

Climatography of the United States No. 20

National Climatic Data Center
Federal Building
151 Patton Avenue
Asheville, North Carolina 28801
www.ncdc.noaa.gov

Station: COLUMBIA RGNL AP, MO

1971-2000

COOP ID: 231791

Climate Division: MO 2

NWS Call Sign: COU

Elevation: 893 Feet

Lat: 38°49N

Lon: 92°13W

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	37.4	18.2	27.8	74	1989	31	40.2	1990	-19	1982	10	13.4	1977	1153	0	.0	.0	5.4	12.0	27.1	2.7
Feb	43.9	23.4	33.7	82	1972	29	42.4	1976	-15	1979	5	21.5	1978	891	0	.0	.0	9.5	6.8	21.0	1.3
Mar	55.1	33.0	44.0	85+	1986	29	48.7	1973	-5	1978	4	36.7	1984	656	3	.0	.0	18.9	1.3	14.6	.2
Apr	65.9	42.9	54.4	90+	1987	29	61.1	1981	19	1975	3	48.3	1983	336	18	.0	.1	26.9	.0	3.3	.0
May	74.6	52.8	63.7	92	1998	31	70.2	1991	29	1976	3	58.7	1997	115	70	.0	.3	31.0	.0	@	.0
Jun	83.6	61.8	72.7	103	1988	24	76.7	1971	40	1993	5	68.2	1974	10	245	.2	4.8	30.0	.0	.0	.0
Jul	88.6	66.3	77.4	111	1980	30	86.6	1980	48	1975	13	73.4	1971	1	396	1.0	14.1	31.0	.0	.0	.0
Aug	87.3	64.0	75.7	110	1984	29	81.6	1983	42	1986	28	70.3	1992	2	341	.7	12.0	31.0	.0	.0	.0
Sep	79.1	55.4	67.3	101	1971	14	73.6	1978	32	1984	30	59.6	1974	72	152	@	4.2	30.0	.0	@	.0
Oct	68.0	44.1	56.0	93	1981	5	61.7	1971	22+	1993	31	49.3	1976	291	20	.0	.1	29.5	.0	2.5	.0
Nov	53.4	33.0	43.2	83	1978	4	51.8	1999	0	1991	8	34.5	1976	642	1	.0	.0	17.4	1.5	13.7	@
Dec	41.5	22.5	32.0	76	1991	8	39.3	1982	-20	1989	22	17.3	1983	1008	0	.0	.0	7.7	7.4	24.9	1.4
Ann	64.9	43.1	54.0	111	Jul 1980	30	86.6	Jul 1980	-20	Dec 1989	22	13.4	Jan 1977	5177	1246	1.9	35.6	268.3	29.0	107.1	5.6

