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: HOBART MUNICIPAL AP, OK **COOP ID: 344204**

Climate Division: OK 7 **NWS Call Sign: HBR** **Elevation: 1,570 Feet** **Lat: 35˚00N** **Lon: 99˚03W**

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	48.8	24.9	36.9	83+	1950	24	43.4	1990	-9	1988	8	25.7	1979	873	0	.0	.0	14.5	4.1	25.3	.2
Feb	54.8	29.9	42.4	89	1996	22	50.8	1976	-3	1951	1	30.5	1978	637	0	.0	.0	18.0	2.5	17.5	.2
Mar	63.5	37.7	50.6	95+	1967	11	55.5	1974	2	1948	11	46.5+	1998	448	0	.0	.3	27.4	.2	8.0	.0
Apr	72.8	46.4	59.6	102	1972	12	65.6	1981	22+	1957	13	53.7	1997	202	40	@	1.0	29.4	.0	1.7	.0
May	81.5	57.0	69.3	108	2000	24	76.4	1996	32	1954	3	65.0	1976	44	175	.5	4.7	31.0	.0	.0	.0
Jun	91.0	66.2	78.6	116	1980	24	83.6	1980	45	1964	1	73.8	1989	2	410	2.2	17.3	30.0	.0	.0	.0
Jul	96.2	71.0	83.6	113	1954	25	90.0	1980	54+	1952	8	79.9	1975	0	577	7.6	25.9	31.0	.0	.0	.0
Aug	94.6	69.7	82.2	111+	1952	15	88.7	2000	50	1956	21	75.9	1992	0	531	6.5	24.0	31.0	.0	.0	.0
Sep	86.0	61.9	74.0	110	2000	4	80.2	1998	31	1984	30	67.2	1974	17	285	1.1	10.5	30.0	.0	@	.0
Oct	75.3	49.8	62.6	102	2000	3	66.5	1979	18	1993	31	56.8	1976	126	51	.1	1.3	30.6	@	.8	.0
Nov	61.1	37.1	49.1	88+	1980	7	56.0	1999	9	1991	3	43.0	2000	478	1	.0	.0	24.6	.2	9.2	.0
Dec	51.0	27.8	39.4	86	1955	24	43.9	1980	-9	1989	23	26.7	1983	794	0	.0	.0	17.4	2.4	22.5	.1
Ann	73.1	48.3	60.7	116	Jun 1980	24	90.0	Jul 1980	-9+	Dec 1989	23	25.7	Jan 1979	3621	2070	18.0	85.0	314.9	9.4	85.0	.5

\+ 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	.93	.71	2.04	1982	30	3.01	1973	.00+	1996
Feb	1.03	.81	1.45	1964	3	2.98	1990	.00	1991
Mar	1.99	1.89	3.81	1990	10	5.11	1990	.00+	1972
Apr	2.53	2.50	2.88	1976	15	6.96	1976	.01	1989
May	4.52	4.24	4.47	1980	15	10.90	1977	.42	1984
Jun	3.30	2.89	4.22	1953	5	7.32	1989	.68	1974
Jul	2.41	1.91	4.34	1950	17	10.58	1975	.03	1980
Aug	2.66	2.43	5.88	1995	2	6.66	1972	.00+	2000
Sep	3.38	2.31	5.73	1965	19	10.93	1973	.00	1979
Oct	2.82	2.44	5.55	1983	20	10.43	1983	.00	1978
Nov	1.61	1.47	2.36	1979	20	6.71	1992	.00+	1989
Dec	1.22	.77	2.29	1999	8	4.43	1991	.00	1977
Ann	28.40	27.86	5.88	Aug 1995	2	10.93	Sep 1973	.00+	Aug 2000

Mean Number of Days (3)

