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: BURLINGTON RADIO KBUR, IA **COOP ID: 131060**

Climate Division: IA 9 **NWS Call Sign:** **Elevation: 703 Feet** **Lat: 40˚49N** **Lon: 91˚10W**

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	30.4	15.1	22.8	70	1989	31	34.9	1989	-23	1977	17	9.8	1977	1309	0	.0	.0	2.0	16.6	29.2	5.9
Feb	36.3	20.5	28.4	72+	1972	29	38.3	1998	-26	1996	3	15.9	1979	1026	0	.0	.0	4.7	10.4	23.9	3.2
Mar	48.8	31.4	40.1	88	1986	29	46.9	1973	-6	1978	4	32.0	1984	772	0	.0	.0	14.1	2.9	17.8	.1
Apr	61.7	42.8	52.3	92+	1986	25	58.6	1977	11	1982	6	46.0	1983	391	8	.0	.1	25.3	.1	4.8	.0
May	72.4	53.6	63.0	94	1987	20	69.6	1987	29	1976	3	58.6	1997	151	87	.0	.4	30.8	.0	.1	.0
Jun	81.6	62.7	72.2	104	1988	25	77.2	1971	40	1977	9	67.2	1982	14	229	.1	3.8	30.0	.0	.0	.0
Jul	85.4	67.1	76.3	103+	1983	22	80.3	1987	46	1971	30	72.1	1971	1	350	.4	8.7	31.0	.0	.0	.0
Aug	83.3	65.2	74.3	105	1983	17	81.5	1983	42	1986	28	68.5	1992	12	298	.5	5.5	31.0	.0	.0	.0
Sep	76.2	56.8	66.5	101	2000	1	72.5	1998	30	1984	29	60.9	1974	66	111	@	1.9	30.0	.0	.1	.0
Oct	64.6	45.6	55.1	91	1997	3	61.2	1971	18	1972	19	48.4	1976	319	12	.0	@	28.5	.0	2.8	.0
Nov	48.5	32.6	40.6	79	2000	1	48.6	1999	-2+	1976	29	33.2	1976	734	0	.0	.0	13.7	2.3	16.3	.1
Dec	35.0	20.6	27.8	71+	1970	3	35.6	1982	-20+	1983	24	14.3	1983	1153	0	.0	.0	3.4	11.6	27.3	3.1
Ann	60.4	42.8	51.6	105	Aug 1983	17	81.5	Aug 1983	-26	Feb 1996	3	9.8	Jan 1977	5948	1095	1.0	20.4	244.5	43.9	122.3	12.4

\+ 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: 1965-2001

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

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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	1.31	1.08	2.15	1965	1	3.50	1999	.00	1986
Feb	1.54	1.32	1.58	1997	21	4.64	1997	.40	1987
Mar	2.96	2.63	2.40	1991	12	6.45	1990	.50	1981
Apr	3.61	3.71	2.50	1982	16	7.22	1998	.67	1971
May	4.40	3.93	2.80	2001	14	10.33	1996	1.08	1992
Jun	4.45	3.53	3.47	1986	4	10.40	1990	.64	1991
Jul	4.48	4.16	4.70	1982	18	11.09	1982	.91	1983
Aug	3.86	3.31	3.62	1980	31	11.40	1980	.58	1971
Sep	3.60	2.96	3.66	1998	14	8.53	1986	.01	1979
Oct	2.91	2.30	4.39	1998	17	8.62	1998	.86	1993
Nov	2.72	2.72	2.52	1977	1	6.19	1992	.29	1999
Dec	2.10	1.90	3.84	1982	2	6.24	1982	.08	1976
Ann	37.94	36.83	4.70	Jul 1982	18	11.40	Aug 1980	.00	Jan 1986

Mean Number of Days (3)

Month	Daily Precipitation >= 0.01	>= 0.10	>= 0.50	>= 1.00
Jan	8.5	3.5	.7	.1
Feb	7.6	3.8	.8	.2
Mar	10.3	6.5	1.7	.7
Apr	10.9	6.6	2.4	.9
May	11.7	8.2	3.3	1.0
Jun	10.4	7.0	3.1	1.5
Jul	9.9	6.8	3.2	1.4
Aug	8.9	5.8	2.9	1.1
Sep	8.0	6.0	2.6	1.0
Oct	8.7	5.4	1.8	.7
Nov	9.6	5.4	1.8	.5
Dec	8.6	4.3	1.2	.4
Ann	113.1	69.3	25.5	9.5

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	.30	.51	.70	.90	1.10	1.33	1.61	1.99	2.59	3.16
Feb	.43	.57	.79	.99	1.18	1.38	1.60	1.86	2.19	2.72	3.22
Mar	.63	.90	1.33	1.73	2.13	2.55	3.03	3.60	4.36	5.56	6.71
Apr	1.14	1.49	1.99	2.43	2.85	3.28	3.76	4.31	5.03	6.15	7.19
May	1.42	1.84	2.46	2.98	3.49	4.01	4.59	5.26	6.12	7.47	8.71
Jun	.86	1.26	1.91	2.52	3.13	3.78	4.53	5.42	6.61	8.53	10.34
Jul	1.15	1.57	2.22	2.79	3.36	3.96	4.62	5.41	6.44	8.06	9.58
Aug	.91	1.27	1.83	2.34	2.84	3.37	3.97	4.67	5.60	7.08	8.47
Sep	.56	.87	1.39	1.89	2.40	2.97	3.61	4.40	5.46	7.18	8.82
Oct	.76	1.04	1.46	1.83	2.20	2.58	3.01	3.52	4.18	5.22	6.20
Nov	.60	.85	1.25	1.61	1.97	2.36	2.79	3.31	3.99	5.08	6.11
Dec	.36	.54	.84	1.13	1.43	1.75	2.11	2.56	3.15	4.12	5.03
Ann	25.38	27.76	30.83	33.19	35.29	37.34	39.47	41.83	44.71	48.91	52.58

