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: DUBOIS S IND FORAGE FRM, IN **COOP ID: 122309**

Climate Division: IN 7 **NWS Call Sign:** **Elevation: 690 Feet** **Lat: 38˚27N** **Lon: 86˚42W**

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	37.6	20.1	28.9	69	1967	24	39.7	1990	-25	1994	19	12.0	1977	1121	0	.0	.0	5.5	10.3	26.7	2.8
Feb	43.4	23.4	33.4	76+	1962	14	41.1	1990	-11+	1982	10	19.5	1978	886	0	.0	.0	9.3	6.4	21.5	1.5
Mar	53.8	32.9	43.4	82	1998	30	50.5	1973	-7	1960	6	35.9	1978	671	0	.0	.0	19.2	1.6	16.1	.1
Apr	64.6	43.0	53.8	88	1989	27	59.3	1981	17	1982	7	49.0	1997	343	5	.0	.0	27.0	.0	4.7	.0
May	73.9	52.4	63.2	92	1962	18	70.4	1991	27+	1966	10	58.5	1997	148	91	.0	.1	30.8	.0	.4	.0
Jun	82.2	61.4	71.8	101	1988	26	75.4	1984	37	1966	1	66.9	1974	11	214	@	3.3	30.0	.0	.0	.0
Jul	86.0	65.5	75.8	104	1966	15	79.1	1983	46+	1972	7	72.3	1971	0	334	.2	8.1	31.0	.0	.0	.0
Aug	84.9	63.5	74.2	100	1983	21	80.2	1983	42	1986	29	70.6	1976	5	291	@	6.8	31.0	.0	.0	.0
Sep	78.5	56.2	67.4	99	1999	5	71.5	1998	33+	1965	25	61.7	1974	59	129	.0	2.2	30.0	.0	.0	.0
Oct	67.4	44.1	55.8	89+	1963	21	62.7	1971	18	1981	24	49.0	1976	312	24	.0	.0	29.8	.0	3.9	.0
Nov	54.5	35.2	44.9	81+	1961	3	52.3	1999	2	1958	30	35.7	1976	605	0	.0	.0	19.0	.5	13.9	.0
Dec	42.8	25.0	33.9	75	1982	3	43.0	1982	-20	1989	22	21.3	1989	964	0	.0	.0	9.2	6.0	22.7	1.2
Ann	64.1	43.6	53.9	104	Jul 1966	15	80.2	Aug 1983	-25	Jan 1994	19	12.0	Jan 1977	5125	1088	.2	20.5	271.8	24.8	109.9	5.6

\+ 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: 1955-2001

(3) Derived from 1971-2000 serially complete daily data

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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	3.03	2.61	4.20	1982	23	9.57	1982	.49	1981
Feb	2.81	2.43	2.39	1988	2	6.76	2000	.50	1978
Mar	4.08	3.50	3.67	1964	9	8.30	1997	1.49	1994
Apr	4.65	4.19	5.66	1996	29	12.39	1996	1.32	1976
May	5.29	4.55	3.90	1997	31	13.22	1996	1.32	1987
Jun	4.68	4.62	5.38	1990	7	10.45	1979	.62	1988
Jul	4.38	3.74	3.91	1979	27	12.75	1979	1.13	1983
Aug	4.12	3.78	3.03	1973	13	8.38	1977	.82	1987
Sep	3.55	2.67	3.00	1996	16	9.41	1996	.99	1995
Oct	3.15	2.89	2.15	1983	5	8.45	1983	.31	2000
Nov	4.29	3.86	4.25	1985	16	9.12	1985	1.36	1999
Dec	3.50	3.42	3.18	2001	17	7.80	1990	.42	1976
Ann	47.53	48.50	5.66	Apr 1996	29	13.22	May 1996	.31	Oct 2000

Mean Number of Days (3)

Daily Precipitation

Month	>= 0.01	>= 0.10	>= 0.50	>= 1.00
Jan	10.0	5.8	2.1	.7
Feb	9.4	5.0	1.9	.6
Mar	11.5	7.4	3.1	.9
Apr	12.5	8.4	3.0	1.0
May	12.1	8.7	3.5	1.4
Jun	10.6	7.6	3.1	1.2
Jul	9.7	6.9	2.6	1.2
Aug	9.3	6.1	2.8	1.4
Sep	8.6	5.6	2.5	.9
Oct	9.0	5.4	2.2	.8
Nov	10.7	7.1	3.2	1.1
Dec	10.8	6.2	2.8	.7
Ann	124.2	80.2	32.8	11.9

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	.72	1.00	1.45	1.84	2.24	2.65	3.12	3.68	4.41	5.56	6.65
Feb	.68	.95	1.36	1.72	2.08	2.46	2.89	3.40	4.06	5.11	6.10
Mar	1.53	1.91	2.46	2.91	3.35	3.79	4.27	4.83	5.54	6.63	7.63
Apr	1.41	1.85	2.51	3.08	3.63	4.21	4.84	5.58	6.54	8.03	9.42
May	1.53	2.03	2.79	3.44	4.08	4.75	5.49	6.36	7.49	9.25	10.89
Jun	1.29	1.73	2.41	3.00	3.58	4.18	4.85	5.64	6.67	8.29	9.79
Jul	1.48	1.90	2.50	3.02	3.51	4.01	4.57	5.21	6.04	7.32	8.50
Aug	1.29	1.68	2.26	2.76	3.24	3.74	4.29	4.94	5.77	7.06	8.26
Sep	.83	1.17	1.68	2.15	2.61	3.10	3.65	4.30	5.16	6.52	7.80
Oct	.84	1.13	1.59	1.99	2.38	2.80	3.26	3.80	4.51	5.62	6.67
Nov	1.39	1.80	2.40	2.91	3.40	3.91	4.47	5.13	5.97	7.28	8.49
Dec	1.10	1.43	1.92	2.34	2.75	3.17	3.64	4.18	4.88	5.98	6.99
Ann	32.03	34.97	38.77	41.68	44.27	46.80	49.42	52.32	55.87	61.03	65.53

