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: EL DORADO, KS **COOP ID: 142401**

Climate Division: KS 9 **NWS Call Sign:** **Elevation: 1,340 Feet** **Lat: 37˚49N** **Lon: 96˚51W**

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	40.8	17.7	29.3	78	1981	24	38.4	1990	-23	1947	4	14.8	1979	1108	0	.0	.0	9.8	8.0	27.6	1.7
Feb	47.8	22.7	35.3	84	1996	22	45.4	1999	-28	1905	13	22.2	1978	834	0	.0	.0	13.4	4.4	21.0	1.2
Mar	57.6	31.9	44.8	93	1916	21	49.9	1986	-10	1943	7	38.8	1984	627	0	.0	.0	23.6	.6	13.4	.1
Apr	67.5	42.7	55.1	97	1936	14	63.6	1981	12	1936	3	47.9	1983	309	12	.0	.2	28.7	.0	3.2	.0
May	76.3	54.2	65.3	101	1913	29	69.8	1998	25+	1909	1	60.5	1995	87	95	.0	1.0	31.0	.0	.1	.0
Jun	85.1	63.4	74.3	108	1953	16	79.3	1980	43+	1983	1	70.0	1982	7	284	.4	9.0	30.0	.0	.0	.0
Jul	90.9	68.4	79.7	117	1936	18	87.7	1980	44	1924	3	77.0	1994	0	455	2.8	19.3	31.0	.0	.0	.0
Aug	89.6	66.1	77.9	116	1936	12	85.0	2000	44+	1915	30	72.1	1992	4	402	2.2	17.7	31.0	.0	.0	.0
Sep	81.7	57.6	69.7	112	1947	3	77.7	1998	28	1984	30	61.5	1974	48	187	.5	7.1	30.0	.0	.1	.0
Oct	70.8	45.1	58.0	98+	1947	5	62.3	2000	12	1917	30	52.3	1976	237	18	.0	.4	30.4	.0	2.2	.0
Nov	55.4	32.3	43.9	85	1909	4	53.3	1999	-4	1940	13	38.1	1991	635	0	.0	.0	21.2	.7	13.8	@
Dec	43.8	22.0	32.9	80	1955	24	39.3	1999	-18+	1989	23	17.3	1983	995	0	.0	.0	11.4	4.4	24.9	.9
Ann	67.3	43.7	55.5	117	Jul 1936	18	87.7	Jul 1980	-28	Feb 1905	13	14.8	Jan 1979	4891	1453	5.9	54.7	291.5	18.1	106.3	3.9

\+ 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: 1904-2001

(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	.93	.72	1.67	1907	19	2.73	1973	.00	1986
Feb	1.33	.92	2.22	1997	21	3.94	2000	.08	1991
Mar	2.82	2.48	3.20	1953	31	8.92	1973	.20	1971
Apr	3.02	2.48	4.14	1940	17	8.01	1994	.09	1989
May	4.41	4.55	4.32	1953	27	9.71	1993	.56	1994
Jun	5.39	4.96	5.50	1979	8	12.18	1979	1.03	1988
Jul	3.94	4.00	8.20	1905	2	8.75	1976	.07	1974
Aug	3.63	3.22	4.58	1987	12	10.77	1987	.13	2000
Sep	3.25	2.50	5.75	1942	3	8.75	1998	.60	1980
Oct	2.96	2.73	5.75	1973	11	9.52	1998	.16	1975
Nov	2.38	2.44	8.10	1928	16	5.77	1992	.00	1995
Dec	1.45	1.08	2.82	1944	4	5.04	1984	.01	1975
Ann	35.51	35.11	8.20	Jul 1905	2	12.18	Jun 1979	.00+	Nov 1995

Mean Number of Days (3)

Daily Precipitation

Month	>= 0.01	>= 0.10	>= 0.50	>= 1.00
Jan	5.6	2.4	.5	.1
Feb	5.7	3.1	.8	.3
Mar	8.5	5.3	2.2	.6
Apr	9.1	5.5	2.2	.7
May	11.2	7.1	3.2	1.4
Jun	9.9	6.5	3.1	1.7
Jul	7.8	5.2	2.6	1.3
Aug	8.4	5.0	2.7	1.1
Sep	8.3	5.2	1.9	1.0
Oct	6.9	4.5	1.9	.7
Nov	6.8	3.9	1.6	.7
Dec	6.1	3.0	1.0	.3
Ann	94.3	56.7	23.7	9.9

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	.04	.11	.24	.38	.53	.69	.89	1.14	1.48	2.05	2.61
Feb	.12	.21	.39	.58	.78	1.01	1.28	1.62	2.09	2.87	3.63
Mar	.49	.74	1.15	1.53	1.93	2.36	2.84	3.44	4.23	5.51	6.73
Apr	.45	.71	1.14	1.56	1.99	2.47	3.01	3.68	4.58	6.05	7.45
May	1.20	1.62	2.25	2.81	3.35	3.93	4.56	5.31	6.29	7.82	9.25
Jun	1.11	1.60	2.39	3.11	3.84	4.62	5.50	6.56	7.95	10.19	12.31
Jul	.43	.73	1.28	1.83	2.42	3.07	3.85	4.81	6.11	8.27	10.38
Aug	.40	.67	1.17	1.68	2.22	2.83	3.55	4.44	5.65	7.65	9.60
Sep	.72	1.02	1.50	1.93	2.36	2.82	3.33	3.95	4.76	6.05	7.26
Oct	.36	.60	1.02	1.43	1.87	2.35	2.92	3.62	4.57	6.13	7.64
Nov	.12	.33	.69	1.04	1.41	1.83	2.32	2.93	3.76	5.14	6.48
Dec	.10	.19	.37	.57	.79	1.05	1.36	1.76	2.31	3.25	4.18
Ann	24.58	26.67	29.36	31.41	33.24	35.01	36.85	38.88	41.35	44.94	48.06

