

# Climatology of the United States

No. 20

1971-2000

Station: WARSAW MARKLAND DAM, KY

COOP ID: 158446

Climate Division: KY 3

NWS Call Sign:

Elevation: 466 Feet

Lat: 38°46N

Lon: 84°58W

## 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	39.5	20.7	30.1	72	1967	25	39.9	1990	-23	1994	19	14.7	1977	1083	0	.0	.0	6.6	8.9	26.7	2.2
Feb	44.5	23.8	34.2	77+	2000	27	41.7	1990	-11	1978	8	19.3	1978	864	0	.0	.0	9.6	5.3	22.2	1.2
Mar	54.7	32.4	43.6	84	1989	29	50.7	1973	-9	1980	4	37.1	1984	666	0	.0	.0	19.6	.9	17.4	.2
Apr	65.5	41.3	53.4	89+	1986	28	59.4	1981	14	1969	1	48.5	1982	353	5	.0	.0	27.6	.0	7.2	.0
May	74.9	51.3	63.1	95	1962	18	70.9	1991	26+	1966	11	57.9	1971	143	85	.0	.3	31.0	.0	.6	.0
Jun	82.7	60.1	71.4	102	1988	26	75.5	1991	35	1966	1	66.2	1972	14	206	@	4.4	30.0	.0	.0	.0
Jul	86.7	64.5	75.6	104	1988	10	79.1	1993	44	1972	7	72.6	1971	0	328	.2	9.2	31.0	.0	.0	.0
Aug	85.6	62.9	74.3	104	1983	21	80.1	1995	41+	1986	31	70.2	1982	5	291	.2	7.0	31.0	.0	.0	.0
Sep	79.3	55.6	67.5	99	1964	11	71.9	1998	30	1993	30	62.9	1974	45	119	.0	2.1	30.0	.0	@	.0
Oct	68.0	43.3	55.7	92+	1971	1	63.3	1971	18+	1981	25	49.0	1988	312	23	.0	@	30.1	.0	4.5	.0
Nov	55.6	34.5	45.1	83	1961	2	52.6	1985	2	1976	30	36.5	1976	599	0	.0	.0	20.3	.3	14.5	.0
Dec	44.1	25.8	35.0	76	1982	5	42.8	1984	-19+	1989	23	22.7	1989	931	0	.0	.0	9.5	4.5	23.1	.7
Ann	65.1	43.0	54.1	104+	Jul 1988	10	80.1	Aug 1995	-23	Jan 1994	19	14.7	Jan 1977	5015	1057	.4	23.0	276.3	19.9	116.2	4.3

+ 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](http://www.ncdc.noaa.gov/oa/climate/normal/usnormals.html)