\+ 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: 1955-2001
(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	2.3	1.0	#	#	6.0	1996	3	13.0	1996	8	1996	12	3	1996	1.6	.9	.2	.1	.0	2.2	1.5	1.2	.0
Feb	3.0	.8	1	#	8.0	1993	16	15.0	1993	10	1998	7	5	1986	1.4	1.0	.3	.2	.0	2.1	1.3	1.1	.2
Mar	.8	.0	#	0	12.0	1996	20	12.0	1996	14	1996	21	2	1996	.5	.3	.1	.1	@	.4	.1	.1	.0
Apr	#	.0	0	0	#	1985	9	#+	1985	0	0	0	0	0	.0	.0	.0	.0	.0	.0	.0	.0	.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	.2	.0	#	0	2.5	1993	30	3.5	1993	#+	1993	31	#+	1993	.1	.1	.0	.0	.0	.0	.0	.0	.0
Nov	#	.0	#	0	#	1993	28	#+	1993	1	1992	15	#+	1997	.0	.0	.0	.0	.0	.0	.0	.0	.0
Dec	.6	.0	#	#	7.0	1990	28	7.0	1990	8	1990	28	2	2000	.8	.5	.1	.1	.0	2.0	.7	.1	.0
Ann	6.9	1.8	N/A	N/A	12.0	Mar 1996	20	15.0	Feb 1993	14	Mar 1996	21	5	Feb 1986	4.4	2.8	.7	.5	@	6.7	3.6	2.5	.2

+ 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	5/16	5/11	5/08	5/04	5/02	4/29	4/25	4/22	4/17
32	5/08	5/03	4/28	4/25	4/22	4/18	4/15	4/11	4/05
28	4/19	4/15	4/11	4/09	4/06	4/03	4/01	3/28	3/24
24	4/09	4/05	4/01	3/30	3/27	3/25	3/22	3/19	3/15
20	4/01	3/27	3/23	3/19	3/16	3/13	3/09	3/05	2/28
16	3/19	3/13	3/09	3/05	3/02	2/26	2/22	2/18	2/12

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	10/02	10/05	10/07	10/10	10/13	10/17
32	10/03	10/07	10/11	10/14	10/17	10/20	10/23	10/26	10/31
28	10/12	10/18	10/22	10/25	10/29	11/01	11/05	11/09	11/15
24	10/23	10/30	11/03	11/07	11/11	11/15	11/19	11/24	11/30
20	11/02	11/09	11/14	11/18	11/22	11/26	11/30	12/05	12/12
16	11/12	11/19	11/24	11/29	12/03	12/07	12/11	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	174	168	163	159	155	152	148	143	137
32	199	191	186	182	177	173	169	163	156
28	225	218	213	209	205	201	197	192	185
24	253	244	238	233	228	223	218	212	204
20	274	266	260	255	251	246	241	235	227
16	299	291	285	280	276	271	266	260	252

***** 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	1121	886	671	343	148	11	0	5	59	312	605	964	5125
60	966	746	524	212	75	2	0	0	19	197	460	809	4010
57	873	664	437	147	44	1	0	0	8	141	378	723	3416
55	819	614	382	110	29	0	0	0	4	110	325	665	3058
50	673	484	261	45	9	0	0	0	1	51	210	522	2256
32	250	139	29	0	0	0	0	0	0	0	13	151	582

Cooling Degree Days (1)

Base Above	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Ann
32	152	177	381	653	966	1193	1357	1309	1060	735	399	209	8591
55	9	8	21	73	282	503	644	596	375	132	20	11	2674
57	0	3	14	50	235	444	582	534	318	101	13	6	2300
60	0	0	8	25	173	355	489	441	239	64	5	0	1799
65	0	0	0	5	91	214	334	291	129	24	0	0	1088
70	0	0	0	1	38	98	186	159	54	7	0	0	543

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	41	72	207	432	726	964	1116	1069	827	498	221	70	41	113	320	752	1478	2442	3558	4627	5454	5952	6173	6243
45	16	35	123	301	571	814	961	914	677	357	135	36	16	51	174	475	1046	1860	2821	3735	4412	4769	4904	4940
50	4	13	70	194	421	664	806	759	527	233	77	17	4	17	87	281	702	1366	2172	2931	3458	3691	3768	3785
55	0	4	36	111	285	515	651	604	384	136	39	3	0	4	40	151	436	951	1602	2206	2590	2726	2765	2768
60	0	0	13	54	164	370	496	449	253	62	10	0	0	0	13	67	231	601	1097	1546	1799	1861	1871	1871
Base	**Growing Degree Units for Corn (Monthly)**												**Growing Degree Units for Corn (Accumulated Monthly)**											
50/86	24	49	130	256	458	653	775	729	538	312	127	39	24	73	203	459	917	1570	2345	3074	3612	3924	4051	4090

(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