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: MEMPHIS INTL AP, TN **COOP ID: 405954**

Climate Division: TN 4 **NWS Call Sign: MEM** **Elevation: 265 Feet** **Lat: 35˚04N** **Lon: 89˚59W**

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	48.6	31.3	39.9	78+	1943	24	47.9	1990	-4+	1962	12	29.5	1977	770	1	.0	.0	14.9	3.1	16.6	.1
Feb	54.4	35.5	44.9	81	1962	13	52.9	1976	-11	1951	2	34.0	1978	565	2	.0	.0	18.3	1.4	11.1	.0
Mar	63.3	43.7	53.5	85+	1946	31	58.8	1974	12	1943	3	48.0	1996	366	15	.0	.0	27.2	.1	3.9	.0
Apr	72.4	51.9	62.1	94	1987	21	69.1	1981	29+	1944	5	56.4	1983	144	72	.0	.2	29.7	.0	.3	.0
May	80.4	60.8	70.6	99	1977	30	76.0	1987	38	1944	7	64.3	1976	22	210	.0	2.6	31.0	.0	.0	.0
Jun	88.5	68.8	78.7	104+	1952	28	83.2	1998	48	1966	1	74.1	1974	0	426	.3	14.3	30.0	.0	.0	.0
Jul	92.1	72.9	82.5	108	1980	13	87.7	1980	52	1947	23	79.3	1972	0	554	1.1	22.0	31.0	.0	.0	.0
Aug	91.2	71.2	81.2	107	2000	30	86.3	1980	48	1946	31	76.8	1992	0	504	1.0	19.1	31.0	.0	.0	.0
Sep	85.3	64.3	74.8	103	1954	5	80.5	1998	36+	1942	29	68.5	1974	13	307	.5	8.7	30.0	.0	.0	.0
Oct	75.1	52.5	63.8	95+	1953	1	70.0	1971	25	1952	29	58.0	1976	121	84	.0	.5	30.9	.0	.1	.0
Nov	62.1	42.6	52.3	86	2000	1	58.0	1973	9	1950	25	44.4	1976	381	11	.0	.0	25.4	@	3.9	.0
Dec	52.2	34.5	43.3	81	1982	2	53.8	1984	-13	1963	24	32.7	2000	659	1	.0	.0	18.4	1.6	12.8	.1
Ann	72.1	52.5	62.3	108	Jul 1980	13	87.7	Jul 1980	-13	Dec 1963	24	29.5	Jan 1977	3041	2187	2.9	67.4	317.8	6.2	48.7	.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: 1940-2001

(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	4.24	4.11	4.40	1946	8	8.90	1974	.57	1986
Feb	4.31	4.13	4.10	1989	14	10.51	1989	1.12	1980
Mar	5.58	4.97	4.92	1975	12	12.08	1975	3.08	1986
Apr	5.79	5.11	4.86	1949	12	17.13	1991	1.39	1992
May	5.15	4.68	4.08	1974	31	9.58	1983	.83	1977
Jun	4.30	3.94	4.40	1947	22	10.17	1996	1.00	1973
Jul	4.22	3.86	4.14	1996	31	9.96	1998	.86	1993
Aug	3.00	2.49	4.32	1947	26	9.65	1978	.61	1983
Sep	3.31	3.44	3.65	1957	21	6.43	1977	.39	1995
Oct	3.31	3.04	3.53	1949	5	7.75	1984	.06	1971
Nov	5.76	5.55	5.88	2001	28	11.51	1996	1.49	1971
Dec	5.68	4.98	5.42	1978	3	13.81	1982	1.79	1976
Ann	54.65	55.67	5.88	Nov 2001	28	17.13	Apr 1991	.06	Oct 1971

Mean Number of Days (3)

Daily Precipitation

Month	>= 0.01	>= 0.10	>= 0.50	>= 1.00
Jan	10.3	6.9	2.9	1.1
Feb	8.8	6.2	3.1	1.2
Mar	11.1	7.8	3.6	1.8
Apr	10.0	7.2	4.0	2.0
May	10.3	6.9	3.4	1.6
Jun	9.0	6.3	2.9	1.4
Jul	8.5	5.9	2.7	1.4
Aug	6.9	4.4	2.0	.8
Sep	7.7	5.0	2.2	1.0
Oct	6.9	4.9	2.2	1.0
Nov	9.4	6.8	3.7	2.0
Dec	9.7	6.9	3.5	1.9
Ann	108.6	75.2	36.2	17.2

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	1.11	1.51	2.13	2.67	3.20	3.76	4.38	5.12	6.08	7.60	9.02
Feb	1.31	1.72	2.34	2.86	3.37	3.90	4.48	5.16	6.05	7.42	8.70
Mar	2.49	2.99	3.68	4.24	4.76	5.29	5.85	6.50	7.32	8.56	9.67
Apr	1.66	2.21	3.04	3.76	4.46	5.19	6.00	6.96	8.20	10.14	11.94
May	1.70	2.19	2.91	3.52	4.10	4.71	5.37	6.14	7.13	8.68	10.10
Jun	1.24	1.65	2.26	2.80	3.32	3.86	4.46	5.16	6.08	7.51	8.85
Jul	1.22	1.62	2.23	2.75	3.26	3.79	4.38	5.07	5.96	7.37	8.67
Aug	.61	.88	1.33	1.73	2.13	2.57	3.06	3.65	4.43	5.68	6.87
Sep	.65	.95	1.43	1.88	2.33	2.82	3.37	4.03	4.90	6.31	7.64
Oct	.64	.94	1.42	1.87	2.32	2.81	3.36	4.03	4.91	6.33	7.68
Nov	1.74	2.29	3.10	3.81	4.49	5.20	5.99	6.91	8.10	9.96	11.68
Dec	1.61	2.15	2.96	3.67	4.36	5.09	5.89	6.83	8.06	9.99	11.78
Ann	38.36	41.49	45.52	48.58	51.31	53.94	56.67	59.68	63.35	68.67	73.27

