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: DELPHI 3 S, IN **COOP ID: 122149**

Climate Division: IN 2 **NWS Call Sign:** **Elevation: 671 Feet** **Lat: 40˚33N** **Lon: 86˚41W**

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	33.2	17.1	25.2	71+	1950	25	37.1	1990	-25	1963	28	10.0	1977	1236	0	.0	.0	2.7	14.0	27.6	4.3
Feb	38.6	21.1	29.9	73+	1999	11	40.1	1998	-24	1963	26	14.0	1978	984	0	.0	.0	5.4	9.1	23.1	2.9
Mar	50.9	31.0	41.0	84	1981	31	48.2	1973	-4+	1960	1	31.4	1984	745	0	.0	.0	15.7	1.9	17.8	@
Apr	63.5	39.7	51.6	89+	1960	24	57.3	1977	10	1982	7	46.3	1982	406	4	.0	.0	26.6	@	7.2	.0
May	74.4	50.5	62.5	96	1988	31	69.5	1991	25	1966	10	57.3	1997	166	87	.0	1.1	31.0	.0	.6	.0
Jun	82.8	60.0	71.4	105	1988	25	75.3	1984	36	1992	22	66.2	1982	16	208	.1	5.2	30.0	.0	.0	.0
Jul	85.7	63.4	74.6	107	1954	14	78.3	1999	42	1972	6	70.8	1971	2	298	.4	8.1	31.0	.0	.0	.0
Aug	83.5	61.0	72.3	100+	1964	3	79.0	1995	36	1965	29	68.4	1992	14	239	.1	4.0	31.0	.0	.0	.0
Sep	77.8	53.2	65.5	103+	1953	2	70.9	1998	27	1995	23	60.8	1975	71	87	.0	1.8	30.0	.0	.2	.0
Oct	65.7	42.1	53.9	92+	1953	2	59.8	1971	18+	1952	21	47.8	1987	355	11	.0	.0	29.4	.0	4.9	.0
Nov	51.1	33.3	42.2	83	1950	1	48.3	1999	-5	1950	25	34.3	1976	684	0	.0	.0	15.8	1.1	14.9	.0
Dec	38.1	22.8	30.5	71+	1982	2	39.4	1982	-21	1989	22	17.9	1989	1071	0	.0	.0	4.9	8.1	25.0	1.7
Ann	62.1	41.3	51.7	107	Jul 1954	14	79.0	Aug 1995	-25	Jan 1963	28	10.0	Jan 1977	5750	934	.6	20.2	253.5	34.2	121.3	8.9

\+ 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: 1948-2001

(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	1.99	1.62	2.80	1959	21	5.22	1982	.09	1986
Feb	1.94	1.69	2.42	1990	22	6.34	1990	.15	1995
Mar	2.94	2.63	2.03	1998	9	7.57	1998	.37	1981
Apr	3.45	3.08	4.01	1959	27	9.02	1994	1.09	1971
May	3.90	3.91	6.96	1968	16	7.56	1981	.73	1988
Jun	4.07	4.16	3.31	1969	14	7.65	1994	.20	1988
Jul	4.16	4.09	3.72	1963	20	8.72	1994	.56	1983
Aug	3.98	3.67	3.78	1977	10	11.35	1977	.53	1996
Sep	2.94	2.31	4.78	1989	1	8.66	1972	.03	1979
Oct	2.70	2.40	2.74	1949	6	6.89	1991	1.13	1994
Nov	3.10	3.07	2.52	1966	27	7.57	1985	.82	1980
Dec	2.68	2.37	2.48	1966	7	5.86	1990	.45	1976
Ann	37.85	37.84	6.96	May 1968	16	11.35	Aug 1977	.03	Sep 1979

Mean Number of Days (3)

Daily Precipitation

Month	>= 0.01	>= 0.10	>= 0.50	>= 1.00
Jan	10.4	5.2	1.0	.3
Feb	8.5	4.6	1.1	.4
Mar	10.1	6.4	1.8	.5
Apr	11.8	7.7	2.2	.4
May	11.8	7.6	2.7	.9
Jun	10.3	6.5	2.7	.8
Jul	9.3	6.4	2.8	1.4
Aug	9.5	6.1	2.7	1.1
Sep	7.9	5.0	2.0	.6
Oct	9.2	5.8	1.8	.5
Nov	10.5	6.4	2.1	.6
Dec	10.5	6.1	1.7	.4
Ann	119.8	73.8	24.6	7.9

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	.36	.54	.83	1.10	1.38	1.68	2.01	2.42	2.97	3.85	4.68
Feb	.30	.47	.75	1.02	1.30	1.60	1.95	2.37	2.94	3.86	4.75
Mar	.88	1.16	1.58	1.94	2.29	2.65	3.05	3.52	4.13	5.08	5.96
Apr	1.14	1.47	1.95	2.35	2.75	3.15	3.59	4.11	4.78	5.81	6.76
May	1.38	1.75	2.28	2.73	3.16	3.59	4.07	4.63	5.34	6.44	7.45
Jun	.94	1.32	1.92	2.45	2.99	3.55	4.18	4.94	5.93	7.51	8.99
Jul	1.10	1.49	2.09	2.62	3.14	3.69	4.30	5.02	5.96	7.44	8.82
Aug	.97	1.34	1.92	2.44	2.95	3.49	4.10	4.82	5.76	7.26	8.66
Sep	.42	.66	1.08	1.49	1.92	2.39	2.93	3.59	4.48	5.94	7.34
Oct	1.05	1.30	1.65	1.95	2.23	2.51	2.82	3.18	3.63	4.33	4.96
Nov	1.00	1.29	1.73	2.10	2.45	2.82	3.23	3.70	4.31	5.26	6.13
Dec	.77	1.02	1.41	1.74	2.07	2.40	2.78	3.22	3.80	4.70	5.53
Ann	28.56	30.40	32.73	34.48	36.03	37.52	39.05	40.73	42.75	45.67	48.18

