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: 231364

Lon: 89°40W

Station: CARUTHERSVILLE, MO

Climate Division: MO 6 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 43.1 27.2 35.2 76+ 1950 25 42.7 1989 -15+ 1930 18 22.0 1977 925 0 .0 .0 9.0 5.8 22.6 .9 Jan .2 49.2 31.5 40.4 82 1918 28 48.1 1976 -8 1951 2 26.7 1978 691 0 .0 .0 14.2 3.4 16.2 Feb Mar 58.9 40.3 49.6 88+ 1929 25 55.9 1973 5 1943 3 43.1 1996 481 3 .0 .0 24.7 .4 8.3 0. 93 15 21 7 1983 Apr 69.4 49.4 59.4 1924 66.8 1981 1982 54.4 205 36 .0. .0 29.0 .0 1.3 .0 May 78.5 59.5 69.0 102 +1921 30 74.8 1987 34 1954 19 63.9 1976 50 173 .0 1.8 31.0 .0 .0 .0 17 80.1 45 9 72.7 Jun 86.9 67.3 77.1 109 1918 1984 1980 1974 1 363 .2 11.6 30.0 .0 .0 .0 Jul 90.5 71.3 80.9 109 1921 17 86.0 1980 54+ 1990 14 78.5 1995 492 1.1 19.3 31.0 0. .0 0 .0 1992 88.6 69.0 78.8 111 1918 11 84.1 1980 48 1988 30 73.4 0 427 .5 14.3 31.0 .0 .0 .0 Aug 21 Sep 82.4 61.5 72.0 108 1925 6 77.5 1998 37 +1984 30 66.9 1974 229 .0 5.4 30.0 .0 .0 .0 72.4 27 55.4 1987 Oct 49.6 61.0 98 1919 1 68.7 1971 1987 8 180 56 .0 .2 30.8 .0 1.1 .0 58.8 40.2 49.5 87 1948 4 54.6+ 1990 5 1950 25 41.2 1976 468 4 .0 .0 23.3 .0 Nov .1 8.1 Dec 47.6 31.5 39.6 79 1918 10 48.4 1971 **-9**+ 1989 24 29.0 2000 789 0 .0 .0 13.8 2.8 18.9 .3 Aug Jul Jan Jan 68.9 49.9 59.4 111 1918 11 86.0 1980 -15+ 1930 18 22.0 1977 3811 1783 1.8 52.6 297.8 12.5 76.5 1.4 Ann

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

Issue Date: February 2004 021-A

(1) From the 1971-2000 Monthly Normals

Elevation: 280 Feet Lat: 36°10N

- (2) Derived from station's available digital record: 1918-2001
- (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

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Station: CARUTHERSVILLE, MO
COOP ID: 231364

Climate Division: MO 6 NWS Call Sign: Elevation: 280 Feet Lat: 36°10N Lon: 89°40W

