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: SALINA MUNICIPAL AP, KS **COOP ID: 147160**

Climate Division: KS 5 **NWS Call Sign: SLN** **Elevation: 1,263 Feet** **Lat: 38˚49N** **Lon: 97˚40W**

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	39.1	18.8	29.0	78	1990	10	39.1	1992	-18+	1985	12	14.5	1979	1117	0	.0	.0	7.3	10.1	29.0	2.4
Feb	45.8	23.9	34.9	84	1954	14	44.3	1976	-19	1979	1	21.2	1978	845	0	.0	.0	11.0	5.9	21.8	1.8
Mar	56.4	33.6	45.0	89+	1978	31	51.5	1986	-5	1960	3	37.8	1975	620	0	.0	.0	20.9	1.5	14.2	.2
Apr	66.7	43.1	54.9	105	1989	23	63.1	1981	13	1975	3	47.1	1983	316	13	@	.5	27.5	.1	3.8	.0
May	76.3	53.5	64.9	100	1994	30	69.8	1977	27	1953	14	59.8	1995	102	99	.1	1.7	30.9	.0	.1	.0
Jun	87.5	63.6	75.6	112	1980	30	79.9	1980	40	1954	4	70.0	1982	7	323	2.3	11.8	30.0	.0	.0	.0
Jul	93.3	69.3	81.3	113+	1954	14	89.2	1980	49+	1972	5	77.2	1971	0	504	5.7	20.8	31.0	.0	.0	.0
Aug	91.0	67.8	79.4	110+	1956	16	87.3	1983	46+	1967	27	73.5	1992	3	450	4.5	17.9	31.0	.0	.0	.0
Sep	81.8	58.4	70.1	110	2000	2	76.3	1998	30	1984	30	62.9	1974	41	194	.9	7.9	29.9	.0	.1	.0
Oct	69.9	45.9	57.9	100	1954	3	61.0	2000	14	1993	31	51.8	1976	238	17	.0	.8	29.6	@	2.2	.0
Nov	53.6	32.5	43.1	86	1980	6	51.1	1999	-5	1952	28	36.0	1985	658	0	.0	.0	18.7	1.3	15.3	.1
Dec	42.5	22.7	32.6	72	2001	4	38.2	1991	-24	1989	22	15.1	1983	1005	0	.0	.0	9.1	6.5	27.3	1.2
Ann	67.0	44.4	55.7	113+	Jul 1954	14	89.2	Jul 1980	-24	Dec 1989	22	14.5	Jan 1979	4952	1600	13.5	61.4	276.9	25.4	113.8	5.7

\+ 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: 1952-2001

(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	.80	.66	1.58	1955	5	2.88	1979	.00	1986
Feb	1.06	1.04	1.22	1973	1	2.77	1993	.02	1974
Mar	2.62	2.17	3.68	1987	23	10.82	1973	.18	1994
Apr	3.06	2.63	3.25	1976	20	6.99	1985	.37	1982
May	5.11	5.06	5.84	1971	21	15.60	1995	.68	1994
Jun	4.15	3.93	5.66	1981	11	10.04	1981	.18	1980
Jul	4.32	3.42	4.53	1963	11	17.93	1993	.00	1975
Aug	3.49	3.68	5.14	1977	31	13.75	1977	.13	1971
Sep	2.50	1.91	4.82	1967	3	8.12	1973	.39	1979
Oct	2.55	2.15	4.36	1979	30	6.77	1979	.01	1975
Nov	1.59	1.13	1.83	1964	3	4.18	1975	.00	1989
Dec	.94	.73	1.61	1984	15	3.12	1973	.00	1976
Ann	32.19	31.57	5.84	May 1971	21	17.93	Jul 1993	.00+	Nov 1989

Mean Number of Days (3)

Daily Precipitation

Month	>= 0.01	>= 0.10	>= 0.50	>= 1.00
Jan	4.5	2.1	.4	.1
Feb	4.5	2.2	.5	@
Mar	6.8	4.4	1.6	.7
Apr	7.7	4.9	1.9	.7
May	9.7	7.0	3.0	1.3
Jun	8.6	5.6	2.3	1.2
Jul	7.1	4.6	2.4	1.3
Aug	6.9	4.8	2.1	.9
Sep	6.2	3.9	1.6	.7
Oct	5.8	3.7	1.2	.5
Nov	4.6	2.9	.9	.2
Dec	4.6	2.3	.5	.1
Ann	77.0	48.4	18.4	7.7

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	.06	.14	.27	.38	.51	.64	.80	.99	1.25	1.68	2.08
Feb	.04	.09	.20	.34	.50	.70	.95	1.27	1.73	2.52	3.33
Mar	.28	.47	.84	1.20	1.60	2.04	2.56	3.20	4.08	5.54	6.97
Apr	.60	.88	1.33	1.74	2.16	2.60	3.11	3.72	4.53	5.83	7.07
May	1.48	1.96	2.70	3.33	3.95	4.59	5.30	6.14	7.23	8.93	10.51
Jun	.94	1.32	1.93	2.47	3.02	3.60	4.25	5.03	6.05	7.68	9.21
Jul	.07	.30	.81	1.40	2.08	2.90	3.91	5.21	7.05	10.20	13.37
Aug	.32	.57	1.04	1.53	2.06	2.65	3.36	4.25	5.47	7.50	9.50
Sep	.46	.68	1.05	1.39	1.73	2.11	2.53	3.04	3.72	4.82	5.87
Oct	.16	.31	.62	.97	1.36	1.82	2.38	3.09	4.09	5.78	7.46
Nov	.07	.21	.44	.67	.93	1.21	1.54	1.96	2.53	3.48	4.41
Dec	.03	.10	.23	.37	.52	.69	.89	1.15	1.51	2.11	2.70
Ann	19.26	21.60	24.69	27.09	29.27	31.40	33.64	36.15	39.24	43.80	47.82

