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: GALLATIN 4 W, MO **COOP ID: 233102**

Climate Division: MO 1 **NWS Call Sign:** **Elevation: 925 Feet** **Lat: 39˚56N** **Lon: 94˚03W**

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	33.4	14.8	24.1	67	1981	25	35.1	1989	-16+	1966	30	9.8	1979	1269	0	.0	.0	2.8	13.5	29.9	4.8
Feb	39.8	20.2	30.0	76	1995	26	39.2	2000	-18+	1996	4	16.3	1979	980	0	.0	.0	7.1	6.8	24.5	1.8
Mar	51.4	30.4	40.9	86	1991	27	46.6	1986	-12	1998	12	33.6	1984	747	0	.0	.0	18.5	1.4	20.0	.2
Apr	62.8	41.0	51.9	91	1989	27	60.5	1981	20	1996	6	45.0	1983	399	6	.0	.1	27.1	@	5.9	.0
May	72.9	51.6	62.3	92	1964	22	67.9	1987	30	1992	6	57.8	1995	156	70	.0	.1	30.9	.0	.1	.0
Jun	82.4	61.2	71.8	97+	1963	29	76.0	1971	42	1966	10	68.0	1982	10	214	.1	3.5	30.0	.0	.0	.0
Jul	86.8	65.9	76.4	103	1966	19	82.3	1980	51+	1997	5	72.8	1971	0	351	.4	8.5	31.0	.0	.0	.0
Aug	85.0	63.9	74.5	103	1991	3	81.9	1983	44	1964	13	67.7	1992	13	306	.4	7.1	31.0	.0	.0	.0
Sep	77.0	54.6	65.8	98+	2000	2	71.4	1998	32	1989	24	59.3	1974	84	108	.0	1.6	30.0	.0	@	.0
Oct	65.4	43.0	54.2	94+	1963	11	59.0	1971	21	1993	31	48.2	1976	339	5	.0	.1	29.0	.0	2.3	.0
Nov	50.0	31.1	40.6	81	1964	15	49.1	1999	-4	1991	8	33.3	1991	734	0	.0	.0	16.0	2.0	17.6	.1
Dec	37.1	19.4	28.3	71	2001	6	34.1	1994	-23	1989	23	12.6	1983	1140	0	.0	.0	3.9	7.8	29.2	1.3
Ann	62.0	41.4	51.7	103+	Aug 1991	3	82.3	Jul 1980	-23	Dec 1989	23	9.8	Jan 1979	5871	1060	.9	21.0	257.3	31.5	129.5	8.2

\+ 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: 1948-2001

(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	.72	2.00	2001	28	1.92	1993	.00+	1994
Feb	.99	.76	3.10	2001	9	3.48	1997	.00+	1996
Mar	2.77	2.87	1.97	1992	18	8.49	1973	.00	1994
Apr	3.56	3.53	4.10	1997	11	7.16	1997	.49	1989
May	5.22	4.96	3.57	1995	24	12.12	1995	1.07	1992
Jun	4.09	3.55	5.65	1960	30	9.20	1984	.79	1988
Jul	4.06	3.05	5.33	1958	15	19.50	1993	.44	1975
Aug	3.31	2.96	4.48	1956	2	8.00	1977	.65	1984
Sep	5.21	3.49	3.77	1993	22	13.53	1998	1.07	1991
Oct	3.28	3.14	3.33	1954	4	8.21	1977	.17	1975
Nov	1.88	1.75	2.67	1958	17	5.54	1992	.00	1989
Dec	1.35	1.12	2.01	1980	7	4.17	1980	.00	1989
Ann	36.52	35.20	5.65	Jun 1960	30	19.50	Jul 1993	.00+	Feb 1996

Mean Number of Days (3)

Daily Precipitation

Month	>= 0.01	>= 0.10	>= 0.50	>= 1.00
Jan	5.6	1.9	.2	.1
Feb	5.9	2.7	.5	.1
Mar	7.9	5.0	1.4	.3
Apr	6.4	4.3	1.9	.7
May	9.9	6.6	2.6	.9
Jun	9.9	5.9	2.7	.8
Jul	9.0	5.9	2.6	1.1
Aug	10.6	6.6	2.6	1.1
Sep	6.1	4.7	2.2	1.1
Oct	7.9	4.9	2.0	.9
Nov	7.3	3.7	1.2	.3
Dec	5.9	2.9	.8	.3
Ann	92.4	55.1	20.7	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	.00	.00	.27	.43	.57	.71	.86	1.04	1.27	1.61	1.95
Feb	.00	.11	.29	.45	.61	.79	.99	1.24	1.58	2.13	2.67
Mar	.47	.84	1.32	1.69	2.07	2.46	2.89	3.40	4.06	5.11	6.08
Apr	.95	1.28	1.80	2.25	2.69	3.16	3.68	4.29	5.09	6.35	7.52
May	1.66	2.15	2.89	3.51	4.12	4.74	5.43	6.24	7.28	8.89	10.39
Jun	1.54	1.92	2.47	2.92	3.36	3.80	4.28	4.84	5.55	6.64	7.63
Jul	.57	.91	1.49	2.05	2.64	3.29	4.04	4.95	6.19	8.21	10.16
Aug	.89	1.21	1.68	2.10	2.51	2.94	3.42	3.98	4.72	5.88	6.96
Sep	1.13	1.61	2.37	3.07	3.76	4.50	5.33	6.33	7.65	9.74	11.72
Oct	.52	.80	1.28	1.73	2.20	2.71	3.29	4.01	4.97	6.52	8.01
Nov	.20	.43	.75	1.02	1.29	1.59	1.92	2.33	2.86	3.72	4.53
Dec	.04	.14	.33	.52	.74	.98	1.28	1.65	2.17	3.04	3.89
Ann	23.34	25.79	28.98	31.44	33.65	35.81	38.06	40.57	43.64	48.15	52.09