Daily Precipitation

Month	>= 0.01	>= 0.10	>= 0.50	>= 1.00
Jan	4.0	1.8	.4	.1
Feb	4.2	2.4	.7	.1
Mar	5.5	3.2	1.2	.5
Apr	6.2	3.9	1.9	.8
May	9.7	6.5	2.9	1.4
Jun	7.0	4.9	2.3	.9
Jul	5.4	3.5	1.6	.7
Aug	5.9	3.8	1.5	.5
Sep	6.0	4.0	1.8	.9
Oct	5.8	3.8	1.7	.6
Nov	4.8	2.6	.9	.4
Dec	4.3	2.3	.6	.3
Ann	68.8	42.7	17.5	7.2

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	.00	.00	.14	.28	.44	.63	.85	1.14	1.54	2.22	2.90
Feb	.02	.07	.20	.34	.50	.70	.94	1.24	1.68	2.42	3.17
Mar	.00	.34	.73	1.05	1.36	1.69	2.06	2.48	3.06	3.99	4.87
Apr	.14	.28	.58	.92	1.31	1.77	2.33	3.05	4.06	5.79	7.52
May	.63	1.00	1.65	2.27	2.93	3.66	4.50	5.53	6.92	9.19	11.38
Jun	.73	1.04	1.52	1.96	2.39	2.86	3.38	4.00	4.82	6.13	7.37
Jul	.13	.27	.56	.88	1.25	1.69	2.22	2.91	3.87	5.51	7.15
Aug	.00	.36	.87	1.30	1.72	2.18	2.70	3.32	4.16	5.51	6.81
Sep	.05	.22	.61	1.06	1.60	2.24	3.04	4.07	5.54	8.06	10.59
Oct	.14	.39	.82	1.23	1.67	2.17	2.75	3.47	4.45	6.08	7.66
Nov	.00	.17	.46	.72	.98	1.27	1.60	2.00	2.55	3.45	4.32
Dec	.01	.07	.20	.36	.56	.79	1.08	1.46	2.00	2.94	3.89
Ann	19.68	21.35	23.50	25.13	26.59	28.00	29.46	31.08	33.04	35.90	38.38

\+ 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

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Climate Division: OK 7 **NWS Call Sign: HBR** **Elevation: 1,570 Feet** **Lat: 35°00N** **Lon: 99°03W**

Snow (inches)

Snow Totals

Means/Medians (1)

Month	Snow Fall Mean	Snow Fall Median	Snow Depth Mean	Snow Depth Median
Jan	2.3	.3	#	0
Feb	2.0	.6	#	0
Mar	.2	.0	#	0
Apr	.0	.0	#	0
May	.0	.0	#	0
Jun	.0	.0	0	0
Jul	.0	.0	#	0
Aug	.0	.0	0	0
Sep	.0	.0	0	0
Oct	#	.0	0	0
Nov	.3	.0	#	0
Dec	1.5	.7	#	0
Ann	6.3	1.6	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	7.3	1987	18	8.2	1973	7+	1988	11	2+	1988
Feb	7.0	1979	6	10.0	1978	7+	1986	11	1+	1986
Mar	2.1	1995	1	2.1	1995	2+	1995	2	#	1995
Apr	1.0	1973	8	1.0	1973	1	1973	8	#	1973
May	.0	0	0	.0	0	#	1981	16	#	1996
Jun	.0	0	0	.0	0	0	0	0	0	0
Jul	.0	0	0	.0	0	#	1971	1	#	1971
Aug	.0	0	0	.0	0	0	0	0	0	0
Sep	.0	0	0	.0	0	0	0	0	0	0
Oct	#	1993	29	#+	1993	#	1991	31	0	0
Nov	3.3	1988	19	3.3	1988	1+	1976	13	#	1976
Dec	7.3	1975	24	11.8	1975	15	1971	2	1+	1975
Ann	7.3+	Jan 1987	18	11.8	Dec 1975	15	Dec 1971	2	2+	Jan 1988

Mean Number of Days (1)

Snow Fall >= Thresholds

Month	0.1	1.0	3.0	5.0	10.0
Jan	1.3	1.0	.3	@	.0
Feb	1.1	.8	.3	@	.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	.2	.1	@	.0	.0
Dec	1.1	.6	.1	.1	.0
Ann	3.9	2.6	.7	.1	.0

