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: LOUISVILLE 1 E, GA **COOP ID: 095314**

Climate Division: GA 6 **NWS Call Sign:** **Elevation: 322 Feet** **Lat: 33˚01N** **Lon: 82˚23W**

Temperature (˚F)

Month	Mean (1) Daily Max	Mean (1) Daily Min	Mean (1) Mean	Extremes Highest Daily(2)	Extremes Year	Extremes Day	Extremes Highest Month(1) Mean	Extremes Year	Extremes Lowest Daily(2)	Extremes Year	Extremes Day	Extremes Lowest Month(1) Mean	Extremes Year	Degree Days (1) Base Temp 65 Heating	Degree Days (1) Base Temp 65 Cooling	Mean Number of Days (3) Max >= 100	Max >= 90	Max >= 50	Max <= 32	Min <= 32	Min <= 0
Jan	56.7	33.8	45.3	84	1949	11	57.0	1974	-2	1985	21	34.5	1977	619	0	.0	.0	25.1	.3	12.5	@
Feb	61.2	36.3	48.8	86	1965	11	55.3	1990	10	1958	17	40.7	1978	456	0	.0	.0	24.7	.1	9.2	.0
Mar	69.0	42.7	55.9	90+	1995	23	61.4	1997	14	1980	3	50.8	1996	297	13	.0	.1	30.4	.0	3.4	.0
Apr	76.4	49.9	63.2	96	1986	27	67.7	1999	28+	1987	1	58.9	1993	106	49	.0	.7	30.0	.0	.5	.0
May	83.8	58.5	71.2	100	1953	31	74.9	2000	38+	1989	8	67.7	1997	17	207	.0	6.2	31.0	.0	.0	.0
Jun	89.5	66.5	78.0	110	1952	27	82.6	1998	40	1964	1	75.0	1972	0	390	.9	16.9	30.0	.0	.0	.0
Jul	92.0	69.9	81.0	112	1952	24	85.6	1986	57+	1983	10	78.0	1979	0	495	2.2	22.8	31.0	.0	.0	.0
Aug	90.4	68.9	79.7	107	1954	17	83.7	1999	56	1986	30	77.3	1976	0	454	1.3	19.4	31.0	.0	.0	.0
Sep	85.4	63.7	74.6	105	1951	4	79.9	1980	42+	1990	25	72.1	2000	3	289	.3	10.1	30.0	.0	.0	.0
Oct	76.3	51.2	63.8	103	1954	5	71.3	1984	25	1976	29	58.5	1976	121	82	.0	.6	31.0	.0	.4	.0
Nov	67.5	42.8	55.2	90+	1973	3	63.2	1985	11	1950	25	47.6	1976	311	15	.0	@	29.6	.0	5.0	.0
Dec	58.8	36.0	47.4	82+	1998	8	56.0	1971	5	1962	13	38.7	2000	552	6	.0	.0	25.8	.1	11.1	.0
Ann	75.6	51.7	63.7	112	Jul 1952	24	85.6	Jul 1986	-2	Jan 1985	21	34.5	Jan 1977	2482	2000	4.7	76.8	349.6	.5	42.1	@

\+ 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

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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	4.96	4.89	2.93	1991	30	9.93	1987	.89	1981
Feb	4.16	3.98	3.55	1981	11	8.48	1979	.78	2000
Mar	4.85	4.45	3.21	1991	29	12.70	1980	1.04	1985
Apr	2.96	2.38	3.25	1961	15	7.98	1998	.49	1987
May	2.83	2.77	4.86	1969	15	6.01	1991	.49	1983
Jun	3.92	3.83	3.20	1949	8	9.12	1994	.75	1993
Jul	4.43	4.09	4.54	1960	28	10.32	1971	1.24	1987
Aug	4.59	4.00	5.28	1995	26	14.76	1991	.63	1980
Sep	3.73	3.67	6.96	1998	3	10.07	1998	.09	1984
Oct	3.08	1.81	8.60	1990	12	22.16	1990	.09	1987
Nov	2.84	2.54	3.27	1985	22	6.92	1985	.53	1981
Dec	3.57	3.10	2.50	1971	3	9.88	1981	.90	1980
Ann	45.92	44.50	8.60	Oct 1990	12	22.16	Oct 1990	.09+	Oct 1987

