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: INTL FALLS AP, MN **COOP ID: 214026**

Climate Division: MN 2 **NWS Call Sign: INL** **Elevation: 1,179 Feet** **Lat: 48˚34N** **Lon: 93˚24W**

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	13.8	-8.4	2.7	48+	1973	24	13.8	1990	-46	1968	6	-10.1	1982	1946	0	.0	.0	.0	28.7	31.0	21.3
Feb	22.4	-.7	10.9	58	2000	22	27.1	1998	-45	1996	2	-1.2	1989	1531	0	.0	.0	.2	22.1	27.9	15.0
Mar	34.9	12.3	23.6	73	1963	31	33.0	1973	-38	1962	1	15.2	1996	1298	0	.0	.0	2.8	13.1	29.2	6.8
Apr	51.5	27.1	39.3	93	1952	27	47.9	1987	-14	1954	3	32.0	1996	775	1	.0	@	16.0	1.9	21.5	.4
May	66.6	40.0	53.3	95	1964	21	61.1	1977	11	1967	3	45.9	1979	378	17	.0	.3	28.6	@	6.1	.0
Jun	74.2	49.1	61.6	99+	1995	18	68.1	1995	23	1964	1	54.4	1985	140	47	.0	.9	30.0	.0	.4	.0
Jul	78.6	53.6	66.1	98+	1988	6	70.3	1975	34+	2001	5	59.3	1992	55	91	.0	1.6	31.0	.0	.0	.0
Aug	76.3	51.3	63.8	95+	1991	27	68.4	1983	30	1982	28	57.3	1977	102	67	.0	1.0	31.0	.0	.1	.0
Sep	64.7	41.6	53.2	95	1976	7	57.8	1994	20+	1965	26	48.8	1984	360	10	.0	.1	28.3	.0	4.0	.0
Oct	51.7	31.5	41.6	88	1963	5	47.5	1994	2	1988	30	36.4	1976	723	0	.0	.0	16.9	1.1	17.1	.0
Nov	32.5	16.4	24.4	73	1975	5	34.7	1981	-32	1985	28	14.1	1985	1217	0	.0	.0	2.3	15.6	28.2	3.6
Dec	18.1	-1.1	8.5	56+	1962	3	20.4	1997	-41	1955	19	-4.2	1983	1744	0	.0	.0	.0	26.9	30.9	16.6
Ann	48.8	26.1	37.4	99+	Jun 1995	18	70.3	Jul 1975	-46	Jan 1968	6	-10.1	Jan 1982	10269	233	.0	3.9	187.1	109.4	196.4	63.7

\+ 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: 1933-2001

(3) Derived from 1971-2000 serially complete daily data

Issue Date: February 2004

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Precipitation (inches)

Precipitation Totals

Means/Medians(1)

Month	Mean	Median
Jan	.84	.65
Feb	.64	.53
Mar	.96	.84
Apr	1.38	1.31
May	2.55	2.20
Jun	3.98	4.19
Jul	3.37	3.01
Aug	3.14	2.99
Sep	3.03	2.81
Oct	1.98	1.71
Nov	1.36	1.19
Dec	.70	.64
Ann	23.93	23.84

Extremes

Month	Highest Daily(2)	Year	Day	Highest Monthly(1)	Year	Lowest Monthly(1)	Year
Jan	2.70	1982	22	3.67	1982	.09	1999
Feb	.88	1955	20	1.57	1992	.10	1993
Mar	1.29	1966	4	2.03	1999	.22	1984
Apr	1.40	1957	19	3.33	1986	.08	1987
May	2.67	1991	23	6.67	1985	.20	1976
Jun	3.22	1975	24	7.01	1976	1.11	1987
Jul	4.20	1966	2	7.86	1987	1.06	1974
Aug	2.52	1974	19	6.66	1988	.58	1991
Sep	3.34	1973	1	6.81+	1977	.28	1998
Oct	2.33	1979	31	4.84	1971	.14	1992
Nov	1.37	1977	9	3.49	1977	.00	1999
Dec	1.21	1960	5	1.70	1992	.18	1999
Ann	4.20	Jul 1966	2	7.86	Jul 1987	.00	Nov 1999

