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: ALLISON, IA **COOP ID: 130157**

Climate Division: IA 2 **NWS Call Sign:** **Elevation: 1,050 Feet** **Lat: 42˚45N** **Lon: 92˚47W**

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	25.0	7.7	16.4	59	1981	25	29.5	1990	-28+	1970	21	3.6	1979	1509	0	.0	.0	.4	21.5	30.6	10.2
Feb	31.4	14.3	22.9	65+	1981	17	33.7	1987	-31	1996	2	10.4	1979	1180	0	.0	.0	1.8	13.8	26.6	5.4
Mar	44.5	25.8	35.2	84	1986	29	43.5	2000	-20	1962	1	26.6	1975	927	0	.0	.0	10.1	5.4	23.3	.9
Apr	60.0	37.1	48.6	96	1980	22	55.7	1977	5	1982	6	42.3	1983	499	4	.0	.1	23.9	.2	9.1	.0
May	72.4	49.1	60.8	95	1967	26	67.7	1977	25	1966	1	54.9	1983	198	65	.0	.7	30.8	.0	.7	.0
Jun	81.4	58.6	70.0	102	1985	8	74.9	1971	39	1964	2	64.1	1982	25	176	.1	3.9	30.0	.0	.0	.0
Jul	84.4	62.3	73.4	104	1948	6	77.7	1987	43	1967	4	68.1	1992	6	264	@	6.7	31.0	.0	.0	.0
Aug	82.1	60.2	71.2	104	1988	17	76.2	1983	37	1950	20	66.0	1992	19	209	.1	4.0	31.0	.0	.0	.0
Sep	74.6	51.4	63.0	99	1955	9	67.9	1998	27	1967	28	57.5	1993	116	55	.0	1.3	29.9	.0	.5	.0
Oct	62.1	40.0	51.1	96	1963	5	57.8	1973	15+	1952	20	45.7	1976	435	3	.0	.1	27.6	.1	7.4	.0
Nov	43.3	26.5	34.9	80	1999	8	43.8	1999	-16	1977	26	27.5	1996	904	0	.0	.0	10.1	5.4	21.8	.7
Dec	28.8	13.4	21.1	64+	1962	1	28.6	1998	-22	1983	24	8.1	1983	1361	0	.0	.0	1.1	17.8	30.2	5.6
Ann	57.5	37.2	47.4	104+	Aug 1988	17	77.7	Jul 1987	-31	Feb 1996	2	3.6	Jan 1979	7179	776	.2	16.8	227.7	64.2	150.2	22.8

\+ 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

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	.88	.74	.95	1999	2	2.28	1996	.00+	1991
Feb	.88	.71	1.60	1976	21	3.40	1971	.02	1990
Mar	1.89	1.77	1.95	1993	30	3.95	1993	.26	1981
Apr	3.25	3.12	3.06	1951	29	7.41	1976	.95	1971
May	4.30	4.00	3.86	1999	17	11.29	1999	1.10	1988
Jun	4.97	4.75	7.00	1951	26	8.99	1974	1.53	1987
Jul	4.40	3.88	7.16	1968	17	9.69	1990	1.33	1998
Aug	4.31	3.71	4.20	1980	10	13.26	1980	.65	1971
Sep	3.32	2.64	4.12	1983	20	9.72	1973	.95	1974
Oct	2.40	2.12	3.10	1970	9	6.14	1998	.35	1999
Nov	2.02	1.70	2.58	1992	1	6.74	1992	.10	1976
Dec	1.02	.93	1.63	1984	21	3.07	1982	.03	1988
Ann	33.64	34.03	7.16	Jul 1968	17	13.26	Aug 1980	.00+	Jan 1991

Mean Number of Days (3)

Month	Daily Precipitation >= 0.01	>= 0.10	>= 0.50	>= 1.00
Jan	5.8	2.7	.3	.1
Feb	4.3	2.5	.6	.1
Mar	6.1	4.8	1.4	.3
Apr	8.6	6.4	2.3	.7
May	10.5	8.0	2.7	1.0
Jun	9.4	7.0	3.5	1.4
Jul	8.6	6.9	3.2	1.4
Aug	8.2	6.0	2.9	1.3
Sep	7.5	5.2	2.2	.9
Oct	6.6	4.9	1.8	.3
Nov	6.2	4.3	1.5	.5
Dec	5.4	3.0	.4	.1
Ann	87.2	61.7	22.8	8.1

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	.22	.41	.54	.67	.80	.94	1.09	1.30	1.63	1.94
Feb	.05	.10	.21	.32	.46	.62	.82	1.07	1.42	2.02	2.61
Mar	.28	.43	.71	.97	1.24	1.54	1.88	2.30	2.87	3.80	4.68
Apr	1.06	1.37	1.82	2.21	2.58	2.97	3.39	3.89	4.52	5.51	6.42
May	1.25	1.66	2.28	2.81	3.33	3.87	4.46	5.17	6.08	7.50	8.82
Jun	1.80	2.27	2.94	3.51	4.04	4.59	5.19	5.89	6.77	8.14	9.40
Jul	1.43	1.85	2.47	2.99	3.49	4.01	4.59	5.25	6.11	7.45	8.68
Aug	.90	1.29	1.93	2.50	3.08	3.70	4.40	5.24	6.35	8.12	9.79
Sep	.78	1.08	1.57	2.01	2.44	2.90	3.41	4.02	4.83	6.11	7.31
Oct	.47	.69	1.04	1.37	1.69	2.05	2.44	2.92	3.56	4.57	5.54
Nov	.28	.44	.73	1.02	1.31	1.64	2.01	2.47	3.10	4.11	5.10
Dec	.12	.20	.34	.48	.63	.80	1.00	1.25	1.59	2.14	2.68
Ann	22.39	24.51	27.26	29.37	31.26	33.09	35.00	37.12	39.70	43.48	46.77