+ 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: 1948-2001
(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	1.3	-99.9	#	0
Feb	2.0	-99.9	#	0
Mar	.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	#	.0	#	0
Dec	.3	.0	#	0
Ann	3.9	-9.9	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	5.0	1993	10	5.0+	1993	#+	1999	12	#+	1999
Feb	5.0	1981	1	8.0	1981	2	1997	21	#+	1999
Mar	2.0	2000	20	2.0	2000	1	2000	19	#+	2000
Apr	.0	0	0	.0	0	2	1997	11	#	1997
May	.0	0	0	.0	0	0	0	0	0	0
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	.0	0	0	.0	0	0	0	0	0	0
Nov	#	1998	7	#+	1998	#+	1998	7	#+	1998
Dec	2.0	2000	17	2.0	2000	7	2000	13	1	2000
Ann	5.0+	Jan 1993	10	8.0	Feb 1981	7	Dec 2000	13	1	Dec 2000

Mean Number of Days (1)

Snow Fall >= Thresholds

Month	0.1	1.0	3.0	5.0	10.0
Jan	.2	.2	.1	.1	.0
Feb	.4	.4	.3	.1	.0
Mar	.2	.2	.0	.0	.0
Apr	.0	.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	.0
Nov	.0	.0	.0	.0	.0
Dec	.4	.4	.0	.0	.0
Ann	1.2	1.2	.4	.2	.0

Snow Depth >= Thresholds

Month	1	3	5	10
Jan	-9.9	-9.9	-9.9	-9.9
Feb	-9.9	-9.9	-9.9	-9.9
Mar	-9.9	-9.9	-9.9	-9.9
Apr	-9.9	-9.9	-9.9	-9.9
May	-9.9	-9.9	-9.9	-9.9
Jun	-9.9	-9.9	-9.9	-9.9
Jul	-9.9	-9.9	-9.9	-9.9
Aug	-9.9	-9.9	-9.9	-9.9
Sep	-9.9	-9.9	-9.9	-9.9
Oct	-9.9	-9.9	-9.9	-9.9
Nov	-9.9	-9.9	-9.9	-9.9
Dec	-9.9	-9.9	-9.9	-9.9
Ann	-9.9	-9.9	-9.9	-9.9

+ 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	5/03	4/30	4/28	4/25	4/23	4/20	4/16
32	5/01	4/26	4/23	4/20	4/17	4/14	4/12	4/08	4/04
28	4/19	4/15	4/13	4/10	4/08	4/06	4/04	4/01	3/29
24	4/13	4/08	4/05	4/01	3/29	3/26	3/23	3/20	3/15
20	4/03	3/28	3/23	3/19	3/16	3/12	3/08	3/04	2/26
16	3/25	3/17	3/11	3/06	3/01	2/24	2/19	2/13	2/05

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	9/28	10/06	10/11	10/16	10/20	10/24	10/29	11/03	11/11
32	10/09	10/15	10/19	10/23	10/26	10/30	11/02	11/06	11/12
28	10/16	10/22	10/25	10/28	10/31	11/03	11/06	11/10	11/15
24	10/29	11/02	11/04	11/07	11/09	11/11	11/13	11/16	11/20
20	11/05	11/10	11/14	11/17	11/20	11/23	11/26	11/30	12/05
16	11/09	11/16	11/21	11/25	11/29	12/03	12/08	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	201	192	186	180	174	169	163	157	147
32	214	206	201	196	191	187	182	176	169
28	223	217	212	209	205	202	198	193	187
24	242	236	231	227	224	220	216	212	205
20	275	266	259	254	249	243	238	232	223
16	308	296	287	280	273	266	258	250	238

***** 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	1269	980	747	399	156	10	0	13	84	339	734	1140	5871
60	1114	840	592	266	78	2	0	2	30	206	585	985	4700
57	1021	763	507	197	46	0	0	0	14	140	500	892	4080
55	959	711	449	157	31	0	0	0	7	104	446	830	3694
50	814	581	315	79	9	0	0	0	0	43	316	686	2843
32	344	217	44	0	0	0	0	0	0	0	46	245	896

Cooling Degree Days (1)

Base Above	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Ann
32	98	161	320	597	937	1194	1374	1316	1015	689	302	128	8131
55	1	11	13	65	255	504	661	603	332	80	12	1	2538
57	0	7	8	45	209	444	599	541	278	54	6	0	2191
60	0	0	1	23	147	355	506	450	205	27	1	0	1715
65	0	0	0	6	70	214	351	306	108	5	0	0	1060
70	0	0	0	1	24	99	205	182	47	0	0	0	558

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	7	38	144	392	700	954	1123	1064	768	464	132	12	7	45	189	581	1281	2235	3358	4422	5190	5654	5786	5798
45	0	13	74	261	545	804	968	909	618	318	70	4	0	13	87	348	893	1697	2665	3574	4192	4510	4580	4584
50	0	4	37	157	393	654	813	754	468	189	27	0	0	4	41	198	591	1245	2058	2812	3280	3469	3496	3496
55	0	0	15	83	255	505	658	599	324	90	10	0	0	0	15	98	353	858	1516	2115	2439	2529	2539	2539
60	0	0	2	36	125	357	503	445	202	29	2	0	0	0	2	38	163	520	1023	1468	1670	1699	1701	1701
Base	**Growing Degree Units for Corn (Monthly)**												**Growing Degree Units for Corn (Accumulated Monthly)**											
50/86	3	33	98	242	419	639	777	726	485	275	84	12	3	36	134	376	795	1434	2211	2937	3422	3697	3781	3793

(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