	.15	1980
May	3.17	3.01	4.80	1993	8	7.70	1993	.94	1976
Jun	4.23	2.97	7.30	1957	17	10.48	1971	.48	1988
Jul	3.43	2.91	3.45	1991	22	9.16	1991	.12	1975
Aug	3.14	3.12	4.03	1974	10	6.87	1979	.36	2000
Sep	2.26	2.06	3.27	1969	22	6.05	1978	.40	1979
Oct	1.97	1.59	2.55	1984	19	6.65	1971	.08	1978
Nov	1.46	1.28	2.33	1948	20	5.43	1983	.04	1980
Dec	.71	.47	2.00	1982	28	3.34	1977	.00+	1999
Ann	26.07	25.50	7.30	Jun 1957	17	10.48	Jun 1971	.00+	Dec 1999

Mean Number of Days (3)

Daily Precipitation

Month	>= 0.01	>= 0.10	>= 0.50	>= 1.00
Jan	5.3	3.1	.4	.1
Feb	5.0	2.4	.5	.1
Mar	6.7	4.3	1.0	.1
Apr	8.4	5.1	1.3	.4
May	10.0	6.8	2.2	.7
Jun	9.3	6.6	2.5	1.1
Jul	8.4	5.8	2.5	1.0
Aug	8.2	5.5	2.0	.9
Sep	7.6	4.4	1.2	.6
Oct	5.8	3.6	1.3	.4
Nov	5.2	3.7	1.0	.2
Dec	4.7	1.8	.3	.1
Ann	84.6	53.1	16.2	5.7

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	.00	.03	.14	.26	.41	.59	.81	1.10	1.51	2.21	2.91
Feb	.06	.12	.23	.35	.49	.66	.85	1.10	1.45	2.04	2.63
Mar	.31	.46	.70	.92	1.15	1.39	1.67	2.00	2.44	3.15	3.83
Apr	.47	.68	1.01	1.31	1.61	1.93	2.29	2.72	3.30	4.21	5.08
May	.90	1.20	1.66	2.05	2.44	2.84	3.29	3.82	4.50	5.58	6.58
Jun	.86	1.25	1.87	2.44	3.01	3.62	4.32	5.15	6.25	8.02	9.69
Jul	.69	1.00	1.51	1.97	2.43	2.93	3.50	4.18	5.08	6.52	7.88
Aug	.83	1.13	1.58	1.98	2.38	2.79	3.25	3.79	4.50	5.61	6.65
Sep	.40	.60	.93	1.24	1.56	1.90	2.28	2.76	3.38	4.39	5.36
Oct	.18	.31	.58	.85	1.15	1.49	1.89	2.40	3.09	4.26	5.40
Nov	.08	.16	.33	.53	.75	1.02	1.34	1.76	2.35	3.35	4.36
Dec	.00	.00	.09	.19	.31	.46	.63	.86	1.18	1.73	2.28
Ann	15.20	17.15	19.73	21.75	23.58	25.38	27.27	29.40	32.02	35.90	39.33

\+ 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	10.7	6.4	7	5	12.0	1996	18	33.0	1982	42	1982	26	27	1997	4.6	3.3	1.3	.5	.1	18.5	12.2	10.3	5.6
Feb	9.0	9.0	6	5	9.0	1971	27	21.9	1971	40	1979	17	34	1979	3.5	2.4	.9	.4	.0	14.0	10.3	6.5	1.8
Mar	8.8	7.3	3	2	14.0	1989	3	23.1	1984	22	1984	13	14	1984	3.2	2.4	1.0	.5	.1	8.6	5.2	3.7	1.5
Apr	1.7	.3	#	0	8.0	1996	13	9.3	1995	8	1996	13	1	1996	.8	.6	.2	.2	.0	.4	.2	.1	.0
May	.0	.0	0	0	.3	1976	2	.3	1976	0	0	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	#	1995	21	#	1995	#	1995	21	#	1995	.0	.0	.0	.0	.0	.0	.0	.0	.0
Oct	.4	.0	#	0	5.0	1995	24	5.0	1995	5	1976	18	#+	1995	.2	.1	.1	@	.0	.1	.1	.0	.0
Nov	7.3	4.5	1	1	12.0	1983	28	25.0	1985	19	1983	30	4	1996	2.9	2.2	.8	.6	.1	6.6	3.9	2.3	.9
Dec	6.7	6.6	4	3	10.0	1982	28	16.5	1993	29	1983	31	25	1983	3.6	2.2	.7	.4	@	15.4	12.2	7.1	4.2
Ann	44.6	34.1	N/A	N/A	14.0	Mar 1989	3	33.0	Jan 1982	42	Jan 1982	26	34	Feb 1979	18.8	13.2	5.0	2.6	.3	63.6	44.1	30.0	14.0

