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: LEBANON 2 W, MO **COOP ID: 234825**

Climate Division: MO 4 **NWS Call Sign:** **Elevation: 1,279 Feet** **Lat: 37˚41N** **Lon: 92˚42W**

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	41.0	21.7	31.4	79	1943	24	42.9	1990	-21	1918	12	17.9	1977	1044	0	.0	.0	8.9	7.9	25.3	2.0
Feb	47.4	26.5	37.0	82	1962	13	46.6	1976	-17	1979	9	24.0	1978	786	0	.0	.0	12.8	4.6	19.9	1.1
Mar	58.1	35.1	46.6	89	1929	24	51.0	1974	-10	1943	3	38.0	1984	570	0	.0	.0	23.4	.7	13.4	.1
Apr	68.4	44.4	56.4	92	1987	20	63.2	1981	9	1920	5	49.9	1983	273	15	.0	.1	28.6	.0	3.5	.0
May	76.3	53.2	64.8	101	1934	31	71.4	1991	26	1976	3	59.0	1976	114	106	.0	.4	31.0	.0	.3	.0
Jun	84.0	61.9	73.0	105+	1936	28	76.3	1988	37	1926	21	68.1	1974	7	246	.1	5.4	30.0	.0	.0	.0
Jul	89.1	66.7	77.9	113	1954	14	85.1	1980	43	1972	6	74.5	1994	0	399	1.1	16.4	31.0	.0	.0	.0
Aug	88.5	65.0	76.8	110+	1934	10	82.4	2000	43+	1986	29	71.3	1992	3	366	1.1	15.1	31.0	.0	.0	.0
Sep	80.1	56.9	68.5	106	1947	7	74.6	1998	28	1983	23	61.0	1974	55	160	.2	4.3	30.0	.0	.2	.0
Oct	69.7	46.0	57.9	95	1953	2	62.5	1971	15	1925	31	51.6	1976	245	23	.0	.2	30.4	.0	3.1	.0
Nov	55.3	35.2	45.3	85+	1950	1	55.0	1999	1	1940	15	38.1	1976	593	0	.0	.0	20.2	.5	11.9	.0
Dec	44.6	25.5	35.1	80	1939	10	42.3	1984	-19	1989	22	17.9	1983	929	0	.0	.0	11.2	4.6	22.6	.9
Ann	66.9	44.8	55.9	113	Jul 1954	14	85.1	Jul 1980	-21	Jan 1918	12	17.9+	Dec 1983	4619	1315	2.5	41.9	288.5	18.3	100.2	4.1

\+ 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

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: LEBANON 2 W, MO

COOP ID: 234825

Climate Division: MO 4 **NWS Call Sign:** **Elevation: 1,279 Feet** **Lat: 37˚41N** **Lon: 92˚42W**

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	1.84	1.61	2.66	1950	4	4.59	1995	.04	1986
Feb	2.20	2.00	3.40	1985	23	5.07	1998	.54	1982
Mar	3.55	2.62	3.10	1988	29	10.51	1973	.46	1999
Apr	4.40	3.77	4.04	1983	29	12.66	1994	.64	1988
May	4.53	4.10	4.05	1943	18	10.52	1990	1.68	1975
Jun	4.14	3.70	5.85	1928	9	10.36	1977	1.01	1972
Jul	3.82	3.50	3.83	1990	27	8.98	1978	.07	1985
Aug	3.31	3.49	3.63	1946	14	5.57	1982	.58	1973
Sep	4.13	3.48	4.20	1994	5	15.21	1993	.67	1982
Oct	3.78	3.35	5.01	1986	1	8.50	1986	1.27	1992
Nov	4.31	3.68	4.25	1987	25	10.54	1985	.04	1999
Dec	2.52	2.00	4.58	1982	3	10.15	1982	.60	2000
Ann	42.53	43.70	5.85	Jun 1928	9	15.21	Sep 1993	.04+	Nov 1999

Mean Number of Days (3)

