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: ANADARKO 3 E, OK **COOP ID: 340224**

Climate Division: OK 7 **NWS Call Sign:** **Elevation: 1,168 Feet** **Lat: 35˚04N** **Lon: 98˚12W**

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	47.6	22.1	34.9	84	1950	24	42.6	1990	-13	1988	8	23.7	1979	934	0	.0	.0	16.7	3.7	25.3	.4
Feb	54.4	26.9	40.7	89	1996	22	48.8	1976	-6+	1951	2	28.1	1978	682	0	.0	.0	19.0	1.9	17.6	.2
Mar	62.6	34.7	48.7	97	1967	12	53.3	1974	-9	1948	12	44.4	1996	506	0	.0	.1	27.6	.1	9.9	.0
Apr	71.8	44.5	58.2	101	1972	12	63.0	1972	19	1975	3	52.7	1997	229	23	@	.6	29.7	.0	2.2	.0
May	80.1	55.9	68.0	104+	1985	30	74.1	1996	29	1960	1	63.7	1976	54	147	.1	4.0	31.0	.0	.0	.0
Jun	88.3	64.2	76.3	110	1980	28	81.3	1990	42	1982	1	72.2	1992	4	340	1.0	15.3	30.0	.0	.0	.0
Jul	93.8	68.4	81.1	111	1954	25	86.8	1980	50	1961	10	77.2	1975	0	499	6.3	25.6	31.0	.0	.0	.0
Aug	92.9	67.1	80.0	111+	1956	15	85.4	2000	45+	1962	26	73.7	1992	1	465	4.2	24.5	31.0	.0	.0	.0
Sep	85.1	59.5	72.3	108	1953	28	78.9	1998	29+	1984	30	64.4	1974	27	246	1.1	11.1	30.0	.0	.1	.0
Oct	74.3	47.1	60.7	99	1953	1	64.1	1979	16	1993	31	53.6	1976	166	32	.0	1.6	30.8	.0	1.6	.0
Nov	60.4	34.4	47.4	88	1950	8	53.6	1999	9	1976	29	41.8	1976	527	0	.0	.0	25.3	.1	11.2	.0
Dec	50.1	25.4	37.8	89	1966	7	42.2	1991	-17	1989	23	25.7	1983	845	0	.0	.0	18.7	2.2	22.4	.2
Ann	71.8	45.9	58.8	111+	Aug 1956	15	86.8	Jul 1980	-17	Dec 1989	23	23.7	Jan 1979	3975	1752	12.7	82.8	320.8	8.0	90.3	.8

+ 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	1.09	.86	3.68	1982	30	4.16	1982	.00+	1996
Feb	1.53	1.53	2.47	1987	15	4.73	1987	.00	1996
Mar	2.39	2.16	2.68	1998	16	6.18	1973	.12	1971
Apr	2.52	2.32	3.39	1999	25	5.79	1997	.07	1989
May	4.90	4.50	5.10	1955	19	10.16	1980	.00	1988
Jun	4.00	3.44	3.65	1962	2	10.98	1989	.80	1988
Jul	2.31	1.99	3.23	1975	24	9.64	1975	.00	1983
Aug	2.74	2.29	4.70	1995	2	8.10	1995	.00+	2000
Sep	3.31	2.83	5.25	1961	13	9.58	1991	.16	1998
Oct	3.27	1.97	9.15	2000	23	13.13	2000	.10	1992
Nov	1.90	1.69	4.10	1998	1	5.64	1998	.00+	1995
Dec	1.67	1.09	3.20+	1991	20	5.55	1984	.10	1989
Ann	31.63	31.65	9.15	Oct 2000	23	13.13	Oct 2000	.00+	Aug 2000

Mean Number of Days (3)

Daily Precipitation

Month	>= 0.01	>= 0.10	>= 0.50	>= 1.00
Jan	3.7	2.1	.7	.3
Feb	4.1	2.7	1.0	.5
Mar	5.4	3.8	1.6	.7
Apr	5.5	4.1	1.9	.7
May	7.3	6.0	3.4	1.6
Jun	6.6	4.8	2.5	1.3
Jul	4.2	3.6	1.5	.7
Aug	4.9	3.7	1.6	.8
Sep	5.7	4.6	2.0	1.0
Oct	5.1	3.9	1.9	1.0
Nov	4.7	3.2	1.2	.5
Dec	4.0	2.7	1.2	.5
Ann	61.2	45.2	20.5	9.6

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	.07	.22	.40	.63	.92	1.30	1.84	2.78	3.74
Feb	.08	.22	.45	.67	.91	1.18	1.49	1.88	2.41	3.28	4.13
Mar	.33	.53	.87	1.20	1.55	1.94	2.38	2.92	3.66	4.86	6.02
Apr	.37	.58	.95	1.29	1.66	2.06	2.52	3.08	3.83	5.06	6.25
May	.98	1.66	2.49	3.15	3.79	4.44	5.16	6.00	7.09	8.79	10.37
Jun	1.04	1.42	2.00	2.51	3.01	3.54	4.13	4.83	5.74	7.17	8.51
Jul	.12	.33	.68	1.02	1.38	1.78	2.26	2.85	3.65	4.98	6.28
Aug	.00	.40	.93	1.37	1.81	2.27	2.80	3.42	4.26	5.62	6.92
Sep	.35	.60	1.06	1.52	2.02	2.57	3.23	4.04	5.15	7.00	8.79
Oct	.17	.35	.73	1.17	1.68	2.27	3.00	3.94	5.26	7.52	9.78
Nov	.00	.00	.58	.92	1.23	1.58	1.96	2.42	3.01	3.98	4.91
Dec	.10	.20	.40	.63	.88	1.18	1.55	2.02	2.67	3.78	4.89
Ann	22.88	24.59	26.76	28.41	29.87	31.28	32.73	34.34	36.28	39.09	41.52

