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: SAINT MEINRAD, IN **COOP ID: 127724**

Climate Division: IN 7 **NWS Call Sign:** **Elevation: 510 Feet** **Lat: 38˚10N** **Lon: 86˚49W**

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	40.9	23.7	32.3	71+	1967	23	42.2	1990	-26	1994	19	16.6	1977	1015	0	.0	.0	7.1	7.7	23.9	1.6
Feb	47.3	27.5	37.4	79	1962	13	45.9	1976	-14	1966	5	24.0	1978	774	0	.0	.0	12.2	4.3	18.9	.9
Mar	57.8	36.1	47.0	86	1974	8	55.6	1973	-11	1960	6	40.0	1996	562	2	.0	.0	22.7	.5	13.4	.1
Apr	68.1	44.4	56.3	90	1960	24	61.3	1977	21+	1973	10	51.2	1983	275	11	.0	.0	28.6	.0	4.2	.0
May	76.6	53.3	65.0	92+	1962	18	71.0	1991	27	1963	1	60.5	1997	109	108	.0	.2	31.0	.0	.1	.0
Jun	84.2	62.3	73.3	100	1988	25	76.8	1971	37	1966	1	69.6	1992	5	251	@	4.7	30.0	.0	.0	.0
Jul	87.4	66.4	76.9	104+	1966	13	80.3	1980	47	1967	16	74.2	2000	0	368	.2	10.7	31.0	.0	.0	.0
Aug	86.3	64.7	75.5	103	1964	3	80.9	1983	43+	1964	13	71.0	1992	2	328	.1	8.5	31.0	.0	.0	.0
Sep	80.5	57.7	69.1	100	1960	7	73.3	1998	33+	1965	25	64.0	1974	39	161	.0	2.9	30.0	.0	.0	.0
Oct	70.0	45.8	57.9	92	1963	11	65.7	1971	20+	1976	29	50.7	1988	253	34	.0	.1	30.6	.0	3.2	.0
Nov	56.8	37.5	47.2	83	1961	2	53.8	1999	6+	1964	22	38.5	1976	536	1	.0	.0	21.3	.3	10.9	.0
Dec	45.3	28.3	36.8	76+	1982	2	45.1	1971	-18	1989	22	24.2	1989	874	0	.0	.0	10.6	4.3	20.1	.7
Ann	66.8	45.6	56.2	104+	Jul 1966	13	80.9	Aug 1983	-26	Jan 1994	19	16.6	Jan 1977	4444	1264	.3	27.1	286.1	17.1	94.7	3.3

\+ 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/normals/usnormals.html

(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

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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	Median	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	3.26	3.27	4.25	2000	3	8.36	1982	.54	1981	10.6	6.0	2.1	.6	.90	1.21	1.68	2.09	2.49	2.91	3.37	3.92	4.64	5.76	6.81
Feb	3.17	2.84	4.00	2000	18	7.69	2000	.49	1978	8.6	5.9	2.0	.8	.76	1.06	1.52	1.93	2.34	2.77	3.26	3.83	4.59	5.79	6.91
Mar	4.35	3.89	5.37	1964	9	9.73	1997	1.42	1987	12.2	8.4	3.0	1.1	1.58	1.99	2.58	3.07	3.54	4.02	4.55	5.16	5.94	7.14	8.24
Apr	4.52	3.62	4.29	1996	29	10.36	1983	1.33	1976	11.9	8.0	3.0	1.2	1.52	1.95	2.58	3.11	3.62	4.14	4.72	5.39	6.25	7.58	8.81
May	4.75	4.01	4.44	1961	8	11.93	1995	1.53	1977	12.0	8.6	3.4	1.1	1.58	2.03	2.69	3.25	3.79	4.35	4.96	5.67	6.58	8.00	9.31
Jun	4.12	4.00	3.20	1979	9	6.83	1999	.71	1988	10.2	7.1	2.9	1.0	1.29	1.68	2.26	2.76	3.24	3.74	4.29	4.93	5.77	7.06	8.26
Jul	4.61	4.31	3.70	1988	11	14.10	1979	1.24	1997	9.2	7.0	3.0	1.3	1.28	1.71	2.38	2.96	3.52	4.12	4.77	5.55	6.56	8.14	9.62
Aug	3.86	3.20	3.76	1979	21	9.16	1979	.55	1999	7.9	5.4	2.9	1.3	1.04	1.41	1.96	2.45	2.93	3.43	3.99	4.65	5.51	6.86	8.12
Sep	3.34	3.12	2.57	1996	27	9.76	1996	.31	1999	7.8	5.4	2.4	.9	.73	1.03	1.52	1.97	2.41	2.89	3.42	4.06	4.90	6.24	7.51
Oct	2.88	2.63	2.10	1998	7	7.27	1983	.79	1987	8.1	5.3	2.0	.7	.91	1.18	1.59	1.93	2.27	2.61	2.99	3.44	4.01	4.91	5.73
Nov	4.05	3.94	2.56	1997	30	8.45	1988	1.38	1976	10.1	7.2	3.0	1.1	1.49	1.86	2.41	2.87	3.30	3.75	4.24	4.80	5.52	6.62	7.64
Dec	3.69	3.64	3.05	2001	17	8.16	1990	.72	1976	10.5	6.7	2.7	.8	1.23	1.58	2.10	2.53	2.95	3.38	3.85	4.40	5.11	6.20	7.21
Ann	46.60	46.13	5.37	Mar 1964	9	14.10	Jul 1979	.31	Sep 1999	119.1	81.0	32.4	11.9	33.39	35.95	39.23	41.72	43.93	46.06	48.27	50.70	53.65	57.92	61.61

