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: KNOXVILLE AP, TN** **COOP ID: 404950**

**Climate Division: TN 1** **NWS Call Sign: TYS** **Elevation: 962 Feet** **Lat: 35˚49N** **Lon: 83˚59W**

## 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 | 46.3 | 28.9 | 37.6 | 77 | 1950 | 25 | 48.9 | 1974 | -24 | 1985 | 21 | 26.8 | 1977 | 841 | 0 | .0 | .0 | 12.5 | 3.1 | 19.3 | .3 |
| Feb | 51.7 | 31.8 | 41.8 | 83+ | 1977 | 26 | 48.4 | 1990 | -8 | 1996 | 5 | 34.1 | 1978 | 652 | 1 | .0 | .0 | 16.8 | 1.5 | 15.2 | @ |
| Mar | 60.3 | 39.1 | 49.7 | 88 | 1929 | 25 | 55.5 | 1973 | 1 | 1980 | 3 | 44.8 | 1996 | 467 | 5 | .0 | .0 | 26.2 | .2 | 8.3 | .0 |
| Apr | 69.0 | 46.6 | 57.8 | 93 | 1925 | 24 | 62.7 | 1981 | 22 | 1987 | 1 | 52.5 | 1983 | 227 | 27 | .0 | @ | 29.4 | .0 | 1.9 | .0 |
| May | 76.3 | 55.6 | 66.0 | 96 | 1941 | 22 | 71.2 | 1991 | 32 | 1986 | 4 | 61.6 | 1989 | 65 | 110 | .0 | .3 | 31.0 | .0 | @ | .0 |
| Jun | 83.6 | 63.9 | 73.8 | 102+ | 1944 | 18 | 76.5 | 1986 | 30 | 1913 | 13 | 69.7 | 1974 | 3 | 282 | .1 | 5.4 | 30.0 | .0 | .0 | .0 |
| Jul | 86.9 | 68.5 | 77.7 | 104 | 1930 | 12 | 82.3 | 1993 | 44 | 1946 | 12 | 74.3 | 1979 | 0 | 408 | .2 | 12.4 | 31.0 | .0 | .0 | .0 |
| Aug | 86.4 | 67.3 | 76.9 | 102 | 1948 | 29 | 81.1 | 1980 | 49 | 1946 | 31 | 73.1 | 1992 | 0 | 381 | .2 | 9.7 | 31.0 | .0 | .0 | .0 |
| Sep | 80.7 | 60.8 | 70.8 | 103 | 1954 | 5 | 76.0 | 1998 | 36 | 1967 | 30 | 66.6 | 1984 | 22 | 205 | .0 | 3.4 | 30.0 | .0 | .0 | .0 |
| Oct | 69.9 | 47.7 | 58.8 | 92 | 1941 | 6 | 67.1 | 1984 | 24 | 1910 | 30 | 52.2 | 1988 | 210 | 28 | .0 | .0 | 30.8 | .0 | .9 | .0 |
| Nov | 59.0 | 38.9 | 49.0 | 84 | 1948 | 5 | 56.3 | 1985 | 5 | 1950 | 25 | 42.7 | 1976 | 470 | 3 | .0 | .0 | 24.5 | @ | 8.2 | .0 |
| Dec | 49.8 | 31.9 | 40.9 | 82 | 1947 | 27 | 50.2 | 1971 | -6 | 1983 | 25 | 31.8 | 1989 | 733 | 0 | .0 | .0 | 16.6 | 1.3 | 17.1 | .1 |
| Ann | 68.3 | 48.4 | 58.4 | 104 | Jul 1930 | 12 | 82.3 | Jul 1993 | -24 | Jan 1985 | 21 | 26.8 | Jan 1977 | 3690 | 1450 | .5 | 31.2 | 309.8 | 6.1 | 70.9 | .4 |

\+ 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: 1910-2001

**(3)** Derived from 1971-2000 serially complete daily data

Issue Date: February 2004

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**Climate Division: TN 1** **NWS Call Sign: TYS** **Elevation: 962 Feet** **Lat: 35˚49N** **Lon: 83˚59W**