Daily Precipitation

Month	>= 0.01	>= 0.10	>= 0.50	>= 1.00
Jan	6.9	4.2	1.0	.4
Feb	6.7	4.1	1.4	.4
Mar	9.3	6.7	2.5	.8
Apr	10.2	7.0	2.9	1.3
May	10.6	7.4	3.2	1.3
Jun	8.8	6.4	3.2	1.2
Jul	7.0	5.2	2.6	1.3
Aug	6.9	4.5	2.0	1.2
Sep	7.4	5.6	2.9	1.4
Oct	8.0	5.8	2.8	1.0
Nov	8.7	6.1	3.0	1.4
Dec	7.0	4.6	2.0	.7
Ann	97.5	67.6	29.5	12.4

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	.23	.38	.64	.90	1.17	1.47	1.81	2.24	2.82	3.78	4.70
Feb	.55	.75	1.07	1.36	1.64	1.94	2.27	2.66	3.18	3.99	4.75
Mar	.65	.97	1.49	1.97	2.46	2.99	3.59	4.32	5.29	6.85	8.34
Apr	.91	1.31	1.96	2.55	3.14	3.77	4.49	5.35	6.49	8.30	10.02
May	1.64	2.07	2.68	3.20	3.69	4.19	4.74	5.37	6.19	7.44	8.59
Jun	1.38	1.77	2.34	2.83	3.30	3.78	4.31	4.93	5.73	6.96	8.10
Jul	.58	.91	1.46	1.99	2.54	3.14	3.82	4.67	5.80	7.64	9.40
Aug	1.37	1.67	2.09	2.44	2.77	3.11	3.47	3.88	4.41	5.21	5.93
Sep	.87	1.25	1.86	2.41	2.96	3.55	4.22	5.02	6.07	7.76	9.36
Oct	1.30	1.66	2.18	2.62	3.04	3.47	3.94	4.49	5.20	6.29	7.29
Nov	.55	.89	1.50	2.10	2.73	3.44	4.26	5.27	6.64	8.88	11.06
Dec	.46	.69	1.06	1.40	1.75	2.13	2.56	3.07	3.76	4.87	5.93
Ann	29.28	31.81	35.07	37.56	39.78	41.92	44.15	46.62	49.62	53.98	57.77

\+ 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

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

U.S. Department of Commerce
National Oceanic & Atmospheric Administration
National Environmental Satellite, Data,
and Information Services

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: LEBANON 2 W, MO **COOP ID: 234825**

Climate Division: MO 4 **NWS Call Sign:** **Elevation: 1,279 Feet** **Lat: 37°41N** **Lon: 92°42W**

Snow (inches)

Snow Totals

Means/Medians (1)

Month	Snow Fall Mean	Snow Fall Median	Snow Depth Mean	Snow Depth Median
Jan	2.6	1.9	1	#
Feb	3.6	2.0	1	#
Mar	1.4	.0	#	0
Apr	.2	.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	1.3	.0	#	0
Dec	1.6	.9	#	#
Ann	10.7	4.8	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	7.0	1982	31	12.3	1978	15	1995	20	6	1979
Feb	11.0	1980	8	15.2	1980	13	1980	10	5	1979
Mar	9.0	1975	10	11.0	1975	9	1975	10	1	1978
Apr	4.0	1980	14	4.4	1980	4	1980	15	#+	1980
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	1.0	1993	30	1.0	1993	0	0	0	0	0
Nov	6.0	1972	19	8.5	1972	8	1975	27	1	1975
Dec	5.0	1973	20	10.5	1973	8+	2000	14	2	1995
Ann	11.0	Feb 1980	8	15.2	Feb 1980	15	Jan 1995	20	6	Jan 1979

Mean Number of Days (1)

Snow Fall >= Thresholds

Month	0.1	1.0	3.0	5.0	10.0
Jan	2.3	1.1	.4	.1	.0
Feb	1.6	1.0	.4	.2	.1
Mar	.6	.6	.1	@	.0
Apr	.1	@	@	.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
Nov	.5	.4	.2	.1	.0
Dec	.7	.5	.1	.1	.0
Ann	5.8	3.6	1.2	.5	.1

Snow Depth >= Thresholds

Month	1	3	5	10
Jan	3.9	2.5	1.2	.2
Feb	3.9	2.2	1.1	.4
Mar	1.2	.4	.1	.0
Apr	.1	.1	.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	.7	.4	.2	.0
Dec	2.1	.4	.2	.0
Ann	11.9	6.0	2.8	.6

