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: DALTON, NE **COOP ID: 252145**

Climate Division: NE 1 **NWS Call Sign:** **Elevation: 4,273 Feet** **Lat: 41˚25N** **Lon: 102˚58W**

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	37.5	17.3	27.4	73+	1997	3	33.5	1999	-31	1963	19	12.7	1979	1167	0	.0	.0	6.5	9.2	29.7	4.9
Feb	42.8	21.7	32.3	78	1962	11	40.5	1992	-26	1982	5	20.0	1989	917	0	.0	.0	10.8	5.8	26.0	2.8
Mar	49.7	27.2	38.5	82+	1972	11	46.0	1986	-16+	1989	5	33.0	1987	823	0	.0	.0	16.9	3.4	26.4	.6
Apr	59.0	34.8	46.9	89+	1989	24	53.6	1981	-7	1975	2	41.1	1984	543	0	.0	.0	23.4	.7	15.9	@
May	68.6	44.2	56.4	94	2000	30	61.8	1994	21+	1989	1	50.8	1995	281	14	.0	.3	29.8	.0	2.8	.0
Jun	79.3	53.2	66.3	101+	1990	28	71.5	1988	30+	1969	14	61.0	1982	71	109	.2	5.0	29.9	.0	.0	.0
Jul	86.1	58.5	72.3	104	1964	23	75.9	1980	41	1971	30	67.5	1992	3	230	1.0	14.0	31.0	.0	.0	.0
Aug	84.0	56.8	70.4	102+	1980	7	75.7	1983	35+	1964	30	66.0	1974	22	189	.2	10.7	31.0	.0	.0	.0
Sep	74.5	47.3	60.9	98+	1985	1	66.9	1998	15	1985	30	56.2	1973	170	47	.0	3.1	29.2	@	1.9	.0
Oct	62.6	35.9	49.3	91	1967	1	52.2	1974	-2	1991	31	45.5	1984	489	0	.0	.0	26.8	.4	11.9	@
Nov	46.8	25.1	36.0	78+	1990	15	45.1	1999	-8	1976	28	25.0	1985	872	0	.0	.0	14.2	4.5	25.2	.8
Dec	39.5	18.5	29.0	78	1980	28	37.0	1993	-32	1989	22	13.1	1983	1117	0	.0	.0	8.3	7.8	28.9	3.5
Ann	60.9	36.7	48.8	104	Jul 1964	23	75.9	Jul 1980	-32	Dec 1989	22	12.7	Jan 1979	6475	589	1.4	33.1	257.8	31.8	168.7	12.6

\+ 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	.48	.41	1.01	1973	27	1.76	1973	.00	1986
Feb	.57	.40	1.25	1987	26	2.12	1987	.00+	1996
Mar	1.39	1.24	2.10	1983	5	4.28	1983	.20	1997
Apr	2.06	2.02	2.16	1955	12	4.99	1986	.55	1982
May	3.39	3.00	3.67	1955	26	7.58	1988	.66	1972
Jun	2.95	2.43	5.46	1986	10	8.44	1986	.57	2000
Jul	2.38	2.01	3.50	1982	29	6.56	1982	.46	1988
Aug	1.94	1.79	2.17	1979	18	3.65	1979	.36	1986
Sep	1.51	1.13	2.19	1951	1	5.65	1996	.04	1978
Oct	1.14	.75	1.64	1965	19	3.77	1994	.00	1988
Nov	.82	.68	1.01	1977	8	2.12	1972	.05	1988
Dec	.49	.41	.80	1973	18	1.57	1973	.00	1991
Ann	19.12	19.26	5.46	Jun 1986	10	8.44	Jun 1986	.00+	Feb 1996

Mean Number of Days (3)