## 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 | 4.57 | 4.79 | 3.77 | 1954 | 15 | 7.53 | 1996 | .95 | 1986 |
| Feb | 4.01 | 4.01 | 3.02 | 1933 | 14 | 8.81 | 1994 | 1.01 | 1978 |
| Mar | 5.17 | 4.73 | 5.75 | 1994 | 27 | 11.81 | 1994 | 1.69 | 1986 |
| Apr | 3.99 | 3.45 | 3.19 | 1983 | 5 | 11.07 | 1998 | .39 | 1976 |
| May | 4.68 | 4.53 | 3.36 | 1974 | 30 | 10.98 | 1974 | 1.16 | 1977 |
| Jun | 4.04 | 3.85 | 3.18 | 1929 | 12 | 8.21 | 1989 | .51 | 1988 |
| Jul | 4.71 | 4.07 | 6.14 | 1917 | 16 | 12.66 | 1999 | .33 | 1995 |
| Aug | 2.89 | 2.56 | 3.25 | 1959 | 24 | 6.13 | 1991 | .85 | 1999 |
| Sep | 3.04 | 2.78 | 4.17 | 1944 | 29 | 9.19 | 1989 | .42 | 1985 |
| Oct | 2.65 | 2.75 | 3.17 | 1925 | 14 | 5.99 | 1972 | .00 | 2000 |
| Nov | 3.98 | 3.81 | 3.99 | 1948 | 28 | 7.71 | 1996 | 1.21 | 1987 |
| Dec | 4.49 | 4.11 | 4.70 | 1969 | 30 | 10.23 | 1991 | 1.70 | 1999 |
| Ann | 48.22 | 49.28 | 6.14 | Jul 1917 | 16 | 12.66 | Jul 1999 | .00 | Oct 2000 |

### Mean Number of Days (3)

Daily Precipitation

| Month | >= 0.01 | >= 0.10 | >= 0.50 | >= 1.00 |
|---|---|---|---|---|
| Jan | 12.2 | 8.5 | 3.7 | 1.1 |
| Feb | 11.1 | 7.5 | 2.7 | 1.0 |
| Mar | 13.2 | 9.2 | 3.5 | 1.3 |
| Apr | 10.8 | 7.0 | 2.5 | .9 |
| May | 11.6 | 7.9 | 3.2 | 1.2 |
| Jun | 10.9 | 7.4 | 2.6 | 1.0 |
| Jul | 10.9 | 7.5 | 3.3 | 1.5 |
| Aug | 8.9 | 5.8 | 1.9 | .7 |
| Sep | 8.5 | 5.1 | 2.1 | .9 |
| Oct | 7.9 | 5.1 | 1.9 | .7 |
| Nov | 10.1 | 7.1 | 3.2 | .7 |
| Dec | 11.5 | 7.9 | 3.3 | 1.3 |
| Ann | 127.6 | 86.0 | 33.9 | 12.3 |

### 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 | 1.64 | 2.07 | 2.69 | 3.21 | 3.71 | 4.22 | 4.78 | 5.42 | 6.25 | 7.52 | 8.69 |
| Feb | 1.54 | 1.92 | 2.45 | 2.89 | 3.31 | 3.74 | 4.20 | 4.73 | 5.41 | 6.46 | 7.41 |
| Mar | 1.87 | 2.35 | 3.05 | 3.64 | 4.20 | 4.77 | 5.40 | 6.13 | 7.05 | 8.49 | 9.80 |
| Apr | 1.17 | 1.54 | 2.11 | 2.61 | 3.09 | 3.59 | 4.14 | 4.79 | 5.63 | 6.95 | 8.17 |
| May | 1.70 | 2.14 | 2.77 | 3.30 | 3.81 | 4.33 | 4.89 | 5.54 | 6.38 | 7.67 | 8.85 |
| Jun | 1.06 | 1.45 | 2.03 | 2.55 | 3.05 | 3.58 | 4.17 | 4.87 | 5.78 | 7.22 | 8.56 |
| Jul | 1.04 | 1.48 | 2.17 | 2.79 | 3.42 | 4.08 | 4.82 | 5.72 | 6.89 | 8.76 | 10.52 |
| Aug | 1.02 | 1.29 | 1.68 | 2.02 | 2.33 | 2.66 | 3.01 | 3.43 | 3.96 | 4.77 | 5.52 |
| Sep | .68 | .97 | 1.41 | 1.81 | 2.21 | 2.64 | 3.12 | 3.69 | 4.44 | 5.64 | 6.76 |
| Oct | .60 | .97 | 1.41 | 1.76 | 2.10 | 2.44 | 2.80 | 3.24 | 3.79 | 4.65 | 5.45 |
| Nov | 1.82 | 2.17 | 2.65 | 3.05 | 3.42 | 3.78 | 4.18 | 4.63 | 5.20 | 6.06 | 6.83 |
| Dec | 1.52 | 1.95 | 2.57 | 3.09 | 3.59 | 4.11 | 4.68 | 5.34 | 6.19 | 7.51 | 8.72 |
| Ann | 35.11 | 37.67 | 40.93 | 43.40 | 45.59 | 47.70 | 49.87 | 52.27 | 55.17 | 59.37 | 62.99 |

\+ 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: 1910-2001
**(3)** Derived from 1971-2000 serially complete daily data

