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: MALVERN, AR **COOP ID: 034562**

Climate Division: AR 5 **NWS Call Sign:** **Elevation: 311 Feet** **Lat: 34˚23N** **Lon: 92˚50W**

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	52.4	29.7	41.1	81	1950	26	47.9	1990	-8	1966	30	29.8	1979	742	0	.0	.0	18.3	1.9	20.1	@
Feb	59.2	33.3	46.3	85	1986	20	53.3	1976	-6	1951	2	34.3	1978	527	2	.0	.0	21.6	.9	14.6	.0
Mar	67.8	40.9	54.4	91	1974	31	59.7	1985	11	1965	20	49.0	1978	339	9	.0	@	29.5	.0	7.3	.0
Apr	76.1	48.1	62.1	96+	1987	20	67.2	1981	24	1971	7	56.8	1983	128	41	.0	.4	29.9	.0	1.6	.0
May	82.1	57.2	69.7	97	1977	30	75.2	1987	34	1960	12	64.7	1976	36	179	.0	2.8	31.0	.0	.0	.0
Jun	88.8	64.7	76.8	105	1954	28	81.4	1998	44	1966	1	71.1	1995	2	354	.3	14.6	30.0	.0	.0	.0
Jul	93.0	68.3	80.7	110+	1980	17	85.4	1998	51	1968	5	76.1	1995	0	484	3.2	24.1	31.0	.0	.0	.0
Aug	91.9	67.0	79.5	109	2000	30	85.1	2000	43	1967	13	75.0	1992	1	448	2.7	21.2	31.0	.0	.0	.0
Sep	85.2	61.3	73.3	106+	1954	3	79.9	1998	31	1967	29	67.5	1974	15	263	.6	8.2	30.0	.0	.0	.0
Oct	75.6	49.4	62.5	97+	1953	1	67.1	1971	25	1993	31	55.2	1976	136	58	.0	.3	30.8	.0	.8	.0
Nov	63.5	40.2	51.9	89+	1951	14	58.1	1999	9	1976	29	44.0	1972	403	8	.0	.0	27.1	@	8.0	.0
Dec	54.7	32.7	43.7	81+	1955	24	52.9	1984	-2+	1958	15	32.2	1983	660	0	.0	.0	21.2	.9	16.9	@
Ann	74.2	49.4	61.8	110+	Jul 1980	17	85.4	Jul 1998	-8	Jan 1966	30	29.8	Jan 1979	2989	1846	6.8	71.6	331.4	3.7	69.3	.0

\+ 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

Issue Date: February 2004

(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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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	4.00	3.63	4.44	1969	30	10.19	1999	.40	1986
Feb	3.82	3.62	3.53	1954	16	10.82	1989	1.06	1999
Mar	5.45	4.82	3.38+	1973	10	12.49	1973	1.51	1974
Apr	5.46	4.94	4.04	1957	3	12.06	1991	.17	1987
May	5.71	5.46	5.56	1958	2	12.86	1979	.95	1977
Jun	4.61	4.22	8.30	1997	17	12.10	1997	.77	1980
Jul	4.33	3.43	5.20	1963	16	12.20	1973	.27	1993
Aug	2.99	2.64	5.69	1966	13	8.35	1974	.00	1980
Sep	4.05	3.53	5.88	1962	1	8.93	1980	.35	1983
Oct	4.81	4.85	4.72	1991	29	11.24	1972	.74	1978
Nov	5.98	5.86	5.63	1957	13	12.65	1988	.84	1999
Dec	5.33	4.83	4.06	1993	3	13.51	1987	.81	1981
Ann	56.54	56.12	8.30	Jun 1997	17	13.51	Dec 1987	.00	Aug 1980

Mean Number of Days (3)

Month	Daily Precipitation >= 0.01	>= 0.10	>= 0.50	>= 1.00
Jan	8.8	6.2	2.6	1.3
Feb	7.5	5.6	2.9	1.2
Mar	9.3	7.0	3.8	1.8
Apr	8.7	6.3	3.3	2.0
May	10.4	8.2	3.8	1.8
Jun	8.7	6.4	3.0	1.5
Jul	8.1	5.8	2.7	1.5
Aug	7.0	4.9	1.9	.8
Sep	7.3	5.3	2.6	1.2
Oct	7.4	5.6	3.0	1.8
Nov	8.8	6.5	3.9	2.1
Dec	9.5	7.2	3.4	2.0
Ann	101.5	75.0	36.9	19.0

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	.79	1.16	1.74	2.28	2.83	3.41	4.08	4.87	5.93	7.62	9.23
Feb	1.40	1.76	2.28	2.71	3.12	3.54	4.00	4.53	5.20	6.25	7.20
Mar	1.55	2.07	2.85	3.53	4.19	4.89	5.65	6.56	7.73	9.57	11.29
Apr	1.04	1.53	2.33	3.07	3.82	4.63	5.55	6.65	8.12	10.47	12.72
May	1.84	2.38	3.18	3.87	4.52	5.21	5.95	6.83	7.95	9.71	11.32
Jun	1.20	1.64	2.31	2.90	3.48	4.09	4.76	5.57	6.62	8.27	9.81
Jul	.70	1.07	1.70	2.29	2.91	3.58	4.35	5.29	6.54	8.58	10.53
Aug	.25	.58	1.06	1.50	1.95	2.45	3.01	3.70	4.62	6.11	7.54
Sep	.73	1.09	1.68	2.23	2.80	3.41	4.10	4.94	6.06	7.86	9.58
Oct	.99	1.43	2.13	2.78	3.43	4.12	4.91	5.85	7.10	9.09	10.98
Nov	1.39	1.95	2.82	3.61	4.39	5.21	6.14	7.25	8.70	11.01	13.18
Dec	1.54	2.04	2.81	3.47	4.12	4.79	5.53	6.41	7.55	9.34	10.99
Ann	40.95	44.00	47.88	50.83	53.44	55.95	58.55	61.42	64.89	69.91	74.24

