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: HOPE 3 NE, AR **COOP ID: 033428**

Climate Division: AR 7 **NWS Call Sign:** **Elevation: 375 Feet** **Lat: 33˚43N** **Lon: 93˚33W**

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	51.5	29.7	40.6	88	1928	11	47.0	1990	-8	1930	18	30.7	1979	756	0	.0	.0	17.2	1.8	20.1	.0
Feb	57.5	33.2	45.4	87	1986	21	53.9	1976	-4	1951	2	34.1	1978	551	0	.0	.0	20.5	1.1	14.3	.0
Mar	65.7	40.5	53.1	95	1929	25	58.5	1974	9	1943	3	48.4	1980	373	2	.0	.0	28.7	.1	7.1	.0
Apr	73.9	48.0	61.0	97	1930	10	66.8	1981	26+	1975	4	56.2	1983	157	36	.0	.2	29.8	.0	1.1	.0
May	80.7	57.7	69.2	98+	1916	14	74.0	1987	35	1947	29	64.9	1976	37	168	.0	1.6	31.0	.0	.0	.0
Jun	87.9	65.6	76.8	110	1936	20	80.7	1998	45	1930	1	73.3	1974	0	353	@	13.0	30.0	.0	.0	.0
Jul	92.2	69.4	80.8	115	1930	29	86.6	1998	53	1947	23	77.7	1989	0	489	2.3	23.2	31.0	.0	.0	.0
Aug	92.2	67.9	80.1	115	1936	10	85.4	1980	50+	1967	13	74.7	1992	0	467	3.1	22.2	31.0	.0	.0	.0
Sep	85.4	61.2	73.3	108+	1925	7	78.9	1980	34	1942	27	66.5	1974	15	264	.7	9.8	30.0	.0	.0	.0
Oct	75.8	49.3	62.6	101	1953	1	67.2	1971	25+	1952	29	55.9	1976	127	51	.0	.8	30.8	.0	.6	.0
Nov	63.4	39.7	51.6	90	1935	5	58.0	1985	13+	1976	29	44.5	1976	408	4	.0	.0	26.7	.1	8.1	.0
Dec	54.4	32.4	43.4	83+	1924	17	53.1	1984	2+	1989	23	33.2	1983	669	0	.0	.0	20.5	1.2	17.7	.0
Ann	73.4	49.6	61.5	115+	Aug 1936	10	86.6	Jul 1998	-8	Jan 1930	18	30.7	Jan 1979	3093	1834	6.1	70.8	327.2	4.3	69.0	.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

(1) From the 1971-2000 Monthly Normals

(2) Derived from station's available digital record: 1892-2001

(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	4.17	4.03	7.00	1938	22	8.91	1999	.11	1986
Feb	3.97	3.54	4.99	1957	1	9.99	1989	.59	1972
Mar	4.98	4.78	6.61	1989	29	10.73	1990	1.07	1982
Apr	4.89	4.10	6.73	1966	24	11.38	1991	1.30	1987
May	4.90	4.85	6.61	1930	18	8.99	1979	1.61	1973
Jun	4.74	4.31	7.75	1945	12	10.43	2000	1.27	1991
Jul	3.78	3.32	5.05	1938	19	10.86	1989	.11	1999
Aug	3.51	2.78	8.52	1974	31	14.29	1974	.00	2000
Sep	4.06	3.11	5.22	1980	28	13.82	1974	.15	1982
Oct	4.54	4.43	4.83	1926	10	11.13	1993	.13	1977
Nov	5.91	4.88	6.11	1988	26	14.18	2000	.75	1999
Dec	5.06	4.87	5.12	1985	11	13.84	1987	.84	1981
Ann	54.51	54.50	8.52	Aug 1974	31	14.29	Aug 1974	.00	Aug 2000

Mean Number of Days (3)

Month	Daily Precipitation >= 0.01	>= 0.10	>= 0.50	>= 1.00
Jan	10.3	6.7	2.9	1.2
Feb	8.6	5.9	2.7	1.1
Mar	10.0	6.7	3.4	1.5
Apr	9.0	6.5	3.3	1.5
May	10.1	7.2	3.4	1.5
Jun	8.4	6.4	2.9	1.6
Jul	7.3	5.0	2.5	1.3
Aug	6.1	4.5	2.3	1.2
Sep	7.5	4.8	2.5	1.1
Oct	7.3	5.3	3.2	1.6
Nov	9.6	6.6	3.6	2.0
Dec	9.0	6.4	3.2	1.6
Ann	103.2	72.0	35.9	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	.71	1.08	1.69	2.26	2.85	3.48	4.21	5.09	6.27	8.17	9.98
Feb	1.00	1.38	1.95	2.46	2.97	3.50	4.09	4.79	5.71	7.16	8.52
Mar	1.49	1.96	2.67	3.28	3.88	4.49	5.17	5.97	7.01	8.63	10.13
Apr	1.33	1.79	2.50	3.11	3.72	4.36	5.06	5.90	6.99	8.69	10.28
May	1.81	2.27	2.93	3.48	4.01	4.54	5.13	5.80	6.67	8.00	9.21
Jun	1.01	1.44	2.14	2.77	3.41	4.08	4.85	5.76	6.97	8.90	10.72
Jul	.35	.62	1.13	1.65	2.23	2.87	3.64	4.60	5.92	8.13	10.29
Aug	.18	.51	1.04	1.56	2.10	2.72	3.43	4.32	5.53	7.53	9.47
Sep	.49	.81	1.38	1.95	2.55	3.22	4.00	4.97	6.28	8.43	10.53
Oct	.68	1.07	1.72	2.35	3.00	3.72	4.54	5.54	6.89	9.09	11.20
Nov	1.15	1.68	2.55	3.35	4.15	5.02	6.01	7.19	8.77	11.29	13.69
Dec	1.57	2.05	2.77	3.38	3.97	4.59	5.27	6.06	7.08	8.68	10.15
Ann	38.76	41.81	45.71	48.68	51.31	53.85	56.48	59.39	62.91	68.02	72.44