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**Climate Division: TN 1** **NWS Call Sign: TYS** **Elevation: 962 Feet** **Lat: 35°49N** **Lon: 83°59W**

## Snow (inches)

### Snow Totals

#### Means/Medians (1)

| Month | Snow Fall Mean | Snow Fall Median | Snow Depth Mean | Snow Depth Median |
|---|---|---|---|---|
| Jan | 3.7 | 1.9 | # | 0 |
| Feb | 3.0 | 1.2 | # | 0 |
| Mar | 1.6 | .6 | # | 0 |
| Apr | .8 | .0 | # | 0 |
| May | .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 |
| Nov | .1 | .0 | 0 | 0 |
| Dec | .7 | # | # | 0 |
| Ann | 9.9 | 3.7 | 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 | 8.8 | 1988 | 7 | 14.2 | 1985 | 7+ | 1985 | 20 | 1+ | 1996 |
| Feb | 8.1 | 1985 | 12 | 18.4 | 1979 | 8+ | 1985 | 14 | 1+ | 1985 |
| Mar | 11.1 | 1993 | 13 | 15.1 | 1993 | 15 | 1993 | 14 | 2 | 1993 |
| Apr | 10.5 | 1987 | 3 | 10.7 | 1987 | 7 | 1987 | 4 | 1 | 1987 |
| May | .0 | 0 | 0 | .0 | 0 | 0 | 0 | 0 | # | 2000 |
| 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 | # | 1993 | 31 | #+ | 1993 | 0 | 0 | 0 | 0 | 0 |
| Nov | 1.0 | 1976 | 29 | 1.0 | 1976 | #+ | 1991 | 8 | 0 | 0 |
| Dec | 2.6 | 1988 | 9 | 3.3 | 1997 | 3 | 1997 | 31 | # | 1997 |
| Ann | 11.1 | Mar 1993 | 13 | 18.4 | Feb 1979 | 15 | Mar 1993 | 14 | 2 | Mar 1993 |

### Mean Number of Days (1)

#### Snow Fall >= Thresholds

| Month | 0.1 | 1.0 | 3.0 | 5.0 | 10.0 |
|---|---|---|---|---|---|
| Jan | 2.2 | 1.3 | .4 | .2 | .0 |
| Feb | 1.7 | 1.0 | .3 | .2 | .0 |
| Mar | 1.0 | .5 | .2 | .1 | @ |
| Apr | .2 | .2 | .1 | @ | @ |
| 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 | .0 | .0 | .0 | .0 |
| Dec | .9 | .2 | .0 | .0 | .0 |
| Ann | 6.1 | 3.2 | 1.0 | .5 | @ |

#### Snow Depth >= Thresholds

| Month | 1 | 3 | 5 | 10 |
|---|---|---|---|---|
| Jan | 3.0 | 1.0 | .3 | .0 |
| Feb | 1.6 | .7 | .1 | .0 |
| Mar | .4 | .2 | .1 | .1 |
| Apr | .1 | .1 | .1 | .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 | .4 | @ | .0 | .0 |
| Ann | 5.5 | 2.0 | .6 | .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

Complete documentation available from:
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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 | 5/02 | 4/28 | 4/24 | 4/21 | 4/19 | 4/16 | 4/13 | 4/09 | 4/05 |
| 32 | 4/22 | 4/16 | 4/12 | 4/09 | 4/06 | 4/02 | 3/30 | 3/26 | 3/20 |
| 28 | 4/12 | 4/05 | 3/31 | 3/27 | 3/23 | 3/19 | 3/14 | 3/09 | 3/02 |
| 24 | 3/24 | 3/18 | 3/13 | 3/08 | 3/04 | 2/28 | 2/24 | 2/19 | 2/12 |
| 20 | 3/16 | 3/08 | 3/02 | 2/25 | 2/21 | 2/16 | 2/11 | 2/05 | 1/28 |
| 16 | 3/07 | 2/26 | 2/20 | 2/15 | 2/10 | 2/05 | 1/31 | 1/25 | 1/16 |

### 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 | 10/05 | 10/09 | 10/12 | 10/15 | 10/17 | 10/19 | 10/22 | 10/25 | 10/29 |
| 32 | 10/17 | 10/23 | 10/27 | 10/31 | 11/03 | 11/06 | 11/10 | 11/14 | 11/19 |
| 28 | 10/27 | 11/01 | 11/05 | 11/09 | 11/12 | 11/15 | 11/18 | 11/22 | 11/27 |
| 24 | 11/12 | 11/17 | 11/21 | 11/24 | 11/28 | 12/01 | 12/04 | 12/08 | 12/13 |
| 20 | 11/18 | 11/27 | 12/04 | 12/09 | 12/15 | 12/20 | 12/26 | 1/01 | 1/10 |
| 16 | 12/07 | 12/15 | 12/21 | 12/26 | 12/30 | 1/04 | 1/09 | 1/15 | 1/23 |

