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: RENSSELAER, IN **COOP ID: 127298**

Climate Division: IN 1 **NWS Call Sign:** **Elevation: 650 Feet** **Lat: 40˚56N** **Lon: 87˚09W**

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	30.4	14.4	22.4	64+	1974	27	34.4	1990	-25+	1985	20	7.8	1977	1322	0	.0	.0	1.7	17.1	28.9	6.0
Feb	35.7	18.5	27.1	78	1976	28	38.7	1998	-22	1982	10	11.9	1978	1062	0	.0	.0	3.8	11.1	24.5	3.6
Mar	47.4	29.2	38.3	83	1986	30	45.6	1973	-5	1978	5	29.3	1984	829	0	.0	.0	12.4	3.4	19.8	.1
Apr	60.0	39.0	49.5	90	1986	26	55.0	1985	2	1982	7	44.1	1982	469	3	.0	@	24.1	.1	7.1	.0
May	72.3	50.1	61.2	94+	1972	26	70.0	1977	28	1974	7	55.4	1997	200	83	.0	1.2	30.7	.0	.5	.0
Jun	81.4	59.6	70.5	103	1988	26	74.6	1991	37	1972	11	65.7	1972	22	187	.1	4.7	30.0	.0	.0	.0
Jul	84.5	63.5	74.0	101+	1983	23	77.7	1999	42	1971	31	70.2	1971	2	280	.2	7.0	31.0	.0	.0	.0
Aug	82.5	61.1	71.8	104	1988	18	79.4	1995	41	1986	29	67.7	1992	21	230	.2	3.8	31.0	.0	.0	.0
Sep	76.2	52.7	64.5	96	1998	7	69.6	1998	30+	1974	23	59.9	1974	91	74	.0	1.6	30.0	.0	.2	.0
Oct	63.5	40.8	52.2	90	1971	1	58.8	1971	21	1976	22	46.4	1987	405	7	.0	@	28.4	.0	5.6	.0
Nov	48.6	31.8	40.2	77	1974	1	45.9+	1999	2	1977	26	31.4	1976	743	0	.0	.0	13.7	2.2	16.6	.0
Dec	35.6	20.8	28.2	67+	1984	29	37.5	1994	-23	1989	22	15.1	1989	1142	0	.0	.0	3.8	10.5	26.7	2.3
Ann	59.8	40.1	50.0	104	Aug 1988	18	79.4	Aug 1995	-25+	Jan 1985	20	7.8	Jan 1977	6308	864	.5	18.3	240.6	44.4	129.9	12.0

\+ 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: 1970-2001

(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	1.98	1.61	2.00	1985	1	4.86	1999	.17	1986
Feb	1.67	1.60	1.88	2001	25	5.90	1990	.00	1987
Mar	3.11	3.21	2.60	1998	8	6.69	1998	.64	1981
Apr	3.52	3.10	1.89	1994	12	6.48	1995	1.23	1977
May	4.24	3.65	4.75	1987	19	8.75	1986	.95	1992
Jun	4.34	4.24	3.45	1975	15	10.40	1975	.32	1991
Jul	3.84	3.47	4.80	1994	7	8.55	1996	.71	1974
Aug	3.45	3.05	3.59	1977	10	7.12	1985	.68	1984
Sep	3.25	2.55	3.70	1989	1	9.90	1993	.00	1979
Oct	3.01	2.68	3.57	1993	17	8.07	1991	.76	1971
Nov	3.22	2.66	3.50	1982	2	8.03	1985	.66	1999
Dec	2.74	2.53	1.90	1990	29	6.64	1990	.58	1995
Ann	38.37	37.68	4.80	Jul 1994	7	10.40	Jun 1975	.00+	Feb 1987

Mean Number of Days (3)

Daily Precipitation

Month	>= 0.01	>= 0.10	>= 0.50	>= 1.00
Jan	9.9	5.0	1.0	.2
Feb	7.8	4.4	.9	.2
Mar	10.3	6.9	2.1	.4
Apr	11.3	7.5	2.3	.7
May	10.5	7.6	2.8	.9
Jun	10.0	7.3	3.4	1.1
Jul	9.1	6.4	2.5	1.0
Aug	9.0	6.2	1.9	1.0
Sep	8.6	6.2	1.9	.8
Oct	9.1	5.7	1.9	.8
Nov	10.5	6.2	2.0	.7
Dec	11.1	6.4	1.7	.4
Ann	117.2	75.8	24.4	8.2

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	.41	.59	.88	1.14	1.41	1.69	2.02	2.40	2.91	3.73	4.50
Feb	.17	.37	.65	.89	1.14	1.40	1.70	2.07	2.55	3.33	4.08
Mar	.91	1.20	1.65	2.03	2.40	2.79	3.22	3.73	4.39	5.41	6.37
Apr	1.30	1.63	2.11	2.50	2.88	3.26	3.68	4.17	4.78	5.74	6.61
May	1.27	1.67	2.27	2.79	3.30	3.82	4.40	5.08	5.96	7.34	8.61
Jun	1.01	1.42	2.05	2.62	3.19	3.79	4.46	5.26	6.32	7.99	9.57
Jul	.86	1.22	1.78	2.29	2.79	3.33	3.93	4.66	5.61	7.12	8.54
Aug	1.02	1.35	1.84	2.26	2.68	3.11	3.58	4.14	4.86	5.99	7.03
Sep	.45	.87	1.43	1.88	2.34	2.82	3.36	4.00	4.84	6.18	7.43
Oct	.79	1.07	1.51	1.89	2.27	2.67	3.11	3.64	4.32	5.40	6.41
Nov	.89	1.19	1.66	2.06	2.46	2.88	3.34	3.88	4.59	5.71	6.74
Dec	.84	1.10	1.49	1.82	2.15	2.48	2.85	3.28	3.84	4.71	5.52
Ann	29.24	31.06	33.35	35.08	36.60	38.06	39.56	41.21	43.19	46.05	48.50