\+ 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
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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	1.2	.5	#	#
Feb	1.3	.0	#	0
Mar	.2	.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	.2	.0	#	0
Dec	.1	.0	#	0
Ann	3.0	.5	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	8.0	1988	7	10.0	1978	8	1988	7	2	1988
Feb	5.0	1979	7	8.0	1980	6	1985	2	1	1985
Mar	2.0	1975	14	2.0+	1987	1	1989	5	#+	1989
Apr	#	1980	13	#+	1980	0	0	0	0	0
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	3.0	1976	14	3.0	1976	1	1980	27	#+	1980
Dec	3.0	1983	16	3.0	1983	2	1983	16	1	1983
Ann	8.0	Jan 1988	7	10.0	Jan 1978	8	Jan 1988	7	2	Jan 1988

Mean Number of Days (1)

Snow Fall >= Thresholds

Month	0.1	1.0	3.0	5.0	10.0
Jan	.9	.5	.1	@	.0
Feb	.7	.5	.3	.1	.0
Mar	.2	.1	.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	.1	.1	@	.0	.0
Dec	.2	@	@	.0	.0
Ann	2.1	1.2	.4	.1	.0

Snow Depth >= Thresholds

Month	1	3	5	10
Jan	1.5	.6	.2	.0
Feb	.9	.5	.1	.0
Mar	@	.0	.0	.0
Apr	.0	.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	.0
Dec	.4	.0	.0	.0
Ann	2.8	1.1	.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	4/25	4/21	4/18	4/15	4/13	4/11	4/08	4/05	4/01
32	4/16	4/11	4/08	4/05	4/02	3/30	3/28	3/24	3/19
28	4/08	4/02	3/28	3/24	3/20	3/17	3/13	3/08	3/02
24	3/27	3/19	3/14	3/09	3/05	3/01	2/24	2/19	2/11
20	3/11	3/03	2/25	2/20	2/15	2/10	2/05	1/30	1/22
16	3/03	2/21	2/14	2/07	2/01	1/26	1/19	1/09	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	10/02	10/08	10/12	10/15	10/18	10/21	10/24	10/28	11/03
32	10/20	10/25	10/29	11/01	11/04	11/07	11/10	11/13	11/18
28	10/30	11/05	11/09	11/13	11/16	11/19	11/23	11/27	12/03
24	11/08	11/15	11/20	11/24	11/28	12/02	12/06	12/11	12/18
20	11/11	11/23	12/01	12/08	12/15	12/22	12/29	1/06	1/18
16	11/26	12/07	12/15	12/22	12/29	1/05	1/13	1/24	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	210	202	197	192	187	183	178	172	164
32	236	228	223	219	215	211	206	201	194
28	269	259	252	246	240	234	228	221	211
24	291	283	277	272	267	263	258	252	244
20	341	322	312	305	298	291	284	275	264
16	>365	>365	354	336	326	318	310	301	290

***** 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	742	527	339	128	36	2	0	1	15	136	403	660	2989
60	595	397	209	49	8	0	0	0	2	60	272	514	2106
57	507	323	147	22	3	0	0	0	0	32	205	427	1666
55	450	277	113	12	1	0	0	0	0	19	167	373	1412
50	320	180	49	1	0	0	0	0	0	4	90	251	895
32	41	12	0	0	0	0	0	0	0	0	1	22	76

Cooling Degree Days (1)

Base Above	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Ann
32	322	411	693	904	1167	1342	1507	1471	1238	945	597	385	10982
55	18	32	93	225	454	652	794	758	548	251	72	23	3920
57	13	22	65	176	394	592	732	696	488	202	51	15	3446
60	7	12	34	113	307	502	639	603	400	137	27	9	2790
65	0	2	9	41	179	354	484	448	263	58	8	0	1846
70	0	0	0	9	86	215	330	302	149	18	0	0	1109

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	147	246	463	672	926	1111	1268	1236	999	702	365	184	147	393	856	1528	2454	3565	4833	6069	7068	7770	8135	8319
45	75	147	321	522	771	961	1113	1081	849	549	242	102	75	222	543	1065	1836	2797	3910	4991	5840	6389	6631	6733
50	34	78	199	375	616	811	958	926	699	399	144	52	34	112	311	686	1302	2113	3071	3997	4696	5095	5239	5291
55	13	31	106	244	462	661	803	771	549	257	75	22	13	44	150	394	856	1517	2320	3091	3640	3897	3972	3994
60	1	8	48	131	309	511	648	616	402	144	34	4	1	9	57	188	497	1008	1656	2272	2674	2818	2852	2856
Base	**Growing Degree Units for Corn (Monthly)**												**Growing Degree Units for Corn (Accumulated Monthly)**											
50/86	104	177	308	446	616	754	842	829	674	457	231	122	104	281	589	1035	1651	2405	3247	4076	4750	5207	5438	5560

(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