

Climatology of the United States

No. 20

1971-2000

Station: BISON 3 NW, KS

COOP ID: 140865

Climate Division: KS 5

NWS Call Sign:

Elevation: 2,040 Feet Lat: 38°34N

Lon: 99°14W

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	40.9	15.1	28.0	81	1943	22	38.5	1986	-23	1947	4	14.6	1979	1147	0	.0	.0	10.0	8.6	30.5	3.1
Feb	47.3	19.3	33.3	86+	1981	21	42.5	1976	-17	1951	1	20.5	1978	888	0	.0	.0	12.9	5.5	25.9	2.3
Mar	56.7	28.1	42.4	95	1946	31	48.6	1986	-23	1948	11	33.4	1998	702	0	.0	.1	21.1	1.3	19.6	.3
Apr	66.9	37.9	52.4	103	1989	23	61.0	1981	9	1994	7	46.3	1983	385	6	.1	.8	27.4	.1	7.3	.0
May	76.3	49.8	63.1	107	1939	23	67.0	1998	21	1953	14	56.0	1995	131	70	.1	2.4	30.8	.0	.5	.0
Jun	87.4	60.2	73.8	112	1953	13	79.5	1994	36	1998	7	67.7	1989	15	279	2.7	13.2	30.0	.0	.0	.0
Jul	93.8	65.4	79.6	115	1954	11	86.9	1980	43	1952	8	76.0	1992	0	452	7.7	23.2	31.0	.0	.0	.0
Aug	91.7	63.2	77.5	114	1946	7	84.7	1983	42	1967	27	71.5	1992	5	391	5.7	20.4	31.0	.0	.0	.0
Sep	83.2	53.9	68.6	112	1947	3	75.8	1998	23	1983	23	62.9	1974	48	155	1.9	10.1	29.8	.0	.4	.0
Oct	71.7	40.8	56.3	100	1947	5	59.6	1979	14	1993	31	49.7	1976	281	10	.0	2.3	29.9	.1	5.5	.0
Nov	54.8	27.3	41.1	89	1980	7	48.7	1999	-8	1947	22	33.7	1985	718	0	.0	.0	19.2	1.6	20.9	.1
Dec	44.2	18.9	31.6	83	1939	6	36.8	1991	-24	1989	23	15.7	1983	1037	0	.0	.0	12.0	5.7	29.3	1.5
Ann	67.9	40.0	54.0	115	Jul 1954	11	86.9	Jul 1980	-24	Dec 1989	23	14.6	Jan 1979	5357	1363	18.2	72.5	285.1	22.9	139.9	7.3

+ 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: 1939-2001

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

009-A

**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: BISON 3 NW, KS

COOP ID: 140865

Climate Division: KS 5

NWS Call Sign:

Elevation: 2,040 Feet Lat: 38°34N

Lon: 99°14W

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	.66	.56	.90	2001	28	2.26	1979	.00+	1998	4.1	2.0	.4	.0	.00	.00	.19	.31	.42	.54	.68	.84	1.05	1.40	1.74
Feb	.83	.51	2.29	1948	27	2.90	1971	.04	1999	4.0	1.7	.5	.2	.03	.06	.15	.25	.38	.54	.73	.98	1.35	1.99	2.63
Mar	2.09	1.54	2.76	1957	24	9.74	1973	.00	1997	6.7	4.2	1.1	.5	.06	.21	.49	.79	1.13	1.51	1.97	2.56	3.37	4.74	6.09
Apr	2.27	2.12	3.33	1987	14	5.35	1984	.00	1992	7.1	4.6	1.6	.3	.31	.61	.99	1.31	1.63	1.97	2.34	2.79	3.38	4.32	5.20
May	3.65	3.39	2.89	2001	5	8.28	1995	.53	1998	10.4	6.7	2.6	.7	.98	1.32	1.85	2.31	2.77	3.24	3.77	4.40	5.22	6.50	7.70
Jun	3.35	3.16	3.22	1978	20	7.96	1989	.26	1991	8.1	5.6	2.3	1.0	.65	.95	1.44	1.89	2.35	2.84	3.40	4.07	4.96	6.39	7.75
Jul	3.40	2.85	3.75	1990	21	8.75	1993	.12	1974	7.5	5.2	2.5	.9	.37	.63	1.10	1.57	2.08	2.65	3.32	4.15	5.28	7.15	8.97
Aug	2.55	1.78	5.00	1953	3	5.71	1980	.22	2000	7.4	4.9	1.7	.7	.42	.64	1.01	1.36	1.72	2.11	2.56	3.11	3.84	5.03	6.17
Sep	1.88	1.33	3.42	1959	21	7.01	1973	.15	1974	6.0	3.7	1.3	.3	.18	.32	.57	.84	1.12	1.44	1.82	2.29	2.94	4.01	5.06
Oct	1.42	1.08	3.03	1950	2	4.34	1984	.00	1975	4.8	2.6	.8	.4	.04	.14	.34	.54	.77	1.03	1.34	1.73	2.28	3.20	4.10
Nov	1.22	.83	2.80	1996	16	4.56	1996	.00	1989	4.8	2.9	.7	.2	.02	.08	.22	.39	.58	.82	1.10	1.47	2.00	2.91	3.81
Dec	.76	.56	1.69	1984	15	3.43	1984	.00+	1996	3.8	2.0	.4	.1	.00	.03	.14	.25	.37	.52	.70	.93	1.25	1.79	2.33
Ann	24.08	23.96	5.00	Aug 1953	3	9.74	Mar 1973	.00+	Jan 1998	74.7	46.1	15.9	5.3	14.84	16.53	18.74	20.46	22.01	23.53	25.12	26.90	29.08	32.29	35.11