										Pı	recipi	tation	(incl	nes)										
	Mea	Means/ Mediangue Extremes										ays (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										
	Medi	ans(1)				Extremes	•			Daily Precipitation				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	3.46	3.05	4.15	1920	8	9.25	1999	.56	1987	10.2	6.2	2.4	1.0	1.03	1.36	1.86	2.28	2.69	3.12	3.60	4.15	4.87	6.00	7.04
Feb	3.76	3.27	3.50	1956	18	11.96	1989	1.29	1999	8.7	5.9	2.5	1.0	1.06	1.42	1.96	2.43	2.89	3.36	3.89	4.52	5.33	6.60	7.78
Mar	4.82	4.29	3.70	1933	18	14.18	1975	1.79	1995	11.4	8.3	3.2	1.2	1.95	2.39	3.02	3.53	4.02	4.51	5.05	5.66	6.44	7.64	8.72
Apr	5.00	4.64	4.26	1994	28	10.78	1979	1.60	1976	10.1	7.3	3.3	1.5	1.91	2.37	3.04	3.59	4.11	4.65	5.23	5.90	6.76	8.07	9.27
May	5.02	4.15	4.45	1983	19	12.39	1983	2.23	1992	10.4	7.7	3.4	1.4	2.05	2.51	3.16	3.69	4.20	4.71	5.26	5.89	6.70	7.93	9.05
Jun	4.60	3.94	5.20	1989	12	9.64	1976	.04	1988	8.6	6.3	2.9	1.1	.84	1.25	1.92	2.55	3.18	3.87	4.66	5.60	6.86	8.89	10.83
Jul	3.93	2.97	6.78	1976	4	13.41	1998	.40	1983	8.3	6.1	2.5	1.0	.50	.82	1.37	1.92	2.50	3.14	3.88	4.80	6.04	8.07	10.04
Aug	3.01	2.65	4.45	1952	13	7.08	1992	.30	1996	6.4	4.4	1.9	1.0	.46	.71	1.14	1.56	1.99	2.46	3.01	3.67	4.56	6.02	7.41
Sep	3.06	2.58	3.91	1979	21	7.80	1977	.18	1998	7.8	5.0	2.1	.9	.45	.71	1.15	1.57	2.01	2.50	3.05	3.74	4.65	6.15	7.59
Oct	3.56	3.28	3.75	1999	9	10.02	1984	.95	1982	7.0	4.8	2.4	1.0	.84	1.18	1.70	2.16	2.62	3.11	3.66	4.31	5.17	6.53	7.81
Nov	4.85	4.11	5.48	1988	19	12.31	1973	1.62+	1999	9.5	6.8	3.5	1.4	1.38	1.84	2.54	3.14	3.73	4.35	5.03	5.83	6.87	8.50	10.02
Dec	4.78	4.56	4.30	1982	4	12.05	1978	1.15	1976	10.3	6.7	3.4	1.4	1.15	1.60	2.30	2.92	3.54	4.19	4.92	5.79	6.93	8.73	10.43
Ann	49.85	48.39	6.78	Jul 1976	4	14.18	Mar 1975	.04	Jun 1988	108.7	75.5	33.5	13.9	38.49	40.75	43.62	45.77	47.66	49.47	51.33	53.37	55.83	59.35	62.37

⁺ 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: 1918-2001

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

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Climate Division: MO 6 NWS Call Sign:

COOP ID: 231364 Elevation: 280 Feet Lat: 36°10N Lon: 89°40W

										Snov	w (incl	nes)												
						Sno	ow To	tals									Mea	n Nu	mber	of Day	ys (1)			
	Mean	s/Medi	ians (1)	ı	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	2.2	.2	#	0	7.0	1977	10	15.5	1979	6	1973	8	1	1973	1.1	.8	.3	@	.0	.3	.1	.0	.0	
Feb	2.1	.0	#	0	8.5	1979	7	15.5	1979	5	1971	13	2	1985	.6	.6	.3	.2	.0	.3	.1	.1	.0	
Mar	.6	.0	#	0	5.0	1991	29	5.0	1991	3	1971	3	#+	1999	.2	.2	.1	@	.0	.1	.1	.0	.0	
Apr	#	.0	#	0	#	1987	4	#+	1987	#	1971	7	#	1971	.0	.0	.0	.0	.0	.0	.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	#	.0	0	0	#	1989	19	#	1989	0	0	0	0	0	.0	.0	.0	.0	.0	.0	.0	.0	.0	
Nov	.2	.0	#	0	3.0	1971	24	3.0	1971	2+	1995	16	#+	1995	.1	.1	@	.0	.0	.1	.0	.0	.0	
Dec	.5	.0	#	0	3.0	1973	20	3.0+	1992	2	2000	17	1	2000	.2	.1	.1	.0	.0	.0	.0	.0	.0	
Ann	5.6	.2	N/A	N/A	8.5	Feb 1979	7	15.5+	Feb 1979	6	Jan 1973	8	2	Feb 1985	2.2	1.8	.8	.2	.0	.8	.3	.1	.0	

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

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[@] 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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Elevation: 280 Feet