\+ 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: 1904-2001
(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	3.1	1.0	#	#
Feb	3.9	1.5	1	#
Mar	.8	.0	#	0
Apr	.0	.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	.0	.0	0	0
Nov	.8	.0	#	0
Dec	2.5	1.1	#	#
Ann	11.1	3.6	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	6.5	1993	9	14.1	1973	7	1988	6	3	1974
Feb	13.0	1971	22	18.5	1971	14	1971	23	8	1980
Mar	7.0	1998	19	7.0	1998	8	1998	20	1	1998
Apr	.6	1975	2	.6	1975	4	1979	4	#+	1994
May	.0	0	0	.0	0	#	1983	7	#	1983
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	.2	1980	28	.2	1980	0	0	0	0	0
Nov	4.0	1971	23	4.0+	1987	5	1975	26	#+	1995
Dec	4.5	1987	13	11.5	1987	7	1987	14	1+	2000
Ann	13.0	Feb 1971	22	18.5	Feb 1971	14	Feb 1971	23	8	Feb 1980

Mean Number of Days (1)

Snow Fall >= Thresholds

Month	0.1	1.0	3.0	5.0	10.0
Jan	2.1	.9	.3	.1	.0
Feb	1.9	1.2	.5	.1	.1
Mar	.6	.4	.1	.1	.0
Apr	.1	.0	.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	@	.0	.0	.0	.0
Nov	.4	.2	.1	.0	.0
Dec	1.7	.9	.3	.0	.0
Ann	6.8	3.6	1.3	.3	.1

Snow Depth >= Thresholds

Month	1	3	5	10
Jan	1.2	.4	.1	.0
Feb	2.5	1.4	.7	.2
Mar	.6	.3	.0	.0
Apr	@	.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	.0
Nov	.2	.1	.0	.0
Dec	1.0	.4	.2	.0
Ann	5.5	2.6	1.0	.2

+ 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	5/03	4/30	4/28	4/25	4/22	4/19	4/15
32	4/28	4/23	4/20	4/17	4/14	4/11	4/08	4/04	3/31
28	4/13	4/09	4/06	4/04	4/02	3/30	3/28	3/25	3/21
24	4/08	4/02	3/29	3/25	3/21	3/18	3/14	3/09	3/03
20	4/02	3/26	3/20	3/15	3/11	3/07	3/02	2/25	2/17
16	3/23	3/15	3/09	3/04	2/27	2/22	2/17	2/11	2/02

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	9/23	9/28	10/02	10/05	10/08	10/10	10/13	10/17	10/22
32	10/01	10/07	10/12	10/15	10/19	10/22	10/26	10/30	11/05
28	10/14	10/20	10/24	10/28	10/31	11/03	11/07	11/11	11/17
24	10/27	11/02	11/06	11/09	11/13	11/16	11/19	11/23	11/29
20	11/06	11/12	11/17	11/21	11/24	11/28	12/01	12/06	12/12
16	11/10	11/17	11/22	11/27	12/01	12/05	12/10	12/15	12/22

Freeze Free Period

Temp (F)	Probability of longer than indicated freeze free period (Days)								
	.10	.20	.30	.40	.50	.60	.70	.80	.90
36	181	175	170	166	162	158	154	150	143
32	210	202	197	192	187	183	178	172	164
28	231	225	220	216	212	208	204	199	192
24	262	253	246	241	236	230	225	218	209
20	289	278	270	263	257	251	244	237	226
16	313	301	291	284	276	269	261	252	240

***** 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	1108	834	627	309	87	7	0	4	48	237	635	995	4891
60	953	704	475	188	32	0	0	0	15	124	487	840	3818
57	861	626	388	130	14	0	0	0	6	75	404	747	3251
55	801	574	332	97	8	0	0	0	3	51	350	687	2903
50	656	452	209	39	1	0	0	0	0	15	231	543	2146
32	223	141	14	0	0	0	0	0	0	0	19	144	541

Base	Cooling Degree Days (1)												
Above	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Ann
32	138	231	410	693	1031	1268	1478	1421	1129	804	374	171	9148
55	3	20	15	100	325	578	765	708	442	142	16	2	3116
57	1	15	9	73	270	518	703	646	385	104	10	0	2734
60	0	10	2	41	195	428	610	553	304	60	3	0	2206
65	0	0	0	12	95	284	455	402	187	18	0	0	1453
70	0	0	0	2	34	160	303	261	101	4	0	0	865

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	38	110	273	519	808	1057	1254	1209	925	608	221	54	38	148	421	940	1748	2805	4059	5268	6193	6801	7022	7076
45	14	56	171	379	653	907	1099	1054	775	458	129	22	14	70	241	620	1273	2180	3279	4333	5108	5566	5695	5717
50	1	22	94	247	500	757	944	899	625	318	65	5	1	23	117	364	864	1621	2565	3464	4089	4407	4472	4477
55	0	9	40	140	350	607	789	744	480	195	26	1	0	9	49	189	539	1146	1935	2679	3159	3354	3380	3381
60	0	1	14	69	217	457	634	589	344	103	6	0	0	1	15	84	301	758	1392	1981	2325	2428	2434	2434
Base	Growing Degree Units for Corn (Monthly)												Growing Degree Units for Corn (Accumulated Monthly)											
50/86	37	90	182	319	520	715	849	815	613	383	141	43	37	127	309	628	1148	1863	2712	3527	4140	4523	4664	4707

(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