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: NORTH LOUP ORD, NE **COOP ID: 256040**

Climate Division: NE 5 **NWS Call Sign:** **Elevation: 1,960 Feet** **Lat: 41˚30N** **Lon: 98˚46W**

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	34.0	11.0	22.5	75	1981	24	33.6	1986	-32	1963	27	6.9	1979	1318	0	.0	.0	4.5	13.4	30.7	6.9
Feb	40.1	16.8	28.5	77+	1995	25	37.5	1992	-28	1996	3	14.0	1978	1023	0	.0	.0	8.2	9.0	26.1	4.0
Mar	50.6	25.9	38.3	87+	1986	29	44.4	1986	-18	1978	4	31.2	1996	830	0	.0	.0	16.5	2.9	24.0	.6
Apr	63.0	36.3	49.7	95	1950	22	58.1	1981	2	1975	3	43.2	1983	462	3	.0	.4	25.8	.2	10.3	.0
May	72.3	48.2	60.3	100+	1967	25	65.9	1977	23+	1967	2	54.4	1995	191	42	.0	.3	30.8	.0	1.1	.0
Jun	82.1	57.9	70.0	105	1952	15	75.1	1988	31	1964	2	64.3	1982	30	180	.1	5.2	30.0	.0	.0	.0
Jul	85.9	62.8	74.4	112	1954	11	79.3	1974	38	1971	30	67.6	1992	5	294	.4	9.5	31.0	.0	.0	.0
Aug	84.0	60.9	72.5	104+	1955	26	79.5	1983	37	1950	20	67.2	1992	16	247	.1	6.8	31.0	.0	.0	.0
Sep	76.5	50.6	63.6	103	1955	8	69.4	1998	20	1984	29	59.7	1993	108	65	.0	2.2	29.6	.0	1.0	.0
Oct	65.2	38.0	51.6	94	1951	1	55.1	1974	7	1997	27	46.1	1976	417	1	.0	.2	28.0	.2	8.3	.0
Nov	46.9	24.2	35.6	79+	1999	8	44.8	1999	-13+	1986	11	24.8	1985	884	0	.0	.0	13.1	4.0	24.5	.6
Dec	36.2	14.4	25.3	75	1962	16	33.3	1979	-27	1989	22	6.5	1983	1230	0	.0	.0	5.3	10.4	30.3	4.4
Ann	61.4	37.3	49.4	112	Jul 1954	11	79.5	Aug 1983	-32	Jan 1963	27	6.5	Dec 1983	6514	832	.6	24.6	253.8	40.1	156.3	16.5

\+ 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: 1948-2001

(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	.48	.41
Feb	.62	.54
Mar	1.88	1.60
Apr	2.57	2.27
May	3.62	3.32
Jun	3.74	2.69
Jul	3.44	3.17
Aug	3.07	2.48
Sep	2.28	1.74
Oct	1.51	1.41
Nov	1.30	1.20
Dec	.59	.50
Ann	25.10	25.38

Extremes

Month	Highest Daily(2)	Year	Day	Highest Monthly(1)	Year	Lowest Monthly(1)	Year
Jan	.85	2001	30	1.15	1996	.00+	1986
Feb	1.00+	1984	18	1.78	1971	.00	1983
Mar	3.10	1987	17	7.43	1987	.00	1994
Apr	2.00	1977	14	6.43	1977	.22	1989
May	3.45	1957	14	6.72	1995	1.21	1992
Jun	3.50+	1993	24	9.06	1990	1.10	1991
Jul	5.38	1950	9	8.53	1993	.85	1999
Aug	8.35	1966	12	8.19	1992	.50	1991
Sep	4.14	1964	6	5.42	1986	.18	1984
Oct	1.81	1968	16	4.72	1984	.07	1996
Nov	1.60	1975	20	3.25	1975	.00	1976
Dec	1.15	1981	1	1.85	1981	.03	1998
Ann	8.35	Aug 1966	12	9.06	Jun 1990	.00+	Mar 1994

Mean Number of Days (3)

Daily Precipitation

Month	>= 0.01	>= 0.10	>= 0.50	>= 1.00
Jan	2.8	1.7	.1	.0
Feb	3.4	2.2	.2	.1
Mar	5.9	4.3	1.1	.4
Apr	7.3	5.7	1.7	.5
May	9.1	7.0	2.6	.9
Jun	8.2	6.7	2.3	.9
Jul	7.5	6.1	2.3	.9
Aug	6.0	5.0	1.9	1.0
Sep	5.5	4.7	1.6	.5
Oct	4.4	3.3	1.2	.3
Nov	4.2	3.0	.8	.2
Dec	3.1	1.7	.3	@
Ann	67.4	51.4	16.1	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	.08	.17	.25	.32	.40	.50	.60	.74	.97	1.19
Feb	.01	.05	.13	.22	.32	.43	.57	.75	1.00	1.43	1.85
Mar	.09	.25	.53	.80	1.10	1.43	1.82	2.31	2.98	4.09	5.17
Apr	.53	.77	1.15	1.49	1.84	2.21	2.62	3.12	3.79	4.85	5.85
May	1.45	1.79	2.26	2.65	3.01	3.39	3.79	4.25	4.84	5.75	6.57
Jun	.85	1.20	1.75	2.24	2.73	3.25	3.84	4.54	5.46	6.92	8.30
Jul	.78	1.10	1.61	2.06	2.51	2.99	3.53	4.17	5.02	6.36	7.62
Aug	.61	.89	1.34	1.75	2.17	2.62	3.13	3.74	4.55	5.85	7.08
Sep	.32	.51	.84	1.15	1.48	1.85	2.27	2.79	3.49	4.63	5.73
Oct	.15	.26	.46	.67	.90	1.16	1.46	1.85	2.37	3.24	4.09
Nov	.01	.07	.21	.39	.59	.84	1.15	1.55	2.13	3.13	4.15
Dec	.05	.10	.18	.26	.35	.45	.57	.72	.93	1.28	1.62
Ann	16.83	18.39	20.42	21.97	23.36	24.71	26.11	27.66	29.56	32.33	34.74