Mean Number of Days (3)

Daily Precipitation

Month	>= 0.01	>= 0.10	>= 0.50	>= 1.00
Jan	10.9	2.0	.1	@
Feb	8.7	2.0	.1	.0
Mar	9.4	2.7	.3	.0
Apr	8.4	3.8	.8	.1
May	11.1	5.5	1.7	.3
Jun	13.3	7.8	2.6	.7
Jul	11.6	6.9	2.0	.6
Aug	11.2	6.5	2.2	.5
Sep	12.0	6.0	1.7	.7
Oct	10.9	5.0	1.0	.2
Nov	10.4	3.9	.6	@
Dec	10.9	2.2	@	.0
Ann	128.8	54.3	13.1	3.1

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	.12	.19	.31	.42	.55	.68	.83	1.02	1.28	1.70	2.10
Feb	.14	.20	.29	.37	.46	.55	.65	.78	.94	1.20	1.45
Mar	.25	.34	.48	.60	.72	.85	.99	1.16	1.38	1.73	2.05
Apr	.30	.43	.63	.82	1.00	1.20	1.42	1.68	2.03	2.58	3.10
May	.52	.75	1.13	1.47	1.81	2.18	2.60	3.10	3.77	4.83	5.83
Jun	1.59	1.96	2.48	2.91	3.31	3.72	4.16	4.68	5.33	6.32	7.23
Jul	1.11	1.42	1.89	2.29	2.68	3.07	3.51	4.02	4.67	5.68	6.62
Aug	1.08	1.38	1.81	2.18	2.53	2.89	3.28	3.74	4.33	5.24	6.07
Sep	.64	.91	1.36	1.76	2.17	2.60	3.09	3.68	4.46	5.70	6.88
Oct	.34	.51	.80	1.07	1.35	1.65	1.99	2.41	2.97	3.87	4.73
Nov	.30	.49	.72	.90	1.07	1.24	1.43	1.66	1.94	2.39	2.80
Dec	.18	.25	.35	.44	.53	.62	.73	.85	1.01	1.26	1.49
Ann	18.30	19.42	20.84	21.90	22.84	23.74	24.66	25.68	26.90	28.65	30.16

+ 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: 1933-2001
(3) Derived from 1971-2000 serially complete daily data

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Climate Division: MN 2 **NWS Call Sign: INL** **Elevation: 1,179 Feet** **Lat: 48°34N** **Lon: 93°24W**

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	14.4	12.3	14	12	14.1	1975	10	43.0	1975	38+	1982	27	27	1989	12.8	4.3	1.3	.6	@	31.0	30.5	28.7	21.5
Feb	10.7	9.7	15	15	12.1	1996	27	32.3	1992	34	1992	25	26	1975	9.9	3.3	.8	.3	@	28.0	27.4	26.5	20.9
Mar	9.0	7.7	11	11	9.7	1976	11	28.1	1976	33+	1976	14	24	1979	8.5	2.7	.8	.3	.0	24.4	22.1	20.7	16.4
Apr	5.4	3.6	2	3	9.8	1996	25	17.6	1996	25+	1975	4	12	1975	3.7	1.5	.6	.2	.0	8.4	5.9	4.5	3.1
May	.3	.0	#	0	1.5	1974	14	1.9	1989	1+	1991	4	#	2000	.5	.1	.0	.0	.0	.1	.0	.0	.0
Jun	#	.0	#	0	#	1990	3	#	1990	0	0	0	#	1991	.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	.1	.0	0	0	1.4	1981	30	1.4	1981	#+	1974	30	0	0	.2	.1	.0	.0	.0	.0	.0	.0	.0
Oct	2.2	1.8	#	0	4.8	1988	27	8.5	1981	5	1988	28	#	1997	2.3	.8	.2	.0	.0	1.1	.2	@	.0
Nov	13.3	10.8	3	2	11.6	1991	1	27.1	1985	22	1977	21	9	1977	10.0	3.8	1.3	.5	@	16.4	10.1	6.5	2.2
Dec	12.7	11.7	8	7	8.6	1992	30	31.1	1990	25+	1985	31	20	1985	12.3	3.9	1.2	.4	.0	28.9	23.7	18.4	10.4
Ann	68.1	57.6	N/A	N/A	14.1	Jan 1975	10	43.0	Jan 1975	38+	Jan 1982	27	27	Jan 1989	60.2	20.5	6.2	2.3	@	138.3	119.9	105.3	74.5