\+ 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

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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	5.7	4.3	2	1	10.0	1982	31	17.2	1978	18	1999	11	8	1999	5.4	2.1	.5	.1	.0	11.6	6.4	2.6	.3
Feb	4.7	4.4	2	1	4.6	1993	16	12.9	1980	12	1978	5	10	1978	4.0	1.8	.3	.0	.0	9.6	5.2	3.2	.8
Mar	2.5	2.0	#	#	8.0	1999	9	8.7	1999	8+	1999	9	5	1978	1.7	.8	.2	.1	.0	2.5	1.2	.5	.0
Apr	.7	.0	#	0	4.5	1982	9	10.7	1982	4	1982	5	1	1982	.6	.2	.1	.0	.0	.2	.1	.0	.0
May	#	.0	0	0	#	1989	6	#	1989	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	.2	.0	#	0	6.0	1989	19	7.0	1989	4	1989	19	#	1989	.1	.1	@	@	.0	.1	@	.0	.0
Nov	.9	.2	#	#	4.5	1980	27	5.0	1980	3	1975	27	#+	1997	1.0	.3	.1	.0	.0	.6	@	.0	.0
Dec	5.7	3.2	1	#	12.0	1973	19	22.6	1973	16	1973	20	4+	2000	3.9	2.0	.5	.2	@	7.0	3.1	1.7	.3
Ann	20.4	14.1	N/A	N/A	12.0	Dec 1973	19	22.6	Dec 1973	18	Jan 1999	11	10	Feb 1978	16.7	7.3	1.7	.4	@	31.6	16.0	8.0	1.4

+ Also occurred on an earlier date(s) #Denotes trace amounts

(1) Derived from Snow Climatology and 1971-2000 daily data

@ Denotes mean number of days greater than 0 but less than .05

(2) Derived from 1971-2000 daily data

-9/-9.9 represents missing values

Annual statistics for Mean/Median snow depths are not appropriate

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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	5/25	5/19	5/15	5/11	5/08	5/04	5/01	4/26	4/21
32	5/11	5/07	5/03	4/30	4/27	4/25	4/22	4/18	4/13
28	4/28	4/23	4/20	4/17	4/14	4/11	4/08	4/05	3/31
24	4/17	4/12	4/08	4/05	4/02	3/30	3/27	3/24	3/19
20	4/06	3/31	3/28	3/25	3/22	3/19	3/16	3/12	3/07
16	3/30	3/23	3/18	3/14	3/10	3/06	3/02	2/25	2/18

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	9/19	9/23	9/26	9/28	9/30	10/02	10/05	10/08	10/12
32	9/26	9/30	10/03	10/05	10/08	10/10	10/13	10/16	10/20
28	10/05	10/10	10/15	10/18	10/22	10/25	10/28	11/02	11/07
24	10/20	10/26	10/31	11/04	11/07	11/11	11/14	11/19	11/25
20	10/31	11/06	11/11	11/15	11/19	11/23	11/27	12/02	12/09
16	11/13	11/20	11/25	11/30	12/04	12/08	12/12	12/17	12/24

Freeze Free Period

Temp (F)	Probability of longer than indicated freeze free period (Days)								
	.10	.20	.30	.40	.50	.60	.70	.80	.90
36	166	159	154	149	145	140	136	131	123
32	181	175	170	166	163	159	155	150	144
28	213	205	199	194	190	185	180	175	167
24	241	233	228	223	218	213	209	203	195
20	264	256	251	246	242	237	233	227	219
16	296	286	280	274	268	263	257	250	241

***** 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	1236	984	745	406	166	16	2	14	71	355	684	1071	5750
60	1081	844	591	270	89	3	0	1	22	228	535	916	4580
57	988	763	506	199	56	1	0	0	9	165	448	823	3958
55	926	711	449	157	39	0	0	0	4	128	394	768	3576
50	782	581	316	75	13	0	0	0	0	61	265	624	2717
32	319	208	45	0	0	0	0	0	0	0	23	214	809

Cooling Degree Days (1)

Base Above	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Ann
32	106	147	323	588	944	1182	1319	1248	1006	679	329	166	8037
55	0	7	13	55	269	492	606	535	320	94	10	7	2408
57	0	3	9	37	224	433	544	473	264	68	4	0	2059
60	0	0	1	18	165	345	451	382	188	39	1	0	1590
65	0	0	0	4	87	208	298	239	87	11	0	0	934
70	0	0	0	1	37	99	161	125	28	2	0	0	453

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	16	39	156	369	702	946	1077	1009	784	453	167	36	16	55	211	580	1282	2228	3305	4314	5098	5551	5718	5754
45	5	14	86	245	547	796	922	854	634	312	95	19	5	19	105	350	897	1693	2615	3469	4103	4415	4510	4529
50	1	3	48	143	395	646	767	699	484	190	48	5	1	4	52	195	590	1236	2003	2702	3186	3376	3424	3429
55	0	0	23	74	263	496	612	544	339	103	18	0	0	0	23	97	360	856	1468	2012	2351	2454	2472	2472
60	0	0	5	33	150	349	457	389	213	48	4	0	0	0	5	38	188	537	994	1383	1596	1644	1648	1648
Base	**Growing Degree Units for Corn (Monthly)**												**Growing Degree Units for Corn (Accumulated Monthly)**											
50/86	4	21	99	234	441	628	733	689	508	279	91	18	4	25	124	358	799	1427	2160	2849	3357	3636	3727	3745

(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