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: CLINTON NO 1, IA **COOP ID: 131635**

Climate Division: IA 6 **NWS Call Sign:** **Elevation: 585 Feet** **Lat: 41˚48N** **Lon: 90˚16W**

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	28.3	12.5	20.4	67	1989	31	32.3	1989	-26	1970	21	7.3	1979	1382	0	.0	.0	1.2	18.0	29.4	7.4
Feb	34.6	18.2	26.4	70	2000	25	37.3	1998	-29	1996	3	14.1	1979	1082	0	.0	.0	3.5	11.5	25.0	3.8
Mar	47.3	28.9	38.1	87	1986	29	45.8	1973	-14+	1960	5	29.7	1975	833	0	.0	.0	12.7	3.0	20.0	.2
Apr	61.6	39.5	50.6	94	1952	29	57.1	1977	7	1982	7	44.8	1983	438	5	.0	.1	25.4	.1	7.0	.0
May	73.3	50.8	62.1	93+	1953	30	69.4	1977	27	1989	7	56.6	1997	168	77	.0	.9	30.9	.0	.4	.0
Jun	81.7	60.2	71.0	100	1988	20	76.2	1971	38	1972	11	66.3	1982	16	195	@	4.3	30.0	.0	.0	.0
Jul	85.0	64.4	74.7	101+	1948	6	78.5	1987	45	1971	30	70.4	1992	1	302	.1	7.5	31.0	.0	.0	.0
Aug	82.8	62.3	72.6	101+	1988	1	79.5	1995	39	1986	28	67.2	1992	15	248	.2	5.1	31.0	.0	.0	.0
Sep	75.7	53.6	64.7	100	1953	1	70.4	1978	27	1984	29	58.9	1975	92	81	.0	1.6	30.0	.0	.5	.0
Oct	63.5	42.4	53.0	92	1953	2	60.4	1971	15	1988	30	46.8	1988	381	7	.0	@	28.5	.0	5.4	.0
Nov	46.9	30.5	38.7	79	2000	1	45.2	1999	-8+	1976	29	30.3	1976	790	0	.0	.0	12.9	2.6	18.1	.1
Dec	32.9	18.6	25.8	70	1998	4	33.8	1982	-27	1963	21	13.5	2000	1218	0	.0	.0	2.2	12.3	28.0	3.3
Ann	59.5	40.2	49.8	101+	Aug 1988	1	79.5	Aug 1995	-29	Feb 1996	3	7.3	Jan 1979	6416	915	.3	19.5	239.3	47.5	133.8	14.8

+ 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

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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	1.48	1.32	2.18	1960	12	3.29	1974	.10	1981
Feb	1.45	1.17	1.78	2001	9	3.29	2000	.17	1987
Mar	2.50	2.09	2.77	1976	4	6.56	1976	.45	1978
Apr	3.30	2.98	3.00	1973	21	7.46	1973	1.21	1985
May	3.99	3.30	3.00	1974	17	12.35	1996	.74	1992
Jun	4.68	4.11	4.80	1973	17	14.63	1990	.89	1988
Jul	3.48	3.38	4.53	1963	19	8.75	1992	.15	1991
Aug	4.55	3.43	4.00	1967	7	13.78	1987	1.04+	1984
Sep	3.16	3.18	6.50	1961	13	6.35	1992	.13	1979
Oct	2.68	2.43	3.55+	1954	10	6.48	1985	.46	1993
Nov	2.38	2.19	3.39	1952	17	5.42	1985	.32	1989
Dec	2.03	1.92	2.05	1971	15	4.36	1971	.34	1976
Ann	35.68	35.40	6.50	Sep 1961	13	14.63	Jun 1990	.10	Jan 1981

Mean Number of Days (3)