\+ 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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Snow (inches)

Snow Totals

Means/Medians (1)

Month	Snow Fall Mean	Snow Fall Median	Snow Depth Mean	Snow Depth Median
Jan	5.0	4.5	4	3
Feb	7.0	6.5	4	3
Mar	4.1	3.0	1	#
Apr	1.0	.2	#	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	.0	.0	#	0
Nov	4.5	2.8	1	#
Dec	5.3	4.8	3	2
Ann	26.9	21.8	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	10.0	1999	2	10.0	1986	21	1979	31	11+	1999
Feb	8.0	1971	5	17.0	1971	21	1979	13	18	1979
Mar	8.0	1998	8	14.5	1984	12	1998	9	5	1993
Apr	6.0	1973	8	6.0+	1973	14	1973	9	1	1982
May	.0	0	0	.0	0	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	1.0	1972	18	1.0	1972	#	1991	31	#	1991
Nov	12.0	1997	15	12.5	1985	12	1997	15	3	1986
Dec	8.0	1985	1	12.0	1985	17	2000	29	11	1985
Ann	12.0	Nov 1997	15	17.0	Feb 1971	21+	Feb 1979	13	18	Feb 1979

Mean Number of Days (1)

Snow Fall >= Thresholds

Month	0.1	1.0	3.0	5.0	10.0
Jan	3.5	3.0	.8	.1	@
Feb	2.8	2.3	.9	.4	.0
Mar	2.1	1.8	.6	.1	.0
Apr	.6	.5	.2	@	.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	@	@	.0	.0	.0
Nov	2.0	1.7	.6	.2	@
Dec	3.1	2.4	.6	.2	.0
Ann	14.1	11.7	3.7	1.0	@

Snow Depth >= Thresholds

Month	1	3	5	10
Jan	19.4	15.7	9.7	1.6
Feb	19.2	11.5	7.4	1.6
Mar	7.4	4.1	2.0	.1
Apr	.4	.1	.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	.0	.0	.0	.0
Nov	4.6	2.5	1.5	.1
Dec	16.9	10.4	5.4	2.1
Ann	67.9	44.3	26.1	5.5

+ 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	5/20	5/15	5/12	5/09	5/06	5/03	4/30	4/27	4/22
32	5/11	5/06	5/03	4/30	4/27	4/25	4/22	4/18	4/14
28	4/27	4/22	4/19	4/16	4/13	4/10	4/07	4/04	3/30
24	4/17	4/13	4/10	4/08	4/06	4/04	4/01	3/30	3/26
20	4/11	4/06	4/03	3/31	3/28	3/25	3/23	3/19	3/15
16	4/05	3/30	3/26	3/22	3/19	3/16	3/12	3/08	3/03

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	9/21	9/23	9/26	9/29	10/01	10/05	10/09
32	9/21	9/25	9/29	10/01	10/04	10/07	10/09	10/13	10/17
28	9/30	10/05	10/09	10/12	10/15	10/18	10/21	10/24	10/30
24	10/11	10/17	10/21	10/24	10/27	10/31	11/03	11/07	11/13
20	10/26	10/30	11/02	11/05	11/08	11/10	11/13	11/16	11/20
16	11/02	11/07	11/11	11/14	11/17	11/20	11/23	11/26	12/02

Freeze Free Period

Temp (F)	Probability of longer than indicated freeze free period (Days)								
	.10	.20	.30	.40	.50	.60	.70	.80	.90
36	162	155	150	146	142	138	134	129	122
32	176	170	166	162	159	156	152	148	142
28	204	197	192	188	184	180	176	171	164
24	223	217	212	208	204	200	196	191	184
20	242	236	231	227	224	220	216	212	206
16	265	257	251	246	242	237	232	227	219

***** 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	1509	1180	927	499	198	25	6	19	116	435	904	1361	7179
60	1354	1040	772	361	112	5	0	3	45	294	754	1206	5946
57	1261	956	680	286	73	2	0	0	21	221	665	1113	5278
55	1199	900	621	240	53	1	0	0	11	177	607	1051	4860
50	1044	766	479	143	20	0	0	0	1	93	468	896	3910
32	532	336	114	5	0	0	0	0	0	2	110	401	1500

Base — Cooling Degree Days (1)

Above	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Ann
32	46	80	210	500	890	1141	1282	1214	929	592	196	62	7142
55	0	0	4	45	230	451	569	501	250	55	3	0	2108
57	0	0	1	31	188	392	507	439	200	36	1	0	1795
60	0	0	0	16	134	306	414	348	134	17	0	0	1369
65	0	0	0	4	65	176	264	209	55	3	0	0	776
70	0	0	0	0	24	79	135	103	15	0	0	0	356

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	5	74	291	655	913	1044	976	702	368	71	5	0	5	79	370	1025	1938	2982	3958	4660	5028	5099	5104
45	0	0	35	181	501	763	889	821	552	241	28	1	0	0	35	216	717	1480	2369	3190	3742	3983	4011	4012
50	0	0	15	97	354	613	734	666	406	139	11	0	0	0	15	112	466	1079	1813	2479	2885	3024	3035	3035
55	0	0	5	48	219	463	579	511	274	67	2	0	0	0	5	53	272	735	1314	1825	2099	2166	2168	2168
60	0	0	0	21	122	319	424	358	162	25	0	0	0	0	0	21	143	462	886	1244	1406	1431	1431	1431
Base	**Growing Degree Units for Corn (Monthly)**												**Growing Degree Units for Corn (Accumulated Monthly)**											
50/86	0	1	51	184	398	599	709	652	443	219	39	1	0	1	52	236	634	1233	1942	2594	3037	3256	3295	3296

(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