\+ 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)

Month	Snow Fall Mean	Snow Fall Median	Snow Depth Mean	Snow Depth Median
Jan	4.2	3.8	2	1
Feb	4.5	4.0	2	1
Mar	4.9	4.0	#	1
Apr	1.6	.3	#	0
May	.0	.0	#	0
Jun	.0	.0	0	0
Jul	.0	.0	0	0
Aug	.0	.0	0	0
Sep	.0	.0	0	0
Oct	.7	.0	#	0
Nov	4.8	3.0	#	0
Dec	6.7	5.5	2	1
Ann	27.4	20.6	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	1990	20	10.2	1996	15+	1984	2	12	1984
Feb	12.0	1984	18	18.0	1984	18	1984	19	8	1978
Mar	9.0	1983	26	13.5	1971	13+	1978	10	4	1978
Apr	6.0	1994	29	10.0	1994	7	1997	12	1	1997
May	.0	0	0	.0	0	0	0	0	#	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	1.0	1985	29	1.0	1985	#+	1995	20	0	0
Oct	7.0	1991	31	7.0+	1997	7+	1991	31	#	1997
Nov	15.0	2000	12	20.0	1983	17	1983	29	4	2000
Dec	10.0	1974	15	18.0	1972	18+	1983	29	16	1983
Ann	15.0	Nov 2000	12	20.0	Nov 1983	18+	Feb 1984	19	16	Dec 1983

Mean Number of Days (1)

Snow Fall >= Thresholds

Month	0.1	1.0	3.0	5.0	10.0
Jan	2.3	2.0	.5	.2	.0
Feb	1.8	1.7	.7	.2	.1
Mar	1.8	1.7	.8	.3	.0
Apr	.8	.7	.3	@	.0
May	.0	.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	.3	.2	.1	.1	.0
Nov	1.7	1.6	.8	.3	.1
Dec	2.5	2.2	1.0	.4	@
Ann	11.2	10.1	4.2	1.5	.2

Snow Depth >= Thresholds

Month	1	3	5	10
Jan	14.4	10.1	6.9	2.0
Feb	11.0	6.8	4.3	.9
Mar	4.6	2.3	1.2	.2
Apr	.7	.4	.1	.0
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	.2	.1	.0
Nov	4.2	2.2	1.2	.2
Dec	11.5	6.9	4.4	1.6
Ann	46.7	28.9	18.2	4.9

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

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	9/13	9/17	9/20	9/22	9/24	9/27	9/29	10/02	10/06
32	9/15	9/20	9/24	9/27	9/30	10/03	10/06	10/09	10/14
28	9/23	9/29	10/03	10/07	10/10	10/13	10/17	10/21	10/27
24	10/05	10/10	10/14	10/16	10/19	10/22	10/25	10/28	11/02
20	10/14	10/19	10/23	10/26	10/29	11/01	11/04	11/08	11/13
16	10/21	10/28	11/01	11/05	11/09	11/12	11/16	11/21	11/27

Freeze Free Period

Temp (F)	Probability of longer than indicated freeze free period (Days)								
	.10	.20	.30	.40	.50	.60	.70	.80	.90
36	155	148	143	139	135	131	127	122	115
32	168	162	158	154	151	148	144	140	134
28	188	181	177	173	169	165	161	157	150
24	207	201	198	194	191	188	185	181	176
20	226	220	216	213	210	206	203	199	193
16	260	250	243	237	231	225	219	212	202

***** 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	1318	1023	830	462	191	30	5	16	108	417	884	1230	6514
60	1163	883	675	323	98	7	0	2	39	269	734	1075	5268
57	1070	807	582	247	59	2	0	0	17	192	644	982	4602
55	1010	755	522	202	40	1	0	0	8	147	586	920	4191
50	861	624	379	109	11	0	0	0	0	65	448	775	3272
32	387	251	55	0	0	0	0	0	0	0	100	311	1104

Base — Cooling Degree Days (1)

Above	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Ann
32	91	152	248	531	875	1140	1312	1254	947	607	206	104	7467
55	1	12	2	43	202	451	599	541	265	40	3	0	2159
57	0	8	0	28	159	392	537	479	214	24	0	0	1841
60	0	0	0	13	105	307	444	389	147	8	0	0	1413
65	0	0	0	3	42	180	294	247	65	1	0	0	832
70	0	0	0	0	12	86	160	132	21	0	0	0	411

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	4	32	111	326	639	912	1072	1013	718	386	73	4	4	36	147	473	1112	2024	3096	4109	4827	5213	5286	5290
45	0	7	52	204	487	762	917	858	571	257	29	0	0	7	59	263	750	1512	2429	3287	3858	4115	4144	4144
50	0	0	18	117	335	612	762	703	424	145	7	0	0	0	18	135	470	1082	1844	2547	2971	3116	3123	3123
55	0	0	5	57	206	462	607	548	288	64	0	0	0	0	5	62	268	730	1337	1885	2173	2237	2237	2237
60	0	0	0	24	106	318	452	394	175	23	0	0	0	0	0	24	130	448	900	1294	1469	1492	1492	1492
Base	**Growing Degree Units for Corn (Monthly)**												**Growing Degree Units for Corn (Accumulated Monthly)**											
50/86	16	37	100	224	395	596	723	676	462	258	66	15	16	53	153	377	772	1368	2091	2767	3229	3487	3553	3568

(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