Daily Precipitation

Month	>= 0.01	>= 0.10	>= 0.50	>= 1.00
Jan	4.2	1.6	.2	@
Feb	4.3	1.7	.2	@
Mar	6.4	3.3	.7	.2
Apr	8.4	4.6	1.4	.3
May	10.2	6.6	2.3	.7
Jun	8.6	5.8	1.8	.6
Jul	8.2	5.0	1.2	.5
Aug	7.1	4.5	1.2	.3
Sep	5.2	3.2	.9	.3
Oct	4.8	3.0	.8	.1
Nov	4.2	2.2	.4	@
Dec	4.0	2.0	.1	.0
Ann	75.6	43.5	11.2	3.0

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	.05	.11	.19	.25	.33	.40	.49	.59	.73	.95	1.17
Feb	.00	.05	.15	.24	.34	.44	.56	.71	.91	1.24	1.57
Mar	.24	.36	.56	.75	.95	1.16	1.40	1.70	2.09	2.72	3.33
Apr	.56	.75	1.05	1.31	1.56	1.83	2.13	2.48	2.94	3.65	4.32
May	.99	1.32	1.80	2.22	2.63	3.05	3.52	4.07	4.78	5.90	6.94
Jun	.67	.94	1.38	1.76	2.15	2.56	3.03	3.58	4.31	5.46	6.55
Jul	.50	.72	1.07	1.39	1.71	2.05	2.43	2.89	3.50	4.47	5.38
Aug	.59	.78	1.05	1.29	1.52	1.75	2.01	2.32	2.72	3.34	3.91
Sep	.10	.20	.39	.59	.83	1.09	1.42	1.83	2.41	3.38	4.34
Oct	.06	.16	.33	.50	.67	.88	1.11	1.40	1.80	2.47	3.11
Nov	.11	.17	.29	.40	.52	.66	.81	1.00	1.25	1.67	2.08
Dec	.05	.10	.19	.26	.33	.41	.50	.61	.76	.99	1.21
Ann	13.19	14.32	15.78	16.89	17.89	18.85	19.84	20.95	22.29	24.24	25.93

\+ 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	8.4	7.4	1	#
Feb	7.9	5.3	1	#
Mar	11.7	9.5	1	#
Apr	7.2	5.0	#	0
May	.6	.0	#	0
Jun	.0	.0	0	0
Jul	.0	.0	0	0
Aug	.0	.0	0	0
Sep	.2	.0	#	0
Oct	2.4	1.0	#	#
Nov	6.4	5.5	1	#
Dec	7.2	5.0	2	1
Ann	52.0	38.7	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	15.0	1988	19	23.5	1976	18	1976	3	11	1976
Feb	10.0	1993	11	25.0	1987	24	1987	28	11	1993
Mar	14.0	1975	27	35.0	1983	22	1980	29	12	1980
Apr	12.0	1984	3	25.0	1995	19	1980	3	3	1980
May	8.0	1983	18	8.5	1983	6	1983	18	#+	1995
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	2.0	1993	13	2.0	1993	6	1985	29	#+	2000
Oct	8.0	1973	11	8.0+	1986	18	1997	25	1+	1997
Nov	14.5	1983	27	18.3	1972	24	1983	28	5	1972
Dec	12.0	1982	26	25.0	1982	25	1982	28	15	1985
Ann	15.0	Jan 1988	19	35.0	Mar 1983	25	Dec 1982	28	15	Dec 1985

Mean Number of Days (1)

Snow Fall >= Thresholds

Month	0.1	1.0	3.0	5.0	10.0
Jan	3.0	2.3	1.0	.5	.1
Feb	3.5	2.7	1.1	.4	@
Mar	3.5	2.8	1.4	.6	.2
Apr	1.7	1.3	1.0	.5	.1
May	.2	.1	.1	@	.0
Jun	.0	.0	.0	.0	.0
Jul	.0	.0	.0	.0	.0
Aug	.0	.0	.0	.0	.0
Sep	.2	.1	.0	.0	.0
Oct	.8	.7	.3	.2	.0
Nov	2.2	2.0	1.0	.5	.1
Dec	2.8	2.5	.9	.3	.1
Ann	17.9	14.5	6.8	3.0	.6