+ 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/normal/usnormals.html

Issue Date: February 2004

(1) From the 1971-2000 Monthly Normals

(2) Derived from station's available digital record: 1969-2001

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

026-A

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Precipitation (inches)																								
	Precipitation Totals									Mean Number of Days (3)				Precipitation Probabilities (1) Probability that the monthly/annual precipitation will be equal to or less than the indicated amount										
	Means/ Medians(1)		Extremes							Daily Precipitation				Monthly/Annual Precipitation vs Probability Levels 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	1.73	1.50	1.76	1995	13	4.78	1995	.05	1986	7.9	4.1	1.1	.2	.23	.37	.62	.86	1.11	1.39	1.71	2.11	2.65	3.53	4.39
Feb	2.20	1.98	2.40	1985	21	6.18	1985	.11	1991	8.5	4.3	1.3	.5	.36	.54	.86	1.17	1.48	1.82	2.21	2.68	3.32	4.35	5.34
Mar	3.21	2.95	3.88	1990	14	10.09	1973	.78	1971	10.8	6.3	2.0	.7	.90	1.21	1.67	2.07	2.46	2.87	3.33	3.86	4.56	5.65	6.67
Apr	4.16	3.57	4.50	1996	28	11.69	1994	.89	2000	11.1	7.2	3.0	.9	1.13	1.52	2.12	2.65	3.17	3.71	4.31	5.02	5.95	7.40	8.75
May	4.87	4.35	4.78	1995	17	12.31	1995	1.43	1998	12.1	7.7	3.4	1.1	1.77	2.22	2.88	3.44	3.96	4.50	5.09	5.77	6.64	7.99	9.22
Jun	4.02	3.28	3.21	1993	6	10.28	1985	.35	1980	9.1	5.8	2.6	1.2	.72	1.08	1.66	2.21	2.77	3.38	4.06	4.90	6.01	7.79	9.50
Jul	3.80	3.37	5.94	1989	30	12.14	1981	.24	1976	8.5	5.5	2.2	1.1	.54	.85	1.40	1.93	2.48	3.08	3.78	4.64	5.79	7.67	9.49
Aug	3.75	3.09	4.27	1993	12	9.10	2000	.21	1976	8.1	5.3	2.4	1.2	.44	.74	1.26	1.79	2.34	2.96	3.69	4.58	5.80	7.81	9.75
Sep	3.42	2.49	2.80	1984	8	12.06	1993	.45	1979	8.4	5.5	2.3	.9	.45	.72	1.21	1.69	2.19	2.74	3.38	4.17	5.24	7.00	8.69
Oct	3.18	2.80	4.83	1998	5	7.28	1998	1.03	1992	8.9	5.8	2.0	.8	.93	1.23	1.69	2.08	2.46	2.86	3.30	3.82	4.49	5.54	6.52
Nov	3.47	3.17	2.77	1985	18	10.42	1985	.42	1989	9.6	5.9	2.3	1.0	.71	1.03	1.54	2.00	2.47	2.97	3.54	4.22	5.13	6.57	7.94
Dec	2.47	2.27	2.71	1982	2	6.96	1982	.48	1996	8.9	4.5	1.7	.6	.52	.75	1.11	1.44	1.77	2.12	2.52	3.00	3.63	4.63	5.58
Ann	40.28	38.78	5.94	Jul 1989	30	12.31	May 1995	.05	Jan 1986	111.9	67.9	26.3	10.2	25.71	28.41	31.94	34.66	37.10	39.49	41.97	44.75	48.14	53.13	57.49

+ 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: 1969-2001

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

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Lat: 38°49N

Lon: 92°13W

Snow (inches)																							
Snow Totals															Mean Number of Days (1)								
Means/Medians (1)					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	7.3	5.1	1	0	18.0	1995	19	23.5	1979	13+	1995	21	6+	1979	4.4	2.1	.8	.3	@	11.4	5.6	3.8	.6
Feb	7.6	7.0	1	1	11.8	1975	23	20.2	1993	14	1993	26	6	1979	4.8	2.0	.9	.3	@	8.7	4.8	3.2	.6
Mar	3.5	2.1	#	0	6.3	1978	2	18.0	1978	12	1978	3	3	1978	2.4	1.0	.5	.2	.0	2.5	1.2	.8	.1
Apr	.8	.0	#	0	7.0	1980	14	7.1	1980	5	1980	14	#	1982	.4	.2	.1	@	.0	.2	.2	@	.0
May	.0	.0	#	0	.0	0	0	.0	0	0	0	0	#	1996	.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	0	.1	1976	30	.1	1976	#	1980	28	0	0	.0	.0	.0	.0	.0	.0	.0	.0	.0
Nov	2.4	1.1	#	0	7.6	1975	26	8.3	1971	8	1975	27	1+	1991	1.8	.7	.2	.1	.0	1.2	.6	.2	.0
Dec	4.6	3.3	1	0	11.2	1973	30	17.8	1973	13	1987	15	3	1983	3.3	1.4	.5	.1	@	5.7	3.0	1.1	.1
Ann	26.2	18.6	N/A	N/A	18.0	Jan 1995	19	23.5	Jan 1979	14	Feb 1993	26	6+	Feb 1979	17.1	7.4	3.0	1.0	@	29.7	15.4	9.1	1.4