\+ 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

Complete documentation available from:
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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	.6	.0	#	0
Feb	2.5	.0	#	0
Mar	.2	.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
Dec	.9	.0	#	0
Ann	4.2	.0	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	4.5	1997	9	4.5	1997	13	1988	7	3	1988
Feb	10.0	1971	21	13.0	1971	10	1971	21	1	1982
Mar	2.5	1971	3	2.5	1971	2	1971	3	#+	1998
Apr	.0	0	0	.0	0	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	#	2000	8	#+	2000	3	1972	21	#+	2000
Dec	3.0	1987	15	6.0	1987	2+	2000	13	#+	2000
Ann	10.0	Feb 1971	21	13.0	Feb 1971	13	Jan 1988	7	3	Jan 1988

Mean Number of Days (1)

Snow Fall >= Thresholds

Month	0.1	1.0	3.0	5.0	10.0
Jan	.8	.4	.1	.0	.0
Feb	.6	.6	.3	.1	.1
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	.0	.0	.0	.0	.0
Dec	.6	.4	.1	.0	.0
Ann	2.2	1.5	.5	.1	.1

Snow Depth >= Thresholds

Month	1	3	5	10
Jan	.3	.0	.0	.0
Feb	.2	.1	.1	.1
Mar	.1	.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	.0
Dec	@	.0	.0	.0
Ann	.6	.1	.1	.1

+ Also occurred on an earlier date(s) #Denotes trace amounts

(1) Derived from Snow Climatology and 1971-2000 daily data

@ Denotes mean number of days greater than 0 but less than .05

(2) Derived from 1971-2000 daily data

-9/-9.9 represents missing values

Annual statistics for Mean/Median snow depths are not appropriate

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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	5/03	4/28	4/25	4/22	4/19	4/16	4/13	4/10	4/05
32	4/20	4/16	4/13	4/11	4/09	4/06	4/04	4/01	3/28
28	4/13	4/08	4/04	3/31	3/28	3/25	3/22	3/18	3/12
24	4/04	3/29	3/24	3/20	3/16	3/12	3/08	3/03	2/24
20	3/27	3/19	3/12	3/07	3/02	2/25	2/20	2/14	2/05
16	3/09	3/01	2/24	2/19	2/15	2/10	2/06	1/31	1/24

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	9/27	10/02	10/06	10/09	10/12	10/15	10/18	10/22	10/27
32	10/05	10/12	10/16	10/20	10/23	10/27	10/31	11/04	11/10
28	10/18	10/24	10/29	11/02	11/05	11/09	11/13	11/18	11/24
24	10/23	10/30	11/04	11/08	11/12	11/16	11/21	11/26	12/03
20	11/02	11/10	11/16	11/21	11/25	11/30	12/05	12/10	12/18
16	11/09	11/19	11/27	12/03	12/09	12/14	12/21	12/28	1/07

Freeze Free Period

Temp (F)	Probability of longer than indicated freeze free period (Days)								
	.10	.20	.30	.40	.50	.60	.70	.80	.90
36	197	189	184	179	175	171	166	161	154
32	219	212	206	202	197	193	188	183	175
28	247	238	232	227	221	216	211	205	196
24	271	261	253	247	241	235	229	221	211
20	297	287	280	273	267	261	255	248	238
16	324	310	302	296	291	286	281	275	266

***** 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	934	682	506	229	54	4	0	1	27	166	527	845	3975
60	779	550	354	123	16	0	0	0	7	71	384	690	2974
57	687	472	269	76	6	0	0	0	2	37	304	598	2451
55	627	422	216	51	3	0	0	0	0	22	254	539	2134
50	482	306	111	14	0	0	0	0	0	4	151	397	1465
32	100	51	2	0	0	0	0	0	0	0	6	58	217

Base	Cooling Degree Days (1)												
Above	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Ann
32	189	294	519	784	1116	1327	1522	1487	1210	889	468	236	10041
55	3	20	20	146	406	637	809	774	520	198	27	4	3564
57	1	14	11	110	347	577	747	712	462	151	16	2	3150
60	0	8	3	67	264	487	654	619	377	92	7	0	2578
65	0	0	0	23	147	340	499	465	246	32	0	0	1752
70	0	0	0	5	65	207	345	315	143	7	0	0	1087

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	82	187	384	612	908	1123	1318	1281	1003	701	303	109	82	269	653	1265	2173	3296	4614	5895	6898	7599	7902	8011
45	33	104	254	467	753	973	1163	1126	853	547	192	53	33	137	391	858	1611	2584	3747	4873	5726	6273	6465	6518
50	7	52	150	325	598	823	1008	971	703	398	106	22	7	59	209	534	1132	1955	2963	3934	4637	5035	5141	5163
55	1	18	76	205	444	673	853	816	553	260	48	5	1	19	95	300	744	1417	2270	3086	3639	3899	3947	3952
60	0	3	35	107	297	523	698	661	417	149	19	0	0	3	38	145	442	965	1663	2324	2741	2890	2909	2909
Base	Growing Degree Units for Corn (Monthly)												Growing Degree Units for Corn (Accumulated Monthly)											
50/86	81	147	259	398	597	754	870	845	665	450	203	95	81	228	487	885	1482	2236	3106	3951	4616	5066	5269	5364

(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