+ 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	6/05	5/28	5/23	5/18	5/13	5/09	5/04	4/28	4/21
32	5/18	5/13	5/10	5/07	5/05	5/02	4/30	4/26	4/22
28	5/08	5/03	4/30	4/27	4/24	4/22	4/19	4/15	4/11
24	4/20	4/17	4/14	4/12	4/09	4/07	4/05	4/02	3/29
20	4/16	4/11	4/08	4/05	4/02	3/31	3/28	3/25	3/20
16	4/06	4/01	3/29	3/26	3/23	3/21	3/18	3/14	3/10

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	9/04	9/09	9/13	9/16	9/19	9/22	9/25	9/28	10/03
32	9/16	9/20	9/23	9/26	9/28	9/30	10/03	10/06	10/10
28	9/20	9/26	9/30	10/04	10/07	10/10	10/14	10/18	10/24
24	10/03	10/08	10/12	10/15	10/18	10/21	10/25	10/29	11/03
20	10/13	10/19	10/23	10/26	10/29	11/01	11/04	11/08	11/13
16	10/21	10/26	10/31	11/03	11/06	11/10	11/13	11/17	11/23

Freeze Free Period

Temp (F)	Probability of longer than indicated freeze free period (Days)								
	.10	.20	.30	.40	.50	.60	.70	.80	.90
36	162	150	142	134	128	121	114	105	93
32	165	158	154	149	145	142	137	133	126
28	187	180	174	169	165	160	156	150	142
24	212	205	200	195	191	187	183	178	171
20	230	223	218	213	209	204	200	195	187
16	251	243	237	232	227	223	218	212	204

***** 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	1682	1312	1072	601	247	51	25	38	180	537	1044	1514	8303
60	1527	1172	917	460	147	14	7	10	88	387	894	1359	6982
57	1434	1088	824	380	101	4	0	3	50	303	804	1266	6257
55	1372	1032	762	331	76	2	0	1	32	253	744	1204	5809
50	1217	895	616	221	33	0	0	0	7	145	598	1049	4781
32	698	449	188	19	0	0	0	0	0	4	178	540	2076

Cooling Degree Days (1)

Base Above	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Ann
32	39	61	140	411	817	1066	1235	1166	844	491	124	49	6443
55	0	0	1	33	180	378	522	453	186	27	0	0	1780
57	0	0	0	23	143	320	460	393	144	15	0	0	1498
60	0	0	0	12	96	239	374	307	92	6	0	0	1126
65	0	0	0	3	40	126	237	180	35	1	0	0	622
70	0	0	0	0	13	51	133	89	8	0	0	0	294

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	39	236	608	860	1015	949	635	305	38	2	0	2	41	277	885	1745	2760	3709	4344	4649	4687	4689
45	0	0	14	142	459	710	860	794	488	187	13	0	0	0	14	156	615	1325	2185	2979	3467	3654	3667	3667
50	0	0	1	77	319	560	705	639	346	102	3	0	0	0	1	78	397	957	1662	2301	2647	2749	2752	2752
55	0	0	0	38	199	412	550	484	219	48	0	0	0	0	0	38	237	649	1199	1683	1902	1950	1950	1950
60	0	0	0	16	108	273	395	331	123	14	0	0	0	0	0	16	124	397	792	1123	1246	1260	1260	1260
Base	**Growing Degree Units for Corn (Monthly)**												**Growing Degree Units for Corn (Accumulated Monthly)**											
50/86	0	1	30	157	380	556	673	619	399	195	28	0	0	1	31	188	568	1124	1797	2416	2815	3010	3038	3038

(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