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

COOP ID: 144178

Lon: 97°58W

Station: KANOPOLIS LAKE, KS

Climate Division: KS 5 NWS Call Sign:

Temperature (°F) Degree Days (1) Mean (1) Mean Number of Days (3) **Extremes** Base Temp 65 Max Max Max Max Min Min Highest Lowest Daily Daily Highest Lowest Month(1) Month(1) Cooling >= >= >= <= <= <= Month Mean Year Day Year Year Day Year Heating Max Min Daily(2) Daily(2) Mean Mean 100 90 50 32 32 0 37.9 17.4 27.7 77 1990 11 36.5 1992 -17+ 1982 11 12.9 1979 1158 0 .0 .0 7.1 10.2 29.9 3.4 Jan 44.0 20.8 32.4 84 1954 15 42.7 1976 -18 1971 8 18.3 1979 912 0 .0 .0 10.6 6.9 24.3 2.5 Feb Mar 54.6 29.9 42.3 89+ 1976 26 48.6 1986 -8 1960 3 35.5 1975 705 0 .0 .0 19.9 1.8 18.7 .2 3 44.3 1983 7 Apr 64.9 39.4 52.2 103 1989 24 60.3 1981 10 1975 393 (a) .4 26.7 .1 5.5 0. May 73.8 50.4 62.1 100 +1963 10 67.3 1998 27 1976 3 56.2 1995 156 66 .0 1.2 30.8 .0 .1 .0 72.7 77.3 38 67.0 9.8 84.8 60.5 110 1953 14 1988 1983 1982 21 251 1.0 30.0 .0 .0 .0 Jun Jul 91.0 78.5 1980 86.6 44 1970 21 74.0 1971 0 419 4.9 19.6 31.0 0. 66.0 111+1 1980 .0 .0 1992 89.2 63.8 76.5 109 +1983 17 84.8 1983 46 +1988 29 70.7 9 364 3.3 17.0 31.0 .0 .0 .0 Aug 3 64 .2 Sep 80.5 54.9 67.7 107 +2000 74.4 1998 26 1984 30 59.2 1974 145 .9 7.6 29.8 .0 .0 4 50.2 279 Oct 69.0 43.6 56.3 99 1954 59.9 2000 15 1993 31 1976 10 .0 .9 29.6 .0 4.3 .0 52.9 30.9 41.9 1980 7 50.3 1999 -3+ 1976 29 35.1 1985 694 0 .0 .0 18.8 1.4 18.3 Nov 86 .1 Dec 41.5 22.0 31.8 76+ 1995 2 37.4 1999 -24 1989 23 13.8 1983 1031 0 .0 .0 9.5 6.9 29.0 1.6 Jul Jul Dec Jan 65.3 41.6 53.5 111 +1980 86.6 1980 -24 1989 23 12.9 1979 5422 1262 10.1 56.5 274.8 27.3 130.3 7.8 Ann

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

Issue Date: February 2004 052-A

(1) From the 1971-2000 Monthly Normals

Elevation: 1,492 Feet Lat: 38°36N

- (2) Derived from station's available digital record: 1948-2001
- (3) Derived from 1971-2000 serially complete daily data

⁺ Also occurred on an earlier date(s)

[@] Denotes mean number of days greater than 0 but less than .05

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

COOP ID: 144178

Station: KANOPOLIS LAKE, KS

Climate Division: KS 5 NWS Call Sign: Elevation: 1,492 Feet Lat: 38°36N Lon: 97°58W

