

Climatography of the United States

No. 20

1971-2000

Station: BELLE PLAINE, IA

COOP ID: 130600

Climate Division: IA 6

NWS Call Sign:

Elevation: 810 Feet

Lat: 41° 53N

Lon: 92° 18W

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	27.1	7.9	17.5	65	1989	31	29.4	1989	-28	1996	31	5.0	1979	1474	0	.0	.0	.9	19.1	30.3	8.9
Feb	33.3	13.5	23.4	70	2000	26	35.3	1998	-35	1996	3	10.1	1979	1165	0	.0	.0	3.2	12.4	25.7	5.0
Mar	45.9	25.6	35.8	88	1986	29	43.6	2000	-23	1962	1	26.3	1975	907	0	.0	.0	11.8	4.0	21.8	.7
Apr	59.9	37.4	48.7	95	1986	25	55.3	1977	8	1982	6	43.7	1997	495	3	.0	.1	24.3	.2	8.6	.0
May	71.4	49.0	60.2	94	1956	22	66.7	1977	27+	1950	1	52.8	1997	206	57	.0	.4	30.8	.0	.7	.0
Jun	80.6	58.7	69.7	102	1988	21	74.4	1971	38	1993	1	64.5	1982	26	166	.1	3.2	30.0	.0	.0	.0
Jul	84.3	63.1	73.7	105	1955	30	77.7	1983	43	1972	5	69.0	1992	6	276	.1	7.6	31.0	.0	.0	.0
Aug	82.4	60.8	71.6	105	1988	15	78.6	1983	36	1950	20	66.4	1992	24	227	.3	5.0	31.0	.0	.0	.0
Sep	74.6	51.1	62.9	100	1955	9	67.3	1978	26	1984	29	58.0	1993	120	55	.0	1.3	30.0	.0	.5	.0
Oct	62.9	39.1	51.0	93+	1953	2	58.1	1971	11	1997	27	45.4	1988	437	3	.0	.1	28.2	.0	8.0	.0
Nov	45.4	26.2	35.8	80	1999	9	42.2	1999	-10	1977	26	28.8	1996	876	0	.0	.0	11.9	3.8	21.1	.3
Dec	31.5	14.1	22.8	69	1998	5	30.7	1982	-30	1985	19	9.3	2000	1309	0	.0	.0	2.2	14.1	29.2	4.6
Ann	58.3	37.2	47.8	105+	Aug 1988	15	78.6	Aug 1983	-35	Feb 1996	3	5.0	Jan 1979	7045	787	.5	17.7	235.3	53.6	145.9	19.5

+ 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/normal/usnormals.html

Issue Date: February 2004

(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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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: BELLE PLAINE, IA

COOP ID: 130600

Climate Division: IA 6

NWS Call Sign:

Elevation: 810 Feet Lat: 41°53N

Lon: 92°18W

Precipitation (inches)																								
	Precipitation Totals									Mean Number of Days (3)				Precipitation Probabilities (1) Probability that the monthly/annual precipitation will be equal to or less than the indicated amount										
	Means/ Medians(1)		Extremes							Daily Precipitation				Monthly/Annual Precipitation vs Probability Levels These values were determined from the incomplete gamma distribution										
Month	Mean	Med- ian	Highest Daily(2)	Year	Day	Highest Monthly(1)	Year	Lowest Monthly(1)	Year	>= 0.01	>= 0.10	>= 0.50	>= 1.00	.05	.10	.20	.30	.40	.50	.60	.70	.80	.90	.95
Jan	1.05	.98	3.25	1960	12	2.98	1996	.00	1995	7.3	2.9	.5	.1	.08	.19	.36	.52	.68	.85	1.05	1.30	1.63	2.17	2.69
Feb	1.08	.88	1.81	1981	22	2.69	1981	.02	1995	6.2	2.9	.6	.1	.16	.25	.41	.56	.71	.88	1.08	1.32	1.65	2.18	2.69
Mar	2.28	1.87	2.15	1998	31	6.05	1991	.00	1994	8.6	5.3	1.5	.3	.17	.41	.78	1.11	1.46	1.84	2.28	2.81	3.53	4.70	5.83
Apr	3.63	3.41	2.75	1965	24	7.88	1991	.76	1988	10.6	6.8	2.4	.8	.97	1.32	1.84	2.30	2.76	3.23	3.76	4.38	5.20	6.47	7.66
May	4.16	3.86	3.63	1960	6	11.49	1974	.43	1992	12.0	7.8	2.8	1.0	.81	1.19	1.80	2.36	2.93	3.54	4.23	5.06	6.17	7.94	9.62
Jun	4.68	4.20	4.26	1983	28	9.46	1993	.98	1988	11.1	7.3	3.0	1.4	1.48	1.92	2.58	3.15	3.69	4.26	4.87	5.60	6.54	8.00	9.34
Jul	4.29	3.53	6.38	1962	14	12.96+	1993	.23	1975	9.6	6.5	2.6	1.3	.58	.93	1.54	2.14	2.76	3.45	4.25	5.24	6.56	8.74	10.83
Aug	4.71	3.89	6.02	1977	16	13.69	1993	.49	1984	9.3	6.0	2.9	1.3	.66	1.05	1.73	2.38	3.06	3.82	4.69	5.75	7.19	9.54	11.81
Sep	3.49	2.97	3.41	1988	19	7.77	1978	.61	1979	8.1	5.9	2.2	1.1	.90	1.23	1.74	2.19	2.63	3.09	3.61	4.22	5.02	6.28	7.46
Oct	2.70	2.63	2.42	1979	22	6.16	1998	.03	1975	8.2	5.2	1.7	.6	.30	.50	.87	1.25	1.65	2.10	2.63	3.29	4.19	5.68	7.12
Nov	2.35	2.18	2.88	1952	17	6.52	1992	.05	1989	8.4	4.8	1.7	.6	.31	.50	.84	1.17	1.51	1.89	2.33	2.87	3.60	4.79	5.95
Dec	1.39	1.34	1.40	1971	15	2.91	1982	.16	1976	7.6	3.6	.8	.2	.29	.42	.62	.81	1.00	1.20	1.42	1.69	2.05	2.62	3.16
Ann	35.81	35.84	6.38	Jul 1962	14	13.69	Aug 1993	.00+	Jan 1995	107.0	65.0	22.7	8.8	23.71	25.99	28.94	31.21	33.24	35.21	37.26	39.54	42.33	46.40	49.94

+ 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

Complete documentation available from:
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Station: BELLE PLAINE, IA

COOP ID: 130600

Climate Division: IA 6

NWS Call Sign:

Elevation: 810 Feet

Lat: 41°53N

Lon: 92°18W

Snow (inches)																							
Snow Totals															Mean Number of Days (1)								
Means/Medians (1)					Extremes (2)										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	8.2	7.7	4	3	10.0	1971	3	19.0	1996	22	1979	31	13	1979	5.9	2.5	.8	.2	@	19.0	13.6	8.4	2.0
Feb	6.6	5.9	4	3	7.5	1972	10	16.7	1997	24	1979	11	21	1979	4.0	2.0	.8	.3	.0	16.1	11.5	8.0	2.1
Mar	4.2	2.7	1	#	7.2	1998	9	15.5	1984	12	1979	2	6	1975	2.9	1.5	.4	.1	.0	6.0	3.2	1.9	.2
Apr	2.3	.2	#	#	14.0	1973	9	20.3	1973	17	1973	9	2	1973	1.0	.5	.3	.1	@	.8	.5	.3	.1
May	#	.0	#	0	#	1997	1	#	1997	#	1997	1	#	1997	.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	.4	.0	#	0	7.3	1997	27	7.7	1997	7	1997	27	1	1997	.2	.1	@	@	.0	.2	.1	.1	.0
Nov	3.0	1.6	#	#	7.0	1972	13	12.3	1972	8	1972	14	2	1972	1.9	1.0	.3	.1	.0	2.7	1.4	.4	.0
Dec	6.3	6.1	2	1	10.5	1994	7	17.8	1977	17	2000	31	11	2000	4.7	2.3	.7	.3	@	14.2	7.6	4.7	1.4
Ann	31.0	24.2	N/A	N/A	14.0	Apr 1973	9	20.3	Apr 1973	24	Feb 1979	11	21	Feb 1979	20.6	9.9	3.3	1.1	@	59.0	37.9	23.8	5.8

+ 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

Complete documentation available from:

