

Climatology of the United States

No. 20

1971-2000

Station: OAK RIDGE ATDD, TN

COOP ID: 406750

Climate Division: TN 1

NWS Call Sign:

Elevation: 905 Feet Lat: 36°01N Lon: 84°14W

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	45.9	27.2	36.6	75	1952	1	47.1	1974	-17	1985	21	24.8	1977	882	0	.0	.0	12.0	3.4	21.9	.4
Feb	51.6	29.5	40.6	79	1977	26	47.7	1990	-13	1996	5	31.1	1978	696	0	.0	.0	16.6	1.6	17.7	.1
Mar	61.0	36.6	48.8	86	1998	30	55.0	1973	1	1980	3	44.1	1981	510	2	.0	.0	25.9	.2	11.7	.0
Apr	70.5	43.8	57.2	92+	1986	26	62.8	1991	20	1987	1	51.2	1983	254	19	.0	.1	29.2	.0	3.3	.0
May	77.8	53.4	65.6	93+	1953	25	72.2	1991	30	1976	4	60.5	1976	80	95	.0	.8	31.0	.0	.1	.0
Jun	84.9	61.7	73.3	101+	1954	27	76.4	1998	39	1977	8	67.7	1974	6	254	.1	6.4	30.0	.0	.0	.0
Jul	88.1	66.4	77.3	105	1952	28	82.1	1993	49	1988	2	73.5	1976	0	380	.4	13.7	31.0	.0	.0	.0
Aug	87.2	65.2	76.2	103	1983	22	82.1	1995	50	1989	8	72.3	1976	0	347	.3	10.4	31.0	.0	.0	.0
Sep	81.1	58.8	70.0	102+	1954	5	76.6	1998	33	1967	30	65.0	1976	30	180	@	3.7	30.0	.0	.0	.0
Oct	71.1	45.7	58.4	90+	1951	6	65.5	1984	21	1952	30	51.8	1988	230	23	.0	.0	30.7	.0	2.3	.0
Nov	59.0	36.4	47.7	83	1961	2	54.5	1985	0	1950	25	39.7	1976	518	1	.0	.0	23.7	@	12.1	.0
Dec	49.0	29.8	39.4	78	1982	4	47.8	1971	-7	1983	25	30.5	1989	787	0	.0	.0	15.4	1.9	20.0	.1
Ann	68.9	46.2	57.6	105	Jul 1952	28	82.1+	Aug 1995	-17	Jan 1985	21	24.8	Jan 1977	3993	1301	.8	35.1	306.5	7.1	89.1	.6

+ 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/normal/usnormals.html

Issue Date: February 2004

056-A

(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

**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: OAK RIDGE ATDD, TN

COOP ID: 406750

Climate Division: TN 1

NWS Call Sign:

Elevation: 905 Feet Lat: 36°01N

Lon: 84°14W

Precipitation (inches)																								
	Precipitation Totals									Mean Number of Days (3)				Precipitation Probabilities (1) Probability that the monthly/annual precipitation will be equal to or less than the indicated amount										
	Means/ Medians(1)		Extremes							Daily Precipitation				Monthly/Annual Precipitation vs Probability Levels These values were determined from the incomplete gamma distribution										
Month	Mean	Med-ian	Highest Daily(2)	Year	Day	Highest Monthly(1)	Year	Lowest Monthly(1)	Year	>= 0.01	>= 0.10	>= 0.50	>= 1.00	.05	.10	.20	.30	.40	.50	.60	.70	.80	.90	.95
Jan	5.13	5.54	4.10	1954	15	9.62	1974	.93	1981	12.2	8.4	3.8	1.4	1.73	2.22	2.93	3.53	4.11	4.70	5.35	6.11	7.09	8.60	9.99
Feb	4.50	4.47	2.90	1954	28	9.79	1994	1.13	1978	10.9	7.7	3.1	1.1	1.86	2.27	2.85	3.32	3.77	4.23	4.72	5.28	6.00	7.09	8.09
Mar	5.72	5.48	3.75	1973	16	12.24	1975	2.57	1983	12.6	9.1	3.7	1.5	2.46	2.98	3.70	4.29	4.84	5.40	6.00	6.69	7.56	8.88	10.08
Apr	4.32	3.74	5.43	1977	4	14.03	1998	.88	1976	10.2	7.0	2.8	.9	1.20	1.61	2.23	2.77	3.30	3.86	4.47	5.20	6.14	7.62	9.01
May	5.14	4.74	4.40	1973	27	10.70	1984	1.67	1977	11.7	8.5	3.8	1.4	1.74	2.23	2.94	3.54	4.11	4.71	5.36	6.12	7.09	8.60	9.99
Jun	4.64	4.60	3.54	1969	23	11.14	1989	.53	1988	11.5	8.0	3.1	1.4	1.01	1.44	2.12	2.73	3.35	4.01	4.75	5.63	6.80	8.66	10.41
Jul	5.16	4.50	4.76	1996	31	12.92	1979	1.23	1995	11.9	8.1	3.5	1.3	1.48	1.97	2.70	3.35	3.97	4.63	5.35	6.20	7.31	9.04	10.65
Aug	3.39	3.18	7.45	1960	10	8.50	1985	1.28	1983	9.6	6.4	2.4	.8	1.27	1.59	2.04	2.42	2.78	3.15	3.55	4.01	4.59	5.50	6.32
Sep	3.75	3.44	3.37	1962	16	8.86	1989	1.37	1998	8.7	5.3	2.6	1.3	1.27	1.63	2.15	2.58	3.00	3.44	3.91	4.46	5.17	6.26	7.27
Oct	3.02	2.51	2.19	1984	22	6.95	1972	.01	2000	7.9	5.4	2.0	1.0	.35	.59	1.01	1.43	1.88	2.38	2.97	3.69	4.67	6.30	7.87
Nov	4.86	4.52	4.98	1973	27	10.78	1973	2.11	1987	9.8	7.4	3.8	1.4	1.90	2.36	3.00	3.53	4.03	4.54	5.09	5.73	6.55	7.79	8.93
Dec	5.42	4.89	4.89	1993	4	12.64	1990	2.02	1980	11.3	8.2	3.6	1.5	1.92	2.43	3.17	3.79	4.39	5.00	5.66	6.44	7.43	8.96	10.36
Ann	55.05	55.89	7.45	Aug 1960	10	14.03	Apr 1998	.01	Oct 2000	128.3	89.5	38.2	15.0	39.92	42.87	46.63	49.48	52.01	54.45	56.97	59.74	63.10	67.96	72.15

