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: KIRKSVILLE, MO **COOP ID: 234544**

Climate Division: MO 2 **NWS Call Sign:** **Elevation: 970 Feet** **Lat: 40˚12N** **Lon: 92˚34W**

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	31.9	13.4	22.7	70	1950	24	34.3	1990	-23	1982	10	9.2	1979	1312	0	.0	.0	3.1	14.2	28.5	4.9
Feb	38.2	18.4	28.3	78+	1972	29	37.3	1976	-20	1996	2	14.5	1978	1028	0	.0	.0	6.9	9.6	23.3	2.6
Mar	50.2	29.1	39.7	85	1986	29	45.2	1973	-13	1960	5	30.6	1984	786	0	.0	.0	16.3	2.4	17.8	.2
Apr	61.5	39.4	50.5	93	1930	10	56.4	1981	8	1920	5	43.9	1983	441	4	.0	@	26.6	@	5.5	.0
May	71.9	50.9	61.4	101	1934	30	68.1	1987	29	1966	10	56.5	1981	175	63	.0	@	30.9	.0	.2	.0
Jun	81.1	60.4	70.8	106	1936	28	75.3	1971	40	1966	1	65.8	1982	16	188	.1	3.0	30.0	.0	.0	.0
Jul	86.4	65.4	75.9	113	1936	15	81.1	1980	46+	1971	31	72.1	1971	0	338	.6	10.6	31.0	.0	.0	.0
Aug	84.7	63.2	74.0	111+	1936	24	81.5	1983	40	1986	28	68.7	1992	14	290	.4	7.8	31.0	.0	.0	.0
Sep	76.6	53.8	65.2	103	1947	8	70.7	1998	25	1942	28	59.5	1974	91	97	.0	1.8	30.0	.0	.2	.0
Oct	65.2	42.8	54.0	95	1939	7	60.2	1971	1	1925	30	47.9	1976	349	8	.0	.1	29.0	.0	4.1	.0
Nov	49.4	29.7	39.6	82+	1938	1	48.4	1999	-10	1964	30	32.5	1976	764	0	.0	.0	15.5	2.2	16.8	.1
Dec	36.5	18.8	27.7	70+	1998	4	34.7	1982	-23	1924	28	12.9	1983	1158	0	.0	.0	4.9	10.5	27.1	2.6
Ann	61.1	40.4	50.8	113	Jul 1936	15	81.5	Aug 1983	-23+	Jan 1982	10	9.2	Jan 1979	6134	988	1.1	23.3	255.2	38.9	123.5	10.4

\+ 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: 1918-2001

(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	1.00	.81	3.83	1965	1	2.85	1973	.00+	1997
Feb	1.13	1.22	1.83	2001	9	3.08	1985	.00	1988
Mar	2.46	2.35	3.16	1920	25	6.38	1973	.26	1994
Apr	3.35	3.26	2.98	1920	16	7.55	1973	.69	1986
May	4.96	4.50	3.91	1973	27	10.23	1995	1.41	1992
Jun	4.40	4.18	5.20	1933	29	11.43	1981	.07	1988
Jul	4.67	3.50	5.22	1956	2	15.04	1992	.41	1975
Aug	3.63	3.01	4.60	1968	4	8.55	1980	.11	1984
Sep	3.99	3.19	6.42	1961	13	11.69	1973	.25	1979
Oct	3.18	2.78	4.50	1973	3	8.45	1985	.45	1993
Nov	2.71	2.43	3.25	1928	17	7.11	1983	.04	1989
Dec	1.65	1.32	3.34	1971	15	6.14	1971	.00	1996
Ann	37.13	34.93	6.42	Sep 1961	13	15.04	Jul 1992	.00+	Jan 1997

Mean Number of Days (3)

Daily Precipitation

Month	>= 0.01	>= 0.10	>= 0.50	>= 1.00
Jan	5.2	3.2	.6	.1
Feb	5.0	3.0	.7	.1
Mar	7.8	5.3	1.8	.5
Apr	9.6	6.7	2.6	.7
May	10.7	8.1	3.3	1.4
Jun	8.9	6.4	2.9	1.6
Jul	8.2	5.9	3.2	1.6
Aug	7.5	5.7	2.5	1.0
Sep	7.7	6.0	3.0	1.1
Oct	8.1	5.4	2.0	.8
Nov	7.5	5.1	2.3	.6
Dec	6.0	3.3	1.1	.3
Ann	92.2	64.1	26.0	9.8

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	.00	.17	.35	.54	.74	.97	1.27	1.67	2.31	2.94
Feb	.16	.31	.50	.66	.82	.99	1.17	1.39	1.68	2.15	2.58
Mar	.56	.79	1.15	1.48	1.80	2.14	2.53	2.99	3.59	4.55	5.46
Apr	.70	1.01	1.50	1.95	2.40	2.88	3.42	4.07	4.93	6.30	7.60
May	1.31	1.78	2.50	3.13	3.75	4.40	5.13	5.98	7.10	8.86	10.50
Jun	.79	1.18	1.83	2.43	3.04	3.70	4.46	5.37	6.58	8.54	10.40
Jul	.64	1.03	1.69	2.34	3.02	3.77	4.64	5.71	7.15	9.50	11.77
Aug	.76	1.09	1.62	2.11	2.60	3.12	3.71	4.41	5.34	6.83	8.24
Sep	.86	1.23	1.81	2.34	2.88	3.44	4.08	4.85	5.86	7.47	8.99
Oct	.50	.77	1.23	1.67	2.12	2.62	3.19	3.88	4.80	6.31	7.75
Nov	.33	.54	.93	1.30	1.71	2.15	2.67	3.32	4.19	5.62	7.01
Dec	.10	.26	.52	.76	1.02	1.30	1.63	2.04	2.59	3.49	4.37
Ann	21.72	24.48	28.14	31.01	33.60	36.15	38.84	41.85	45.56	51.06	55.92