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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	5/22	5/17	5/13	5/11	5/08	5/05	5/02	4/29	4/24
32	5/10	5/05	5/02	4/29	4/27	4/24	4/21	4/18	4/13
28	4/26	4/22	4/18	4/16	4/13	4/10	4/08	4/04	3/31
24	4/18	4/14	4/11	4/09	4/07	4/05	4/02	3/30	3/26
20	4/11	4/06	4/02	3/30	3/27	3/24	3/21	3/17	3/12
16	4/05	3/30	3/25	3/21	3/18	3/14	3/10	3/06	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	9/13	9/17	9/20	9/22	9/25	9/27	9/29	10/02	10/06
32	9/22	9/27	9/30	10/02	10/05	10/07	10/10	10/13	10/17
28	9/29	10/05	10/09	10/13	10/16	10/19	10/23	10/27	11/02
24	10/12	10/18	10/21	10/25	10/28	10/31	11/03	11/07	11/12
20	10/23	10/28	11/01	11/04	11/07	11/10	11/13	11/17	11/22
16	10/27	11/03	11/08	11/12	11/16	11/20	11/25	11/30	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	157	151	146	143	139	136	132	127	121
32	178	172	168	164	160	157	153	149	143
28	209	201	195	190	185	181	176	170	162
24	223	216	211	207	203	199	195	190	183
20	246	238	233	228	224	220	215	210	202
16	273	263	255	249	243	237	231	223	213

* 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

Complete documentation available from:

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Elevation: 810 Feet Lat: 41°53N Lon: 92°18W

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	1474	1165	907	495	206	26	6	24	120	437	876	1309	7045
60	1319	1025	752	356	117	5	0	5	47	296	726	1154	5802
57	1226	941	661	280	77	2	0	1	22	222	636	1061	5129
55	1164	885	605	234	56	1	0	0	12	178	578	999	4712
50	1009	754	461	137	21	0	0	0	2	93	439	848	3764
32	496	331	107	3	0	0	0	0	0	1	90	366	1394

Base	Cooling Degree Days (1)												
Above	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Ann
32	45	91	223	502	874	1130	1293	1227	925	590	204	80	7184
55	0	0	8	42	216	440	580	514	247	54	2	0	2103
57	0	0	2	29	175	381	518	453	197	36	1	0	1792
60	0	0	0	14	122	295	425	364	132	17	0	0	1369
65	0	0	0	3	57	166	276	227	55	3	0	0	787
70	0	0	0	0	20	71	146	122	15	0	0	0	374

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	14	96	311	656	912	1064	997	716	383	89	7	0	14	110	421	1077	1989	3053	4050	4766	5149	5238	5245
45	0	1	51	197	503	762	909	842	566	248	45	2	0	1	52	249	752	1514	2423	3265	3831	4079	4124	4126
50	0	0	22	110	352	612	754	687	418	146	20	1	0	0	22	132	484	1096	1850	2537	2955	3101	3121	3122
55	0	0	6	54	219	463	599	532	287	72	3	0	0	0	6	60	279	742	1341	1873	2160	2232	2235	2235
60	0	0	0	24	122	315	444	378	174	30	0	0	0	0	0	24	146	461	905	1283	1457	1487	1487	1487
Base	Growing Degree Units for Corn (Monthly)												Growing Degree Units for Corn (Accumulated Monthly)											
50/86	0	11	67	193	399	604	725	666	452	234	52	4	0	11	78	271	670	1274	1999	2665	3117	3351	3403	3407

(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/normal/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.
Complete documentation for the 1971-2000 Normals is available on the internet from:
www.ncdc.noaa.gov/oa/climate/normal/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 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.

- | | |
|---|---|
| <ol style="list-style-type: none">a. Temperature/ Precipitation Tables<ol style="list-style-type: none">1. 1971-2000 Monthly Normals2. Cooperative Summary of the Day3. National Weather Service station records4. 1971-2000 serially complete daily datab. Degree Day Table<ol style="list-style-type: none">1. Monthly and Annual Heating and Cooling Degree Days Normals to Selected Bases derived from 1971-2000 Monthly Normals2. Daily Normal Growing Degree Units to Selected Base Temperatures derived from 1971-2000 serially complete daily data | <ol style="list-style-type: none">c. Snow Tables<ol style="list-style-type: none">1. Snow Climatology2. Cooperative Summary of the Dayd. Freeze Data Table
1971-2000 serially complete daily data |
|---|---|

References

U.S. Climate Normals 1971-2000, www.ncdc.noaa.gov/normal.html
U.S. Climate Normals 1971-2000-Products Clim20, www.ncdc.noaa.gov/oa/climate/normal/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