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: BERNE, IN **COOP ID: 120676**

Climate Division: IN 3 **NWS Call Sign:** **Elevation: 860 Feet** **Lat: 40˚40N** **Lon: 84˚57W**

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	32.3	17.4	24.9	70	1950	25	35.7	1990	-24	1985	20	9.6	1977	1245	0	.0	.0	2.5	15.1	28.0	3.7
Feb	37.0	20.7	28.9	74	2000	25	38.9	1998	-17	1914	25	14.3	1978	1012	0	.0	.0	4.8	10.2	23.4	2.4
Mar	48.5	29.8	39.2	85	1910	24	45.6	1973	-6+	1943	3	29.6	1984	801	0	.0	.0	13.3	2.9	19.4	.1
Apr	60.5	39.4	50.0	90	1925	24	56.5	1985	10	1982	7	44.4	1975	454	3	.0	.0	24.8	.1	6.6	.0
May	71.9	50.2	61.1	99	1911	27	68.6	1991	25+	1943	1	55.3	1997	199	76	.0	.6	30.6	.0	.4	.0
Jun	80.6	59.9	70.3	104	1988	25	74.1	1991	36	1918	23	65.6	1972	24	182	.1	3.8	30.0	.0	.0	.0
Jul	84.3	63.8	74.1	107+	1934	21	79.7	1999	42	1930	15	70.3	1971	2	282	.1	6.8	31.0	.0	.0	.0
Aug	82.2	61.7	72.0	105	1918	5	78.0	1995	37	1965	29	68.5	1992	13	229	.0	3.6	31.0	.0	.0	.0
Sep	75.8	54.4	65.1	101+	1939	15	70.7	1998	27	1942	28	60.3	1975	80	84	.0	1.4	30.0	.0	.1	.0
Oct	63.6	43.4	53.5	90+	1922	2	61.0	1971	16	1925	29	46.9	1988	369	12	.0	.1	28.4	.0	3.2	.0
Nov	49.5	34.0	41.8	79+	1933	1	48.2	1999	-3	1929	30	34.0	1976	698	0	.0	.0	14.8	1.3	14.7	.0
Dec	37.1	23.4	30.3	72	1998	6	39.0	1982	-19	1989	22	18.1	1989	1077	0	.0	.0	4.4	9.3	25.3	1.3
Ann	60.3	41.5	50.9	107+	Jul 1934	21	79.7	Jul 1999	-24	Jan 1985	20	9.6	Jan 1977	5974	868	.2	16.3	245.6	38.9	121.1	7.5

\+ 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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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	2.17	1.94	1.94	1937	14	4.70	1982	.38	1981
Feb	2.16	2.03	3.15	1924	5	6.06	1990	.51	1972
Mar	2.89	2.80	2.56	1913	25	6.01	1973	.64	1994
Apr	3.68	3.93	2.83	1959	27	8.80	1972	1.21	1971
May	3.76	3.39	3.12	1943	17	7.54	1996	.56	1988
Jun	4.42	4.60	4.20	1981	24	10.70	1981	.87	1988
Jul	4.04	3.66	3.51	1942	31	9.55	1993	.24	1974
Aug	3.74	2.91	3.62	1998	4	9.59	1990	.91	1983
Sep	3.02	2.80	4.88	1957	20	8.34	1972	.40	1995
Oct	2.59	2.59	2.73	1950	9	5.06	1991	.93	1989
Nov	3.21	2.74	2.71	1958	17	6.50	1985	.28	1976
Dec	2.76	2.72	2.21	1924	18	6.79	1990	.42	1976
Ann	38.44	37.92	4.88	Sep 1957	20	10.70	Jun 1981	.24	Jul 1974

Mean Number of Days (3)

Month	Daily Precipitation >= 0.01	>= 0.10	>= 0.50	>= 1.00
Jan	10.9	5.7	1.2	.2
Feb	9.5	4.9	1.2	.3
Mar	12.1	7.1	1.8	.2
Apr	12.3	7.6	2.4	.6
May	12.1	7.8	2.8	.7
Jun	11.1	8.1	2.8	1.1
Jul	9.4	6.5	2.5	1.1
Aug	9.4	6.2	2.7	1.2
Sep	9.0	5.7	1.9	.9
Oct	9.7	6.0	1.9	.4
Nov	11.0	6.8	2.2	.7
Dec	12.4	6.3	1.8	.4
Ann	128.9	78.7	25.2	7.8

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	.60	.81	1.12	1.39	1.66	1.94	2.25	2.61	3.09	3.83	4.53
Feb	.53	.74	1.05	1.33	1.60	1.90	2.22	2.61	3.11	3.92	4.67
Mar	1.13	1.40	1.78	2.09	2.39	2.69	3.02	3.40	3.88	4.62	5.30
Apr	1.44	1.78	2.27	2.67	3.05	3.44	3.86	4.34	4.96	5.90	6.77
May	1.49	1.83	2.33	2.73	3.12	3.51	3.93	4.42	5.04	5.99	6.86
Jun	1.69	2.10	2.69	3.18	3.64	4.12	4.63	5.22	5.98	7.14	8.20
Jul	.97	1.35	1.94	2.47	2.99	3.54	4.16	4.90	5.86	7.39	8.83
Aug	1.15	1.51	2.04	2.49	2.94	3.39	3.89	4.48	5.25	6.43	7.54
Sep	.54	.81	1.25	1.66	2.08	2.53	3.05	3.68	4.51	5.86	7.14
Oct	1.12	1.35	1.68	1.94	2.19	2.44	2.71	3.02	3.41	4.01	4.54
Nov	.78	1.08	1.55	1.97	2.38	2.82	3.31	3.89	4.65	5.85	6.99
Dec	.84	1.11	1.50	1.83	2.16	2.50	2.87	3.31	3.88	4.76	5.58
Ann	29.61	31.37	33.60	35.27	36.74	38.15	39.60	41.19	43.10	45.85	48.20