Issue Date: February 2004

(1) From the 1971-2000 Monthly Normals

(2) Derived from station's available digital record: 1959-2001

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

055-A

# 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: WARSAW MARKLAND DAM, KY**

**COOP ID: 158446**

**Climate Division: KY 3**

**NWS Call Sign:**

**Elevation: 466 Feet Lat: 38°46N**

**Lon: 84°58W**

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	3.06	3.01	3.02	1982	23	6.03	1982	.64	1981	10.9	6.2	2.0	.6	1.00	1.30	1.72	2.09	2.44	2.80	3.19	3.66	4.25	5.18	6.03
Feb	2.96	2.41	2.59	1971	22	7.35	1971	.31	1978	9.6	5.7	2.0	.6	.64	.91	1.35	1.74	2.13	2.55	3.03	3.59	4.34	5.53	6.65
Mar	4.08	3.73	3.35	1964	10	9.65	1997	.71	1979	11.6	8.2	2.8	.9	1.42	1.81	2.37	2.84	3.29	3.76	4.26	4.85	5.61	6.78	7.85
Apr	4.23	4.13	2.87	1975	25	9.05	1996	1.05	1985	11.9	8.0	2.9	1.0	1.42	1.83	2.41	2.91	3.39	3.88	4.42	5.04	5.85	7.10	8.25
May	4.72	4.60	2.87	1961	8	12.23	1996	1.21	1977	11.1	8.6	3.4	1.3	1.43	1.88	2.55	3.12	3.68	4.27	4.91	5.66	6.63	8.15	9.56
Jun	4.83	4.56	3.64	1992	19	9.00	1997	.62	1988	10.2	7.4	3.2	1.5	1.47	1.93	2.61	3.20	3.77	4.37	5.02	5.79	6.78	8.33	9.76
Jul	3.94	4.03	2.93	1961	30	7.30	1977	.99	1983	9.2	6.6	3.0	1.1	1.41	1.78	2.32	2.77	3.20	3.64	4.11	4.67	5.38	6.48	7.49
Aug	3.80	3.59	4.40	1971	26	8.38	1971	1.25	1996	7.8	5.8	2.9	1.1	1.60	1.95	2.43	2.83	3.20	3.58	3.98	4.45	5.04	5.93	6.75
Sep	3.09	2.88	5.11	1979	14	9.56	1979	.33	1985	7.8	5.3	1.7	.7	.57	.84	1.29	1.71	2.14	2.60	3.13	3.77	4.61	5.97	7.27
Oct	2.92	2.50	4.85	1983	21	12.92	1983	.54	1987	8.2	5.6	2.0	.7	.72	.99	1.42	1.79	2.17	2.56	3.00	3.53	4.22	5.30	6.32
Nov	3.47	2.94	2.36	1993	15	7.11	1972	.61	1976	10.5	7.1	2.4	.8	1.04	1.37	1.86	2.29	2.70	3.13	3.60	4.16	4.88	6.01	7.06
Dec	3.44	3.28	2.07	1991	3	7.94	1990	.62	1976	10.7	6.6	2.5	.9	.98	1.31	1.80	2.23	2.65	3.09	3.57	4.14	4.88	6.03	7.11
Ann	44.54	43.39	5.11	Sep 1979	14	12.92	Oct 1983	.31	Feb 1978	119.5	81.1	30.8	11.2	32.90	35.18	38.09	40.29	42.23	44.10	46.03	48.15	50.72	54.42	57.61

+ 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: 1959-2001

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

Complete documentation available from:  
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Station: WARSAW MARKLAND DAM, KY

COOP ID: 158446

Climate Division: KY 3

NWS Call Sign:

Elevation: 466 Feet

Lat: 38°46N

Lon: 84°58W

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	3.7	1.3	1	#	7.0	1982	20	20.5	1978	13	1978	21	6	1977	2.4	1.5	.4	.1	.0	4.6	2.0	1.1	.0
Feb	3.3	2.3	#	#	9.0	1971	9	19.3	1971	9	1993	27	3	1978	1.9	1.3	.4	.1	.0	3.8	1.3	.3	.0
Mar	1.2	.0	#	0	7.0	1999	15	9.0	1978	7+	1999	15	2	1978	.6	.5	.2	@	.0	.5	.2	.1	.0
Apr	#	.0	#	0	#	1992	2	#+	1992	#+	1982	8	#+	1982	.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	#	1993	30	#	1993	#	1993	30	#	1993	.0	.0	.0	.0	.0	.0	.0	.0	.0
Nov	.2	.0	#	0	3.0	1977	28	3.0+	1977	1	1972	30	#+	1979	.1	.1	@	.0	.0	.1	.0	.0	.0
Dec	1.5	.3	#	#	7.0	1990	28	8.3	1993	5	1989	27	2	1989	.8	.6	.2	@	.0	1.2	.9	.2	.0
Ann	9.9	3.9	N/A	N/A	9.0	Feb 1971	9	20.5	Jan 1978	13	Jan 1978	21	6	Jan 1977	5.8	4.0	1.2	.2	.0	10.2	4.4	1.7	.0

+ 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	5/18	5/13	5/09	5/06	5/03	5/01	4/28	4/24	4/19
32	5/09	5/04	5/01	4/28	4/25	4/22	4/19	4/16	4/11
28	4/26	4/20	4/16	4/12	4/09	4/05	4/02	3/28	3/22
24	4/16	4/10	4/06	4/03	3/31	3/28	3/25	3/21	3/16
20	4/01	3/26	3/22	3/18	3/15	3/11	3/07	3/03	2/25
16	3/17	3/11	3/07	3/04	2/28	2/25	2/21	2/17	2/11
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	9/25	9/29	10/02	10/05	10/08	10/11	10/13	10/17	10/21
32	10/03	10/08	10/11	10/14	10/17	10/19	10/22	10/26	10/30
28	10/12	10/17	10/21	10/25	10/28	10/31	11/04	11/08	11/13
24	10/23	10/30	11/03	11/07	11/10	11/14	11/18	11/22	11/28
20	10/31	11/07	11/13	11/17	11/22	11/26	11/30	12/06	12/13
16	11/16	11/24	11/29	12/04	12/08	12/12	12/17	12/22	12/29
Freeze Free Period									
Temp (F)	Probability of longer than indicated freeze free period (Days)								
	.10	.20	.30	.40	.50	.60	.70	.80	.90
36	174	168	164	160	157	154	150	146	140
32	193	187	182	178	174	170	166	161	155
28	223	216	210	206	202	197	193	188	180
24	248	240	233	228	223	219	213	207	199
20	278	269	262	256	251	246	241	234	225
16	307	298	292	287	282	277	272	266	257