Snow Depth >= Thresholds

Month	1	3	5	10
Jan	3.1	1.2	.6	.0
Feb	2.1	1.0	.3	.0
Mar	.2	.0	.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	.1	.0	.0	.0
Dec	1.3	.3	.2	.1
Ann	6.8	2.5	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	4/28	4/23	4/20	4/17	4/14	4/11	4/09	4/05	4/01
32	4/17	4/13	4/09	4/07	4/04	4/02	3/30	3/27	3/22
28	4/10	4/03	3/29	3/25	3/21	3/17	3/13	3/08	3/01
24	3/30	3/22	3/16	3/12	3/07	3/03	2/26	2/20	2/13
20	3/18	3/10	3/04	2/27	2/23	2/18	2/12	2/05	1/23
16	3/11	2/27	2/18	2/11	2/04	1/28	1/19	1/09	12/21

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	10/01	10/08	10/13	10/17	10/21	10/24	10/28	11/02	11/09
32	10/13	10/20	10/25	10/29	11/02	11/06	11/11	11/16	11/23
28	10/24	10/31	11/05	11/09	11/13	11/17	11/21	11/26	12/02
24	11/02	11/11	11/17	11/22	11/27	12/02	12/08	12/14	12/22
20	11/15	11/22	11/28	12/03	12/07	12/12	12/17	12/24	1/06
16	11/15	11/27	12/06	12/13	12/20	12/27	1/04	1/15	2/03

Freeze Free Period

Temp (F)	Probability of longer than indicated freeze free period (Days)								
	.10	.20	.30	.40	.50	.60	.70	.80	.90
36	213	205	199	193	189	184	179	173	164
32	236	228	222	216	212	207	201	195	187
28	260	252	246	241	236	231	226	220	212
24	301	289	279	272	264	257	249	240	228
20	>365	312	301	293	285	279	271	263	252
16	>365	347	328	318	310	302	294	286	274

***** 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	873	637	448	202	44	2	0	0	17	126	478	794	3621
60	719	506	300	108	13	0	0	0	3	49	338	640	2676
57	627	430	218	67	5	0	0	0	0	23	261	551	2182
55	568	381	170	45	3	0	0	0	0	13	215	494	1889
50	425	273	81	13	0	0	0	0	0	2	122	355	1271
32	72	41	1	0	0	0	0	0	0	0	4	47	165

Cooling Degree Days (1)

Base Above	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Ann
32	222	331	577	828	1154	1398	1600	1554	1258	948	516	276	10662
55	4	27	33	183	444	708	887	841	568	248	38	10	3991
57	2	20	19	144	384	648	825	779	508	197	24	5	3555
60	1	12	7	96	299	558	732	686	422	129	11	1	2954
65	0	0	0	40	175	410	577	531	285	51	1	0	2070
70	0	0	0	12	84	271	422	380	171	14	0	0	1354

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	76	169	370	601	907	1154	1348	1305	1006	696	294	102	76	245	615	1216	2123	3277	4625	5930	6936	7632	7926	8028
45	33	92	240	453	752	1004	1193	1150	856	544	182	45	33	125	365	818	1570	2574	3767	4917	5773	6317	6499	6544
50	6	44	137	316	598	854	1038	995	707	397	99	17	6	50	187	503	1101	1955	2993	3988	4695	5092	5191	5208
55	0	14	68	196	444	704	883	840	560	263	47	1	0	14	82	278	722	1426	2309	3149	3709	3972	4019	4020
60	0	2	27	102	300	554	728	685	419	146	16	0	0	2	29	131	431	985	1713	2398	2817	2963	2979	2979
Base	**Growing Degree Units for Corn (Monthly)**												**Growing Degree Units for Corn (Accumulated Monthly)**											
50/86	68	133	242	380	585	774	889	862	665	435	185	79	68	201	443	823	1408	2182	3071	3933	4598	5033	5218	5297

(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