\+ 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: 1940-2001
(3) Derived from 1971-2000 serially complete daily data

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Snow (inches)

Snow Totals

Means/Medians (1)

Extremes (2)

Mean Number of Days (1)

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	.8	#	0	8.1	1985	3	12.4	1985	8	1988	7	1+	1988	1.8	.7	.2	.1	.0	1.9	.5	.2	.0
Feb	1.9	.3	#	0	12.5	1994	11	14.9	1994	6	1985	2	1	1985	1.1	.6	.1	@	@	.8	.2	.1	.0
Mar	.3	.0	#	0	1.6	1971	3	1.6	1971	1+	1995	3	#	1995	.4	.1	.0	.0	.0	.1	.0	.0	.0
Apr	#	.0	0	0	#	1971	6	#	1971	0	0	0	0	0	.0	.0	.0	.0	.0	.0	.0	.0	.0
May	.0	.0	#	0	.0	0	0	.0	0	0	0	0	#	1997	.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	#	1993	31	#+	1993	0	0	0	0	0	.0	.0	.0	.0	.0	.0	.0	.0	.0
Nov	.1	.0	#	0	1.2	1976	14	1.5	1976	1	1991	8	#	1991	.1	.0	.0	.0	.0	@	.0	.0	.0
Dec	.1	#	#	0	.7	1998	23	.8+	1998	2	2000	31	#	2000	.4	.0	.0	.0	.0	.1	.0	.0	.0
Ann	4.6	1.1	N/A	N/A	12.5	Feb 1994	11	14.9	Feb 1994	8	Jan 1988	7	1+	Jan 1988	3.8	1.4	.3	.1	@	2.9	.7	.3	.0

+ 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	4/14	4/09	4/06	4/03	4/01	3/29	3/26	3/23	3/19
32	4/09	4/02	3/29	3/25	3/22	3/18	3/14	3/10	3/04
28	3/21	3/14	3/09	3/05	3/01	2/25	2/21	2/16	2/09
24	3/11	3/03	2/25	2/20	2/16	2/11	2/06	1/31	1/23
20	3/05	2/24	2/17	2/11	2/06	2/01	1/26	1/19	1/08
16	2/21	2/11	2/04	1/29	1/22	1/15	1/06	0/00	0/00

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	10/21	10/25	10/29	11/01	11/03	11/06	11/09	11/12	11/17
32	10/30	11/03	11/07	11/10	11/13	11/15	11/18	11/22	11/27
28	11/09	11/15	11/19	11/23	11/26	11/29	12/03	12/07	12/13
24	11/19	11/26	11/30	12/04	12/08	12/11	12/15	12/20	12/26
20	11/22	12/03	12/11	12/18	12/25	12/31	1/07	1/16	1/29
16	12/16	12/24	12/31	1/05	1/11	1/18	1/26	0/00	0/00

Freeze Free Period

Temp (F)	Probability of longer than indicated freeze free period (Days)								
	.10	.20	.30	.40	.50	.60	.70	.80	.90
36	237	230	225	220	216	212	207	202	195
32	258	250	245	240	235	231	226	220	212
28	297	287	280	275	269	264	258	251	241
24	327	316	308	301	294	288	281	273	262
20	>365	>365	334	323	315	307	300	292	281
16	>365	>365	>365	>365	>365	352	339	328	315

***** 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)

Base — Heating Degree Days (1)

Below	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Ann
65	770	565	366	144	22	0	0	0	13	121	381	659	3041
60	630	432	230	63	8	0	0	0	2	56	259	529	2209
57	542	356	165	33	3	0	0	0	0	31	193	445	1768
55	486	308	129	20	1	0	0	0	0	19	155	391	1509
50	354	206	60	4	0	0	0	0	0	4	81	273	982
32	58	17	0	0	0	0	0	0	0	0	1	33	109

Base — Cooling Degree Days (1)

Above	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Ann
32	301	390	677	916	1214	1418	1577	1532	1287	991	619	387	11309
55	14	31	106	254	502	728	864	819	597	295	88	24	4322
57	9	21	79	209	440	668	802	757	537	245	66	17	3850
60	4	10	47	148	350	578	709	664	449	177	39	9	3184
65	1	2	15	72	210	426	554	504	307	84	11	1	2187
70	0	0	3	23	103	280	400	354	184	31	1	0	1379

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	144	233	449	689	978	1185	1337	1294	1053	750	398	199	144	377	826	1515	2493	3678	5015	6309	7362	8112	8510	8709
45	79	143	312	540	823	1035	1182	1139	903	595	271	115	79	222	534	1074	1897	2932	4114	5253	6156	6751	7022	7137
50	39	77	199	394	668	885	1027	984	753	445	167	60	39	116	315	709	1377	2262	3289	4273	5026	5471	5638	5698
55	19	34	110	261	513	735	872	829	603	302	91	29	19	53	163	424	937	1672	2544	3373	3976	4278	4369	4398
60	0	11	48	154	360	585	717	674	456	183	44	7	0	11	59	213	573	1158	1875	2549	3005	3188	3232	3239
Base	**Growing Degree Units for Corn (Monthly)**												**Growing Degree Units for Corn (Accumulated Monthly)**											
50/86	77	130	258	423	657	831	931	898	720	476	223	111	77	207	465	888	1545	2376	3307	4205	4925	5401	5624	5735

(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:
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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