\+ 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: 1952-2001
(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	6.6	3.2	1	1
Feb	4.8	2.9	1	0
Mar	2.4	1.3	#	1
Apr	.3	.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	.3	.0	#	0
Nov	1.0	#	#	0
Dec	3.4	2.0	#	0
Ann	18.8	9.4	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	15.0	1985	9	32.7	1979	20+	1979	15	8	1979
Feb	10.0	1980	7	23.0	1971	17+	1983	5	7	1979
Mar	8.0	1975	9	9.0	1984	9+	1971	3	2	1971
Apr	2.2	1983	4	4.2	1983	2	1983	4	#	1983
May	.0	0	0	.0	0	0	0	0	#	1995
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	5.3	1991	31	5.3	1991	1	1991	31	#	1991
Nov	5.0	1975	25	5.0	1975	7+	1991	1	1+	1991
Dec	6.6	1983	20	16.1	1983	11	1983	21	4	1983
Ann	15.0	Jan 1985	9	32.7	Jan 1979	20+	Jan 1979	15	8	Jan 1979

Mean Number of Days (1)

Snow Fall >= Thresholds

Month	0.1	1.0	3.0	5.0	10.0
Jan	3.3	2.4	.8	.3	.1
Feb	1.8	1.5	.7	.3	.1
Mar	1.1	.8	.3	.1	.0
Apr	.3	.2	.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	.2	.0	@	@	.0
Nov	.8	.6	.1	@	.0
Dec	1.9	1.5	.4	.1	.0
Ann	9.4	7.0	2.3	.8	.2

Snow Depth >= Thresholds

Month	1	3	5	10
Jan	11.2	7.0	3.6	.5
Feb	8.1	5.2	3.6	1.1
Mar	2.3	1.2	.6	.0
Apr	.2	.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	@	.0	.0	.0
Nov	1.4	.6	.3	.0
Dec	3.8	1.6	.9	.3
Ann	27.0	15.6	9.0	1.9

+ 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	5/10	5/06	5/02	4/29	4/27	4/24	4/21	4/18	4/13
32	4/28	4/23	4/20	4/17	4/15	4/12	4/10	4/07	4/02
28	4/13	4/10	4/07	4/05	4/03	4/01	3/29	3/27	3/23
24	4/06	3/31	3/27	3/24	3/20	3/17	3/13	3/09	3/04
20	4/01	3/24	3/19	3/14	3/10	3/05	3/01	2/23	2/15
16	3/25	3/17	3/10	3/05	2/28	2/23	2/18	2/12	2/03

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	9/24	9/28	10/02	10/05	10/08	10/10	10/13	10/17	10/21
32	10/03	10/09	10/13	10/16	10/19	10/22	10/26	10/30	11/04
28	10/17	10/22	10/26	10/29	11/01	11/04	11/07	11/10	11/15
24	10/22	10/29	11/03	11/07	11/11	11/15	11/19	11/24	12/01
20	11/04	11/11	11/16	11/20	11/24	11/28	12/02	12/07	12/14
16	11/07	11/14	11/20	11/24	11/28	12/03	12/07	12/13	12/20

Freeze Free Period

Temp (F)	Probability of longer than indicated freeze free period (Days)								
	.10	.20	.30	.40	.50	.60	.70	.80	.90
36	185	178	172	167	163	159	154	148	141
32	206	199	195	190	186	183	178	173	167
28	231	224	219	215	211	207	203	198	191
24	263	253	246	241	235	230	224	217	208
20	290	279	272	265	259	253	246	238	228
16	308	296	287	280	272	265	258	249	237

***** 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)

Heating Degree Days (1)

Base Below	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Ann
65	1117	845	620	316	102	7	0	3	41	238	658	1005	4952
60	963	716	471	196	42	1	0	0	12	125	511	850	3887
57	871	638	385	138	21	0	0	0	4	76	428	758	3319
55	811	587	330	105	12	0	0	0	2	52	373	700	2972
50	667	466	212	44	2	0	0	0	0	16	251	557	2215
32	238	155	17	0	0	0	0	0	0	0	25	163	598

Cooling Degree Days (1)

Base Above	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Ann
32	143	235	420	687	1020	1306	1527	1470	1143	802	357	181	9291
55	4	23	20	102	319	616	814	757	454	141	15	6	3271
57	2	18	13	75	266	556	752	695	397	103	9	1	2887
60	0	12	7	43	194	467	659	602	314	59	2	0	2359
65	0	0	0	13	99	323	504	450	194	17	0	0	1600
70	0	0	0	3	39	195	351	308	104	3	0	0	1003

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	26	84	226	449	771	1067	1275	1220	906	557	174	38	26	110	336	785	1556	2623	3898	5118	6024	6581	6755	6793
45	5	39	134	316	616	917	1120	1065	757	413	98	10	5	44	178	494	1110	2027	3147	4212	4969	5382	5480	5490
50	0	13	68	197	462	767	965	910	608	279	43	2	0	13	81	278	740	1507	2472	3382	3990	4269	4312	4314
55	0	3	33	108	314	617	810	755	465	166	17	0	0	3	36	144	458	1075	1885	2640	3105	3271	3288	3288
60	0	0	8	50	191	470	655	600	330	85	4	0	0	0	8	58	249	719	1374	1974	2304	2389	2393	2393
Base	**Growing Degree Units for Corn (Monthly)**												**Growing Degree Units for Corn (Accumulated Monthly)**											
50/86	27	70	149	271	480	708	853	816	586	341	114	33	27	97	246	517	997	1705	2558	3374	3960	4301	4415	4448

(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.
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