										Pı	recipi	tation	(incl	hes)												
	Me	Precipitation Totals Means/										Numbo Pays (3		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												
		ans(1)				Extremes	5			D	aily Pre	cipitatio	n	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	.56	.43	1.50	1999	30	2.88	1999	.00+	1986	3.7	1.6	.3	.1	.00	.02	.09	.17	.27	.37	.51	.68	.92	1.32	1.73		
Feb	.83	.67	1.67	1997	21	2.36+	1998	.00+	1991	3.3	2.0	.5	.1	.00	.03	.12	.23	.37	.53	.74	1.00	1.38	2.03	2.68		
Mar	2.34	1.90	2.75	1973	31	9.29	1973	.08	1997	6.4	4.1	1.7	.7	.16	.31	.61	.93	1.29	1.70	2.20	2.84	3.72	5.21	6.69		
Apr	2.39	1.82	2.38	1955	13	6.05	1999	.30	1989	7.7	5.0	1.5	.5	.49	.71	1.06	1.38	1.70	2.05	2.44	2.91	3.53	4.52	5.46		
May	4.24	4.20	3.10	1977	21	10.45	1995	.54	1994	10.5	7.0	2.9	1.3	.99	1.39	2.01	2.56	3.12	3.70	4.36	5.14	6.17	7.80	9.34		
Jun	3.77	3.39	5.35	1996	1	7.97	1992	.21	1980	8.7	6.0	2.4	.9	.90	1.25	1.80	2.29	2.78	3.29	3.87	4.56	5.46	6.89	8.24		
Jul	3.49	3.66	3.63	1951	11	11.23	1993	.00	1975	7.3	5.1	2.4	1.0	.21	.54	1.09	1.60	2.14	2.74	3.44	4.31	5.48	7.40	9.27		
Aug	3.39	3.01	4.10	1986	5	7.85	1972	.00	1983	6.6	4.4	2.3	1.2	.08	.29	.72	1.20	1.74	2.37	3.14	4.12	5.50	7.83	10.16		
Sep	2.50	1.87	5.02	1973	26	9.95	1973	.26	1980	6.4	3.9	1.4	.6	.21	.39	.72	1.06	1.44	1.88	2.39	3.04	3.94	5.43	6.90		
Oct	2.15	1.61	4.10	1973	11	5.86	1974	.03	1999	5.7	3.3	1.4	.5	.12	.23	.49	.78	1.11	1.50	1.98	2.60	3.46	4.93	6.41		
Nov	1.46	.94	2.09	1996	17	4.87	1998	.00+	1989	4.7	3.0	1.2	.3	.00	.09	.30	.52	.77	1.05	1.38	1.80	2.38	3.37	4.34		
Dec	.78	.51	1.87	1984	16	3.49	1984	.00+	1996	3.9	2.0	.5	.1	.00	.06	.19	.31	.44	.59	.76	.97	1.26	1.75	2.23		
Ann	27.90	28.35	5.35	Jun 1996	1	11.23	Jul 1993	.00+	Dec 1996	74.9	47.4	18.5	7.3	16.15	18.25	21.03	23.21	25.19	27.14	29.19	31.49	34.33	38.55	42.27		

⁺ Also occurred on an earlier date(s)

Complete documentation available from:

www.ncdc.noaa.gov/oa/climate/normals/usnormals.html

[#] 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

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

COOP ID: 144178

Station: KANOPOLIS LAKE, KS

Climate Division: KS 5 NWS Call Sign: Elevation: 1,492 Feet Lat: 38°36N Lon: 97°58W

										Snov	w (incl	hes)														
						Sno	ow To	tals							Mean Number of Days (1)											
	Mean	s/Medi	ans (1)	1		Extremes (2)												Snow Fall >= 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	5.4	3.6	1	#	8.5	1985	10	23.5	1979	16	1979	31	9	1979	1.8	1.4	.6	.2	.0	6.8	4.7	2.6	.3			
Feb	4.1	2.0	1	#	15.0	1980	8	20.0	1971	16	1979	1	10	1979	1.3	1.0	.4	.3	.1	4.4	3.0	2.4	.9			
Mar	2.5	1.0	#	0	8.0	1975	10	9.5	1998	8	1975	10	2	1971	.8	.7	.3	.2	.0	1.5	.7	.4	.0			
Apr	.2	.0	#	0	2.0	1983	4	2.0	1983	2	1983	5	#+	1983	.2	.1	.0	.0	.0	.1	.0	.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	.0	0	0	.0	0	0	0	0	0	0	.0	.0	.0	.0	.0	.0	.0	.0	.0			
Oct	.2	.0	#	0	3.0	1976	27	3.0	1976	3	1976	27	#+	1997	.1	@	@	.0	.0	.1	@	.0	.0			
Nov	.5	.0	#	0	3.0	1975	26	4.0	1972	3+	1992	25	1	1991	.2	.2	@	.0	.0	.4	.1	.0	.0			
Dec	2.7	1.3	1	#	6.0	1983	21	12.0	1983	11	1983	29	4	1983	1.2	1.0	.3	@	.0	1.9	1.0	.6	.2			
Ann	15.6	7.9	N/A	N/A	15.0	Feb 1980	8	23.5	Jan 1979	16+	Feb 1979	1	10	Feb 1979	5.6	4.4	1.6	.7	.1	15.2	9.5	6.0	1.4			

⁺ Also occurred on an earlier date(s) #Denotes trace amounts

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

[@] 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

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

COOP ID: 144178

Lon: 97°58W

Lat: 38°36N

Station: KANOPOLIS LAKE, KS

Climate Division: KS 5 NWS Call Sign:

Freeze Data Spring Freeze Dates (Month/Day) Probability of later date in spring (thru Jul 31) than indicated(*) Temp (F) .10 .20 .30 .40 .60 .70 .80 .90 36 5/13 5/08 5/05 5/02 4/29 4/26 4/23 4/20 4/15 32 5/01 4/26 4/23 4/21 4/18 4/16 4/13 4/10 4/06 28 4/20 4/16 4/13 4/10 4/07 4/05 4/02 3/30 3/25 3/08 24 4/11 4/05 4/01 3/28 3/25 3/21 3/18 3/14 20 4/02 3/27 3/23 3/20 3/17 3/13 2/28 3/10 3/06 3/22 3/08 3/03 16 3/29 3/16 3/12 2/27 2/21 2/14 Fall Freeze Dates (Month/Day) Probability of earlier date in fall (beginning Aug 1) than indicated(*) Temp (F) .20 .30 .40 .50 .70 .10 .60 .80 .90 9/25 36 9/16 9/21 9/29 10/02 10/05 10/08 10/12 10/18 32 9/28 10/04 10/08 10/11 10/15 10/18 10/21 10/25 10/31 28 10/11 10/16 10/20 10/23 10/26 10/29 11/01 11/05 11/10 24 10/19 10/25 10/29 11/02 11/05 11/09 11/12 11/17 11/23 20 10/29 11/04 11/09 11/13 11/17 11/21 11/25 11/30 12/07 11/09 11/23 11/27 16 11/15 11/20 12/01 12/05 12/09 12/16 Freeze Free Period **Probability of longer than indicated freeze free period (Days)** Temp (F) .10 .20 .30 .40 .50 .60 .70 .80 .90 177 164 159 155 151 146 141 133 36 169 32 197 190 186 182 178 175 171 167 160 28 222 215 210 205 201 197 192 187 180 24 248 240 234 229 225 220 215 210 202 241 223 20 267 260 254 249 245 236 230

270

0/00 Indicates that the probability of occurrence of threshold temperature is less than the indicated probability.

276

Derived from 1971-2000 serially complete daily data

284

295

16

Complete documentation available from:

251

Elevation: 1,492 Feet

244

233

264

258

^{*} Probability of observing a temperature as cold, or colder, later in the spring or earlier in the fall than the indicated date.

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

COOP ID: 144178

Station: KANOPOLIS LAKE, KS

Climate Division: KS 5 NWS Call Sign: Elevation: 1,492 Feet Lat: 38°36N Lon: 97°58W

				Deg	ree Days t	o Selected	Base Tem	peratures	(°F)				
Base						Heatin	g Degree l	Days (1)					
Below	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Ann
65	1158	912	705	393	156	21	0	9	64	279	694	1031	5422
60	1003	782	551	262	76	5	0	1	21	155	544	876	4276
57	911	703	463	194	44	2	0	0	9	98	458	783	3665
55	851	652	406	155	29	0	0	0	4	68	404	725	3294
50	705	527	272	77	8	0	0	0	0	23	275	581	2468
32	258	194	27	0	0	0	0	0	0	0	29	175	683

Base						Coolin	g Degree I	Days (1)					
Above	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Ann
32	122	206	346	604	933	1220	1442	1378	1071	754	325	167	8568
55	2	19	11	68	249	530	729	665	385	110	10	4	2782
57	1	15	6	48	202	472	667	603	330	77	5	0	2426
60	0	9	1	25	142	385	574	512	252	42	0	0	1942
65	0	0	0	7	66	251	419	364	145	10	0	0	1262
70	0	0	0	1	23	143	271	231	71	1	0	0	741

	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 .													Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec					
40	19	72	191	408	714	1006	1217	1162	852	517	158	32	19	91	282	690	1404	2410	3627	4789	5641	6158	6316	6348					
45	2	31	107	279	562	856	1062	1007	702	373	88	7	2	33	140	419	981	1837	2899	3906	4608	4981	5069	5076					
50	0	10	55	175	410	706	907	852	556	246	38	1	0	10	65	240	650	1356	2263	3115	3671	3917	3955	3956					
55	0	2	21	94	272	556	752	697	416	145	13	0	0	2	23	117	389	945	1697	2394	2810	2955	2968	2968					
60	0	0	5	43	150	410	597	542	286	70	2	0	0	0	5	48	198	608	1205	1747	2033	2103	2105	2105					
Base	Growing Degree Units for Corn (Monthly)														Gr	owing D	egree Un	its for C	orn (Acc	umulate	d Month	ly)							
50/86	27	69	143	258	439	663	804	759	546	336	118	35	27	96	239	497	936	1599	2403	3162	3708	4044	4162	4197					

(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

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

- c. Snow Tables
 - 1. Snow Climatology
 - 2. Cooperative Summary of the Day
- d. Freeze Data Table

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

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