Mean Number of Days (3)

Daily Precipitation

Month	>= 0.01	>= 0.10	>= 0.50	>= 1.00
Jan	10.2	7.7	3.5	1.5
Feb	7.8	6.0	2.9	1.3
Mar	9.3	6.8	3.5	1.6
Apr	7.2	5.2	2.0	.7
May	7.4	5.5	1.9	.7
Jun	8.4	6.4	3.1	1.3
Jul	8.7	6.7	2.9	.8
Aug	9.1	6.8	3.0	1.4
Sep	7.4	5.1	2.2	1.1
Oct	5.8	4.1	1.6	.7
Nov	7.1	4.9	1.9	.8
Dec	8.1	5.7	2.4	1.0
Ann	96.5	70.9	30.9	12.9

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	1.87	2.33	3.00	3.55	4.07	4.61	5.19	5.87	6.73	8.05	9.26
Feb	1.19	1.58	2.18	2.70	3.20	3.73	4.32	5.01	5.90	7.31	8.61
Mar	1.32	1.78	2.48	3.09	3.69	4.32	5.02	5.84	6.91	8.60	10.17
Apr	.55	.82	1.25	1.65	2.06	2.50	3.00	3.60	4.40	5.69	6.92
May	.68	.94	1.36	1.73	2.09	2.48	2.91	3.42	4.10	5.17	6.17
Jun	1.02	1.39	1.96	2.46	2.95	3.47	4.05	4.73	5.62	7.02	8.33
Jul	1.34	1.76	2.39	2.93	3.46	4.00	4.61	5.31	6.23	7.66	8.98
Aug	1.09	1.52	2.19	2.79	3.38	4.01	4.72	5.56	6.66	8.41	10.05
Sep	.34	.60	1.10	1.62	2.19	2.83	3.59	4.54	5.85	8.03	10.18
Oct	.10	.22	.54	.92	1.39	1.97	2.69	3.65	5.02	7.42	9.85
Nov	.75	1.02	1.43	1.80	2.15	2.52	2.94	3.43	4.07	5.08	6.02
Dec	.98	1.32	1.83	2.28	2.72	3.18	3.69	4.29	5.08	6.31	7.46
Ann	32.41	35.01	38.36	40.90	43.16	45.34	47.60	50.10	53.13	57.53	61.34

\+ 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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Snow (inches)

Snow Totals

Means/Medians (1)

Extremes (2)

Mean Number of Days (1)

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	.1	.0	#	0	1.5	1977	31	2.5	1977	#	2000	25	#	2000	.1	.1	.0	.0	.0	.0	.0	.0	.0
Feb	.7	.0	#	0	14.8	1973	10	14.8	1973	2	1978	9	#+	1996	.1	.1	@	@	@	.1	.0	.0	.0
Mar	.0	.0	0	0	1.0	1980	2	1.0	1980	0	0	0	0	0	@	@	.0	.0	.0	.0	.0	.0	.0
Apr	.0	.0	0	0	.0	0	0	.0	0	0	0	0	0	0	.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	0	0	.0	0	0	.0	0	0	0	0	0	0	.0	.0	.0	.0	.0	.0	.0	.0	.0
Nov	#	.0	#	0	#	1995	5	#	1995	#	1995	5	#	1995	.0	.0	.0	.0	.0	.0	.0	.0	.0
Dec	.1	.0	0	0	2.2	1993	23	2.2	1993	0	0	0	0	0	@	@	.0	.0	.0	.0	.0	.0	.0
Ann	.9	.0	N/A	N/A	14.8	Feb 1973	10	14.8	Feb 1973	2	Feb 1978	9	#+	Jan 2000	.2	.2	@	@	@	.1	.0	.0	.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	4/20	4/15	4/12	4/09	4/06	4/03	3/31	3/28	3/23
32	4/14	4/08	4/03	3/30	3/27	3/23	3/19	3/15	3/09
28	3/19	3/13	3/08	3/05	3/01	2/26	2/22	2/17	2/11
24	3/09	3/02	2/24	2/20	2/15	2/11	2/07	2/01	1/25
20	2/28	2/20	2/13	2/07	2/02	1/27	1/20	1/09	0/00
16	2/13	2/03	1/26	1/19	1/11	1/01	0/00	0/00	0/00