Snow Depth >= Thresholds

Month	1	3	5	10
Jan	11.4	8.2	5.1	1.9
Feb	4.3	2.5	1.0	.1
Mar	2.9	1.4	.8	.4
Apr	.9	.7	.5	.4
May	@	@	@	.0
Jun	.0	.0	.0	.0
Jul	.0	.0	.0	.0
Aug	.0	.0	.0	.0
Sep	.0	.0	.0	.0
Oct	.6	.5	.2	.0
Nov	4.8	2.9	2.0	.1
Dec	5.1	2.9	1.6	.2
Ann	30.0	19.1	11.2	3.1

+ 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	6/09	6/03	5/30	5/26	5/23	5/20	5/16	5/12	5/06
32	5/20	5/16	5/13	5/11	5/09	5/06	5/04	5/01	4/27
28	5/11	5/07	5/04	5/01	4/29	4/26	4/24	4/21	4/17
24	4/29	4/24	4/21	4/18	4/15	4/12	4/09	4/06	4/01
20	4/20	4/15	4/11	4/08	4/04	4/01	3/29	3/25	3/19
16	4/15	4/07	4/01	3/27	3/23	3/18	3/14	3/08	2/28

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	9/08	9/12	9/15	9/18	9/20	9/23	9/26	9/29	10/03
32	9/12	9/18	9/22	9/25	9/29	10/02	10/06	10/10	10/16
28	9/26	10/01	10/04	10/07	10/10	10/13	10/16	10/19	10/24
24	9/30	10/06	10/10	10/13	10/16	10/19	10/23	10/26	11/01
20	10/07	10/14	10/18	10/22	10/26	10/30	11/03	11/07	11/14
16	10/18	10/24	10/28	11/01	11/04	11/07	11/11	11/15	11/21

Freeze Free Period

Temp (F)	Probability of longer than indicated freeze free period (Days)								
	.10	.20	.30	.40	.50	.60	.70	.80	.90
36	142	134	129	124	120	115	110	105	97
32	167	159	153	147	143	138	132	126	118
28	185	177	172	168	164	159	155	150	143
24	207	199	193	188	183	179	173	168	159
20	233	223	216	210	204	198	192	185	175
16	259	247	239	232	225	219	212	203	192

***** 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	1167	917	823	543	281	71	3	22	170	489	872	1117	6475
60	1012	777	668	397	161	24	0	4	82	336	722	962	5145
57	919	693	575	313	105	10	0	1	46	247	632	869	4410
55	857	637	514	261	75	5	0	0	28	193	573	807	3950
50	706	508	369	150	26	0	0	0	6	84	436	664	2949
32	248	142	39	2	0	0	0	0	0	0	89	230	750

Base	Cooling Degree Days (1)												
Above	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Ann
32	104	150	238	449	756	1028	1249	1190	867	534	207	136	6908
55	0	0	0	18	118	343	536	477	205	14	1	0	1712
57	0	0	0	10	86	288	474	416	162	6	0	0	1442
60	0	0	0	4	49	212	381	326	108	2	0	0	1082
65	0	0	0	0	14	109	230	189	47	0	0	0	589
70	0	0	0	0	2	42	102	84	15	0	0	0	245

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	13	38	101	234	500	780	1003	949	641	326	80	27	13	51	152	386	886	1666	2669	3618	4259	4585	4665	4692
45	0	9	47	140	356	631	848	794	496	203	32	7	0	9	56	196	552	1183	2031	2825	3321	3524	3556	3563
50	0	0	15	69	220	482	693	639	356	104	9	0	0	0	15	84	304	786	1479	2118	2474	2578	2587	2587
55	0	0	0	28	120	339	539	485	233	41	0	0	0	0	0	28	148	487	1026	1511	1744	1785	1785	1785
60	0	0	0	6	47	208	385	335	129	12	0	0	0	0	0	6	53	261	646	981	1110	1122	1122	1122
Base	Growing Degree Units for Corn (Monthly)												Growing Degree Units for Corn (Accumulated Monthly)											
50/86	21	47	101	186	325	490	639	606	409	243	81	35	21	68	169	355	680	1170	1809	2415	2824	3067	3148	3183

(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