\+ 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

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Snow (inches)

Snow Totals

Means/Medians (1)

Month	Snow Fall Mean	Snow Fall Median	Snow Depth Mean	Snow Depth Median
Jan	3.8	1.4	1	#
Feb	2.5	1.3	1	#
Mar	1.3	#	#	#
Apr	#	.0	#	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
Nov	.1	.0	#	0
Dec	1.7	1.1	#	#
Ann	9.4	3.8	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	9.5	1977	9	22.9	1977	18	1978	17	7	1978
Feb	7.3	1993	25	9.4	1998	10	1993	15	3	1978
Mar	12.0	1996	19	14.0	1996	14	1996	20	3	1996
Apr	#	2000	4	#+	2000	#+	2000	4	#+	2000
May	.0	0	0	.0	0	0	0	0	0	0
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	#	1989	19	#	1989	5	1993	30	#+	1993
Nov	2.2	1977	27	2.2	1977	3	1977	27	#+	2000
Dec	4.4	1973	20	7.4	1973	5	1990	28	1+	2000
Ann	12.0	Mar 1996	19	22.9	Jan 1977	18	Jan 1978	17	7	Jan 1978

Mean Number of Days (1)

Snow Fall >= Thresholds

Month	0.1	1.0	3.0	5.0	10.0
Jan	2.4	1.1	.4	.2	.0
Feb	1.6	1.1	.3	@	.0
Mar	.4	.3	.2	@	@
Apr	.0	.0	.0	.0	.0
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	.1	.0	.0	.0
Dec	1.2	.7	.2	.0	.0
Ann	5.7	3.3	1.1	.2	@

Snow Depth >= Thresholds

Month	1	3	5	10
Jan	4.1	1.5	1.0	.2
Feb	2.8	1.0	.5	.0
Mar	.7	.4	.2	.2
Apr	.0	.0	.0	.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	.1	@	.0	.0
Dec	2.2	.4	.1	.0
Ann	9.9	3.3	1.8	.4

+ 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	5/15	5/10	5/07	5/04	5/01	4/28	4/25	4/21	4/17
32	5/01	4/27	4/23	4/20	4/17	4/15	4/12	4/08	4/04
28	4/19	4/15	4/12	4/10	4/07	4/05	4/03	3/31	3/27
24	4/10	4/04	4/01	3/28	3/25	3/22	3/19	3/16	3/10
20	3/24	3/19	3/15	3/11	3/08	3/05	3/01	2/25	2/20
16	3/18	3/11	3/05	3/01	2/24	2/20	2/15	2/10	2/02

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	9/24	9/29	10/02	10/05	10/07	10/10	10/13	10/16	10/20
32	10/07	10/11	10/14	10/17	10/19	10/21	10/24	10/27	10/31
28	10/13	10/18	10/22	10/25	10/28	10/30	11/02	11/06	11/11
24	10/28	11/03	11/07	11/10	11/14	11/17	11/21	11/25	12/01
20	11/03	11/10	11/14	11/18	11/22	11/26	11/30	12/05	12/11
16	11/13	11/21	11/26	12/01	12/06	12/11	12/16	12/22	12/30

Freeze Free Period

Temp (F)	Probability of longer than indicated freeze free period (Days)								
	.10	.20	.30	.40	.50	.60	.70	.80	.90
36	177	171	166	162	159	155	152	147	141
32	202	196	191	187	184	180	176	171	165
28	219	213	209	206	202	199	196	192	186
24	257	249	243	238	233	228	223	217	208
20	284	275	269	264	258	253	248	242	233
16	308	300	294	289	284	279	274	268	260

***** 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	1015	774	562	275	109	5	0	2	39	253	536	874	4444
60	860	636	419	155	47	1	0	0	10	149	394	721	3392
57	776	558	337	100	24	0	0	0	4	101	314	637	2851
55	717	506	288	71	15	0	0	0	2	75	264	579	2517
50	573	381	184	23	4	0	0	0	0	29	161	441	1796
32	187	82	12	0	0	0	0	0	0	0	6	105	392

Cooling Degree Days (1)

Base Above	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Ann
32	195	232	475	726	1023	1236	1391	1349	1112	803	461	254	9257
55	12	12	38	106	325	546	678	636	424	165	29	14	2985
57	9	9	25	76	272	486	616	574	366	129	19	10	2591
60	0	2	14	41	202	397	523	481	283	84	9	2	2038
65	0	0	2	11	108	251	368	328	161	34	1	0	1264
70	0	0	0	1	46	122	216	186	73	10	0	0	654

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	55	106	269	496	780	1003	1149	1108	878	563	265	91	55	161	430	926	1706	2709	3858	4966	5844	6407	6672	6763
45	28	56	169	358	625	853	994	953	728	413	166	50	28	84	253	611	1236	2089	3083	4036	4764	5177	5343	5393
50	7	26	95	238	471	703	839	798	579	277	94	21	7	33	128	366	837	1540	2379	3177	3756	4033	4127	4148
55	1	5	49	137	324	553	684	643	432	166	49	5	1	6	55	192	516	1069	1753	2396	2828	2994	3043	3048
60	0	0	21	69	198	404	529	489	290	82	17	0	0	0	21	90	288	692	1221	1710	2000	2082	2099	2099
Base	**Growing Degree Units for Corn (Monthly)**												**Growing Degree Units for Corn (Accumulated Monthly)**											
50/86	31	65	169	309	506	687	800	763	583	355	148	48	31	96	265	574	1080	1767	2567	3330	3913	4268	4416	4464

(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

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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