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: NEW CASTLE 4 N, IN **COOP ID: 126164**

Climate Division: IN 6 **NWS Call Sign:** **Elevation: 1,065 Feet** **Lat: 39˚59N** **Lon: 85˚22W**

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	32.8	15.9	24.4	72	1950	25	34.2	1990	-26+	1994	19	8.8	1977	1261	0	.0	.0	2.6	14.9	28.4	4.7
Feb	37.4	18.8	28.1	71+	1954	16	37.5	1998	-19+	1951	2	12.1	1978	1034	0	.0	.0	5.2	10.1	24.4	3.2
Mar	48.5	28.3	38.4	82	1986	31	46.0	1973	-9+	1960	7	29.4	1984	825	0	.0	.0	13.7	3.1	21.1	.4
Apr	60.3	37.1	48.7	89	1960	25	54.8	1985	12	1957	9	44.2	1997	490	1	.0	.0	24.1	.1	9.5	.0
May	71.4	47.6	59.5	93	1962	18	66.7	1977	25	1966	10	54.1	1997	226	56	.0	.3	30.6	.0	1.0	.0
Jun	80.4	57.2	68.8	103	1988	26	72.9	1984	38+	1956	2	63.4	1992	35	148	.1	2.7	30.0	.0	.0	.0
Jul	83.9	61.0	72.5	101+	1952	22	76.5	1977	45+	1967	15	68.5	2000	6	237	.1	5.2	31.0	.0	.0	.0
Aug	82.2	59.2	70.7	100+	1951	31	76.2	1988	38+	1964	14	65.5	1992	24	199	.1	2.8	31.0	.0	.0	.0
Sep	76.0	51.7	63.9	101	1953	2	67.8	1998	27+	1959	18	59.2	1974	103	68	.0	1.1	30.0	.0	.2	.0
Oct	64.0	40.6	52.3	91	1951	4	60.4	1971	18+	1960	25	45.7	1988	403	8	.0	.0	28.2	.0	6.4	.0
Nov	50.0	32.0	41.0	82	1950	1	46.1	1999	-10	1958	30	33.1	1996	719	0	.0	.0	14.8	1.5	16.8	.0
Dec	37.9	21.9	29.9	72	1982	3	39.3	1982	-21+	1989	22	16.4	1989	1089	0	.0	.0	5.2	9.3	25.8	1.9
Ann	60.4	39.3	49.9	103	Jun 1988	26	76.5	Jul 1977	-26+	Jan 1994	19	8.8	Jan 1977	6215	717	.3	12.1	246.4	39.0	133.6	10.2

\+ 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: 1949-2001

(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	2.24	2.03	2.52	1959	21	4.88	1975	.29	1981
Feb	2.25	2.14	2.58	1956	25	4.78	1971	.29	1987
Mar	2.95	2.44	2.20	1963	20	5.54	1991	.91	1979
Apr	3.94	4.10	2.58+	1957	4	7.72	1975	.96	1976
May	4.70	4.64	3.18	1991	30	8.64	1990	1.21	1988
Jun	4.62	4.30	3.91	1992	18	10.07	1973	.67	1988
Jul	4.69	3.91	4.15	1992	24	13.63	1992	1.03	1974
Aug	3.60	2.97	3.81	1979	2	9.88	1979	.99	1996
Sep	2.86	2.31	3.45	1971	7	7.94	1971	.44	1987
Oct	2.94	2.80	3.37	1977	1	8.80	1986	.85	1994
Nov	3.66	3.14	2.52	1955	16	8.39	1985	.29	1976
Dec	2.78	2.52	2.30	1967	3	7.53	1990	.64	1976
Ann	41.23	41.04	4.15	Jul 1992	24	13.63	Jul 1992	.29+	Feb 1987

Mean Number of Days (3)

Daily Precipitation

Month	>= 0.01	>= 0.10	>= 0.50	>= 1.00
Jan	12.1	5.7	1.1	.3
Feb	10.4	5.0	1.6	.4
Mar	11.9	6.9	2.0	.4
Apr	13.3	8.3	2.3	.9
May	12.3	8.2	3.2	1.1
Jun	10.6	7.8	3.1	1.3
Jul	9.6	6.5	3.4	1.5
Aug	9.0	6.1	2.5	.9
Sep	8.4	5.5	1.9	.7
Oct	9.5	5.6	1.9	.7
Nov	12.0	7.2	2.5	.7
Dec	11.7	6.5	1.9	.3
Ann	130.8	79.3	27.4	9.2

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	.65	.87	1.19	1.46	1.73	2.01	2.32	2.69	3.16	3.90	4.58
Feb	.57	.79	1.11	1.40	1.69	1.99	2.32	2.72	3.23	4.05	4.82
Mar	1.00	1.28	1.69	2.03	2.37	2.71	3.08	3.52	4.08	4.95	5.74
Apr	1.41	1.78	2.32	2.77	3.20	3.64	4.11	4.67	5.38	6.48	7.48
May	1.76	2.20	2.83	3.36	3.86	4.37	4.92	5.56	6.38	7.64	8.79
Jun	1.66	2.09	2.72	3.25	3.75	4.27	4.83	5.48	6.31	7.60	8.78
Jul	1.45	1.90	2.56	3.13	3.68	4.25	4.88	5.62	6.57	8.05	9.42
Aug	.92	1.26	1.78	2.24	2.70	3.18	3.71	4.35	5.18	6.49	7.72
Sep	.48	.73	1.15	1.54	1.94	2.38	2.89	3.50	4.31	5.63	6.89
Oct	.82	1.10	1.52	1.89	2.25	2.63	3.04	3.54	4.18	5.18	6.12
Nov	.84	1.18	1.72	2.20	2.68	3.18	3.76	4.44	5.33	6.75	8.09
Dec	.97	1.24	1.62	1.94	2.25	2.56	2.91	3.31	3.82	4.61	5.34
Ann	30.57	32.67	35.34	37.35	39.13	40.84	42.60	44.54	46.89	50.27	53.19