+ 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: 1970-2001
(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	6.7	4.6	2	#	8.0	1999	2	19.8	1987	25	1999	11	15	1999	4.9	2.9	1.1	.6	.0	-9.9	-9.9	-9.9	-9.9
Feb	5.9	5.6	1	#	6.5	1988	11	10.6	1986	8+	1994	28	3	1994	3.0	2.0	.5	.3	.0	-9.9	-9.9	-9.9	-9.9
Mar	3.0	.5	#	0	8.0	1991	14	14.0	1991	14	1991	14	2	1999	1.5	.8	.3	.2	.0	3.0	1.3	.8	.1
Apr	.5	.0	#	0	5.0	1997	11	5.0	1997	5	1997	11	#+	1997	.2	.1	.1	.1	.0	.1	.1	.1	.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	0	2.0	1989	20	2.5	1989	0	0	0	0	0	.1	.1	.0	.0	.0	.0	.0	.0	.0
Nov	.4	.0	#	0	3.0	1996	26	3.5	1996	3	1996	28	#+	2000	.7	.2	.1	.0	.0	.8	.2	.0	.0
Dec	3.9	4.5	1	#	5.5	1990	23	10.4	1989	19	2000	31	10	2000	3.9	1.9	.5	.2	.0	-9.9	-9.9	-9.9	-9.9
Ann	20.5	15.2	N/A	N/A	8.0+	Jan 1999	2	19.8	Jan 1987	25	Jan 1999	11	15	Jan 1999	14.3	8.0	2.6	1.4	.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

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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	5/21	5/16	5/12	5/09	5/06	5/03	4/30	4/26	4/21
32	5/11	5/05	5/01	4/28	4/25	4/21	4/18	4/14	4/08
28	4/25	4/20	4/17	4/14	4/12	4/09	4/07	4/04	3/30
24	4/15	4/11	4/07	4/04	4/02	3/30	3/27	3/23	3/19
20	4/09	4/03	3/30	3/26	3/23	3/20	3/16	3/12	3/07
16	3/30	3/24	3/19	3/15	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	9/26	9/28	9/30	10/02	10/04	10/06	10/09	10/12
32	9/28	10/02	10/06	10/09	10/12	10/14	10/17	10/21	10/26
28	10/11	10/16	10/21	10/24	10/27	10/31	11/03	11/07	11/13
24	10/21	10/27	10/31	11/03	11/07	11/10	11/13	11/17	11/23
20	11/04	11/10	11/14	11/18	11/21	11/25	11/28	12/03	12/09
16	11/09	11/16	11/20	11/24	11/28	12/02	12/06	12/11	12/18

Freeze Free Period

Temp (F)	Probability of longer than indicated freeze free period (Days)								
	.10	.20	.30	.40	.50	.60	.70	.80	.90
36	165	159	155	152	149	146	142	138	133
32	193	185	179	174	169	165	160	154	146
28	219	212	206	202	198	194	189	184	177
24	240	233	227	223	218	214	209	204	197
20	266	258	252	247	242	238	233	227	219
16	288	279	272	266	261	256	250	243	234

***** 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	1322	1062	829	469	200	22	2	21	91	405	743	1142	6308
60	1167	922	674	328	117	5	0	4	33	270	594	987	5101
57	1074	838	583	252	78	2	0	0	14	201	505	894	4441
55	1012	782	527	205	58	1	0	0	7	160	448	834	4034
50	858	653	386	110	23	0	0	0	1	82	315	690	3118
32	373	250	67	1	0	0	0	0	0	0	36	256	983

Cooling Degree Days (1)

Base Above	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Ann
32	75	113	262	525	906	1155	1301	1233	973	625	283	137	7588
55	0	1	8	40	250	465	588	520	290	72	5	2	2241
57	0	0	2	26	209	406	526	458	237	50	2	0	1916
60	0	0	0	12	154	320	433	369	165	27	0	0	1480
65	0	0	0	3	83	187	280	230	74	7	0	0	864
70	0	0	0	0	36	84	144	123	23	1	0	0	411

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	7	23	112	316	665	921	1060	992	741	394	129	25	7	30	142	458	1123	2044	3104	4096	4837	5231	5360	5385
45	1	6	62	199	512	771	905	837	591	260	67	11	1	7	69	268	780	1551	2456	3293	3884	4144	4211	4222
50	0	2	32	114	366	621	750	682	444	154	33	2	0	2	34	148	514	1135	1885	2567	3011	3165	3198	3200
55	0	0	9	61	234	473	595	527	304	78	13	0	0	0	9	70	304	777	1372	1899	2203	2281	2294	2294
60	0	0	2	24	134	329	440	373	187	35	2	0	0	0	2	26	160	489	929	1302	1489	1524	1526	1526
Base	**Growing Degree Units for Corn (Monthly)**												**Growing Degree Units for Corn (Accumulated Monthly)**											
50/86	0	12	70	184	405	609	726	665	470	236	68	10	0	12	82	266	671	1280	2006	2671	3141	3377	3445	3455

(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