Station: CARUTHERSVILLE, MO

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				Freez	e Data										
			Spri	ng Freeze D	ates (Month/	/Day)									
Temp (F)		P	robability of	later date i	n spring (thr	ru Jul 31) tha	n indicated((*)							
Temp (F)	.10	.20	.30	.40	.50	.60	.70	.80	.90						
36	4/24	4/20	4/17	4/14	4/12	4/09	4/06	4/03	3/30						
32	4/13	4/09	4/06	4/03	4/01	3/29	3/26	3/23	3/19						
28	4/01	3/26	3/22	3/18	3/14	3/11	3/07	3/03	2/25						
24	3/27	3/18	3/11	3/06	2/28	2/23	2/18	2/11	2/02						
20	3/12	3/04	2/27	2/22	2/18	2/13	2/09	2/03	1/27						
16	3/05	2/25	2/19	2/13	2/08	2/03	1/29	1/22	1/12						
1			Fal	l Freeze Da	tes (Month/D	Day)		1							
T (E)	Probability of earlier date in fall (beginning Aug 1) than indicated(*)														
Temp (F)	.10	.20	.30	.40	.50	.60	.70	.80	.90						
36	10/06	10/10	10/13	10/16	10/18	10/21	10/23	10/26	10/31						
32	10/14	10/20	10/25	10/29	11/01	11/05	11/09	11/13	11/19						
28	10/28	11/03	11/08	11/12	11/16	11/20	11/24	11/29	12/05						
24	11/08	11/15	11/20	11/25	11/29	12/03	12/08	12/13	12/20						
20	11/17	11/24	11/30	12/04	12/09	12/13	12/18	12/23	12/31						
16	11/25	12/06	12/14	12/21	12/28	1/04	1/11	1/20	2/03						
1		•		Freeze F	ree Period	1		1							
Tomp (E)			Probability	of longer th	an indicated	freeze free p	eriod (Days)								
Temp (F)	.10	.20	.30	.40	.50	.60	.70	.80	.90						
36	207	201	196	193	189	185	181	177	171						
32	233	227	222	218	214	210	206	201	194						
28	276	266	258	252	246	240	233	226	215						
24	310	298	288	280	273	265	257	248	235						
20	324	313	306	299	293	287	280	273	262						
16	>365	>365	336	325	317	309	301	293	282						

^{*} 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.

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	Degree Days to Selected Base Temperatures (°F)														
Base						Heatin	g Degree l	Days (1)							
Below	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Ann		
65	925	691	481	205	50	1	0	0	21	180	468	789	3811		
60	771	558	339	110	16	0	0	0	4	93	332	638	2861		
57	686	479	262	68	7	0	0	0	1	57	258	552	2370		
55	627	428	216	47	4	0	0	0	0	39	215	495	2071		
50	486	310	124	14	0	0	0	0	0	12	125	361	1432		
32	127	51	4	0	0	0	0	0	0	0	4	61	247		

Base						Coolin	g Degree l	Days (1)					
Above	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Ann
32	225	285	548	821	1146	1353	1515	1450	1198	899	529	294	10263
55	12	17	48	178	437	663	802	737	508	225	51	15	3693
57	9	12	32	140	378	603	740	675	449	181	34	11	3264
60	1	7	16	91	294	513	647	582	363	124	18	4	2660
65	0	0	3	36	173	363	492	427	229	56	4	0	1783
70	0	0	0	10	84	219	337	278	122	19	0	0	1069

										Gro	wing l	Degre	e Uni	ts (2)										
Base					Growin	g Degree	Units (M	Ionthly)					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	67	140	312	564	881	1098	1257	1195	952	638	303	112	67	207	519	1083	1964	3062	4319	5514	6466	7104	7407	7519
45	31	76	196	420	726	948	1102	1040	802	485	196	55	31	107	303	723	1449	2397	3499	4539	5341	5826	6022	6077
50	10	30	111	286	571	798	947	885	652	342	113	27	10	40	151	437	1008	1806	2753	3638	4290	4632	4745	4772
55	0	11	53	174	419	648	792	730	502	215	57	6	0	11	64	238	657	1305	2097	2827	3329	3544	3601	3607
60	0	0	18	89	275	498	637	575	356	117	20	0	0	0	18	107	382	880	1517	2092	2448	2565	2585	2585
Base				Gro	wing Deg	gree Unit	s for Co	rn (Mont	hly)						Gr	owing D	egree Un	its for C	orn (Acc	umulate	d Month	ly)		
50/86	39	83	179	339	572	757	865	826	633	403	172	61	39	122	301	640	1212	1969	2834	3660	4293	4696	4868	4929

(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