\+ 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: 1918-2001
(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	4.8	5.4	1	0
Feb	5.0	4.4	#	0
Mar	3.1	.0	#	0
Apr	.3	.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
Nov	1.8	.0	#	0
Dec	3.3	1.4	#	0
Ann	18.3	11.2	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	12.0	1971	3	14.5	1971	27+	1979	31	19	1979
Feb	12.0	1978	13	16.8	1993	6	1972	11	2+	1989
Mar	8.0	1990	23	18.5	1978	6	1980	1	1	1980
Apr	2.8	1980	14	2.8	1980	#+	1980	14	0	0
May	.0	0	0	.0	0	0	0	0	#	1999
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	1980	28	.5	1980	1	1980	28	#	1980
Nov	7.0	1974	30	12.3	1974	12	1974	30	1+	1975
Dec	5.5	1983	21	11.0	1997	12	1974	1	4	2000
Ann	12.0+	Feb 1978	13	18.5	Mar 1978	27+	Jan 1979	31	19	Jan 1979

Mean Number of Days (1)

Snow Fall >= Thresholds

Month	0.1	1.0	3.0	5.0	10.0
Jan	2.9	1.6	.4	.2	@
Feb	2.7	1.8	.5	.2	@
Mar	1.1	.8	.4	.2	.0
Apr	.2	.1	.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	.0
Nov	.7	.5	.2	.1	.0
Dec	2.1	1.1	.3	.1	.0
Ann	9.7	5.9	1.8	.8	@

Snow Depth >= Thresholds

Month	1	3	5	10
Jan	6.2	5.0	4.0	2.4
Feb	4.6	1.8	.3	.0
Mar	.4	.2	.1	.0
Apr	.0	.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	.5	.3	.2	@
Dec	1.7	.9	.6	@
Ann	13.4	8.2	5.2	2.4

+ 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	5/15	5/10	5/06	5/03	4/30	4/27	4/24	4/20	4/15
32	5/04	4/29	4/25	4/22	4/19	4/16	4/13	4/09	4/04
28	4/20	4/16	4/13	4/11	4/09	4/07	4/05	4/02	3/29
24	4/15	4/11	4/08	4/05	4/02	3/31	3/28	3/25	3/20
20	4/06	3/31	3/27	3/23	3/20	3/16	3/13	3/08	3/02
16	3/28	3/22	3/17	3/13	3/10	3/06	3/02	2/25	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	9/20	9/25	9/28	10/01	10/03	10/06	10/09	10/12	10/16
32	9/25	9/30	10/04	10/08	10/11	10/14	10/17	10/21	10/27
28	10/08	10/14	10/18	10/21	10/25	10/28	10/31	11/04	11/10
24	10/24	10/28	10/31	11/03	11/06	11/08	11/11	11/14	11/18
20	10/28	11/03	11/08	11/12	11/15	11/19	11/23	11/27	12/03
16	11/05	11/11	11/15	11/19	11/23	11/27	12/01	12/05	12/12

Freeze Free Period

Temp (F)	Probability of longer than indicated freeze free period (Days)								
	.10	.20	.30	.40	.50	.60	.70	.80	.90
36	176	169	164	160	156	152	147	142	135
32	196	189	183	179	174	170	165	160	153
28	220	212	207	202	198	194	189	184	176
24	235	229	224	220	217	213	209	204	198
20	267	258	251	245	240	234	228	222	212
16	284	275	268	263	258	253	247	241	232

***** 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	1312	1028	786	441	175	16	0	14	91	349	764	1158	6134
60	1157	888	631	305	92	3	0	2	34	219	615	1003	4949
57	1064	808	546	232	57	1	0	0	16	155	528	910	4317
55	1002	756	487	189	39	0	0	0	8	119	473	849	3922
50	854	626	351	102	13	0	0	0	1	54	341	705	3047
32	376	244	57	1	0	0	0	0	0	0	53	262	993

Cooling Degree Days (1)

Base Above	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Ann
32	87	139	294	554	912	1162	1361	1300	996	682	279	126	7892
55	0	8	11	52	238	472	648	587	314	88	9	0	2427
57	0	4	8	35	193	413	586	525	262	62	4	0	2092
60	0	0	0	18	135	325	493	434	190	34	1	0	1630
65	0	0	0	4	63	188	338	290	97	8	0	0	988
70	0	0	0	0	22	83	196	168	38	1	0	0	508

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	9	47	165	398	702	952	1132	1067	791	473	149	26	9	56	221	619	1321	2273	3405	4472	5263	5736	5885	5911
45	1	20	95	270	547	802	977	912	641	330	81	7	1	21	116	386	933	1735	2712	3624	4265	4595	4676	4683
50	0	5	53	170	395	652	822	757	494	211	39	2	0	5	58	228	623	1275	2097	2854	3348	3559	3598	3600
55	0	0	24	89	258	502	667	602	355	117	15	0	0	0	24	113	371	873	1540	2142	2497	2614	2629	2629
60	0	0	8	42	141	352	512	447	228	54	1	0	0	0	8	50	191	543	1055	1502	1730	1784	1785	1785
Base	**Growing Degree Units for Corn (Monthly)**												**Growing Degree Units for Corn (Accumulated Monthly)**											
50/86	6	35	107	243	433	640	776	726	509	281	83	14	6	41	148	391	824	1464	2240	2966	3475	3756	3839	3853

(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