\+ 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: 1892-2001
(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	.0	#	0	15.0	2000	28	16.0	2000	16	2000	28	1	2000	.8	.5	.2	.1	.1	.4	.1	.1	.1
Feb	1.0	.0	#	0	4.0	1979	7	6.9	1978	3	1985	2	#+	1997	.6	.4	.1	.0	.0	.2	.0	.0	.0
Mar	.2	.0	#	0	2.0	1971	3	2.0	1971	2	1971	3	#+	1980	.2	.1	.0	.0	.0	@	.0	.0	.0
Apr	.0	.0	0	0	.0	0	0	.0	0	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	0	0	0	.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	.0	0	0	.0	0	0	0	0	0	0	.0	.0	.0	.0	.0	.0	.0	.0	.0
Nov	.0	.0	0	0	1.0	1976	14	1.0	1976	0	0	0	0	0	@	@	.0	.0	.0	.0	.0	.0	.0
Dec	.4	.0	#	0	4.0	1983	17	6.2	1983	4	1983	17	#+	2000	.3	.2	@	.0	.0	.0	.0	.0	.0
Ann	3.8	.0	N/A	N/A	15.0	Jan 2000	28	16.0	Jan 2000	16	Jan 2000	28	1	Jan 2000	1.9	1.2	.3	.1	.1	.6	.1	.1	.1

+ 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	4/17	4/14	4/11	4/09	4/07	4/05	4/02	3/31	3/27
32	4/13	4/08	4/04	4/01	3/29	3/26	3/22	3/19	3/13
28	4/01	3/25	3/20	3/15	3/11	3/07	3/03	2/26	2/19
24	3/16	3/08	3/03	2/26	2/21	2/17	2/12	2/06	1/29
20	3/07	2/26	2/19	2/13	2/08	2/02	1/27	1/20	1/08
16	2/21	2/12	2/05	1/30	1/24	1/16	1/05	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	10/07	10/13	10/17	10/21	10/24	10/27	10/30	11/04	11/09
32	10/23	10/28	11/01	11/04	11/07	11/09	11/13	11/16	11/21
28	11/01	11/06	11/11	11/14	11/18	11/21	11/25	11/29	12/05
24	11/13	11/19	11/24	11/28	12/01	12/05	12/09	12/14	12/20
20	11/16	11/29	12/08	12/16	12/23	12/30	1/07	1/17	2/01
16	12/11	12/19	12/25	12/31	1/06	1/12	1/22	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	216	210	206	203	199	196	193	189	183
32	245	237	232	227	222	218	213	208	200
28	280	270	263	256	250	244	238	231	221
24	310	301	294	288	283	277	271	264	255
20	>365	351	331	320	312	304	296	287	274
16	>365	>365	>365	>365	>365	340	327	316	303

***** 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	756	551	373	157	37	0	0	0	15	127	408	669	3093
60	602	420	234	70	9	0	0	0	2	50	273	521	2181
57	517	344	164	36	3	0	0	0	0	24	204	435	1727
55	459	296	126	21	1	0	0	0	0	13	164	380	1460
50	324	193	55	3	0	0	0	0	0	2	86	256	919
32	38	13	0	0	0	0	0	0	0	0	1	22	74

Cooling Degree Days (1)

Base Above	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Ann
32	305	386	653	869	1154	1343	1512	1489	1239	947	587	377	10861
55	13	25	65	199	442	653	799	776	549	247	60	21	3849
57	9	17	42	154	382	593	737	714	489	196	40	14	3387
60	2	9	19	98	295	503	644	621	401	129	20	7	2748
65	0	0	2	36	168	353	489	467	264	51	4	0	1834
70	0	0	0	8	76	209	334	318	150	13	0	0	1108

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	143	231	427	640	916	1111	1276	1256	1007	711	369	187	143	374	801	1441	2357	3468	4744	6000	7007	7718	8087	8274
45	74	142	294	493	761	961	1121	1101	857	557	245	103	74	216	510	1003	1764	2725	3846	4947	5804	6361	6606	6709
50	34	72	179	351	606	811	966	946	707	407	149	53	34	106	285	636	1242	2053	3019	3965	4672	5079	5228	5281
55	13	34	96	223	452	661	811	791	558	270	79	24	13	47	143	366	818	1479	2290	3081	3639	3909	3988	4012
60	0	7	39	120	301	511	656	636	413	152	32	8	0	7	46	166	467	978	1634	2270	2683	2835	2867	2875
Base	**Growing Degree Units for Corn (Monthly)**												**Growing Degree Units for Corn (Accumulated Monthly)**											
50/86	97	162	273	411	608	764	862	835	678	461	237	127	97	259	532	943	1551	2315	3177	4012	4690	5151	5388	5515

(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