\* 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)													
Base	Heating Degree Days (1)												
Below	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Ann
65	1083	864	666	353	143	14	0	5	45	312	599	931	5015
60	928	724	517	221	69	3	0	0	12	196	452	776	3898
57	835	644	430	154	39	1	0	0	4	140	370	687	3304
55	777	593	374	116	25	0	0	0	2	109	316	631	2943
50	634	463	250	48	7	0	0	0	0	51	199	487	2139
32	217	126	23	0	0	0	0	0	0	0	9	123	498

Base	Cooling Degree Days (1)												
Above	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Ann
32	157	186	380	642	965	1182	1351	1310	1064	734	400	215	8586
55	4	9	18	68	277	492	638	597	376	130	17	9	2635
57	0	4	12	46	229	433	576	535	318	99	11	4	2267
60	0	0	5	22	166	345	483	442	236	62	3	0	1764
65	0	0	0	5	85	206	328	291	119	23	0	0	1057
70	0	0	0	1	33	96	182	159	42	6	0	0	519

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	40	67	188	397	703	932	1097	1060	820	486	208	70	40	107	295	692	1395	2327	3424	4484	5304	5790	5998	6068
45	16	29	107	270	550	782	942	905	670	345	123	31	16	45	152	422	972	1754	2696	3601	4271	4616	4739	4770
50	4	6	57	160	396	632	787	750	521	213	65	12	4	10	67	227	623	1255	2042	2792	3313	3526	3591	3603
55	1	3	26	84	259	482	632	595	375	117	23	2	1	4	30	114	373	855	1487	2082	2457	2574	2597	2599
60	0	0	7	35	145	339	477	442	239	55	5	0	0	0	7	42	187	526	1003	1445	1684	1739	1744	1744
Base	Growing Degree Units for Corn (Monthly)												Growing Degree Units for Corn (Accumulated Monthly)											
50/86	27	47	126	254	450	617	752	722	534	312	127	40	27	74	200	454	904	1521	2273	2995	3529	3841	3968	4008

(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](http://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](http://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"><li>a. Temperature/ Precipitation Tables<ol style="list-style-type: none"><li>1. 1971-2000 Monthly Normals</li><li>2. Cooperative Summary of the Day</li><li>3. National Weather Service station records</li><li>4. 1971-2000 serially complete daily data</li></ol></li><li>b. Degree Day Table<ol style="list-style-type: none"><li>1. Monthly and Annual Heating and Cooling Degree Days Normals to Selected Bases derived from 1971-2000 Monthly Normals</li><li>2. Daily Normal Growing Degree Units to Selected Base Temperatures derived from 1971-2000 serially complete daily data</li></ol></li></ol> | <ol style="list-style-type: none"><li>c. Snow Tables<ol style="list-style-type: none"><li>1. Snow Climatology</li><li>2. Cooperative Summary of the Day</li></ol></li><li>d. Freeze Data Table<br/>1971-2000 serially complete daily data</li></ol> |
|---|---|

## References

U.S. Climate Normals 1971-2000, [www.ncdc.noaa.gov/normal.html](http://www.ncdc.noaa.gov/normal.html)  
U.S. Climate Normals 1971-2000-Products Clim20, [www.ncdc.noaa.gov/oa/climate/normal/usnormalsprods.html](http://www.ncdc.noaa.gov/oa/climate/normal/usnormalsprods.html)  
Snow Climatology Project Description, [www.ncdc.noaa.gov/oa/climate/monitoring/snowclim/mainpage.html](http://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](http://www1.ncdc.noaa.gov/pub/data/special/serialcomplete_jam_0900.pdf)