Daily Precipitation

Month	>= 0.01	>= 0.10	>= 0.50	>= 1.00
Jan	9.2	4.1	.6	.2
Feb	7.0	4.0	.7	.2
Mar	9.8	5.7	1.6	.3
Apr	11.1	6.7	2.2	.7
May	11.3	7.1	2.6	.9
Jun	10.3	6.6	3.1	1.4
Jul	9.5	6.3	2.3	.9
Aug	10.0	6.9	3.0	1.4
Sep	8.6	5.4	2.3	.8
Oct	8.6	5.2	1.9	.5
Nov	9.4	5.5	1.6	.3
Dec	8.9	4.7	1.1	.3
Ann	113.7	68.2	23.0	7.9

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	.37	.51	.73	.92	1.11	1.30	1.53	1.79	2.13	2.67	3.18
Feb	.25	.38	.59	.79	.99	1.21	1.47	1.77	2.18	2.84	3.47
Mar	.49	.72	1.09	1.42	1.77	2.13	2.55	3.05	3.71	4.77	5.78
Apr	1.18	1.49	1.94	2.32	2.68	3.05	3.45	3.92	4.51	5.43	6.28
May	.93	1.30	1.88	2.40	2.92	3.48	4.09	4.83	5.80	7.33	8.78
Jun	1.08	1.51	2.20	2.81	3.43	4.08	4.81	5.68	6.82	8.63	10.34
Jul	.80	1.12	1.63	2.09	2.54	3.03	3.57	4.22	5.08	6.44	7.72
Aug	.84	1.24	1.91	2.52	3.15	3.83	4.61	5.54	6.78	8.78	10.69
Sep	.61	.89	1.36	1.78	2.21	2.68	3.21	3.84	4.69	6.04	7.33
Oct	.41	.64	1.03	1.40	1.78	2.20	2.68	3.27	4.06	5.35	6.58
Nov	.51	.73	1.07	1.39	1.71	2.05	2.43	2.89	3.49	4.45	5.36
Dec	.51	.70	1.00	1.26	1.52	1.79	2.10	2.46	2.93	3.67	4.37
Ann	24.88	26.95	29.62	31.65	33.45	35.20	37.01	39.01	41.45	44.99	48.05

\+ 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	9.8	9.0	4	3
Feb	6.1	5.7	3	2
Mar	3.5	2.1	1	#
Apr	1.1	.0	#	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	.2	.0	#	0
Nov	2.2	.8	#	#
Dec	7.8	6.2	2	1
Ann	30.7	23.8	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	18.0	1979	13	32.9	1979	39	1979	19	29	1979
Feb	7.7	2000	18	23.3	1994	32	1979	19	28	1979
Mar	9.9	1991	13	15.7	1972	17	1979	1	7	1979
Apr	7.0	1982	5	9.5	1982	7	1982	5	1	1982
May	#	1997	1	#	1997	0	0	0	0	0
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	.0	0	0	.0	0	0	0	0	0	0
Oct	1.5	1997	26	2.5	1997	2	1997	26	#	1997
Nov	9.3	1997	15	10.3	1997	8	1997	15	1	1997
Dec	12.3	1987	15	25.6	2000	15	1978	31	8	2000
Ann	18.0	Jan 1979	13	32.9	Jan 1979	39	Jan 1979	19	29	Jan 1979

Mean Number of Days (1)

Snow Fall >= Thresholds

Month	0.1	1.0	3.0	5.0	10.0
Jan	-9.9	-9.9	-9.9	-9.9	-9.9
Feb	-9.9	-9.9	-9.9	-9.9	-9.9
Mar	1.1	.8	.2	.1	.0
Apr	.0	.0	.0	.0	.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	.1	.1	.0	.0	.0
Nov	.4	.2	.2	.1	.0
Dec	-9.9	-9.9	-9.9	-9.9	-9.9
Ann	-9.9	-9.9	-9.9	-9.9	-9.9