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

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	8/24	8/29	9/01	9/04	9/07	9/09	9/12	9/15	9/20
32	9/04	9/09	9/12	9/14	9/17	9/19	9/22	9/25	9/29
28	9/15	9/18	9/21	9/23	9/25	9/27	9/29	10/02	10/05
24	9/23	9/28	10/02	10/05	10/08	10/11	10/14	10/18	10/23
20	10/08	10/13	10/17	10/20	10/23	10/26	10/29	11/02	11/07
16	10/21	10/26	10/29	11/01	11/03	11/06	11/09	11/12	11/16

Freeze Free Period

Temp (F)	Probability of longer than indicated freeze free period (Days)								
	.10	.20	.30	.40	.50	.60	.70	.80	.90
36	116	108	101	96	91	86	80	74	65
32	133	127	122	118	114	110	106	101	95
28	154	148	144	140	137	134	130	126	120
24	183	176	172	168	164	160	156	151	145
20	210	204	199	195	191	188	184	179	173
16	225	220	216	212	209	206	202	198	193

***** 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	1946	1531	1298	775	378	140	55	102	360	723	1217	1744	10269
60	1777	1376	1128	622	258	75	18	48	222	570	1067	1597	8758
57	1684	1292	1035	535	197	42	7	24	153	479	977	1504	7929
55	1622	1236	973	479	160	27	2	14	113	419	917	1442	7404
50	1467	1096	818	346	87	8	0	2	43	280	767	1287	6201
32	920	616	334	50	1	0	0	0	0	22	296	753	2992

Cooling Degree Days (1)

Base Above	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Ann
32	0	6	49	260	663	893	1059	988	639	319	48	2	4926
55	0	0	0	8	93	222	348	283	74	9	0	0	1037
57	0	0	0	5	69	175	288	229	53	5	0	0	824
60	0	0	0	2	43	115	204	156	29	2	0	0	551
65	0	0	0	1	17	47	91	67	10	0	0	0	233
70	0	0	0	0	4	11	29	19	2	0	0	0	65

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	5	110	430	661	823	751	412	144	11	0	0	0	5	115	545	1206	2029	2780	3192	3336	3347	3347
45	0	0	0	54	292	511	668	596	276	72	4	0	0	0	0	54	346	857	1525	2121	2397	2469	2473	2473
50	0	0	0	23	182	366	513	442	159	31	0	0	0	0	0	23	205	571	1084	1526	1685	1716	1716	1716
55	0	0	0	6	97	228	359	292	77	8	0	0	0	0	0	6	103	331	690	982	1059	1067	1067	1067
60	0	0	0	1	47	121	210	161	33	1	0	0	0	0	0	1	48	169	379	540	573	574	574	574
Base	**Growing Degree Units for Corn (Monthly)**												**Growing Degree Units for Corn (Accumulated Monthly)**											
50/86	0	0	5	85	275	406	517	467	238	88	9	0	0	0	5	90	365	771	1288	1755	1993	2081	2090	2090

(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