+ 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: 1949-2001
(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	4.4	3.0	2	#	8.0	1996	3	13.5	2000	19	1996	12	9	1996	3.5	2.3	.5	.2	.0	-9.9	-9.9	-9.9	-9.9
Feb	4.8	2.9	1	#	7.0	1993	26	18.9	1993	13	1993	27	4	1993	2.7	1.4	.3	.2	.0	5.8	2.6	2.0	.2
Mar	2.5	1.2	#	0	8.0	1996	20	9.8	1975	8+	1996	20	1	1999	1.2	.7	.3	.1	.0	2.0	.8	.3	.0
Apr	.3	.0	#	0	3.0	1974	9	3.0	1974	3	1974	9	#+	1994	.3	.2	.1	.0	.0	.1	.1	.0	.0
May	#	.0	#	0	#	1989	7	#	1989	#	1989	1	#	1989	.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	1.0	1993	31	1.0	1993	2	1993	31	#	1993	@	@	.0	.0	.0	.0	.0	.0	.0
Nov	1.0	.0	#	0	4.0	1997	14	8.0	1997	4	1997	17	1	1997	.6	.4	.1	.0	.0	.7	.3	.0	.0
Dec	3.8	2.2	1	#	8.0	1995	20	18.9	1973	10	1973	21	3+	2000	2.4	1.0	.4	.3	.0	3.0	1.9	1.4	.1
Ann	16.8	9.3	N/A	N/A	8.0+	Mar 1996	20	18.9+	Feb 1993	19	Jan 1996	12	9	Jan 1996	10.7	6.0	1.7	.8	.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	5/18	5/14	5/10	5/08	5/05	5/03	4/30	4/27	4/22
32	5/10	5/05	5/02	4/29	4/26	4/23	4/20	4/16	4/11
28	4/27	4/22	4/19	4/16	4/14	4/11	4/08	4/05	3/31
24	4/18	4/14	4/10	4/07	4/05	4/02	3/30	3/27	3/22
20	4/10	4/04	3/31	3/27	3/24	3/21	3/17	3/13	3/07
16	4/03	3/27	3/22	3/18	3/14	3/10	3/06	3/01	2/22

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	10/12
32	9/27	10/02	10/06	10/09	10/12	10/15	10/18	10/22	10/27
28	10/10	10/15	10/19	10/22	10/25	10/27	10/31	11/03	11/08
24	10/21	10/26	10/30	11/02	11/05	11/08	11/12	11/16	11/21
20	10/31	11/06	11/11	11/15	11/19	11/23	11/27	12/02	12/09
16	11/11	11/18	11/23	11/28	12/02	12/05	12/10	12/15	12/22

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	160	156	153	150	147	143	140	134
32	187	181	176	172	168	165	161	156	150
28	214	207	202	197	193	189	185	180	173
24	234	227	222	218	214	210	206	201	195
20	263	255	249	244	240	235	230	224	216
16	292	282	274	268	262	256	250	242	232

***** 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)

Base	Heating Degree Days (1)												
Below	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Ann
65	1261	1034	825	490	226	35	6	24	103	403	719	1089	6215
60	1106	894	670	345	133	9	0	5	39	269	569	934	4973
57	1013	810	581	265	90	3	0	0	19	200	481	841	4303
55	951	754	524	215	66	2	0	0	10	160	427	785	3894
50	797	623	383	113	26	0	0	0	2	82	293	641	2960
32	318	225	67	1	0	0	0	0	0	0	30	225	866

Base	Cooling Degree Days (1)												
Above	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Ann
32	80	115	265	502	853	1103	1254	1198	956	629	301	159	7415
55	0	1	9	27	206	414	541	485	275	76	8	6	2048
57	0	0	4	16	168	356	479	424	224	54	2	0	1727
60	0	0	0	6	118	271	386	335	155	29	0	0	1300
65	0	0	0	1	56	148	237	199	68	8	0	0	717
70	0	0	0	0	21	60	112	99	20	1	0	0	313

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	13	33	129	303	627	883	1027	970	733	406	148	36	13	46	175	478	1105	1988	3015	3985	4718	5124	5272	5308
45	5	8	69	193	475	733	872	815	583	270	82	14	5	13	82	275	750	1483	2355	3170	3753	4023	4105	4119
50	0	3	37	110	330	585	717	660	435	162	42	4	0	3	40	150	480	1065	1782	2442	2877	3039	3081	3085
55	0	0	17	56	207	437	562	505	293	84	16	0	0	0	17	73	280	717	1279	1784	2077	2161	2177	2177
60	0	0	4	21	112	293	407	350	182	40	4	0	0	0	4	25	137	430	837	1187	1369	1409	1413	1413
Base	Growing Degree Units for Corn (Monthly)												Growing Degree Units for Corn (Accumulated Monthly)											
50/86	4	20	83	190	383	577	693	649	467	246	85	17	4	24	107	297	680	1257	1950	2599	3066	3312	3397	3414

(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