

# Climatology of the United States

## No. 20

National Climatic Data Center  
Federal Building  
151 Patton Avenue  
Asheville, North Carolina 28801  
www.ncdc.noaa.gov

**Station: SHELBYVILLE SEWAGE PLANT, IN**

**1971-2000**

**COOP ID: 127999**

**Climate Division: IN 5**

**NWS Call Sign:**

**Elevation: 750 Feet**

**Lat: 39° 31N**

**Lon: 85° 47W**

### 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	35.0	18.5	26.8	72	1950	25	37.1	1990	-25	1994	19	10.4	1977	1185	0	.0	.0	4.0	12.5	27.7	4.1
Feb	40.1	21.6	30.9	74+	2000	25	39.9	1998	-16+	1982	10	14.2	1978	957	0	.0	.0	6.8	8.0	23.7	2.9
Mar	51.3	31.4	41.4	82	1986	31	48.5	1973	-5	1960	6	32.8	1984	734	0	.0	.0	16.4	1.8	19.0	.2
Apr	62.7	41.4	52.1	90	1960	25	57.8	1985	12	1972	8	47.0	1983	392	4	.0	.0	26.0	.0	6.3	.0
May	73.4	52.3	62.9	93+	1952	5	69.8	1977	25	1963	1	57.4	1997	160	94	.0	.4	30.9	.0	.4	.0
Jun	82.1	61.3	71.7	102	1988	26	75.5	1984	36	1966	1	66.7	1972	16	218	@	3.9	30.0	.0	.0	.0
Jul	85.6	64.8	75.2	105	1954	14	79.2	1983	41	1967	15	72.6	1984	0	317	.2	7.5	31.0	.0	.0	.0
Aug	83.8	62.6	73.2	100+	1951	31	78.5	1983	39+	1986	29	68.4	1992	10	264	.2	4.4	31.0	.0	.0	.0
Sep	78.2	55.1	66.7	102+	1953	2	70.6	1998	31	1963	30	62.0	1974	56	106	.0	1.8	30.0	.0	@	.0
Oct	66.1	43.1	54.6	92	1951	4	62.1	1971	18+	1962	26	48.4	1988	337	16	.0	.0	29.4	.0	5.1	.0
Nov	52.3	34.5	43.4	82	1950	1	48.6	1999	-4	1958	30	35.9	1976	648	0	.0	.0	17.3	.9	15.1	.0
Dec	40.2	24.4	32.3	75	1982	3	42.1	1982	-22+	1989	22	18.8	1989	1015	0	.0	.0	6.0	7.1	25.0	1.4
Ann	62.6	42.6	52.6	105	Jul 1954	14	79.2	Jul 1983	-25	Jan 1994	19	10.4	Jan 1977	5510	1019	.4	18.0	258.8	30.3	122.3	8.6

+ 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](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: 1948-2001

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

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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	2.38	2.20	3.85	1949	4	5.69	1982	.19	1981	10.4	5.8	1.7	.3	.46	.67	1.02	1.34	1.67	2.02	2.42	2.90	3.53	4.55	5.53
Feb	2.38	2.02	2.21	1975	23	5.46	1975	.15	1978	8.7	5.2	1.7	.4	.56	.78	1.13	1.44	1.75	2.08	2.45	2.89	3.46	4.37	5.23
Mar	3.42	3.03	2.76	1964	10	6.38	1985	.78	1994	11.1	7.3	2.4	.7	1.28	1.60	2.06	2.44	2.80	3.17	3.57	4.04	4.63	5.54	6.37
Apr	3.94	3.99	3.62	1996	29	9.68	1996	.95	1976	12.2	7.7	2.4	.9	1.26	1.64	2.19	2.66	3.12	3.59	4.10	4.71	5.49	6.70	7.82
May	4.47	4.16	3.49	1983	1	9.72	1981	1.20	1988	11.1	7.8	3.0	1.1	1.38	1.81	2.44	2.98	3.50	4.05	4.65	5.35	6.26	7.67	8.98
Jun	3.93	3.66	3.54	1997	1	10.65	1998	.78	1988	10.5	7.5	2.6	.9	1.30	1.67	2.22	2.68	3.13	3.59	4.10	4.69	5.45	6.62	7.71
Jul	4.03	3.54	4.52	1979	29	11.84	1979	.62	1974	9.4	6.9	2.9	.8	1.26	1.65	2.21	2.70	3.17	3.65	4.19	4.82	5.63	6.89	8.05
Aug	3.49	2.64	3.53	1955	5	11.68	1978	1.07	1972	8.5	6.1	2.2	.9	.96	1.29	1.80	2.24	2.67	3.11	3.61	4.20	4.96	6.17	7.29
Sep	2.74	2.38	3.77	1949	4	5.79	1993	.21	1998	7.5	5.1	1.8	.7	.48	.72	1.12	1.50	1.88	2.30	2.77	3.34	4.11	5.34	6.52
Oct	2.82	2.43	4.43	2000	5	6.85	1983	.28	1982	8.5	5.3	1.7	.6	.71	.98	1.39	1.75	2.11	2.49	2.91	3.41	4.07	5.10	6.07
Nov	3.56	3.21	2.98	1955	16	8.31	1985	1.11	1976	11.1	6.5	2.6	.8	1.03	1.36	1.87	2.32	2.75	3.20	3.70	4.28	5.04	6.24	7.34
Dec	2.81	2.81	2.92	1951	7	5.44	1996	.48	1976	10.8	6.0	2.1	.5	.98	1.24	1.63	1.95	2.26	2.58	2.93	3.34	3.86	4.67	5.41
Ann	39.97	40.73	4.52	Jul 1979	29	11.84	Jul 1979	.15	Feb 1978	119.8	77.2	27.1	8.6	31.12	32.89	35.13	36.80	38.28	39.69	41.14	42.72	44.63	47.36	49.71