+ 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:
www.ncdc.noaa.gov/oa/climate/normals/usnormals.html

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: LEBANON 2 W, MO **COOP ID: 234825**

Climate Division: MO 4 **NWS Call Sign:** **Elevation: 1,279 Feet** **Lat: 37˚41N** **Lon: 92˚42W**

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	5/18	5/12	5/07	5/04	4/30	4/27	4/23	4/19	4/13
32	5/04	4/28	4/25	4/21	4/18	4/15	4/12	4/08	4/03
28	4/18	4/14	4/10	4/07	4/04	4/01	3/29	3/26	3/21
24	4/07	4/03	3/31	3/29	3/27	3/24	3/22	3/19	3/15
20	3/29	3/22	3/18	3/14	3/10	3/07	3/03	2/26	2/20
16	3/21	3/12	3/06	3/01	2/24	2/19	2/13	2/07	1/29

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	9/19	9/24	9/27	9/30	10/02	10/05	10/08	10/11	10/16
32	9/27	10/03	10/08	10/11	10/15	10/18	10/22	10/26	11/01
28	10/10	10/17	10/22	10/26	10/30	11/03	11/07	11/12	11/19
24	10/21	10/27	10/31	11/04	11/08	11/11	11/15	11/20	11/26
20	11/01	11/07	11/12	11/16	11/19	11/23	11/27	12/02	12/08
16	11/09	11/16	11/21	11/26	11/30	12/04	12/09	12/14	12/21

Freeze Free Period

Temp (F)	Probability of longer than indicated freeze free period (Days)								
	.10	.20	.30	.40	.50	.60	.70	.80	.90
36	177	169	163	159	154	150	145	140	132
32	200	193	187	183	179	174	170	165	157
28	236	226	219	213	208	202	197	190	180
24	243	237	233	229	226	222	218	214	208
20	278	270	263	258	253	248	243	237	228
16	316	303	294	286	279	271	263	254	242

***** 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:
www.ncdc.noaa.gov/oa/climate/normals/usnormals.html

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: LEBANON 2 W, MO **COOP ID: 234825**

Climate Division: MO 4 **NWS Call Sign:** **Elevation: 1,279 Feet** **Lat: 37˚41N** **Lon: 92˚42W**

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	1044	786	570	273	114	7	0	3	55	245	593	929	4619
60	889	653	425	157	51	1	0	0	18	136	452	777	3559
57	800	574	342	104	27	0	0	0	7	86	370	692	3002
55	745	523	291	75	17	0	0	0	4	61	319	633	2668
50	600	401	184	26	4	0	0	0	0	21	208	493	1937
32	203	103	12	0	0	0	0	0	0	0	17	137	472

Cooling Degree Days (1)

Base Above	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Ann
32	183	241	465	732	1015	1229	1422	1387	1095	801	414	230	9214
55	11	17	31	117	319	539	709	674	409	149	26	14	3015
57	4	13	21	86	267	479	647	612	352	112	17	10	2620
60	0	7	11	49	198	390	554	519	273	68	9	2	2080
65	0	0	0	15	106	246	399	366	160	23	0	0	1315
70	0	0	0	3	44	125	252	226	78	5	0	0	733

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	56	116	279	515	789	1004	1193	1158	875	579	240	81	56	172	451	966	1755	2759	3952	5110	5985	6564	6804	6885
45	24	65	177	374	634	854	1038	1003	725	428	146	40	24	89	266	640	1274	2128	3166	4169	4894	5322	5468	5508
50	6	34	101	249	480	704	883	848	576	292	80	17	6	40	141	390	870	1574	2457	3305	3881	4173	4253	4270
55	0	11	52	150	333	554	728	693	432	180	40	3	0	11	63	213	546	1100	1828	2521	2953	3133	3173	3176
60	0	1	19	76	200	404	573	538	297	90	12	0	0	1	20	96	296	700	1273	1811	2108	2198	2210	2210
Base	**Growing Degree Units for Corn (Monthly)**												**Growing Degree Units for Corn (Accumulated Monthly)**											
50/86	37	76	181	326	507	690	811	783	579	364	143	51	37	113	294	620	1127	1817	2628	3411	3990	4354	4497	4548

(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