### Freeze Free Period

| Temp (F) | Probability of longer than indicated freeze free period (Days) | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | .10 | .20 | .30 | .40 | .50 | .60 | .70 | .80 | .90 |
| 36 | 200 | 193 | 188 | 185 | 181 | 177 | 173 | 168 | 162 |
| 32 | 237 | 228 | 221 | 216 | 211 | 205 | 200 | 193 | 184 |
| 28 | 261 | 251 | 244 | 239 | 233 | 228 | 222 | 215 | 205 |
| 24 | 289 | 282 | 276 | 272 | 268 | 263 | 259 | 253 | 246 |
| 20 | 330 | 317 | 308 | 301 | 295 | 288 | 282 | 274 | 263 |
| 16 | 357 | 341 | 333 | 326 | 320 | 314 | 308 | 300 | 291 |

***** 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:
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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** | 841 | 652 | 467 | 227 | 65 | 3 | 0 | 0 | 22 | 210 | 470 | 733 | 3690 |
| **60** | 701 | 511 | 333 | 121 | 31 | 0 | 0 | 0 | 3 | 130 | 342 | 594 | 2766 |
| **57** | 613 | 429 | 254 | 73 | 14 | 0 | 0 | 0 | 1 | 86 | 265 | 509 | 2244 |
| **55** | 556 | 377 | 208 | 48 | 8 | 0 | 0 | 0 | 0 | 63 | 218 | 451 | 1929 |
| **50** | 420 | 252 | 114 | 13 | 1 | 0 | 0 | 0 | 0 | 23 | 122 | 315 | 1260 |
| **32** | 93 | 17 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 37 | 149 |

### Cooling Degree Days (1)

| Base Above | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep | Oct | Nov | Dec | Ann |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **32** | 241 | 310 | 568 | 791 | 1072 | 1269 | 1430 | 1403 | 1173 | 844 | 521 | 311 | 9933 |
| **55** | 5 | 13 | 57 | 163 | 363 | 579 | 717 | 690 | 483 | 175 | 47 | 11 | 3303 |
| **57** | 3 | 8 | 39 | 126 | 305 | 519 | 655 | 628 | 424 | 133 | 31 | 7 | 2878 |
| **60** | 1 | 3 | 20 | 79 | 224 | 429 | 562 | 535 | 338 | 83 | 14 | 3 | 2291 |
| **65** | 0 | 1 | 5 | 27 | 110 | 282 | 408 | 381 | 205 | 28 | 3 | 0 | 1450 |
| **70** | 0 | 0 | 0 | 3 | 36 | 147 | 253 | 227 | 95 | 5 | 0 | 0 | 766 |

## 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** | 98 | 162 | 346 | 558 | 834 | 1036 | 1192 | 1166 | 944 | 606 | 309 | 145 | 98 | 260 | 606 | 1164 | 1998 | 3034 | 4226 | 5392 | 6336 | 6942 | 7251 | 7396 |
| **45** | 48 | 84 | 225 | 414 | 679 | 886 | 1037 | 1011 | 794 | 453 | 193 | 75 | 48 | 132 | 357 | 771 | 1450 | 2336 | 3373 | 4384 | 5178 | 5631 | 5824 | 5899 |
| **50** | 23 | 40 | 128 | 281 | 525 | 736 | 882 | 856 | 644 | 309 | 107 | 35 | 23 | 63 | 191 | 472 | 997 | 1733 | 2615 | 3471 | 4115 | 4424 | 4531 | 4566 |
| **55** | 1 | 13 | 61 | 169 | 372 | 586 | 727 | 701 | 494 | 179 | 51 | 11 | 1 | 14 | 75 | 244 | 616 | 1202 | 1929 | 2630 | 3124 | 3303 | 3354 | 3365 |
| **60** | 0 | 2 | 27 | 85 | 232 | 436 | 572 | 546 | 350 | 86 | 14 | 1 | 0 | 2 | 29 | 114 | 346 | 782 | 1354 | 1900 | 2250 | 2336 | 2350 | 2351 |
| **Base** | **Growing Degree Units for Corn (Monthly)** | | | | | | | | | | | | **Growing Degree Units for Corn (Accumulated Monthly)** | | | | | | | | | | | |
| **50/86** | 53 | 102 | 211 | 343 | 539 | 721 | 830 | 816 | 633 | 372 | 180 | 80 | 53 | 155 | 366 | 709 | 1248 | 1969 | 2799 | 3615 | 4248 | 4620 | 4800 | 4880 |

**(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.
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