\+ 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: 1965-2001
(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	7.1	7.2	3	1	13.0	1979	13	22.7	1979	25	1979	18	17	1979	4.6	2.7	.7	.3	.1	15.9	9.3	5.3	1.4
Feb	5.0	3.5	2	2	8.0	1978	13	18.0	1975	21+	1979	9	14	1979	3.2	1.8	.7	.3	.0	10.5	6.8	3.5	.8
Mar	3.1	1.5	#	1	6.0	1972	29	11.9	1972	8	1999	9	2	1978	1.6	1.1	.4	.1	.0	2.8	1.1	.4	.0
Apr	1.2	.0	#	0	6.0	1975	2	11.0	1997	11	1997	12	1+	1997	.5	.3	.2	.1	.0	.4	.3	.1	.1
May	.0	.0	#	0	.0	0	0	.0	0	0	0	0	#	2000	.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	0	0	.0	0	0	.0	0	0	0	0	0	0	.0	.0	.0	.0	.0	.0	.0	.0	.0
Oct	.1	.0	#	0	1.3	1997	26	1.3	1997	1	1997	26	#	1997	.1	.0	.0	.0	.0	@	.0	.0	.0
Nov	2.1	1.3	#	0	6.0	1974	30	16.0	1974	10	1974	30	1	1974	1.5	.8	.2	.1	.0	1.3	.2	.1	@
Dec	5.5	5.0	1	1	9.0	1978	31	17.8	1977	16+	2000	30	8	2000	3.3	1.9	.9	.3	.0	7.6	4.9	3.3	.6
Ann	24.1	18.5	N/A	N/A	13.0	Jan 1979	13	22.7	Jan 1979	25	Jan 1979	18	17	Jan 1979	14.8	8.6	3.1	1.2	.1	38.5	22.6	12.7	2.9

+ 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	5/08	5/03	4/30	4/27	4/24	4/21	4/18	4/15	4/10
32	4/29	4/24	4/20	4/17	4/15	4/12	4/09	4/05	3/31
28	4/17	4/14	4/11	4/09	4/07	4/05	4/03	4/01	3/28
24	4/12	4/07	4/03	3/31	3/29	3/26	3/23	3/19	3/15
20	4/04	3/29	3/25	3/21	3/18	3/15	3/11	3/07	3/01
16	3/28	3/20	3/15	3/10	3/06	3/02	2/25	2/20	2/13

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	9/24	9/29	10/02	10/05	10/08	10/11	10/14	10/18	10/23
32	10/04	10/09	10/13	10/16	10/19	10/23	10/26	10/30	11/04
28	10/13	10/18	10/22	10/26	10/29	11/01	11/04	11/08	11/14
24	10/26	10/31	11/04	11/07	11/10	11/13	11/16	11/20	11/25
20	11/02	11/08	11/13	11/17	11/20	11/24	11/28	12/02	12/08
16	11/09	11/15	11/20	11/24	11/28	12/01	12/05	12/10	12/16

Freeze Free Period

Temp (F)	Probability of longer than indicated freeze free period (Days)								
	.10	.20	.30	.40	.50	.60	.70	.80	.90
36	184	178	174	170	166	163	159	155	149
32	208	201	196	191	187	183	179	174	167
28	221	215	211	207	204	200	197	193	187
24	247	240	235	230	226	222	217	212	204
20	275	265	258	252	247	241	235	228	218
16	295	285	278	271	266	260	254	246	236

***** 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	1309	1026	772	391	151	14	1	12	66	319	734	1153	5948
60	1154	886	618	261	77	2	0	1	21	195	585	998	4798
57	1061	802	532	194	46	1	0	0	8	135	499	905	4183
55	999	751	474	156	31	0	0	0	4	102	444	845	3806
50	849	621	338	79	10	0	0	0	0	44	314	701	2956
32	370	235	52	0	0	0	0	0	0	0	44	265	966

Cooling Degree Days (1)

Base Above	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Ann
32	84	133	304	607	960	1205	1372	1310	1035	716	300	135	8161
55	0	5	12	73	278	515	659	597	348	105	11	3	2606
57	0	0	8	52	231	456	597	535	292	76	5	0	2252
60	0	0	1	28	168	368	504	443	215	43	1	0	1771
65	0	0	0	8	87	229	350	298	111	12	0	0	1095
70	0	0	0	1	35	116	208	173	44	2	0	0	579

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	7	35	139	373	711	962	1125	1053	784	458	130	23	7	42	181	554	1265	2227	3352	4405	5189	5647	5777	5800
45	0	15	78	255	557	812	970	898	635	316	70	7	0	15	93	348	905	1717	2687	3585	4220	4536	4606	4613
50	0	2	41	147	406	662	815	743	487	193	32	3	0	2	43	190	596	1258	2073	2816	3303	3496	3528	3531
55	0	0	20	78	264	513	660	588	345	106	12	0	0	0	20	98	362	875	1535	2123	2468	2574	2586	2586
60	0	0	5	36	149	366	505	434	221	51	3	0	0	0	5	41	190	556	1061	1495	1716	1767	1770	1770
Base	**Growing Degree Units for Corn (Monthly)**												**Growing Degree Units for Corn (Accumulated Monthly)**											
50/86	4	19	83	215	430	649	778	721	499	261	71	10	4	23	106	321	751	1400	2178	2899	3398	3659	3730	3740

(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