+ 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:  
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**Elevation: 750 Feet**

**Lat: 39°31N**

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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	2.4	-99.9	#	#	8.0	1994	17	9.4	1994	8	1994	17	1	1999	1.2	.7	.2	.1	.0	-9.9	-9.9	-9.9	-9.9
Feb	.8	.0	#	#	6.0	1993	26	6.0	1993	6	1993	26	1	1993	.7	.3	.2	.2	.0	.1	.0	.0	.0
Mar	.5	.0	#	0	3.0	1999	9	3.0	1999	3	1999	9	#+	2000	.3	.2	.1	.0	.0	.1	.1	.0	.0
Apr	.0	.0	#	0	.3	1994	7	.3	1994	#	1994	7	#	1994	.1	.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	.1	.0	#	0	1.0	1993	30	1.0	1993	1	1993	30	#	1993	.1	.1	.0	.0	.0	@	.0	.0	.0
Nov	#	#	#	0	#	1997	4	#+	1997	#+	1997	4	#+	1997	.0	.0	.0	.0	.0	.0	.0	.0	.0
Dec	.2	#	#	0	.9	1995	9	.9+	1995	6	1995	20	1+	2000	.1	.0	.0	.0	.0	.0	.0	.0	.0
Ann	4.0	-9.9	N/A	N/A	8.0	Jan 1994	17	9.4	Jan 1994	8	Jan 1994	17	1+	Dec 2000	2.5	1.3	.5	.3	.0	-9.9	-9.9	-9.9	-9.9

+ 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	5/15	5/10	5/06	5/03	4/30	4/27	4/24	4/21	4/16
32	5/08	5/03	4/29	4/26	4/23	4/19	4/16	4/12	4/07
28	4/23	4/19	4/16	4/13	4/11	4/09	4/06	4/03	3/30
24	4/18	4/12	4/08	4/04	4/01	3/28	3/24	3/20	3/14
20	4/02	3/28	3/25	3/22	3/19	3/16	3/13	3/10	3/05
16	3/23	3/16	3/11	3/06	3/02	2/26	2/22	2/17	2/10
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	9/23	9/26	9/29	10/01	10/03	10/05	10/07	10/09	10/13
32	10/01	10/06	10/09	10/11	10/14	10/16	10/18	10/21	10/26
28	10/11	10/16	10/21	10/24	10/27	10/31	11/03	11/07	11/13
24	10/22	10/27	10/30	11/02	11/05	11/08	11/11	11/15	11/20
20	10/31	11/08	11/14	11/19	11/24	11/28	12/03	12/09	12/17
16	11/13	11/21	11/26	12/01	12/05	12/09	12/14	12/19	12/27
Freeze Free Period									
Temp (F)	Probability of longer than indicated freeze free period (Days)								
	.10	.20	.30	.40	.50	.60	.70	.80	.90
36	169	164	161	158	155	152	149	146	141
32	194	187	182	177	173	169	165	160	153
28	221	213	208	203	199	194	190	184	177
24	241	233	228	223	218	214	209	203	195
20	275	266	259	254	249	243	238	231	222
16	301	293	287	282	277	272	267	261	252

\* 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	1185	957	734	392	160	16	0	10	56	337	648	1015	5510
60	1030	817	580	257	84	4	0	0	16	215	499	860	4362
57	937	737	495	186	52	1	0	0	6	155	414	772	3755
55	875	685	438	144	36	0	0	0	3	121	360	714	3376
50	731	555	306	66	12	0	0	0	0	57	235	571	2533
32	277	190	41	0	0	0	0	0	0	0	16	181	705

Base	Cooling Degree Days (1)												
Above	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Ann
32	114	157	330	602	957	1192	1340	1277	1039	701	358	190	8257
55	0	7	14	56	279	502	627	564	352	109	12	9	2531
57	0	4	9	37	234	443	565	502	295	81	6	5	2181
60	0	0	1	19	173	355	472	409	215	48	1	0	1693
65	0	0	0	4	94	218	317	264	106	16	0	0	1019
70	0	0	0	1	41	107	170	141	37	4	0	0	501

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	21	47	155	371	704	951	1091	1027	796	451	178	44	21	68	223	594	1298	2249	3340	4367	5163	5614	5792	5836
45	9	17	88	251	551	801	936	872	646	311	99	19	9	26	114	365	916	1717	2653	3525	4171	4482	4581	4600
50	0	7	45	150	403	651	781	717	499	194	52	7	0	7	52	202	605	1256	2037	2754	3253	3447	3499	3506
55	0	0	25	84	266	501	626	562	353	106	21	0	0	0	25	109	375	876	1502	2064	2417	2523	2544	2544
60	0	0	5	35	150	355	471	408	225	52	5	0	0	0	5	40	190	545	1016	1424	1649	1701	1706	1706
Base	Growing Degree Units for Corn (Monthly)												Growing Degree Units for Corn (Accumulated Monthly)											
50/86	7	31	100	224	436	637	753	699	515	281	104	26	7	38	138	362	798	1435	2188	2887	3402	3683	3787	3813

(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.  
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> |
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## 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)