Snow Depth >= Thresholds

Month	1	3	5	10
Jan	-9.9	-9.9	-9.9	-9.9
Feb	-9.9	-9.9	-9.9	-9.9
Mar	-9.9	-9.9	-9.9	-9.9
Apr	.0	.0	.0	.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	.1	.0	.0	.0
Nov	.7	.3	.0	.0
Dec	-9.9	-9.9	-9.9	-9.9
Ann	-9.9	-9.9	-9.9	-9.9

+ 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	5/21	5/16	5/12	5/09	5/07	5/04	5/01	4/27	4/22
32	5/08	5/03	4/29	4/26	4/23	4/20	4/17	4/14	4/09
28	4/23	4/19	4/16	4/14	4/11	4/09	4/06	4/03	3/30
24	4/14	4/10	4/07	4/05	4/03	4/01	3/29	3/27	3/23
20	4/09	4/03	3/30	3/27	3/24	3/21	3/17	3/13	3/08
16	4/01	3/26	3/21	3/17	3/13	3/10	3/06	3/01	2/23

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	9/18	9/22	9/25	9/28	9/30	10/02	10/05	10/08	10/11
32	9/23	9/28	10/01	10/04	10/06	10/09	10/11	10/15	10/19
28	10/02	10/08	10/12	10/16	10/19	10/23	10/26	10/31	11/06
24	10/15	10/20	10/24	10/28	10/31	11/03	11/07	11/11	11/16
20	10/28	11/02	11/06	11/09	11/12	11/15	11/18	11/22	11/27
16	11/05	11/10	11/14	11/18	11/21	11/24	11/27	12/01	12/06

Freeze Free Period

Temp (F)	Probability of longer than indicated freeze free period (Days)								
	.10	.20	.30	.40	.50	.60	.70	.80	.90
36	165	158	153	149	146	142	138	133	127
32	184	178	173	169	165	161	157	153	146
28	214	206	200	195	190	186	181	175	167
24	230	224	219	214	210	207	202	197	190
20	254	246	241	237	232	228	224	218	211
16	276	268	262	256	252	247	241	235	227

***** 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	1382	1082	833	438	168	16	1	15	92	381	790	1218	6416
60	1227	942	678	302	89	3	0	2	33	248	640	1063	5227
57	1134	858	587	230	55	1	0	0	15	180	552	970	4582
55	1072	802	531	187	38	0	0	0	8	141	495	908	4182
50	918	671	390	100	13	0	0	0	1	68	360	761	3282
32	425	263	69	1	0	0	0	0	0	0	56	301	1115

Base	Cooling Degree Days (1)												
Above	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Ann
32	65	105	259	557	932	1169	1324	1257	980	649	256	106	7659
55	0	0	8	54	258	480	611	544	297	77	5	0	2334
57	0	0	2	37	213	420	549	482	244	54	2	0	2003
60	0	0	0	19	153	332	456	391	173	28	0	0	1552
65	0	0	0	5	77	195	302	248	81	7	0	0	915
70	0	0	0	1	30	88	163	133	28	1	0	0	444

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	5	20	117	354	698	943	1091	1024	758	430	112	12	5	25	142	496	1194	2137	3228	4252	5010	5440	5552	5564
45	0	4	62	228	543	793	936	869	609	290	60	4	0	4	66	294	837	1630	2566	3435	4044	4334	4394	4398
50	0	1	33	137	391	643	781	714	461	180	27	3	0	1	34	171	562	1205	1986	2700	3161	3341	3368	3371
55	0	0	11	68	254	493	626	559	321	98	7	0	0	0	11	79	333	826	1452	2011	2332	2430	2437	2437
60	0	0	5	30	149	346	471	404	200	43	1	0	0	0	5	35	184	530	1001	1405	1605	1648	1649	1649
Base	Growing Degree Units for Corn (Monthly)												Growing Degree Units for Corn (Accumulated Monthly)											
50/86	0	13	71	215	432	629	752	696	483	255	62	5	0	13	84	299	731	1360	2112	2808	3291	3546	3608	3613

(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