\+ 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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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	9.0	7.8	2	2	13.0	1982	31	31.1	1978	24	1996	12	9	1996	6.0	2.9	1.3	.4	@	14.7	8.2	4.2	.7
Feb	6.9	6.8	3	1	13.0	1982	3	17.9	1979	25	1982	10	19	1978	4.6	2.0	.8	.3	@	11.3	7.6	5.3	2.5
Mar	4.4	3.8	1	#	9.0	1973	17	12.0	1984	13	1978	8	5	1978	3.0	1.3	.5	.2	.0	4.1	2.2	1.1	.3
Apr	1.1	.0	#	0	6.5	1973	12	9.2	1982	5	1982	8	1	1982	.6	.3	.1	.1	.0	.3	.1	@	.0
May	.0	.0	#	0	.0	0	0	.0	0	#	1977	19	#	1977	.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	.4	.0	#	0	5.5	1989	19	5.5	1989	2	1974	19	#+	1989	.2	.1	@	@	.0	.1	.0	.0	.0
Nov	2.0	1.1	#	#	7.3	1996	9	9.6	1996	3	1997	16	1	1997	1.9	.7	.2	@	.0	1.4	.2	.0	.0
Dec	6.9	4.6	1	#	9.0	1973	19	27.2	1973	17	1977	11	7	2000	4.5	1.9	.7	.3	.0	7.4	2.8	1.5	.4
Ann	30.7	24.1	N/A	N/A	13.0+	Feb 1982	3	31.1	Jan 1978	25	Feb 1982	10	19	Feb 1978	20.8	9.2	3.6	1.3	@	39.3	21.1	12.1	3.9

+ 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

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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	5/17	5/13	5/09	5/07	5/04	5/01	4/29	4/26	4/21
32	5/08	5/03	4/29	4/26	4/23	4/20	4/17	4/14	4/08
28	4/25	4/21	4/18	4/15	4/13	4/10	4/08	4/05	3/31
24	4/15	4/11	4/07	4/05	4/02	3/31	3/28	3/25	3/20
20	4/05	3/31	3/28	3/25	3/22	3/20	3/17	3/14	3/09
16	3/31	3/25	3/20	3/16	3/12	3/08	3/04	2/27	2/21

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	9/22	9/27	9/30	10/03	10/06	10/09	10/12	10/15	10/20
32	9/30	10/06	10/11	10/15	10/18	10/21	10/25	10/30	11/05
28	10/13	10/19	10/23	10/26	10/29	11/01	11/05	11/09	11/14
24	10/23	10/29	11/03	11/07	11/10	11/14	11/18	11/22	11/29
20	11/04	11/11	11/15	11/20	11/23	11/27	12/01	12/06	12/13
16	11/16	11/23	11/27	12/01	12/05	12/09	12/13	12/18	12/25

Freeze Free Period

Temp (F)	Probability of longer than indicated freeze free period (Days)								
	.10	.20	.30	.40	.50	.60	.70	.80	.90
36	173	167	162	158	154	151	146	142	135
32	202	193	187	182	177	172	167	161	153
28	223	215	209	203	199	194	189	182	174
24	246	237	231	226	221	216	211	205	197
20	270	262	256	250	245	240	235	229	220
16	292	284	278	273	268	263	258	252	243

***** 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	1245	1012	801	454	199	24	2	13	80	369	698	1077	5974
60	1090	872	646	314	114	6	0	1	27	241	549	922	4782
57	997	788	559	238	76	2	0	0	12	177	462	829	4140
55	935	735	501	192	55	1	0	0	6	141	407	770	3743
50	788	605	362	99	21	0	0	0	1	70	277	626	2849
32	317	216	59	0	0	0	0	0	0	0	26	209	827

Cooling Degree Days (1)

Base Above	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Ann
32	95	128	281	539	901	1147	1303	1238	994	667	318	156	7767
55	0	2	10	40	243	458	590	525	310	94	10	4	2286
57	0	0	7	26	201	399	528	463	256	69	4	0	1953
60	0	0	0	12	147	313	435	372	181	40	1	0	1501
65	0	0	0	3	76	182	282	229	84	12	0	0	868
70	0	0	0	0	32	82	146	115	27	2	0	0	404

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	17	37	133	331	670	925	1074	1010	773	436	155	37	17	54	187	518	1188	2113	3187	4197	4970	5406	5561	5598
45	5	13	75	213	515	775	919	855	623	296	87	16	5	18	93	306	821	1596	2515	3370	3993	4289	4376	4392
50	1	5	39	121	368	625	764	700	474	183	45	5	1	6	45	166	534	1159	1923	2623	3097	3280	3325	3330
55	0	0	17	61	240	475	609	545	330	98	17	0	0	0	17	78	318	793	1402	1947	2277	2375	2392	2392
60	0	0	4	27	134	331	454	390	205	44	3	0	0	0	4	31	165	496	950	1340	1545	1589	1592	1592
Base	**Growing Degree Units for Corn (Monthly)**												**Growing Degree Units for Corn (Accumulated Monthly)**											
50/86	3	17	86	200	411	615	742	685	489	250	86	15	3	20	106	306	717	1332	2074	2759	3248	3498	3584	3599

(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