+ 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: 1939-2001

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

Complete documentation available from:
www.ncdc.noaa.gov/oa/climate/normals/usnormals.html

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Station: BISON 3 NW, KS

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Climate Division: KS 5

NWS Call Sign:

Elevation: 2,040 Feet

Lat: 38°34N

Lon: 99°14W

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	5.6	5.5	2	#	10.0	1971	3	18.5	1979	14	1979	15	8	1979	3.5	1.9	.6	.2	@	7.8	4.8	3.3	.8
Feb	4.4	2.5	1	#	10.0	1978	13	16.4	1971	15	1978	16	6	1978	2.3	1.4	.7	.2	@	4.9	3.2	2.3	.6
Mar	4.8	4.5	#	#	12.0	1999	12	16.0	1980	12	1999	12	1	1999	1.8	1.3	.6	.1	.1	2.4	1.2	.5	.1
Apr	1.3	.0	#	0	6.0	1990	6	6.1	1983	4	1977	4	#+	1993	.4	.3	.2	.1	.0	.4	.2	.0	.0
May	.0	.0	0	0	.0	0	0	.0	0	0	0	0	0	0	.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	1.0	1995	21	1.0	1995	0	0	0	0	0	@	@	.0	.0	.0	.0	.0	.0	.0
Oct	.4	.0	#	0	8.5	1976	27	8.5	1976	8	1976	27	#+	1997	.1	.1	@	@	.0	.1	@	@	.0
Nov	2.0	.4	#	#	12.0	1992	25	13.0	1992	8	1991	1	1	1972	1.2	.7	.1	.1	@	1.1	.2	@	.0
Dec	3.6	2.0	#	#	6.0	1992	15	14.7	1973	10	1997	24	4	1983	2.5	1.5	.4	.1	.0	4.1	1.8	1.0	@
Ann	22.1	14.9	N/A	N/A	12.0+	Mar 1999	12	18.5	Jan 1979	15	Feb 1978	16	8	Jan 1979	11.8	7.2	2.6	.8	.1	20.8	11.4	7.1	1.5

+ 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

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	5/20	5/15	5/11	5/08	5/05	5/03	4/30	4/26	4/21
32	5/07	5/03	4/29	4/26	4/24	4/21	4/18	4/14	4/10
28	4/23	4/19	4/16	4/13	4/11	4/08	4/05	4/02	3/29
24	4/14	4/10	4/07	4/04	4/02	3/30	3/28	3/24	3/20
20	4/07	4/02	3/29	3/26	3/23	3/19	3/16	3/12	3/07
16	4/04	3/27	3/22	3/17	3/13	3/09	3/04	2/27	2/19
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	9/14	9/19	9/23	9/27	9/30	10/03	10/07	10/10	10/16
32	9/25	10/01	10/05	10/08	10/11	10/15	10/18	10/22	10/28
28	10/02	10/08	10/13	10/16	10/20	10/24	10/28	11/01	11/08
24	10/15	10/21	10/25	10/29	11/02	11/05	11/09	11/13	11/20
20	10/22	10/29	11/03	11/07	11/12	11/16	11/20	11/25	12/02
16	11/03	11/10	11/15	11/19	11/23	11/27	12/01	12/06	12/13
Freeze Free Period									
Temp (F)	Probability of longer than indicated freeze free period (Days)								
	.10	.20	.30	.40	.50	.60	.70	.80	.90
36	166	160	155	151	147	143	139	134	127
32	192	184	179	174	170	166	161	156	148
28	215	207	201	196	192	187	182	177	169
24	240	231	224	218	213	208	202	195	186
20	255	248	242	238	233	229	224	219	211
16	282	273	266	260	255	249	243	236	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	1147	888	702	385	131	15	0	5	48	281	718	1037	5357
60	992	752	547	253	58	3	0	0	13	158	568	882	4226
57	899	674	460	185	30	0	0	0	5	100	481	789	3623
55	838	622	402	146	18	0	0	0	2	71	425	727	3251
50	692	495	269	71	4	0	0	0	0	25	294	582	2432
32	246	160	24	0	0	0	0	0	0	0	32	163	625

Base	Cooling Degree Days (1)												
Above	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Ann
32	122	195	345	611	962	1254	1475	1409	1096	752	304	149	8674
55	2	13	10	68	267	564	762	696	408	110	8	0	2908
57	0	10	6	46	218	504	700	634	351	78	3	0	2550
60	0	4	0	24	152	417	607	541	270	42	0	0	2057
65	0	0	0	6	70	279	452	391	155	10	0	0	1363
70	0	0	0	0	24	163	301	252	74	1	0	0	815

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	22	79	205	417	731	1027	1237	1179	875	533	157	38	22	101	306	723	1454	2481	3718	4897	5772	6305	6462	6500
45	3	34	118	287	578	877	1082	1024	726	388	84	8	3	37	155	442	1020	1897	2979	4003	4729	5117	5201	5209
50	0	10	56	178	429	727	927	869	578	261	35	1	0	10	66	244	673	1400	2327	3196	3774	4035	4070	4071
55	0	1	22	99	288	577	772	714	438	155	10	0	0	1	23	122	410	987	1759	2473	2911	3066	3076	3076
60	0	0	3	47	166	432	617	559	309	75	1	0	0	0	3	50	216	648	1265	1824	2133	2208	2209	2209
Base	Growing Degree Units for Corn (Monthly)												Growing Degree Units for Corn (Accumulated Monthly)											
50/86	44	93	164	285	463	664	794	756	557	359	137	51	44	137	301	586	1049	1713	2507	3263	3820	4179	4316	4367

(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/normals/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