+ 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

Complete documentation available from:

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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	5/06	5/02	4/29	4/26	4/24	4/21	4/19	4/16	4/12
32	4/21	4/18	4/15	4/13	4/10	4/08	4/06	4/03	3/30
28	4/14	4/10	4/07	4/04	4/02	3/31	3/28	3/25	3/21
24	4/05	3/31	3/27	3/24	3/21	3/18	3/15	3/11	3/06
20	3/29	3/23	3/18	3/14	3/11	3/07	3/03	2/27	2/20
16	3/18	3/11	3/05	2/28	2/24	2/19	2/14	2/09	2/01
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	9/29	10/02	10/05	10/07	10/10	10/13	10/16	10/21
32	10/05	10/11	10/15	10/18	10/21	10/24	10/28	11/01	11/06
28	10/15	10/21	10/26	10/29	11/02	11/06	11/09	11/14	11/20
24	10/28	11/02	11/06	11/09	11/12	11/16	11/19	11/23	11/28
20	11/07	11/13	11/18	11/22	11/25	11/29	12/03	12/08	12/14
16	11/12	11/19	11/24	11/28	12/02	12/06	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	184	178	174	170	166	162	158	154	147
32	212	205	201	197	193	189	185	181	174
28	235	228	222	218	213	209	204	199	191
24	256	249	244	240	236	231	227	222	215
20	288	278	271	265	259	253	247	240	230
16	312	301	293	287	280	274	267	260	249

* 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

Complete documentation available from:

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Elevation: 893 Feet Lat: 38°49N Lon: 92°13W

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	1153	891	656	336	115	10	1	2	72	291	642	1008	5177
60	998	738	499	199	61	1	0	0	24	171	508	868	4067
57	905	662	413	137	33	0	0	0	10	113	425	778	3476
55	845	610	357	102	21	0	0	0	6	83	371	721	3116
50	702	482	234	40	6	0	0	0	0	32	252	577	2325
32	263	147	20	0	0	0	0	0	0	0	26	183	639

Base	Cooling Degree Days (1)												
Above	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Ann
32	94	170	397	672	982	1222	1416	1365	1070	756	363	142	8649
55	1	4	33	107	283	533	703	652	389	136	24	3	2868
57	0	2	23	80	230	473	641	590	335	104	16	2	2496
60	0	1	12	50	160	384	548	497	260	63	7	1	1983
65	0	0	3	18	70	245	396	341	152	20	1	0	1246
70	0	0	0	3	23	123	245	202	74	4	0	0	674

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	29	78	218	447	745	991	1179	1127	840	522	191	52	29	107	325	772	1517	2508	3687	4814	5654	6176	6367	6419
45	6	41	132	314	590	841	1024	972	690	376	113	22	6	47	179	493	1083	1924	2948	3920	4610	4986	5099	5121
50	1	18	75	199	436	691	869	817	541	241	57	7	1	19	94	293	729	1420	2289	3106	3647	3888	3945	3952
55	0	5	35	111	290	541	714	662	400	140	25	1	0	5	40	151	441	982	1696	2358	2758	2898	2923	2924
60	0	1	13	54	169	392	559	509	268	65	4	0	0	1	14	68	237	629	1188	1697	1965	2030	2034	2034
Base	Growing Degree Units for Corn (Monthly)												Growing Degree Units for Corn (Accumulated Monthly)											
50/86	24	55	136	264	460	671	806	763	542	311	111	32	24	79	215	479	939	1610	2416	3179	3721	4032	4143	4175

(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.
Complete documentation for the 1971-2000 Normals is available on the internet from:
www.ncdc.noaa.gov/oa/climate/normal/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 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/normal.html
U.S. Climate Normals 1971-2000-Products Clim20, www.ncdc.noaa.gov/oa/climate/normal/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