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	10/11	10/16	10/20	10/23	10/26	10/29	11/02	11/05	11/11
32	10/21	10/28	11/02	11/06	11/10	11/14	11/18	11/23	11/29
28	11/07	11/13	11/18	11/21	11/25	11/28	12/02	12/07	12/13
24	11/17	11/28	12/06	12/13	12/19	12/25	1/01	1/08	1/19
20	12/03	12/14	12/22	12/29	1/04	1/11	1/20	2/02	0/00
16	12/15	12/26	1/03	1/10	1/18	1/29	0/00	0/00	0/00

Freeze Free Period

Temp (F)	Probability of longer than indicated freeze free period (Days)								
	.10	.20	.30	.40	.50	.60	.70	.80	.90
36	221	215	210	206	203	199	195	190	184
32	253	244	238	232	227	222	217	211	202
28	292	284	278	273	268	263	258	252	244
24	343	326	316	309	303	296	289	282	271
20	>365	>365	>365	>365	329	319	311	304	294
16	>365	>365	>365	>365	>365	>365	350	333	319

***** 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	619	456	297	106	17	0	0	0	3	121	311	552	2482
60	475	325	174	37	2	0	0	0	0	55	192	408	1668
57	393	250	118	15	0	0	0	0	0	29	136	328	1269
55	342	206	87	7	0	0	0	0	0	18	104	279	1043
50	233	117	33	1	0	0	0	0	0	5	45	179	613
32	23	2	0	0	0	0	0	0	0	0	0	10	35

Cooling Degree Days (1)

Base Above	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Ann
32	433	470	739	934	1213	1380	1518	1477	1276	984	694	488	11606
55	40	30	113	251	500	690	805	764	586	289	109	44	4221
57	29	19	82	199	438	630	743	702	526	239	80	30	3717
60	17	9	46	130	347	540	650	609	436	171	46	17	3018
65	0	0	13	49	207	390	495	454	289	82	15	6	2000
70	0	0	1	11	98	244	340	299	153	29	3	0	1178

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	273	338	564	735	997	1162	1293	1250	1071	789	513	317	273	611	1175	1910	2907	4069	5362	6612	7683	8472	8985	9302
45	163	223	415	585	842	1012	1138	1095	921	634	370	202	163	386	801	1386	2228	3240	4378	5473	6394	7028	7398	7600
50	87	128	276	436	687	862	983	940	771	480	243	111	87	215	491	927	1614	2476	3459	4399	5170	5650	5893	6004
55	40	63	161	295	532	712	828	785	621	331	138	57	40	103	264	559	1091	1803	2631	3416	4037	4368	4506	4563
60	10	24	77	173	379	562	673	630	471	200	66	22	10	34	111	284	663	1225	1898	2528	2999	3199	3265	3287
Base	**Growing Degree Units for Corn (Monthly)**												**Growing Degree Units for Corn (Accumulated Monthly)**											
50/86	166	219	363	483	668	794	879	862	730	520	329	200	166	385	748	1231	1899	2693	3572	4434	5164	5684	6013	6213

(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