+ 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:
www.ncdc.noaa.gov/oa/climate/normals/usnormals.html

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: OAK RIDGE ATDD, TN

COOP ID: 406750

Climate Division: TN 1

NWS Call Sign:

Elevation: 905 Feet

Lat: 36°01N

Lon: 84°14W

Snow (inches)																							
Snow Totals															Mean Number of Days (1)								
Means/Medians (1)					Extremes (2)										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	3.6	2.0	#	0	10.5	1979	6	14.7	1979	7	1988	7	1+	1996	2.6	1.2	.4	.1	@	2.8	.9	.1	.0
Feb	3.1	2.2	#	0	9.6	1996	2	17.2	1979	12	1996	3	2	1996	1.9	1.0	.3	.1	.0	1.7	.8	.4	.2
Mar	1.3	.2	#	0	7.0	1993	13	12.0	1993	3	1980	2	#	1996	1.1	.4	.1	.1	.0	.4	@	.0	.0
Apr	.2	.0	#	0	3.0	1987	3	5.9	1987	3+	1987	3	#	1987	.2	.1	@	.0	.0	.1	.1	.0	.0
May	.0	.0	#	0	.0	0	0	.0	0	0	0	0	#	2000	.0	.0	.0	.0	.0	.0	.0	.0	.0
Jun	.0	.0	#	0	.0	0	0	.0	0	0	0	0	#	1992	.0	.0	.0	.0	.0	.0	.0	.0	.0
Jul	.0	.0	#	0	.0	0	0	.0	0	#	1991	24	#	1991	.0	.0	.0	.0	.0	.0	.0	.0	.0
Aug	.0	.0	#	0	.0	0	0	.0	0	0	0	0	#	1993	.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	#	1989	20	0	0	.0	.0	.0	.0	.0	.0	.0	.0	.0
Nov	.1	.0	#	0	.5	1996	10	.5	1996	1	1996	10	#	1996	.2	.0	.0	.0	.0	@	.0	.0	.0
Dec	.8	.1	#	0	4.0	1988	9	5.5	1997	5	1993	23	#	2000	1.0	.2	.1	.0	.0	.4	.1	@	.0
Ann	9.1	4.5	N/A	N/A	10.5	Jan 1979	6	17.2	Feb 1979	12	Feb 1996	3	2	Feb 1996	7.0	2.9	.9	.3	@	5.4	1.9	.5	.2

+ 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

Complete documentation available from:

www.ncdc.noaa.gov/oa/climate/normals/usnormals.html

**Climatography
of the United States
No. 20
1971-2000**

Station: OAK RIDGE ATDD, TN

COOP ID: 406750

Climate Division: TN 1

NWS Call Sign:

Elevation: 905 Feet

Lat: 36°01N

Lon: 84°14W

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	5/18	5/11	5/07	5/03	4/29	4/25	4/21	4/16	4/10
32	4/28	4/23	4/19	4/16	4/13	4/10	4/07	4/03	3/29
28	4/16	4/10	4/06	4/02	3/30	3/26	3/23	3/18	3/12
24	4/05	3/29	3/24	3/19	3/15	3/11	3/06	3/01	2/22
20	3/21	3/14	3/09	3/05	3/01	2/25	2/21	2/16	2/09
16	3/09	3/01	2/24	2/19	2/14	2/10	2/05	1/30	1/22
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	10/05	10/08	10/11	10/13	10/16	10/18	10/21	10/26
32	10/08	10/13	10/17	10/20	10/23	10/26	10/29	11/01	11/06
28	10/23	10/28	10/31	11/03	11/05	11/08	11/11	11/14	11/19
24	11/05	11/10	11/14	11/17	11/21	11/24	11/27	12/01	12/06
20	11/12	11/20	11/25	11/30	12/04	12/08	12/13	12/18	12/26
16	11/30	12/09	12/15	12/20	12/24	12/29	1/03	1/09	1/18
Freeze Free Period									
Temp (F)	Probability of longer than indicated freeze free period (Days)								
	.10	.20	.30	.40	.50	.60	.70	.80	.90
36	189	182	176	171	167	162	158	152	144
32	213	206	201	196	192	188	184	179	172
28	242	234	229	224	220	216	211	206	198
24	277	268	261	255	250	245	239	232	223
20	305	295	289	283	278	272	266	260	250
16	350	333	324	317	310	304	297	290	279

* 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

Complete documentation available from:

www.ncdc.noaa.gov/oa/climate/normal/usnormals.html

**Climatology
of the United States**
No. 20
1971-2000

Station: OAK RIDGE ATDD, TN

COOP ID: 406750

Climate Division: TN 1 NWS Call Sign: Elevation: 905 Feet Lat: 36°01N Lon: 84°14W

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	882	696	510	254	80	6	0	0	30	230	518	787	3993
60	732	544	360	131	43	1	0	0	10	144	376	638	2979
57	645	463	279	79	22	0	0	0	4	98	296	552	2438
55	587	412	231	52	14	0	0	0	2	73	246	493	2110
50	449	287	134	14	3	0	0	0	0	29	142	354	1412
32	109	29	3	0	0	0	0	0	0	0	2	51	194

Base	Cooling Degree Days (1)												
Above	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Ann
32	204	272	529	750	1042	1239	1403	1370	1140	819	473	264	9505
55	3	7	44	136	335	549	690	657	451	159	33	6	3070
57	1	4	29	102	280	489	628	595	393	120	21	3	2665
60	0	1	13	61	202	399	535	502	309	74	8	1	2105
65	0	0	2	19	95	254	380	347	180	23	1	0	1301
70	0	0	0	2	30	125	228	197	79	3	0	0	664

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	80	131	305	524	803	1006	1165	1131	906	584	265	114	80	211	516	1040	1843	2849	4014	5145	6051	6635	6900	7014
45	35	64	191	379	648	856	1010	976	756	430	157	56	35	99	290	669	1317	2173	3183	4159	4915	5345	5502	5558
50	11	25	101	250	493	706	855	821	606	286	82	23	11	36	137	387	880	1586	2441	3262	3868	4154	4236	4259
55	1	5	47	145	343	556	700	666	458	164	35	4	1	6	53	198	541	1097	1797	2463	2921	3085	3120	3124
60	0	0	13	62	212	406	545	511	316	78	6	0	0	0	13	75	287	693	1238	1749	2065	2143	2149	2149
Base	Growing Degree Units for Corn (Monthly)												Growing Degree Units for Corn (Accumulated Monthly)											
50/86	46	91	197	336	520	686	799	776	602	365	165	63	46	137	334	670	1190	1876	2675	3451	4053	4418	4583	4646

(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:
www.ncdc.noaa.gov/oa/climate/normals/usnormals.html

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.
Complete documentation for the 1971-2000 Normals is available on the internet from:
www.ncdc.noaa.gov/oa/climate/normal/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 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.

- | | |
|---|---|
| <ol style="list-style-type: none">a. Temperature/ Precipitation Tables<ol style="list-style-type: none">1. 1971-2000 Monthly Normals2. Cooperative Summary of the Day3. National Weather Service station records4. 1971-2000 serially complete daily datab. Degree Day Table<ol style="list-style-type: none">1. Monthly and Annual Heating and Cooling Degree Days Normals to Selected Bases derived from 1971-2000 Monthly Normals2. Daily Normal Growing Degree Units to Selected Base Temperatures derived from 1971-2000 serially complete daily data | <ol style="list-style-type: none">c. Snow Tables<ol style="list-style-type: none">1. Snow Climatology2. Cooperative Summary of the Dayd. Freeze Data Table
1971-2000 serially complete daily data |
|---|---|

References

U.S. Climate Normals 1971-2000, www.ncdc.noaa.gov/normal.html
U.S. Climate Normals 1971-2000-Products Clim20, www.ncdc.noaa.gov/oa/climate/normal/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